

**Discussion Papers No. 201, September 1997**  
**Statistics Norway, Research Department**

*Rolf Aaberge, Anders Björklund,  
Markus Jäntti, Peder J. Pedersen,  
Nina Smith and Tom Wennemo*

## **Unemployment Shocks and Income Distribution**

### **How Did the Nordic Countries Fare During their Crises?**

**Abstract:**

We analyse how inequality of disposable income evolved in Denmark, Finland, Norway and Sweden during the late 1980s and early 1990s when unemployment rose dramatically in all four countries. We find that a standard measure of inequality - the Gini coefficient - was surprisingly stable in all countries over this period. By decomposing the Gini coefficient into a number of income components, we can test hypotheses about the reasons for the stable income distribution. Our most straightforward hypothesis, that rising unemployment benefits have counteracted the impact of more unequally distributed earnings, gets only limited support. More complex mechanisms seems to have been at work in the Nordic countries.

**Keywords:** Unemployment, income inequality

**JEL classification:** D31

**Acknowledgement:** We thank seminar participants at the Swedish Institute for Social Research and Björn Gustafsson for useful comments on previous versions. Financial support from the Nordic Council for Economic Research is gratefully acknowledged.

**Address:** Rolf Aaberge, Statistics Norway, Research Department, P.O.Box 8131 Dep.,  
N-0033 Oslo, E-mail: roa@ssb.no

Anders Björklund, SOFI, Stockholm University, Swedish Institute for Social Research,  
S-10691 Stockholm, E-mail: anders@sofi.su.se

Markus Jäntti, Åbo Akademi University, Department of Economics, FIN 20500 Turku,  
Finland, E-mail: mjantti@ra.abo.fi

Peder J. Pedersen, Århus University, Department of Economics, Århus, Denmark,  
E-mail: pjp@hdc.hha.dk

Nina Smith, Århus School of Business, Department of Economics, Århus, Denmark,  
E-mail: nina@hdc.hha.dk

Tom Wennemo, Statistics Norway, Research Department, P.O.Box 8131 Dep.,  
N-0033 Oslo, E-mail: wen@ssb.no

---

**Discussion Papers**

comprises research papers intended for international journals or books. As a preprint a Discussion Paper can be longer and more elaborated than a usual article by including intermediate calculation and background material etc.

Abstracts with downloadable postscript files of  
Discussion Papers are available on the Internet: <http://www.ssb.no>

For printed Discussion Papers contact:

Statistics Norway  
Sales- and subscription service  
P.O. Box 8131 Dep  
N-0033 Oslo

Telephone: +47 22 00 44 80  
Telefax: +47 22 86 49 76  
E-mail: [Salg-abonnement@ssb.no](mailto:Salg-abonnement@ssb.no)

# 1. Introduction

International comparisons of economic income inequality have typically shown that the Nordic countries (Denmark, Finland, Norway and Sweden) at least up until the late 1980s had the most equal distributions of income among industrialised countries. For example, the recent comprehensive study by Atkinson, Rainwater and Smeeding (1995), published by the OECD and mainly based on data from the Luxembourg Income Study (LIS), found Finland, Norway and Sweden at the top in terms of equality of disposable income in the late 1980s. The results in their study, which are summarised in *Table 1*, reveal that among 15 OECD countries only Belgium came close to these three Nordic countries in terms of equality of disposable income. In the table we report Gini coefficients and 90/10 percentile ratios from their study. A broadly similar ordering is obtained by comparing Lorenz-curves.

At the time of the study by Atkinson *et al.*, Denmark had not yet entered the Luxembourg Income Study. We had, however, access to the new LIS data sets for Denmark and estimated Denmark's position in this international "ranking list". It turns out that Denmark in 1987 had a more unequal income distribution than its Nordic neighbour countries. However, from 1987 to 1992 the Gini coefficient declined by almost two percentage points, which (as we will see below) will make Denmark pass Norway and Sweden in this international list.

There are several possible explanations to the favourable Nordic record in terms of equality of income. All countries have, by international standards, ambitious "welfare states" that combine high levels of taxes and public expenditures with the goal to equalise economic outcomes. Labour force participation among married women is high. Occasionally, it is also argued that the Scandinavian countries have more homogeneous populations with respect to qualifications relevant for earnings capacity than many other countries, and that this homogeneity contributes to an equal earnings distribution.

In the public discussion in these countries, it has also often been claimed that a high level of employment and a low unemployment rate are decisive for an equal distribution of income. Several politicians have over the years claimed that "nothing is more important for income distribution than keeping the unemployment rate low". Such a view is easy to understand. If those who are hit by unemployment in general suffer significant income losses, and if the incidence of unemployment is highly concentrated among the low skilled and low paid, it would be surprising if rising unemployment would not widen income differentials.

**Table 1 Inequality of disposable income in OECD countries**

| Country and year     | Gini  | 90/10 ratio |
|----------------------|-------|-------------|
| Finland, 1987        | 0.207 | 2.59        |
| Sweden, 1987         | 0.220 | 2.72        |
| Norway, 1986         | 0.234 | 2.93        |
| Belgium, 1988        | 0.235 | 2.79        |
| Luxembourg, 1985     | 0.238 | 3.15        |
| Germany, 1984        | 0.250 | 3.00        |
| Netherlands, 1987    | 0.268 | 2.85        |
| Denmark, 1987        | 0.257 | 3.25        |
| Denmark, 1992        | 0.240 | 2.86        |
| Canada, 1987         | 0.289 | 4.02        |
| Australia, 1985      | 0.295 | 4.01        |
| France, 1984         | 0.296 | 3.48        |
| United Kingdom, 1986 | 0.304 | 3.79        |
| Italy, 1986          | 0.310 | 4.05        |
| Switzerland, 1982    | 0.323 | 3.43        |
| Ireland, 1987        | 0.330 | 4.23        |
| United States, 1986  | 0.341 | 5.94        |

Source: Atkinson *et al.*, tables 4.1 and 4.4. Household size is adjusted for by means of the "square root" equivalence scale, i.e. the equivalent number of adults in the household (family) equals the square root of the number of members in the household. "Person weights" are used, i.e. each household is weighted by its number of persons. The equivalent income of the household is assigned to each of its members. No age limits are used. The numbers for Denmark are not from Atkinson *et al.* but are own computations from the LIS-files.

The macroeconomic development in the late 1980s and early 1990s offers an interesting opportunity to examine the importance of the latter explanation for the distributional record in the Nordic countries. The four countries were hit by severe macroeconomic problems that made unemployment rise to levels unprecedented since the depression in the 1930s. The rapid rise in unemployment started first in Norway and Denmark. From the very low level of 1.5 percent in 1987, the Norwegian unemployment increased in every year up until 1993, when over 5 percent of the labour force were unemployed. The previous peak - in the era since 1961 when modern labour force surveys became available - was around 3 percent in 1984. In Sweden, the unemployment rate rose rapidly from 1990 to 1993. From the clearly below 2 percent in 1990, unemployment reached close to 8 percent in 1993, which is more than twice as high as in the previous peak in 1983 (also in the era of labour force surveys since 1961). Even if the experiences of both Norway and Sweden in these years were both unexpected and dramatic, Finland stands out as the country with the most drastic change in unemployment. Sparked by not only an international recession and reduction in domestic demand as in Norway and Sweden, but also by the collapse of the Soviet Union, the unemployment rate in Finland virtually skyrocketed from some 3 percent in 1989 and 1990 to over 18 percent in 1993. In contrast to its three northern neighbours, Denmark had a long period of persistently high

unemployment, starting with the first oil crisis in 1974. In the late 1980s, the economy ran into a seven year deep recession and the Danish unemployment rate started to increase further, from a trend level of about 7-8 percent to 12 percent in 1994. The Danish unemployment experience is thus closer to the continental European than to the Nordic unemployment history in the 1980s and early 1990s.

In addition to rising “open” unemployment, the number of persons employed in temporary labour market programmes rose in all four countries during these years. Thus, what is sometimes called the “total” unemployment rate, was markedly higher than “open” unemployment.

In early 1997, when this paper is being written, our countries have not yet recovered from the shocks of the late 1980s and early 1990s. In terms of unemployment, especially Finland and Sweden seem to have become like most other European countries with rates close to or above 10 percent. Both Norway and Denmark have experienced a significant fall in unemployment since 1993.

The purpose of this study is to examine how income distribution was affected by these severe macroeconomic events. Did they bring the Scandinavian countries to “Central European levels” also in terms of inequality of income? We continue the paper in Section II by taking a closer look at what happened to unemployment, labour force participation and income distribution up until 1993 (or 1994) in these four countries. We will see that standard measures of inequality of annual disposable income reveal only moderate increases during the crisis years. Therefore we continue in Section III by discussing four hypotheses, which explain why the impact of unemployment on inequality was quite small in the Nordic countries. Section IV offers analyses of these hypotheses and Section V concludes the study. We present detailed data information in an Appendix.

## **2. What happened in the labour market and to the distribution of income?**

### **The labour market**

In Figure 1, we show the evolution of the rate of open unemployment for 20-64 and 30-54 (or 25-54) year old workers from 1980 to 1995 for the four countries.<sup>1</sup> Obviously, Finland had the most dramatic rise in unemployment, from 3.2 percent in 1990 to 17.9 percent in 1994 for the 20-64-year-old. The prime-aged group followed the broader group very closely, but at a slightly lower level. Despite a

---

<sup>1</sup> All basic data series and their sources are described in Appendix B.

recovery for the Finnish exporting industries from early 1993 onwards, unemployment remained at these high levels through 1995. Sweden has the same time pattern as Finland with very low unemployment in the boom years of 1989 and 1990 and a rapid increase thereafter. However, the open unemployment rate in Sweden only reached 7.9 percent in 1993 (for 20-64-year olds) and 6.1 percent for prime-aged.

In Norway, unemployment started to increase as early as 1987 and the increase continued every year until 1993 for both age groups. After the peak in 1993 at 5.6 percent for 20-64-year olds, Norway's unemployment rate declined more markedly than Finland's and Sweden's.

Denmark also had a continuous increase in unemployment from 1987 onwards, and this increase did not stop until 1994 at the level of 12.3 percent for the broadest age group. However, Danish unemployment was already in 1983 close to ten percent. Hence, the evolution of unemployment in Denmark in the 1980s and first half of 1990s was less dramatic, although at a high level.

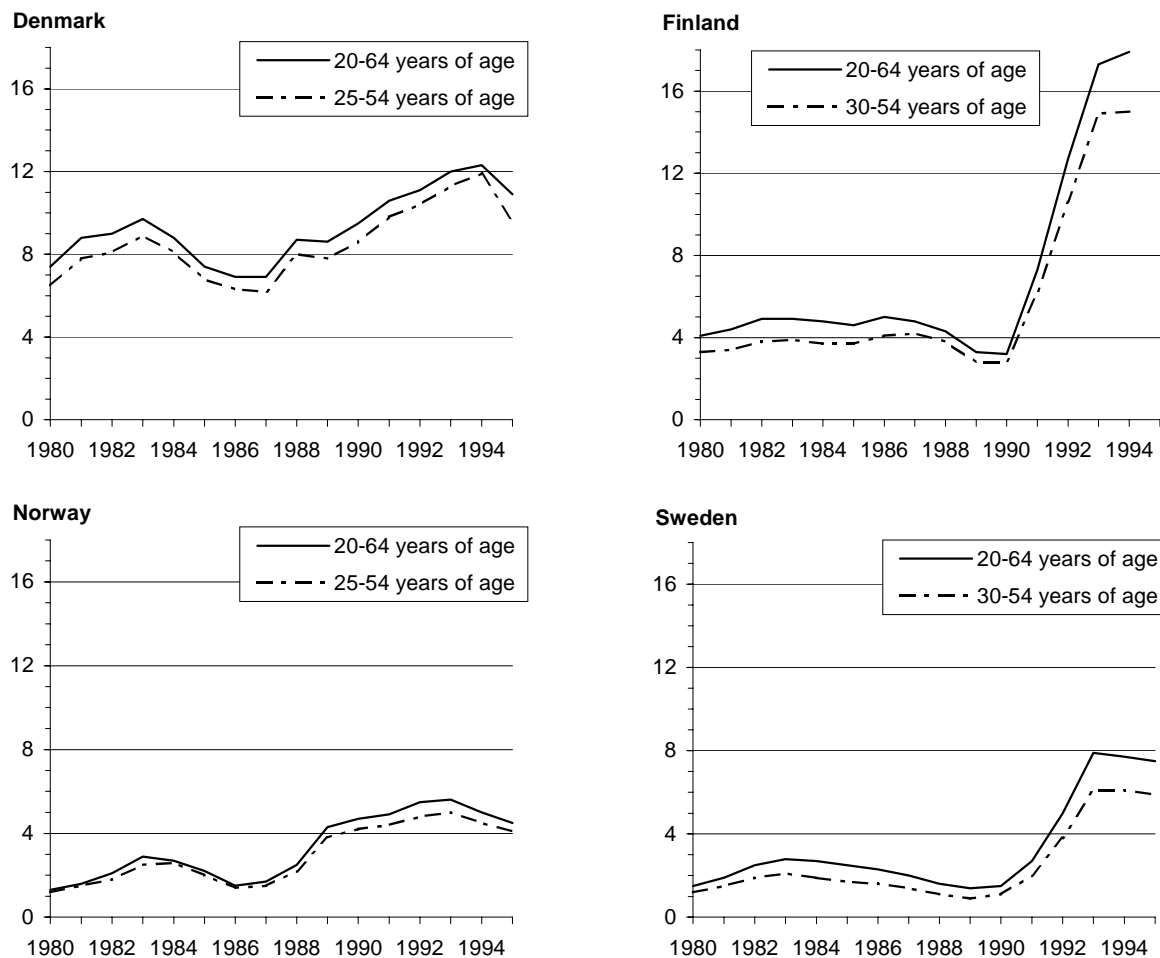
All countries tried to combat the rise in unemployment by introducing various labour market policies to provide job and training opportunities for unemployed workers. Note that participants in such programmes are not included in Figure 1. These programme participants in general received earnings or training benefits at the same level as the unemployment benefit to which they otherwise would have been eligible - a fact that is likely important when considering the distributional consequences of the crises.<sup>2</sup> Because replacement rates - see below - typically did not exceed 80 percent in any of the countries, some income losses could also be expected among the programme participants. In Sweden, almost 5 percent of the labour force were employed by means of such measures at the peak of the unemployment crisis in 1993 and 1994; up from around one percent in 1989.<sup>3</sup> Despite the fact that Denmark had persistent high unemployment since the mid 1970s, large scale active labour market programmes were not introduced until the late 1980s. In 1985, 1.7 percent of the labour force participated in job offer and activation schemes, increasing to 3.6 percent in 1995. In Norway and Finland the equivalent numbers were also lower than in Sweden - about 2-3 percent of the labour force. Finland relied mainly on employment programmes, whereas Norway emphasised labour market training.

---

<sup>2</sup> There are some exceptions to this general rule. In Sweden, for example, those unemployed job searchers who are not eligible to unemployment insurance benefits but received unemployment assistance could get a higher benefit in a programme than as unemployed.

