



**GROWING INEQUALITY AND ITS IMPACTS IN DENMARK**

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## Executive Summary

This paper gives an account of economic inequality in Denmark from the 1980s until 2010. It is based on register data for the whole population and enables us to map the entire Danish income distribution year by year for all sorts of sub groups. The Danish income distribution has for very long been comparatively equally distributed with a relatively small difference between the lowest and the highest incomes and with a relatively high earnings mobility. However this changes slowly towards a more unequal income distribution over the investigated years. Thus, the Gini coefficient of disposable household income increased from 25% in the 1980s to around 30% in 2006. The Great Recession had a temporary negative impact on the Gini coefficient. It is found that the tax and transfer system has a huge impact on the distribution of incomes. While the Gini coefficient of the raw incomes is about 46% in 2010 it is only 30% after tax and transfers for the entire population.

There are many mechanisms in the Danish society that contribute to this result and these are related to both the distribution of salaries and incomes and the redistribution via the tax and benefit system. First, there has been a long tradition for policies aiming at creating equal access to education. This starts with publicly provided and subsidized day care for small children, continues with a predominantly public school system and is followed by a large public system for further education. The latter systems are all free of charge. Second, the higher educated have been exposed to a moderate wage constraints mainly because the public sector used to be the main employer of highly educated, which has facilitated a monopsonistic behaviour with a relatively low wage level. This effect has been weakened slightly because of a growing proportion of further educated employed in the private sector. For the low educated the policy has been almost the opposite because the public sector has been supporting low wage policies and policies to further equal wages between men and women. So all in all, the large public sector has had a dampening influence on the overall income distribution before tax. Third, the income tax system has a progressive scale, starting with 33% and going up to 55% of the income, so it contributes to equalizing incomes. It has been an explicit political goal of all recent changes of the tax system that the distributional effects should not change much due to the change in tax structure. Fourth, there is a comprehensive system of transfers that are almost all means tested, which makes them have the same effects on the lower end of the income distribution as taxes on the higher end of the income distribution.

Over the period from 1980 various changes in the possible drivers for inequality in the earnings distribution has happened. First of all, women tend to work more in full time jobs than in the 1980's.

Second, the proportion of women with a further education has increased. At the same time, more men with a further education employed in the private sector has increased. These factors all increase inequality. The increasing number of students and working youth has also meant that the number of students and youth working has increased over time. At the same time, students and other youth have taken over more and more of the low paid jobs. This also increases inequality. Furthermore, the number of non-working in the age groups from 15-64 and the number of retired has also increased. These developments have also had an effect on the total Gini coefficient. When studying income distributions for households it is normal to take the number of dependents in the households into account by the use of an equalizing factor. This correction could influence the income distribution. In the Danish case it appears that equalizing households basically means a lowering of the Gini coefficient with .05 percentage points in each of the investigated years. The Gini coefficient for individual incomes is slightly lower than for un-equalized household income. For the disposable individual income we find that the Gini was slightly falling until 1994 but increases from that point.

The differences in income can also be expressed by quantile ratios. Thus, the P90/P50 ratio shows that the richest 10% (90<sup>th</sup> quantile) earn 1.7 times as much as the median household. This is up from around 1.50 in the mid-1980s. Furthermore we find that the same measure on the primary income shows that the high income earners ran away from the median until 1993, after which period the rich actually loose income. But after tax and transfers they actually earn more compared to the median. So the tax and transfer system is somehow leaving the highest incomes less taxed than the median household despite they earn relatively less. At the bottom we see that the lowest 10 percentile earn only about 5% of the median but after transfers they earn 50%. Moreover, in both ends of the income distribution we see that the efficient Danish tax and transfer system smooth out incomes. This raises the question of whether the slightly upward moving Gini coefficient is felt as a factor of inequality.

We have therefore investigated other indicators of inequality to see if they reflect a larger degree of inequality. First, the risk of poverty is limited to about 20% and that is constant throughout the investigated period. Furthermore, we know that students is one of the groups with a relatively high risk of poverty, because they tend to work and receiving very low hourly wages. Thus the Gini coefficient is reduced with about 1.5%points and the P10 to P50 ratio of the population without students increases with about 4%points. Second, household gross wealth inequality is found to increase slightly at the household level but decreases at the individual level. Third, the share of children living in jobless households actually goes down. Fourth, the increase in the educational attainment experienced over the years have not changed the income level of the educated compared to the non-educated but have created more people with lower Gini coefficients simply because the

inequality among the most educated is much lower than for the lower educated. Fifth, inequality among ethnic families is higher than for Danish families. Nevertheless, foreign ethnicity means also a much lower median than Danish ethnicity. Sixth, income is not distributed very differently between regions, though there is a weak tendency to have more inequality in the Capital Region.

A completely different way to look at inequality is to look at what has been called material deprivation, measuring the number of normal consumer goods that the family is missing. The result is that very few Danes (<3%) suffer from severe material deprivation. Even for those below 60% of the equalized household income very few lack 1 or 2 items in the quality of housing. The Great Recession has had the predictable effect that the number of people feeling deprived of 2 items has increased. Moreover, social isolation shows a general falling tendency for all and even for age groups. The number of people feeling alone is also very low but increases clearly in 2010. This is somewhat contrasted with an increasing proportion of the population living alone and fewer and fewer being married. The main effect seems to be via a higher age for the first marriage and for the first child. This does not have any clear impact on the birth rate.

Health in Denmark, measured by life expectancy, is clearly below what is found in comparable countries mainly due to smoking and excess alcohol consumption. However, these factors are slowly changing with a growing life expectancy as a consequence. Furthermore, the crime statistics shows that burglary, robbery and violent crime has actually increased over the investigated period. These take a surge in the years of the Great Recession. The only exception is car theft, which has gone down over the whole period since 1996. As a consequence, the proportion of the population who are incarcerated has gone up with a small factor. The number is still relatively small. When it comes to life satisfaction Danes have been scoring high and increasing scores throughout the period. The political factors show a high turnout at elections with general elections turnout increasing and reaching 88% in 2010. Elections for the European Parliament reached a turnout of 60% in the same year. Unionization has been falling but is still with its 68% among the highest in the World. Trust is another indicator of how well the Danish society functions and of how much the increase in income dispersion has meant for the population. There is an increasing trust in the political institutions, and even more important, more than 75% of all people say they have trust in other people they don't know.

Finally, we have made an overview of policies towards the income distribution. First, more people in the age group 15-64 receive transfers in more recent years than at any other time. Thus, 24% of the population is in 2010 on public support of one type or the other. At the same time the public expenses to transfers have also grown. These transfers are to some degree concentrated on old age pension and sickness and disability pay. Nevertheless, to pay for the large transfers scheme a

comprehensive tax system is in action with a resulting tax wedge close to 70%. The transfer and income taxation schemes results in a highly efficient redistribution.

This paper shows in income and transfer system that is based on high redistribution with a resulting relatively low but increasing income inequality. But the inequality comes about in a way where all other indicators pointing towards less inequality. One of the reasons is that the increasing inequality to some degree is linked to different stages of the life cycle that all will pass through and that another part is due to the increasing work participation of women.



## Introduction

The Danish income distribution has for very long been comparatively equally distributed with a relatively small difference between the lowest and the highest incomes and with a relatively high earnings mobility.

There are many mechanisms in the Danish society that contribute to this result and these are related to both the distribution of salaries and incomes and the redistribution via the tax and benefit system. First, there has been a long tradition for policies aiming at creating equal access to education. This starts with publicly provided and subsidized day care for small children, continues with a predominantly public school system and is followed by a large public system for further education. Most importantly, education is free of tuition fees. Furthermore, grants are provided in order to make the educational investment feasible even for low wage families. The equalization process starts early with publicly subsidized day care. Recent research demonstrates that day care institutions increase upward generational mobility for children of less educated parents who attend, Bingley and Westergaard-Nielsen, 2012. Though education itself increases the income level for those who take it, the income of higher educated has always been more constrained in the Scandinavian countries and the Netherlands compared to continental Europe and in particular the USA. The reason for that is undoubtedly that a large proportion of the highly educated are employed in the public sector, and that shifting governments have been able to keep a lid on the growth in the top wages of public employees while the low wages in the large and growing public sector have been higher than the private sector. Finally, the spread in the earnings distribution has been limited because the lowest salaries have been kept up by specific policies of the Trade Unions with the assistance of the public sector. These factors all contribute to a more equal distribution of salaries than in many other countries.

Redistribution of incomes via the tax and benefit system is, however, the main factor in the formation of the income distribution in Denmark. The tax system has a slightly progressive scale, so it contributes to equalizing incomes. It has been an explicit political goal of all recent changes of the tax system that the distributional effects should not change much due to the change in tax structure.

