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A Comparative Analysis of Sweden, Germany, and Norway

RESEARCH DEPARTMENT OF SOCIAL POLICY AND WELFARE

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Abstract:

Political values have been hypothesized as causal predictors of welfare state support, with subjective position on the left-right scale often used in empirical studies to measure the individual's core political values. Unfortunately, a major problem in existing research is that the causal effect of left-right position on welfare state support cannot be identified with cross-sectional data in which left-right position and welfare state support are observed simultaneously. In this paper I propose an alternative approach based on Instrumental Variable methods which, using socioeconomic background characteristics as instruments for left-right position, can be used to estimate the causal effect of left-right position on support for redistribution. I analyze data on Sweden, Germany, and Norway from the two first waves of the European Social Survey and find, first, that left-right position is endogenous to support for redistribution and, second, consistent with theory, that a causal effect of left-right position on support for redistribution exists which is stronger than previously shown.

The literature on welfare attitudes distinguishes two major explanations of why individuals support the welfare state: *self-interest* and *political values*. According to the self-interest perspective support for the welfare state is fundamentally grounded in the individual's *self-interests*. For example, individuals who depend directly on state transfers (e.g., pensioners, the unemployed, the sick) or who benefit indirectly from the welfare state (e.g., parents who receive child benefits or public-sector employees) are hypothesized be more in favor of the welfare state than individuals who are not in this position (e.g., Bowles & Gintis, 2000; Jæger, 2006; Kangas, 1997; Oorschot, 2002).

The second major theoretical explanation sees welfare attitudes as originating from within a general and coherent system of *political values* and ideological preferences held by the individual (e.g., Feldman & Zaller, 1992; Jacoby, 1994; Kumlin, 2001). Consequently, according to this perspective welfare attitudes are *specific* attitudinal manifestations that are causally linked to the individual's *general* political values and beliefs.

The self-interest perspective has been subjected to extensive empirical testing by relating objective measures such as labor market status, sector of employment, and social class to support for the welfare state (e.g., Andress & Heien, 2001; Bean & Papadakis, 1998; Fraile & Ferrer, 2005; Gelissen, 2000; Hasenfeld & Rafferty, 1989; Jæger, 2006; Linos & West, 2003). Furthermore, the political values perspective has been tested by using subjective measures such as subjective left-right position (e.g., Arts & Gelissen, 2001; Bean & Papadakis, 1998; Fraile & Ferrer, 2005; Gelissen, 2000, 2001; Jacoby, 1994; Scheepers & Grotenhuis, 2005; Wilson & Breusch, 2003) and party identification (e.g., Bean & Papadakis, 1998; Edlund, 2003; Papadakis & Bean, 1993) as predictors of welfare attitudes. Practically all these studies find that left-wing political or party

identification leads to higher levels of support for the welfare state (measured by different indicators).

However, the existing empirical literature using subjective measures as predictors of welfare attitudes faces a fundamental inferential problem: Are subjective measures such as left-right position really causally related to welfare attitudes? This problem of causal inference has gone largely unnoticed in the literature but is of fundamental importance to the growing body of studies treating different types of subjective measures as causal determinants of welfare support.[1] In this paper I address the theoretical, interpretational, and empirical problems that arise when treating subjective measures as causal predictors of welfare support and propose a new analytical approach.

Theoretically, the problem of causal inference entails that while authors may argue that one type of subjective measure (for example, subjective left-right position) causally explains another type of subjective measure (for example, support for redistribution), cross-sectional data in which individuals' left-right position and support for redistribution are observed simultaneously does not provide sufficient information to disclose the causal direction of this relationship. Consequently, claims that correlations between two types of subjective measures have a causal interpretation (i.e., '*x* has an effect on *y*') (e.g., Andress & Heien 1999; Arts & Gelissen, 2001; Blekesaune & Quadagno, 2003; Hasenfeld & Rafferty, 1989; Linos & West, 2003) are empirically unsubstantiated and derive their validity solely from theory. Some studies use longitudinal data to establish the causal order of the relationship between political values and welfare attitudes and to control for unobserved individual attributes that determine both values and attitudes (Jæger, 2006; Kumlin, 2006). The rationale in this approach is that political values in the past may be used to predict welfare attitudes in the present but the opposite scenario is logically impossible. Unfortunately, at

present only very few longitudinal surveys exist that include information on welfare attitudes. This situation renders general use of longitudinal data unfeasible.

In terms of *interpretation*, left-right position is often treated as a proxy for political values and orientations that are intrinsically unobserved (e.g., Arts & Gelissen, 2001; Fraile & Ferrer, 2005; Gelissen, 2000; Jacoby, 1994; Scheepers & Grotenhuis, 2005). Unfortunately, the interpretation that left-right position captures the causal effect of unobserved political values on welfare attitudes by proxy is incompatible with the way most of the regression methods used in the literature on welfare attitudes work. As described later, by definition regression methods work under the assumption that observed explanatory variables are *not* correlated with or act as proxies for unobserved variables (e.g., Green, 2003). Consequently, the interpretation that left-right position captures the causal effect of 'general' political orientations on welfare attitudes is untenable.

Finally, treating left-right position as a predictor of welfare support may have important *empirical* consequences. Most importantly, left-right position is likely to be endogenous to welfare attitudes. Endogeneity means that rather than left-right position having a true exogenous effect on welfare attitudes, left-right position and welfare attitudes are both jointly determined by political values and preferences that are unobserved in the data. In regression analysis endogeneity manifests in a correlation between left-right position and the model error term which summarizes the influence of all unobserved variables. This correlation means that the estimated causal effect of left-right position on welfare attitudes becomes inconsistent because the 'true' causal effect is distorted by an unknown bias arising from the correlation between left-right position and the regression error term (e.g., Angrist, Imbens, & Rubin, 1996; Angrist & Krueger, 2001).

In this paper I present an alternative approach to treating subjective variables as causal predictors of welfare attitudes that deals directly with the three problems described above. Analytically, I focus on subjective left-right orientation because it is the most frequently used measure of political values in the literature (e.g., Bean & Papadakis, 1998; Fraile & Ferrer, 2005; Jacoby, 1994; Wilson & Breusch, 2003). As the outcome dimension I analyze support for redistribution. Support for redistribution was chosen as the outcome variable because this dimension of welfare state support is closely tied to the left-right political axis (e.g., Evans, 1996; Linos & West, 2003; Svallfors, 1999).