<sup>3</sup> These numbers do not include the more permanent measures for handicapped workers.

**Figure 1. Unemployment rates in Denmark, Finland, Norway and Sweden, 1980-1995**

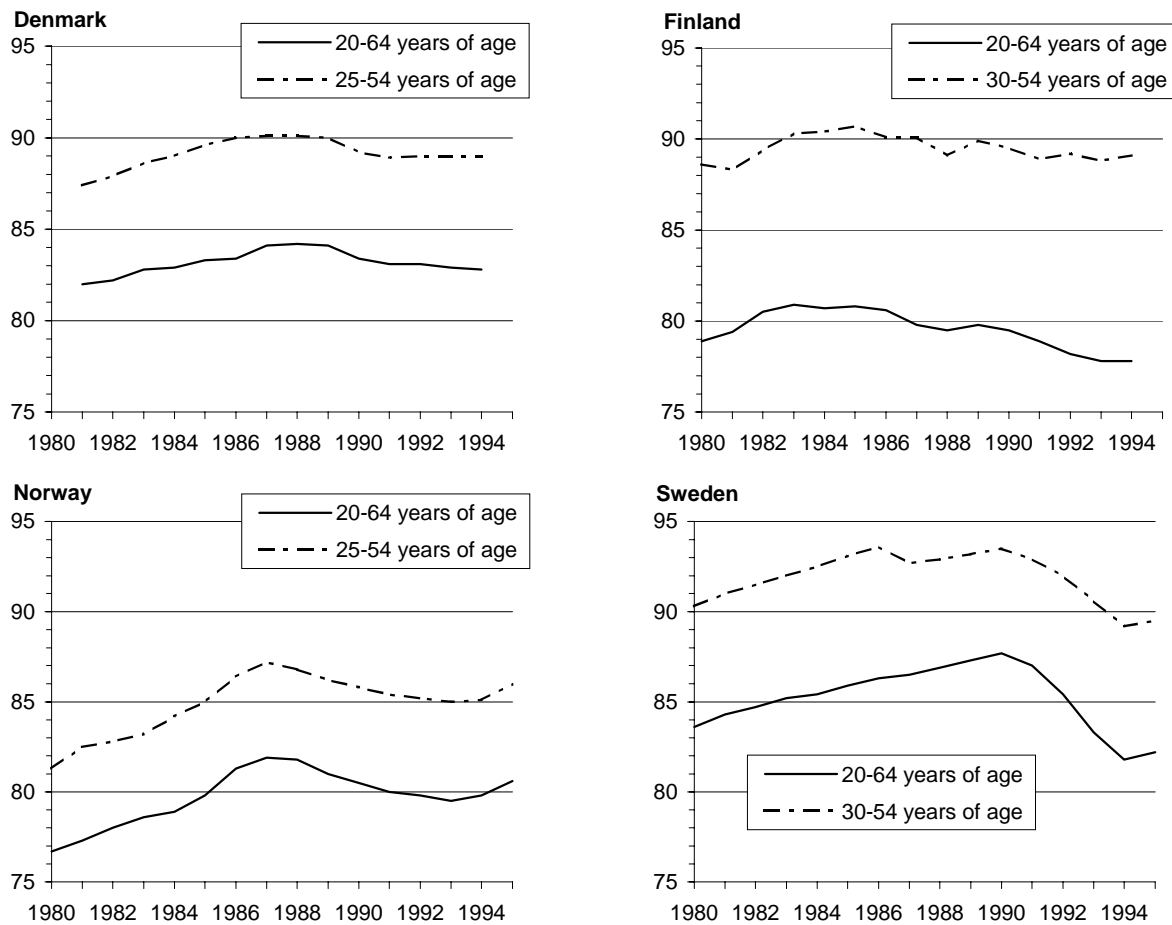


Sources: Labour force surveys in respective country.

In Figure 2 we complement the unemployment data by showing how labour force participation evolved over the same period. These numbers suggest that the unemployment data underestimate the decline in employment in all the Nordic countries - another fact that is important when considering the likely impacts on income distribution. Sweden had the largest decline in labour force participation - drops of some 6 percentage points from 1989-90 to 1993-94 for 20-64-year-old and some 4 percentages points for the prime aged group. Possibly half of this decline can be attributed to the fact that participants in some of the new labour market programmes were counted as "outside the labour force" - as students - in the surveys.<sup>4</sup>

<sup>4</sup> Participants in programmes that offer training benefits (*utbildningsbidrag*) are counted as students in the labour force surveys. In the beginning of the recession, Sweden relied to a large extent on traditional labour market training. In 1992 and 1993, two new measures (*ungdomspraktik and arbetslivsutveckling*) were introduced. Even though these measures had many similarities with public temporary jobs (relief works, *beredskapsarbeten*), the participants received training benefits and were hence counted as students in the labour force surveys.

Figure 2. Labour force participation rates in Denmark, Finland, Norway and Sweden, 1980-1995



Sources: Labour force surveys in respective country.

Labour force participation declined also in the other Nordic countries when open unemployment increased. In Norway participation fell by around 2 percentage points from 1987/88 to 1993. The number of training participants increased at the same time, but not by as much as labour force participation fell. Denmark and Finland had the smallest declines; in the range 1 - 1.5 percentage points in both countries over the years when unemployment rose continuously. The stability of labour force participation in Finland is quite remarkable in light of the rapid rise of unemployment.

### Income distribution

In Figure 3 we show what happened to the distribution of disposable income in the years of rising unemployment. We use the same equivalence scale and unit of analysis as in Table 1, but in order to



focus on the impact of unemployment we confine ourselves to the two age groups 20-64 year and 30-54 (or 25-54) year olds.<sup>5</sup> See Appendix A for more information about the income data.

In Finland, despite the dramatic increase in unemployment after 1990, the Gini coefficient of disposable income did not increase at all. Sweden did not have a dramatic increase in inequality in the early 1990s either, although the year to year pattern is different from that in Finland. The Gini coefficient rose in 1991 for both age groups by one and a half percentage points, which is consistent with a deleterious effect of unemployment on equality. However, from 1991 to 1993 there is no further increase in inequality of disposable income despite rapidly rising unemployment.

Unfortunately, there are some problems with Swedish income distribution data in these years which complicate the analysis. A major tax reform, made effective in 1991, had several consequences for income distribution as well as for the data that can be used for analysis of the income distribution. One part of the tax reform was to broaden the tax base. As a consequence, also the income concepts used by Statistics Sweden were changed. This is the reason why there is a shift in the series. The numbers for 1989 and 1990 for the series that continue to 1994 are estimates of income distributions with imputations of the income components that became part of taxable income in 1991. As emphasised by Björklund, Palme and Svensson (1995), some care is called for in interpreting these numbers for 1989 and 1990. Another consequence of the tax reform was that the incentives to postpone realisations of capital gains until 1991 were strong. A closer examination of the data for 1991 by Björklund *et al.* showed that capital gains contributed to high inequality of income in 1991, and a series that excludes this component of income reveals only a small increase from 1991 to 1992.

Taking these data problems into account by treating 1991 as an "outlier", we find an increase in the Gini coefficient from 1989 to 1993 by almost two percentage points for the 20-64-year old and by less than half a percentage point for the prime-aged group. The reasons for the different time patterns for the two age groups require further analysis. One possible reason, though, is that the recession hit the young more severely than prime-aged, because the young are not covered by unemployment compensation as well as adults are. Further, enrolment in higher education rose rapidly in the early 1990s. From 1993 to 1994 there is a marked increase in the Gini coefficient. As we will see below,

---

<sup>5</sup> Note that we analyse income inequality among individuals so that the individual is the unit of analysis even though the household is the unit of observation. Since households differ in size and composition, household incomes are adjusted by the square root scale and the per capita scale, respectively. See Appendix A for more detailed information on the income sources that add up to disposable income.

this increase can to a large extent be explained by capital gains due to high incentives to sell stocks in 1994 because of a tax increase in 1995.<sup>6</sup>

For Norway we would expect a continuous increase in inequality from 1987 until 1993 as a consequence of rising unemployment in these years. However, there is little evidence of such a pattern for Norway. There was a relatively steep increase in inequality from 1988 to 1989 for both age groups that coincides with the rapid rise in unemployment. Comparing 1986 and 1987 with the final year of 1993, there is an increase in the Gini coefficient of around two percentage points that could be attributed to rising unemployment.

For Denmark, our time-series covering 1981 to 1990<sup>7</sup> reveals that inequality was more or less unaffected for the 20-64 years old by the decline in unemployment from 1983 to 1986: For the prime aged group, the Gini even increased by about one percentage point during this period of falling unemployment. Looking at the period of rising unemployment from 1986 onwards, we can see that this series hardly responded up to 1990. Even more remarkable is that the Gini computed from the LIS-data for 1987 and 1992 has declined despite rising unemployment.

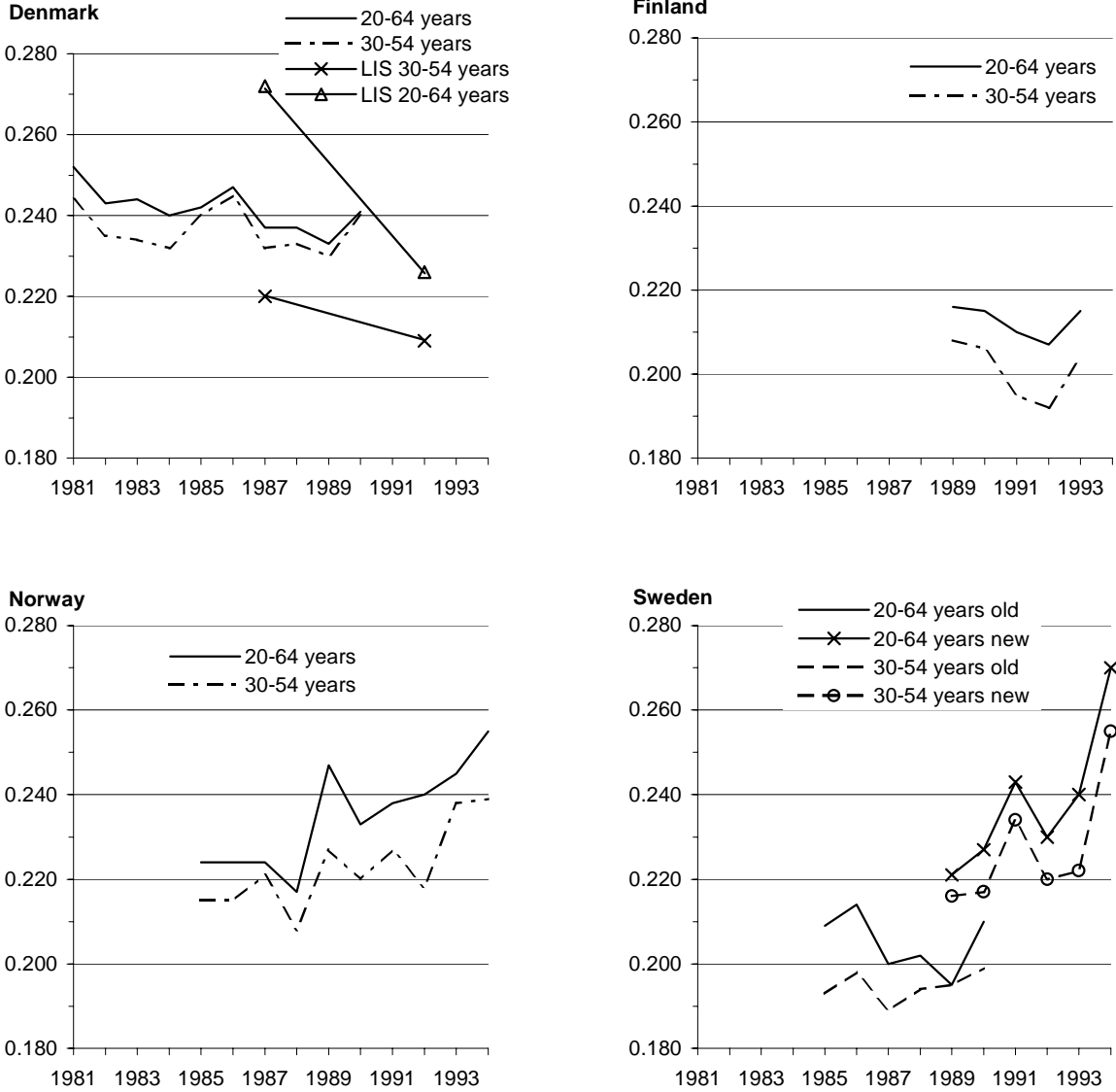
To sum up, we have found that inequality of disposable income did not respond at all to drastically rising unemployment in Finland and was also more or less unresponsive to the less drastic increases in Denmark. The results for Norway and Sweden, however, suggest that inequality responded to rising unemployment. However, on the whole we are struck by the low magnitudes of these responses. Unemployment may at most have increased the Gini coefficient by two percentage points. Hence, in 1993, at the peaks of unemployment, these countries likely remain at the top of the international ranking by income equality. These general conclusions are not very sensitive to the choice of equivalence scale and the measure of inequality that we employ. As the data shown in Appendix B demonstrate, the general patterns remain the same with other choices of scales and measures.

---

<sup>6</sup> See also Ministry of Finance (1996).

<sup>7</sup> We note that this series has another source than the LIS-data in Table 1. The definition of disposable income in Figure 3 is less complete in two respects. First, housing allowance is not included. Second, the household definition is based on marital status and treats nonmarried cohabiting couples as single persons. See Appendix A.

**Figure 3. Gini coefficients of disposable income 1985 - 1993 in Denmark, Finland, Norway and Sweden**



Sources: See appendix. Note: The squareroot equivalence scale was used.

### 3. What can explain the facts?

We find the absence of large increases in inequality worthy of additional investigation. The most obvious potential explanations are generous unemployment benefits, uniformly distributed incidence of unemployment, counteracting changes of income from other sources, and intra-household adjustments. We discuss each of them in turn.

## **Hypothesis 1: Generous unemployment benefits**

The most straightforward explanation for finding only small effects of the unemployment shocks on the inequality of disposable income is that unemployed workers were compensated for most of their earnings losses by generous unemployment compensation schemes. No doubt, it is reasonable to believe that these schemes in the Nordic countries were capable of mitigating the income losses that the laid off workers made in the recession. However, a closer look at the institutional facts suggests that this is a too simplistic view.

First, one has to take into account that not even the Nordic welfare states offer unemployment benefits that replace 100 percent of income losses, and far from all unemployed workers are covered by the existing schemes for unemployment compensation.<sup>8</sup> Denmark has the most generous income support for unemployed workers. In 1992, 83 percent of all unemployed persons were covered by the Danish unemployment insurance benefits. Jensen (1995) reports a small decline in the coverage from 1979, when 90 percent were covered. For low-income earners the replacement rate is 90 percent of previous earnings. However, a maximum level on the daily benefit makes the replacement rates for many unemployed workers lower than 90 percent. This maximum level was kept constant in nominal terms during most of the 1980s, and hence replacement rates for high-skilled workers decreased over this period.