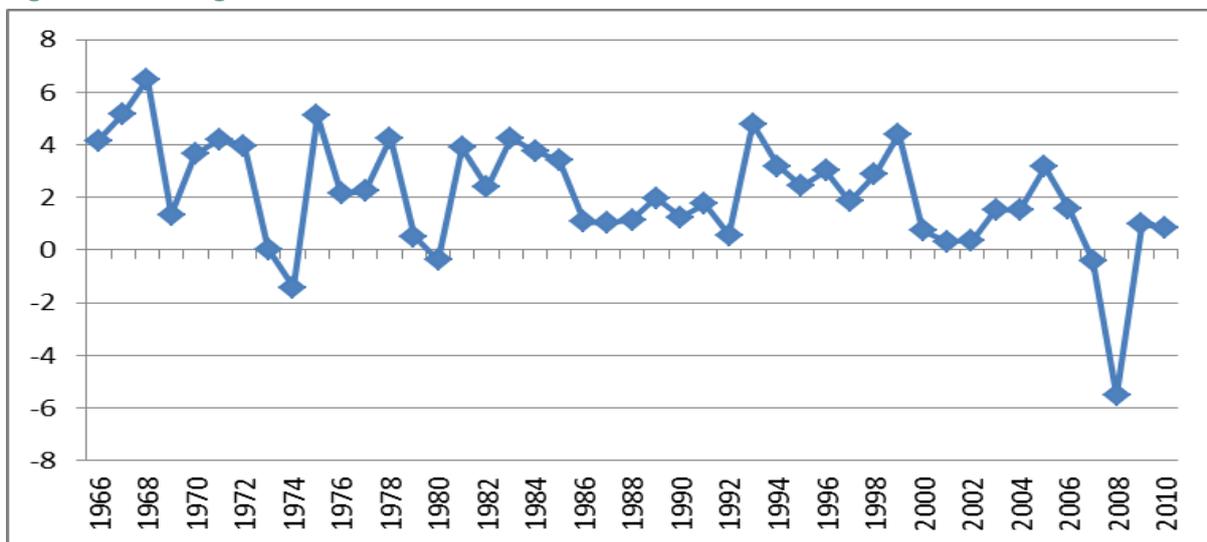
Over the period from 1980 various changes in the possible drivers for inequality in the earnings distribution has happened. First of all, women tend to work more in full time jobs than in the 1980's. Second, the proportion of women with a further education has increased. Especially, it is noteworthy

that the number with further education employed in the private sector has increased. The increasing number of students and working youth has also meant that the number of students and youth working has increased over time. At the same time students and other youth have taken over more and more of the low paid jobs.

This of course means that the burden of earning a low income are borne by youth who have the advantage of growing out of inequality, as noted by R. Solow in Westergaard-Nielsen (ed.), 2007.

Denmark has a long tradition for a relatively high and stable GDP growth through most of the 20th century and it has had a remarkable record of staying among the countries with the highest GDP/capita, at least until more recently. As in many other industrialized countries, growth became relatively unstable after the first oil crisis as can be seen in Figure 1.

**Figure 1: Annual growth rate of real GDP**



Source: Statistics Denmark

In Denmark the 1980s started with low growth, which quickly turned into an over-stimulation of consumption, a subsequent overheating of the labour market and a deterioration of the balance of payment. This turned into a genuine recession partly created by an austerity policy, which had the purpose of improving the balance of payment and curbing the expectations of wage inflation. The balance of payment problems disappeared slowly during this period because firms became more competitive but unemployment soared. The turning point came in 1994, where employment and economic growth started rising again. From then on the balance of payment turned positive (partly because of oil revenue from the Danish North Sea sector and partly because of the expansion of markets in Germany and in Eastern Europe after the fall of the Iron Curtain), the wage drift expectations were curbed, and unemployment started coming down again. The role of the oil has

been like a sweetener, since its share of GDP in 1990 was less than 1% increasing to 3% in 2004. Most importantly, oil and gas revenue has created a nice buffer on the trade balance with 8% of the total export in 2004. On the tax side, 2-3% of all taxes are collected through the production of crude oil and natural gas. The new situation is, however, that these advantages were not given away as higher wages and inflation as has been the usual pattern in the past when the economy was growing. There is still a trade surplus in 2012; the government has not raised taxes, and it has, until the onset of the crisis in 2009, been able to run a budget surplus and have a modest public debt compared to many European countries. One explanation for this is that it seems like the labour market now runs more smoothly with more decentralization of wage bargaining and the tightening of labour market policies towards unemployment as discussed in this report. .

To summarize, over the period investigated Denmark had a growth period from 1982-1986, from 1986-1993 the “self-inflicted” downturn because of low competitive power, again an upturn from 1993 to 2001, followed by a downturn in 2001-2003 where the dot.com crisis hits. The following upswing lasts until 2007, where it was followed by a serious recession with negative growth starting in 2007 and continuing until today.

### Employment in Denmark

In an international perspective the Danish labour force participation is high compared with countries outside Scandinavia. Thus, more than 80% of the population (15-64 years of age) has an affiliation to the labour force in Denmark. One of the reasons for the high labour force participation is that the welfare system provides incentives to be in the labour force. Another reason is a longer tradition for female participation related to better child-care facilities. The reasons for the high participation of young people is a strong tradition for high school graduates to take a job before they enter university combined with a large apprenticeship program that covers about 40% of a cohort of youth. This is also seen to have a big downward impact on the youth unemployment rate<sup>1</sup>. Furthermore, as already mentioned, it means that a lot of youth are working for very low wages. Finally, it is worth noting that the labour force participation for people with less than upper secondary education is relatively low in Denmark and is only slightly higher than in the US, mainly because this group tends to be low-wage workers for whom the welfare system in Denmark provides relatively attractive alternatives to working.

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<sup>1</sup> Apprentices are included in the labor force

In recent years the unemployment rate has become relatively low in Denmark, so even with the large loss of jobs due to the current crisis, unemployment in Denmark is among the lowest in Europe. Around 1992 it was double digit and among the highest in Europe. Since then economic growth has increased somewhat and the labour market policies have been reformed. It will be demonstrated that part of the reason for the improved unemployment figures is the increased participation in labour market programs and the increased exit to early retirement.

Comparing the unemployment distribution across age groups we find that the institutional setting is partly responsible for the differences. Thus, for the young, the lower Danish unemployment rate is partly due to limited access to unemployment benefit up to the age of 25 and that the Danish apprenticeship keeps the young employed. Both issues will be explained later. For the older group, it is the other way around. The Danish unemployment benefit rules and the so-called post-employment wage, which can be obtained from the age of 60, keep people in the labour force until the age of 60 and give them an incentive to retire quickly after this age.

### **The Danish welfare system**

The principle of the Danish welfare system is that “no citizen may suffer any economic hardship”, and furthermore that welfare benefits therefore cover everybody. The whole system constitutes an important institutional structure, which may discourage many people from taking a low-wage job compared to a less generous welfare system because the option of getting UI or welfare benefits increases the individual's reservation wage. This argument is strengthened for workers with a low earnings capacity (low education, immigrant background etc.). Hence, according to this view, only those who expect to move out of low wage relatively quickly are likely to accept a low-wage job. The effect of this is that the lower tail of the distribution to some degree will be populated by people, who expect to move upward relatively quickly. Thus, we find that many students are found here. Many other groups will instead receive some sort of transfer pay.



## 2. Inequality over Time

### 2.1 Introduction

In this chapter we will look at the actual distribution of household income starting with the income distribution of earnings. In particular we will look at the development over time.

Overall, distribution of disposable household income in Denmark belongs to the most equal incomes in the world. Thus, according to OECD the Gini coefficient was 0.23 in mid-2000s (OECD 2011). However, the distribution changes slightly over time due to changes in the primary distribution and in the structure of the tax and transfer system.

According to OECD, 2011, Denmark has had an overall growth in household disposable income from the mid-1980s to late 2000s of 1% p.a. with a growth in the bottom decile income of 0.7% and a growth of the top decile of 1.5%. That means that top incomes have grown slightly more than the bottom incomes. The overall growth in disposable income is in the lower end of the OECD countries while the relative differential between top and bottom incomes is higher than average in OECD countries indicating that inequality has actually grown in the investigated period as it has in the majority of OECD countries. However, the change has been relatively modest compared to other countries.

The distribution of disposable income for households is, however, the result of several processes. Incomes are mostly created at the labour market as earnings. On top of that comes capital income. Both are taxed by a progressive tax that tend to equalize the after tax income. Furthermore, some people receive various transfers from the public sector equalizing disposable incomes even more. We will in the following chapters investigate how the primary distribution of incomes has changed over time and how the different income measures have been affected. Figure 2 presents the distribution of household income in Denmark, in 2006. It shows, roughly, how primary income is shaped by the redistribution system, through taxes and transfers and transformed into disposable income.

