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Working Paper No. 37

Models of Pensions and Income Inequality:
A Comparative Analysis

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MODELS OF PENSIONS AND INCOME INEQUALITY:
A COMPARATIVE ANALYSIS

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in Transition", Solstrand Fjord Hotel, Bergen, August 24-
27 1989.

The purpose of this paper stems from two empirical observations. First, that welfare states are different, i.e. they have different goals, rest on different principles, and, consequently, that they differ in size and structure.¹ Second, that the degree of income inequality differs rather sharply across nations, even among the most industrially-developed capitalist market economies. Furthermore, concerning the first observation, the available evidence suggest that public expenditures on social security benefits and other social transfers are very important for understanding how these differences have occurred.²

The purpose of this paper is to study if and how welfare state differences in the case of old-age pensions affects various aspects of income inequality among the elderly in a number of OECD-countries. This study is based on two unique data-bases for purpose of comparing welfare states across different countries. The first data-base (SSIB-data) deals with the development of social rights in four major types of social insurance in 18 OECD-countries from 1930 to 1980. In this study only data on old-age pensions will be used. These data have been compiled at the Swedish Institute for Social Research.³ The second data-base to be used in this study is the Luxembourg Income Study (LIS), where micro surveys on household income for nine out of the 18 OECD-countries of the first data-base (and Israel) have been made comparable in terms of income concepts etc. The LIS data allows separate analyses of, for example, the incomes of elderly households.⁴

In the first wave of studies based on the LIS data, including 6 of the 9 countries to be analysed below, a number of interesting findings were reported. O'Higgins et.al. (1985:41-42) concluded about the pattern of differences that "Sweden is most equal followed by Norway,

the UK, and Canada, while among the less equal countries Israel is generally more equal than either Germany or the USA, whose relative inequality depends on the measure which is chosen." This broadly confirmed Sawyer's (1976) findings based on less accurate data. When underlying the importance of cash transfers for producing more equality in the UK and Sweden, O'Higgins et.al. stressed that "the data raise a wide range of questions whose proper interpretations requires the availability of a considerable degree of knowledge and awareness of the institutional features of various countries".

In their analysis of income, poverty, and inequality across age groups, Hedström and Ringen (1987:238) found, in a comparative perspective, that: "The composition of income is different, the distribution of income is different, and the degree of relative poverty is different. These cross-national differences are generally more pronounced among the elderly". Moreover, Achdut and Tamir (1985) reported different patterns of retirement among the elderly in these countries and a substantial cross-national variation in levels of income and rates of poverty across different types of household, such as single females, single males and married couples. Both of these studies stress the importance of transfer income for explaining the cross-national differences in income. These findings raise the question of what determines the level and structure of transfer income?

The welfare state as a strategy of equality.

Social policy is about redistribution, though it is important to recognize that social policies not only bring about vertical redistribution; horizontal redistribution is probably of no less importance. It is also vital to understand that not all redistribution

which occurs as a result of social policy is intended and that not all intended redistribution does actually happen. Nevertheless, social policy is about redistribution.

When preaching the "religion of equality", that social and economic equality is something desirable, R. H. Tawney, in his classical work 'Equality' (1931/1952:49-90,126-173), also tried to define a "strategy of equality". He identified three principal types of equality achieving techniques; (a) the extension of social services and progressive taxation, (b) trade unionism and industrial legislation, and (c) production in public or co-operative undertakings. Though he claimed that existing inequalities could be substantially reduced by policies of the first kind, he also pointed-out that: "It is an illusion to suppose that either of the two policies can be carried out forward on the scale, or with the speed required, as long as the key positions in the economic system remain in private hands." Among the then existing social services, Tawney's attention was directed at health care, education, and policies aimed at providing economic security in the case of work-incapacity such as old-age, sickness, and unemployment.

Since the first publication of Tawney's book, we have seen a rapid expansion of public expenditure on a wide range of social services and in all of the industrially developed countries. Already by 1951, Tawney himself appeared to be fairly optimistic about the achievements of public policies in reducing e.g. income inequality (Tawney 1952 pp. 238-268). More recently, however, the belief in the equalizing effects of public social services has been challenged. Le Grand (1982) claimed, after having examined public expenditure on health, education, transportation, and housing, that the British welfare state

in these areas had not brought about equality in any precise meaning of the word. Le Grand concluded that the state instead should aim at redistributing money income rather than providing public services.

The observations of both Tawney and Le Grand leave the impression that neither believe that social services can bring about equality. But on the other hand, they seem to disagree about the equalizing effects. Tawney is optimistic, whereas Le Grand expresses doubts about such effects; Le Grand even claims that in some cases the equality would have been greater without public social services. Le Grand's problem, which he himself points out, is to find a proper counterfactual with which to compare existing social policy institutions. I would in this context argue that the comparative method offers an interesting alternative.

In a comparative perspective, each nation can be seen as a natural experiment with more or less unique combinations of social policy programs, the consequences of which can be contrasted. Traditional scientific experiments usually make use of control groups where no intervention is made. In the "real world" with countries as natural experiments, this condition cannot always be fulfilled. Instead we will often have to compare the effects of different kinds of interventions. This is not least the case with old-age pensions, since all of the most developed OECD-countries had legislated about such pensions before 1950. This leaves us with the task of comparing different pension models among the different countries.

The case of pensions is interesting in several respects and well suited as a test-case for Tawney's hypothesis. This is partly because they constitute the largest part of welfare services in expenditure terms, beside education and health, and partly because they can be

expected to have important consequences for a wide range of issues like poverty, inequality, labour supply, and savings. In addition, old-age has historically been associated with poverty and social inequalities. In relation to the Le Grand study, it should be mentioned that as a social policy program, pensions are different from the range of social services that he studied: there it was the question of public consumption, here it is about transfers of money income, the equalizing effect of which he seemed to be more hopeful. However, if it is doubtful whether equality in a stricter sense is or can be achieved through public pensions, it seems more fruitful to discuss the outcomes of pensions in terms of 'degrees of inequality' - but this is something to which we will return below.

Welfare state variation in social entitlements.

The rise of modern social security legislation marked an important break with the earlier poor-law systems, at least when it comes to the responsibilities of the state. Starting with Bismarck's social security legislation in the 1880s, economic support from the state was tied to a number of rather broadly defined situations of work-incapacity such as sickness and old-age, and not to poverty alone. But entitlements to support have also been dependent on additional criteria. These additional criteria, I would argue, are important for understanding the differences between welfare state institutions, and very much so in the case of pensions.

Empirical studies of the welfare state have mostly used published public social expenditure data to identify sources of cross-national commonality and variation.⁵ Among comparative researchers there has been a growing awareness of the importance of cross-national variation in institutional aspects of the welfare state and these institutional

differences are not captured, at least not directly, by the expenditure data. Therefore, there is a need to reorient the comparative analysis of social policy as has recently been emphasized by a number of scholars.⁶

In this regard, an interesting point of departure for the study of the institutional aspects of social entitlements, or social rights, is provided by T.H. Marshall, according to his analytic scheme, the welfare state is the third stage in the development of citizenship, the first two being the attainment of civil rights (equality before courts) and political rights (universal suffrage). Marshall saw welfare state provisions as a set of rights aimed at securing a decent living for every citizen. Contrary to the traditional poor-laws which deprived beneficiaries of their citizenship rights, the new kinds of social security legislation which has appeared in the last century could be seen as an extension of these rights.⁷

Public old-age pensions can no doubt be seen as a set of social citizenship rights and thus well-suited as a test case. However, it is vital to recognize that social entitlements are often not based solely on citizenship. Two other important principles behind the provision of benefits are need⁸ and work-merit. Together these three principles will guide the discussion of old-age pension entitlements in this paper.⁹

Citizenship is the basis for citizenship-right pensions, or "people's pensions" as they have been called in the Scandinavian countries. Need is the guiding principle in means- or income-tested pension programs, while work-merit is the underlying principle in work- and earnings-related programs. Thus, an underlying dimension of public old-age pension rights are the qualifying conditions¹⁰ for benefit

entitlement. Citizenship, or permanent residence, is in a way the most unambiguous condition for acquiring a right to pension; once pension-age is reached the benefit is paid more or less automatically.¹¹ It is more complicated to qualify for pension on the basis of need. Means- or income-testing automatically excludes the well-to-do people, and, because of ignorance and the stigma of testing, not all of those who in principle would be entitled to benefits will claim them.

