

5. Income Distribution in Sweden Since 1990

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Introduction

The income distribution in Sweden has been the subject of serious debate over the years and of a large number of studies.¹ This report describes how the Swedish income distribution has changed in the period 1991–2006.

The period since 1990 has been dramatic for Sweden in a number of ways. At the beginning of the period the country experienced possibly its worst economic and financial crisis ever (Hagberg and Jonung, 2005), with unemployment rising from 2 per cent to 10 per cent over a short period. Subsequently there followed several years of strong recovery with high growth figures, increased productivity and substantial increases in prices on the financial and real estate markets. What is more, Sweden's international integration developed markedly over the period. In 1989 all regulations of cross-border capital flows were removed; in 1995 Sweden joined the EU. During this period the information and communication technologies were revolutionised, which further lowered the costs of international exchange.

Sweden is one of the world's most ambitious welfare states, with high income tax and an extensive social security system. It is particularly interesting to study how the combination of global market exposure and national egalitarian welfare policy has influenced the development of income distribution. Has competition from low income countries or the threat of outsourcing production hit the least well-educated and poorest groups in Sweden? Or is it the Swedish middle class which has lagged behind the income elite, as capital has become increasingly mobile and exceptional talents have been revalued strongly upwards?

The report begins with a description of how Swedish incomes have developed *in absolute terms*, by which I mean the change in real incomes in different parts of the income distribution. After that I present how the *distribution* of incomes has evolved over the period. It is important that both the absolute and relative dimensions of

¹ For recent surveys, see Magnusson (2008) or Roine, Vlachos and Waldenström (2008).

incomes are included. It could, for example, be the case that the entire population has experienced significant rises in income which is of importance to, for instance, welfare outcomes. If the incomes of certain groups have grown more rapidly than the incomes of others, however, this leads to increases or decreases of the income distribution which matters for equity considerations, for example.

The statistical data on which this analysis is based come from Statistics Sweden (Statistiska Centralbyrån), primarily Statistics Sweden's tax-based income statistics for *individuals* between 20 and 65 years of age. In certain cases data from Statistics Sweden's *household*-based income distribution study is used (see Appendix for details and also a discussion of the problems of statistics).

Throughout, outcomes are examined for two different income concepts: *labour incomes* and *disposable incomes*. Labour incomes consist primarily of cash wages and income from business, all before tax. Disposable incomes comprise the above-mentioned income from work, but also income from capital (interests, dividends and realised capital gains) after the deduction of tax and the addition of transfer payments. The reason for including two concepts of income is that they reflect different aspects of how society influences the income distribution. The distribution of labour incomes may be said primarily to be driven by forces on the labour market, whilst the distribution of disposable incomes to a greater extent reflects both the influence of capital and of politics. Presumably a proportion of labour income is taken out in the form of capital income, as this is taxed at a lower rate than labour income. For example, people can get their companies to invoice a service instead of themselves taking payment in the form of salary. When they then take out dividends from a company, these are taxed at 30 per cent marginal tax rate, while a salary, if it is large enough, has a marginal tax of more than 50 per cent. Similarly, a self-employed person who sells her company acquires a large capital gain, which is really to be regarded as an accumulated remuneration for that person's work. The Appendix contains a short and exploratory analysis of the significance vis-à-vis distribution of deducting an estimated return on a person's capital from disposable income, leaving only a more work-related labour income.

The Development of the Income Distribution Since 1990

How Have Swedish Real Incomes Developed?

This section starts with an account of the development of Swedish real incomes, that is to say changes in income after inflation has been discounted. The main results are presented in Figures 1a and 1b, showing the development of real income for different groups in the distribution. The population is divided into deciles, or tenths of the distribution on the basis of their annual rank order in the income distribution. Decile groups 1–5 comprise the lower half of the distribution; decile groups 6–10 represent the distribution's upper half, whilst the top 1% is the roughly 55,000 individuals with the highest incomes each year. It should be noted that the rank order is revised from year to year, and that it is, therefore, not necessarily the same individuals who occur in each income fractile throughout the period. In the figures the real incomes have been shown in relation to the income level for 1991 in order more easily to be able to follow the development over the time period.