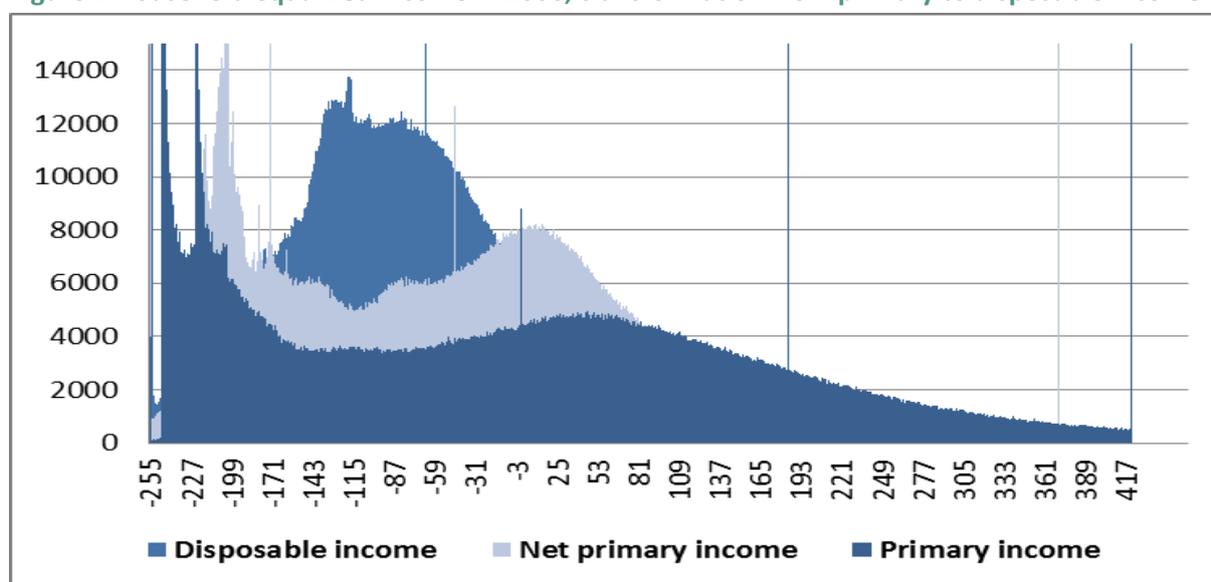
The data for this chapter comes from the Danish Register data<sup>2</sup>. These data contain earnings data and data for after tax incomes, together with information about transfers from the public sector. The information comes from the tax registers and is generally considered to be highly valid. The income information exists in the registers for each individual. Due to a common ID-number this information

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<sup>2</sup> The results presented in this Chapter are based on own calculations, if not otherwise mentioned

can be merged with registers for education, housing and all other relevant registers. The housing register in Denmark is the backbone of the Danish person registers and contains detailed information on individuals, work, and earnings, down to the apartment or house address of each person. This means that households can be formed not only of married couples but also of unmarried couples if they are registered on the same address and apartment number. Children are also registered. Even same sex households are covered in this way. As a consequence, the size of the household will be revealed and can subsequently be used to calculate the income equivalence according to the normal OECD practice. Most of the calculations done for this chapter use the OECD square root equalization method for household income, where household income is divided by the squared root of the number of members in the household, to net out the different consumption needs of the household.

**Figure 2: Household equalized income in 2006, transformation from primary to disposable income**



The income variable gives a challenge as there are a small number of people (less than 0.1%) with negative incomes. The main reason for this is that incomes are registered on an annual basis and there may be corrections made to the wage of the previous year. This is of course more frequent when people change job. Furthermore, taxable incomes come from the tax register and because of various tax issues incomes can become negative in one year due to tax-deductible losses. All cases with negative incomes have been deleted from the sample. Appendix 1 describes this issue in more detail. Another and related issue is that income varies systematically with age and that may affect the distribution. Below, we will see how much that means to the distributions.

We will work with several types of income concepts. First, we will use the gross income of households. The source is gross income before deductions and we continue with earnings and net income after tax and transfers.

## 2.2 Has inequality grown?

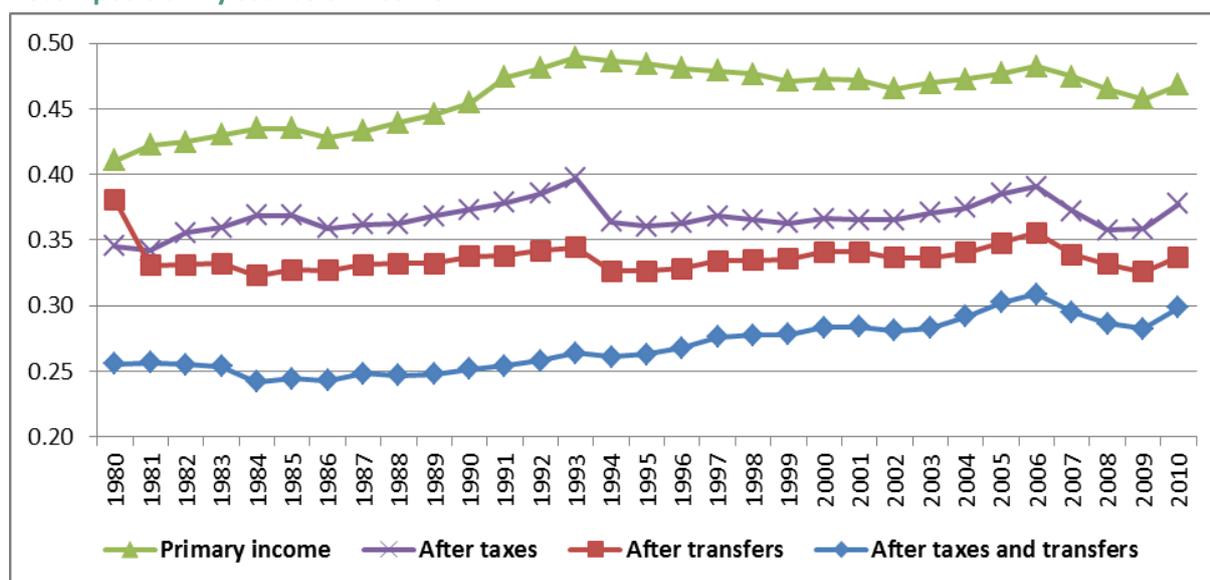
Income inequality in Denmark is one of the lowest among OECD countries, although it has had an upward trend in recent years, as shown in OECD, 2011. In this section we will take a closer look at each type of household income in order to better understand the sources of household income inequality but also the reasons of the low-income inequality in Denmark.

### 2.2.1 Household income inequality

The level of income inequality is influenced not only by the inequality measurement used (the Gini coefficient, the Theil coefficient, etc.) but also by the type of income taken into consideration and the basic unit chosen (household, individual). In this section we will focus on equalized household income, using all types of income available from Statistics Denmark (gross income, net income, before and after redistribution and imputed rents) in order to present a clear and detailed picture of the evolution of household income in Denmark, for the past 27 years. Figure 3 shows the evolution of the Gini coefficient of household income, by source of income and stresses the importance of redistribution and taxes in shaping inequality. The top graph in Figure 3 shows the development of the Gini coefficient for primary income, i.e. earnings before taxes and redistribution. It is seen that the Gini coefficient reaches its highest value of 0.49 in 1993. It is remarkable that the distribution of primary income becomes more unequal in the years with low economic growth and high unemployment, 1987-1993 and become slightly more equal again from 1993 and until 2003 when growth starts again. After that, inequality in earnings have been rising slightly again. Finally, it should be mentioned that the imputed rent (not shown in figure 3) does not have an independent impact on the Gini coefficient before the 2000s where increasing house prices make the imputed rent to increase.

The next graph describes the development of the Gini coefficient of incomes after tax has been paid. This graph has the same overall shape as the Gini-coefficients of the income before tax and transfers, but has a shift in level in 1994 due to a reform after which all transfers became taxable. After tax, Gini coefficients are substantially lower than primary income and the progressive gap rise between them indicates a sustained increase of the redistribution through the tax system, since 1980.

The third Graph is the Gini coefficient of the income after transfer payments and before tax. This shows that the transfer system has an almost constant levelling impact until 2003. The Gini coefficient increases somewhat after 2003.

**Figure 3: Evolution of household income inequality in Denmark (the gini coefficient) – decomposition by source of income**

Note: All incomes include imputed rents; all categories have as base-line the primary income.

The fourth Graph shows the Gini coefficient of household income after tax and transfers. It is pretty constant and around 0.26 until the mid-1990s from where it starts climbing and reaches 0.29 in 2006. Including imputed rent does only have an impact in more recent years where it increases the Gini-coefficient to 0.31.

Our results are recapitulated in Table 1 for each kink point according to the Graphs in Figure 3. It is clear from the table that redistribution levels the primary income through tax and benefits with 15 to 23 percentage points every year with the result that the income after tax and redistribution has almost the same Gini-coefficient at least until 1993. Over time it has also worked as a significant levelling factor as it is found that the Gini coefficient of Primary income has increased with 7 percentage points from 1980 to 2006, while the income after redistribution has increased with only 4 percentage points.

