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INCOME INEQUALITY TRENDS IN THE 1980s: A FIVE COUNTRY COMPARISON.*

ABSTRACT

This paper makes a comparison of recent developments in income inequality in five Western societies. Besides a mere description of cross-national variation in changes in income inequality, the paper examines three different possible explanatory factors for recent developments. The findings reported indicate that there is substantial cross-national variation, not only with regard to the level of inequality, but furthermore with regard to changes in inequality. Despite the general attack launched on redistributive policies during the 1980s, the results indicate that the equalization effect of welfare state redistribution did not decrease in all countries. In contrast, in all countries, although the magnitude differs, there was an increase in pre-tax and transfer income inequality. Even though the data indicate a general tendency towards a polarization of the earnings distribution in all countries, the results at the same time give no support of cross-national convergence with regard to income inequality during the 1980s.

1. INTRODUCTION

In the aftermath of the first oil shock and the subsequent decline of economic growth rates in the 1970s, welfare state activities were seriously questioned. Partly due to fiscal problems, many governments in the 1980s came to see growing social expenditures as one of the major problems of society. Furthermore, the social welfare system in itself was attacked for being an important cause of the slowdown in economic growth. In the political arena, market-oriented solutions to societal problems gained ground. The political climate was heavily influenced by the political leaders in two of leading Western societies who praised the religion of the market. This definitely shaped the terms of political rhetoric, and plausibly also the politics pursued in most other countries.

What, then, has happened with income inequality during this decade? Even though there is some evidence available for single countries of increasing inequalities, few comparative studies have yet been undertaken (for evidence concerning rising income inequality in the U.S., see e.g. Blackburn & Bloom 1987; Danziger et al. 1989, for the United Kingdom see e.g. Atkinson 1991; O'Higgins 1985). The main aim of this paper is to compare changes in income inequality which have taken place in some Western societies between, roughly, the beginning and the mid/late 1980s. Thus I will try to scrutinize whether recent developments are similar cross-nationally, or whether it is the case that these countries not only differ with regard to the level of inequality but also with regard to the nature of the most recent changes. Moreover, the analysis beyond a mere description of overall trends, aims at an understanding of whether the changes in inequality are dependent on similar causes. More specifically, I will ascertain whether the changes occurred in the market sphere, through changes in the redistributive effects of taxes and transfers, and/or as a result of demographic changes within the populations. Since the main issue concerns commonality and variation

between countries, one underlying question is of course whether developments in the 1980s show signs of convergence or of divergence?

The data are presented in section 2. Section 3 gives a short background description of some macroeconomic variables for the countries included in the study. Section 4 gives an overall view of the inequality trends during the 1980s. In section 5, different underlying mechanisms for the reported changes in inequality are examined. Finally, in section 6, the results are summarized and discussed.

2. DATA AND METHODS

During a long period of time, comparative research on income inequality suffered from lack of truly comparable data. Thus, until recently, most findings in this area always had to be strongly qualified, and there was always a high degree of final uncertainty whether the findings merely reflected dissimilarities in data or "true" differences between the nations under study. As a response to these shortcomings, the Luxembourg Income Study (LIS) was developed in the early 1980s (for a presentation, see e.g. Buhmann et al. 1988; Smeeding et al. 1990).

This data base is directly oriented towards use by comparative researchers. Three of the crucial aspects of LIS is the reorganisation of national microdata sets for increased comparability, the flexibility of the data, and the availability of the data base to the research community (an overview of the national datasets for the countries involved in this study is given in Table A1 in the Appendix). The flexibility means that choices of income concepts, unit of analysis, subgroups etc are left to the researcher. These aspects of the LIS data paved the way for progress in comparative research on income inequality. The LIS-data originally refered to the situation around 1980 in each country. One of the major later improvements of the data base has been to update the data to also cover a second year for some of the countries involved. Thus, it is now not

only possible to study cross-national variation in the ***level*** of inequality, poverty, redistribution etc. at one point of time but furthermore to study ***changes*** in these areas.

The major concern of this paper is thus not whether Nation A has a higher or lower degree of inequality than Nation B, but rather if the change in inequality in Nation A differs from the corresponding change in Nation B. The countries included here are the following:

Canada (1981/87), (West-)Germany (1981/84), Sweden (1981/87), the United Kingdom (1979/86), and USA (1979/86).[1]

The concept of income used in the paper is based on total disposable family income, i.e. after taxes and cash transfers. In order to be able to compare households of different size and structure, all income figures are divided by an equivalence scale. The scale used in this study is the so-called OECD-equivalence scale. This scale entails the use of a factor of 1.0 for one-person households, 0.7 for each other adult, and 0.5 for each child in the household. Thus, a couple with two children needs to have a disposable income which is 2.7 times higher than a single person in order to get the same adjusted disposable income.

Even though the income concept is based on family income, the unit of analysis is still each individual within the household. This is nowadays most often seen as the best optimization of the relation between unit of analysis and income concepts (for the reasoning, see e.g. Cowell 1984; Danziger & Taussig 1979). The inequality figures refer to the total samples for each country, unless otherwise stated. Negative incomes are recoded to 0.1, and any income figure higher than 1500 percent of the median income in each country has been top-coded to this value. These latter adjustments, which were made only for a few observations in total, is made in order not to let one extreme observation influence the results too much.

3. MACROECONOMIC PERFORMANCE

Income inequality does not of course only depend upon political action and changes in the political sphere. Before studying trends in income inequality, it might therefore be useful to briefly look at the macroeconomic circumstances which prevailed during the years covered by the LIS-data. Even though there are no straightforward relationships between inequality trends and general economic circumstances, some macroeconomic variables are likely to exercise influence on the trends to be examined. Two of these factors are depicted in Figure 1, the economic growth rate and level of unemployment between the years covered by this analysis.