The overall result of Figures 1a and 1b is that a majority of Swedes have experienced considerable rises in real income over the period. As regards labour income before tax, this increased for almost 70 per cent of the population between 1991 and 2006, most at the top and least at the bottom of the distribution. At the same time considerable income reductions occurred within the 15-year period. These occurred in particular for the lower deciles and mainly in connection with the deep recession of the 1990s, when the unemployed, at times more than 10 per cent of the population, received no labour income.

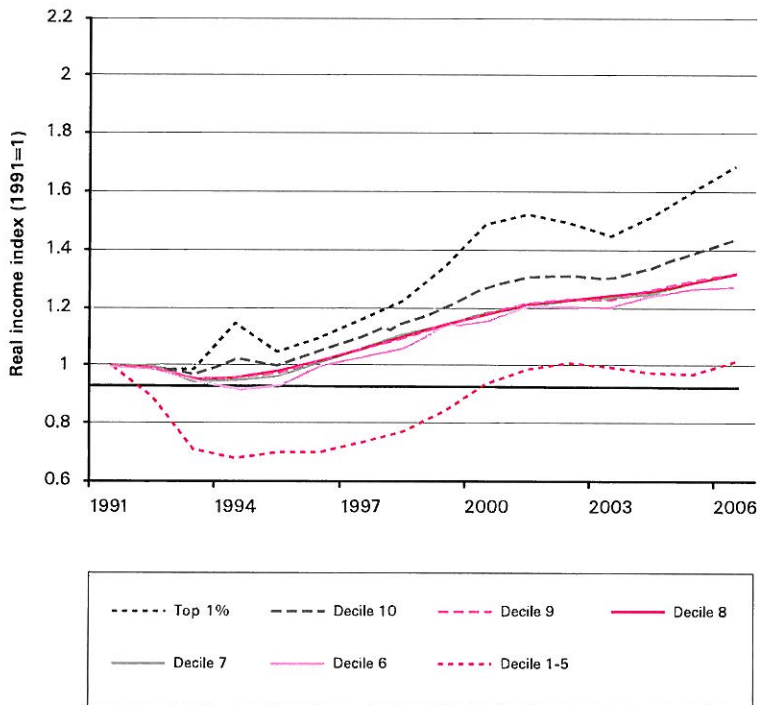
The picture is roughly the same for disposable incomes as for labour incomes, although somewhat more positive – disposable real incomes increased for everyone except for the lowest decile.² The increase is larger higher up in the distribution. Particularly large real income increases appear at the top of the distribution. This mainly

2) As we have amalgamated the lowest 5 deciles, this result cannot be seen from this figure.

reflects the effect of very large capital incomes (Roine and Waldenström, 2006, 2008).

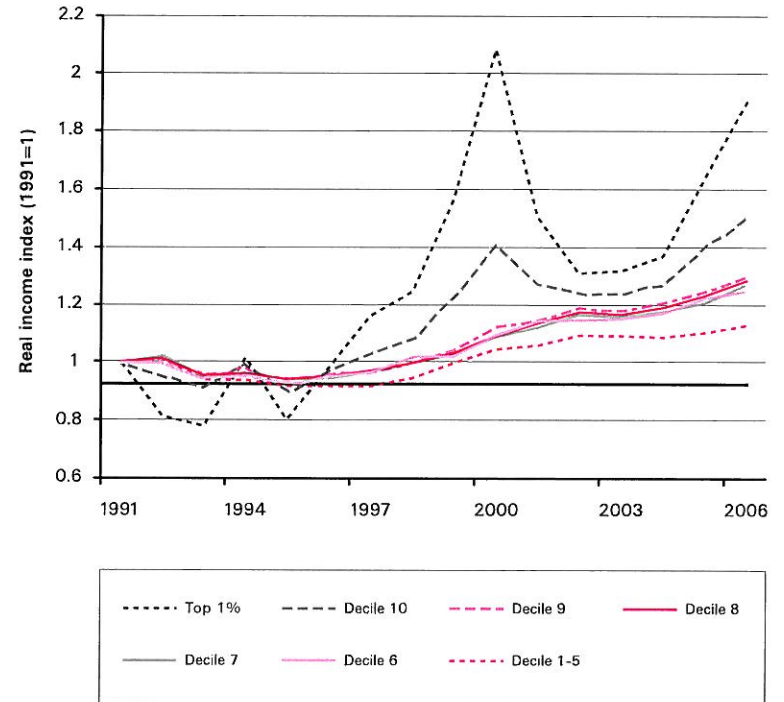
From an international viewpoint, these increases in real income for the vast majority distinguish Sweden from several other countries. This applies not least to the USA, where large parts of the working class and middle class have not seen their incomes increase by as much in real terms over this period.³

Figure 1a: Real labour incomes in decile groups 1991–2006 (1991 = 1).