My alternative approach uses a methodology that has not previously been used in the literature on welfare attitudes: the method of Instrumental Variables (IV). The idea behind the IV method is to eliminate the correlation between subjective left-right position and unobserved political values that leads to inconsistent results. To do so the IV method splits the variation in left-right position into two parts: One 'good' part that is uncorrelated with unobserved political values and one 'bad' part that is correlated with unobserved political values. The IV method then uses the 'good' part of the variation to estimate the causal effect of subjective left-right position on support for redistribution. As explained in more detail below, I follow political socialization theory (e.g., Almond & Verba, 1963; Inglehart, 1990; Ventura, 2001) and use information on individuals' socioeconomic background to identify the 'good' part of the variation in left-right position. The idea behind this approach is that some of the variation in left-right orientation is caused by early socialization mechanisms that are causally prior to individuals forming opinions on redistribution. Consequently, this approach solves the problem that left-right orientation and support for redistribution are observed simultaneously by introducing an additional time dimension in the data.

My alternative approach has several advantages over previous research. First, unlike most existing studies it explicitly addresses the *theoretical* expectation of a causal effect of subjective left-right position on support for redistribution. Second, in the IV framework all theoretical and methodological assumptions on which causal inference are based can be tested empirically. Third, since the IV method only uses the variation in left-right orientation that can be attributed to social background it identifies a theoretically relevant 'political socialization' causal effect on support for redistribution.

THEORETICAL BACKGROUND

Two Explanations of Welfare Support

Two major individual-level explanations of why people support the welfare state exist. As previously argued, the first explanation sees welfare state support as rooted in *self-interest* and the individual's perceptions of the short-term social risks he or she faces (e.g., Bowles & Gintis, 2000; Jæger, 2006; Kangas, 1997; Oorschot, 2002).

The second major explanation argues that *individual values* and *ideology* constitute an important source of variation in welfare state support (e.g., Feldman & Zaller, 1992; Jacoby, 1994; Kumlin, 2001). Individuals are endowed with core political and normative orientations that are the product of family and contextual socialization (Inglehart, 1990; Kumlin, 2004, 2006). These core normative orientations structure their views on society and, among other societal institutions, their opinion on the welfare state. Consequently, individuals' deep-seated political values and ideological preferences are hypothesized to be causally linked to welfare state support.

Since one of the main functions of the welfare state is to redistribute income, the ideological distinction between ‘left’ and ‘right’ is very important when analyzing determinants of welfare state support. In the following sections I present, first, the theoretical properties of the left-right dimension and, second, the intergenerational socialization mechanisms that have been argued to shape individuals’ left-right orientation.

The Left-Right Dimension

The left-right dimension is a key organizing scheme that individuals use to navigate the political system. The labels ‘left’ and ‘right’ are heuristic principles that reduce complexity, compensate for the fact that individuals typically possess limited information on political reality, and offer an efficient way of storing and understanding political information (Fuchs & Klingemann, 1990; Inglehart & Klingemann, 1976). Thus, the left-right dimension represents a cognitive shortcut that helps people locate themselves relative to other political actors and form opinions on specific policy issues. There is strong evidence that citizens in the Western industrialized countries understand the left-right divide in the same way (e.g., Fuchs & Klingemann, 1990).

The left-right dimension comprises both a partisan identification and an ideological component (Inglehart & Klingemann, 1976; Knutsen, 1998). The partisan identification component helps individuals locate the major ‘physical’ political actors, political parties, along the left-right dimension. The ideological component pertains to a more general classification of political ideas and discourse. Left-right orientation is the main interpretational scheme individuals use to form opinions on major political controversies in society such as the scope of redistribution and the desired degree of state intervention in the market. Furthermore, because of this property subjective left-right position should be an important ideological determinant of support for redistribution.

Political Socialization

Where do core political orientations such as subjective left-right position come from? *Political socialization theory* argues that individuals' fundamental political and social values are shaped during childhood by parent and peer-group influences (e.g., Almond & Verba, 1963; Inglehart, 1990; Ventura, 2001). Political values are transmitted across generations from parents to children such that e.g. children whose parents' have left-wing orientations are themselves likely to take over such attitudes, vote for left-wing parties, and support basic welfare state principles such as redistribution. Furthermore, socioeconomic background such as social class origin has also been argued to affect political preferences (e.g., Baldwin, 1990; Korpi, 1981). There is strong empirical support for the political socialization hypothesis (e.g., Dobratz & Kourvetaris, 1984; Flouri, 2003; Franklin, 1984; Svallfors, 2006).

Political socialization is important in my analysis because it provides theoretical justification for the socioeconomic instrumental variables presented later. Socialization theory hypothesizes that social and socioeconomic background shapes core political values which in turn affect support for redistribution. Consequently, this socialization mechanism can be used to solve the causal problem because the variation in left-right orientation that can be attributed to socioeconomic background conditions must logically come *prior* to individuals forming their opinion on redistribution. Thus, the causal model in my analysis says that socialization shapes individuals' basic left-right orientation which in turn affects whether they support redistribution.

In addition to political socialization in the family, *macro-level* socialization theories argue that individuals' political values and orientations are also formed by the institutional contexts in which

they live. Notably, the concept of *welfare regimes* (Esping-Andersen, 1990) has been proposed as a key concept for understanding collective attitude formation (Arts & Gelissen, 2001; Larsen, 2006; Svallfors, 1997). Some studies argue that embedded ideological, cultural, or religious histories in the different welfare regimes explain cross-national differences in levels of support for the welfare state (e.g., Blekesaune & Quadagno, 2003; Mau, 2004). Other studies highlight how other welfare regime characteristics such as labor-market institutions, unemployment, or economic performance shape public opinion on the welfare state (Fraile & Ferrer, 2005; Mehrtens, 2004). Consequently, the individual's political values and orientations are jointly influenced by socioeconomic background characteristics and institutional settings.

DATA AND VARIABLES

Data

I analyze data on three Western European countries from the two first waves of the European Social Survey (ESS).[2] The countries analyzed are Sweden, Germany, and Norway. The ESS and the three country cases were chosen for several reasons. First, in addition to attitudes towards redistribution and information on range of socioeconomic characteristics, the ESS has more comprehensive and higher quality data on respondents' socioeconomic origins (parents' education and father's social class position) than most other large-scale data sets such as the International Social Survey Programme and the European Values Study. Consequently, among the data sets commonly used in the literature on welfare attitudes the ESS provides the best information on respondents' socioeconomic background.