Figure 1 about here

Some of the changes depicted above should particularly be underlined. With regard to unemployment, the level more than doubled between 1979 (t_1) and 1986 (t_2) in the United Kingdom. The changes were smaller in the other countries, but was still higher at t_2 than at t_1 in all countries except Sweden. With regard to economic performance, as reflected in GNP/GDP growth, one might in particular note that all countries, once again with Sweden as an exception, experienced a recession somewhere in between the two data waves. Sweden, on the other hand, had a year with no growth in 1981, i.e in the year of the first data wave.

It is of course difficult to predict how income inequality ought to have changed, let alone to hypothesize on cross-national variation, simply on the basis of these macrostatistics. In general, one could perhaps say that Figure 1 gives an indication of where inequality increases might be most expected and marked and where it seems more unlikely. The former development could then be expected for the United Kingdom, whereas the development in Sweden rather indicates that income inequality ought to be lower in the latter year.[2]

4. TRENDS IN OVERALL INCOME INEQUALITY

One of the major results from earlier analyses of the LIS data concerns the strong cross-national difference prevalent in the size distribution of income (see e.g. Coder et al. 1989, Smeeding et al. 1990). In contrast to what was true of earlier comparative analyses, we now have ample evidence that rather huge differentials exist even among the rich countries included in LIS, in areas such as the prevalence of poverty, overall inequality, economic position of various socio-demographic categories, effects of welfare state redistribution etc.. These results implicitly cast doubts on at least the simplified version of Kuznets' (1955; 1963) classical hypothesis that economic development and technological change are the main causes of variation in income inequality over time or between nations.

An overall view of this cross-national variation in income inequality is reported in Table 1. In this table, I use three different measures to depict the degree of inequality for the five countries at the first and second LIS data wave.[3] The third row of data for each inequality measure reports the absolute change, i.e. inequality in t_2 minus t_1. In the fourth row, the rate of change per year is given, under the assumption (no doubt incorrectly) that the change rate is linear in each country. This over-simplification has the advantage of providing a rough and ready adjustment for the fact that the number of years between the two data waves vary slightly by country.

If we first look at the figures from a cross-sectional perspective, it is easily seen that all three measures indicate substantial cross-national variation, with the lowest degree of inequality found in Sweden, and the highest figures reported for the U.S., irrespective of which data wave we study.[4]

Table 1 about here

As for the main focus of attention in this paper, i.e. changes in inequality, the overall picture seems relatively clear from this table. Thus, one can easily divide the

nations into two categories, one (Sweden, United Kingdom and the U.S.) in which income inequality has increased quite markedly, and another group (Canada and Germany) where the changes seem to be modest.[5] A first conclusion then is that there is not only cross-national variation in the level of inequality, but furthermore in the degree of change in inequality. Somewhat surprisingly, considering the rather intense debate on growing inequality in the U.S., the growth rate per year is about the same in Sweden and in the U.S., in fact it is even somewhat higher in Sweden. However, the absolute change of the inequality indices is much larger in the U.S. than in Sweden. Despite the profound changes in some of the countries, the ranking of countries remains similar - only Canada and the United Kingdom switch places - whether measured in the early or in the latter part of the 1980s. Taking into account that income distributions tend to change rather slowly, the change in the United Kingdom must be considered dramatic.

More interestingly, it is from Table 1 hard to detect any tendency toward convergence between the countries as a result of the changes in inequality. The convergence hypothesis does not either get any support from a more formal calculation. For example, the between-country coefficient of variation increases by about three to four and a half per cent according to all inequality indices, i.e. indicating a higher degree of divergence in the latter year.

Hence, judging from this table it seems that we can conclude that an increase in income inequality has not occurred in all countries. We now turn to investigating possible causes for the changes. The fact that inequality has increased in three of the countries involved does not, of course, mean that the mechanisms involved are necessarily the same. In one country it might be caused by demographic changes, in another by changes of the redistributional system, and in a third country by growing wage differentials. In the following section, these possibilities will be explored. Even though Germany and Canada have not, according to Table 1, experienced an increase of

inequality, I will also include these nations, since it cannot be ruled out that different underlying mechanisms have counteracted each other, leading to a seemingly stable final outcome.

5. EXPLAINING THE PATTERN: DEMOGRAPHIC CHANGES, THE STRUCTURE OF MARKET REWARDS OR WELFARE STATE RESPONSES?

How, then, are these changes in inequality produced? Does the trend toward higher inequality in some of the countries depend on a similar factor? Or is the change caused by different factors in different nations? In order to grasp some of the possible societal changes that might influence the so-called income distribution by size, we need to investigate the income formation process more carefully. Further, we need to study how income varies between different relevant groups in each society, as well as how these groups have changed in size over the period.

Explanatory factors for the changes reported in Table 1 will be selected for testing from within three different perspectives. First, and most obviously, the increase might be caused by changes related to the market sphere. Secondly, the increase might be a product of changes taking place within the redistributive system of the welfare state. Thirdly, the increase could be (in whole or in part) a product of demographic changes, e.g. changes in age structure and family composition. No doubt, the explanation might be multifactoral, and some counterbalancing tendencies might also occur, but I will nevertheless try to scrutinize which of these three arenas is most vital for the changes taking place.

5.1 Demographic factors

Is it possible that changes in age and family structure can explain the changes in inequality reported above?[6] Or, to put the question in another way, what would have happened to inequality in "year 2" if the family and age structure remained as it was in "year 1"? In order to address these issues, some simple calculations are performed. In so doing we take the age and family structure in t_1 as given, and impose these structures on the data for year t_2 in respective country.[7] Technically, this is done in a two-step procedure. First, the inequality - according to the square of the coefficient of variation - in t_2 is decomposed into within- and between-group inequality. Secondly, the age (family) structure in t_1 is placed in the decomposition formula, something which also influence the overall mean and thereby the overall inequality. Thus the analysis only controls for changes in age and family distribution but let both the within- and between-group inequality in t_2 remain as they de facto are. The age (head of household) and family categories distinguished are as follows:

Age: - 35, 35-44, 45-54, 55-64, and those aged 65 or more.