Note: Labour incomes at 2006 prices, indexed using 1991 as the base year (1991 = 1). The decile groups have been calculated from Statistics Sweden’s complete income statistics for individuals of 20 to 65 years of age.

Figure 1b: Real disposable incomes in decile groups 1991–2006 (1991 = 1).



Note: Labour incomes at 2006 prices, indexed using 1991 as the base year (1991 = 1). The decile groups have been calculated from Statistics Sweden’s complete income statistics for individuals of 20 to 65 years of age.

A further, more detailed picture of changes in real incomes between 1991 and 2006 is provided in Table 1. Now the income changes *within* the top decile of the distribution is described more carefully, with even the top percentage being broken down into smaller fractiles. The result – that most Swedes have enjoyed considerable

³ See e.g. U.S. Census Bureau (2000), Lawrence (2007) and Dew-Becker and Gordon (2007).

increases in income throughout the period, although with certain variations from year to year – is the same of course. The five lowest income deciles increased their labour incomes by 1 per cent and their disposable incomes by 13 per cent, which corresponds to an annual real increase of between 0 per cent and 1 per cent. At the same time the table provides an important gradation of the development in the top income stratum. It shows that incomes for the lowest paid income-earners in nine tenths of the top decile (top 10-1%) was 37 per cent to 38 per cent in those two cases, whilst a corresponding increase for the top percentage (top 1%) was 69 per cent and 91 per cent respectively. Even higher in the income distribution, incomes grew even more; the incomes of the richest thousandth of the population grew by 112–113 per cent and the richest ten thousandth grew by 141–153 per cent, which corresponds to an annual real income increase of 6 per cent.

Table 1: Real labour income and disposable income and their development in different fractile groups between 1991 and 2006 (2006 prices).

a) Labour income

Income fractile	Average labour income 1991 (SEK)	Average labour income 2006 (SEK)	Change (%)
Decile 1-5	80,012	80,862	+1
Decile 6	179,247	229,126	+28
Decile 7	201,169	264,582	+32
Decile 8	227,869	300,163	+32
Decile 9	267,402	354,097	+32
Decile 10	408,943	586,106	+43
Top 10-1%	370,186	509,166	+38
Top 1%	757,756	1,278,567	+69
Top 0.1%	1,508,511	3,192,738	+112
Top 0.01%	3,323,737	8,395,068	+153
Median	165,557	211,636	+28
Average	63,960	80,862	+26

b) Disposable income

Income fractile	Average disposable income 1991 (SEK)	Average disposable income 2006 (SEK)	Change (%)
Decile 1-5	99,533	112,366	+13
Decile 6	149,951	186,888	+25
Decile 7	164,570	208,261	+27
Decile 8	181,922	233,280	+28
Decile 9	207,185	268,546	+30
Decile 10	323,889	484,690	+50
Top 10-1%	273,945	374,824	+37
Top 1%	773,385	1,473,484	+91
Top 0.1%	2,839,188	6,038,674	+113
Top 0.01%	11,223,222	27,028,386	+141
Median	141,323	175,019	+24
Average	152,518	194,350	+27

Note: Incomes are at 2006 prices. The decile groups have been calculated from Statistics Sweden's complete income statistics for individuals of 20 to 65 years of age.