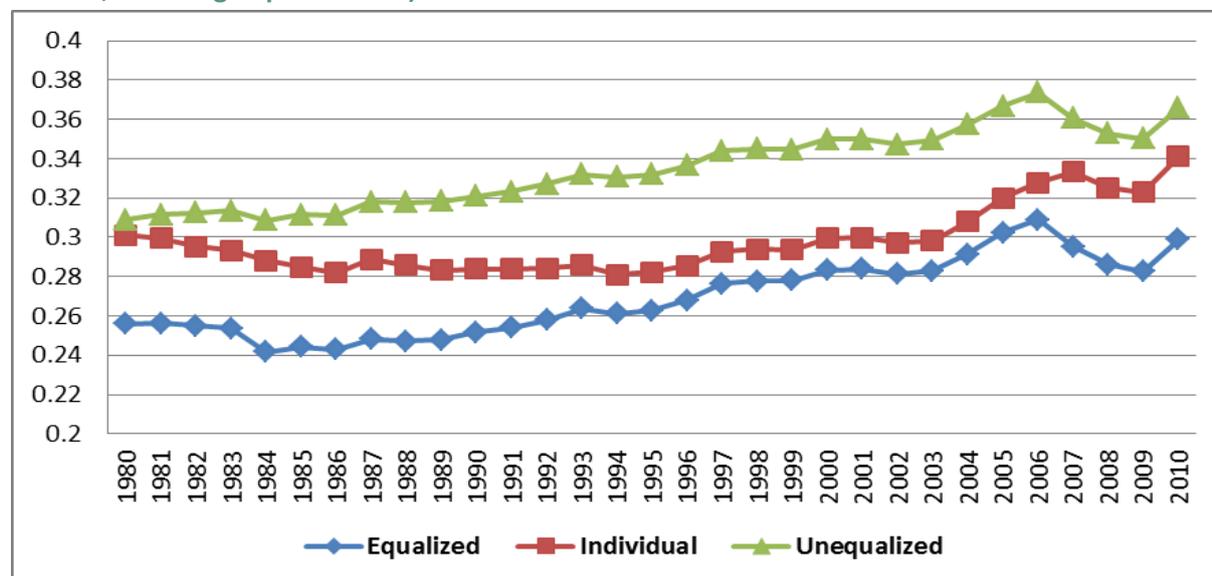
**Table 1: Summary of Gini coefficients of equalized household income, for specific years**

	1980	1986	1993	2000	2006	2009
Primary income	0.41	0.43	0.49	0.47	0.48	0.46
Income after redistribution	0.26	0.24	0.26	0.28	0.31	0.28
Redistribution effect	0.15	0.18	0.23	0.19	0.17	0.18

The gap between before and after redistribution is fairly constant over time (9.8 pp. in terms of Gini coefficient) indicating that redistribution has a very important role in reducing inequality in Denmark and in the same time showing that income distribution has been fairly constant over a long period of

time. The tax system itself does a very good job in increasing equality among Danish households, although in the later years, the gap between the two has decreased.

**Figure 4: Comparison between household and individual income-(Gini coefficient for disposable income, including imputed rents)**

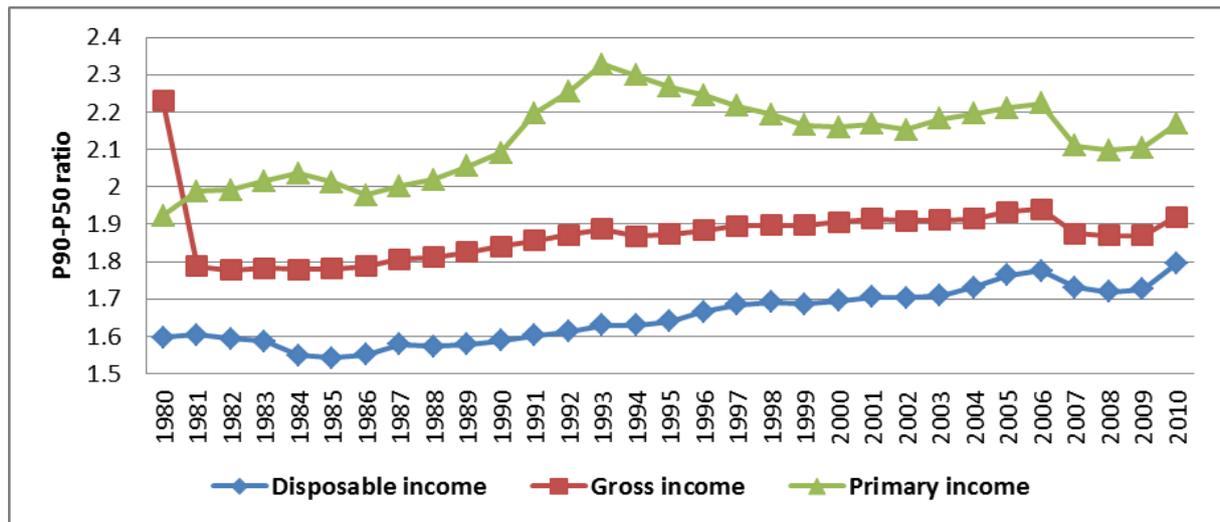


Moreover, the unit chosen for the analysis influences inequality. The previous graph describes the evolution of equalized household income but it is interesting to see how household size plays a role in shaping inequality.

Figure 4 shows the disposable income for individuals and households (equalized and non-equalized). It shows that equalization of income has a positive effect on inequality; on all types of income and that within households the inequality between individuals is reduced (if we compare the equalized household income to the individual income). Another interesting finding is that equalization of income (compensating for the size of the household) has a slightly larger role for the levelling of income in the end of the period compared to 1980. And finally, it is worth remarking that equalized household income inequality gets closer and closer to the inequality of individual incomes. Although the levels of inequality may differ according to the unit chosen, one thing remains the same for all of types of income – taxes and redistribution play a huge role in reducing inequality.

From the above, we have a clear impression that overall inequality has increased in Denmark in the past years. We will now investigate what has happened at the top and the bottom of the distribution.

Figure 5: The evolution of the top 90% of the income distribution (P90/P50 ratio)



The uppermost curve in Figure 5 shows that the highest 10% of the primary income is at least 2.22 times the median income in 2006. The maximum gap was recorded in 1993 (2.33). The lower curve shows the resulting difference after the tax and benefit system has leveled out the primary income. It is seen that the tax and transfer system actually smoothens out the primary income, in two steps- by lifting the median, through transfers and through the progressive income tax, the so-called top tax. The result is that the gap is reduced to 1.54 in 1985 and 1.77 in 2006.

Figure 6: Evolution of the bottom 10% of the population (the P10/P50 percentile ratio of equalized household income)

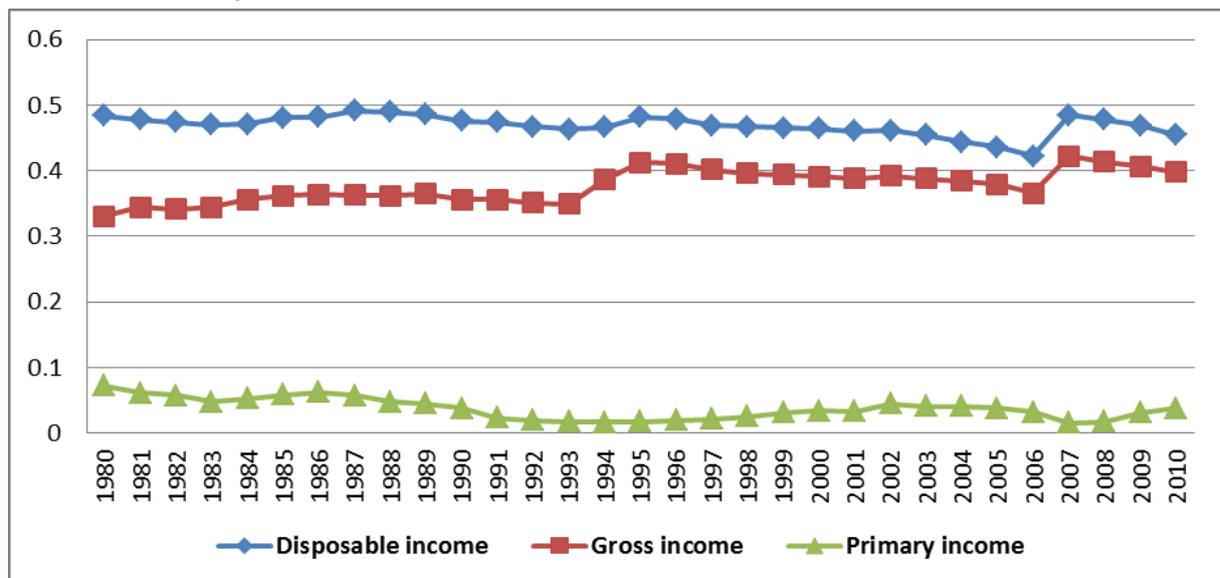
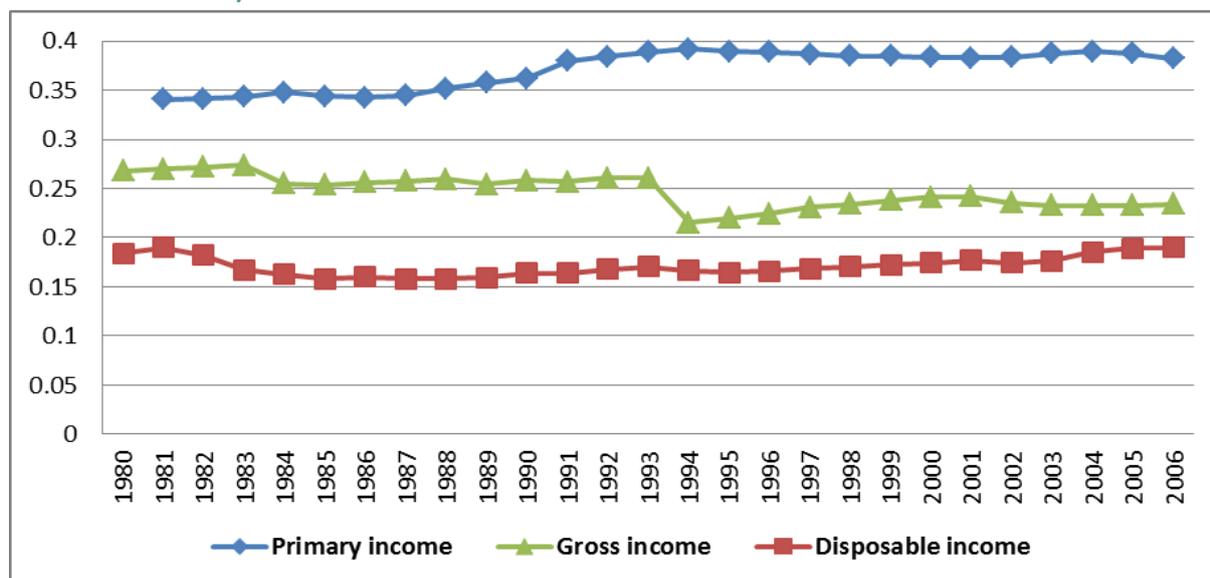