Eligibility criteria based on work-merit is another way of sharpening the qualifying conditions. The right to most work-merit pensions are based on contributions and are related to the size of these contributions, i.e. to the size of previous income. These dimensions of the qualifying aspects determine the conditions of eligibility and the size of pensions.

Although there are and have been social policy systems that rest on a single qualification principle, in practice, most of the systems represent mixes of two or all three of the principles; citizenship, need, and work-merit. The prominence of these principles have consequences for the distribution of social entitlements in several respects, not least on the size and structure of benefits. Before we turn to these relationships it might be useful to examine which dimensions of public pension entitlements we can distinguish.

The outcomes of the above outlined conditions are reflected along two dimensions, the scope and adequacy of old-age pensions. There are two aspects of the scope of pensions: (a) the coverage of pension rights among those in working ages, i.e. the proportion of them that have entitlements to a future pension; and (b) the take-up rate among those above pension age, i.e. the proportion of those above normal pension-age who actually receive some sort of public old-age pension.

Citizenship-based pensions both imply a universal coverage and take-up rate. With such pension programs, all those who are citizens in a country automatically have the right to a future benefit; and, among the elderly, everyone will receive a pension regardless of the size of his or her income and wealth. With the purely needs-tested programs, coverage among those in working ages can be considered to be zero since the entitlement to a future pension is dependent on the persons future income and wealth, which are not known. For reasons outlined above, the take-up of needs-based pensions will not be complete.

The scope of work-merit based programs will be dependent on the current and past labour force participation rates, as well as on the existence of exclusions from insurance of any segments of the labour force. Also, rules for contribution will vary across nations, some demanding longer contribution periods than others, thus in the end lowering the take-up rate (and benefit levels, for that matter).

The adequacy of benefits is not easy to predict from the principles of citizenship, need, and work-merit. However, a few things can be noted, especially concerning the structure of benefits. Here it is fruitful to distinguish between two sub-dimensions of adequacy, (a) basic security and (b) income security (Myles 1984). Citizenship and needs-based pension programs typically aim at providing an adequate minimum, leaving it open, however, at what level an adequate minimum is reached. Work-merit pensions are typically tied to contributions and the level of previous earnings, thus aiming at some degree of income security. To sum up: citizenship pensions are paid at a flat rate; needs-tested pensions are in practice flat-rate for those with no other income but reduced for others; and work-merit pensions will in principle follow the structure of earnings.¹²

Trends in the development of pension entitlements.

The focus in this paper will be on the scope and adequacy of benefits since the underlying interest is in the distributive outcomes of the pension systems.¹³ If the primary interest is in the "equality of outcome" then it seems reasonable to concentrate on the benefit side. Also, since the basic purpose of this study is to compare the effects of welfare state provisions in terms of old-age pensions, it seems fruitful to restrict the analysis to legislated programs, not withstanding that individual and collective private pensions can be very important as a source of income subject to cross-national variation. Therefore, the only pensions included are those which have been created through national legislation, the conditions concerning entitlements of which are regulated by the state, and/or which are financed by the state.¹⁴ Data on pension rights have been compiled for 11 time-points (1930, 1933, 1939, 1947, 1950, 1955, 1960, 1965, 1970, 1975, and 1980) and for 18 countries: 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 following indicators of pension rights have been used in the analysis that will be presented below: (1) coverage, (2) take-up, (3) citizenship-based pension, (4) minimum pension, (5) worker-minimum pension, (6) standard-worker pension, (7) maximum pension, (8) workers-minimum pension couple, (9) standard worker pension couple, (10) basic security rank, (11) income security rank, (11) institutionalism rank (see appendix 1 for a detailed definition of these indicators).

The first legislated pension programs, for other than very limited occupational groups like civil servants and miners, can be classified

roughly into two categories. On the one hand, pensions based primarily on means- or income-testing (in the following referred to as needs-testing), and on the other hand, pensions that primarily were based on the insurance principle. Some countries had both kinds of programs very early while in other countries the insurance-system had a needs-tested component. About half of the countries fall into the first category where needs-tested programs were introduced first (the date within parenthesis indicates the year of legislation): Australia (1908), Canada (1927), Denmark (1891), France (1905), Ireland (1924; 1908), New Zealand (1898), Norway (1936) and United Kingdom (1908). Of these countries, France (1910) and United Kingdom (1925) had introduced social insurance pensions before 1930. Austria (1906), Belgium (1924; wage-labourers and 1925; salaried), Finland (1937), Germany (1889), Italy (1919), Japan (1941), Netherlands (1913), Sweden (1913), Switzerland (1946), and United States (1935) legislated about insurance pensions first.

In Austria the first insurance system only covered salaried employees and needs-tested pensions were in the end introduced (1927) before insurance pensions were implemented for wage-labourers (1938). In Finland and Sweden the insurance based benefits never became of any importance; instead the means-tested "supplements" constituted the major part of the pension for those who retired. The difference between the latter two countries was that all citizens above pension-age in Sweden could claim the pension, whereas eligibility in Finland was restricted to previous contributors according to the 1937 law. Switzerland and the United States introduced two-tiered systems from the very start, with insurance-pensions for those on the labour market complemented by needs-tested benefits for those with insufficient

income in old-age. Some of the other countries with insurance pensions had needs-tested supplements during the "transitional periods".¹⁵

Thus, already by 1930, 13 out of our 18 countries had legislated about some sort of public old-age pension programs and by 1950, all of the countries paid-out some sort of public old-age pensions. Since the early 1930s the expansion of both the scope and adequacy of pensions has been pervasive. On average, coverage and take-up as well as replacement rates have more than doubled between 1930 and 1980.

In 1930, just above 20 % of those aged 15 to 64 were on average (for 13 countries) covered by old-age pension insurance. Coverage increased somewhat in the thirties but remained on the same average level during World War II. In the late forties and early fifties it started to climb again, but the real boom came between 1955 and 1960. The growth since then has been less rapid, though continuing even in the late seventies. In 1980 the average coverage rate reached almost 80%. Countries with work-related programs have had a rather gradual extension of coverage with increasing labour force participation and growing importance of wage labour. In some countries, coverage has been widened with the inclusion of previously excluded occupational groups.¹⁶ When work related programs have been legislated in countries with no existing pension programs, coverage was increased sharply in connection with the implementation of the laws - but only gradually thereafter. In countries where universal pensions based on citizenship have been introduced, coverage has often changed very dramatically, often from 0% to 100%.

The average take-up rate tripled from 30% in 1930 to about 90% in 1980, i.e. the take-up is near universal in all the 18 countries. It

is not surprising, due to the existence of needs-tested pensions, that the take-up rate is higher than the coverage rate.