Family: Single persons, single persons with children, couples with no children, couples with one or two children, and couples with three children or more.

The outcome of this exercise is reported in Table 2. The first column presents the actual changes (AC), whereas the second and third columns (HC1 and HC2) report changes in inequality according to the hypothetical distributions with constant age and family structures, respectively.

Table 2 about here

As can be seen, it is evident that changes in age structure does not explain the changes in inequality. In all countries the inequality measure, the square of the coefficient of variation, remains almost identical to the actual figures. The minor increase in HC1 in some of the countries, compared to the actual changes, is clearly

negligible. Family composition changes do not explain the trends either. In this case, however, about 10 percent of the total increase in the United Kingdom seems to be due to changes in family structure, whereas the hypothetical distributions in all other countries remain similar to the actual distributions.

Accordingly, the changes in inequality which have occurred can be attributed neither to changes in age distribution nor to changes in family composition. Taking into account the rather short period of time between the two data waves, this finding is of course rather expected. Nevertheless, the analysis seems to rule out the demographic explanation as a primary causal mechanism. We should therefore consider two main aspects of the income formation process, namely market differentials and welfare state redistribution.[8]

5.2 Welfare State Redistribution

Considering the earlier discussed attack on welfare state programs one possible reason for rising income inequality may lie in subsequent changes of the tax- and transfer system within each country. The conventional approach for studying the inequality effects of redistribution is the so called first-order incidence method (Dodge 1975). This method simply compares the inequality in the distribution of pre-tax and transfer income to the inequality in disposable income. The method is extremely static in nature and has correctly been accused for overestimating the impact of redistribution on inequality. The argument for the critique is that there are strong feedback mechanisms between the distribution of pre-tax and transfer income and the tax and transfer system itself.[9] Nevertheless, the approach says something about the actual cash-flow occurring in society (Uusitalo 1989). In this section I will not focus on the redistributive effects *per se* but instead analyze the changes in the total redistributive effect which can be established by use of the first-order incidence method. The concern

is the following: What would income inequality have looked like if the total redistributive effects of the tax and transfer system would have been exactly the same in t_2 as it was in t_1?[10] The implicit question asked is, of course, whether or not the results shown in Table 1 are primarily a product of changes in these systems.

In Table 3, the results of this analysis are shown. The first column reports actual changes in the inequality index; the second presents the hypothetical change in the fictive world of no change in the total redistributive effects of taxes and transfers, and the third gives the hypothetical change rates per year. In Panel A the analysis is conducted on total samples. However, since the total redistributive effect of taxes and transfers are strongly dependent on the number of old people (who usually have very low factor income) the analysis is also conducted on a restricted sample of the potential working population (those aged 20-64) in Panel B. Hence, the results presented in the lower panel could be regarded as more accurate and I will therefore concentrate my discussion upon them.

Table 3 about here

This table reveals several interesting and remarkable results. Once again, the nations in the study can be categorized into two groups. First, in those countries with increasing inequality one may note that changes in the systems of taxes and transfers have led to increasing inequality, but secondly, that these changes are far from explaining the total increase. Thus, the total increase in the United Kingdom would have become around 20 per cent lower with no change in the total redistributive effects. The corresponding figures for Sweden and the U.S are 41 and 35 per cent, respectively. Accordingly, for these three nations, redistributive changes have led to an increase in inequality, however, the major part of the increase in inequality increase does not reflect changes in welfare state redistribution.

As for Germany and Canada, the results of the analysis lead to totally opposed conclusions. Here, as earlier noted, the inequality of post-tax and transfer income are

quite stable. But, contrary to the other countries, the equalization effect of welfare state redistribution in Germany and Canada is somewhat stronger in the latter year. Consequently, in Germany and Canada, the hypothetical distributions are more unequal than the actual distributions. This outcome gives one answer to why divergent inequality trends were found in the earlier analysis.

Hence, the global effect of controlling for redistributive effects is to make the nations much more similar with regard to changes in inequality changes. A conclusion most easily confirmed by comparing the change rate per year - the third column of Table 3 - with the actual change rates presented in Table 1. It is obvious that the cross-national variation is smaller for the results in Table 3. If one calculates the between-country coefficient of variation for these change rates, it becomes 0.38 instead of the actual 0.70, implying much less cross-national variation over the years when controlling for changes in the redistributive systems.[11]

In all, even though the changes in welfare state redistribution are indeed important, the results above show that, among those countries with a relatively high increase in inequality, the major source of the recent increase in income inequality must, first and foremost, be sought elsewhere. An implicit result of the analysis so far is then that the major change in Sweden, the U.S. and the United Kingdom has occurred in the distribution of pre-tax and transfer income. Furthermore, in Canada and Germany where the former analysis only indicated meager change, the latter analysis indicates that inequality in pre-tax and transfer income has increased. Thus, there seem to be a general trend towards higher inequality in market rewards. The welfare state responses to this change, however, strongly diverge cross-nationally. The structure of market rewards must thus be our next concern.

5.3 The changing structure of market rewards

The findings so far have to some extent relied on a process of elimation. In those countries experiencing an increase in income inequality the possible influential factors examined have, by and large, been unable to explain the major part of the increase. On the other hand, in those nations with only slight changes in overall inequality, the findings reported above indicate that welfare state redistribution has counterbalanced a trend towards higher inequality. Stated differently, there seems to be a general trend in all of the countries analyzed towards increasing market differentials.

A more profound analysis of the trend in market-related differentials is of course outside the scope of this paper. I will merely glance over some major explanations concerning rising inequality in the pre-tax and transfer income distribution. As indicated previously, it means that we must primarily search for an answer by focussing upon the potential working population. The forthcoming analysis, thus, concerns the distribution of pre-tax and transfer income, among families aged 20-64 (age of household head). Since the vast majority of factor income consists of earnings (wages, salaries and self-employment income), I will concentrate on changes in the distribution of family earnings. In particular I will examine whether the growing inequality in earnings is caused by changes in the lower or upper part of the earnings distribution (or both). Three possible trends might be of particular interest: (i) The relative and absolute situation for those in the lower tail of the distribution; (ii) the development of earnings in the upper tail of the distribution; and (iii) the absolute sizes of those with very low and high earnings.

