

THE LAST RESORT

*Determinants of the Generosity of Means-tested Minimum
Income Protection in Welfare Democracies*

KENNETH NELSON

Swedish Institute for Social Research
Stockholm University

ABSTRACT

This study evaluates institutional linkages between different types of social security programs in eighteen welfare states in the early 1990s. The purpose is to analyze the determinants of cross-national variations in the level of minimum income protection. Three hypotheses of an institutional relationship between social insurance and the generosity of minimum income protection are tested by means of OLS-regression, qualitative comparative analysis and fuzzy set analysis. From an economic point of view it is hypothesized that the impact of social insurance on the generosity of minimum income protection is mediated through its effects on the costs for means-tested benefits. From a political perspective, the hypothesis is that this impact derives from the degree to which social policies promote cross-class interests in support for the welfare state. Finally, from a strictly institutional perspective, the hypothesis is that social insurance sets certain upper limits to the level of means-tested benefits, which determine the possibilities of raising the value of minimum income protection. The empirical analyses show that not all aspects of social insurance are of equal importance in explaining cross-national variations in the level of minimum income protection. The most important aspect seems to be the degree to which social insurance provides income security, which supports the middle-class inclusion hypothesis on institutional dependencies between different tiers of the social security system.

Welfare democracies differ substantially in how they arrange social policy and almost every type of program varies considerably in institutional terms, not the least in the area of means-tested income maintenance. Taken together, these differences have important consequences for the structuring of class and gender relations in the industrialized democracies (Esping-Andersen, 1990). Due to the importance of social policy institutions for social stratification, the causes of welfare state expansion have attracted great interest among sociologists. In the explanation of the institutional diversity of welfare states, structural factors and political power relations have generally received most attention. Although the latter has proved to be important for the development of social insurance rights in the post-war period (see Korpi, 1989; Palme, 1990; Väisänen, 1992; Ferrarini, 2003), institutional features within the wider social security system may be more relevant for the development in other program areas.

The presence of an institutional dependency between social security programs is likely to appear in the area of means-tested state provisions, where benefit eligibility is not based on contributions in any form or on universal characteristics such as citizenship, but instead is established with reference to the claimant's financial resources. Consequently, means-tested benefits are activated precisely when other forms of arrangements are insufficient to guarantee a minimum standard of living. They are safety nets of last resort, intended to plug the holes left by first-tier social insurance benefits. Due to their residual character, means-tested benefit schemes are often adapted to complement prevailing social security structures. The development of social insurance therefore may have important consequences for the institutional design of means-tested benefits (Lødemel and Schulte, 1992; Lødemel, 1997; Gough and Eardley, 1996).

The purpose of this study is to explain cross-national variation in the level of minimum income protection. Minimum income protection is defined as the whole income package guaranteed to households where none of the members is entitled to state provisions based on past work record.

Consequently, the major part of minimum income protection is made up of means-tested or income-tested benefits. The main question is to what extent the level of minimum income protection is related to the structure of social insurance. The countries included in the study are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. The level of minimum income protection is based on data from Eardley et al. (1996a), whereas data on the institutional structure of social insurance is based on national social security regulations and the *Social Citizenship Indicators Program (SCIP)*, at the Swedish Institute for Social Research at Stockholm University.

By applying different perspectives, three hypotheses are formulated regarding institutional interplays between social insurance and minimum income protection. First, based on theories emphasizing the importance of middle-class support for redistributive policies, the impact of social insurance on the level of minimum income protection is hypothesized to derive from the degree to which social policies promote cross-class interests in support for the welfare state. Two institutional aspects are emphasized: the degree to which social insurance provides income security and whether social insurance segments citizens into different risk pools. The second hypothesis claims that social insurance defines an upper benefit limit, above which important means-tested benefits cannot be raised. Finally, from an economic point of view, it is hypothesized that the impact of social insurance on the level of minimum income protection is mediated through its effects on the extent of means-tested benefits, which affect the marginal cost of increasing minimum income protection to a certain income level.

Establishing relationships between different variables on the basis of only eighteen observations is problematic for several reasons. This number of cases is too small to fully take advantage of traditional variable-oriented regression techniques, but at the same time too large to apply a case-oriented research design. One solution to the ‘small-N’ problem as emerging here is to

rely on techniques proposed to bridge the gap between variable-oriented and case-oriented approaches, such as qualitative comparative analysis (QCA) (Ragin, 1987) or fuzzy set analysis (Ragin, 2000). Although these methods certainly are two important developments in the field of macro-comparative research and provide comparativists with a new set of tools to assess causal relationships, both QCA and fuzzy set analysis also have their own weaknesses and limitations. In particular, the deterministic nature of the explanations often implied by QCA, making it difficult to sort out the relative importance of causal factors, has been subject to criticism (Goldthorpe, 1991, 1997; Lieberson, 1991, 1997; Little, 1995; Lustick, 1996). The major weakness of fuzzy set analysis, on the other hand, is the translation of unbounded raw data to fuzzy set membership scores, something that may have important consequences for the final results (Smithson, 1987).

An alternative strategy for dealing with problems invoked by the limited number of cases is to triangulate with a number of available methods (Shalev, 1998). The rationale for using multiple analytical techniques is that in so far as similar causal mechanisms are identified, the possibilities are improved for rejecting specific hypotheses. Triangulation has previously been applied in a number of macro-comparative studies (see Kangas, 1994; Amenta and Poulsen, 1994; Coverdill et al. 1994; Berg-Schlosser and Quenter, 1996; Ebbinghaus and Visser, 1999) and it will also be used in this study. To assess whether the structure of social insurance accounts for cross-national variations in the level of minimum income protection, I will treat multivariate regression, qualitative comparative analysis and fuzzy set analysis as parallel analytical techniques. The strengths and weaknesses of the three methods are essentially complementary. Most importantly, whereas OLS regression and QCA generally focus on quantitative and qualitative differences, respectively, fuzzy set analysis takes account of both these aspects (Ragin, 2000).

The study is organized as follows. The first three sections theoretically discuss the institutional relationship between social insurance and minimum income protection and elaborate specific hypotheses on cross-national

variations in the level of minimum income protection. This is followed by a brief description of the dependent and independent variables and some methodological considerations. The subsequent section presents the results from QCA, fuzzy set analysis and OLS regression. The study ends with a concluding discussion.

THE MIDDLE CLASS INCLUSION THESIS

The middle-class inclusion thesis draws attention to the ability of welfare state institutions to generate cross-class political alliances. The role of welfare state institutions in the formation of values, beliefs, and identities in society has long been recognized in the social policy literature. In his discussion on the implication of social policies for social integration, Titmuss (1968: 135) wrote, 'In all the main spheres of need, some structure of universalism is an essential prerequisite to selective positive discrimination; it provides a general system of values and a sense of community...?'

Since then, a number of scholars have devoted attention to the relationship between social policies and collective interests. According to conventional wisdom, universal policies are generally perceived to be more likely than targeted schemes to generate interests in support for the welfare state that cut across socio-economic groups (Wilensky, 1975; Rosenberry, 1982; Korpi, 1983, 1985a, 1998, 2001; Esping-Andersen, 1990; Mishra, 1990; Rothstein, 1994). The capacity of non-targeted benefits to encourage coalition formation between poor and better-off citizens has previously been discussed in the context of economic redistribution (Palme, 1990; Korpi and Palme, 1993, 1998; Kangas and Palme, 1993). To explain why some countries reduce market income inequalities more effectively than others, Korpi and Palme (1998) analyze the tri-partite relationship between the structure of social insurance institutions, strategies of equality and the size of the redistributive budget. One of their major findings is that cross-national patterns in income inequality and poverty to an important extent are explained by the degree to which middle class needs for income protection are covered by social

insurance. In such instances, coalition formation between the working class and the middle class in support of continued social policies is encouraged, which improves the possibilities of governments to allocate economic resources for redistribution. Due to differences in risks between individuals in different income segments and certain redistributive elements embodied in social insurance schemes, such as defined earnings-ceilings, a large share of the strengthened budget involves a vertical redistribution from the rich to the poor.