Finland is the other extreme with the least generous unemployment compensation system. Around 50 percent of the unemployed workers were covered by the major benefit system (unemployment insurance) around 1990. Coverage increased from around 46 percent in 1988-1990 to 54 percent in 1992. On average, unemployment insurance replaced around 50 percent of forgone earnings. A maximum level of the daily benefit makes this replacement ratio higher among workers with low incomes. Unemployment assistance is a second benefit system in Finland that in the period we consider covered about a third of the unemployed; the coverage rate increased from 28 percent in 1990 to almost 39 percent in 1992. Because of the increase of the coverage of the two systems from 1990 to 1992, the fraction of unemployed job searchers without any of these compensations diminished from 25 to 7 percent between 1990 and 1992. Unemployment assistance replaced only around a quarter of the income losses of typical workers.

---

<sup>8</sup> The following presentation is primarily based on Jensen (1996) for Denmark, Eriksson (1996) for Finland, Torp (1996) for Norway, and Björklund (1996) for Sweden. See also OECD (1996, ch. 2).

The public Norwegian unemployment compensation system<sup>9</sup> has a replacement rate of 65 percent, but a maximum level of the benefit makes the replacement rate lower for high income earners. In the years when unemployment peaked, around 75 percent of the unemployed workers were recipients of unemployment benefits from this system.

The major benefit system in Sweden, unemployment insurance, replaced 90 percent of forgone income from 1987 to 1992.<sup>10</sup> In 1993 the replacement rate was reduced to 80 percent. There was also a maximum level of the benefit and as a consequence the replacement rate was lower for high income earners in Sweden like in the other Nordic countries. Some of the unemployed who are not eligible for unemployment insurance can instead receive unemployment assistance.<sup>11</sup> This system offers compensation at a flat rate that for typical workers replaces 30-40 percent of foregone earnings. Unemployment insurance covered around 65 percent of all unemployed in the late 1980s and early 1990s, whereas around 10 percent of all unemployed job searchers received unemployment assistance. For the prime-aged, the numbers for unemployment insurance were 5-8 percentage points higher.

Sweden has also some complementary unemployment compensation schemes that are run by the unions and the employers' organisations. These are generally designed as redundancy payments for laid-off workers who have remained with their previous employer for several years. The coverage and the replacement levels of these complementary schemes are not well documented in public data.<sup>12</sup>

The fact that all four countries have a maximum level of their daily unemployment benefits implies that there is a second factor - a counteracting factor - to take into account when considering the impact of unemployment on income distribution. It might very well be that workers - and hence in general also their families - in the lower part of the income distribution make quite small income losses from unemployment.<sup>13</sup> On the other hand, workers in the upper part of the income distribution - even if

---

<sup>9</sup> Norway is the only Nordic country with a completely public unemployment compensation system, whereas the systems in the other countries are run by unemployment insurance funds that are closely tied to the labour unions. The funds are highly subsidised by the government.

<sup>10</sup> Prior to 1987 the replacement rate was 11/12 of previous earnings.

<sup>11</sup> *Kontant arbetsmarknadsstöd, KAS.*

<sup>12</sup> Björklund and Holmlund (1991) report that the number of recipients of such compensations during a calendar year in the late 1980s were 15-20 percent of the number of persons who were unemployed any time during a year.

<sup>13</sup> A recent Danish study (Pedersen and Smith, 1995) shows that when fixed costs of work are taken into account, about 25 percent of all employed workers earn less than \$70 per month from holding a full time job compared to collecting unemployment benefits.

they may be relatively fewer - might make considerable income losses due to low replacement rates. This structure of the unemployment compensation schemes might at least reduce the adverse distributional impacts of rising unemployment.

Third, we noted in section 2 that the number of participants in various labour market policy programmes increased in parallel with the rise in unemployment. Because compensation rates in these programmes are in the same range as unemployment benefits, one would expect that the participants suffered income losses compared to a counterfactual in which they would have a job.

A final factor to take into account is that labour force participation has dropped in conjunction with the rise in unemployment, and dropouts from the labour market are not covered by unemployment benefits. These dropouts could potentially receive early retirement pensions (as well as social assistance benefits) which are offered in all four countries. The number of recipients of early retirement do in general follow the development of unemployment, but it is not likely that a majority of the dropouts have received this type of pension.

To sum up this discussion, we have noted that far from all unemployed workers are eligible to unemployment compensation and that replacement rates for those who were eligible to unemployment insurance were in the range 50 to 80 percent during the years that we are examining. Therefore many of the unemployed suffered income losses. The lower replacement rates among workers with high previous earnings is a likely counteracting effect. Further, laid-off workers who participated in labour market programmes also suffered income losses, because the replacement rates in these programmes were less than 100 percent. Finally, in all four countries, and in particular in Sweden, labour force participation fell, which in turn implies that employment declined more than unemployment increased. It is not likely that early retirement schemes and other means-tested benefits covered the income losses associated with loss of employment.

All four countries also have means-tested social assistance systems that can be considered society's final safety net.<sup>14</sup> Further, there are means-tested housing allowances that can replace income losses for families with unemployed workers. Hence, even if the unemployment benefit schemes did not cover all income losses from unemployment, other parts of the transfer system might have helped families with low incomes during the crisis years.

---

<sup>14</sup> In all four countries, the number of social assistance recipients increased as a response to rising unemployment.

## **Hypothesis 2: Even incidence of unemployment**

Previous studies of the distributional profile of unemployment support the traditional view that a recession disproportionately hits individuals and families in the lower part of the earnings distribution. Opposed to previous recessions, however, it might be that the incidence of unemployment during these crises was more uniformly distributed across earnings. In all four countries, the construction and the banking/finance industries - both with relatively high wage levels - were hit more severely and earlier than other industries. Hence male unemployment rose particularly fast. These facts suggest that it was a new “type” of unemployment that arose in these years.

## **Hypothesis 3: Counteracting changes of income from other sources**

A third possible explanation could be that the impact of unemployment on overall income distribution was counteracted by other effects of the crises. For example, it could be that capital and self-employment income decreased because of the downturn of the economy. Even though those who suffered such income losses did not become unemployed, they might have suffered considerable income losses. Further, those who suffered such losses might be found in the upper part of the income distribution both before and after the losses occurred.

## **Hypotheses 4: Intra-household adjustments**

Another potentially counteracting effect is related to the household. In all Nordic countries, labour force participation among married women was very high in the late 1980s and early 1990s. In particular among the prime-aged, households with two income earners were therefore predominant. Hence, the impact of unemployment on income distribution might have been different in this depression than in the 1930s, when the husband was the main and often only breadwinner of the family. A possible reaction to the unemployment of one of the spouses might have been increased labour supply of the other spouse by e.g. working more (overtime) hours.<sup>15</sup> However, the more highly positively correlated unemployment risks are, the smaller one would expect this counteracting effect to be. We do believe that it is an interesting task to examine how vulnerable to macroeconomic shocks the present Nordic societies are compared to those prevailing in the 1930s, and compared to other countries with lower female participation rates.

---

<sup>15</sup> Dex et al. (1995) investigate one aspect of such compensatory labour supply behaviour, namely labour force participation of women with an unemployed husband. For Denmark and Sweden, they find no significant effect of a husband receiving unemployment benefits on labour force participation of wives.

## 4. Empirical results

We proceed to analyse the plausibility of the proposed explanations. We confine ourselves to persons who were 30 to 54 years old. By doing so, we focus more specifically on a limited number of mechanisms. To include the young, would mean that changes in the fraction of students might be an important factor to take into account. To include those who are older than 54 years, would also complicate matters, in particular because of differences and changes in early retirement schemes. In both cases the analysis would be further complicated.

### A decomposition technique

To study the proposed explanations, we decompose the Gini coefficient by income components as originally proposed by Rao(1969). Total disposable income,  $Y$ , is the sum of  $k$  different income sources, i.e.

$$(1) \quad Y = \sum_k Y_k.$$

The Gini coefficient of disposable income can be decomposed into a sum of  $k$  different components as

$$(2) \quad G = \sum_k \frac{\mu_k}{\mu} C_k$$

where  $\mu_k$  and  $\mu$  are the means of income component  $Y_k$  and total (disposable) income  $Y$ , and  $C_k$  is the concentration coefficient<sup>16</sup> of income component  $k$ . The concentration coefficient can be interpreted as a measure of the association between income component  $k$  and disposable income. For example, assume that  $\mu_k > 0$ . Then a negative value of  $C_k$  expresses negative interaction which means that the contribution of component  $k$  to overall inequality is equalising. Note that an equal amount of component  $k$  to every income receiving unit is considered to be neutral with respect to overall inequality. In this case the concentration coefficient is equal to zero. A positive value of  $C_k$  expresses a disequalising contribution to overall inequality. For  $\mu_k < 0$ , for example when  $Y_k$  denotes taxes, a positive value of  $C_k$  expresses an equalising contribution to overall inequality. In subsequent discussion we will define the contribution of income component  $k$  to overall inequality by  $(\mu_k/\mu)C_k$ .

---

<sup>16</sup> The concentration coefficient  $C_k$  defined as the Gini coefficient in the conditional distribution of component  $k$  given the individuals' (or households') rank order in disposable income.



The above interpretation of the concentration coefficients is based on a consideration where the influence of the income components on overall inequality is judged simultaneously.<sup>17</sup> Thus the sign of  $C_k$  solely shows whether component  $k$  has contributed positively or negatively to overall inequality, but is non-informative in regard to how a marginal increase in component  $k$  will affect overall inequality. This question can, however, be answered by deriving the elasticity of the Gini coefficient in the distribution of disposable income with respect to the mean of income component  $k$ . Provided the other income components are kept fixed, the elasticity is established by straightforward differentiation,

$$(3) \quad \frac{\partial \log G}{\partial \log \mu_k} = \frac{\mu_k}{\mu} \left( \frac{C_k}{G} - 1 \right).$$

This result shows that a marginal increase in the share of one income component will increase (decrease) overall inequality if and only if the concentration coefficient is larger (smaller) than overall inequality ( $G$ ).

In applying this technique to shed light on our hypotheses, we divide disposable income into six different income sources.

- 1) **Earnings.** In earnings we include all tax liable transfers like sick and maternity leave pay, but not any unemployment compensation. We also include benefits from participation in labour market policy programmes.
- 2) **Self employment income.**
- 3) **Capital income.**
- 4) **Unemployment benefits.** In addition to unemployment insurance benefits we include unemployment assistance for Finland and Sweden. The means tested social assistance benefit, however, is included among tax-free transfers.
- 5) **Tax-free transfers.** Important transfers are child and housing allowances as well as social assistance.
- 6) **Taxes.** Taxes will get negative weights in the decomposition because they are deducted from other income components to arrive at disposable income.

---

<sup>17</sup> For further discussion of the interpretation of the decomposition of the Gini coefficient, see Lerman and Yitzaki (1985) and Aaberge and Aslaksen (1996).

## Hypothesis 1

If our first hypothesis is correct, we would expect to find that the stability of the income distributions are due to two counteracting effects. On the one hand, earnings increasingly contributing to inequality. Because the income share of earnings is likely to fall during the recession, this effect would instead come from the concentration coefficient for earnings ( $C_1$ ). On the other hand, unemployment benefits are expected to be increasingly negatively contributing to inequality, i.e. increasing  $\mu_4/\mu$ , decreasing  $C_4$ , or both. Possibly also tax-free transfers such as social assistance and housing allowances could contribute with similar equalising effects. In *Table 2* we show the contributions of the six income components to the Gini coefficient over the periods when unemployment rose in the four countries. In *Table 3* we complement with more detailed information - the income shares and the concentration coefficients - for one year with “low” and one with “high” unemployment.

This simple hypothesis fits the Danish data reasonably well. The contribution to inequality from the earnings component was increasing during the period of increasing unemployment in the late 1980s, and this increase was driven by the concentration coefficient. But contrary to the findings in the other countries, the equalising effect from income taxes was increasing during these years. The tax effect was nearly offsetting the effect from earnings, resulting in a nearly constant Gini coefficient. Looking at the results based on LIS-data, where the last year of observation is 1992, the contribution to rising inequality from earnings seems to be slightly smaller. Further, the equalising impact of the unemployment benefits and tax free transfers become stronger during the late 1980s and early 1990s.

**Table 2. The contribution of various income components to the Gini coefficient of the distribution of disposable income among individuals 30-54 years old. Standard errors of the Ginis within parenthesis**

| Denmark            | 1986    | 1987    | 1988    | 1989    | 1990    | LIS-1987 | LIS-1992 |
|--------------------|---------|---------|---------|---------|---------|----------|----------|
| Earnings           | 0.300   | 0.305   | 0.318   | 0.322   | 0.331   | 0.304    | 0.311    |
| Self empl.income   | 0.072   | 0.069   | 0.067   | 0.055   | 0.060   | 0.049    | 0.059    |
| Capital income     | 0.005   | 0.014   | 0.010   | 0.014   | 0.013   | 0.017    | 0.009    |
| Unempl. benefits   | -0.010  | -0.015  | -0.018  | -0.018  | -0.017  | -0.008   | -0.012   |
| Tax-free transfers | -0.010  | -0.012  | -0.010  | -0.011  | -0.011  | -0.005   | -0.018   |
| Taxes              | -0.113  | -0.129  | -0.134  | -0.132  | -0.137  | -0.138   | -0.139   |
| Gini               | 0.245   | 0.232   | 0.233   | 0.230   | 0.240   | 0.220    | 0.209    |
|                    | (0.005) | (0.004) | (0.005) | (0.004) | (0.004) | (0.004)  | (0.005)  |

| Finland            | 1986 | 1987 | 1988 | 1989    | 1990    | 1991    | 1992    | 1993    | 1994 |
|--------------------|------|------|------|---------|---------|---------|---------|---------|------|
| Earnings           | -    | -    | -    | 0.305   | 0.296   | 0.269   | 0.281   | 0.276   | -    |
| Self empl.income   | -    | -    | -    | 0.049   | 0.044   | 0.033   | 0.038   | 0.032   | -    |
| Capital income     | -    | -    | -    | 0.022   | 0.022   | 0.033   | 0.025   | 0.047   | -    |
| Unempl. benefits   | -    | -    | -    | -0.004  | -0.004  | -0.010  | -0.010  | -0.019  | -    |
| Tax-free transfers | -    | -    | -    | -0.021  | -0.020  | -0.009  | -0.008  | -0.005  | -    |
| Taxes              | -    | -    | -    | -0.142  | -0.132  | -0.121  | -0.107  | -0.128  | -    |
| Gini               | -    | -    | -    | 0.208   | 0.206   | 0.195   | 0.192   | 0.204   | -    |
|                    |      |      |      | (0.002) | (0.002) | (0.002) | (0.002) | (0.003) |      |

| Norway             | 1986    | 1987    | 1988    | 1989    | 1990    | 1991    | 1992    | 1993    | 1994    |
|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Earnings           | 0.206   | 0.209   | 0.221   | 0.244   | -       | 0.237   | 0.263   | 0.235   | 0.254   |
| Self empl.income   | 0.092   | 0.093   | 0.075   | 0.087   | -       | 0.086   | 0.071   | 0.081   | 0.076   |
| Capital income     | 0.019   | 0.031   | 0.027   | 0.040   | -       | 0.025   | 0.019   | 0.050   | 0.052   |
| Unempl. benefits   | -0.001  | -0.001  | -0.001  | -0.001  | -       | -0.003  | -0.005  | -0.002  | -0.004  |
| Tax-free transfers | -0.014  | -0.015  | -0.011  | -0.013  | -       | -0.017  | -0.017  | -0.025  | -0.024  |
| Taxes              | -0.086  | -0.097  | -0.085  | -0.100  | -       | -0.102  | -0.104  | -0.100  | -0.114  |
| Gini               | 0.215   | 0.221   | 0.208   | 0.227   | 0.220   | 0.227   | 0.218   | 0.238   | 0.239   |
|                    | (0.004) | (0.006) | (0.004) | (0.007) | (0.004) | (0.006) | (0.004) | (0.010) | (0.005) |

| Sweden             | 1986 | 1987 | 1988 | 1989    | 1990    | 1991    | 1992    | 1993    | 1994    |
|--------------------|------|------|------|---------|---------|---------|---------|---------|---------|
| Earnings           | -    | -    | -    | 0.291   | 0.296   | 0.300   | 0.315   | 0.327   | 0.322   |
| Self empl.income   | -    | -    | -    | 0.002   | 0.004   | 0.001   | 0.008   | 0.006   | 0.004   |
| Capital income     | -    | -    | -    | 0.071   | 0.075   | 0.072   | 0.037   | 0.036   | 0.084   |
| Unempl. benefits   | -    | -    | -    | -0.002  | -0.002  | -0.003  | -0.007  | -0.007  | -0.008  |
| Tax-free transfers | -    | -    | -    | -0.014  | -0.014  | -0.016  | -0.018  | -0.021  | -0.021  |
| Taxes              | -    | -    | -    | -0.132  | -0.141  | -0.120  | -0.112  | -0.119  | -0.127  |
| Gini               | -    | -    | -    | 0.215   | 0.217   | 0.234   | 0.222   | 0.223   | 0.255   |
|                    |      |      |      | (0.004) | (0.008) | (0.010) | (0.004) | (0.010) | (0.006) |