Figure 6 shows that the ratio between the lowest 10% of the population and the median income has decreased over time. First of all, the lowest 10-percentile income is around 0.02-0.04 of the median income before tax and transfers. Adjusting for tax and benefits has a dramatic effect on the differential, as it increases to about 0.46, meaning that the lowest 10% gets their income increased to half of the median income by redistribution. Secondly, it is seen that this the redistribution has become slightly less since the mid 1990's probably due to a lower CPI adjustment of transfers.

A more clear picture on the evolution of the poorest households in Denmark is given by Figure 7, which reports the poverty risk of households, with the threshold at 60% of the median equalized household income, using primary income, gross income and disposable income.

Figure 7 shows that 40% of the population earns less than 60% of the median primary income. When the tax system has worked on these incomes the poverty rate drops to about 24% and after redistribution it drops to 20% of the population. All rates are almost constant throughout the investigated period.

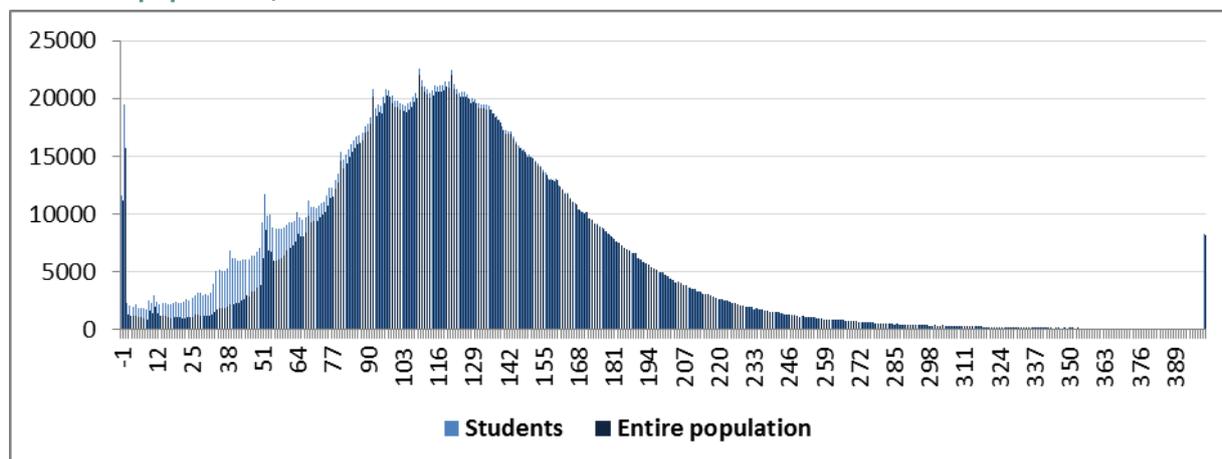
**Figure 7: Household risk of poverty – poverty line set at 60% of median income (equalized household income)**



Among the poorest people in Denmark we find not only persons with very low incomes, but also self-employed and students. A substantial number of students have paid jobs besides their studies. They are predominantly working for low wage and for short hours. The student grant system allows students to earn a well-specified amount of money before deductions are made in their grant. The shaded area in Figure 8 shows that the students are mostly in the lower end of the income distribution, therefore raising the overall inequality. A household has been taken out of the

distribution if one or both spouses are students. Thus, it may be that we eliminated a high-income household, where one spouse had a very big household income contribution and the other was a student.

**Figure 8: Distribution of disposable income (household equalized income) in 1990 in Denmark, for the entire population, with and without students**



This picture shows that students generate a part of the high household inequality and individual inequality in Denmark. The special thing about students is that they will soon join the labour force and will eventually move higher up on the income distribution. The same situation can be observed in 2006, where the students represent an even higher percentage of the total population.

To elucidate the influence of students and self-employed on income inequality, we present the Gini coefficient for household disposable income for the entire population<sup>3</sup>, with and without students and self-employed. Figure 9 shows that the “real” inequality level (when excluding students) is lower than the one for the entire population and even lower than the levels after excluding self-employed. Excluding students gives a sense of lifetime income inequality because the “student” status is temporary, unlike the rest of the labour force.

<sup>3</sup> Individuals over 15 years of age

Figure 9: Income inequality (the Gini coefficient for equalized household disposable income)

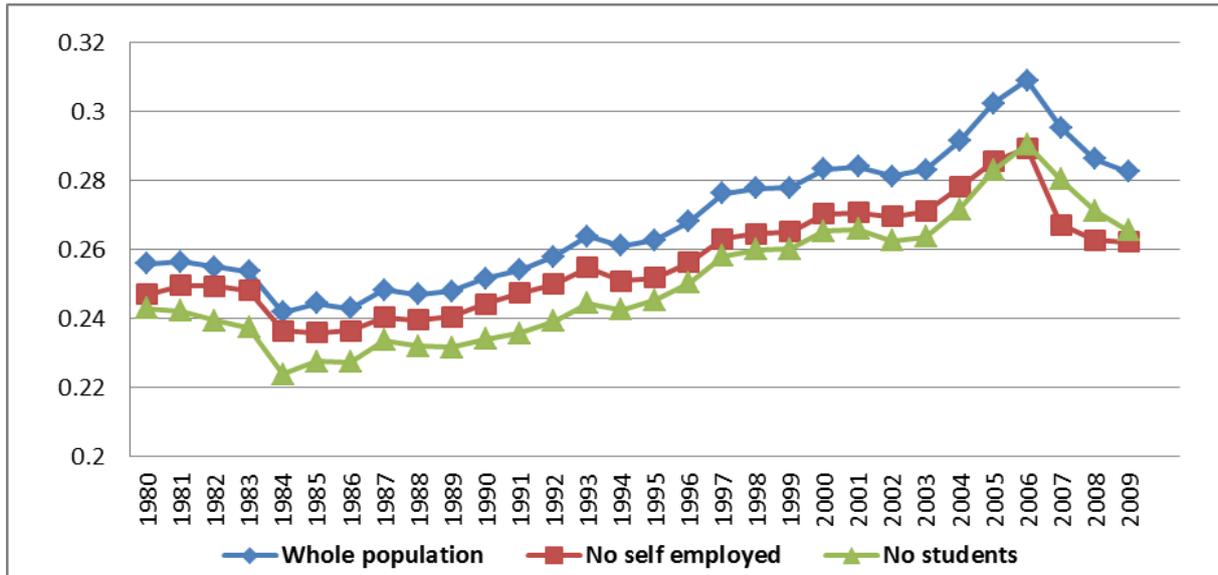
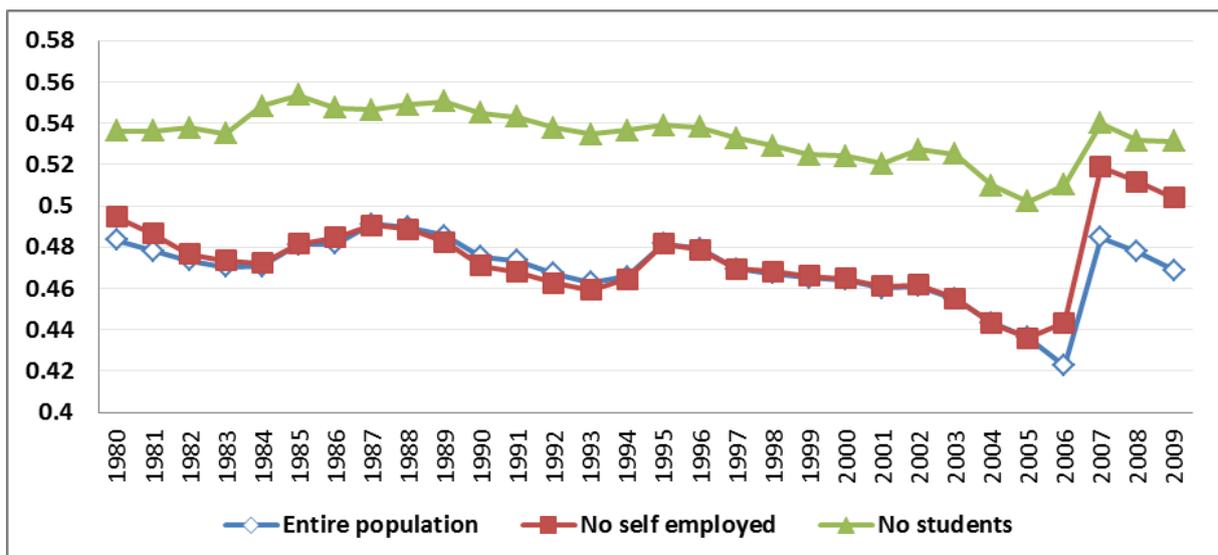