Individuals in lower income strata do not only benefit by more generous non-targeted policies, but they also gain from improved minimum income protection policies. Korpi and Palme (1998: 678), for example, write:

...countries in which social insurance programs target benefits to low-income categories not only have relatively small redistributive social insurance budgets, but they also have restricted general means-tested programs. Countries with larger welfare states, like the Nordic countries, not only have high transfer rates via social insurance programs but also gains legitimacy for increased spending on income-tested benefits outside the social insurance programs...

Thus, on basis of the middle-class inclusion thesis, we could expect a relationship between the structure of social insurance and the level of minimum income protection, which is mediated through the feedback of social insurance on political processes. The degree by which social insurance promotes cross-class legitimacy for welfare state institutions is particularly important. Since a relevant institutional aspect in this respect is the extent to which individuals in middle- and higher-income groups are provided protection for lost earnings in times of work incapacity, we may formulate the following hypothesis: *The more the social security system responds to the demand for income security among the middle- and higher-income groups, the higher the levels of minimum income protection tend to be.*

This hypothesis does not necessarily imply that the more the social insurance system covers the needs of better-off citizens, the more are people in favor of means-tested programs.¹ Instead, it should be understood in terms of citizens' attitudes to redistributive policies in general, which affect the possibilities for expanding the fiscal basis of the welfare state. In other words, although people on average may be less positive toward spending on policies targeted to the poor than on other types of programs, people may be generally more willing to pay taxes if they do receive something in return. Since means-tested benefits are paid out of general tax revenue, the structure of social insurance institutions may enhance the budgetary requirements necessary to provide a high level of minimum income protection.

The degree to which social insurance benefits reflect previous earnings is not the only institutional feature thereof with an impact on public support for redistributive policies. Another aspect is the extent to which social insurance divides citizens into different risk pools (see Baldwin, 1990). In such instances, for example when programs are fragmented along occupational lines, a differentiation of economic interests is institutionalized with contractive consequences for the pooling of risks and resources in society. In other words, a segmented social insurance structure tends to discourage formation of collective interests among citizens that cut across social classes, a development that in the long run threatens broad political support for welfare state expansion (Korpi and Palme, 1998). With these consequences in mind, we may formulate the following hypothesis: *The level of minimum income protection tends to be lower in countries where the social insurance system segments citizens into different risk pools.*

¹ Public support is generally stronger for the main areas of state provision which most people use than for provisions used by minorities, such as means-tested benefits (Svallfors, 1996; Forma, 1999; Forma and Kangas, 1999; Taylor-Gooby, 2001).

THE BEVERIDGE HERITAGE

The social insurance system can influence the level of minimum income protection in other ways than those suggested within the political perspective applied above. The level of social insurance benefits provided to individuals in low-paid employment may be as important as the extent to which social insurance benefits cover middle class needs. To discuss this topic in greater detail, a fruitful starting point is the ongoing debate about social citizenship and social rights.

Whereas the old poor relief often deprived the individual of civil and political rights by confinement to the poor house or relief work, the introduction and emergence of social insurance in the late nineteenth century gave the individual a right to claim financial protection from the state under certain conditions. Together with civil and political rights, this new social right formed the basis for modern social citizenship (Marshall, 1950). According to Marshall, the development of social insurance introduced a shift in the emphasis from duties to rights. Contrary to civil and political rights, however, social rights are ultimately conditional upon a fiscal basis (Barbalet, 1988: 67). Since eligibility for social insurance and the amount of benefit received often are closely linked to performance on the labor market, the introduction of social insurance is not so much about a shift in the emphasis from duties to rights, but more of a partial transition from moral to material duties (Sjöberg, 2000). Due to the close relationship between contributions and eligibility, social insurance can be perceived as an earned right.

This character also distinguishes social insurance from means-tested benefits, which guarantee economic assistance out of general tax revenue to those whose income otherwise falls below a prescribed level (Atkinson, 1989: 104-112). In order for these two-tiered systems of social protection to enjoy legitimacy, it seems reasonable to assume that citizens in receipt of social insurance benefits generally are better off than those dependent on minimum income protection policies. How great this 'distance of legitimacy' should be in citizens' view is hard to determine without appropriate survey data.

Nevertheless, it can be expected that the quality of social insurance provisions in some cases have the potential to circumscribe the possibilities of providing high levels of minimum income protection.

The United Kingdom may serve as an example of this more strictly institutional process. Contrary to the situation in many other countries, there has not been any recent investigation about minimum income standards for different family types in the United Kingdom. Instead of being linked to the needs or previous income of the household, social security benefits in the United Kingdom are still largely founded on the proposal for a new social security system outlined by Beveridge in the 1940s (Veit-Wilson, 1986, 1992; Walker, 1993: 44). To offset possible negative effects on the incentives for citizens to enter paid employment, Beveridge followed a ‘less eligibility’ approach in the determination of the benefit scales for social security. This approach implied that social insurance payments were to be kept below the lowest level of a manual worker’s wage. Consequently, since the National Assistance scale rates (which also were outlined in the Beveridge report) were in their turn set at levels slightly below the social insurance rates, it was not possible to make the second tier of the social security system sufficient for maintaining even minimally adequate standards of social life (Stitt, 1994: 101).

This development of social security in the United Kingdom can be compared with the Swedish case. Contrary to the United Kingdom, the major social insurance programs in Sweden combine a flat-rate basic benefit with an earnings-related component. Hence, social insurance in Sweden is not only intended to provide basic security like its British counterpart, but also income security. Originally it was social assistance (*Socialhjälp*) that policymakers in Sweden thought should be kept below the lowest level of a manual worker’s wage, not social insurance like in Britain. Today, the norms for the Swedish Social Welfare Allowance are based on a study of consumer prices undertaken in the early 1980s by the National Consumers Board. Each year the norms are updated in line with movements in the so-called basic price amount within the social security system. One consequence of these institutional differences

is that the level of social insurance in Sweden does not create the same obstacles against improvements in the level of last-resort benefits as those existing in the United Kingdom.

A comparison between the Supplementary Benefit in the United Kingdom and the Social Welfare Allowance in Sweden illustrates this. Whereas the Supplementary Benefit in the United Kingdom only allowed expenditures of 94 pence per week on clothing in 1986 (Bradshaw et al. 1987), the corresponding budget allowed for clothing by the Social Welfare Allowance in Sweden in 1985 was 52 SEK (Socialstyrelsen, 1985: 126), which corresponds to about 3 pound and 60 pence using 1985 purchasing power parities exchange rates. Thus, social assistance recipients in the United Kingdom could only spend about one quarter of the sum available to their Swedish counterparts on clothes. More importantly, if the scale rates of Income Support in Britain today were to guarantee a single person the same amount as the Swedish Social Welfare Allowance, these benefits would be more generous than, for example, the job seekers allowance or the flat-rate pension benefit. In Sweden, on the other hand, the Social Welfare Allowance for a single person is lower than the net basic Swedish unemployment benefit.