Second, the IV strategy is very demanding with respect to the quality of the data. Due to data requirements described below, Sweden, Germany, and Norway are the only countries in the ESS

which are suited for my analysis. In order to maximize statistical efficiency I pool the data from the two first waves of the ESS (wave 1: 2002/2003 and wave 2: 2004/2005) for each of the three countries. Response rates in percent for the three countries for waves 1 and 2 are: Sweden 69.5/65.4 (wave 1/wave 2); Germany: 55.7/51.0; and Norway: 65.0/66.2 (source: ESS web site). Samples are nationally representative and gross sample sizes are 3,947 for Sweden, 5,789 for Germany, and 3,796 for Norway.

TABLE 1 HERE

Dependent Variable

The dependent variable is the respondent's level of support for redistribution. In both ESS waves respondents are asked to express their level of agreement with the statement: 'The government should take measures to reduce differences in income levels'. The response categories are 1 = 'disagree strongly', 2 = 'disagree', 3 = 'neither agree nor disagree', 4 = 'agree', and 5 = 'strongly agree' (the response categories appeared in the opposite order in the original questionnaire). I recoded this response variable into a dichotomous variable by assigning the value 1 if respondents either 'agree' or 'strongly agree' with this statement and 0 otherwise. This dichotomous variable is intended to distinguish between supporters and non-supporters of redistribution.[3] Respondents answering 'don't know' were treated as missing values. Summary statistics of the dependent variable and all other variables for the three countries are shown in Table 1.

Explanatory Variables

The key explanatory variable in my analysis is respondents' self-reported position on the left-right scale. In the ESS respondents are asked: 'In politics people sometimes talk of 'left' and 'right'. (…)

where would you place yourself on this scale, where 0 means the left and 10 means the right?'. This type of variable is largely identical to the ones used in previous studies (e.g., Arts & Gelissen, 2001; Fraile & Ferrer, 2005; Gelissen, 2000, 2001; Scheepers & Grotenhuis, 2005; Wilson & Breusch, 2003). In the empirical analysis I reverse the coding of the scale such that higher values imply identifying with a more left-wing political position.

I also include a range of other explanatory variables. First, I include the respondent's social class position using a 6-category version of the Erikson-Goldthorpe-Portocarero (EGP) social class scheme (Erikson & Goldthorpe, 1992; see also Svallfors, 2006). The classes are: 1 = service class I (higher-level controllers and administrators), 2 = service class II (lower-level controllers and administrators), 3 = routine non-manual employees, 4 = self-employed, 5 = skilled workers, and 6 = unskilled workers. In addition to these 6 categories I include a dummy variable for those respondents whose social class position could not be ascertained (not in the labor market, disabled, etc.).

Second, I control for the respondent's level of education, here measured by years of completed schooling. Third, I include dummy variables for membership of one of two 'transfer classes' (Alber, 1984), i.e., 1 = retired, or 2 = unemployed, with active in the labor market (either as wage earner or self-employed) being the reference group. Fourth, I include controls for the respondent's sex (with 1 = male), age in years, the size of the residential area in which the respondent lives (with 1 = a farm or home in the countryside, 2 = a country village, 3 = a town or small city, 4 = the suburbs or outskirts of a big city, 5 = a big city), and a dummy variable for ESS wave 2 (with 1 = ESS wave 2 and 0 = ESS wave 1).

The instrumental variables capturing respondents' socioeconomic background are father and mother's education and father's social class when respondents were around 14 years old. Parents' education is coded in six categories: 1 = not completed primary (compulsory) education, 2 = primary education or first stage of secondary education, 3 = upper secondary education, 4 = post-secondary, non-tertiary education, 5 = first stage of tertiary education, and 6 = second stage of tertiary education. Father's social class position is measured by the EGP scheme described above, with the exception that I only operate with one type of working class (since skilled and unskilled workers cannot be distinguished in the data).[4]

METHODS

The Probit Model

In this section I present the empirical framework. The aim of the analysis is to predict the probability that an individual supports redistribution as a function of his or her subjective left-right position and socioeconomic and demographic characteristics. I begin from the standard binary probit model (see Wooldridge, 2002) that for individual i ($i = 1,\ldots,n$) can be expressed as

$$y_i^* = p_i\beta + x_i\gamma + u_i \text{ , (1)}$$

where y_i^* is a latent variable capturing support for redistribution, p_i is left-right position with regression coefficient β, x_i is the vector of socioeconomic and demographic variables with coefficient vector γ, and u_i is an error term which summarizes the effect of all omitted variables which also affect the probability of supporting redistribution. In the probit model the error term is assumed to be normally distributed with mean zero and variance 1, i.e. $u_i \sim N(0,1)$.

The latent dependent variable y_i^* is not observed in the data. Rather, I observe the binary indicator y_i which is linked to y_i^* by a threshold

$$y_i = \begin{cases} 0 \ if \ \ y_i^* \leq 0 \\ 1 \ if \ \ y_i^* > 0 \end{cases}.$$

In the probit model the probability of observing $P(y = 1 \mid p, x)$ is linked to the explanatory variables through the cumulative distribution function (CDF) of the standard normal distribution $\Phi(p_i\beta + x_i\gamma)$, where $\Phi(.)$ is the CDF of the standard normal distribution. The regression coefficients β and γ can be estimated by maximum likelihood.

The probit model provides consistent causal estimates of β (which is of particular interest) and γ under the assumption that *p* and *x* are uncorrelated with the error term *u*.[5] This means that none of the explanatory variables must pick up the effect of variables that for one reason or another are not included in the model. This assumption has two important implications that are rarely addressed in the literature on welfare attitudes.

First, the common interpretation in the literature that the effect of left-right position captures the influence of general political orientations on welfare attitudes by proxy is inconsistent with the way most statistical models (including the probit) operate. By construction, regressions models provide estimates of the effect of left-right position under the assumption that left-right position is *uncorrelated* with all unobserved political orientations that also determine support for redistribution. In other words, the interpretation researchers often ascribe to the effect of left-right

position on welfare attitudes as a 'proxy' effect is incompatible with the effect that is actually estimated which, by construction, is *not* a proxy effect.

Second, if left-right position is correlated with unobserved political values and orientations in the error term that also affect the probability of supporting redistribution, estimates of β and γ will be biased. This means that the statistical model does not provide a consistent estimate of the causal effect under study.

FIGURE 1 HERE

The latter problem is illustrated in the upper part of Figure 1. The causal effect of left-right position on support for redistribution is β. Unfortunately, since left-right position is also capturing unobserved political preferences, i.e., it is correlated with the error term *u* by the unknown correlation ρ, the probit (and any other standard regression) model does not estimate β. Rather, the estimate of β becomes inconsistent since it captures both the 'true' β and an omitted-variable distortion factor induced by the correlation between *p* and *u*.