All in all, the statistical picture shows that the real incomes of most Swedes have increased markedly over the period 1991–2006. The increase has, however, been greater at the top than at the bottom of the distribution, which implies that the spread of incomes has also increased.⁴ The incomes of the lower half increased more slowly than those of the upper half, something which to a great extent is the result of greater unemployment among low income-earners. Within the upper half the differences in the rate of increase in incomes are perceptibly marginal, with the exception of the peak of the income distribution where capital incomes grew very rapidly during the period.⁵

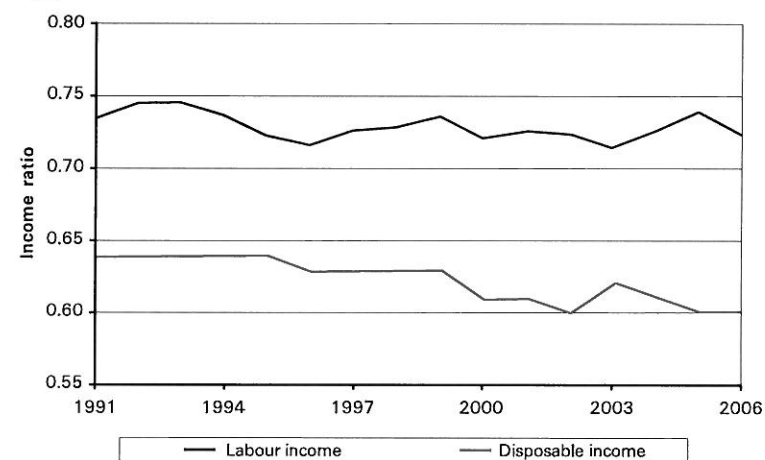
4) Globalisation may, however, have had a squeeze effect on real income distribution if one takes into account that the increase in imports of cheap consumer goods from, above all, China, have particularly favoured low income-earners, which is shown to be the case in the USA (Broda and Romalis, 2008).

5) For example, in 2004 the richest 10th of Swedes owned 97 per cent of all the shares quoted on the Swedish stock exchange owned by households (Statistics Sweden, 2006, Table 2b).

Have Low Income-Earners Lost Ground in Relation to the Middle Class?

What has the relative income development looked like during this period? This section examines changes in the relative position of low income-earners in relation to the middle class. Figure 2 displays the so-called P_{10}/P_{50} ratio, which measures the relationship between a common measure of low income, the 10th percentile in the income distribution (P_{10}), and a common measure of middle class income, the median income (P_{50}). In this figure data from Statistics Sweden's Income Distribution Survey has been used.⁶ The picture shows that the relative income development of low income-earners has been relatively stable during the period. This applies particularly to labour incomes, but here one should remember that these series do not include individuals who have no labour income. If also the zero market incomes of unemployed would be included the P_{10}/P_{50} -ratio would increase markedly. In terms of disposable income the P_{10}/P_{50} ratio has dropped between 1991 and 2006. The reduction is, however, not particularly large. The conclusion, therefore, is that those who have found themselves in the labour market but have had relatively low incomes have not lost out a great deal in the development of incomes in relation to the middle of the income distribution over the past 15 years.⁷

Figure 2: *The income development of low income-earners, 1991–2006.*



Note: Labour income for full-time all year employees, 20 to 64 years of age, who have no income from business. Disposable income including capital gains per consumption unit.

6) The analysis of relative incomes of low income-earners is based on data from Inkomstfördelningsundersökningen ("The Income Distribution Survey", Statistics Sweden, 2008). The reason is that the individual data used in the rest of the analysis is not optimal for describing income levels at the bottom of the distribution. There are several reasons for this. On the one hand, young people living at home are included, whose low incomes do not correspond to those labour market-related outcomes I really wish to discuss. On the other, tabulated income distributions exist which mean that the percentile boundaries at the bottom that have been worked out may be sensitive to definitions of income classes from year to year (see also my discussion in the Appendix). It should, however, be noted that Statistics Sweden's series in Figure 2 are not perfect for our purposes either. A major problem with them is that they are based on annual incomes of full-time employees and in this way exclude those effects on the income spread which result from e.g. unemployment and part-time employment.

7) One possible factor which would mitigate this relative deterioration is if the mobility of low income-earners increased and over the period they found themselves for a short period in the lowest decile groups. An increase in long-term unemployment during the study period speaks against an effect of this kind, however.

Have Top Incomes Left the Middle Class Behind?

How have middle class incomes developed in relation to top incomes? This question has been the subject of lively discussion in other countries, especially in the USA, where the incomes of the middle class have developed considerably slower than those at the very top (Piketty and Saez, 2003, Dew-Becker and Gordon, 2007).