Turning to the adequacy of benefits, and here the discussion will be limited to two of the indicators: workers-minimum and standard worker pensions (both for single householders). It can be noted that their averages nearly tripled over the 50 years from 1930 to 1980. The net replacement rate for the standard worker averaged 14% in 1930; fifty years later, it had increased to 55%. For workers-minimum the corresponding averages of net replacement rates were 10% and 30%. There is a tendency towards differentiating the levels of standard-worker pensions from the workers-minimum benefits, and fewer countries have identical levels for the two kinds of benefits in 1980 than in 1955, for example.

Among these 18 countries there is also a trend towards increased commonality in coverage and replacement levels as measured by the coefficient of variation (the standard-deviation divided by the mean). This convergence trend stagnated in the 1970s but did in fact continue at least up to 1980.

However, if we look on the qualifying conditions behind the benefit provisions, the variation is greater than if only benefit levels are considered. The presentation of the results started with the distinction between countries that had legislated needs-tested pensions. This illustrates how different principles, of work-merit and of need, were guiding the early legislation. Since the first laws were implemented, the citizenship principle has been introduced and most countries have developed mixes of the three principles. By 1980, only one out of the 18 countries (see below) relied on only one of these three principles. The development has been gradual and complex, and in

the following only a few comments can be offered about the extension of the different principles.

A few main paths of development can be delineated. First, countries with work-merit pensions have introduced complementary means-tested "basic" pensions leaving only Germany (Fed. Rep.) with a purely work-merit system in 1980 (and social assistance for those who did not qualify). Second, countries with primarily means-tested programs have introduced citizenship pensions, and then some of these latter countries have introduced work-merit pensions as a third component.

The first path has been followed by Austria (1955)¹⁷, Belgium (1969), Italy (1969), and Japan (1959). Switzerland and the USA had already from the beginning introduced two-tiered systems where the needs-tested program clearly constituted the second tier. The Swiss system implied a universal coverage of all citizens since the government paid contributions for those citizens that did not work, like housewives and students. However, the basic pensions were - in the end - tied to needs-testing. The work-merit programs in Finland, Netherlands and Sweden were either discontinued or never became of any significance. By the early post World War II period, needs-tested pensions dominated in all three countries and it would not be too farfetched to consider these latter three countries in a post-war perspective as "needs-testing starters", possibly with the exception of the Netherlands.

The second path has been followed by Australia (1974), Canada (1951), Denmark (1960), New Zealand (1976), and Norway (1957) but also, although in a slightly different way, by Finland (1955), Netherlands (see below) and Sweden (1946). Later, Canada (1965), Denmark (1964), Finland (1961), Norway (1966), and Sweden (1959) have legislated work-related benefits, thus following an extension of the second path.

After the war, the Netherlands first introduced needs-tested "emergency pensions". Then in 1956 the pension system was thoroughly reformed and contributory pensions for all residents were introduced. The government pays contributions for those with income below a certain limit resulting in universal coverage of all citizens.¹⁸ If the contribution conditions are not fully met, pensions are paid at a reduced rate but without needs-testing. The full pensions are not income-related, only related to years of contributions like the Danish work-merit pensions.

France, Ireland, and the United Kingdom have followed a different path when first legislating needs-tested pensions and later, work-related benefits. France and the UK had done this already by 1930. The needs-tested benefits in France were marginal from the start and remained so with the introduction of work-related programs and onwards. New laws in France were implemented on needs-tested benefits during the 1940s but their character have remained complementary, even if the level of "minimum viellesse" was raised sharply in the beginning of the 1980s. The first (1925) work-related pensions in Britain were integrated with the needs-tested program from 1908. After the second World War, the work-merit system was put in the first place and the needs-tested pensions were aimed at supplementing the work-related benefits. In Britain, two attempts have been made at instituting income-related pensions. The first program, legislated in 1959, has failed to provide adequate pensions and the second, legislated in 1978, has yet to prove its viability - by 1980 the benefits paid under this scheme were still insignificant. Ireland legislated work-merit but flat-rate pensions as late as 1960 and 1971. The level of benefits by 1980 still did not differ much between the work-merit system(s) and the needs-testing program in Ireland.¹⁹

There is no deterministic relationship between the qualifying conditions and the size of benefits. Although there is a clear tendency for work-merit pensions to be aimed at giving income-security and thus to be higher, the observed cross-national differences cannot be fully explained in these terms. Neither is there a clear ranking over time between, on the one hand, countries relying on the citizenship principle, and, on the other hand, countries relying on needs-testing. As noted above, however, there has in the post-war years been a growing tendency for differentiation of benefit levels. On average, the minimum pensions tend to be substantially lower than the standard worker pensions.

To sum up, it seems as if the early development of pension-institutions were important for their later development. Countries which introduced work-merit programs early seem to have stuck to this principle, introducing needs-tested programs as complements, while countries with means-tested systems have introduced the citizenship principle. It seems fruitful to speak about institutional effects in these terms.

Models of pensions.

Behind the common concern for a better understanding of institutional differences, however, are rather divergent perspectives and hypotheses. One strategy, going back to Titmuss' (1974) notion of "models of social policy", has been to distinguish between different "models" or "policy regimes". A closer look at Titmuss' and later attempts to classify social policies reveals that a number of issues are involved, that researchers have different aims with their classifications and that, as a consequence, the character of the models that have been distinguished varies substantially.

The different attempts to model social policy development reflect differences in perspectives and purposes. Drawing upon the recent work of, *inter alia*, Titmuss (1974), Korpi (1980), and Esping Andersen (1982, 1985) I suggest that the models of social policy would have to satisfy the following four criteria. First, if social policy is best understood in a class-political perspective, then the classification has to reflect class-political differences.²⁰ Second, the classification should reflect the relative importance of different principles for benefit provisions; i.e. citizenship, need, and work-merit. Third, since the perhaps most profound aspect of welfare state benefits is that they provide a market-independent source of income and thus more or less violate the market principle, the classification has to capture the degree of market-independence provided by the benefits. Fourth, since, in addition to simplifying complex patterns, the classification of systems is supposed to serve as a starting point for the study of the effects of institutional variation, the classification should be relevant for investigating the issues like: the size of public and private pension expenditure, poverty and inequality among the elderly, savings, and labour supply.

The system of classification that will be suggested for these purposes includes four categories. There are important and evident similarities with the previously defined models. The categories are defined to be applied, more or less exclusively, in the case of old-age pensions even though it might also be possible to elaborate the classification to encompass other branches of social policy.

The first model is labelled the work-merit model.²¹ Here the intention is for adequate pensions for those who are working for wages, to give compensation for loss of income. In several countries classified in

this category, pensions are still separated by occupation, thus emphasizing the status-maintaining aspect of the benefit provisions. Pensions in this model should provide income security also for other occupational groups than industrial workers. Classification into this model requires the following characteristics in terms of our indicators: the net standard worker pension should at least replace half of the average production workers wage after tax and the maximum pension replace more than 100% of the average production workers wage and minimum benefits should not be granted as citizenship rights.

The second model is labelled the citizenship model and is in a way the outcome of the second, in chronological terms, type of pensions that were instituted, for example, in Denmark already in 1898. This type of pensions gave in principle all the elderly a right to a pension. However, with the help of needs-testing, those who had "adequate" incomes were excluded. Later, the principle of needs-testing was abolished in a number of countries, thereby giving priority to the citizenship principle. The introduction of the citizenship principle meant that the family and the market were abandoned as the primary channels of welfare. It is also a requirement that the pensions in this model provide for an adequate minimum. In terms of our indicators the following conditions have to be fulfilled for classification into this model: coverage is 100% and the right to pension is based on citizenship and minimum benefits should replace at least one third of the net (after tax) average production worker's wage (NETAPWW); benefits based on work merit should not increase the replacement rate by more than 10 percentage-points.