Based on these differences it can be argued that as long as policymakers strive for a distance of legitimacy between different tiers of the social security system and as long as the level of social insurance is not substantially raised, it is in practice impossible to provide socially adequate minimum income protection in the United Kingdom. Consequently, the level of social insurance may in some instances set an upper limit to the value of means-tested benefits, which restricts the possibilities of governments to guarantee a high level of minimum income protection. Thus, we may state the following hypothesis: *The higher the levels of minimum social insurance benefits are, the higher the levels of minimum income protection tend to be.*

THE CROWDING OUT OF MEANS-TESTED BENEFITS

Whereas the hypotheses discussed above envision a direct impact of social insurance on the level of minimum income protection, an economic perspective on this relationship suggests a potential indirect effect. This indirect effect is due to the impact of social insurance on the extent of means-tested benefits, which affect the marginal cost of increasing minimum income protection to a certain income level. The extent of means-tested provisions is determined by a number of intervening factors. Governments can affect the impact of some of these variables, while others are beyond the influence of political decisions. An important aspect of social policy in general, and means-tested benefits in particular, is the difficulty governments have in establishing rigid restrictions to control expenditures, such as fixed budget constraints. None of the countries in this study, for example, permit means-tested benefits to be denied simply due to insufficient reserves in government's budgets. To control social security expenditures, governments must rely on other strategies. One possibility is to implement changes in the legal framework governing social security. Hence, from an economic perspective we can assume that politicians take into account expected expenditures when they decide upon eligibility criteria and the level of social security benefits (Aguilar and Gustafsson, 1989).

If we accept the argument that politicians adapt the structure of means-tested benefits in accordance with expected expenditures on such measures, it is also likely that the extent of means-tested benefits is important. This is because the absolute costs of an increase and the absolute gains of a decrease in the level of a particular benefit partly depend on the number of people receiving that type of support. In general, the greater the number of people in receipt of a particular benefit, the greater are the costs for raising the level of such benefits and the greater are the gains from curtailments. Due to these economic consequences, we may formulate the following hypothesis: *The greater the extent of means-tested benefits is, the lower the levels of minimum income protection tend to be.*

One important factor, albeit not the only one, for the extent of means-tested benefits is the structure of social insurance. Even after controlling for the level of unemployment, for example, the institutional structure of social insurance still explains substantial parts of the variation across countries in means-tested benefit expenditures.² The importance of social insurance for the extent of means-tested benefits is also evident in analyses of the long-term development of selective social policies in single countries. In Sweden, for example, the introduction of earnings-related entitlements significantly reduced the relative importance of means-tested social assistance (Gustafsson, 1984; Tham, 1993). Before the old age pension reform and the introduction of a universal child benefit in Sweden in 1948, expenditures for social assistance accounted for 16 percent of all public expenditures for social policy. Two years after the reforms, this share was down to 4 percent (Korpi, 1975), and until the 1990s the rate of expenditures for social assistance and the social welfare allowance fluctuated at around 1 and 2 percent of total social policy expenditures (DsS, 1986: 103).³ This process of ‘crowding out’ the need for social assistance from within the social security system has also been discerned in other welfare states with extensive social rights, such as Norway (Lødemel, 1997).

In other countries, most notably in Australia, Canada, the United Kingdom and the United States, means-tested benefit expenditures have been

² The Pearson’s coefficient of correlation between the volume of social rights and the unstandardized residuals after regressing the standardised unemployment rate on means-tested benefit expenditures is -0.562 in the 18 countries, with data for 1990. The volume of social rights is an additive index of the net social insurance replacement rates for two types of households (a single person and a one-earner family with two children) and coverage in unemployment, sickness, work-accident and old-age pension insurance. Data on the volume of social rights are from SCIP. For information of the SCIP-database see Korpi (1989) and Palme (1990).

³ In connection with the economic crisis and the worsened situation on the Swedish labor market in the early 1990s, expenditures for the social welfare allowance drastically increased. In constant prices, expenditures for the social welfare allowance doubled between 1990 and 1997, where after it is possible to observe a decrease (SOU, 2000: 92). In a comparative perspective, however, expenditures were still on a rather low level.

substantial throughout the post-war period. Contrary to the experience in Sweden, for example, the extent of means-tested benefits in the United Kingdom increased in the post-war period (Atkinson, 1989: 111). The strong reliance on selective benefits in the United Kingdom is often attributed to inadequate social insurance payments, which have forced a vast number of individuals, in particular old people, to complement social insurance income with means-tested benefits. Between 1948 - the year in which the basic security model of social insurance came fully into force in Britain - and 1965, about two-thirds of all National Assistance payments in the United Kingdom were paid in supplementation of national insurance benefits (Walker, 1993: 9). Since social insurance influences the extent of targeted provisions within the wider social security system, the economic perspective discussed above suggests an indirect impact of social insurance on the level of minimum income protection.

DATA

Data on the level of social entitlements, and means-tested benefits in particular, are hard to obtain. The wide range of means-tested benefit programs in the advanced industrialized democracies makes comparative research on minimum income protection challenging. Although most countries in the OECD have some form of general means-tested benefit program which applies to broad categories of citizens, several countries also operate categorical schemes for certain vulnerable groups, such as the elderly, lone parents and the disabled. Due to these differences, the number of implemented means-tested benefit programs varies substantially across countries. At the one extreme, we have Sweden and Finland, where only two major means- or income-tested benefit programs are in operation. At the other extreme, we have countries such as Australia, New Zealand, Ireland and France, where more than ten different programs are in force that delivers benefits after a means- or an income-test. The world of means-tested benefits becomes even more complex, considering that the schemes often differ in aspects such as how

benefits are calculated, the harshness of the means-test, whether eligibility for benefit is based on rights or discretionary decisions by lay people, the conditions attached to benefits, the level of government responsible for financing and operating the schemes, and so forth (Eardley et al. 1996a).

Despite this vast institutional diversity, some large-scale cross-national comparisons of means-tested state provisions have been made (see Fridberg, 1993; Eardley et al. 1996a; Guibentif and Bouget, 1997; Ditch et al. 1997; OECD, 1998a, 1998b, 1999). Some studies have even tried to develop distinct social assistance regimes or typologies of social assistance (see Leibfried, 1992; Lødemel and Schulte, 1992; Gough et al. 1997). Among the latter, only the contribution by Gough and his collaborators is based on systematic evaluations of quantitative indicators of the structure of means-tested benefit programs. It is also the only typology that takes the value of such benefits into consideration.⁴ Data on the level of minimum income protection in this study are from the pioneering work by Eardley et al. (1996a), where researchers compared the disposable income of persons receiving means-tested benefits with the disposable income of the same household type where the head is earning average male earnings.⁵ Since it is assumed that the households do not have any income from work or capital and that none of the household members are entitled to social insurance benefits due to past work record, the

⁴ The correspondence between the quantitative indicators of the structure of means-tested benefits and the typology elaborated by Gough et al. (1997) has recently been tested and confirmed by means of cluster analysis (Gough, 2001).