All results presented so far have been based on adjusted measures of family income. For the sake of consistency, I will continue to adjust data for family size and structure. It could however be noted that the *changes* in the inequality of adjusted and unadjusted family earnings are practically identical in all countries.[12] Thus the

development of inequality in family earnings does not primarily depend on changes in family composition.

When trying to pinpoint the location of changes in a distribution, summary measures like the coefficient of variation or Theils index are not very helpful. For this purpose it might instead be preferable to use a simple descriptive categorization. By dividing the distribution in income categories, relative to the median, we might more easily locate the distributional changes. The categories used below are defined as follows:

1. Earnings less than 50 percent of the median;
2. Earnings equal to or greater than 50 per cent but less than 150 per cent of the median;
3. Earnings equal to or greater than 150 per cent but less than 200 percent of the median;
4. Earnings equal to or greater than 200 per cent of the median.

The cut-off values of the earnings classes are obviously not made in order to give classes of equal sizes. I have instead used one category for very low earnings, a very broad middle category, and two "well-to-do" categories. In Figure 2, the proportional size of each category is shown.

Figure 2 about here

In general the descriptive information provided in this figure is one reflecting a decline of the middle earnings class (category 2). If we first study developments in the U.K. and the U.S., we furthermore see increases in the lower and upper tail of the distributions. Thus, the decline of the middle category is not equally spread out to the other categories. The proportion of people in the third category are in fact fairly similar, both among all countries and between the two data waves. In the United Kingdom, the changes are dramatic in both ends of the distribution. In the lower tail, this change no doubt partly reflects the earlier mentioned changes in the level of unemployment. In the U.S., we might particularly note the much higher proportion in the highest earnings

class. The picture looks the same for Canada, even though the changes here are more modest. In Sweden, one might first and foremost note the small size of the highest earnings class. Somewhat surprisingly, considering the extremely low unemployment figures in Sweden, the proportional change between the data waves mainly occurs in the lowest earnings class. Still, the changes in Sweden are rather minor. Finally, in Germany, the decline of the middle class is most equally distributed to the other categories, even though the increase is highest in the lower tail.

The general story told by Figure 2 then is a tendency of polarization. One can both note a higher fraction of people with no or low family earnings and at the same time a higher proportion of those with very high earnings. It is, however, important to bear in mind that the cut-off values are relative in nature. Thus it might be informative to complement this picture with real, i.e. adjusted for inflation, earnings changes in different parts of the distribution.

Table 4 reports the yearly percentage change in real adjusted family earnings at the 20th, 50th (median), and 80th percentile. From this table one can in particular note that all countries, except Sweden, show above median growth in the 80th percentile. All countries also show below median growth in the lower percentile. However, in absolute terms we cannot, judging from this table, conclude that the upper strata were getting richer and the lower strata poorer in all countries. In Sweden, the growth rate is positive in all three parts of the distribution, whereas it is negative in Germany. Once again, the most dramatic change takes place in the lower part of the Brittish distribution.

Table 4 about here

In similar calculations by Gottschalk & Joyce (1991) concerning the U.K., the picture given is quite different. In their calculations based on full-time male workers, the real growth rate is instead extremely high for the United Kingdom and positive in all parts of the distribution. This apparent paradox is, however, quite easily explained. The figures reported here include all families headed by a person aged 20-64, including

women, unemployed, and part-time employees. This indicates that the lower skilled section of the distribution in the United Kingdom were much more likely to experience unemployment whereas wage reductions were a more likely outcome in, for example, the U.S. This conclusion also coincides with cross-national variation in wage flexibility in these two countries. Dahrendorf (1988) summarizes this difference as follows:

> *"As a result, people (American) find employment, but many remain poor. Persistent poverty is the American equivalent to persistent unemployment in Europe"* (Dahrendorf 1988:149).

All the same, the general outcome from inspections of changes of the family earnings distributions turns out to be a dual tendency of market differentials. Inequality increased rapidly, and the increase reflected changes both in the lower and upper part of the distribution in all countries. This finding, of course, does not prove that these changes are produced by the same phenomena, nor does it indicate which of several possible mechanisms should be regarded as the most plausible factor. Still, the results indicate that more general "global" factors, such as technological change, shifts in the industrial structure, intensified international competiton etc., might have played a significant role in the changing structure of the earnings distribution (see further Gottshalk & Joyce 1991; Green, Coder & Ryscavage, 1990).

6. CONCLUSIONS AND DISCUSSION

The purpose of this paper has been to compare recent developments in the size distribution of income in some modern societies. Particularly during the 1960s and the early 1970s, increasing proportions of the societal output has been channelled through what usually is referred to as the welfare state. Welfare state politics have been characterized as a modifier of market forces. One of the main means used in welfare state politics is to redistribute income. However, during the late 1970s and particularly

in the 1980s, the welfare state programs were seriously questioned. High and increasing social expenditure increasingly came to be seen as a major problem, instead of an achievement, for modern societies. Like two American economists wrote:

> *"Governments seem to have embraced the conclusion that slow growth and large deficits are caused by redistributive programmes. How this proposition -the truth of which has not been proved - became conventional wisdom was left as a mystery*" (Danziger & Smolensky 1985: 262).

Even though this welfare backlash first and foremost dominated in political rhetoric, it seems likely that it also had effects also on politics pursued in many countries.

The major question asked in this paper is then: What happened to income inequality in five Western countries in the 1980s? As far as overall changes in income inequality are concerned, the findings show that there was indeed an increase in Sweden, the United Kingdom, and the United States. In Germany and Canada, however, the degree of inequality remained stable. Considering the fact that income distributions often tend to change very slowly, the increase particularly in the United Kingdom must be considered substantial.