The Probit Model with Instrumental Variables

However, using an Instrumental Variable (IV) version of the probit model (see Amemiya, 1978; Wooldridge, 2002) it is possible to evaluate if left-right position is endogenous to support for redistribution and to correct for endogeneity to obtain consistent estimates of β. The idea behind the IV approach which is illustrated in the lower part of Figure 1 is to eliminate the correlation between left-right position and the error term *u* that leads to invalid causal inference. How can this task be accomplished? Suppose that one can find one or more so-called *instrumental variables*

(which, stacked into a vector, is called *z*) that are correlated with left-right position but which are unrelated to the error term *u* (i.e., a set of variables that satisfy $\rho = 0$). Another way of saying this is that the instruments must only affect support for redistribution through left-right position. If such a set of variables exists one can extend the so-called 'second stage' probit regression in Equation (1) with the auxiliary 'first stage' regression model

$$p_i = x_i\pi + z_i\delta + v_i \text{ . (2)}$$

In Equation (2) left-right position *p* is now a function of the *x*'s and the instrumental variables *z*, and the corresponding vectors of regression coefficients are π and δ. The error term v_i is assumed to be normally distributed, $v_i \sim N(0, \sigma_v)$. As explained earlier, the instrumental variables in my analysis are father and mother's level of education and father's social class.

To be valid the social background instruments must fulfill two conditions. First, as suggested by political socialization theory, they must be correlated with left-right position, i.e., *relevant*. In Equation (2) this correlation is captured by the coefficient vector δ. Second, the instruments must be uncorrelated with the error term in the second stage regression in Equation (1), *u*. This is called the *validity* assumption and means that, controlling for the *x* variables, the effect of the social background variables on support for redistribution must run *exclusively* through left-right position (in the lower part of Figure 1 this assumptions implies that there is no direct arrow from the instruments *z* to support for redistribution). Both assumptions can be tested empirically by means of a range of specification tests. These tests are described below where appropriate. In the ESS data the instruments are both relevant and validity only in Sweden, Germany, and Norway.

If the instruments are both relevant and valid the IV-probit can be used to test for endogeneity of left-right position. The reason why is that both the *x* and *z* variables in Equation (2) are assumed to be uncorrelated with *u* in Equation (1), and, consequently, any correlation between *p* and *u* will materialize through *v*. Consequently, if left-right position *p* is endogenous in the probit model in Equation (1) the two error terms *u* and *v* will be correlated. Because I assume that *u* and *v* have joint normal distributions their covariance matrix Σ can be expressed as

$$\Sigma = \begin{bmatrix} 1 & \rho \\ \rho & \sigma_v \end{bmatrix}.$$

Here, the off-diagonal element ρ represents the covariance between *u* and *v* and can be interpreted as a direct measure of whether left-right position is endogenous to support for redistribution. By testing if ρ is significantly different from 0 it is possible to determine if left-right position is endogenous by being correlated with unobserved political preferences that also determine support for redistribution.

Furthermore, if it turns out that left-right position is endogenous the IV approach can be used to recover a consistent estimate of the causal effect β.[6] The reason why is that since both the instruments *z* and the socioeconomic variables *x* in Equation (2) are assumed to be uncorrelated with the error term *u* in Equation (1), one may simply run the first stage regression in Equation (2), obtain the predicted values of left-right position from this regression, $\tilde{p}$, and insert the values of $\tilde{p}$ into the second stage probit model in Equation (1) instead of the original values of *p*. Furthermore, because the *z* and *x* variables that 'produce' $\tilde{p}$ in the first stage regression are uncorrelated with *u* this will also be the case for $\tilde{p}$. Consequently, provided that the instruments are relevant and valid

the IV method can be used to obtain a consistent estimate of the causal effect of left-right position on support for redistribution, β. Equations (1) and (2) are optimized simultaneously by maximum likelihood to obtain the parameters β, γ, δ, ρ, and σ_v.

RESULTS

The presentation of the results is divided into three subsections. In the first section I evaluate if subjective left-right position can be treated as a valid, exogenous predictor of support for redistribution in the three countries under study. In the second section I compare the results from the standard probit and the IV-probit and analyze the causal effect of left-right position on support for redistribution. In the third section I evaluate the performance and reliability of my IV-probit models.

TABLE 2 HERE

Table 2 shows the results of the empirical analysis for Sweden, Germany, and Norway. For each country I show results from two different model specifications: The standard probit model and the IV-probit. The lower part of Table 2 summarizes some results from the first stage regressions (cf., Equation (2)) and a number of diagnostics tests.

The first important question is whether the probit model provides consistent and meaningful estimates of the causal effect of subjective left-right position on support for redistribution. In all three countries I find that left-right position has a highly significant positive effect on the probability of supporting redistribution, although the magnitudes of the coefficients differ (.178 for Sweden; .086 for Germany; and .176 for Norway). As predicted by the political values perspective,

this finding suggests that the more respondents perceive themselves as having a left-wing orientation the more likely it is that they also believe that the government should take measures to reduce differences in income levels. I.e., people with left-wing political values appear more likely to support redistribution than people with right-wing values.

But does that mean, as suggested by theory, that having a left-wing political orientation *causes* people to support redistribution? The main concern is that the variable measuring subjective left-right orientation variable captures not only the effect of left-right position but also the effect of unobserved political orientations that also determine if they support redistribution. If this is the case the probit model does not estimate a causal effect of left-right position because this effect is distorted by the correlation between left-right position and unobserved political values. The IV-probit model formally tests for endogeneity of left-right position. In the lower part of Table 2 I report Wald tests of the hypothesis $\rho = 0$, i.e., tests of whether left-right position is endogenous. For Sweden and Germany the hypothesis of no correlation is strongly rejected ($p < .001$), whereas in the Norwegian case the test is borderline significant ($p = .074$). Consequently, there is strong evidence that left-right position is endogenous and that the effects of left-right position on support for redistribution in the three countries do not represent causal effects.

When inspecting the results from the IV-probit models, I find that in all three countries the causal effect of left-right position on the probability of supporting redistribution is much higher than in the probit model. For Sweden and Norway the estimated coefficients in the IV-probit are about twice as large as in the probit model and for Germany the coefficient from the IV-probit is more than five times higher. Again, the empirical evidence supports the theoretical expectation that political values affect support for redistribution. However, to fully gauge the differences in effects between the two

model specifications I calculated marginal effects of left-right position on the probability of supporting redistribution across all values of left-right position. These marginal effects are shown in Figure 2-4, and illustrate how – holding the other explanatory variables fixed[7] – moving up on the scale of left-right position increases the probability of supporting redistribution.