**Table 3. Income component contributions to the Gini coefficient of disposable income for years of “low” and “high” unemployment. Income shares and concentration coefficients within parenthesis**

|                    | Denmark 1986<br>“low”      | Denmark 1990<br>“high”     | Denmark LIS-1987<br>“low”  | Denmark LIS-1992<br>“high” |
|--------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Earnings           | (1.243 x 0.242)<br>0.300   | (1.299 x 0.255)<br>0.331   | (1.328 x 0.229)<br>0.304   | (1.290 x 0.241)<br>0.311   |
| Self empl. Income  | (0.126 x 0.571)<br>0.072   | (0.100 x 0.605)<br>0.060   | (0.082 x 0.596)<br>0.049   | (0.075 x 0.791)<br>0.059   |
| Capital income     | (0.027 x -0.174)<br>0.005  | (0.014 x 0.976)<br>0.013   | (0.040 x 0.442)<br>0.017   | (0.025 x 0.345)<br>0.009   |
| Unempl. benefits   | (0.057 x -0.175)<br>-0.010 | (0.073 x -0.232)<br>-0.017 | (0.050 x -0.166)<br>-0.008 | (0.074 x -0.164)<br>-0.012 |
| Tax-free transfers | (0.022 x -0.442)<br>-0.010 | (0.041 x -0.283)<br>-0.011 | (0.035 x -0.136)<br>-0.005 | (0.077 x -0.235)<br>-0.018 |
| Taxes              | (-0.474 x 0.238)<br>-0.113 | (-0.526 x 0.260)<br>-0.137 | (-0.534 x 0.258)<br>-0.138 | (-0.541 x 0.258)<br>-0.139 |
| Gini               | 0.245                      | 0.240                      | 0.220                      | 0.209                      |

|                    | Finland 1989<br>“low”      | Finland 1993<br>“high”     | Norway 1986<br>“low”       | Norway 1993<br>“high”      | Sweden 1989<br>“low”       | Sweden 1993<br>“high”      |
|--------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Earnings           | (1.016 x 0.300)<br>0.305   | (0.900 x 0.307)<br>0.276   | (1.001 x 0.206)<br>0.206   | (0.935 x 0.251)<br>0.235   | (1.257 x 0.231)<br>0.291   | (1.181 x 0.277)<br>0.327   |
| Self empl. Income  | (0.137 x 0.359)<br>0.049   | (0.099 x 0.328)<br>0.032   | (0.178 x 0.518)<br>0.092   | (0.148 x 0.548)<br>0.081   | (0.038 x 0.048)<br>0.002   | (0.031 x 0.190)<br>0.006   |
| Capital income     | (0.058 x 0.385)<br>0.022   | (0.113 x 0.415)<br>0.047   | (0.055 x 0.346)<br>0.019   | (0.079 x 0.628)<br>0.050   | (0.109 x 0.648)<br>0.071   | (0.062 x 0.580)<br>0.036   |
| Unempl. benefits   | (0.019 x -0.230)<br>-0.004 | (0.081 x -0.241)<br>-0.019 | (0.006 x -0.140)<br>-0.001 | (0.026 x -0.088)<br>-0.002 | (0.009 x -0.240)<br>-0.002 | (0.047 x -0.153)<br>-0.007 |
| Tax-free transfers | (0.153 x -0.140)<br>-0.021 | (0.172 x -0.030)<br>-0.005 | (0.086 x -0.166)<br>-0.014 | (0.120 x -0.210)<br>-0.025 | (0.055 x -0.251)<br>-0.014 | (0.066 x -0.313)<br>-0.021 |
| Taxes              | (-0.384 x 0.371)<br>-0.142 | (-0.365 x 0.350)<br>-0.128 | (-0.325 x 0.268)<br>-0.086 | (-0.308 x 0.326)<br>-0.100 | (-0.468 x 0.281)<br>-0.132 | (-0.387 x 0.306)<br>-0.119 |
| Gini               | 0.208                      | 0.204                      | 0.215                      | 0.238                      | 0.215                      | 0.223                      |

For the other three countries, the data are not consistent with this simple explanation. True, the equalising impact of unemployment benefits increased in all countries. This increase is mainly due to a rising income share of these benefits - there are no systematic changes of the concentration coefficients. However, the magnitudes of the increases in the equalising impacts are clearly below one percentage point for all countries, except Finland for which it is 0.015. Adding to this the changes of the equalising contributions of tax-free transfers does not substantially affect this conclusion.

For the other part of the hypothesis - rising contribution to inequality from earnings - we cannot find a consistent pattern among countries. In Finland, the contribution of earnings actually fell over the period due to declining income shares of earnings. Instead, the income share of capital increased with a rising contribution to inequality of this income component as a consequence. Overall, there is no simple explanation of the stability of Finnish inequality over this period. There are counteracting changes in all six income components.

For Sweden, we find a sharp increase in the contribution of earnings. Unemployment benefits and tax-free transfers counteracted in part these increases. However, the variation in the contributions of capital income are important for understanding the time pattern of Swedish inequality over the period. In 1992 and 1993, inequality attributable to capital income was 0.035 lower than in previous years, a decline followed by a sharp increase by almost 0.05 to 1994. As mentioned above, temporary sales of stocks to avoid higher taxes most likely explain the increase in the contribution of capital income in 1994. Because of the contemporaneous rise in unemployment and changes in the tax system, it is difficult to reach definite conclusions about fluctuations in income inequality in Sweden in the early 1990s.

The Norwegian experience during rising unemployment is, like Sweden, an increasing contribution to inequality from earnings. The equalising impact of unemployment benefits rose very little, whereas tax-free transfers became more important equalisers in these years. The notably higher level of inequality in 1993 and 1994 is mainly accounted for by capital income. However, as for Sweden the impact from capital income has most likely very little to do with the recession. A major tax reform in 1992 included a lower tax rate on capital income for 1993 onwards. As a consequence, realisations of stocks became more frequent. If we attribute the increase in inequality in 1993 and 1994 to the tax reform rather than to rising unemployment, Norway's income inequality will be virtually unaffected by the crisis.

## Hypothesis 2

Our second hypothesis is that a new type of unemployment, more uniformly distributed among workers, appeared this time in the Nordic countries. If this were correct, we would expect non-negative concentration coefficients for unemployment benefits. However, as is evident from Table 3, these coefficients are negative for all countries and for all years. There is no uniform pattern for the size of the concentration coefficients to be related to the level of unemployment. The low-income profile of unemployment benefits is also clearly demonstrated in *Table 4*, where we show unemployment benefits as a fraction of disposable income by decile in the distribution of disposable income. These fractions are much higher in the lower deciles than in the higher. Obviously these fractions rose when unemployment increased. This rise can also be found in the highest deciles of the income distribution.

**Table 4. Unemployment benefits by decile in the distribution of disposable income, fractions of total disposable income**

|           | Denmark<br>1986<br>"low" | Denmark<br>1990<br>"high" | Denmark<br>LIS-1987<br>"low" | Denmark<br>LIS-1992<br>"high" | Finland<br>1989<br>"low" | Finland<br>1993<br>"high" | Norway<br>1986<br>"low" | Norway<br>1993<br>"high" | Sweden<br>1989<br>"low" | Sweden<br>1993<br>"high" |
|-----------|--------------------------|---------------------------|------------------------------|-------------------------------|--------------------------|---------------------------|-------------------------|--------------------------|-------------------------|--------------------------|
| Decile 1  | 0.104                    | 0.137                     | 0.178                        | 0.202                         | 0.075                    | 0.297                     | 0.011                   | 0.073                    | 0.033                   | 0.105                    |
| Decile 2  | 0.224                    | 0.303                     | 0.164                        | 0.298                         | 0.052                    | 0.191                     | 0.008                   | 0.059                    | 0.023                   | 0.113                    |
| Decile 3  | 0.194                    | 0.284                     | 0.101                        | 0.167                         | 0.025                    | 0.136                     | 0.010                   | 0.038                    | 0.016                   | 0.090                    |
| Decile 4  | 0.106                    | 0.133                     | 0.057                        | 0.107                         | 0.027                    | 0.105                     | 0.013                   | 0.029                    | 0.007                   | 0.067                    |
| Decile 5  | 0.070                    | 0.073                     | 0.064                        | 0.080                         | 0.021                    | 0.092                     | 0.005                   | 0.030                    | 0.009                   | 0.063                    |
| Decile 6  | 0.058                    | 0.059                     | 0.046                        | 0.071                         | 0.021                    | 0.081                     | 0.005                   | 0.022                    | 0.010                   | 0.050                    |
| Decile 7  | 0.046                    | 0.041                     | 0.041                        | 0.060                         | 0.008                    | 0.067                     | 0.005                   | 0.024                    | 0.006                   | 0.042                    |
| Decile 8  | 0.031                    | 0.036                     | 0.033                        | 0.057                         | 0.012                    | 0.042                     | 0.003                   | 0.022                    | 0.005                   | 0.032                    |
| Decile 9  | 0.029                    | 0.029                     | 0.025                        | 0.040                         | 0.010                    | 0.033                     | 0.003                   | 0.017                    | 0.003                   | 0.022                    |
| Decile 10 | 0.012                    | 0.011                     | 0.012                        | 0.020                         | 0.004                    | 0.015                     | 0.002                   | 0.009                    | 0.002                   | 0.009                    |

## Hypothesis 3

Our third hypothesis is that the recessions also had major effects on income from capital ( and possibly also self-employment income) that contributed to smaller overall effects of the recession on income distribution, i.e.  $C_2$  or  $\mu_2/\mu$  and  $C_3$  or  $\mu_3/\mu$  decreases. We cannot report a uniform result that capital income became less important during the recession. Instead it seems as though capital income reveals rather erratic patterns in most countries.<sup>18</sup>

<sup>18</sup> We note that we measure capital income in the conventional way, namely in nominal terms. Further, the implicit return from several types of real capital is not included.

## Hypothesis 4

Our final hypothesis to be investigated here is that persons living in couples were able to protect themselves against income losses from unemployment by letting an employed member of the household raise his or her labour supply to counteract the income losses of an unemployed member. If this were true, we would expect a larger impact from unemployment on inequality among single persons than among persons living in a couple with another adult (or in households with more adults with earnings capacity<sup>19</sup>), the reason being that the latter have more opportunities for counteracting income losses by adjustments within the household. The evidence suggests that this has not been the case. In *Table 5* we show that the Gini coefficients among persons living in these two types of households have changed in more or less the same way during the periods with rising unemployment. For all countries inequality is markedly higher among persons living in a single-person household than among those living in a couple, but the trends are strikingly similar. From this we conclude that intra-household adjustments have not been important mechanisms in alleviating the consequences of rising unemployment.<sup>20</sup>

**Table 5. Gini coefficient among individuals living in a couple and living as single. Standard errors within parenthesis**

|                             | 1986             | 1987             | 1988             | 1989             | 1990             | 1991             | 1992             | 1993             | 1994             |
|-----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Denmark</b>              |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Living in couple            | 0.207            | 0.199            | 0.201            | 0.199            | 0.211            | -                | -                | -                | -                |
| Living as single            | 0.278            | 0.262            | 0.262            | 0.256            | 0.268            | -                | -                | -                | -                |
| Living in couple (LIS-data) |                  | 0.229            |                  |                  |                  |                  | 0.221            |                  |                  |
| Living as single (LIS-data) |                  | 0.245            |                  |                  |                  |                  | 0.231            |                  |                  |
| <b>Finland</b>              |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Living in couple            | -                | -                | -                | 0.188<br>(0.002) | 0.186<br>(0.002) | 0.184<br>(0.002) | 0.180<br>(0.002) | 0.189<br>(0.003) | -                |
| Living as single            | -                | -                | -                | 0.235<br>(0.006) | 0.234<br>(0.007) | 0.214<br>(0.007) | 0.217<br>(0.008) | 0.243<br>(0.019) | -                |
| <b>Norway</b>               |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Living in couple            | 0.204<br>(0.003) | 0.213<br>(0.006) | 0.198<br>(0.004) | 0.217<br>(0.007) | 0.207<br>(0.005) | 0.211<br>(0.006) | 0.201<br>(0.004) | 0.223<br>(0.010) | 0.222<br>(0.005) |
| Living as single            | 0.255<br>(0.013) | 0.247<br>(0.014) | 0.237<br>(0.013) | 0.249<br>(0.016) | 0.251<br>(0.010) | 0.258<br>(0.015) | 0.250<br>(0.010) | 0.265<br>(0.015) | 0.263<br>(0.008) |
| <b>Sweden</b>               |                  |                  |                  |                  |                  |                  |                  |                  |                  |
| Living in couple            | -                | -                | -                | 0.201<br>(0.004) | 0.204<br>(0.009) | 0.221<br>(0.011) | 0.206<br>(0.004) | 0.206<br>(0.003) | 0.239<br>(0.006) |
| Living as single            | -                | -                | -                | 0.217<br>(0.009) | 0.212<br>(0.009) | 0.225<br>(0.012) | 0.222<br>(0.009) | 0.222<br>(0.008) | 0.254<br>(0.016) |

<sup>19</sup> The Income Distribution Surveys in the Nordic countries follow different practices in their definitions of the household, see Appendix A.