The causes for the changes of inequality in the distribution of adjusted disposable income were studied from three different angles. We examined the role of (i) demographic factors, (ii) redistributional effects, and (iii) changes of the pre-tax and transfer distributions. The results presented are to some extent expected, but also somewhat surprising. The general findings indicate that most of the increase in income inequality was not due to changes in the system of income redistribution, even though the redistributional changes are indeed important. The demographic explanation does not receive any support.

Instead, even though the magnitude differs, there was an increase in the inequality of pre tax- and transfer income in all countries. However, in Germany and

Canada the total effect of redistribution counterbalanced this increase, so that the inequality in the distribution of adjusted disposable income was about the same in the two years analyzed here. In the other three countries - Sweden, the U.S. and the United Kingdom - it was found that a noticeable part of the increase was due to changes in income redistribution but the major part of the increase in income inequality reflected changes in earnings distribution.

Thus, despite the general attack launched on welfare politics, the results presented indicate that (i) in all countries major changes in the income distribution depend upon increasing market differentials; and (ii) the obsverable divergent trends are mainly due to the effects of redistributive policies.

Another finding of the analyses above is that, even though the 1980s seems to be a decade of increasing income inequality, it has definitely not led to any convergence among the Western countries. The cross-national variation in income inequality seems to be at least as large in the late 1980s as in the beginning of the decade. Still, the development in all countries indicates a trend towards polarization of the earnings distribution. Whether or not this tendency will continue and eventually lead to a convergence in the 1990s is of course yet to be found out.

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[1] The figures within the parentheses refer to the respective year of the data waves in each country. One problem in the forthcoming analysis is the cross-national variation in the time period between the two data waves. Even though one cannot properly adjust for this, I will as far as possible take this into account when presenting the results.

[2] The implicated causal relation is of course that increased unemployment and economic recession increases income inequality.

[3] The inequality measures used, the Gini coefficient, Theils Index, and the square of the coefficient of variation, react differently to changes in different parts of the distribution (see further e.g. Allison 1978; Jenkins 1990). Since the square of the coefficient of variation is used in subsequent analyses presented in the paper this measure is presented here instead of the coefficient itself.

[4] Whether or not the cross-national variation is substantial is no doubt a value judgement. One more empirical way of making this judgement is to compare the variation with that found in earlier, more global income distribution studies. Elsewhere I have for that purpose compared Kakwani's (1980) study, based on earlier sources, on income inequality in about fifty countries with nine countries included in the first LIS-wave (see further Fritzell 1991a). It turned out that the cross-national variation was slightly lower in the LIS-sample. However, taking into account the fact that Kakwani's comparison included nations on vastly different economic and social levels, such as for example Senegal and Sweden, it was rather the relatively small difference that was astonishing. Thus, one should in my opinion rather emphasize that the nations in Table 1, which can all be counted among the very richest countries in the world, seem to have income distributions that differ nearly as much as the difference usually reported in more global income distribution studies.

[5] As for Germany, three shortcomings of the data should be mentioned (see also Appendix). First, the data in t_1 and t_2 are derived from different data sources; secondly, the samples are in both years comparatively small; and thirdly, the number of years between t_1 and t_2 are much smaller than in any of the other countries. Therefore, the results for Germany should be regarded as being qualified by a higher degree of uncertainty compared to those for other countries.

[6] The influence of the changing age distribution has been much debated in the U.S., primarily as a potential cause of growing earnings differentials among males (for a thorough discussion and empirical test, see Blackburn 1990).

[7] These kinds of calculations are most easily performed with inequality indices that are additively decomposable into within- and between-group inequality. The square of the coefficient of variation in contrast to, for example, the Gini-coefficient fullfills this requirement.

[8] Two possible shortcomings of the analysis above should be further mentioned. First, as in all counterfactual analysss we have to make certain assumptions. The analysis gives a picture of the inequality in a fictive world where the group sizes are kept constant between t_1 and t_2 while letting the remaining changes occur, i.e *a ceteris paribus*-assumption. Although one cannot stricly speaking know how reasonable this assumption is, it seems to me to be fairly reasonable, considering the fact that the number of years between the data waves are not that many (for a thorough discussion of degrees of reasonability in contrafactual assumptions, see Lieberson 1985). Secondly, the categories employed in the analysis are rather crude and a more refined categorization might lead to slightly different results. However, the differences between the actual and hypothetical distributions are so minor that it seems highly unlikely that a finer categorization would have any impact on the general conclusions drawn.

[9] Sometimes this argument is phrased in even stronger terms, with welfare state redistribution itself being seen as the major independent cause for growing earnings inequality (see e.g. Murray 1984). A thorough empirical test of this assumption by Moffitt (1990) however resulted in no support whatsoever for this more extreme hypothesis.