FIGURES 2, 3, AND 4 HERE

In all three countries, the impact of differences between small and large values of left-right position is much stronger in the IV model (dotted lines) than in the probit model (solid lines). This is not surprising since the estimates of the causal effect of left-right position are much higher in the IV model than in the probit model. As seen in the figures, the probit model generally assigns respondents with very right-wing values (i.e., a low value on the scale) too high probabilities of supporting redistribution and respondents with very left-wing values too low probabilities. In the case of Germany the results from the probit model are completely misleading and seriously underestimate the causal effect of left-right position on the probability of supporting redistribution.

It should be noted that the probit and IV-probit models do not identify the same effect of left-right position. The probit model identifies a general population effect, but, in this case, the probit model is inconsistent because left-right position is endogenous. In contrast, the IV model identifies the causal effect of left-right position on support for redistribution *using only variation in left-right position that is attributable to the social background variables*. The IV estimate should then be interpreted as a 'local' causal effect or, in this specific application, as a 'political socialization effect'. This aspect of the IV method has both advantages and disadvantages.

One important advantage is that the causal effect has a very specific theoretical interpretation. Thus, the IV causal effect *is* the effect of how individuals who have been 'exposed' to different socialization experiences that have shaped their left-right orientation form attitudes towards redistribution. The disadvantage of the IV approach is that normally it does not identify a causal effect that can be generalized to a global population. However, in this application this may not be a central problem because all respondents have been subjected to political socialization (i.e., there are no 'non-compliers').

But how well does the IV procedure perform? Table 2 also reports results from the first stage regressions of left-right position on the instruments and the *x* variables (cf. Equation 2). To recall, the first stage regression separates the 'good' part of the variation in left-right position that is uncorrelated with unobserved political values from the 'bad' part that is correlated with unobserved political values. In order to carry out this separation of variation the first stage regression uses father and mother's level of education and father's social class to predict the respondent's score on the left-right scale.

From Table 2 I find that in Germany mother's education has a positive effect on left-right position, meaning that respondents whose mothers have higher education tend to be more left-wing. In Norway I find a negative effect for father's education, and in Sweden parents' education has no effect on left-right position. The results for father's social class are more uniform across the three countries. Generally, I find that respondents express more left-wing political orientations if they originate in lower rather than higher social class positions. These results fit the political socialization argument and findings from previous studies (e.g., Dobratz & Kourvetaris, 1984; Svallfors, 2006).

More formally, in addition to visual inspection of the first stage results Table 2 also reports results from *F*-tests of instrument relevance. One of the important assumptions behind the IV method is that the correlation between the instruments and left-right position is 'sufficiently' high to warrant reliable inference. The *F*-test is a standard IV test of whether this correlation is 'sufficiently' high, with the null-hypothesis being that it is not (e.g., Staiger & Stock, 1997). As can be seen in Table 2, in all three countries the *F*-test is highly significant ($p < .001$) indicating that the instruments are relevant.

Finally, I also test instrument validity. The main motivation for using instrumental variables is that, conditional on the observed variables, they are believed to be uncorrelated with the error term *u* in Equation (1) that summarizes the effect of unobserved variables which also affect the probability of supporting redistribution. When multiple instruments are available it is possible to apply an overidentification test to evaluate the assumption of no correlation between the instrumental variables and *u* (Baum et al., 2003; Wooldridge, 2002). Table 2 reports the results from overidentification tests for each of the three countries. The null-hypothesis in the overidentification test is that the instruments are uncorrelated with *u*.[8] As seen in Table 2, in all three countries the *p*-values for the overidentification tests are insignificant at $p < .05$ thereby confirming that the instruments are valid. The overidentification tests then corroborate the requirement for IV validity that the social background variables affect support for redistribution only through left-right position.

CONCLUSION

In this paper I test one of the major theoretical explanations of why people support the welfare state: political values and orientations. The argument in this theoretical perspective is that, in addition to

objective self-interest, the individual's political values and beliefs have an independent causal effect on support for the welfare state.

Unfortunately, the individual's political values, often conceptualized by subjective left-right position, and their causal effect on welfare support is very difficult to identify with traditional cross-sectional data. The main problem is that cross-sectional data in which left-right position and support for the welfare state is observed simultaneously cannot tell if left-right position has a causal effect on support for the welfare state or if the opposite explanation is true. Furthermore, treating left-right position as an exogenous causal predictor of welfare support in empirical analysis may lead to inconsistent results because left-right position is correlated with unobserved political values that also determine if people support the welfare state. The existing literature has failed to address this problem.

In this paper I take an alternative approach. Theory says that left-right position should affect welfare support and not vice versa, but how is it possible to determine this causal effect consistently? I exploit the fact that individuals' left-right position in adulthood is partly determined by socialization mechanisms to specify the causal order of the relationship between left-right position and, in this case, support for redistribution. My causal model says that socioeconomic origins (as measured by parents' level of education and father's social class) affect support for redistribution indirectly by shaping individuals' subjective placement on the left-right scale. This model extends standard cross-sectional data with a time dimension and leads to a causal model of the relationship between left-right position and support for redistribution that can be tested empirically.

Analyzing data from Sweden, Germany, and Norway from the first two waves of the European Social Survey, I find strong evidence that left-right position is endogenous to support for redistribution. Furthermore, when applying the IV method I find that the standard probit model severely underestimates the causal effect of left-right position on the probability of supporting redistribution. In fact, and as suggested by theory, there is a strong socialization-based causal effect of left-right position on support for redistribution.

Several suggestions for future research and limitations in the present analysis should be mentioned. First, my analysis clearly demonstrates that subjective variables such as left-right position should not under normal conditions be used as explanatory variables when analyzing determinants of welfare attitudes. In standard applications these variables cause endogeneity bias and lead to inconsistent results. A comparison of the coefficients of the explanatory variables in the probit and IV-probit models in Table 2 shows that endogeneity affects not only the estimated coefficient of left-right position but practically all variables in the model.

Second, researchers need to think hard about how the political values perspective can be analyzed empirically. If subjective measures which are intended as proxies for political values cannot normally be used as explanatory variables other strategies should be developed. The IV approach in this paper represents one possible solution to this problem but other avenues should be explored further.