As regards the income dispersion in the upper half of the distribution, we have already seen indications that it has increased in recent years. In order to be able to study this better, the dispersion is analysed between median income and three different top income levels, the 90th, 99th and 99.99th percentiles. The 90th percentile is the lowest income among the richest 550,000 individuals (the top decile), the 99th percentile is the lowest income earned by the richest 55,000 individuals (the top percentile), and 99.99th percentile is the lowest income among the richest 550 individuals (the top 0.01 percentile). The reason for studying three different top incomes is the relatively large variation between very highest income groups, which has been documented shown by several studies of the Swedish income elite (Roine and Waldenström, 2006, 2008). Particularly important is the fact that the majority of income-earners, that is to say those in the bottom 99 per cent of the income distribution, are in practice employees. Within the very top, on the other hand, incomes primarily comprise income from capital, that is to say interest, dividends and realised capital gains.

Apart from the composition of incomes of the top, their levels differ considerably. In 2006 the median income was in labour income SEK 211,000 and in disposable income SEK 175,000. For the 90th percentile in 2006 labour income was SEK 399,000 and disposable income SEK 290,000. Corresponding incomes for P99 were SEK 835,000 in labour income and SEK 625,000 in disposable income, and for P99.99 they were SEK 5 million and SEK 9.7 million.

Figure 3 shows three figures with ratios between the median income and the different top income levels for labour income and disposable income. As regards the P90/P50 ratio for labour incomes, this is about 1.8 to 2.0 for the entire period, that is to say, labour

incomes at the 90th percentile have been almost twice as large as median incomes over the period. This is somewhat greater than for disposable incomes, where the ratio is 1.6 to 1.7. Internationally speaking, this is on a par with other Western countries, with the exception of the USA, where the ratio for disposable incomes over the same period has been between 2.0 and 2.2.⁸ It should, therefore, be noted that the dispersion between incomes among the middle-class (P50) and the upper middle class (P90) have not changed a great deal over the latest 15 year period, either as regards labour market incomes or disposable income.

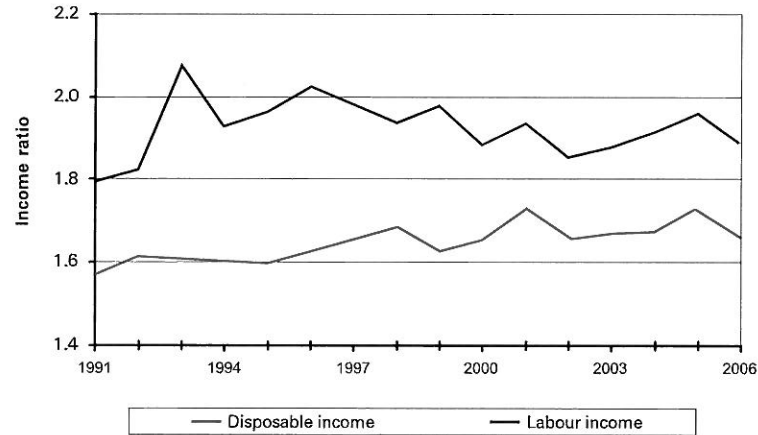
As regards the P99/P50 ratio, the same picture emerges to a great extent. The ratio is approximately twice as high as the P90/P50 ratio, that is to say, incomes at P99 are between three and five times as high as the median income. The development over a longer period of time is, however, markedly similar to that of the P90/P50 ratio, in that there are faint trends towards an increased dispersion of disposable incomes, whilst the trend in labour incomes is almost constant, with the exception of an increase during the recession of 1991 to 1994. When one finally comes to the very top elite's relative income development, shown in the P99.99/P50 ratio, the picture is very different. On the one hand, the level of income difference is notably higher. P99.99's labour income is approximately 20 times higher than the median, and its disposable incomes are between 30 and 60 times higher than the median. The record year of 2000 when a large number of capital gains were realised as a result of major share price rises in the IT industry, total income in P99.99 was a hundred times higher than it was for P50.⁹ The dispersion also seems to have increased but the variability is too great to be able to determine any significant trends over the short period.