<sup>20</sup> In Appendix B we also show decompositions of the Gini coefficient into income components for samples of persons living in a couple and as single.

## 5. Conclusions

Finland, Norway and Sweden were until the late 1980s famous for having both low unemployment and equal distributions of disposable income. After the recent unemployment shocks, especially Finland and Sweden look more like most other European countries with unemployment rates close to or above ten percent. Income distribution, however, remained quite equal in an international perspective even in 1993 at the peak of the unemployment crises in all four countries<sup>21</sup>. The most straightforward explanation to this pattern would be that generous unemployment benefit systems have mitigated the consequences of more unequally distributed earnings. We have found that unemployment benefits indeed have had such mitigating effects but not large enough to explain the development of income distribution during the years of rising unemployment. Neither have we found a common pattern of rising contributions to inequality from more unequally distributed earnings during these periods. Our interpretation of the data is rather that a recession sets a number of complex mechanisms into effect and most likely a large model that takes interactions between various income components into account is needed to understand the evolution of income distribution in the Nordic countries during these years of rapidly rising unemployment.

Even though income distributions in the Nordic countries were remarkably stable during the years of dramatic rises in unemployment, we want to conclude by warning for more long-run distributional consequences of the macro-economic shocks. First of all, many unemployed workers might suffer from human capital losses that will not show up in the income distribution until later. In particular, one might conjecture that many young entrants to the labour force have not been able to acquire the skills that previous cohorts received. The rise in inequality in Norway and Sweden from 1993 to 1994 when unemployment had declined (Norway) or stabilised (Sweden) is consistent with this argument. A counterargument, however, would be that Denmark has lived with high unemployment for more than twenty years and income in Denmark seems to be as equally distributed as in the other Nordic countries in the early 1990s. This counterargument becomes even stronger by the fact that Danish income inequality actually fell during the period of rising unemployment from 1987 to 1992.

A second reason for predicting more inequality of disposable income in the future is that the crises have been very costly for the public sectors with severe budget deficits as a consequence. Maybe the

---

<sup>21</sup> This statement rests on the assumption that the distribution of disposable income has not become more equal in the other countries up until 1993.



reductions in transfer programmes that were motivated by these budget deficits will turn out to be more serious threats to income equality than the rise in unemployment *per se*.

## References

- Aaberge, R. and J. Aslaksen (1996): Decomposition of the Gini Coefficient by Income Components: Various Types of Applications and Interpretations, Discussion Papers 182, Statistics Norway.
- Atkinson, A.B., L. Rainwater and T. Smeeding (1995): Income Distribution in OECD Countries, *Social Policy Studies*, 18, OECD Paris 1995.
- Björklund, A. (1996): "Unemployment in Sweden" in Björklund and Eriksson *op cit*.
- Björklund, A. and B. Holmlund (1991): "The Economics of Unemployment Insurance - the Case of Sweden" in *FIEF Studies in Labour Markets and Economic Policy*, Oxford: Oxford University Press.
- Björklund, A. and T. Eriksson (eds.) (1996): *Unemployment in the Nordic Countries*, North Holland.
- Björklund, A., M. Palme and I. Svensson (1995): Tax reform and income distribution - an assessment using alternative income concepts, *Swedish Economic Policy Review* 2, 2, 229-266.
- Dex, S., S. Gustafsson, N. Smith and T. Callan (1995): Cross-National Comparisons of the Labour Force Participation of Women Married to Unemployed Men, *Oxford Economic Papers* 47, 611-635.
- Eriksson, T. (1996): "Unemployment in Finland" in Björklund and Eriksson *op cit*.
- Jensen, P. (1996): "Unemployment in Denmark" in Björklund and Eriksson *op cit*.
- Lerman, R.I. and S. Yitzaki (1985): Income Inequality Effects by Income Source: A New Approach and Applications to the United States, *Review of Economics and Statistics*, ??? 151-156.
- Ministry of Finance (1996): Fördelningspolitisk redogörelse, bilaga 4 to prop 1996/97:1.
- Torp, H. (1996): "Unemployment in Norway" in Björklund and Eriksson *op cit*.
- OECD (1996): *Employment Outlook*, Paris.
- Pedersen, P.J. and N. Smith (1995): "Taxed and Non-Taxed Labour Supply: Wages, Taxes and Costs of Work" in G.V. Mogensen (ed.), *Work Incentives in the Danish Welfare State*, Aarhus University Press.
- Rao, V.M. (1969): Two decompositions of the concentration ratio, *Journal of the Royal Statistical Society* 132, 418-425.

## Data sources and definitions

### Denmark

For Denmark we use two different series for the income distribution. The first comes from LDB, the Longitudinal Database at Centre for Labour Market Studies and Social Research (CLS), Århus and covers the period 1981 to 1990. The second covers only 1987 and 1992, and is calculated from LIS data supplied by Statistics Denmark. The LIS data are analysed using the LIS conventions and definitions. The LDB data set is a longitudinal 5 percent sample of the adult Danish population based on administrative registers. In this study we use a subsample from the 5 percent sample. The income and tax and benefit data are from administrative registers kept by Statistics Denmark. The household is either one adult or a married couple, in both cases with present children younger than 18 years. Children 18 years and older living with their parents are treated as independent households. Cohabiting persons are treated as singles, as cohabitation without marriage is not identified in the data.

### Finland

The Finnish Income Distribution Survey is an annually collected household-based survey that uses both interviews and registers to measure the disposable income of a household and each of its members. The income data stem from various administrative registers, such as the tax board's and the social security administration's records. In every single year the survey consists of two panels, one of which is in the survey for the first and the other one for the second year. Half the sample is thus renewed in each year. The sampling frame contains all non-institutionalized individuals between 15 and 75 years of age. Sampling weights are a function of, among other things, household income. In each year, the sample consists of around 39000 individuals and 14000 households. A household is defined as those people who share the same living arrangements and "eat from the same fridge". More information is available in Statistics Finland (1989--1993). Income Distribution Survey. Helsinki, Finland.

### Norway

For Norway we use Statistics Norway's Income Distribution Survey (IDS), which provides detailed information about reported incomes, legal deductions, taxes paid and transfer payments received. Earnings (*lønnsinntekt*) is wage and salary income plus sickness payments. Selfemployment income

(*netto næringsinntekt før fradrag for avskrivninger og fondsavsetninger*) is net entrepreneurial income from agriculture, forestry and fishing and other net entrepreneurial income. Capital income (*brutto kapitalinntekt*) is interests, share dividends and profits from life insurance received, tax-free part of interest and share dividends received, imputed income of owner-occupied dwellings, other property income(net) and profits from selling plots. Unemployment benefits (*arbeidsledighetstrygd*) is a workrelated transfer that is taxable in Norway as in the other Nordic countries. Tax-free social transfers (*skattefrie overføringer*) consist of tax-free social security benefits, service pensions, annuities, alimonies, family (children's) allowances, dwelling rent supports, scholarships and parent's tax deductions. A household includes all persons living in the same dwelling and having common board.

## **Sweden**

The Swedish income data come from the annual Income Distribution Surveys of the Statistics Sweden. We use the same definition of disposable income as Statistics Sweden, see for example Statistiska meddelanden Be 21 SM 9501, Statistics Sweden, Örebro 1995. The household definition used implies that a a man and a woman living together, irrespective of being married or not, are counted as belonging to the same household. Same-sexed persons living together, children 18 years or older living with their parents and older persons living with their children are treated as separate household even if they live together and share the same apartment.

## Basic data

**Table B1. Denmark**

*Labour market data*

| Year | 20 - 64 years         |                                | 25 -54 years          |                                |
|------|-----------------------|--------------------------------|-----------------------|--------------------------------|
|      | unemployment rate (%) | labour force participation (%) | unemployment rate (%) | labour force participation (%) |
| 1980 | 7.4                   | -                              | 6.5                   | -                              |
| 1981 | 8.8                   | 82.0                           | 7.8                   | 87.4                           |
| 1982 | 9.0                   | 82.2                           | 8.1                   | 87.9                           |
| 1983 | 9.7                   | 82.8                           | 8.9                   | 88.6                           |
| 1984 | 8.8                   | 82.9                           | 8.1                   | 89.0                           |
| 1985 | 7.4                   | 83.3                           | 6.8                   | 89.6                           |
| 1986 | 6.9                   | 83.4                           | 6.3                   | 90.0                           |
| 1987 | 6.9                   | 84.1                           | 6.2                   | 90.1                           |
| 1988 | 8.7                   | 84.2                           | 8.0                   | 90.1                           |
| 1989 | 8.6                   | 84.1                           | 7.8                   | 90.0                           |
| 1990 | 9.5                   | 83.4                           | 8.6                   | 89.2                           |
| 1991 | 10.6                  | 83.1                           | 9.8                   | 88.9                           |
| 1992 | 11.1                  | 83.1                           | 10.4                  | 89.0                           |
| 1993 | 12.0                  | 82.9                           | 11.3                  | 89.0                           |
| 1994 | 12.3                  | 82.8                           | 11.9                  | 89.0                           |
| 1995 | 10.9                  | -                              | 9.6                   | -                              |

Source: Register based labour market data.

*Income distribution data, 20-64 years old, standard errors within parenthesis*

| Year     | Square root scale |       | Per capita scale |       |
|----------|-------------------|-------|------------------|-------|
|          | Gini              | 90/10 | Gini             | 90/10 |
| 1981     | 0.252<br>(0.004)  | 3.176 | 0.273<br>(0.004) | 3.355 |
| 1982     | 0.243<br>(0.003)  | 3.099 | 0.271<br>(0.003) | 3.367 |
| 1983     | 0.244<br>(0.003)  | 3.099 | 0.268<br>(0.003) | 3.308 |
| 1984     | 0.240<br>(0.003)  | 3.078 | 0.265<br>(0.003) | 3.216 |
| 1985     | 0.242<br>(0.003)  | 3.030 | 0.268<br>(0.003) | 3.232 |
| 1986     | 0.247<br>(0.003)  | 3.078 | 0.274<br>(0.003) | 3.356 |
| 1987     | 0.237<br>(0.003)  | 2.941 | 0.270<br>(0.003) | 3.407 |
| 1988     | 0.237<br>(0.004)  | 2.956 | 0.268<br>(0.004) | 3.361 |
| 1989     | 0.233<br>(0.003)  | 2.932 | 0.267<br>(0.003) | 3.360 |
| 1990     | 0.241<br>(0.003)  | 3.030 | 0.275<br>(0.004) | 3.493 |
| LIS-1987 | 0.272<br>(0.004)  | -     | 0.306<br>(0.004) | -     |
| LIS-1992 | 0.226<br>(0.004)  | -     | ?                | -     |

Own computations from the Aarhus sample with register data on income, taxes and transfers.

*Income distribution data, 30-54 years, standard errors withing parenthesis*

| Year     | Square root scale |       | Per capita scale |       |
|----------|-------------------|-------|------------------|-------|
|          | Gini              | 90/10 | Gini             | 90/10 |
| 1981     | 0.244<br>(0.005)  | 2.989 | 0.296<br>(0.006) | 3.761 |
| 1982     | 0.235<br>(0.004)  | 2.946 | 0.289<br>(0.005) | 3.697 |
| 1983     | 0.234<br>(0.004)  | 2.901 | 0.286<br>(0.005) | 3.642 |
| 1984     | 0.232<br>(0.004)  | 2.867 | 0.282<br>(0.004) | 3.482 |
| 1985     | 0.240<br>(0.004)  | 2.978 | 0.286<br>(0.005) | 3.478 |
| 1986     | 0.245<br>(0.005)  | 3.044 | 0.288<br>(0.005) | 3.492 |
| 1987     | 0.232<br>(0.004)  | 2.818 | 0.280<br>(0.005) | 3.490 |
| 1988     | 0.233<br>(0.005)  | 2.837 | 0.277<br>(0.005) | 3.426 |
| 1989     | 0.230<br>(0.004)  | 2.835 | 0.274<br>(0.004) | 3.455 |
| 1990     | 0.240<br>(0.004)  | 2.980 | 0.281<br>(0.004) | 3.616 |
| LIS-1987 | 0.220<br>(0.005)  |       | 0.272<br>(0.005) |       |
| LIS-1992 | 0.209<br>(0.005)  |       | 0.249<br>(0.005) |       |

**Table B2. Finland**

*Labour market data*

| Year | 20 - 64 years         |                                | 30 - 54 years         |                                |
|------|-----------------------|--------------------------------|-----------------------|--------------------------------|
|      | unemployment rate (%) | labour force participation (%) | unemployment rate (%) | labour force participation (%) |
| 1980 | 4.1                   | 78.9                           | 3.3                   | 88.6                           |
| 1981 | 4.4                   | 79.4                           | 3.4                   | 88.3                           |
| 1982 | 4.9                   | 80.5                           | 3.8                   | 89.4                           |
| 1983 | 4.9                   | 80.9                           | 3.9                   | 90.3                           |
| 1984 | 4.8                   | 80.7                           | 3.7                   | 90.4                           |
| 1985 | 4.6                   | 80.8                           | 3.7                   | 90.7                           |
| 1986 | 5.0                   | 80.6                           | 4.1                   | 90.1                           |
| 1987 | 4.8                   | 79.8                           | 4.2                   | 90.1                           |
| 1988 | 4.3                   | 79.5                           | 3.8                   | 89.1                           |
| 1989 | 3.3                   | 79.8                           | 2.8                   | 89.9                           |
| 1990 | 3.2                   | 79.5                           | 2.8                   | 89.5                           |
| 1991 | 7.3                   | 78.9                           | 6.2                   | 88.9                           |
| 1992 | 12.7                  | 78.2                           | 10.6                  | 89.2                           |
| 1993 | 17.3                  | 77.8                           | 14.9                  | 88.8                           |
| 1994 | 17.9                  | 77.8                           | 15.0                  | 89.1                           |
| 1995 |                       |                                |                       |                                |

Source: Labour force surveys.

***Income distribution data, 20-64 years old, standard errors within parenthesis***

| Year | Square root scale |       | Per capita scale |       |
|------|-------------------|-------|------------------|-------|
|      | Gini              | 90/10 | Gini             | 90/10 |
| 1989 | 0.216<br>(0.002)  | 2.95  | 0.217<br>(0.002) | 2.77  |
| 1990 | 0.215<br>(0.002)  | 2.87  | 0.215<br>(0.002) | 2.72  |
| 1991 | 0.210<br>(0.002)  | 2.69  | 0.208<br>(0.002) | 2.85  |
| 1992 | 0.207<br>(0.002)  | 2.64  | 0.209<br>(0.002) | 2.74  |
| 1993 | 0.215<br>(0.002)  | 2.61  | 0.216<br>(0.003) | 2.74  |

Source: Own calculations from the Finnish income distributions surveys, Statistics Finland.