Figure 10: Household equalized disposable income, P10 to P50 ratio



The same conclusion is drawn when we analyse the percentile ratios P90 to P50 and P10 to P50. It must be mentioned though that, when analysing primary income, the inequality between non-students and the rest of the population remain as dramatic as in the case of disposable income.

### 2.2.2 Wealth and debt inequality

In this section we will briefly describe the data comes from Statistics Denmark and are based on information ownership of stocks, bonds and other values registered in the financial sector plus the value of houses and apartments. It does not include the value of cars, boats, campers, paintings or

similar. On the debt side the data includes all registered debt, which will be most of all debt. Gross wealth includes the assets and the net wealth is represented as assets minus debts.

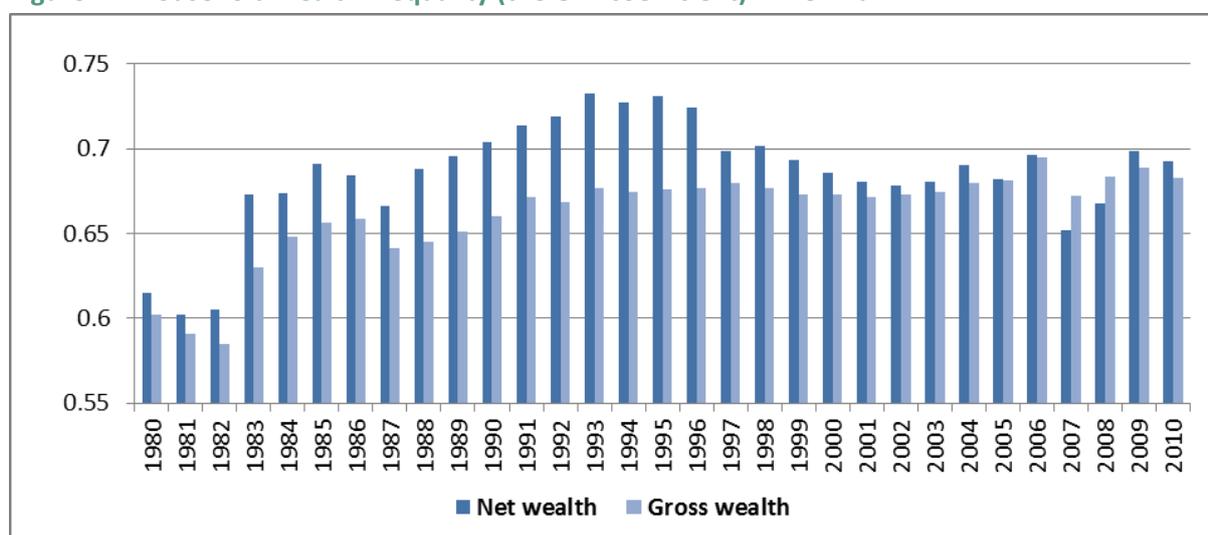
**Table 2: Descriptive statistics- gross and net wealth**

Household	1980	1990	2000	2006	2010	1980	1990	2000	2006	2010
	P90/P50					P10/P50				
<b>Gross Wealth</b>	3.12	4.73	4.75	5.07	4.42	0.02	0.01	0.01	0.01	0.01
<b>Net Wealth</b>	3.83	6.74	6.00	6.16	5.98	0.05	0.03	0.03	0.03	0.03
<b>Individual</b>										
<b>Gross Wealth</b>	3.66	13.36	7.77	5.91	6.15	0.02	0.02	0.02	0.01	0.01
<b>Net Wealth</b>	4.39	11.91	8.09	7.49	8.38	0.04	0.03	0.04	0.03	0.03
<b>Household</b>	Mean					Median				
<b>Gross Wealth</b>	902873	520198	768266	1160825	1161071	605375	248494	370098	528613	583535
<b>Net Wealth</b>	579840	420188	602862	916962	880648	332632	144707	238759	350532	343701
<b>Individual</b>										
<b>Gross Wealth</b>	824819	359348	515813	678451	582164	487055	74370	170309	260051	211740
<b>Net Wealth</b>	534960	292818	413485	621268	436723	275979	65397	130741	170223	124960

Note: Negative values dropped

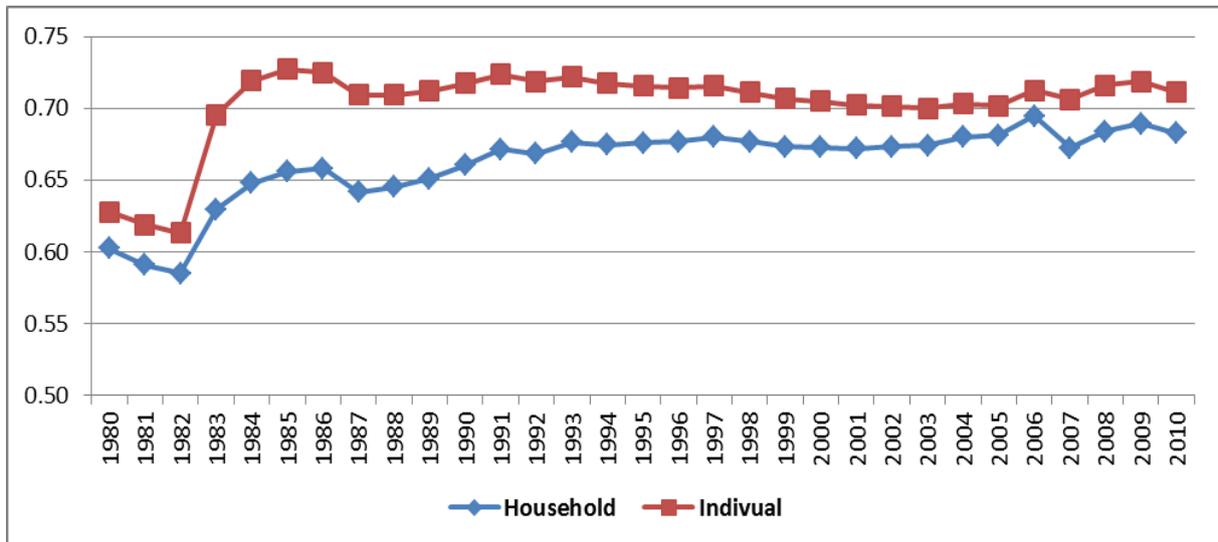
Figure 11 below describes the evolution of household gross and net wealth during the past 27 years. Wealth is not equalized by household size and it shows that after subtracting debt, the wealth inequality actually increases although it has a downward trend from 1995 to 2002 and a slight increase in 2006. The gross wealth inequality is almost constant after 1993, with an increase in 2006, when the Gini coefficient of net wealth is 0.69 and for gross wealth 0.66.

**Figure 11: Household wealth inequality (the Gini coefficient) in Denmark**



Comparing household inequality with individual inequality, we find that family formation reduces gross wealth inequality and, on average, also the net wealth inequality (from 0.70 to 0.69), indicating that family formation has a slight equalization role in the society.