Table 1 Descriptive statistics. Means with standard deviations in parenthesis

	Sweden	Germany	Norway
Support for redistribution	.66 (.47)	.57 (.49)	.67 (.46)
Left-right position	4.95 (2.32)	5.45 (1.82)	4.80 (2.05)
Social class:			
Service class I	.09 (.29)	.08 (.27)	.10 (.29)
Service class II	.20 (.40)	.16 (.36)	.18 (.39)
Routine non-manual	.29 (.46)	.25 (.44)	.32 (.47)
Self-employed	.11 (.31)	.10 (.30)	.12 (.32)
Skilled worker	.19 (.39)	.23 (.42)	.18 (.39)
Unskilled worker	.08 (.26)	.07 (.26)	.07 (.25)
Class position indeterminate	.04 (.20)	.11 (.31)	.03 (.17)
Years of education	12.05 (3.47)	12.88 (3.27)	13.21 (3.59)
Employment status			
Employed	.60 (.49)	.49 (.50)	.67 (.47)
Retired	.18 (.39)	.24 (.43)	.16 (.37)
Unemployed	.04 (.21)	.09 (.29)	.04 (.20)
Other	.18 (.38)	.18 (.38)	.13 (.34)
Gender (= male)	.51 (.50)	.48 (.50)	.51 (.50)
Age	46.56 (18.72)	46.53 (17.86)	46.66 (17.18)
Wave (= wave 2)	.49 (.50)	.50 (.50)	.46 (.50)
Father's education	2.01 (1.75)	3.31 (1.05)	2.87 (1.48)
Mother's education	1.92 (1.59)	2.64 (.86)	2.59 (1.32)
Father's social class			
Service class I	.13 (.34)	.11 (.31)	.17 (.37)
Service class II	.12 (.32)	.15 (.36)	.15 (.36)
Routine non-manual	.18 (.38)	.27 (.44)	.16 (.37)
Self-employed	.25 (.43)	.13 (.33)	.27 (.45)
Worker	.20 (.40)	.15 (.36)	.15 (.36)
Class position indeterminate	.12 (.32)	.19 (.39)	.10 (.30)
N	3,947	5,789	3,796

Table 2 Probit and IV probit models of support for redistribution, Parameter estimates with standard errors in parenthesis

	Sweden		Germany		Norway	
Second stage regression:	Probit	IV-probit	Probit	IV-probit	Probit	IV-probit
Left-right position	.178	.391	.086	.480	.176	.331
	(.010)***	(.036)***	(.010)***	(.035)***	(.011)***	(.075)***
Service class I[a]						
Service class II	.271	.131	.031	.004	.154	.145
	(.084)***	(.087)	(.074)	(.068)	(.086)†	(.085)†
Routine non-manual	.514	.256	.091	.121	.257	.262
	(.090)***	(.108)*	(.075)	(.068)†	(.086)**	(.086)**
Self-employed	.227	.350	-.159	.144	.179	.232
	(.099)*	(.098)***	(.083)†	(.086)†	(.097)†	(.098)*
Skilled worker	.516	.202	.299	.225	.503	.485
	(.096)***	(.124)	(.078)***	(.073)**	(.095)***	(.102)***
Unskilled worker	.566	.169	.327	.278	.229	.215
	(.124)***	(.149)	(.100)***	(.092)**	(.120)†	(.121)†
Years of education	-.014	-.006	-.020	-.036	-.015	-.019
	(.008)†	(.009)	(.007)**	(.007)***	(.008)*	(.008)*
Employed[a]						
Retired	-.197	-.127	.288	.147	-.018	.019
	(.088)*	(.089)	(.062)***	(.064)*	(.087)	(.087)
Unemployed	-.028	-.141	.505	.297	.195	.244
	(.112)	(.112)	(.068)***	(.079)***	(.112)†	(.116)*
Gender (= male)	-.273	-.211	-.127	.027	-.246	-.151
	(.050)***	(.057)***	(.040)***	(.043)	(.050)***	(.071)*
Age	.010	.010	-.001	.003	.009	.008
	(.002)***	(.002)***	(.001)	(.002)*	(.002)***	(.002)***
Wave (= wave 2)	.011	.075	-.012	-.048	-.226	-.250
	(.045)	(.046)†	(.039)	(.033)	(.045)***	(.046)***
Size of residential area	-.048	-.046	-.005	-.063	-.053	-.034
	(.020)*	(.020)*	(.016)	(.016)***	(.018)**	(.022)
Intercept	-.753	-1.853	-.099	-2.127	-.414	-1.165
	(.200)***	(.279)***	(.168)	(.254)***	(.190)*	(.413)**
First stage regression:[b]						
Father's education		-.034		.015		-.130
		(.028)		(.022)		(.032)***
Mother's education		-.029		.075		.002
		(.030)		(.027)**		(.030)
Father's social class						
Service class I[a]						
Service class II		.444		.203		.213
		(.137)***		(.073)**		(.116)†
Routine non-manual		.490		.193		.253
		(.134)***		(.069)**		(.123)*
Self-employed		-.060		-.283		-.031

		(.125)		(.089)***		(.111)
Worker		.719		.263		.252
		(.145)***		(.084)**		(.130)*
Other class		.539		.201		.390
		(.163)***		(.078)*		(.145)**
Intercept		4.895		4.556		4.759
		(.374)***		(.259)***		(.319)***
P-value for first stage *F*-test		(*F*=10.34), .000		(*F*=7.22), .000		(*F*=6.77), .000
P-value for overidentification test		.583		.179		.939
P-value for Wald test of $\rho = 0$		.000		.000		.074
ρ		-.550		-.763		-.348
		(.108)***		(.073)***		(.195)†
σ_v		2.230		1.778		2.001
		(.027)***		(.018)***		(.024)***
Log-likelihood	-2,092	-9,218	-3,393	-12,852	-2,115	-9,556
N	3,730	3,320	5,201	4,861	3,700	3,563

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed), [a] reference category, [b] dependent variable = left-right position. First stage IV regressions include all the socioeconomic and demographic variables (results not shown to conserve space). All models also include a dummy variable for missing social class position.