In the third model both universalism based on citizenship and income security have been realized. It has been labelled the institutional

model since both the need for basic and income security has been provided for, thus crowding-out the scope of market-based solutions for social security. In this model coverage is 100% and based on the citizenship principle and the minimum pension replaces at least one third and the standard-workers pension replaces at least half of the average production worker's wage after tax.

The countries classified into the fourth residual model have public pensions that give neither basic security nor income security, i.e. pensions are not adequate and/or they do not cover all the elderly. This model has been labelled residual since it in practice assumes a heavy reliance on market solutions. Thus, in the residual model, standard worker pensions replace less than half of the average production workers wage or the maximum pension replaces less than 100% of the average production worker's wage and minimum pensions are not adequate and granted as citizenship rights. (All replacements refer to benefits and wages after tax.)

The empirical analysis of models will focus on the situation in 1980. This is not just for reasons of simplification. It is only by then that pension systems in most of our 18 countries began to mature. If we want to compare institutions it seems more fruitful to do that by the time they really are "institutionalized".²²

Using the criteria defined above yields the classification of countries as displayed in Table 1. It should first be noted that all the countries have started in the residual model, i.e. no country met the qualifications set up in the other models in the thirties. Starting with Austria moving into the work-merit model, and Denmark into the citizenship model²³, most of the countries have qualified into either of the work-merit, citizenship, or institutional models.

In 1980; Austria, Belgium, Germany, Italy, and Japan were classified into the work-merit model; Australia, Canada, Denmark, and New Zealand into the citizenship model; Finland, Netherlands, Norway, and Sweden in the institutional model; France, Ireland, Switzerland, the United Kingdom, and the United States in the residual model.

TABLE 1 ABOUT HERE.

The definition of categories is naturally somewhat arbitrary at the margin. It is evident that some of the countries are borderline-cases and that small changes in the operationalization would re-classify them into other categories. It therefore seems necessary to make a few comments on those countries where the distribution of income is to be studied.

The United States would have qualified for the work-merit model in 1980 if only standard worker pensions alone were considered, but the US does not meet the criterion that net maximum pensions should be at least 100% of the NETAPWW. Abolishing the latter criterion would have meant that the United States had been classified as work-merit in 1970 and 1980, but in 1975 standard worker pensions did not reach 50% of NETAPWW, since the maximum benefit limits had not followed the growth in nominal wages and pressed down the standard worker benefits. Thus, the classification of the United States into the residual category seems appropriate since the pension-system has failed to provide adequate pensions over time even for average production workers. Although the pension-age is 65, earnings above about a third of an average production worker's wage reduce the pension until the age of 72.²⁴ On the other hand, it is possible to retire at the age of 62, with benefits reduced.

Social security in the United Kingdom is often thought of as universal (e.g. Baldwin 1988), and although more than 94% of those who are above normal pension age do get some form of public old-age pension, pensions are still either based on contributions, and contributions are only obligatory for those in employment, or needs-testing. This simply means that every old person will not get a benefit in the British system, so the system is not purely universal. The high take-up rate is not unique for the UK but shared by most of the other countries. Pension age is 65 for men and 60 for women but retirement is necessary for eligibility for a work-merit pension until the age of 70.

Classifying Canada into the citizenship model is straightforward according to the operationalizations. However, it is only thanks to the needs-tested supplements that the minimum pensions reach one-third of the NETAPWW.

The Swiss case is close to the citizenship model, as indicated above. Coverage is based on contributions but all citizens with no or low income get their contributions paid by the government. However, the basic pensions are means-tested and low in Switzerland, less than one-third of the NETAPWW, and since it has been argued that the minimum pensions should provide an adequate minimum for countries to be classified into the citizenship model, Switzerland has been classified as residual.²⁵

About the cases in the institutional category, a couple of characteristics can be noted. Take-up in the Netherlands was not 100% in 1980 since married women did not have a separate entitlement to old-age pensions; the right to benefits for them was tied to the age

of the husband and the timing of marriage (in relation to when the woman gained entitlement).²⁶

Classifying Sweden as institutional is straightforward. There are no contribution conditions for minimum pensions, no needs-testing, and the supplementary pensions (ATP) provide for income security not only for industrial workers. In terms of net income, public pensions replaced nearly two-thirds of the income for those earning three times the average production workers wage in 1980 (Kangas and Palme 1989:74). The only problem in relation to the study of income distribution is that the work-merit component is of a fairly recent origin which means that the older cohorts retired before the system was mature or even implemented. Pensions for the oldest age group in Sweden could therefore be classified as belonging to the citizenship model.

Norway is in several respects a twin to Sweden in welfare state terms, not least when it comes to the structure of the pension system, although with important differences. Eligibility for basic pensions is based on contributions in Norway, and a minimum of 3 years of contributions are required, 40 years of contributions for a full basic pension (subject to transitional rules). Even if those who have no income get automatic credit for every year of residence, so that the contribution condition is transformed to a sort of residence test, those who have not lived in the country for very long, like immigrant workers, will get their pension reduced, also when they become Norwegian citizens. This violates the citizenship principle as does the partial retirement test which, until the age of 70, requires that the claimant of the pension have earnings not exceeding 80% of the earnings before "retirement". It could also be added that the

Norwegians have kept their pension-age at 67 which is highest among the 18 OECD-countries.

Historically, there has been a heavy reliance on needs-testing in the Australian welfare state. From 1973, however, needs testing was abolished for old-age pensions for those aged 75 and over, and in 1975, this age limit was lowered to 70. This turned out to be a parenthesis since needs-testing was re-introduced in 1984. Because the data on income distribution refers to 1981-82 the classification of Australia as belonging to the citizenship model can be justified even if there was a needs testing for those aged 65 to 69.

Table 1 also displays the average replacement levels of the minimum and standard-worker pensions for the respective model. On the average the benefit levels follow the expected pattern with the highest minimum pensions in the institutional and citizenship models, and the highest standard-worker pensions in the work-merit and institutional models. The residual model is lagging somewhat behind in both cases, although standard worker pensions are, on average, higher than the citizenship model. But the classification into the four models only reduces some of the total variance. From the minimum and maximum of the variables it is evident that there is a substantial degree of within-group variance. In fact, there is a substantial degree of "overlap" if only these two variables are considered. To take account for this, and to make use of more of the information there is in the pension variables, an alternative ordering has been applied. The results, which are displayed in Table 2 and Table 3 show the rank-order of the 18 countries along the two dimensions of basic security and income security.

A weighted index of five and four variables, respectively, was used for the rank-ordering of the two dimensions. The basic security rank was based on take-up, citizenship pension, minimum pension, workers-minimum pension, and workers-minimum pension couple. The income security rank was based on workers-minimum pension, standard-worker pension, full pension, and maximum pension. Even though the general rank-order along the two dimensions, by and large, follows that implied by the four models, there are exceptions worth noting. Such an exception is the United Kingdom which ranks higher than Canada despite the fact that the British system does not provide any citizenship-based pensions. This is important to keep in mind when we turn to the analysis of analysis of income inequality among the elderly.

Hypotheses about pension models and distributional outcome.

Two hypotheses underlie the empirical investigation. The first is that the more generous public pensions are as social rights, the more equal the distribution of income will be among the elderly. The second hypothesis is that the effects on inequality among the elderly can be rather different at a given level of public expenditure on pensions, depending on the scope and structure of benefits. This implies that a substantial degree of variation between nations in inequality among the elderly can be explained by the institutional differences across countries in terms of old-age pensions programs.

Two aspects of inequality will be illustrated with the income distribution data: poverty and overall inequality. The predictions about the distributional impact of pension models will have to deal with both of these aspects.