⁵ The exception is the replacement ratios for old age pensioners, where the disposable income of a single person with work income and the disposable income of a one-earner couple are used as denominators. For detailed information on the data see Eardley et al. (1996a). Type case family comparisons have been used in a number of comparative studies to assess the value of social entitlements - see for example the large amount of research coming from the SCIP database (see Korpi, 1989; Palme, 1990; Kangas, 1991; Wennemo, 1994; Carroll, 1999; Sjöberg, 2000; Montanari, 2000; Ferrarini, 2003), or Bradshaw et al. (1993, 1996, 2002), Kemp (1997) and Behrendt (2002). Nonetheless, the method is not without limitations. One restriction is that it describes how social policy systems formally should work, which in some cases differs from reality. For example, in countries where benefits are paid at the discretion of social workers, eligibility for benefits and the amount of benefits actually received may differ from that suggested by national or local guidelines. Some evidence for this has been presented for Sweden (Minas and Stenberg, 2000).

data collected by Eardley and his colleagues serve as a valid measure of the generosity of minimum income protection. Besides different kinds of means- and income-tested benefits, the numerator also includes universal cash benefits, such as child benefits in some countries.⁶

Table 1 shows the level of minimum income protection after housing costs as an average for nine type case households in the 18 countries in 1992: single (age 35), single (age 68), couple (both of age 35), couple (both of age 68), couple (both of age 35) with 1 child (age 3), couple (both of age 35) with 1 child (age 7), couple (both of age 35) with 2 children (age 7 and 14), lone parent (age 35) with 1 child (age 3) and lone parent (age 35) with one child (age 7). In some countries, most notably Austria, Canada, Italy, Switzerland, and the Nordic countries, the value of means-tested benefits varies locally or by region, which implies that the levels shown in the table in some instances are not fully applicable to the whole nation (Gough et al. 1997). In general, the level of minimum income protection reflects that guaranteed in capital city areas.

The generosity of minimum income protection varies greatly across countries, ranging from 86 percent of the former disposable income of the working household in Switzerland to 20 percent in the United States. The generosity of minimum income protection in Switzerland may be somewhat over-estimated due to the discretionary system of payments (Eardley et al. 1996a: 129). Minimum income protection is clearly above one-half the disposable income of a household with work income in eight countries, Austria, Denmark, Finland, Italy, the Netherlands, Norway, Sweden and Switzerland, and clearly below this in seven countries, Belgium, Canada, France, Germany, New Zealand, the United Kingdom and the United States. Australia, Ireland and Japan hold an intermediate position with levels at about one-half the disposable income of an average production worker. The level of minimum

⁶ In order to take account of the value of health care and free or subsidized pre-school provision, also health care costs and school and child-care costs were taken into consideration.

income protection in Italy should be treated with caution, as the figures for non-pensioner households may be less accurate than for other countries (Eardley et al. 1996a: 130).

Table 1. *Average level of minimum income protection (mip) after housing costs for nine type case households and difference in country rankings (rank order specific type of household - average ranking) in 18 countries, 1992. Negative values indicate improvements in country rank orderings*

Country	Mip	Difference in country rankings			
		Single person	Single pensioner	Family with two children	Single parent with one child
Australia	53	0	1	0	1
Austria	74	3	2	-3	0
Belgium	40	-5	-2	1	-6
Canada	35	1	-1	-1	0
Denmark	66	0	-5	1	-3
Finland	78	2	4	1	2
France	43	1	-4	6	4
Germany	44	1	2	-2	1
Ireland	49	1	-3	-1	4
Italy	60	-6	3	-1	-4
Japan	45	-2	2	-3	-4
Netherlands	73	-4	-3	0	-3
New Zealand	43	2	3	-1	1
Norway	57	4	-1	1	0
Sweden	77	1	1	0	5
Switzerland	86	1	3	2	0
United Kingdom	42	1	-2	0	2
United States	20	-1	0	0	0

Note: Minimum income protection is defined as the benefit package provided to households without work income where none of the members are entitled to state provisions based on past work record.

Source: Eardley et al. (1996a).

The average levels of minimum income protection described above conceal variations between households. Table 1 also shows the difference in country rankings when, instead of an average of all household types, the level of minimum income protection guaranteed to certain types of households is compared. Most country rankings are rather stable across households, indicating that the average values used above are fairly consistent indicators of the

overall generosity of minimum income protection. However, a few countries significantly change in ranking after the average is broken down into its constituent parts. In particular Belgium improves in ranking for single persons and lone parents. Relative to other countries, Italy also clearly provides more generous benefits to single persons than to pensioners and two-parent families with children. In contrast, minimum income protection in Denmark is evidently more generous to pensioners. Furthermore, in France and Sweden, the level of minimum income protection for two-parent families with children and lone parents, respectively, is clearly lower than the overall average suggests.

The capacity of social insurance to respond to middle class needs for income security is measured by a weighted additive index of gross replacement rates in state-legislated unemployment compensation, sickness cash benefits, worker's compensation and old age pensions. For the three former programs, the gross replacement rate reflects the average of the ratio between the gross benefit and the gross wage for two types of households (a single person and a one-earner family with two children) earning 1.0, 1.1, 1.2, and up to 3.0 times an average production worker's wage.⁷ Two periods of duration are used, 1 week and 26 weeks in receipt of benefits. For pensions, only couples are used and the amount of benefit reflects that received during a whole year. For each program, earnings ceilings are taken into account, but not any means- or income-tested benefits to which the type-case households would be entitled.

Social insurance programs differ in terms of relevance for the formation of interests groups. Whereas the risks of becoming unemployed or

⁷ This measure of income security in social insurance is sensitive to the wage series chosen in the calculation of statutory entitlements. This is particularly the case in countries that do not have legislated maximum social insurance benefits. For any or all of the social insurance programs taken into consideration in this study, five countries fall into this category: Australia, Finland, Italy, Japan and Switzerland. Nevertheless, the main results presented below do not change if the wage series is truncated at two times an average production worker's wage.

exposed to accidents at work vary greatly across socio-economic categories, old age pensions and sickness cash benefits are important for all citizens (Korpi and Palme, 1998). Due to the relationship between such social risks and labor market position, a weighted index is used. Unemployment compensation and work accident insurance each receive a weight of 1, while pensions and sickness cash benefits each receive a weight of 2. If eligibility for benefit in any of the programs is based on a means- or an income-test, as in Australia and New Zealand, the program has received a weight of 0. The data on income security refers to 1990.

A measure of minimum social insurance benefits is needed to test whether the 'floor' in social insurance creates a 'roof' for minimum income protection. The problem is that only a few countries have legislated minimum benefits in their social insurance system. To assess the level of the minimum benefits in unemployment, sickness, and work accident insurance, I have followed a stepwise procedure. First, in cases where legislated minimum social insurance benefits exist, these have been used. For unemployment insurance this includes Austria, Belgium, Finland, France, Ireland, Italy, Japan, Norway, Sweden, the United Kingdom and the United States. The countries satisfying this condition for sickness insurance are Denmark, Finland, France, Ireland, Japan, Norway, Switzerland and the United Kingdom. For work accident insurance the countries are Belgium, Canada, Denmark, Finland, Ireland, Japan, New Zealand, Norway and the United Kingdom. Second, if such legislation does not exist, the level of minimum social insurance benefits has been estimated on the basis of national legislated minimum wages. This includes accident insurance in Australia, France, the Netherlands and the United States; sickness insurance in Belgium, Canada, the Netherlands and New Zealand; and unemployment insurance in Canada, the Netherlands and New Zealand. Third, for social insurance programs that do not fit into these categories, the level of minimum social insurance benefits has been estimated on the basis of collective agreements on minimum wages in production industries. For old

age pensions I have relied on SCIP data and the indicator of minimum pension benefit levels developed by Palme (1990).