***Income distribution data, 30-54 years old, standard errors within parenthesis***

| Year | Square root scale |       | Per capita scale |       |
|------|-------------------|-------|------------------|-------|
|      | Gini              | 90/10 | Gini             | 90/10 |
| 1989 | 0.208<br>(0.002)  | 2.83  | 0.210<br>(0.002) | 2.72  |
| 1990 | 0.206<br>(0.002)  | 2.75  | 0.206<br>(0.002) | 2.69  |
| 1991 | 0.195<br>(0.002)  | 2.61  | 0.195<br>(0.002) | 2.76  |
| 1992 | 0.192<br>(0.002)  | 2.53  | 0.196<br>(0.002) | 2.71  |
| 1993 | 0.204<br>(0.003)  | 2.48  | 0.208<br>(0.004) | 2.65  |

Source: Own computations from the Finnish income distribution surveys, Statistics Finland.

**Table B3. Norway**

***Labour market data***

| Year | 20 - 64 years         |                                | 25 -54 years          |                                |
|------|-----------------------|--------------------------------|-----------------------|--------------------------------|
|      | unemployment rate (%) | labour force participation (%) | unemployment rate (%) | labour force participation (%) |
| 1980 | 1.3                   | 76.7                           | 1.2                   | 81.3                           |
| 1981 | 1.6                   | 77.3                           | 1.5                   | 82.5                           |
| 1982 | 2.1                   | 78.0                           | 1.8                   | 82.8                           |
| 1983 | 2.9                   | 78.6                           | 2.5                   | 83.2                           |
| 1984 | 2.7                   | 78.9                           | 2.6                   | 84.2                           |
| 1985 | 2.2                   | 79.8                           | 2.0                   | 85.0                           |
| 1986 | 1.5                   | 81.3                           | 1.4                   | 86.4                           |
| 1987 | 1.7                   | 81.9                           | 1.5                   | 87.2                           |
| 1988 | 2.5                   | 81.8                           | 2.2                   | 86.8                           |
| 1989 | 4.3                   | 81.0                           | 3.8                   | 86.2                           |
| 1990 | 4.7                   | 80.5                           | 4.2                   | 85.8                           |
| 1991 | 4.9                   | 80.0                           | 4.4                   | 85.4                           |
| 1992 | 5.5                   | 79.8                           | 4.8                   | 85.2                           |
| 1993 | 5.6                   | 79.5                           | 5.0                   | 85.0                           |
| 1994 | 5.0                   | 79.8                           | 4.5                   | 85.1                           |
| 1995 | 4.5                   | 80.6                           | 4.1                   | 86.0                           |

Source: Labour force surveys. Note: Definitions have been changed in the Norwegian surveys which make changes between 1985 and 1986 and between 1987 and 1988 unreliable.

***Income distribution data, 20-64 years***

| Year | Square root scale |       | Per capita scale |       |
|------|-------------------|-------|------------------|-------|
|      | Gini              | 90/10 | Gini             | 90/10 |
| 1985 | 0.224<br>(0.005)  | 2.55  | 0.217<br>(0.006) | 2.39  |
| 1986 | 0.224<br>(0.003)  | 2.67  | 0.216<br>(0.003) | 2.48  |
| 1987 | 0.224<br>(0.004)  | 2.58  | 0.216<br>(0.004) | 2.39  |
| 1988 | 0.217<br>(0.003)  | 2.60  | 0.214<br>(0.003) | 2.45  |
| 1989 | 0.247<br>(0.006)  | 2.76  | 0.237<br>(0.006) | 2.56  |
| 1990 | 0.233<br>(0.003)  | 2.67  | 0.226<br>(0.003) | 2.56  |
| 1991 | 0.238<br>(0.005)  | 2.73  | 0.229<br>(0.005) | 2.52  |
| 1992 | 0.240<br>(0.004)  | 2.86  | 0.229<br>(0.004) | 2.69  |
| 1993 | 0.245<br>(0.007)  | 2.78  | 0.234<br>(0.007) | 2.58  |
| 1994 | 0.255<br>(0.004)  | 2.92  | 0.246<br>(0.004) | 2.75  |

Source: Own computations from the Income Distribution Survey of Statistics Norway.

***Income distribution data, 30-54 years***

| Year | Square root scale |       | Per capita scale |       |
|------|-------------------|-------|------------------|-------|
|      | Gini              | 90/10 | Gini             | 90/10 |
| 1985 | 0.215<br>(0.007)  | 2.42  | 0.215<br>(0.008) | 2.34  |
| 1986 | 0.215<br>(0.004)  | 2.49  | 0.210<br>(0.004) | 2.38  |
| 1987 | 0.221<br>(0.006)  | 2.45  | 0.215<br>(0.006) | 2.34  |
| 1988 | 0.208<br>(0.004)  | 2.47  | 0.205<br>(0.004) | 2.34  |
| 1989 | 0.227<br>(0.007)  | 2.46  | 0.221<br>(0.008) | 2.37  |
| 1990 | 0.220<br>(0.004)  | 2.41  | 0.215<br>(0.004) | 2.37  |
| 1991 | 0.227<br>(0.006)  | 2.52  | 0.223<br>(0.006) | 2.49  |
| 1992 | 0.218<br>(0.004)  | 2.55  | 0.211<br>(0.004) | 2.51  |
| 1993 | 0.238<br>(0.010)  | 2.59  | 0.228<br>(0.010) | 2.45  |
| 1994 | 0.239<br>(0.005)  | 2.64  | 0.232<br>(0.005) | 2.50  |

Source: Own computations from the Income Distribution Survey of Statistics Norway.

**Table B4. Sweden*****Labour market data***

| Year | 20 - 64 years         |                                | 30 - 54 years         |                                |
|------|-----------------------|--------------------------------|-----------------------|--------------------------------|
|      | unemployment rate (%) | labour force participation (%) | unemployment rate (%) | labour force participation (%) |
| 1980 | 1.5                   | 83.6                           | 1.2                   | 90.3                           |
| 1981 | 1.9                   | 84.3                           | 1.5                   | 91.0                           |
| 1982 | 2.5                   | 84.7                           | 1.9                   | 91.5                           |
| 1983 | 2.8                   | 85.2                           | 2.1                   | 92.0                           |
| 1984 | 2.7                   | 85.4                           | 1.9                   | 92.5                           |
| 1985 | 2.5                   | 85.9                           | 1.7                   | 93.1                           |
| 1986 | 2.3                   | 86.3                           | 1.6                   | 93.6                           |
| 1987 | 2.0                   | 86.5                           | 1.4                   | 92.7                           |
| 1988 | 1.6                   | 86.9                           | 1.1                   | 92.9                           |
| 1989 | 1.4                   | 87.3                           | 0.9                   | 93.2                           |
| 1990 | 1.5                   | 87.7                           | 1.1                   | 93.5                           |
| 1991 | 2.7                   | 87.0                           | 2.0                   | 92.9                           |
| 1992 | 5.0                   | 85.4                           | 3.8                   | 92.0                           |
| 1993 | 7.9                   | 83.3                           | 6.1                   | 90.6                           |
| 1994 | 7.7                   | 81.8                           | 6.1                   | 89.2                           |
| 1995 | 7.5                   | 82.2                           | 5.9                   | 89.5                           |

Source: Labour force surveys. Note: The definitions in the Swedish surveys were changed both 1987 and 1993. Our data are corrected to correspond to the definitions that are used from 1993 onwards.

***Income distribution data, 20-64 years old, standard errors within parenthesis***

| Year              | Square root scale |       | Per capita scale |       | National scale   |       |
|-------------------|-------------------|-------|------------------|-------|------------------|-------|
|                   | Gini              | 90/10 | Gini             | 90/10 | Gini             | 90/10 |
| 1985              | 0.209<br>(0.005)  | 2.41  | 0.192<br>(0.005) | 2.29  | 0.211<br>(0.006) | 2.44  |
| 1986              | 0.214<br>(0.006)  | 2.47  | 0.197<br>(0.007) | 2.28  | 0.216<br>(0.007) | 2.49  |
| 1987              | 0.200<br>(0.003)  | 2.39  | 0.183<br>(0.003) | 2.23  | 0.203<br>(0.003) | 2.38  |
| 1988              | 0.202<br>(0.003)  | 2.43  | 0.186<br>(0.002) | 2.28  | 0.203<br>(0.003) | 2.39  |
| 1989              | 0.195<br>(0.002)  | 2.43  | 0.186<br>(0.002) | 2.23  | 0.205<br>(0.002) | 2.41  |
| 1990              | 0.210<br>(0.004)  | 2.46  | 0.190<br>(0.003) | 2.25  | 0.212<br>(0.003) | 2.49  |
| 1989,<br>new def. | 0.221<br>(0.004)  | 2.53  | 0.206<br>(0.003) | 2.37  | 0.224<br>(0.003) | 2.53  |
| 1990,<br>new def. | 0.227<br>(0.006)  | 2.58  | 0.206<br>(0.006) | 2.30  | 0.229<br>(0.006) | 2.58  |
| 1991              | 0.243<br>(0.007)  | 2.67  | 0.219<br>(0.007) | 2.41  | 0.245<br>(0.006) | 2.67  |
| 1992              | 0.230<br>(0.003)  | 2.62  | 0.212<br>(0.004) | 2.48  | 0.235<br>(0.004) | 2.68  |
| 1993              | 0.240<br>(0.003)  | 2.41  | 0.218<br>(0.003) | 2.53  | 0.242            | 2.79  |
| 1994              | 0.270<br>(0.004)  | 2.93  | 0.245<br>(0.004) | 2.63  | 0.272<br>(0.003) | 2.86  |

Source: Special tabulations from the Swedish income distribution survey, HINK.



*Income distribution data, 30-54 years, standard errors within parenthesis.*

| Year              | Square root scale |       | Per capita scale |       | National scale   |       |
|-------------------|-------------------|-------|------------------|-------|------------------|-------|
|                   | Gini              | 90/10 | Gini             | 90/10 | Gini             | 90/10 |
| 1985              | 0.193<br>(0.006)  | 2.24  | 0.178<br>(0.005) | 2.13  | 0.211<br>(0.006) | 2.43  |
| 1986              | 0.198<br>(0.007)  | 2.28  | 0.182<br>(0.007) | 2.08  | 0.214<br>(0.006) | 2.48  |
| 1987              | 0.189<br>(0.004)  | 2.25  | 0.170<br>(0.003) | 2.05  | 0.205<br>(0.004) | 2.42  |
| 1988              | 0.194<br>(0.003)  | 2.27  | 0.175<br>(0.003) | 2.07  | 0.209<br>(0.004) | 2.42  |
| 1989              | 0.195<br>(0.003)  | 2.27  | 0.176<br>(0.003) | 2.06  | 0.210<br>(0.003) | 2.45  |
| 1990              | 0.199<br>(0.005)  | 2.31  | 0.178<br>(0.005) | 2.07  | 0.214<br>(0.004) | 2.48  |
| 1989,<br>new def. | 0.216<br>(0.006)  | 2.40  | 0.195<br>(0.004) | 2.16  | 0.230<br>(0.004) | 2.58  |
| 1990,<br>new def. | 0.217<br>(0.009)  | 2.40  | 0.195<br>(0.008) | 2.12  | 0.231<br>(0.008) | 2.55  |
| 1991              | 0.234<br>(0.009)  | 2.51  | 0.208<br>(0.009) | 2.27  | 0.248<br>(0.009) | 2.65  |
| 1992              | 0.220<br>(0.003)  | 2.50  | 0.199<br>(0.004) | 2.29  | 0.236<br>(0.004) | 2.68  |
| 1993              | 0.222<br>(0.003)  | 2.17  | 0.200<br>(0.003) | 2.26  | 0.236<br>(0.003) | 2.70  |
| 1994              | 0.255<br>(0.006)  | 2.66  | 0.230<br>(0.006) | 2.40  | 0.269<br>(0.006) | 2.76  |

Source: Special tabulations from the Swedish income distribution survey, HINK. The national scale is described in the annual reports on income distribution from Statistics Sweden. Note: the numbers deviate marginally from those in Appendix A” due to different estimations programs for the Gini-coefficient and its standard error.

## Appendix C:

Decompositions of the Gini coefficient. Square root equivalence scale. Within parenthesis we show the income share and the concentrations coefficient. The following number in each cell is the product of these components, the contribution of the income component to the Gini.

**Table C1. Denmark**

| Denmark, all individuals, 30-54 years old |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|   | 1986                            | 1987                            | 1988                            | 1989                            | 1990                            | LIS-1987                        | LIS-1992                        |
| Earnings                                  | (1.243 x<br>0.242)<br>0.300     | (1.308 x<br>0.233)<br>0.305     | (1.312 x<br>0.242)<br>0.318     | (1.302 x<br>0.247)<br>0.322     | (1.299 x<br>0.255)<br>0.331     | (1.328 x<br>0.229)<br>0.304     | (1.290 x<br>0.241)<br>0.311     |
| Self empl. income                         | (0.126 x<br>0.571)<br>0.072     | (0.113 x<br>0.615)<br>0.069     | (0.111 x<br>0.602)<br>0.067     | (0.099 x<br>0.561)<br>0.055     | (0.100 x<br>0.605)<br>0.060     | (0.082 x<br>0.596)<br>0.049     | (0.075 x<br>0.791)<br>0.059     |
| Capital income                            | (0.027 x<br>0.174)<br>0.005     | (0.011 x<br>1.209)<br>0.014     | (0.010 x<br>0.961)<br>0.010     | (0.022 x<br>0.635)<br>0.014     | (0.014 x<br>0.976)<br>0.013     | (0.040 x<br>0.442)<br>0.017     | (0.025 x<br>0.345)<br>0.009     |
| Unemployment benefits                     | (0.057 x -<br>0.175) -<br>0.010 | (0.061 x -<br>0.238) -<br>0.015 | (0.066 x -<br>0.276) -<br>0.018 | (0.073 x -<br>0.247) -<br>0.018 | (0.073 x -<br>0.232) -<br>0.017 | (0.050 x -<br>0.166) -<br>0.008 | (0.074 x -<br>0.164) -<br>0.012 |
| Taxfree transfers                         | (0.022 x -<br>0.442) -<br>0.010 | (0.032 x -<br>0.393) -<br>0.012 | (0.037 x -<br>0.272) -<br>0.010 | (0.039 x -<br>0.273) -<br>0.011 | (0.041 x -<br>0.283) -<br>0.011 | (0.035 x -<br>0.136) -<br>0.005 | (0.077 x -<br>0.235) -<br>0.018 |
| Taxes                                     | (-0.474 x<br>0.238)<br>-0.113   | (-0.525 x<br>0.246) -<br>0.129  | (-0.536 x<br>0.249) -<br>0.134  | (-0.534 x<br>0.247) -<br>0.132  | (-0.526 x<br>0.260) -<br>0.137  | (-0.534 x<br>0.258) -<br>0.138  | (-0.541 x<br>0.258) -<br>0.139  |
| Gini                                      | 0.245                           | 0.232                           | 0.270                           | 0.230                           | 0.240                           | 0.220                           | 0.209                           |