Figure 1 Illustration of endogeneity and IV estimation

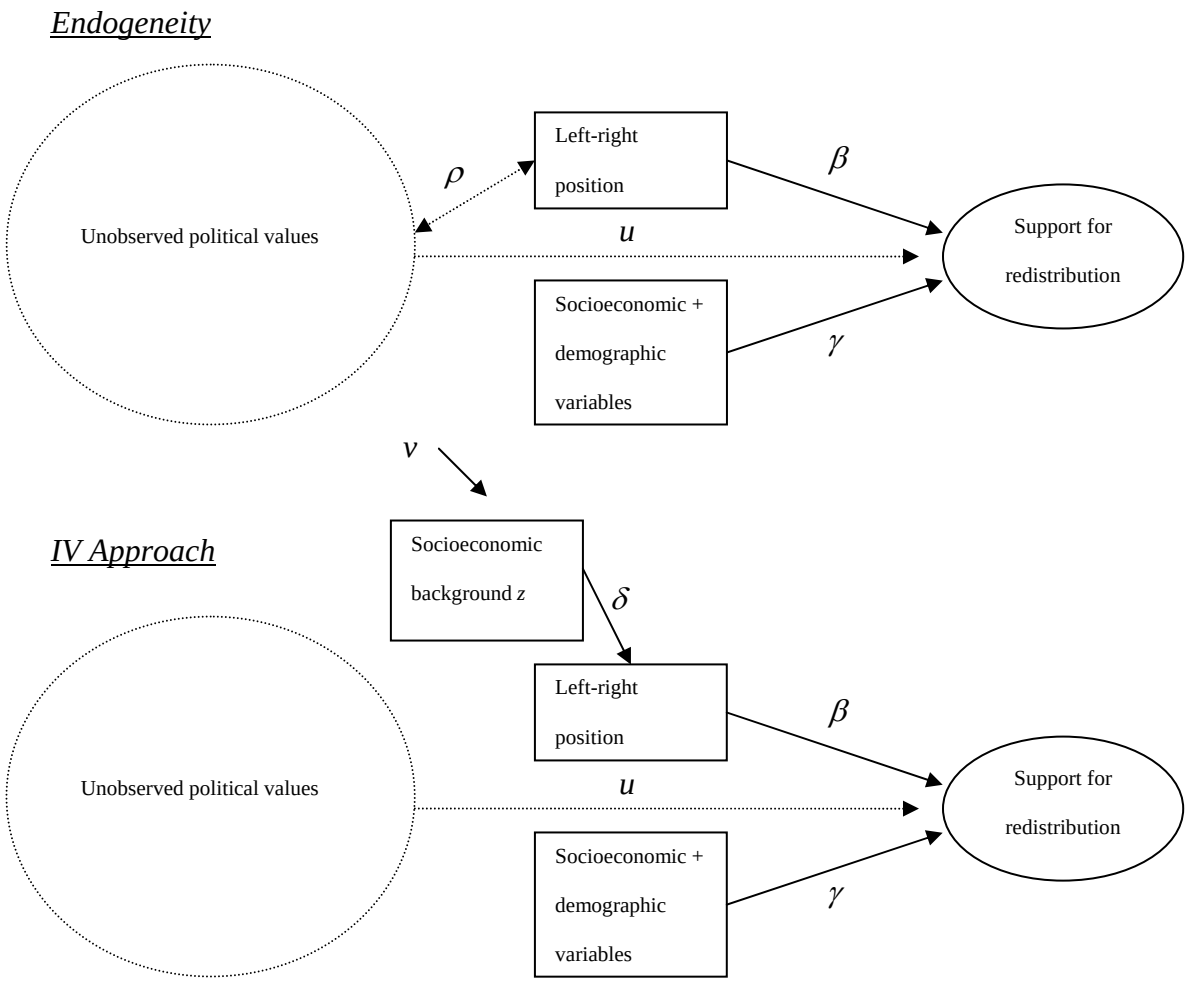


Figure 2. The effect of left-right position on the probability of supporting redistribution, Sweden

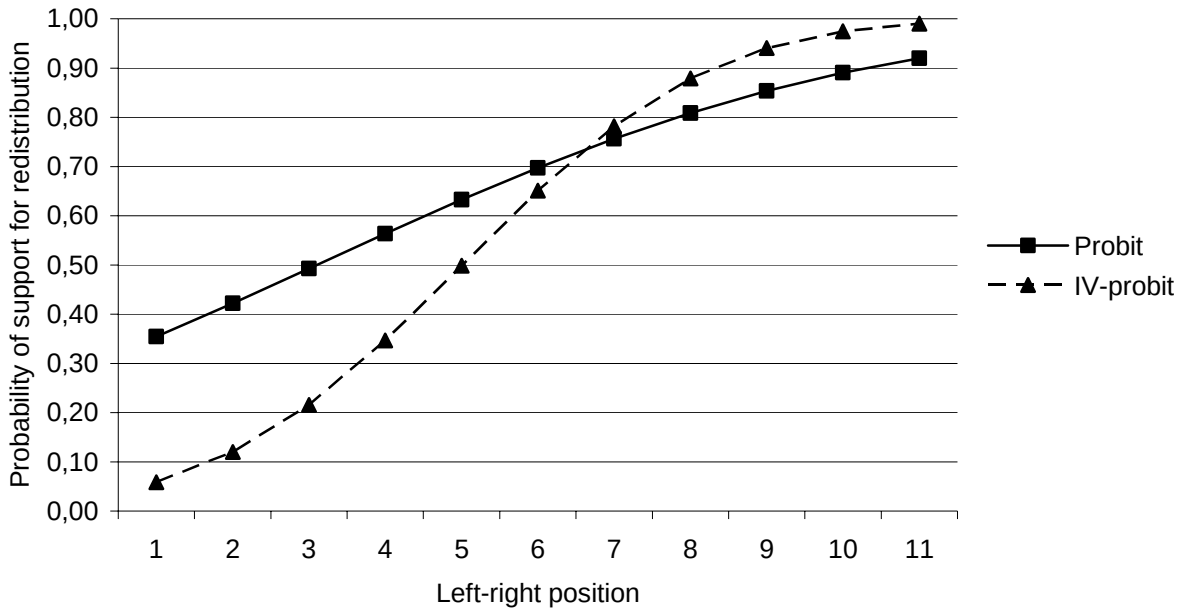


Figure 3. The effect of left-right position on the probability of supporting redistribution, Germany