The level of minimum social insurance benefits is expressed as a proportion of an average production worker's gross wage for a single person and for a one-earner family. The variable used in the analysis is an average of the two family types over the four social insurance programs mentioned above with data referring to 1990. The degree of income security in social insurance and the level of minimum social insurance benefits have been calculated on the basis of the information on statutory social entitlements provided by the US Department of Health, Education, and Welfare (1989, 1991), the Commission of the European Communities (1991), and the SCIP database. National legislated minimum wages are from the minimum wage series in OECD (2003), whereas data on collective agreements on minimum wages in production industries are based on information provided by European Industrial Relations Observatory.⁸

A dummy variable is used to capture whether the social insurance system segments citizens into different risk pools. The categorization of countries is based on the typology of social insurance institutions elaborated by Korpi and Palme (1998). Only countries with state corporatist social insurance institutions receive a value of one. It should be noted that Korpi and Palme categorized the social insurance systems of countries based on the institutional structure of pensions and sickness cash benefits. In those few cases where the two programs differed, pensions were used to characterize the country. This implies that individual programs sometimes deviate from country classifications. For example, whereas sickness insurance in the Netherlands is still fragmented with separate programs for different parts of the labor force and for enterprises of different sizes, all citizens are covered by a single pension scheme.

⁸ The archive on developments in industrial relations in Europe kept by the European Industrial Relations Observatory can be accessed at <http://www.eiro.eurofound.ie/index.html>

Institutional structures can also segment citizens into different risk pools indirectly via the extent to which citizens in different earnings groups have to rely on private or occupational insurance to secure their living standard. However, this form of segmentation is captured by the former variable measuring the degree of income security provided by social insurance. Furthermore, due to the possibility of private firms of opting out of the national social insurance system, one could argue that the insurance system in the United Kingdom should be coded as a segmented system. However, a re-coding of the United Kingdom does not affect the results reported in the subsequent section. Finally, the economic hypothesis is evaluated by a variable reflecting total means-tested benefit expenditures as a percentage of GDP in 1991. This data is from Eardley et al. (1996a), with the exception of New Zealand where data is from ILO's figures on the costs for social security.

Table 2 shows each country's score on the independent variables. All variables show substantial cross-national variation. In general, the social insurance systems in Sweden, Finland, Norway, Japan and the continental European countries provide comparatively high levels of income security, whereas corresponding systems in the English-speaking countries together with Denmark give the middle classes more modest income protection. Five countries of continental Europe – Austria, Belgium, France, Germany and Italy – segment citizens into different risk pools. Japan is also added to this group due to the state corporatist structure of social insurance.

The level of minimum social insurance benefits is around or above 50 percent of an average production worker's gross wage in Australia, Belgium, Denmark, Norway, Sweden and Switzerland. It is below 30 percent in Canada, Italy, Japan, the United Kingdom and the United States. Seven countries, Austria, Ireland, Finland, France, Germany, New Zealand and the Netherlands, hold an intermediate position at levels around or above 30 percent but below 50 percent of an average production worker's gross wage.

Table 2. *Independent variables in 18 countries in the early 1990s*

Country	Degree of income security in social insurance	Fragmented social insurance system	Minimum social insurance benefits	Means-tested benefit expenditures
Australia	0.17	no	0.55	6.10
Austria	0.62	yes	0.34	1.20
Belgium	0.51	yes	0.50	0.70
Canada	0.26	no	0.27	2.30
Denmark	0.32	no	0.54	1.40
Finland	0.61	no	0.30	0.30
France	0.40	yes	0.34	0.50
Germany	0.44	yes	0.31	1.60
Ireland	0.24	no	0.43	4.70
Italy	0.61	yes	0.25	1.50
Japan	0.52	yes	0.22	0.30
Netherlands	0.48	no	0.43	2.20
New Zealand	0.23	no	0.46	4.60
Norway	0.50	no	0.58	0.70
Sweden	0.59	no	0.51	0.40
Switzerland	0.59	no	0.50	1.09
United Kingdom	0.19	no	0.22	2.10
United States	0.25	no	0.14	1.20

Note: The degree of income security in social insurance is measured by a weighted index of gross replacement rates in statutory unemployment, sickness, work accident and old-age pension insurance at different levels of earnings. State corporatist social insurance is assumed to segment citizens into different risk pools. Minimum social insurance benefits are shown as a proportion of an average production worker's wage, whereas means-tested benefits expenditures are expressed as a percentage of GDP.

Source: See above for details.

The level of means-tested benefit expenditures has a different pattern. Not surprisingly, Australia and New Zealand belong to the cluster of high-spending countries. This category also includes Canada, Ireland, the Netherlands and the United Kingdom, where means-tested benefit expenditures amount to more than 2 percent of GDP. Low-spending countries with means-tested benefit expenditures below 1 percent are Belgium, Finland, France, Japan, Norway and Sweden. Means-tested benefit expenditures in the remaining countries are between 1 and 2 percent of GDP.

METHODOLOGICAL CONSIDERATIONS

Although multiple regression is a powerful statistical technique which in theory allows the investigator to estimate the separate contribution of each cause and make broad generalizations on important social issues, the small number of cases in this study (18 countries) places serious constraints on statistical sophistication. One problem is that the limited number of cases restricts the amount of variables to be included in the models, which among other things makes it difficult to test for interactions between possible causes. The 'few degrees of freedom' problem is not unique to this study. Ragin (1987), for example, argues that most data used in macro-comparative research suffer from the small-N problem. Since multiple regressions do not allow extensive tests of causal conjunctures in such instances, multivariate statistical models usually assumes additive causation.

One strategy, typically taken when the number of cases is too small to allow customary statistical techniques, is to rely on logical methods (Lieberson, 1997). This is the approach suggested by Ragin (1987) in his discussion of the comparative method. According to Ragin, the comparative method involves a change from quantity to quality as an analytic strategy in the assessment of causal conditions. However, the extension of the logic and in-depth knowledge of qualitative research beyond studies of only a handful of cases requires a formalized method of qualitative research, such as QCA (Ragin, 1987, 1994, 1997; Ragin and Griffin, 1994; Ragin et al. 1996).

QCA is based on the presence and absence of different attributes and assesses all logically possible combinations of conditions necessary and/or sufficient to produce a certain outcome. Compared with traditional multivariate techniques, QCA anticipates interactions rather than additive causation as well as causal heterogeneity rather than causal homogeneity. Although these peculiarities give an advantage over traditional inferential statistical methods in the analysis of causal complexity and improve the ability to deal with some of the problems identified by Lieberson (1991) concerning Mill's (1874) methods of causal inference as applied to social science, the deterministic

nature of the relations often assumed in QCA has been subject to criticism (Liebersohn, 1991, 1997; Little, 1995; Goldthorpe, 1997).⁹ According to Liebersohn (1997), QCA over-emphasizes the importance of causal configurations, since it cannot sort out conclusions reflecting random combinations of variables from those expressing 'true' causal relationships. QCA also requires continuous or multi-categorical ordinal data to be re-scaled into dichotomies with additional loss in information. In addition the method is more sensitive to changes in the values of single variables than traditional multivariate statistical techniques (Kangas, 1994; Ferrarini and Nelson, 1997).