Starting with poverty, the hypothesis (H1) is that poverty rates will be lower in the citizenship and institutional models than in the work-merit and residual models but that it is more difficult to make any ordering within these two sets of models. The institutional model only adds benefit on the "top" of the basic benefits and is thus not relevant for the poverty issue. The work merit model is not primarily concerned with basic security and in the residual model pensions are either too low to move the elderly with no other income out of poverty or leave segments of society without benefits. "Individual variation" among the different nations are likely to be more important for accounting for the within-model variation.

Another way of testing the relationship between the institutional characteristics and the incidence of poverty is to rank-order the countries from the point of view of how they provide for basic security. The hypothesis (H2) is that the lower the rank on the index, the lower the incidence of poverty will be. An index of the following variables has been developed for ranking the countries (see Table 2): citizenship-based pension, minimum pension, workers-minimum pension, and workers-minimum pension couple (see appendix 1 for definition of variables and computation of index).

Turning to inequality, the hypothesis (H3) is that the institutional model will produce the smallest degree of inequality, followed by the citizenship model and the work-merit model, the residual model showing the largest degree of inequality. The rationale for such an ordering is as follows, if pensions are provided publicly the coverage tends to be more encompassing than if it is left to market or to collective agreements. If they provide for both income and basic security then the likely outcome is a less unequal distribution of income. It is

difficult to predict the rank-ordering between the citizenship and the work-merit models since these models are likely to produce different patterns of inequality but they do not necessarily differ in degree. To handle this problem alternative measures of inequality will be tested, giving different weight to different parts of the distributions, as suggested by Atkinson (1983). It is assumed that the citizenship model produces distributions where the lower quantiles get a larger proportion of the income, while the work-merit model produces less unequal income higher-up in the distribution. That the residual model will provide the most unequal incomes is due to the fact that the market is given a wider scope.

The alternative way of making predictions about the distributional outcome, analogous to the second hypothesis about poverty, is to rank-order the countries in terms of degree of institutionalism using the pension entitlement variables. The 9 countries in the present analysis of the LIS have been ranked according to a combined index of ranknumbers based on two indices; one index being the average degree of institutionalism 1965-80 and the other index being the degree of institutionalism in 1980 (see Appendix 1 for definitions). The ranknumbers are given in Table 3. The hypothesis (H4) is simply that the larger the degree of institutionalism the less unequal the distribution of income.

Comparing income distributions.

As in many fields of the social sciences, the theoretical and methodological interest in studies of income inequality from a comparative perspective has not been paralleled by collection of data that could serve as a basis for empirical tests of the theoretical issues. The lack of empirically comparative data has limited our

possibilities of getting a more accurate understanding of the contemporary welfare states.

The aim of the LIS has been to make comparable micro-surveys of household income in a larger number of countries in order to permit researchers to analyse of the impact of different income-sources and tax/transfer systems on the distribution of economic well-being. While researchers doing comparative analysis before the LIS had to rely on secondary analysis of previously published results it is now, with the LIS data-base, possible to do primary analysis on the data for the respective countries since income concepts and income units have been standardized. The merits of the Luxembourg Income Study (LIS) should be seen in this perspective.

The LIS data-base makes it possible not only to look on the final distribution of disposable income but also to do more detailed analyses of the income formation process. It makes it possible to move from factor income via the tax and transfer system to disposable income. In the different steps it is possible to distinguish between the various sources of income, like earnings and self-employment income, pensions and child benefits, taxes and social security contributions etc. The data sets also permits the researchers to use different definitions and weighting of income units. Another option with the LIS data, which is crucial for the purpose of this study, is that the composition and characteristics of the income units can be distinguished. The elderly households can thus be selected for separate analysis and the characteristics and compositions of these households can be used for looking at, for example, the relative income of, for example, single women and married couples.

In this paper, the following choices have been made on the definitions of: income units; income concepts; equivalence scales; weighting of income units, and; definition of sub-population for analysis.

It is assumed that the family is the natural unit of analysis for the study of income distribution since the family is likely to channel the economic well-being to the individuals (e.g. Erikson 1984, Rainwater 1988). If the distribution of income is to be taken as a basis for judgements about the distribution of economic well-being, then economic well-being of each individual should be given equal importance. Moreover, if families of different size are to be compared, then it is reasonable to weight the family income by the size of the family. When doing this it also seems reasonable to give different weights to the first, second, and "later" family members to account for economies of scale.

The concept of income to be analysed in the present the analysis is the disposable income since the main focus in this study has been on the effects of the different pension models on the distributional outcome. For reasons outlined above, the disposable income of each family has been divided by the LIS-equivalence scale; this adjusted disposable income has then been weighted so that each individual will get equal count.²⁷

The LIS-study presently covers 9 out of the 18 OECD-countries studied above: Australia, Canada, Germany (Federal Republic), Netherlands, Norway, Sweden, Switzerland, United Kingdom, and United States. The data is from around 1980. (Appendix 2 gives the exact years of the surveys etc.) All nine of these countries have been included in the analysis below.

Because our primary interest in this study is in old-age pensions, the analysis has focused on the distribution of income among the elderly. The aim has been to sample the population above normal pension age, but since the pension-age is different across nations, an age limit was chosen that would be valid in most of the countries to improve the comparability. Only those household where the head is older than 65 have been selected (in the Norwegian case it was set even higher, above 67, because of their very high pension-age). Earlier studies based on LIS data have often used lower age-limits for the study of incomes among the elderly but then the effects of early-retirement rules, unemployment "pensions", et.c would complicate the picture too much, now that the primary interest is in public old-age pensions.

The incidence of poverty.

The concept of poverty to be used in this section is relative. Following, for example Rainwater (1988) and Kohl (1987, 1988a), poverty is defined relative to the median equivalenced disposable income. Not withstanding that there are absolute aspects of poverty, and although it can be argued that relative deprivation occurs at rather specific levels of income (Townsend 1979), defining a single "poverty line" certainly involves a great deal of arbitrariness. In order to deal with this problem, at least to some extent, different poverty lines have been used to estimate the proportion of elderly poor - a strategy also applied by Rainwater (1988) and Kohl (1987, 1988a). Such a strategy improves comparability, because it is evident that the levels of the minimum pensions come very close to, above or below, some of the poverty lines. A large number of individuals will therefore "cluster" around the levels of income that the minimum pensions provide for. But the differences in levels might not be all

that great and using only one poverty line would surely overestimate the cross-national differences in poverty rates. The size of minimum pensions (equivalenced) as a percentage of equivalenced disposable income are shown in table_3 to illustrate these matters.

TABLE 2 ABOUT HERE

The poverty rates in table_2 show important cross-national differences however defined. The hypothesis (H1) about what differences to expect between the models gets partial support, and more so when it comes to the lower definitions of poverty lines. With all three definitions, poverty is lowest among the countries in the institutional model while the countries in the citizenship model show low rates of poverty with the 40% limit but high with the 60 % limit. It is interesting to note that the poverty rate is low in Australia but high in Canada with the 50% limit. A look at the income levels provided by the minimum pension reveals that in the Australian case, minimum pensions keep the elderly just out of poverty, while in Canada those with minimum pension will end up just below the 50% limit.

Poverty in the work-merit country Germany is fairly high but far from extreme at any level. The German pension system is of older date and it seems like most of the elderly have qualified for a pension, or live with someone who have, and only about 3% of the elderly live on Sozialhilfe (Esping Andersen et.al. 1988). In the residual model the United States show high rates of poverty on all levels. In Switzerland, poverty medium high on all levels. The United Kingdom is different with very high rates if either the 60% or the 50% limits are used, but with the 40% limit, poverty is virtually non-existent. Not surprisingly, minimum pensions provide an income just at 40% of the median equivalenced disposable income (see table_2).