8) Statistics from Luxembourg Income Study, <http://www.lisproject.org>.

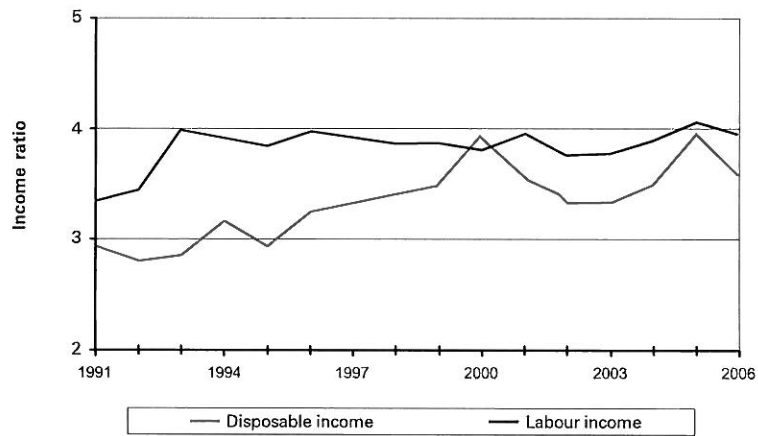
9) Even 1991 and 1994 contain great income from capital at the top, which is in part driven by income tax considerations.

Figure 3: Income differences between median income (P50) and different levels of top income (P90, P99 and P99.99) 1991–2006.

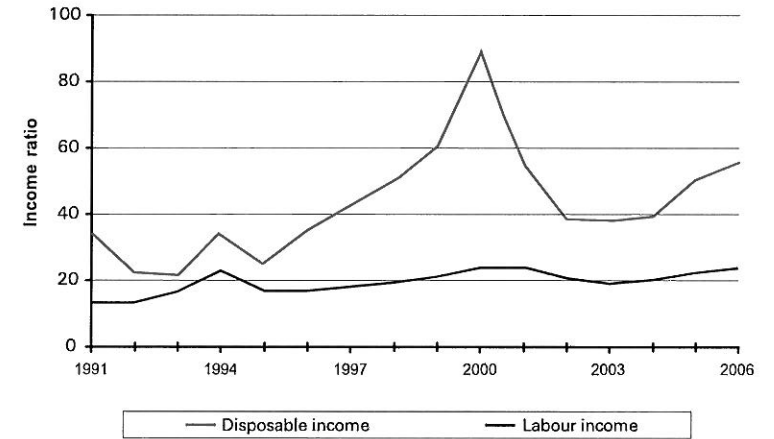
P90/P50



P99/P50



P99.99/P50



Note: Percentile income is based on Statistics Sweden's complete income statistics for individuals aged 20 to 65 years.

All in all, the spread of reported labour incomes in Sweden has not increased a great deal in recent years. A small increase seems to have occurred at the beginning of the 1990s, presumably closely tied to the then culminating economic crisis, but after that the spread is almost constant.

As regards the dispersion of disposable incomes, it has increased with respect to the trend throughout the period. The increased imbalance in the distribution seems to be driven primarily by greater income from capital, and then in particular realised capital gains at the top of the distribution. The effects of political redistribution on income distribution are hence overshadowed by the returns from the capital market. As mentioned earlier, there is, however, reason to believe that a significant proportion of this income from capital in actual fact comprises salary paid out in the form of realised option programmes, sale of own companies or dividends from own companies. The question is, of course, how great a pro-

portion of this income from capital is earnings on capital and how much is a – for tax reasons – disguised form of salary?

It is not possible to gain complete clarity in answering this question on the basis of the available income statistics. But an attempt to approach some explanation of these circumstances is to be found in the Appendix, where a 5 per cent annual real return on taxable capital has been deducted from the disposable income across the entire income distribution. This analysis is naturally problematic for several reasons, among them the fact that the taxable capital does not capture all relevant capital producing revenue. Figures A1a-c in the Appendix show, however, that this adjustment reveals that disposable incomes are to a great extent to be regarded as a distribution of labour income, broadly defined, after tax and transfers. In other words, the dispersion of reported labour income could seriously underestimate the growing differences between middle class and top incomes, whilst they have no appreciable effect on either the trend or the level of income differences between the middle class and the upper middle class.