Due to these problems, Ragin (2000) recently proposed the use of fuzzy instead of crisp data sets in the assessment of causal relationships in small-N research. A fuzzy set contains values between 0 and 1, where 0 indicates full non-membership, 1 dictates full membership and 0.5 is the cross-over point where a case is neither in nor out of a set. Since fuzzy set analysis is relatively new to social science, it has previously been applied only in a few macro-comparative studies (see Ragin, 2000: 261-308; Kvist, 1999, 2002). Fuzzy set analysis has several features in common with QCA, for example the holistic nature of perceiving cases as configurations of different attributes and the ability to address questions of necessity and sufficiency. Despite the similarities, fuzzy set analysis has several advantages over analyses of so-called 'crisp' datasets. One major advantage is that while QCA only focuses on qualitative differences, fuzzy set analysis also takes quantitative differences into account. Hence, fuzzy data sets allow simultaneous analyses of differences in kind and differences in degree. This makes better use of available evidence and results in more precise assessments of causal conjunctures than

⁹ Mill's (1874) methods of causal inference are known as 'the method of difference' and 'the method of agreement'. The former concerns situations where the cases in the analysis are similar in as many aspects as possible except for the outcome, whereas the latter involves situations where the outcome remains unchanged among cases, which possess rather different characteristics. According to Liebersohn (1991), Mill's methods of inferring causality suffer from the assumptions of no errors in measurement, the existence of only one cause and the absence of interactions.

analyses on crisp data sets. In regard to the dependent variable, this character also distinguishes fuzzy set analysis from traditional regression techniques, which usually either focuses on qualitative or quantitative differences.

Another advantage of using fuzzy instead of crisp data sets is that the possibilities of conducting probabilistic assessments of sufficiency are improved. In QCA, only instances displaying a certain outcome are included in such analyses. Consequently, the number of cases is often too small to support claims of sufficiency from a probabilistic perspective, even though a given causal combination in every instance displays a certain outcome. In the fuzzy set approach, all cases with non-zero values are included in assessments of sufficiency, something that generates a greater amount of empirical evidence and improves the ability to use probabilistic statements.

As with all methods used to establish causal relationships, fuzzy set analysis also has its weak points and limitations. One problem involves the transformation of raw data into fuzzy set membership scores, in particular when original data have no natural upper and lower bounds (Smithson, 1987). Whereas linear rescaling of variables does not affect correlations in multiple regressions, they may have profound consequences in fuzzy set analysis. Some even argue that the usefulness of fuzzy sets ultimately depends on the capability to convert original variables to appropriate fuzzy membership functions (Klir and Yuan, 1995). Nevertheless, there is no agreement on how fuzzy membership functions are to be obtained. Basically, researchers have relied on one of three methods for assigning membership in fuzzy sets: subjective judgments, parametric functions, or non-parametric approaches (Verkuilen, 2001). The first method is the one proposed by Ragin (2000) and it is also the one applied by Kvist (1999, 2002). Since any practical application of fuzzy set analysis depends strongly on the quality of membership assessment, it is fruitful to compare the results of using it with those of QCA, which is based on dichotomized data and not sensitive to variations between cases above or below the cross-over point.

RESULTS

This section begins with results from QCA followed by fuzzy set analysis and multivariate OLS regression. An important step in QCA is to transform raw data into dichotomies. The procedure employed here is to ascribe a value of 1 to each case on a particular variable that exceeds the median score for all 18 countries, and a value of 0 if it does not exceed the median. The truth table for the raw data is presented in *Table 3*.

Table 3. *Truth table for determinants of generous minimum income protection*

Combination				Outcome	Contradiction	Cases
S	E	M	I	G		
0	1	1	0	1	?	Australia, Denmark
1	0	0	1	1	?	Austria
0	0	0	1	1		Finland
1	1	0	1	1		Italy
0	1	1	1	1		Netherlands
0	0	1	1	1		Norway, Sweden, Switzerland
1	0	1	1	0		Belgium
0	1	0	0	0		Canada, United Kingdom
1	0	0	0	0		France
1	1	0	0	0		Germany
0	1	1	0	0	?	Ireland, New Zealand
1	0	0	1	0	?	Japan
0	0	0	0	0		United States

Note: I = high degree of income security in social insurance, E = high level of means-tested benefit expenditures, M = high level of minimum social insurance benefits, S = segmented social insurance system, G = generous minimum income protection, ? = contradictory combination.

A truth table simply lists the different combinations of conditions and the value of the outcome variable for the cases representing each combination. All codes in the table are Boolean in character, where 1 indicates presence of a condition and 0 its absence. Similarly, in QCA upper-case letters denotes that a condition or outcome is present, whereas lower-case letter indicate that it is absent. Thirteen different primitive combinations of conditions are found; six of these are associated with generous minimum income protection. Two configurations are contradictory, since they result in

both positive and negative outcomes. Contradictory combinations are denoted with question marks in the table, and can be solved in a number of ways (see Ragin, 1987; Coverdill et al. 1994; Kangas, 1994). In this analysis I treat them as nonexistent, in which the algorithm determines which value the contradictory rows receive on the outcome (Ragin, 1987: 116). In this particular case, the combination of conditions shared by Australia, Denmark, Ireland and New Zealand receive a coding of 0 on the outcome, whereas the configuration of conditions in Austria and Japan is given a value of 1.

Another decision in QCA concerns the use of remainders, which are used to simplify the configurations linked to an outcome. If remainders are used, the researcher assumes that nonexistent combinations of conditions actually are present and share the outcomes indicated in the equation derived from the truth table. Most practitioners of QCA either refrain from using remainders or include as many of them as possible. For a discussion of the use of remainders and simplifying assumptions in QCA see Ragin (2003). In the analysis below I chose the former method and avoid using remainders altogether.¹⁰

The next step in QCA is to eliminate redundant terms from the causal configurations and to reduce the number of logically necessary and sufficient combinations. In order to minimize the truth table, rows that differ only on one causal condition but contain the same outcome are combined into a single simpler expression. These simpler expressions, known as prime implicants, are further reduced until we arrive at the minimum number of configurations necessary to cover all primitive expressions displaying the outcome. The final solution of these exercises is displayed in *Table 4*, which shows a chart of the logically essential prime implicants.

¹⁰ Constraining all contradictory configurations from the analysis or including all possible remainders as simplifying assumptions does not alter the main results presented below. Although these exercises affect the combination of conditions displayed by the prime implicants, a high degree of income security provided by social insurance is still the only necessary condition for high levels of minimum income protection.

Table 4. *Logically essential prime implicant chart for generous minimum income protection*

Prime implicant	Primitive expression displaying the outcome					Country
	S e m I	s e m I	S E m I	s E M I	s e M I	
s M I				X	X	Net, Nor, Swe, Swi
s e I		X			X	Fin, Nor, Swe, Swi
S m I	X		X			Aut, Ita

Note: I = high degree of income security in social insurance, E = high level of means-tested benefit expenditures, M = high level of minimum social insurance benefits, S = segmented social insurance system, G = generous minimum income protection. Upper-case letters denote presence of this condition, whereas lower-case letters denote absence.

Three combinations of conditions cover all primitive expressions displaying the outcome.¹¹ The only condition present in all instances of the outcome is a high degree of income security in social insurance. This indicates that the social insurance system must respond to middle class needs of income protection if governments are also to provide a high level of minimum income protection. Notwithstanding the necessity of a high degree of income security in social insurance, this factor alone is not sufficient for producing generous minimum income protection. To be sufficient, it must be combined with either (a) a non-segmented social insurance system and high levels of minimum social insurance benefits, (b) a non-segmented social insurance system and low levels of means-tested benefit expenditures, or (c) a segmented social insurance system and low levels of minimum social insurance benefits.