It would be an exaggeration to say that the second hypothesis (H2), that the countries would rank "in poverty" in exactly the same way as they rank on the basic security index. On the other hand it is clear that the ranking adds information. First, it explain the good performance of the UK in relieving the elderly from living under conditions of extreme economic distress, i.e. with incomes below 40% of the median. Switzerland show povert rates that are lower than in, for example, the US which is what one could expect form the ranking on the index. Second, it indicates why the countries in the institutional model are doing so much better, especially with the higher limits. However, it should also be emphasised that there are other aspects of the pension systems than those measured by the index and captured by the models that are important for explaining differences in poverty rates. The long history and stability of the German pension system is only one example.

Just a few other remarks. Although the full AOW-pensions are very generous in the Netherlands, providing incomes well above all of the poverty lines in the present study, the rather extensive contribution conditions means that some of the elderly will fall through this safety net. Something similar is going on in Norway where the contributions will disqualify some of the elderly from a full basic pension, even if it is not a very large number. The retirement test might also have added a little poverty. If it was not for these conditions Norway would probably have had a zero rate of poverty to judge from the level of the minimum pension indicated in Table 3. This is what happened in Sweden where the minimum pension, based on permanent residence, provide an income above the 50% limit and results in a zero rate of poverty at that level. Most elderly will thanks to

the needs-tested housing allowances also reach above the 60% poverty line.

In Australia the income testing of those below 70 years of age has probably meant that a few percent have ended up with incomes below the 50% as well as the 40% limits. In Canada, citizenship-based pensions without needs-tested supplements fall below even the 40% limit. In the countries in the work-merit and residual models more profound qualities of the systems produce the observed, on the average higher, rates of poverty.

Patterns of income inequality.

As with poverty, the measurement of inequality has been subject to much controversy. This is really not surprising since the concept of inequality involves different kinds of value judgements. The choice of measurement certainly would deserve a much more thorough discussion than will be given here. The strategy in this paper has been to use measures that enable the reader to make his/her own value judgements, at least to some extent.

In Table 3 two kinds of income inequality measurements are presented. The first is the Gini-coefficient which describes the overall degree of inequality. The larger the coefficient the greater the degree of inequality. The second measure has several components and has been proposed by Atkinson (1983). By varying one parameter in the computation formula, we can get different measures each giving a specific weight to the lower quantiles of the income distribution.

Atkinson's (1983) rationale for developing this alternative measure was that measures like the Gini-coefficient "embody implicit judgements about the weight to be attached to the inequality at

different points on the income scale" (p. 56). In line with Rawls (1972) arguing that inequality should be assessed in terms of the positions of the worst off in society, Atkinson's indices makes it possible to assign different values to the parameter 'epsilon', the larger the value, the more importance will be given to the position of the lowest income groups. In Table 3, inequality indices with three different values on "epsilon" have been displayed.

TABLE 3 ABOUT HERE

If we start by examining the hypotheses about the distributional outcome with the help of the Gini-coefficient, the support for the hypotheses seem fair enough. The overall inequality is lower in the countries of the institutional model than in the countries of the citizenship and work-merit models, the latter two showing a somewhat lower degree of inequality than the countries of the residual model. There is one important exception from this pattern, though. Inequality in the United Kingdom is lower than would be expected from the classification into the residual model and even from the degree of institutionalism in the British system, at least as measured by the index in Table 3. It is evident that the flat-rate pensions, with medium high benefit levels (in an international perspective), and with near universal coverage has produced a, by comparison, low degree of inequality. British pensions also proved to be good at preventing poverty, if measured by the 40% limit. On the other hand, if the poverty line was defined at higher levels of income, the British poverty rates increased rapidly. Other studies have also shown that elderly in Britain live on levels of income that are, on average, clearly below that of the population in working ages (Kohl 1987) and

that this decline in levels of income is sharper in Britain than in most of the other 9 LIS countries (Rainwater 1988).

Atkinson's indices confirm the general pattern revealed by the Gini-coefficient but also add new information. The British case is again very interesting. When assigning a very low value to 'epsilon', differences between the UK, Norway, the Netherlands, Germany, and Australia are miniscule. The larger the 'epsilon', and the larger the importance thus assigned to the lower fractions of the income distribution, the lower the degree of inequality is in the UK compared to these other countries. The income distribution in Sweden is, however, with all the three values assigned to 'epsilon', less unequal than all the other countries in the study.

If the countries change rank-order when the value of 'epsilon' is changed, this means that their Lorenz curves intersect. Three such cases of intersection can be noted. Norway intersects with Germany, Australia with Canada, and the United States with Switzerland so that the latter countries in these three pair have a larger proportion of the income going to the lower parts of the income distribution.

To sum up, the pattern of cross-national differences in inequalities is consistent with the predictions that could be derived from the modeling of old-age pension entitlements. It also seems like the degree of institutionalism, as expressed by the index in table 3, is important for the degree of inequality (the relationship negative) thus supporting the fourth hypothesis (H4) that was stated above, even though the correspondence is not perfect.

Conclusions.

The aim of this paper was to put the cross-national differences in patterns of inequality among the elderly in an institutional and comparative framework. The conclusions are very much inline with Kohl's analyses (1987, 1988b), both the level and structure of benefits have to be accounted for if one is to make accurate predictions about the distributional outcomes of pension systems. Kohl based his studies on only four out of the nine countries: Germany, Sweden, Switzerland, and the UK. He also recorded important cross-national differences both in the level and structure of benefits, differences that appeared to be vital for the understanding of the varying rates of poverty and overall income inequality.

Two complementary approaches were applied to classify the nine countries in the study, and both turned out to be relevant for explaining the observed cross-national variation in poverty and inequality. The first approach was to identify models of old-age pensions, and, by and large, the distributional outcome followed from what was predicted from the four models, both in terms of poverty and overall income inequality. Some of the within-model variation, and some of the between model variation too, could be accounted for in terms of what two indices on basic security and income security revealed about the adequacy of different kinds of pensions in each country. Furthermore, by looking at specific features of the different countries, some smaller and some larger deviations from what the models implied about the effects on income inequality could be explained. It appears to be fruitful to do more work along these lines.

How are then pensions as a strategy of equality? It seems safe to conclude, from the results presented above, that equality in a stricter sense, the way(s) Le Grand define it, is not achieved in any of the presently analysed OECD-countries, and hardly in any of the others. However, it also seems safe to conclude that old-age pensions have an important potential for equalizing incomes in old-age and relieving the elderly from the distress of low income. Moreover, it is evident that this depends on the kind of pension programs that are introduced. Good basic pensions for every citizen might be enough for eliminating poverty. For reducing the general degree of income inequality, both between age groups and among the elderly, it seems like the pension systems to be "institutional", they have to provide for income security as well.

1. Korpi 1980, 1989; Mishra 1981; Esping-Andersen 1982, 1985, 1989; Pampel and Stryker 1988; Shalev 1988; Kangas and Palme 1989.
2. O'Higgins et.al.1985, Achdut and Tamir 1985; Hedström and Ringen 1987; Kohl 1987, 1988; Rainwater 1988.
3. See e.g. Korpi (1980, 1989) and Esping-Andersen (forthcoming) for a more detailed discussion of how these OECD-data were compiled.
4. For a presentation of LIS see e.g. Smeeding et al 1985, Buhmann et.al. 1988, or Rainwater 1988.
5. Cutright 1967, Wilensky 1975, Castles 1983, Pampel and Williamson 1985, 1988.
6. Alber 1988a, Esping-Andersen 1987, Korpi 1989, Therborn 1986.
7. However, a problem is that Marshall himself did neither elaborate how, for example, the distribution of welfare provisions could be expected to vary, nor did he develop a comparative perspective on these matters. Yet, it is apparent that there are important distributional differences between individuals within countries, and that the distributional pattern varies in a cross-national perspective.
8. In this paper the principle of need is rather narrowly defined and refers to situations when the individual household's economic circumstances demand support. An alternative would be to, in the case of pensions, consider age per se to be a sufficient criterion for economic support. Needs-testing will be used as a common denomination for means- and income-testing disregarding

the differences in the testing-rules actually applied in the various countries over time.