Concluding Discussion

This report has described the development of Swedish income distribution over the last 15-year period. The statistical picture initially shows that most Swedes have experienced a favourable development in real income. The income increases in the middle class (incomes between the 30th and 90th income percentiles) lies between 25 per cent and 30 per cent, which are internationally high figures.

As regards the distribution of Swedish incomes, the picture looks rather different depending on whether only labour incomes are taken into account or capital incomes are also included. The distribution of labour incomes has not changed a great deal during the period. Apart from a greater spread during the recession at the beginning of the 1990s, the difference between median labour income and labour incomes at the 90th, 99th and even 99.99th percentiles has been constant.

When income from capital is taken into account, the picture

changes, however. Since 1991 the distribution of Swedish disposable incomes, that is to say incomes from all types of income after tax and transfers, has grown markedly. This development is explained primarily by much greater incomes from capital at the top of the distribution.

The reason for the increase in income from capital may be sought in an increasingly globalised capital market. At the end of the 1980s Sweden was opened up to international capital flows, which led to foreign capital pouring into the country and increasing demands for Swedish assets which then rose rapidly in value. This mostly favoured a very small group at the top which owns these assets (still in 2006 the richest tenth of Swedes owns more than 90 per cent of all of the Swedish-owned shares traded on the stock market). The rising market values of Swedish companies also created the prerequisites for profitable option deals for executives. If it is the case that these incomes from capital do not have any link to the work of top income-earners, this indicates instead that, precisely as at the beginning of the century, anyone getting rich in Sweden does so through making good investments and not through work. But if these capital gains instead are closely linked to the employment of the top income-earners, for example in the form of realised option programmes or the sale of their own companies, this would indicate that similar mechanisms operating in the USA and the UK also underlie the greater concentration of income in Sweden.

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Appendix

Description of the Income Statistics

The statistical analysis of Swedish income distribution is throughout divided into two different income concepts – *labour incomes* and *disposable incomes*. Labour income is primarily cash salary but also income from business, everything before tax. Taxable remuneration in, for example, unemployment or illness (apart from short-term sickness benefit) is not included. Sales of share options and other financial market-related bonuses are treated as income from capital, and these are not included either, despite the fact that in the strict sense they comprise remuneration for work carried out. The top labour incomes are, therefore, most likely underestimated. Income of all kinds (work, capital, business activity, capital gains) minus tax plus transfers is included in disposable income. Disposable income is the income concept in this study which to the greatest extent reflects the influence of politics. It is also the concept which best reflects people's buying power and prosperity.

Data on Swedish income distribution from 1991 to 2006 is based partly on Statistics Sweden's complete income statistics for *individuals* between 20 and 65 years of age, partly on data from Statistics Sweden's *household*-based income distribution study, HEK.¹⁰ Statistics based on individuals differ from income statistics which are based on households (housekeeping units), which in certain respects provide a more representative picture of the prosperity of the individual members of the household. This particularly applies to young people over 18 years of age who live at home with their parents. In the individual statistics they are treated as their own household, whilst they do not comprise complete housekeeping units. The effect on the distribution is such that we will somewhat underestimate the lowest incomes, and for this reason we have in parts of the analysis amalgamated the lowest incomes to some extent in order to reduce the risk of errors in estimation.

The material includes both full-time and part-time workers, and no correction is made for creating full-time equivalent incomes. The reason is that we are interested in studying the effects of precise-

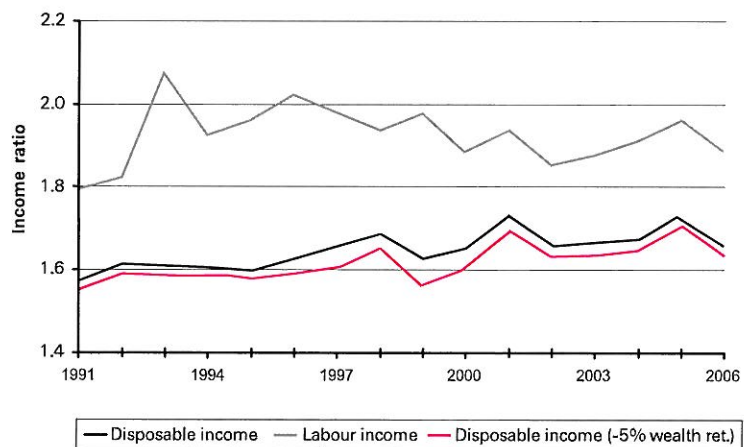
ly those structural changes in, for example, the supply of jobs which affect people's income. These effects would be "erased" if we only included full-time employees with full-time incomes. On the other hand the differences are inflated between income series and corresponding series for wages. A greater income spread might be driven by both a greater wage spread and a lower participation in employment on the part of low income-earners with a constant wage spread.