The last prime implicant is difficult to evaluate theoretically since it contains conditions not expected in the hypotheses. The countries sharing the attributes of this configuration are Austria and Italy, where the corporatist social insurance programs provide relatively modest minimum benefits but high degrees of income security for the well-off. Norway, Sweden and Swit-

¹¹ Australia and Denmark are not included in Table 4, since both these countries in this analysis receive a coding of zero on the outcome. Japan is not included since this country initially had a zero on the outcome.

zerland share the conditions contained in both the first and second prime implicant, whereas the Netherlands only possesses the characteristics of the former solution and Finland the latter. Hence, if Finland or the Netherlands were excluded from the analysis, their associated prime implicants would not end up in the final solution of combinations of conditions linked to the outcome. If both these countries are excluded from the analysis, only the following configuration in addition to the first prime implicant in Table 4 is included in the final solution: $G = s e M I$. That is, after exclusion of Finland and the Netherlands, the combination of a non-segmented social insurance system, a high degree of income security in social insurance, a high level of minimum social insurance benefits and low means-tested benefit expenditures is sufficient to produce high levels of minimum income protection. Notably, all the conditions included in this configuration are in line with the hypotheses formulated above.

In sum, QCA gives strongest support to the middle class perspective on the institutional linkage between social insurance and minimum income protection, in particular to the hypothesis emphasizing the importance of the extent to which social insurance covers middle class needs. To recapitulate, a high degree of income security is the only condition necessary to provide high levels of minimum income protection. Although a non-segmented social insurance system seems to explain parts of the cross-national variation in the generosity of minimum income protection, high levels of minimum income protection can also be found in countries where social insurance programs are fragmented along occupational lines, as exemplified by Austria and Italy.

In the application of fuzzy set methods, I convert all raw variables into seven-value fuzzy sets.¹² For the continuous variables, this is accomplished by

¹² This is the strategy recommended in the fs/QCA 0.963 users' guide (Drass, 1999). Seven-value fuzzy sets are also used in Ragin (2000: 262-286). The results do not change if I instead for each variable choose the median as the qualitative breakpoint, and give the lowest and highest scores no and full membership in the set, respectively, and then array the remaining cases in between these three values according to their scores on the independent variables. For an application of this procedure see Ragin (2000).

calculating cut-off points for seven equal groups. The dichotomized structure of the variable measuring a segmented structure of social insurance is kept in its original shape. The next step is to test for necessity. Since there are four causal conditions, there are eight tests of necessity to conduct; each independent variable is tested in its original and negated forms. In fuzzy set analysis, a condition is necessary when each country's membership score on the outcome is less than or equal to the membership score on the presumed cause. In analyses of necessity, we consequently look for conditions that for each case in the sample have a membership score above or equal to that of the outcome. *Table 5*, which contains the fuzzy set membership scores for the four independent variables and the dependent variable, shows that none of the explanatory variables satisfies this condition. For each variable, at least seven countries have a membership score below that of the outcome. Hence, no variable is found to be necessary for high levels of minimum income protection.

The next task is to test for sufficiency. Evaluation of sufficiency is the reverse of that employed in analyses of necessity. In analyses of sufficiency, cases displaying the causal condition should form a subset of the cases displaying the outcome. Hence, each country's membership on the cause should be less than or equal to the membership in the outcome, which is not the case for any of the four explanatory variables in the model. However, whether combinations of several variables are related to the outcome is of special interest in the analysis of sufficiency. In fuzzy set analysis, two or more sets are joined by the principle of the minimum. Hence, if a country has a membership score of .83 on variable A and a score of .33 on variable B, the intersection of A and B is equal to .33. With four conditions, 72 sufficiency tests remain to be evaluated. Only one combination of conditions passes the test for sufficiency, using a benchmark of .80, a significance level of .05 and

an adjustment factor of .17 (corresponds to one fuzzy membership category).¹³

Table 5. *Fuzzy set membership scores for the independent and dependent variables*

Country	S	E	M	I	s	e	m	i	G
Australia	0.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.50
Austria	1.00	0.33	0.33	1.00	0.00	0.67	0.67	0.00	0.83
Belgium	1.00	0.17	0.67	0.67	0.00	0.83	0.33	0.33	0.17
Canada	0.00	0.83	0.17	0.33	1.00	0.17	0.83	0.67	0.00
Denmark	0.00	0.50	0.83	0.33	1.00	0.50	0.17	0.67	0.67
Finland	0.00	0.00	0.33	0.83	1.00	1.00	0.67	0.17	1.00
France	1.00	0.17	0.33	0.33	0.00	0.83	0.67	0.67	0.17
Germany	1.00	0.67	0.33	0.50	0.00	0.33	0.67	0.50	0.33
Ireland	0.00	1.00	0.50	0.17	1.00	0.00	0.50	0.83	0.50
Italy	1.00	0.67	0.17	0.83	0.00	0.33	0.83	0.17	0.67
Japan	1.00	0.00	0.00	0.67	0.00	1.00	1.00	0.33	0.33
Netherlands	0.00	0.83	0.50	0.50	1.00	0.17	0.50	0.50	0.83
New Zealand	0.00	0.83	0.67	0.17	1.00	0.17	0.33	0.83	0.17
Norway	0.00	0.17	1.00	0.67	1.00	0.83	0.00	0.33	0.67
Sweden	0.00	0.17	0.83	0.83	1.00	0.83	0.17	0.17	0.83
Switzerland	0.00	0.33	0.67	0.83	1.00	0.67	0.33	0.17	1.00
United Kingdom	0.00	0.67	0.00	0.00	1.00	0.33	1.00	1.00	0.17
United States	0.00	0.33	0.00	0.17	1.00	0.67	1.00	0.83	0.00

Note: I = membership in the set of countries with high degrees of income security in social insurance, E = membership in the set of countries with high levels of means-tested benefit expenditures, M = membership in the set of countries with high levels of minimum social insurance benefits, S = membership in the set of countries with segmented social insurance programs, G = membership in the set of countries with generous minimum income protection. Lower-case letters indicate membership in opposite sets on each condition. For example, i = membership in the set of countries with low degrees of income security in social insurance.

The following expression passed the test for sufficiency: $G = E M I$. Hence, the fuzzy set analysis also reveals an association between the degree of income security in social insurance and the level of minimum income protection. However, for this variable to be sufficient, it must be combined with a high level of minimum social insurance benefits and a large extent of means-

¹³ A benchmark of .80 can be interpreted as if the configuration of conditions is almost always sufficient to produce the outcome. The adjustment factor is used to take account of imprecision in measurement of fuzzy membership scores. In this analysis, each case's score on the outcome can be .17 fuzzy membership units below the case's score on the cause, without violating claims of sufficiency.

tested benefits. The route to generous means-tested benefits suggested by the fuzzy set analysis is rather different from those discovered by QCA. The sufficient combination of factors revealed by fuzzy set analysis is also less theoretically consistent, since it is difficult to interpret the positive impact of means-tested benefit expenditures on the level of minimum income protection.

Obviously, there is a potential problem here of two-way causality, since the level of minimum income protection may affect the level of expenditures on such measures. Hence, there may exist a positive relationship between the level of minimum income protection and expenditures for means-tested benefits. However, due to the substantial differences that exist between countries in the number of individual beneficiaries of means-tested benefits (see for example Eardley et al. 1996a), it is doubtful whether the level of minimum income protection actually explains why some countries spend more on means-tested benefits than others. In fact, an inspection of the correlation between the two variables, as displayed in *Table 6*, reveals the opposite, namely a negative correlation, which is in correspondence with the hypothesis formulated above.

Table 6. *Pearson correlation coefficients between independent and dependent variables*

	S	M	E	I
G	-0.15	0.46	-0.20	0.65
I	0.44	0.06	-0.71	
E	-0.38	0.25		
M	-0.31			

Note: I = income security in social insurance, E = means-tested benefit expenditures, M = minimum social insurance benefits, S = segmented social insurance system, G = generosity of minimum income protection.