**Figure 12: Gross wealth inequality, at household and individual level (Gini coefficient comparison)**



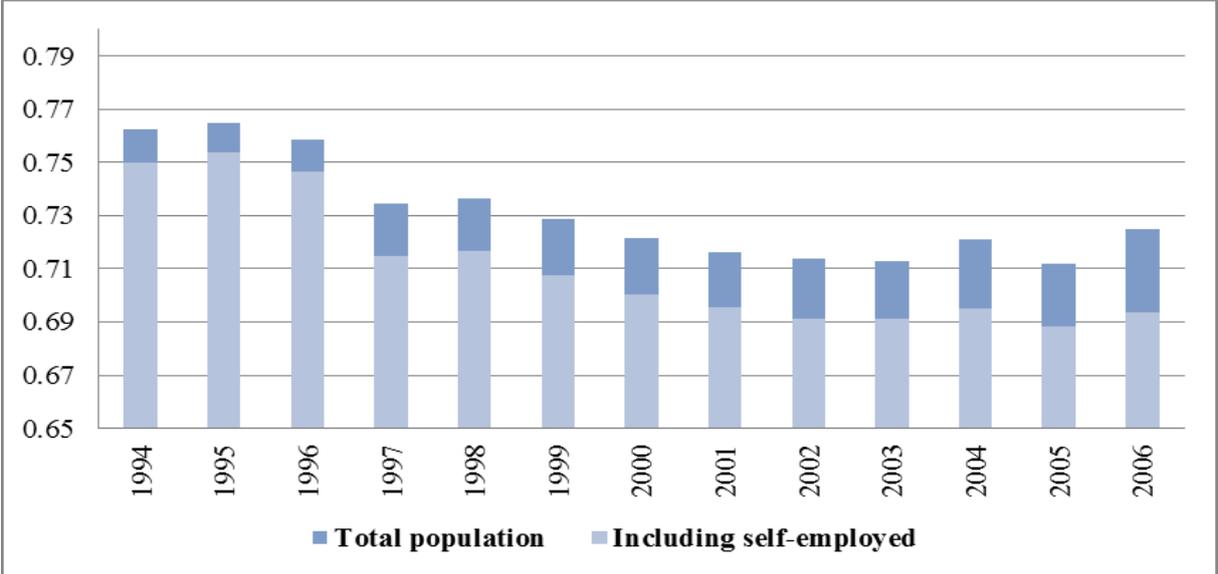
Moreover, we are investigating the factors that determine such a high individual inequality. Figures 13 and 14 depict wealth inequality for the entire population, with and without self-employed individuals.

**Figure 13: Individual wealth inequality before debt, for self-employed and the rest of the population**



It seems that the high inequality of wealth is due, to a high extend, to the wealth accumulated by the self-employed. Nevertheless, when the debt is also included, the inequality is reduced, as shown in Figure 14.

**Figure 14: Individual wealth inequality after debt, for self-employed and the rest of the population.**



Age is also an important characteristic that shapes wealth. Table 3 shows the most important statistics of net and gross wealth, by age groups. The 20 to 30 years old group is the most unequal, followed by group of people over 65. The most interesting result is that, while the youngest group has the lowest medians, the inequality here is high, indicating that most young are not wealthy. The opposite happens in the last age group, where inequality is very high but most individual are indeed, very wealthy.

**Table 3: Summary statistics of individual wealth, by age groups**

	2006	2007	2008	2009	2010	1980	1990	2000	2006	2010
<b>Gross wealth</b>	<b>P90P50</b>					<b>P10P50</b>				
<b>Age 20-30</b>	35.41	42.64	45.93	38.18	36.88	0.08	0.08	0.08	0.10	0.11
<b>Age 30-56</b>	3.33	3.30	3.29	3.01	3.00	0.01	0.01	0.01	0.01	0.01
<b>Age over 56</b>	4.40	4.38	4.31	3.86	3.74	0.02	0.01	0.01	0.02	0.02
<b>Net wealth</b>										
<b>20-30</b>	8.57	9.15	9.45	8.52	8.38	0.09	0.08	0.09	0.10	0.10
<b>30-56</b>	4.75	4.08	4.27	4.93	4.93	0.05	0.05	0.05	0.05	0.05
<b>Age over 56</b>	4.69	4.40	4.43	4.42	4.33	0.03	0.03	0.03	0.04	0.04
<b>Gross wealth</b>	<b>Gini coefficient</b>					<b>Median</b>				
<b>20-30</b>	0.79	0.80	0.81	0.81	0.81	18774	18044	14745	13604	12679
<b>30-56</b>	0.65	0.64	0.65	0.65	0.64	465285	557609	521236	452375	432722
<b>Age over 56</b>	0.67	0.66	0.66	0.66	0.65	503884	588171	557946	512253	503794
<b>Net wealth</b>										
<b>20-30</b>	0.77	0.76	0.77	0.79	0.77	33229	37583	29129	21092	19044
<b>30-56</b>	0.67	0.62	0.65	0.69	0.67	236637	325220	290838	201256	187399
<b>Age over 56</b>	0.66	0.64	0.64	0.65	0.64	413755	514468	475863	384583	369770

Note: The results exclude the negative values. Including them results in higher Gini coefficients and P ratios and lower median values.

### 2.2.3 Labour market inequality

The earnings registered by households on the labour market represent a very big component and no doubt the most important component of income. In this section we will look at both household earnings but also individual earnings, trying to see how they contribute to income inequality. The group of interest here is the labour force.

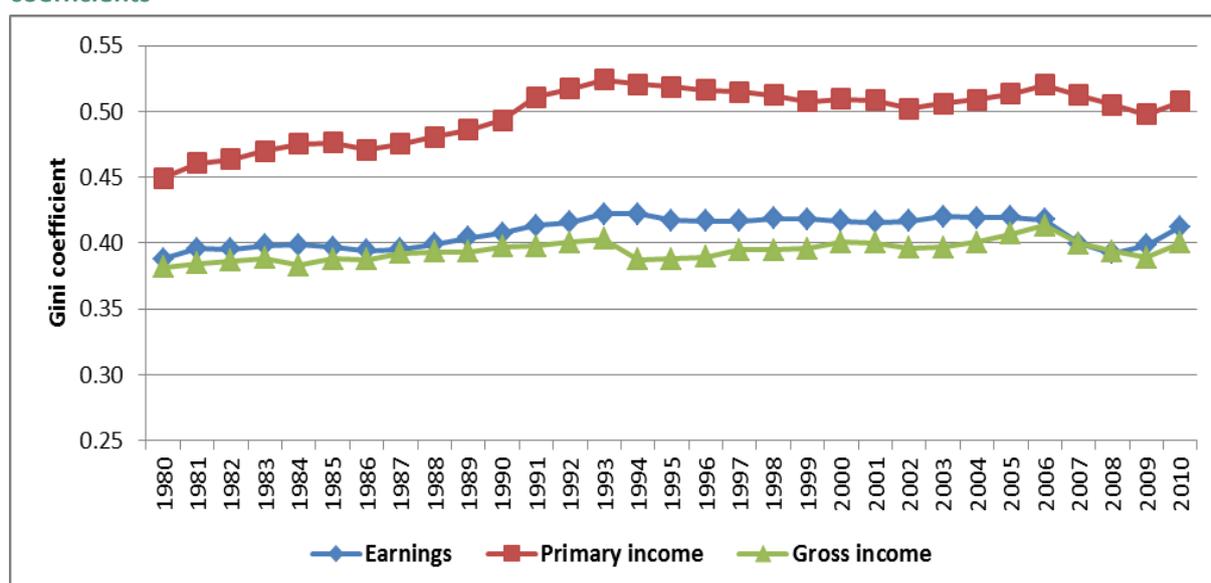
The summary statistics of means and medians show an increase over time in terms of average earnings and income over time and also reduction of the gap between the poorest and the average household and the richest and the average household in terms of gross income. Unfortunately, in terms of primary income and earnings, the gap between the richest and the middle class continued to rise, over the past 30 years, indicating an increase in earnings inequality.

**Table 4: Summary statistics of unequalized household income and earnings inequality, for specific years**

	1980	1990	2000	2006	2010	1980	1990	2000	2006	2010
<b>Household</b>	<b>P90P50</b>					<b>P10P50</b>				
<b>Earnings</b>	2.10	2.26	2.30	2.31	2.32	0.15	0.13	0.11	0.12	0.13
<b>Primary income</b>	2.26	2.57	2.67	2.75	2.74	0.06	0.03	0.03	0.03	0.03
<b>Gross income</b>	2.13	2.31	2.36	2.41	2.45	0.27	0.30	0.32	0.31	0.35
<b>Household</b>	<b>Mean</b>					<b>Median</b>				
<b>Earnings</b>	251687	270053	304818	325527	364694	228311	234663	261214	276880	304623
<b>Primary income</b>	293559	313113	353279	388291	368848	256167	256107	281035	298713	286712
<b>Gross income</b>	321847	360400	411770	452621	426442	275338	291306	325504	351310	334080

In the following of this chapter, we analyse the evolution of the most important indicators of inequality.