9. It goes without saying that age is a crucial condition for qualifying for old-age pensions. The question of retirement age will, however, be treated very briefly in the discussion even if it is subject to interesting cross-national differences (see Tracy 1979). But the question of retirement age is intricate and brings the questions of early retirement, long term unemployment, and disability among the older workers into the discussion (see Laczko and Walker 1986) and here that would lead too far. It is a subject that deserves a paper of its own.
10. Apart from the conditions discussed below there are also other qualifications of relevance, e.g. income-ceilings, residence tests, the treatment of married women, and minority discrimination. Income-ceilings excluded high income earners from entitlement to pensions in work-merit programs. Residence tests can disqualify those who have not been permanently living in the country from either citizenship or needs-tested pensions. Married women are in some instances excluded from pension rights of their own. Minorities like the aborigines in Australia have been excluded from insurance.
11. In reality, so called citizenship pensions are in some cases tied to contributions, like in Norway, although those with no income get automatic credit in Norway.
12. Another important dimension of social security pensions is the financing of the pensions. A few predictions can be made. First, work-merit pensions are generally financed via contributions, from the insured person and/or his/her employer. Second, needs-tested pensions are typically financed via taxation. Third, while citizenship-based pensions are in reality financed in very different ways, individual contributions are never an ultimate condition for the receipt of benefit since low income earners and those without income get automatic credit by the state. Since many countries exhibit a mix of the different principles, the picture of the distribution of the financial burden is not so clear-cut. This is also true for the other dimensions outlined above, though it is an underlying purpose of this study to illustrate the patterns of policy outcomes which different mixes of these principles produce.
13. The question of financing is of course vital for the understanding of what kind of redistribution that occurs in the welfare state. But to capture these kinds of effects another type of approach, not taken-up in this study, must be applied (Kohl 1987, Ståhlberg 1988).
14. The exclusion of individual and collective private pensions from this study is problematic since these pensions tend to be larger in countries with low public pensions (Esping-Andersen 1987). But comparative research in this field has shown that the rank order between countries does not change when private pension spending is added to public pension spending (Rainwater and Rein 1985). However, the relation between public and private pensions, and the effects of this mix on the economic well-being and inequality

among the elderly, falls outside the framework of this paper (see however Kangas and Palme 1989).

15. Sources for information about the first pension laws have been derived from; Non-contributory pensions (ILO: Geneva 1933), International Survey of Social Services (ILO: Geneva 1933), International Survey of Social Services (ILO: Geneva 1936), Social Security Legislation Throughout the World 1949 (US Federal Security Agency, Social Security Administration: Washington DC), and SSIB-data.
16. In France, for example, the self-employed in agriculture were included in 1952 (SSIB-data).
17. Austria's old needs-tested program, which was tied to the unemployment benefit, had by then been abolished.
18. The take-up was not universal, however, until 1985 when married women also got the entitlement independent of their husbands.
19. It should be mentioned that Finland and Canada by 1980 have needs-tested supplements to their citizenship pensions. It can also be noted that Australia has re-introduced needs-testing in its pension program in 1984, and Denmark has introduced needs-testing for those below 70 years of age (Marklund 1988) - a system previously applied in e.g. Australia. Finland abolished the income test for their supplements to the citizen-based pensions in 1985, and the size of the supplements is now only dependent on other pension-income.
20. Social policy institutions differ across nations and they change over time. An underlying hypothesis in the present paper is that this is due to the fact that the institutions are outcomes of political processes involving different and contradictory values, principles, ideologies, and class-interests (Esping-Andersen and Korpi 1984). Outcomes have been patterned by the relative strength of the "social actors" involved, by the pressure of demographic changes, and by economic opportunities and constraints facing the actors. Moreover, it must be recognized that social policy institutions in each country have been subject to influence from different and contradictory interests. In order not to confuse the concepts it is thus important to define what the classifications are aiming at, and to which analytical level they refer.
21. This is not to say that welfare provisions are organized outside the public sector by occupational groups or on the firm level. Titmuss made the distinction between welfare provisions of a social, occupational or fiscal character (Titmuss 1974). The work-merit model refers to pensions provided within the social (public and legislated) sphere and not in the occupational (see above in this footnote). Benefits in this model are occupational in the sense that they compensate for loss of earned income, not in the sense that they are organized outside the public social sector.
22. It is also possible that 1980 marks some kind of historical turning-point. With the "golden years of economic growth" behind

them, most OECD-countries faced severe budget deficits and mass unemployment by that time and the merits of the welfare state were questioned. The comparative research on what happened to the modern welfare states during the 1980s has only just begun (see e.g. Alber 1988).

23. Sweden introduced the citizenship principle already in the late 1940s but benefit levels were too low for meeting the requirements of the citizenship model as defined above.
24. Refers to the situation in 1979; later the age when the income test is stops has been lowered to 70 years.
25. It can be noted that the Swiss work-related pension programs provided the standard worker with a 50% replacement rate in 1975; but this rate was slightly lower in 1980.
26. These restrictions for a married women's entitlement to pension were abolished in 1985.
27. On the importance of choice of equivalence scales for assessing the relative economic well-being of different population groups, see for example Buhmann et.al. (1988).

Appendix 1: Pension entitlement variables.

Coverage is expressed as the proportion of the population aged 15 to 64 that have the right to a pension when reaching normal pension-age. In insurance schemes the number of insured has been set equal to the number of contributors to legislated national pension programs. Those covered by public-employers pensions have also been included. Since countries with only means-tested pensions cannot be regarded as having a social insurance system, coverage is set to zero in these cases.

Take-up rate is the number of recipients of (legislated) pensions in relation to the number of persons above normal pension-age. Recipients of means-tested pensions have been included. It should again be noted that the normal pension-age varies across nations, and over-time, and that low pension-age can be seen as a matter of pension generosity, or pension-quality, but this fact will not be analyzed further at present.

Citizenship-based pension is the benefit for a single person provided on the basis of citizenship, i.e. without means- or work-test, and it is expressed as a percentage of the average production workers wage after tax (NETAPWW). Benefits have been taxed if subject to income tax.

Minimum pension is the pension provided for a single person after means-test (also including benefits based on citizenship) and it is expressed as a percentage of the NETAPWW. Benefits have been taxed if subject to income tax.

Workers-minimum pension for a single person is expressed as a proportion of the NETAPWW. The benefit level is supposed to reflect the pension of a worker with low earnings who meets only the minimum rather than the "full" contribution conditions. Benefit-provision involves means-testing in some countries. Benefits have been calculated for single householders and taxed if subject to income tax. In reality the minimum pensions in the different countries have rather different characters; citizenship pensions, means-tested pensions, and work-related pensions, or a mix of those. But this aspect will have to be discussed further in an other paper. Here we will maintain the "industrial worker perspective" and analyse the minimum pensions of industrial workers.