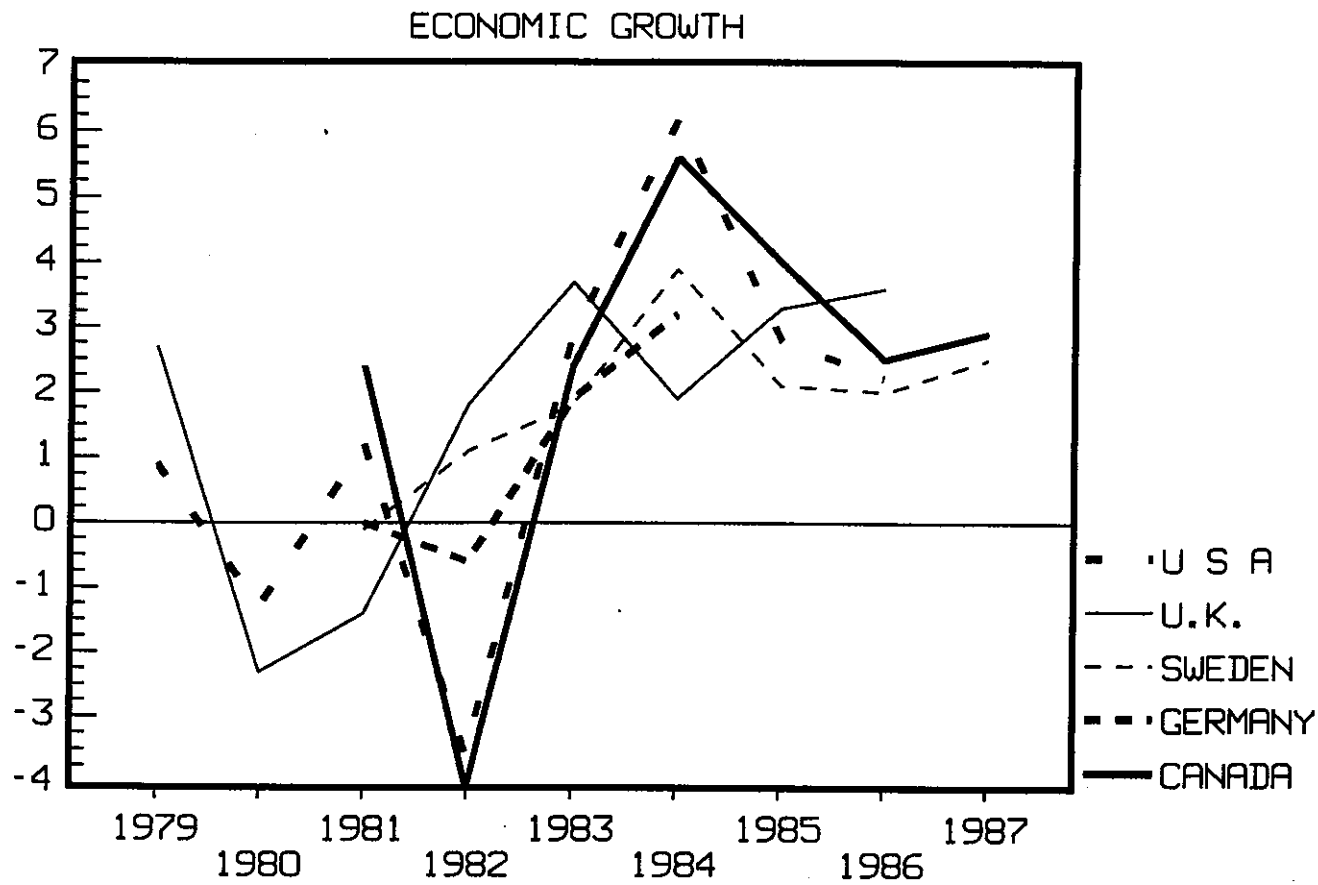
[10] I am here solely focussing on the vertical inequality effects of redistribution. There is, however, also a surprisingly large extent of reranking/mobility in the income formation process as a product of welfare state redistribution (see further Fritzell 1991b).

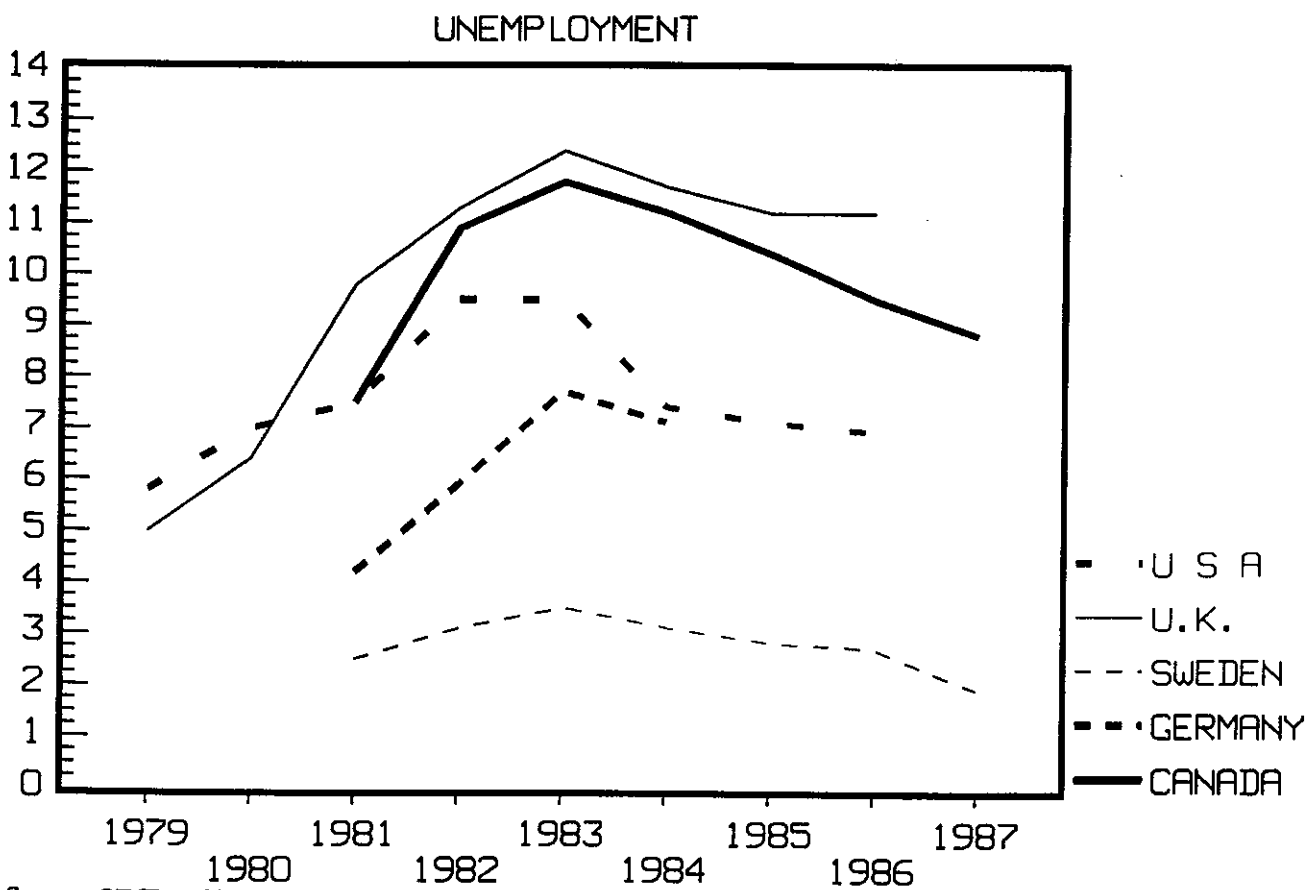
[11] This calculation is based on the total samples, but the general conclusion also holds for those aged 20-64.