| Denmark, individuals living as singles, 30-54 years old |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|   | 1986                            | 1987                            | 1988                            | 1989                            | 1990                            | LIS-1987                        | LIS-1992                        |
| Earnings  | (1.248 x<br>0.311)<br>0.388     | (1.248 x<br>0.289)<br>0.361     | (1.269 x<br>0.302)<br>0.384     | (1.240 x<br>0.308)<br>0.382     | (1.242 x<br>0.313)<br>0.389     | (1.258 x<br>0.290)<br>0.365     | (1.197 x<br>0.336)<br>0.403     |
| Self empl. income                                       | (0.101 x<br>0.595)<br>0.060     | (0.109 x<br>0.642)<br>0.070     | (0.104 x<br>0.670)<br>0.069     | (0.101 x<br>0.640)<br>0.064     | (0.099 x<br>0.708)<br>0.070     | (0.050 x<br>0.841)<br>0.042     | (0.030 x<br>1.132)<br>0.034     |
| Capital income  | (0.027 x -<br>0.235)<br>0.006   | (0.020 x<br>0.867)<br>0.017     | (0.021 x<br>0.573)<br>0.012     | (0.034 x<br>0.256)<br>0.009     | (0.028 x<br>0.578)<br>0.016     | (0.041 x<br>0.433)<br>0.018     | (0.036 x<br>0.319)<br>0.011     |
| Unemployment benefits                                   | (0.083 x -<br>0.076)<br>0.006   | (0.088 x -<br>0.123) -<br>0.011 | (0.096 x -<br>0.173) -<br>0.017 | (0.102 x -<br>0.148) -<br>0.015 | (0.106 x -<br>0.156) -<br>0.017 | (0.074 x -<br>0.252) -<br>0.019 | (0.111 x -<br>0.162) -<br>0.018 |
| Taxfree transfers                                       | (0.045 x -<br>0.327) -<br>0.015 | (0.059 x -<br>0.296) -<br>0.017 | (0.056 x -<br>0.285) -<br>0.016 | (0.060 x -<br>0.263) -<br>0.016 | (0.057 x -<br>0.302) -<br>0.017 | (0.091 x -<br>0.065) -<br>0.006 | (0.133 x -<br>0.257) -<br>0.034 |
| Taxes   | (-0.504 x<br>0.310) -<br>0.156  | (-0.523 x<br>0.301) -<br>0.158  | (-0.545 x<br>0.312) -<br>0.170  | (-0.536 x<br>0.312) -<br>0.167  | (-0.533 x<br>0.327) -<br>0.174  | (-0.515 x<br>0.301) -<br>0.155  | (-0.506 x<br>0.325) -<br>0.164  |
| Gini  | 0.278                           | 0.262                           | 0.262                           | 0.256                           | 0.268                           | 0.245                           | 0.231                           |

| Denmark: individuals living in couples , 30-54 years old |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|  | 1986                            | 1987                            | 1988                            | 1989                            | 1990                            | LIS-1987                        | LIS-1992                        |
| Earnings of man  | (0.797 x<br>0.177)<br>0.141     | (0.845 x<br>0.170)<br>0.144     | (0.832 x<br>0.178)<br>0.148     | (0.834 x<br>0.181)<br>0.151     | (0.814 x<br>0.199)<br>0.162     | (0.850 x<br>0.203)<br>0.173     | (0.815 x<br>0.220)<br>0.180     |
| Earnings of woman  | (0.456 x<br>0.185)<br>0.084     | (0.498 x<br>0.185)<br>0.092     | (0.509 x<br>0.196)<br>0.100     | (0.508 x<br>0.201)<br>0.102     | (0.523 x<br>0.195)<br>0.102     | (0.495 x<br>0.224)<br>0.111     | (0.532 x<br>0.226)<br>0.120     |
| Self empl. Income  | (0.141 x<br>0.549)<br>0.077     | (0.118 x<br>0.585)<br>0.069     | (0.118 x<br>0.571)<br>0.067     | (0.103 x<br>0.516)<br>0.053     | (0.107 x<br>0.546)<br>0.058     | (0.095 x<br>0.506)<br>0.048     | (0.093 x<br>0.692)<br>0.064     |
| Capital income   | (0.023 x -<br>0.217)<br>0.005   | (0.006 x -<br>2.653)<br>0.015   | (0.005 x<br>2.633)<br>0.012     | (0.016 x<br>1.202)<br>0.019     | (0.006 x<br>2.805)<br>0.018     | (0.043 x<br>0.423)<br>0.018     | (0.026 x<br>0.362)<br>0.009     |
| Unemployment<br>benefits of man                          | (0.018 x -<br>0.356) -<br>0.006 | (0.019 x -<br>0.266) -<br>0.005 | (0.021 x -<br>0.339) -<br>0.007 | (0.023 x -<br>0.324) -<br>0.008 | (0.024 x -<br>0.262) -<br>0.006 | (0.018 x -<br>0.182) -<br>0.003 | (0.026 x -<br>0.254) -<br>0.006 |
| Unemployment<br>benefits of woman                        | (0.029 x -<br>0.061) -<br>0.002 | (0.029 x -<br>0.210) -<br>0.006 | (0.033 x -<br>0.239) -<br>0.008 | (0.035 x -<br>0.206) -<br>0.007 | (0.037 x -<br>0.185) -<br>0.007 | (0.031 x -<br>0.099) -<br>0.003 | (0.043 x -<br>0.118) -<br>0.005 |
| Taxfree transfers  | (0.012 x -<br>0.377) -<br>0.004 | (0.018 x -<br>0.354) -<br>0.006 | (0.027 x -<br>0.185) -<br>0.005 | (0.028 x -<br>0.187) -<br>0.005 | (0.028 x -<br>0.225) -<br>0.006 | (0.054 x<br>0.059)<br>0.003     | (0.070 x -<br>0.196) -<br>0.014 |
| Taxes  | (-0.475 x<br>0.185) -<br>0.088  | (-0.534 x<br>0.194) -<br>0.104  | (-0.543 x<br>0.198) -<br>0.107  | (-0.547 x<br>0.194) -<br>0.106  | (-0.540 x<br>0.204) -<br>0.110  | (-0.585 x<br>0.201) -<br>0.118  | (-0.603 x<br>0.211) -<br>0.127  |
| Gini   | 0.207                           | 0.199                           | 0.201                           | 0.199                           | 0.211                           | 0.229                           | 0.221                           |

**Table C2. Finland**

| Finland, all individuals, 30-54 years old |                            |                            |                            |                            |                            |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|   | 1989                       | 1990                       | 1991                       | 1992                       | 1993                       |
| Earnings                                  | (1.016 x 0.300)<br>0.305   | (1.008 x 0.294)<br>0.296   | (1.001 x 0.269)<br>0.269   | (0.970 x 0.290)<br>0.281   | (0.900 x 0.307)<br>0.276   |
| Self employment income                    | (0.137 x 0.359)<br>0.049   | (0.126 x 0.347)<br>0.044   | (0.118 x 0.278)<br>0.033   | (0.121 x 0.313)<br>0.038   | (0.099 x 0.328)<br>0.032   |
| Capital income                            | (0.058 x 0.385)<br>0.022   | (0.059 x 0.377)<br>0.022   | (0.074 x 0.449)<br>0.033   | (0.075 x 0.332)<br>0.025   | (0.113 x 0.415)<br>0.047   |
| Unemployment benefits                     | (0.019 x -0.230)<br>-0.004 | (0.019 x -0.208)<br>-0.004 | (0.037 x -0.279)<br>-0.010 | (0.054 x -0.181)<br>-0.010 | (0.081 x -0.241)<br>-0.019 |
| Taxfree transfers                         | (0.153 x -0.140)<br>-0.021 | (0.156 x -0.129)<br>-0.020 | (0.126 x -0.070)<br>-0.009 | (0.167 x -0.049)<br>-0.008 | (0.172 x -0.030)<br>-0.005 |
| Taxes                                     | (-0.384 x 0.371)<br>-0.142 | (-0.368 x 0.360)<br>-0.132 | (-0.357 x 0.338)<br>-0.121 | (-0.387 x 0.277)<br>-0.107 | (-0.365 x 0.350)<br>-0.128 |
| Gini                                      | 0.208<br>(0.002)           | 0.206<br>(0.002)           | 0.195<br>(0.002)           | 0.192<br>(0.002)           | 0.204<br>(0.003)           |

| Finland, individuals living as singles, 30-54 years old |                            |                            |                            |                            |                            |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|   | 1989                       | 1990                       | 1991                       | 1992                       | 1993                       |
| Earnings  | (0.940 x 0.401)<br>0.377   | (0.944 x 0.392)<br>0.370   | (0.993 x 0.328)<br>0.326   | (0.952 x 0.369)<br>0.351   | (0.880 x 0.405)<br>0.356   |
| Self employment income                                  | (0.071 x 0.563)<br>0.040   | (0.068 x 0.560)<br>0.038   | (0.063 x 0.287)<br>0.018   | (0.073 x 0.334)<br>0.024   | (0.052 x 0.454)<br>0.024   |
| Capital income  | (0.069 x 0.323)<br>0.022   | (0.076 x 0.347)<br>0.026   | (0.082 x 0.412)<br>0.034   | (0.080 x 0.434)<br>0.035   | (0.129 x 0.560)<br>0.072   |
| Unemployment benefits                                   | (0.030 x -0.296)<br>-0.009 | (0.030 x -0.278)<br>-0.008 | (0.067 x -0.318)<br>-0.021 | (0.072 x -0.368)<br>-0.026 | (0.109 x -0.409)<br>-0.045 |
| Taxfree transfers                                       | (0.231 x -0.146)<br>-0.034 | (0.223 x -0.158)<br>-0.035 | (0.136 x -0.076)<br>-0.010 | (0.204 x -0.072)<br>-0.015 | (0.191 x -0.069)<br>-0.013 |
| Taxes   | (-0.341 x 0.476)<br>-0.162 | (-0.342 x 0.461)<br>-0.158 | (-0.341 x 0.389)<br>-0.133 | (-0.380 x 0.399)<br>-0.152 | (-0.360 x 0.420)<br>-0.151 |
| Gini  | 0.235<br>(0.006)           | 0.234<br>(0.007)           | 0.214<br>(0.007)           | 0.217<br>(0.008)           | 0.243<br>(0.019)           |

| Finland, individuals living as couples, 30-54 years old |                            |                            |                            |                            |                            |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|   | 1989                       | 1990                       | 1991                       | 1992                       | 1993                       |
| Earnings  | (1.032 x 0.266)<br>0.275   | (1.022 x 0.263)<br>0.269   | (1.002 x 0.255)<br>0.256   | (0.973 x 0.274)<br>0.267   | (0.903 x 0.290)<br>0.262   |
| Self employment income                                  | (0.151 x 0.286)<br>0.043   | (0.138 x 0.272)<br>0.038   | (0.127 x 0.243)<br>0.031   | (0.129 x 0.284)<br>0.037   | (0.107 x 0.284)<br>0.030   |
| Capital income  | (0.056 x 0.421)<br>0.024   | (0.055 x 0.416)<br>0.023   | (0.073 x 0.462)<br>0.034   | (0.074 x 0.377)<br>0.028   | (0.111 x 0.382)<br>0.042   |
| Unemployment benefits of man                            | (0.017 x -0.203)<br>-0.003 | (0.017 x -0.172)<br>-0.003 | (0.033 x -0.246)<br>-0.008 | (0.051 x -0.243)<br>-0.012 | (0.077 x -0.217)<br>-0.017 |
| Taxfree transfers                                       | (0.137 x -0.125)<br>-0.017 | (0.142 x -0.118)<br>-0.017 | (0.125 x -0.088)<br>-0.011 | (0.161 x -0.077)<br>-0.012 | (0.169 x -0.035)<br>-0.006 |
| Taxes   | (-0.392 x 0.338)<br>-0.133 | (-0.374 x 0.329)<br>-0.123 | (-0.359 x 0.325)<br>-0.117 | (-0.388 x 0.326)<br>-0.127 | (-0.366 x 0.336)<br>-0.123 |
| Gini  | 0.188<br>(0.002)           | 0.186<br>(0.002)           | 0.184<br>(0.002)           | 0.180<br>(0.002)           | 0.189<br>(0.003)           |

**Table C3. Norway**

| Norway , all individuals in all households, 30-54 years old |                              |                              |                              |                              |                              |                  |                              |                              |                              |                              |
|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|   | 1985                         | 1986                         | 1987                         | 1988                         | 1989                         | 1990             | 1991                         | 1992                         | 1993                         | 1994                         |
| Earnings  | (1.006x<br>0.216)<br>0.217   | (1.001x<br>0.206)<br>0.206   | (1.003x<br>0.208)<br>0.209   | (1.020x<br>0.217)<br>0.221   | (0.983x<br>0.248)<br>0.244   | -                | (0.957x<br>0.248)<br>0.237   | (0.965x<br>0.273)<br>0.263   | (0.935x<br>0.251)<br>0.235   | (0.970x<br>0.262)<br>0.254   |
| Self empl.<br>income  | (0.158x<br>0.519)<br>0.082   | (0.178x<br>0.518)<br>0.092   | (0.183x<br>0.519)<br>0.093   | (0.163x<br>0.461)<br>0.075   | (0.166x<br>0.527)<br>0.087   | -                | (0.152x<br>0.564)<br>0.086   | (0.140x<br>0.504)<br>0.071   | (0.148x<br>0.548)<br>0.081   | (0.144x<br>0.530)<br>0.076   |
| Capital<br>income   | (0.051x<br>0.367)<br>0.019   | (0.055x<br>0.346)<br>0.019   | (0.072x<br>0.425)<br>0.031   | (0.071x<br>0.384)<br>0.027   | 0.081x<br>0.498)<br>0.040    | -                | (0.062x<br>0.410)<br>0.025   | (0.052x<br>0.368)<br>0.019   | (0.079x<br>0.628)<br>0.050   | (0.077x<br>0.673)<br>0.052   |
| Unempl.<br>Benefits   | (0.007x<br>-0.114)<br>-0.001 | (0.006x<br>-0.140)<br>-0.001 | (0.004x<br>-0.135)<br>-0.001 | (0.008x<br>-0.108)<br>-0.001 | (0.015x<br>-0.072)<br>-0.001 | -                | (0.023x<br>-0.144)<br>-0.003 | (0.027x<br>-0.199)<br>-0.005 | (0.026x<br>-0.088)<br>-0.002 | (0.023x<br>-0.177)<br>-0.004 |
| Taxfree<br>transfers  | (0.094x<br>-0.163)<br>-0.015 | (0.086x<br>-0.166)<br>-0.014 | (0.087x<br>-0.171)<br>-0.015 | (0.094x<br>-0.120)<br>-0.011 | (0.094x<br>-0.144)<br>-0.013 | -                | (0.123x<br>-0.135)<br>-0.017 | (0.123x<br>-0.135)<br>-0.017 | (0.120x<br>-0.210)<br>-0.025 | (0.120x<br>-0.207)<br>-0.024 |
| Taxes   | (-0.316x<br>0.276)<br>-0.087 | (-0.325x<br>0.268)<br>-0.086 | (-0.349x<br>0.279)<br>-0.097 | (-0.356x<br>0.239)<br>-0.085 | (-0.339x<br>0.294)<br>-0.100 | -                | (-0.316x<br>0.322)<br>-0.102 | (-0.307x<br>0.338)<br>-0.104 | (-0.308x<br>0.326)<br>-0.100 | (-0.334x<br>0.340)<br>-0.114 |
| Gini  | 0.215<br>(0.007)             | 0.215<br>(0.004)             | 0.221<br>(0.006)             | 0.208<br>(0.004)             | 0.227<br>(0.007)             | 0.220<br>(0.004) | 0.227<br>(0.006)             | 0.218<br>(0.004)             | 0.238<br>(0.010)             | 0.239<br>(0.005)             |