Standard worker pension is expressed as a percentage of the NETAPWW. The benefits have been calculated assuming that the "standard worker" has worked 35 years before retirement with the average earnings of a production worker in manufacturing and that he retires in the end of the year of measurement. Benefits have been calculated for single persons and taxed if subject to income tax. This means that this variable measures the replacement rate for a newly retired ideal-type worker. Thus, it is not an average for all retired with a similar work record. This also applies for the maximum pension.

Full pension is expressed as a percentage of the NETAPWW, and is the benefit paid to someone who have fulfilled the "full" contribution conditions, which in some cases are longer than the 35 years of the 'standard-worker'. The earnings used as a basis for benefit calculations are assumed to have been on the same level as the standard-worker. Benefits have been calculated for single persons and taxed if subject to income tax.

Maximum pension is the maximum benefit paid to a single householder within the major public pension system. Benefits have been calculated assuming that the beneficiary has fulfilled the maximum contribution period and has had earnings at the maximum level for benefit purposes, and that he retires in the end of the year of measurement. The variable is expressed as a percentage of the NETAPWW. Benefits have been calculated for single persons and taxed if subject to income tax.¹ The preparation of this data-base has involved a major effort on the part of a number of country-experts. The result is a data-set that in several respects is superior to what has earlier been used in the comparative research on, for example, pensions. First, a large number of countries have been studied over a comparatively long time-period. Second, data is organized in variable form to allow for the use of quantitative methods. Third, the comparability of the statistics has been improved with the use of ideal-type cases and common definitions that do not stem from the individual countries. Fourth, benefit-levels are more comparable since the effect of income-taxation has been calculated with.

Worker-minimum pension couple is calculated in the same way as the worker-minimum pension but also includes pensions or allowances paid to married women without a work-record of her own. The net total benefit is divided by the net average production workers wage (taxed as for married couples).

Standard-worker pension couple is calculated in the same way as the standard-worker pension but also includes pensions or allowances paid to married women without a work-record of her own. The net total benefit is divided by the net average production workers wage (taxed as for married couples).

Basic security index is an additive index based on the standardized values of five variables; take-up rate, citizenship-based pension, minimum pension, worker-minimum pension, and worker-minimum pension couple.

Income security index is an additive index based on the standardized values of four variables; worker minimum pension, standard-worker pension, full pension, and maximum pension.

Institutionalism rank is based on the rank-sum of two indices including all of the variables in basic and income security indices, including also coverage and standard-worker pension couple, for (1) 1980 and (2) an average for the period from 1965 to 1980. The latter index was included to take account for the fact the elderly populations in around 1980 in fact started to retire decades before.

Appendix 2: The Luxembourg Income Study.

COUNTRY	DATASET NAME, INCOME YEAR (AND SIZE ¹)	POPULATION COVERAGE ³	BASIS OF HOUSEHOLD SAMPLING FRAME ⁸
Australia	<u>Income and Housing Survey,</u> 1981 - 82 (17'000)	97.5 ⁴	Dicennial Census
Canada	<u>Survey of Consumer Finances,</u> 1981 (37'900)	97.5 ⁴	Dicennial Census
Germany	<u>Transfer Survey,</u> 1981 ² (2'800)	91.5 ⁷	Electoral Register and Census
Israel	<u>Family Expenditure Survey,</u> 1979 (2'300)	89.0 ⁵	Electoral Register
Netherlands	<u>Survey of Income & Program Users</u> 1883 (4'833)	99.2 ⁴	Address Register of The Postal and Tele- phone Companies
Norway	<u>Norwegian Tax Files,</u> 1979 (10'400)	98.5 ⁴	Tax Records
Sweden	<u>Swedish Income Distribution</u> <u>Survey, 1981 (9'600)</u>	98.0 ⁴	Population Register
Switzerland	<u>Income and Wealth Survey,</u> 1982 (7'036)	95.5 ⁹	Electoral Register and Central Register for Foreigners
U.K.	<u>Family Expenditure,</u> ² 1979 (6'800)	96.5 ⁶	Electoral Register
U.S.A.	<u>Current Population Survey,</u> 1979 (65'000)	97.5 ⁴	Dicennial Census

- 1 Dataset size is the number of actual household units surveyed.
- 2 The U.K. and German surveys collect subannual income data which is normalized to annual income levels.
- 3 As a percent of total national population.
- 4 Excludes institutionalized and homeless populations. Also some far northern rural residents (Inuits, Eskimos, Laps, etc.) may be undersampled.
- 5 Excludes rural population (those living in places of 2,000 or less), institutionalized, homeless, people in kibbutzum and guest workers.
- 6 Excludes those not on the Electoral Register, the homeless, and the institutionalized.
- 7 Excludes foreign-born heads of households, the institutionalized, and the homeless.
- 8 Sampling Frame indicates the overall base from which the relevant household population sample was drawn. Actual sample may be drawn on a stratified probability basis, e.g., by area or age.
- 9 Excludes nonresident foreigners, but includes foreign residents.

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Table 1. Models of old-age pensions in 18 OECD-countries, and benefit levels in 1980; mean, minimum and maximum of minimum pensions and standard worker pensions of the respective models.

	<u>Institutional</u>	<u>Citizenship</u>	<u>Work-Merit</u>	<u>Residual</u>
	Finland	Australia	Austria	France
	Netherlands	Canada	Belgium	Ireland
	Norway	Denmark	Germany	United Kingdom
	Sweden	New Zealand	Italy	United States
			Japan	Switzerland
<hr/>				
Minimum pension,				
mean	45	40	24*	33
minimum	34	34	0	26
maximum	49	45	48	41
Standard worker pension				
mean	66	42	63	48
minimum	59	35	53	36
maximum	72	47	70	63

* Excluding Germany where the minimum pension, according to the definition used here, is zero, yielded a mean of 36%.

Table 2. Poverty rates among the elderly in 9 OECD-countries. Percent individuals below poverty lines expressed as a percentage of the median equivalenced disposable income:

<u>Model</u>	<u>Country</u>	40% median	50% median	60% median	Minimum pension as % of median ¹⁾	Minimum pension rank ²⁾
Institutional	Netherlands	3	3	5	46 ³⁾	3
	Norway	3	5	7	62	2
	Sweden	0	0	6	55	1
Citizenship	Australia	2	5	19	50	7
	Canada	4	11	22	47	5
Work-merit	Germany	5	9	16	0 ⁴⁾	9
Residual	Switzerland	4	9	18	33	6
	United Kingdom	2	20	46	40	4
	United States	11	21	29	37	8

1) Equivalenced minimum pension as % of the median equivalenced disposable income for the respective years.

2) Ranking based on the basic security index, see Appendix 1.

3) The full AOW-pension is 91% of the median disposable income.

4) Worker minimum pension (requiring 25 years of coverage) was 47% of the median disposable income.

Table 3. Income inequality among the elderly in 9 OECD-countries. Gini-coefficients and Atkinsons-indices (with different ϵ :s) Equivalenced disposable income of persons.

<u>Model</u>	<u>Country</u>	Gini-coefficient	Atkinsons indices			Income security rank	Institutionalism rank
			<u>$\epsilon=0.1$</u>	<u>$\epsilon=0.5$</u>	<u>$\epsilon=1.1$</u>		
Institutional	Netherlands	.267	.013	.061	.142	2	2
	Norway	.241	.012	.054	.143	3	4
	Sweden	.145	.004	.017	.043	1	1
Citizenship	Australia	.276	.013	.063	.165	9	9
	Canada	.300	.016	.073	.149	8	7
Work-merit	Germany	.276	.013	.060	.131	4	3
Residual	Switzerland	.355	.033	.126	.238	7	8
	United Kingdom	.259	.012	.054	.109	6	6
	United States	.340	.019	.096	.256	5	5