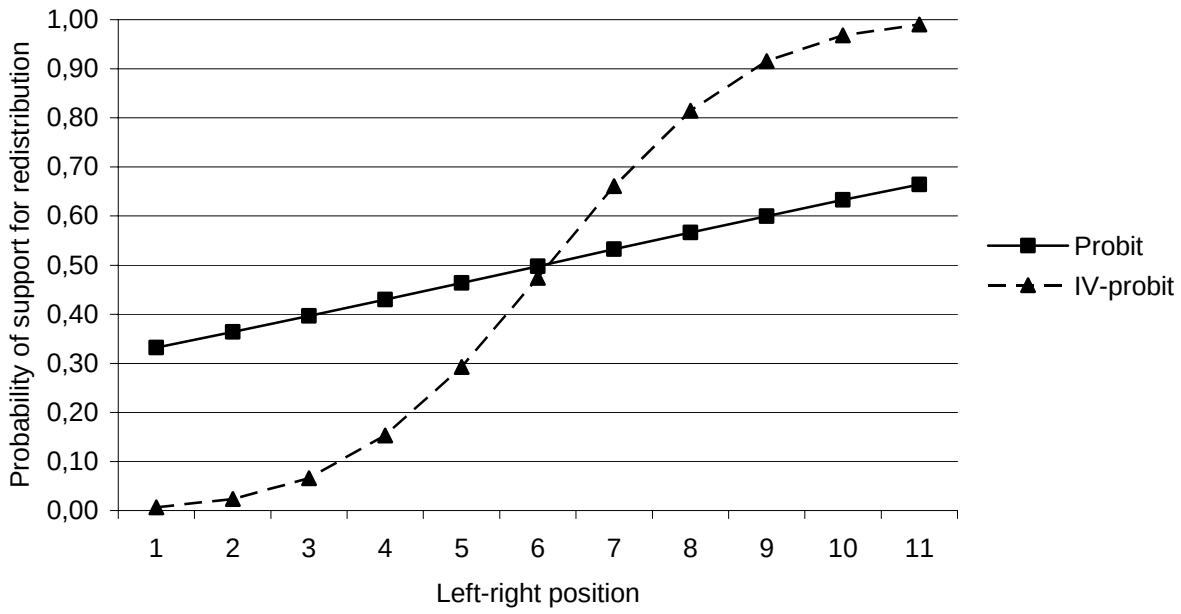
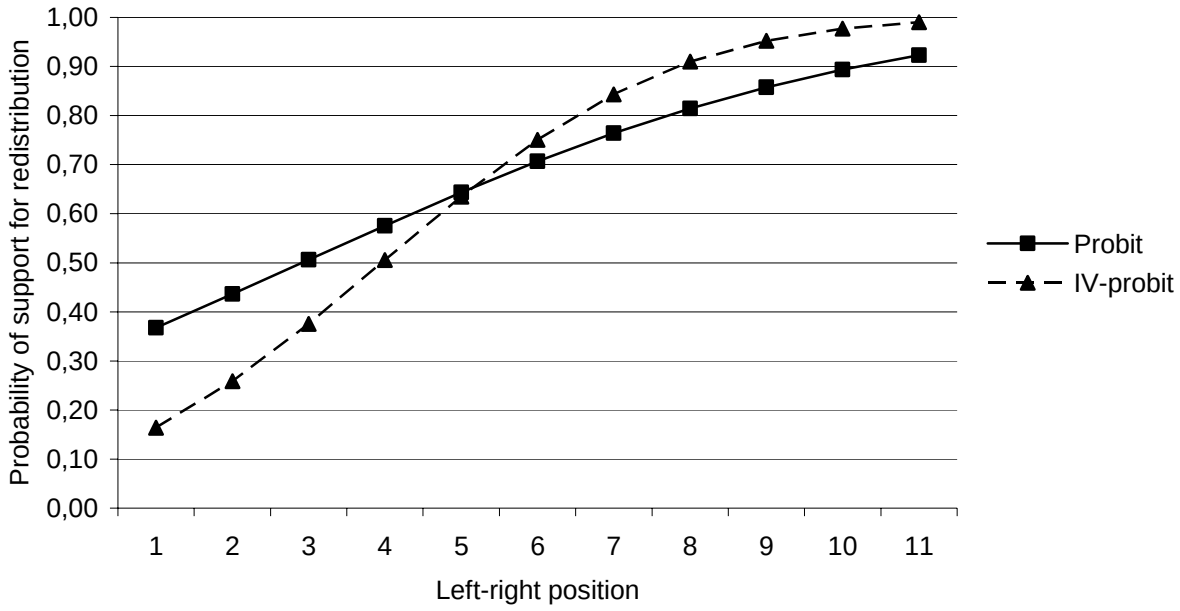


Figure 4. The effect of left-right position on the probability of supporting redistribution, Norway



NOTES

[1] Subjective measures used in the literature to explain welfare support include, among others, trust in individuals and institutions (e.g., Derks, 2004; Edlund, 1999; Oorschot, 2002; Svallfors, 1999), egalitarianism (e.g., Andress & Heien, 2001; Blekesaune & Quadagno, 2003), individualism (e.g., Derks, 2004; Ervasti, 2001), post-materialism (e.g., Gelissen, 2000; Scheepers & Grotenhuis, 2005), and social justice beliefs (e.g., Arts & Gelissen, 2001; Hadler, 2005; Verwiebe & Wegener, 2000).

[2] The ESS is freely available for download, see http://www.europeansocialsurvey.org/.

[3] To my knowledge, at present there is no Instrumental Variable estimator for the ordered categorical response model. Consequently, the ordered property of the original ESS variable cannot be exploited in my analysis. Furthermore, a linear model which assumes cardinality for the dependent variable is clearly inappropriate.

[4] It is also possible to measure mother's (EGP) social class in the ESS. However, in many countries most mothers were not active in the labor market and have no class position. Furthermore, in most countries mother's social class does not have any significant impact on respondents' left-right position when parents' education and father's social class are controlled.

[5] The assumption of no correlation between explanatory variables and the error term is common to all standard regression models and not just the probit considered here.

[6] If subjective left-right position is not endogenous to support for redistribution ρ is zero and the standard probit and IV-probit produce identical results.

[7] The probabilities reported in Figure 2-4 pertain to the following values of the *x* variables: Routine non-manual social class, 12 years of schooling, male, age 45, interviewed in ESS wave 1, and living in a town or small city.

[8] Typically, the overidentification test is calculated by regressing the residuals from the second stage regression (Equation 1) on the instruments. The R^2 from this regression is multiplied by the number of observations *N*, and this number is a χ^2-distributed test statistic with degrees of freedom equal to the number of instruments minus 1. Intuitively, the test says that once the 'explanatory power' of the instruments on the dependent variable through the endogenous variable is accounted for (which is done in the second stage regression) there should be no additional relationship between the instruments and the unexplained part of the model that determines the dependent variable, i.e., the residual.

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