Figures A1a-c show the spread in disposable incomes between the median and three top income levels where a five per cent annual real return on the *taxable wealth* (*beskattningsbar förmögenhet*) has been deducted from the disposable income throughout the income distribution. Naturally this analysis is problematical. The return of five per cent is probably at the high end both since long-run real capital returns are typically three per cent and since much of the taxable wealth is not income generating (e.g. housing). At the same time the taxable capital underestimates the true capital of income-earners, on the one hand because of the basic allowance of between SEK 1 and 2 million per household, on the other as a result of tax regulations exempting important share capital at the top of the distribution.

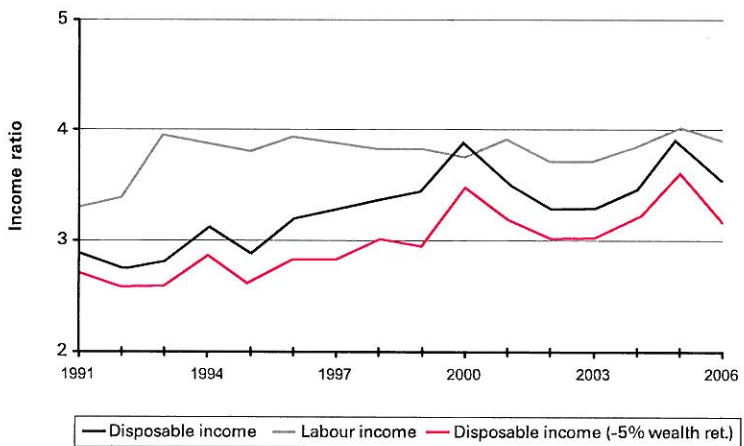
10) I am using data from Statistics Sweden's complete statistics for the income years 1991–2006. The data has the form of tabulated income distributions, in which the population is divided into classes on the basis of size of income and where for each class we know the number of income-earners and the total of their incomes. The highest (open) income interval is SEK 30 million, which is why I have a relatively good coverage of the top of the distribution.

Figure A1: Income differences between median income (P₅₀) and different top-income levels (P₉₀, P₉₉ and P_{99.99}) including when a 5% wealth return has been deducted from disposable incomes, 1991–2006.

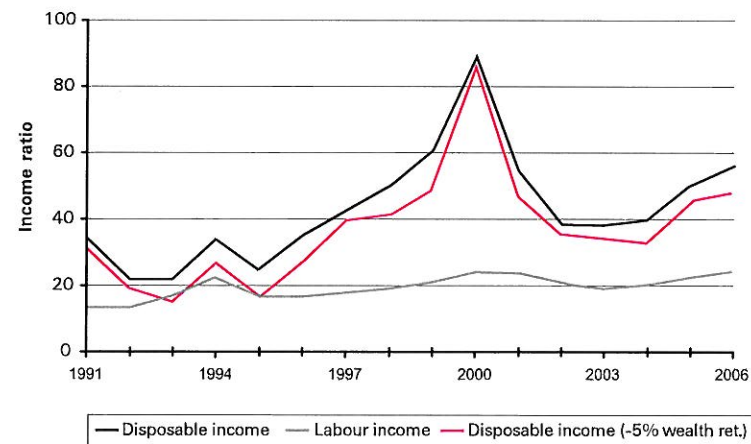
a) P₉₀/P₅₀



b) P₉₉/P₅₀



c) P_{99.99}/P₅₀



Note: The percentiles are based on Statistics Sweden's complete income statistics for individuals aged between 20 and 65. The return on capital is based on taxable wealth.