[12] This conclusion, however, only holds when refering to changes within each nation. In all countries except Sweden, inequality is lower in the raw earnings variable compared to the adjusted earnings

variable. The fact that Sweden is an outlier in this case might imply that, on average, a household's income and its maintenance burden are more in accordance with each other in Sweden than in the other countries'. However, this finding might be partly dependent on the specific equivalence scale adopted in this paper. Since this issue is not of primary interest here, this hypothesis is not further tested.

Figure 1
Real GDP per capita growth and standardized unemployment rates in five nations from the first to the second LIS-data wave.

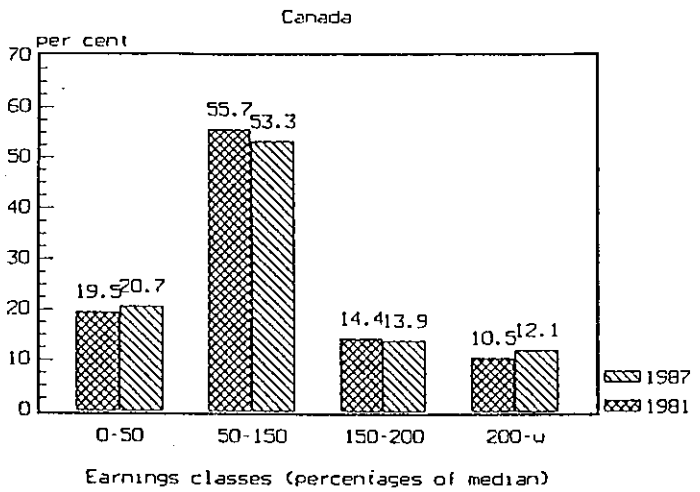


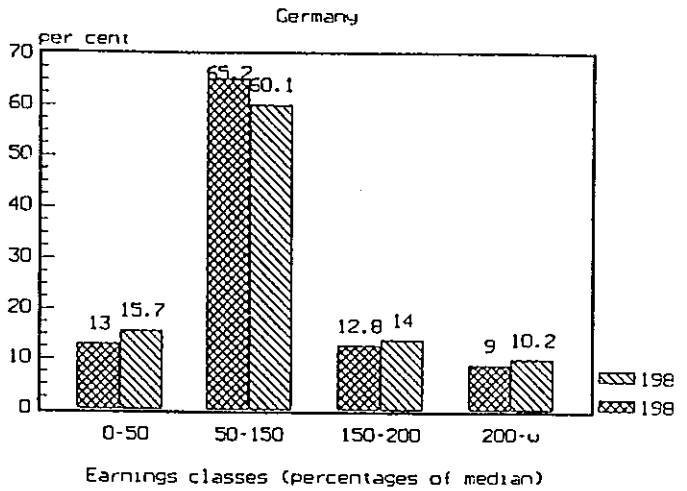


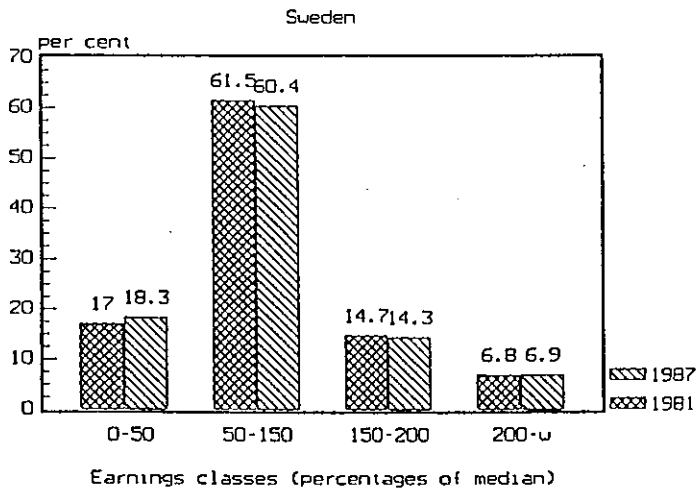
Source: OECD (1991), Historical Statistics 1960-1989, tables 2.20 and 3.2.

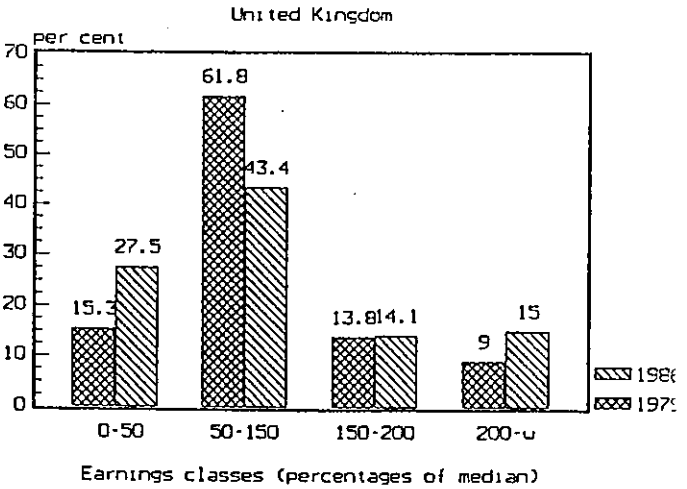
Figure 2

Proportions in different earnings classes in relation to median adjusted earnings. All persons with household heads aged 20-64.