The correlations between the other independent variables and the level of minimum income protection are also in the expected direction. Both the degree of income security in social insurance and the level of minimum social insurance benefits are positively related to the generosity of minimum income

protection, whereas a segmented social insurance system is negatively correlated with the outcome.

A series of multivariate OLS regression are finally performed to assess the separate impact of the independent variables. Models 1 and 2 in *Table 7* show the results when the four independent variables are regressed on the benefit generosity of minimum income protection. Since the limited number of countries makes OLS estimations sensitive to outliers and influential cases, it is important to analyze the residuals. Fortunately, advanced statistical software packages make it relatively easy to plot residuals and compute different types of sensitivity measures to check for cases that have a substantial impact on the parameter estimates. If necessary, reanalyses are performed without such cases to explore the impact of these particular observations.

After controlling for other independent variables, the degree of income security in social insurance and the dummy variable capturing a segmented social insurance system are still in the expected directions. Both coefficients are also statistically significant. Even though it is in the hypothesized direction, the coefficient for the variable measuring the level of minimum social insurance benefits is far from statistically significant. Notably, the impact of means-tested benefit expenditures changes when the other factors are controlled for, going from a negative to a positive relationship. However, the coefficient is not statistically significant. The exclusion of Australia, which is a problematic case in this analysis, does not change the fit of the model or the coefficients for the independent variables to any great extent.

Since QCA and fuzzy set analysis revealed that only certain combinations of conditions are sufficient to produce high levels of minimum income protection, two interaction terms are also tested. Model 3 includes the interaction between the degree of income security in social insurance, means-tested benefit expenditures, and the dummy for a fragmented social insurance system. The interaction term in model 4 differs in that the extent of means-tested benefits is replaced by the variable capturing the level of minimum social insurance benefits. Since the inclusion of interaction terms may introduce

serious problems of collinearity with adverse effects on the standard errors of the regression coefficients, the t statistic is not generally to be trusted. Although the models still are statistically significant, the explained variance is actually less than before the interaction terms were introduced. Hence, OLS regression does not support the presence of interaction effects.

Table 7. *Ordinary least squares regression of the generosity of minimum income protection (unstandardized coefficients, T-statistics within parentheses)*

	Model 1	Model 2	Model 3	Model 4
Independent variable		(Excludes Australia)	(Excludes Australia)	(Excludes Australia)
I	119.27** (5.19)	119.21** (5.01)	120.06** (4.78)	121.51** (4.87)
S	-16.40* (-2.89)	-16.69* (-2.81)	-17.27* (-2.55)	-17.84* (-2.75)
E	3.76 (1.76)	3.32 (1.31)	3.85 (1.05)	3.05 (1.14)
M	22.89 (1.13)	21.31 (0.99)	21.92 (0.97)	12.03 (0.43)
S*E*I			-1.20 (-0.21)	
S*M*I				2.45 (-0.53)
Adj. R ²	0.72	0.72	0.69	0.70
Stand. error of estimate	9.46	9.79	10.21	10.10

Note: I = income security in social insurance, E = means-tested benefit expenditures, M = minimum social insurance benefits, S = segmented social insurance system, G = generosity of minimum income protection. * = $p < .05$; ** = $p < .01$.

DISCUSSION

This study goes beyond traditional explanations of welfare state diversity since attention is devoted to the interplay between different areas of the social security system. Theoretically, I have argued that the structure of social insurance may have an impact on the political, budgetary and institutional

possibilities of governments to guarantee citizens high levels minimum income protection when the main system of social protection, i.e. social insurance, fails. From this perspective, social insurance systems have important implications for politicians' scope of action concerning decisions about the generosity of minimum income protection. The empirical evidence suggests that not all aspects of social insurance are of equal importance in this respect. The only institutional feature supported by each of the three different analyses employed – QCA, fuzzy set analysis and OLS regression – was the degree of income security provided by social insurance. However, both QCA and OLS regressions showed that a fragmented social insurance system is negatively associated with the level of minimum income protection. Taken together, these findings support the middle class inclusion hypothesis, where policy feedbacks on citizens' values and interests have a crucial role. Although the empirical analyses cannot rule out the importance of minimum social insurance benefits or the demand for means-tested benefits for the generosity of minimum income protection in certain countries, such factors seem to be of limited relevance cross-nationally.

According to one of the hypotheses, it was assumed that there ought to be a 'distance of legitimacy' between the two tiers of the overall social security system. However, this hypothesis did not receive strong support in the regression analyses. This may reflect that I have not considered any occupational benefits citizens might receive. In reality, it is likely that individuals include such benefits when deciding whether minimum income protection is too generous or not. If so, the explanatory variable needs to be operationalised accordingly to allow a comprehensive test of this hypothesis in future analyses. Furthermore, although the value of benefits is important for the extent to which minimum income protection guarantees an adequate standard of living and contributes to the alleviation of poverty, it is not the only relevant institutional feature in this respect. Factors related to the take-up and coverage of benefits are also important. One such factor is the harshness of the means test, that is, to what extent income and assets are taken into ac-

count in the determination of eligibility. There is, for example, some evidence that generous means-tested benefits sometimes are combined with more strict means-tests (Eardley et al. 1996a). However, the causes of cross-national variations in income and assets disregards is another question than that addressed here, and consequently beyond the scope of the present study.

Although I emphasize the role of social insurance for the generosity of minimum income protection, other factors are also relevant for the quality of social policies for the poor. One such factor is most likely partisan politics. Although political explanations have been successfully applied in the area of social insurance and family policies, it is less clear how fruitful such perspectives on social policy making are for explaining variations across countries in the level of minimum income protection. The labor movements in Germany and Sweden, for example, were at least up to the 1970s more interested in the development of policies for workers, such as social insurance, than in policies for the poor, for example means-tested benefits. In both these countries the interests of the poor were mainly catered for by professional experts and practitioners (Holgersson, 1981; Leisering and Leibfried, 1995). Furthermore, in a study of Swedish municipalities dating back to the mid-1980s, Aguilar and Gustafsson (1989) find that the strength of left parties in the local councils has a very limited role in the determination of the generosity of the local norms for the Social Welfare Allowance.

These illustrations do not imply that I reject political explanations for cross-country differences in the generosity of minimum income protection. On the contrary, I would argue that since we deal with publicly financed institutions, partisan politics are relevant. But so is the structure of social insurance in itself. The analyses show that social insurance may either obstruct or facilitate a favorable development in the value of minimum income protection. In other words, given that politicians are willing to provide a high level of minimum income protection, the structure of social insurance may in some instances further promote such a development, while in other cases it may create obstacles for improvements. Hence, from this perspective social in-

surance is an important intermediate variable in the development of social policies targeted to the poor.

In recent decades the welfare state in capitalist societies has been exposed to mounting pressures. The 'Golden Era' of welfare state expansion came to a halt in many countries in connection with the oil shocks in the 1970s. Since then governments have had to adapt policies to a situation largely characterized by high unemployment, an increasingly aging population, slow economic growth and demands for higher spending. Partly due to the budgetary burdens of the welfare state, most countries started to reduce social expenditures. For example, between 1985 and 1995 there was a widespread trend of decreased benefit levels in major social insurance programs in the Western countries, although with large cross-national variations (Korpi and Palme, 2002). From the perspective of minimum income protection, reduced benefits in the core sector of social insurance are worrying. The results presented in this study indicate that cuts in social insurance benefits may be followed by less generous policies for the poor, in particular if countries refrain from providing a high degree of income security for citizens in middle- and higher-income groups.

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