| Norway , individuals living as singles , 30-54 years old |                              |                              |                              |                              |                              |                  |                              |                              |                              |                              |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|  | 1985                         | 1986                         | 1987                         | 1988                         | 1989                         | 1990             | 1991                         | 1992                         | 1993                         | 1994                         |
| Earnings   | (0.982x<br>0.330)<br>0.324   | (0.964x<br>0.311)<br>0.300   | (0.952x<br>0.282)<br>0.268   | (0.986x<br>0.305)<br>0.301   | (0.910x<br>0.307)<br>0.279   | -                | (0.930x<br>0.393)<br>0.365   | (0.917x<br>0.415)<br>0.381   | (0.898x<br>0.391)<br>0.351   | (0.921x<br>0.395)<br>0.364   |
| Self empl.<br>Income                                     | (0.122x<br>0.815)<br>0.099   | (0.153x<br>0.648)<br>0.099   | (0.164x<br>0.655)<br>0.107   | (0.131x<br>0.593)<br>0.078   | (0.155x<br>0.669)<br>0.104   | -                | (0.085x<br>0.675)<br>0.057   | (0.078x<br>0.486)<br>0.038   | (0.102x<br>0.715)<br>0.073   | (0.099x<br>0.659)<br>0.065   |
| Capital<br>income  | (0.050x<br>0.342)<br>0.017   | (0.059x<br>0.263)<br>0.019   | (0.068x<br>0.437)<br>0.030   | (0.063x<br>0.399)<br>0.025   | (0.067x<br>0.454)<br>0.030   | -                | (0.051x<br>0.326)<br>0.017   | (0.044x<br>0.307)<br>0.014   | (0.038x<br>0.329)<br>0.013   | (0.042x<br>0.464)<br>0.019   |
| Unempl.<br>Benefits                                      | (0.012x<br>-0.179)<br>-0.002 | (0.010x<br>0.064)<br>0.001   | (0.007x<br>-0.450)<br>-0.003 | (0.012x<br>0.340)<br>-0.004  | (0.020x<br>-0.060)<br>-0.001 | -                | (0.036x<br>-0.243)<br>-0.009 | (0.038x<br>-0.223)<br>-0.008 | (0.030x<br>-0.181)<br>-0.005 | (0.037x<br>-0.181)<br>-0.007 |
| Taxfree<br>transfers                                     | (0.150x<br>-0.264)<br>-0.040 | (0.152x<br>-0.248)<br>-0.038 | (0.149x<br>-0.224)<br>-0.033 | (0.157x<br>-0.232)<br>-0.036 | (0.170x<br>-0.274)<br>-0.047 | -                | (0.200x<br>-0.198)<br>0.040  | (0.199x<br>-0.280)<br>-0.056 | (0.211x<br>-0.232)<br>-0.049 | (0.209x<br>-0.222)<br>-0.046 |
| Taxes  | (-0.316x<br>0.378)<br>-0.119 | (-0.338x<br>0.371)<br>-0.125 | (-0.340x<br>0.359)<br>-0.122 | (-0.348x<br>0.362)<br>-0.126 | (-0.321x<br>0.363)<br>-0.117 | -                | (-0.301x<br>0.442)<br>-0.133 | (-0.275x<br>0.429)<br>-0.118 | (-0.279x<br>0.423)<br>-0.118 | (-0.308x<br>0.430)<br>-0.132 |
| Gini   | 0.280<br>(0.016)             | 0.255<br>(0.013)             | 0.247<br>(0.014)             | 0.237<br>(0.013)             | 0.249<br>(0.016)             | 0.251<br>(0.010) | 0.258<br>(0.015)             | 0.250<br>(0.010)             | 0.265<br>(0.015)             | 0.263<br>(0.008)             |

| Norway, individuals living in couples , 30-54 years old |                              |                              |                              |                              |                              |                  |                              |                              |                              |                              |
|---|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|   | 1985                         | 1986                         | 1987                         | 1988                         | 1989                         | 1990             | 1991                         | 1992                         | 1993                         | 1994                         |
| Earnings  | (1.010x<br>0.190)<br>0.192   | (1.007x<br>0.184)<br>0.185   | (1.013x<br>0.190)<br>0.192   | (1.026x<br>0.196)<br>0.201   | (0.997x<br>0.199)<br>0.198   | -                | (0.964x<br>0.199)<br>0.192   | (0.978x<br>0.223)<br>0.218   | (0.944x<br>0.204)<br>0.193   | (0.982x<br>0.212)<br>0.208   |
| Self empl.<br>income                                    | (0.165x<br>0.461)<br>0.076   | (0.182x<br>0.488)<br>0.089   | (0.186x<br>0.488)<br>0.091   | (0.168x<br>0.427)<br>0.072   | (0.168x<br>0.491)<br>0.082   | -                | (0.170x<br>0.520)<br>0.088   | (0.156x<br>0.474)<br>0.074   | (0.160x<br>0.491)<br>0.079   | (0.156x<br>0.476)<br>0.074   |
| Capital<br>income                                       | (0.051x<br>0.374)<br>0.019   | (0.054x<br>0.354)<br>0.019   | (0.073x<br>0.421)<br>0.031   | (0.072x<br>0.376)<br>0.027   | (0.084x<br>0.500)<br>0.042   | -                | (0.065x<br>0.419)<br>0.027   | (0.055x<br>0.371)<br>0.020   | (0.089x<br>0.654)<br>0.058   | (0.086x<br>0.691)<br>0.059   |
| Unempl.<br>benefits                                     | (0.006x<br>-0.042)<br>-0.000 | (0.005x<br>-0.169)<br>-0.001 | (0.004x<br>0.008)<br>0.000   | (0.008x<br>-0.025)<br>-0.000 | (0.014x<br>-0.075)<br>-0.001 | -                | (0.019x<br>-0.063)<br>-0.001 | (0.024x<br>-0.169)<br>-0.004 | (0.025x<br>-0.065)<br>-0.002 | (0.020x<br>-0.142)<br>-0.003 |
| Taxfree<br>transfers                                    | (0.084x<br>-0.097)<br>-0.008 | (0.075x<br>-0.108)<br>-0.008 | (0.076x<br>-0.127)<br>-0.010 | (0.083x<br>-0.056)<br>-0.005 | (0.079x<br>-0.114)<br>-0.009 | -                | (0.103x<br>-0.050)<br>-0.005 | (0.103x<br>-0.123)<br>-0.013 | (0.098x<br>-0.143)<br>-0.014 | (0.098x<br>-0.147)<br>-0.014 |
| Taxes   | (-0.316x<br>0.252)<br>-0.080 | (-0.323x<br>0.248)<br>-0.080 | (-0.351x<br>0.261)<br>-0.092 | (-0.357x<br>0.271)<br>-0.097 | (-0.343x<br>0.281)<br>-0.096 | -                | (-0.320x<br>0.279)<br>-0.089 | (-0.315x<br>0.300)<br>-0.095 | (-0.314x<br>0.289)<br>-0.091 | (-0.341x<br>0.302)<br>-0.103 |
| Gini  | 0.199<br>(0.007)             | 0.204<br>(0.003)             | 0.213<br>(0.006)             | 0.198<br>(0.004)             | 0.217<br>(0.007)             | 0.207<br>(0.005) | 0.211<br>(0.006)             | 0.201<br>(0.004)             | 0.223<br>(0.010)             | 0.222<br>(0.005)             |

**Table C4. Sweden**

| Sweden, individuals living in all households 30-54 years old |                            |                            |                            |                            |                            |                            |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|  | 1989                       | 1990                       | 1991                       | 1992                       | 1993                       | 1994                       |
| Earnings   | (1.257 x 0.231)<br>0.291   | (1.259 x 0.235)<br>0.296   | (1.170 x 0.256)<br>0.300   | (1.179 x 0.267)<br>0.315   | (1.181 x 0.277)<br>0.327   | (1.147 x 0.281)<br>0.322   |
| Self employment income                                       | (0.038 x 0.048)<br>0.002   | (0.030 x 0.114)<br>0.004   | (0.024 x 0.047)<br>0.001   | (0.0.23 x 0.344)<br>0.008  | (0.031 x 0.190)<br>0.006   | (0.026 x 0.151)<br>0.004   |
| Capital income   | (0.109 x 0.648)<br>0.071   | (0.112 x 0.670)<br>0.075   | (0.103 x 0.697)<br>0.072   | (0.065 x 0.569)<br>0.037   | (0.062 x 0.580)<br>0.036   | (0.111 x 0.759)<br>0.084   |
| Unemployment benefits  | (0.009 x -0.240)<br>-0.002 | (0.009 x -0.251)<br>-0.002 | (0.015 x -0.215)<br>-0.003 | (0.032 x -0.209)<br>-0.007 | (0.047 x -0.153)<br>-0.007 | (0.044 x -0.179)<br>-0.008 |
| Taxfree transfers  | (0.055 x -0.251)<br>-0.014 | (0.054 x -0.262)<br>-0.014 | (0.058 x -0.278)<br>-0.016 | (0.063 x -0.291)<br>-0.018 | (0.066 x -0.313)<br>-0.021 | (0.066 x -0.316)<br>-0.021 |
| Taxes  | (-0.468 x 0.281)<br>-0.132 | (-0.465 x 0.304)<br>-0.141 | (-0.370 x 0.323)<br>-0.120 | (-0.361 x 0.309)<br>-0.112 | (-0.387 x 0.306)<br>-0.119 | (-0.394 x 0.321)<br>-0.127 |
| Gini   | 0.215<br>(0.004)           | 0.217<br>(0.008)           | 0.234<br>(0.010)           | 0.222<br>(0.004)           | 0.223<br>(0.003)           | 0.255<br>(0.006)           |

| Sweden: individuals living as singles, 30-54 years old |                            |                            |                            |                            |                            |                            |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|  | 1989                       | 1990                       | 1991                       | 1992                       | 1993                       | 1994?                      |
| Earnings   | (1.258 x 0.251)<br>0.316   | (1.254 x 0.249)<br>0.313   | (1.146 x 0.274)<br>0.314   | (1.114 x 0.289)<br>0.322   | (1.109 x 0.300)<br>0.333   | (1.085 x 0.311)<br>0.338   |
| Self employment income                                 | (0.026 x 0.324)<br>0.009   | (0.019 x 0.308)<br>0.006   | (0.016 x 0.090)<br>0.002   | (0.024 x 0.564)<br>0.014   | (0.022 x 0.284)<br>0.006   | (0.016 x 0.186)<br>0.003   |
| Capital income   | (0.104 x 0.619)<br>0.064   | (0.089 x 0.638)<br>0.057   | (0.085 x 0.657)<br>0.056   | (0.056 x 0.597)<br>0.034   | (0.051 x 0.607)<br>0.031   | (0.097 x 0.781)<br>0.076   |
| Unemployment benefits                                  | (0.013 x -0.306)<br>-0.004 | (0.014 x -0.231)<br>-0.003 | (0.027 x -0.237)<br>-0.006 | (0.056 x -0.178)<br>-0.010 | (0.072 x -0.117)<br>-0.009 | (0.066 x -0.180)<br>-0.012 |
| Taxfree transfers                                      | (0.083 x -0.248)<br>-0.021 | (0.077 x -0.293)<br>-0.023 | (0.083 x -0.302)<br>-0.025 | (0.098 x -0.250)<br>-0.025 | (0.108 x -0.251)<br>-0.027 | (0.107 x -0.243)<br>-0.026 |
| Taxes  | (-0.484 x 0.302)<br>-0.146 | (-0.452 x 0.303)<br>-0.137 | (-0.356 x 0.322)<br>-0.115 | (-0.348 x 0.326)<br>-0.114 | (-0.362 x 0.310)<br>-0.112 | (-0.372 x 0.335)<br>-0.125 |
| Gini   | 0.217                      | 0.212                      | 0.225                      | 0.222                      | 0.222                      | 0.254                      |

| Sweden: individuals living as couples, 30-54 years old |                            |                            |                            |                            |                            |                            |
|--|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|  | 1989                       | 1990                       | 1991                       | 1992                       | 1993                       | 1994                       |
| Earnings of man  | (0.779 x 0.219)<br>0.171   | (0.776 x 0.225)<br>0.174   | (0.724 x 0.256)<br>0.185   | (0.732 x 0.259)<br>0.190   | (0.732 x 0.268)<br>0.196   | (0.708 x 0.277)<br>0.196   |
| Earnings of woman                                      | (0.478 x 0.204)<br>0.098   | (0.484 x 0.209)<br>0.101   | (0.452 x 0.204)<br>0.092   | (0.465 x 0.216)<br>0.101   | (0.472 x 0.221)<br>0.104   | (0.459 x 0.213)<br>0.098   |
| Self employment income                                 | (0.041 -0.060)<br>-0.003   | (0.033 x -0.002)<br>-0.000 | (0.026 x -0.052)<br>-0.001 | (0.022 x 0.192)<br>0.004   | (0.034 x 0.098)<br>0.003   | (0.030 x 0.067)<br>0.002   |
| Capital income   | (0.110 x 0.655)<br>0.072   | (0.119 x 0.670)<br>0.080   | (0.108 x 0.705)<br>0.076   | (0.067 x 0.547)<br>0.037   | (0.065 x 0.556)<br>0.036   | (0.115 x 0.744)<br>0.086   |
| Unemployment benefits of man                           | (0.003 x -0.398)<br>-0.001 | (0.003 x -0.301)<br>-0.001 | (0.007 x -0.214)<br>0.002  | (0.015 x -0.165)<br>-0.003 | (0.021 x -0.183)<br>-0.004 | (0.019 x -0.200)<br>-0.004 |
| Unemployment benefits of woman                         | (0.004 x -0.031)<br>-0.000 | (0.004 x -0.214)<br>-0.001 | (0.005 x -0.038)<br>-0.000 | (0.010 x -0.130)<br>-0.001 | (0.018 x -0.077)<br>-0.001 | (0.017 x -0.094)<br>-0.002 |
| Taxfree transfers                                      | (0.048 x -0.236)<br>-0.011 | (0.048 x -0.241)<br>-0.012 | (0.051 x -0.265)<br>-0.014 | (0.053 x -0.292)<br>-0.016 | (0.052 x -0.304)<br>-0.016 | (0.054 x -0.324)<br>-0.018 |
| Taxes  | (-0.463 x 0.269)<br>-0.125 | (-0.468 x 0.295)<br>-0.138 | (-0.375 x 0.312)<br>0.117  | (-0.365 x 0.290)<br>-0.106 | (-0.394 x 0.286)<br>-0.113 | (-0.401 x 0.299)<br>0.120  |
| Gini   | 0.201                      | 0.204                      | 0.221                      | 0.206                      | 0.206                      | 0.239                      |