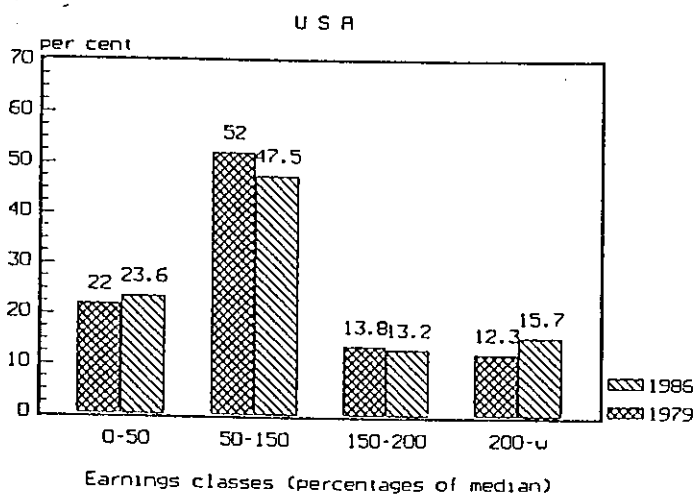


Table 1

Inequality - measured by the Ginicoefficient (G), Theils Index (T), and the square of the coefficient of variation (V^2) - in adjusted disposable income in five countries according to the first and second LIS-wave[a]. Total samples.

Nation	Canada(81/87)	Germany(81/84)	Sweden(81/87)	United Kingdom(79/86)	USA(79/86)
Inequality and change[b] measures:					
G					
First wave	0.293	0.252	0.196	0.263	0.317
Second wave	0.291	0.252	0.213	0.299	0.347
Absolute change	-0.002	+0.001	+0.017	+0.036	0.031
Yearly percentage change	-0.12	+0.07	+1.35	+1.83	+1.33
T					
First wave	0.144	0.109	0.066	0.115	0.168
Second wave	0.143	0.110	0.082	0.159	0.204
Absolute change	-0.002	+0.002	+0.016	+0.045	+0.036
Yearly percentage change	-0.18	+0.42	+3.76	+4.87	+3.46
V^2					
First wave	0.320	0.255	0.130	0.262	0.354
Second wave	0.326	0.274	0.183	0.426	0.454
Absolute change	+0.007	+0.019	+0.053	+0.164	+0.100
Yearly percentage change	+0.34	+2.36	+5.82	+7.20	+3.63

Notes: a) The years of the data waves are given within brackets for each nation.

b) The absolute and relative changes are calculated with more than three decimals. The absolute changes therefore do not always coincide with the subtraction of the two first rows of each inequality measure.

Source: Luxembourg Income Study

Table 2
Actual (AC) and hypothetical change of income inequality in five countries.[a] The hypothetical changes (HC1 and HC2) calculated by applying age and family structure in t_1 to the data of t_2. Inequality Index = Square of coefficient of variation. Total samples.

Nation	Year (t1/t2)	AC	HC1	HC2
Canada	1981/87	+0.007 (0.34)	+0.008 (0.39)	+0.006 (0.30)
Germany	1981/84	+0.019 (2.36)	+0.021 (2.65)	+0.019 (2.43)
Sweden	1981/87	+0.053 (5.82)	+0.053 (5.88)	+0.050 (5.57)
United Kingdom	1979/86	+0.164 (7.20)	+0.169 (7.36)	+0.144 (6.46)
U S A	1979/86	+0.100 (3.63)	+0.101 (3.66)	+0.101 (3.65)

Notes: a) Figures within parenthesis are the yearly percentage change.

Source: Luxembourg Income Study

Table 3

Actual and hypothetical changes (AC and HC) of income inequality in five countries. The hypothetical changes are calculated by assuming no change in the total redistributive effects in respective country. Total samples and persons living in families with household heads aged 20-64. Inequality Index = Square of coefficient of variation.

Nation	Year (t1/t2)	AC	HC	HC/year(%)
Panel A, Total samples				
Canada	1981/87	+0.007	+0.051	+2.49
Germany	1981/84	+0.019	+0.025	+3.20
Sweden	1981/87	+0.053	+0.025	+2.97
United Kingdom	1979/86	+0.164	+0.122	+5.62
U S A	1979/86	+0.100	+0.069	+2.56
Panel B, 20-64 years of age (household head)				
Canada	1981/87	+0.023	+0.049	+2.53
Germany	1981/84	-0.005	+0.033	+4.17
Sweden	1981/87	+0.041	+0.024	+2.90
United Kingdom	1979/86	+0.172	+0.138	+6.70
U S A	1979/86	+0.107	+0.069	+2.68

Source: Luxembourg Income Study

Table 4
Yearly percentage change in real adjusted family earnings in different parts of the distribution. Persons living in families with household heads aged 20-64.

Nation	Year (t1/t2)	Yearly % change		
		20th percentile	50th percentile	80th percentile
Canada	1981/87	+ 0.00	+0.69	+1.33
Germany	1981/84	- 3.08	-1.16	-0.68
Sweden	1981/87	+ 0.53	+1.41	+1.33
United Kingdom	1979/86	-16.39	-1.01	+0.79
U S A	1979/86	- 1.25	+0.08	+1.16

Source: Luxembourg Income Study

APPENDIX

Table 1A
Overview of LIS database

Country	Data set	Year, and LIS Sample Size[a]
Canada	Survey of Consumer Finance	1981-15136 1987-10999
Germany (West-)	Transfer Survey German Panel Survey	1981- 2727 1984- 5174
Sweden	Swedish Income Distribution Survey	1981- 9625 1987- 9421
United Kingdom	Family Expenditure Survey	1979- 6888 1986- 7178
United States	Current Population Survey	1979-15225 1986-13707

Notes: a) Number of households actually surveyed