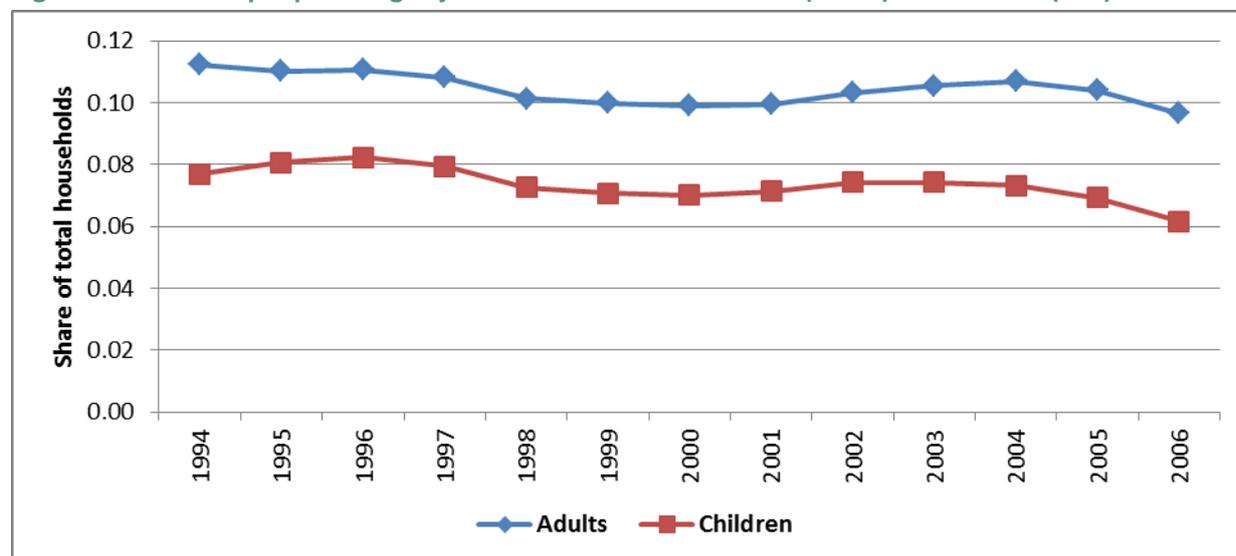
Figure 15 shows the income and earnings household inequality, through the Gini coefficient. It can be seen that household earnings inequality is actually less than the inequality of primary income, because other sources of income such as profit and imputed rent are less equally distributed—especially at the top of the distribution.

**Figure 15: Household (unequalized) income and earnings inequality, comparison of Gini coefficients**

The unemployed households represent another source of inequality, at the bottom of the distribution. The percentage of people living in jobless households is presented in Figure 16.

The share of people living in jobless households is around 10% and has been slightly decreasing over the period 1994 to 2006 probably as a consequence of a labour market policy that has been increasingly focused on shortening the spell length of unemployment.

**Figure 16: Share of people living in jobless households for adults (18-59) and children(<18)**



More importantly, the share of children in jobless households has also diminished. In 1996 almost 9% of all children grew up in jobless households while the share has fallen to 6% in 2006. There have been fluctuations clearly related to the business cycles, so that the fraction of people and children living in jobless households has gone up with a few percentage points when unemployment has been increasing and it has gone down in years where unemployment has been decreasing.

We will now look more closely at the earnings of men and women. We will begin with the statistics for mean and median values for male and female earnings. Table 5 shows that, on average, women still earn less than men although the gap is smaller for recent years and it also shows that the gap between the richest and poorest is lower for women than for men.

**Table 5: Summary statistics for individual earnings, for specific years**

Earnings	1980	1990	2000	2006	2010	1980	1990	2000	2006	2010
	P90P50					P10P50				
<b>Individuals</b>	1.83	1.73	1.72	1.72	1.75	0.11	0.11	0.09	0.09	0.07
<b>Men</b>	1.64	1.70	1.73	1.73	1.82	0.11	0.10	0.09	0.08	0.07
<b>Women</b>	1.89	1.66	1.60	1.62	1.62	0.13	0.11	0.10	0.09	0.08
	Mean					Median				
<b>Individuals</b>	171039	184151	208237	222604	232344	168177	188716	211919	225801	233309
<b>Men</b>	206445	215060	239355	252476	262085	215452	221019	241411	253959	255726
<b>Women</b>	129136	149998	174451	190775	205574	124899	157450	187549	202623	218101

Despite the development in median incomes, men and women have experienced quite different developments with respect earnings equality.

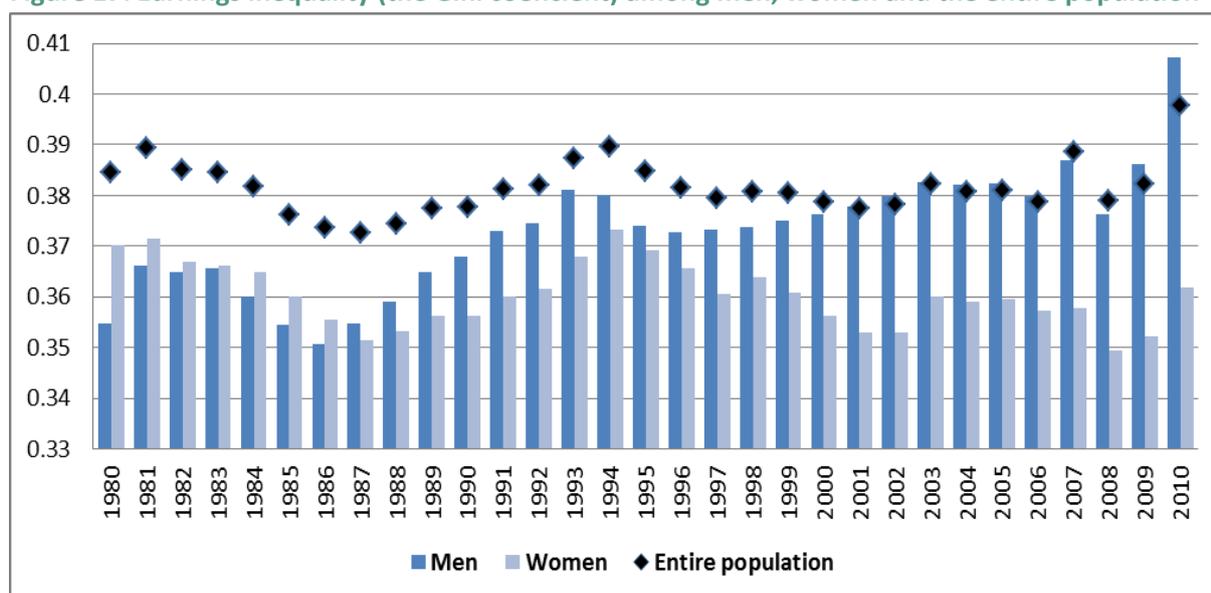
**Figure 17: Earnings inequality (the Gini coefficient) among men, women and the entire population**

Figure 17 shows that labour market inequality had a cyclical evolution in the period investigated with two maximum points, one in the beginning of the 80's and one in the beginning of the 90's. It is remarkable that inequality among men and women is anti-cyclical until the start of the upswing in the economy around 1995. From then on inequality among men has increased while inequality among women has gone down.

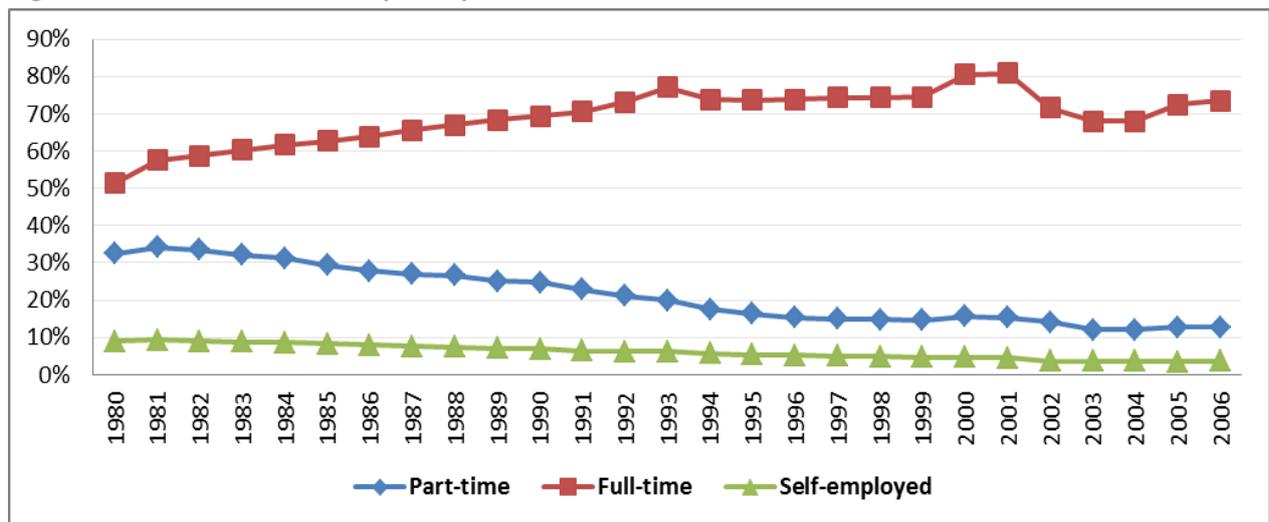
The rapid decrease in women inequality could be influenced, on one hand by a change from part-time to full-time participation of women. Figure 18 show that full-time participation increases until

1992 which probably contributes to the equalization of earnings distribution among women. On the other hand business cycles still have an influence. After 1992 the share working full-time does not change very much. Nevertheless, female earnings distribution continues to become more equal. The reason is undoubtedly that more and more women get further education and that means that low educated and low waged women retiring from the labour force are replaced by higher educated who earns relatively more.

While in 1980 a little over 50% of women were working, after 2000 almost 80% of the women were working full-time jobs. If we exclude the share of working students, the shares of full-time employed women increases by 3.3%points and a decrease of 3.7%for part-time women.

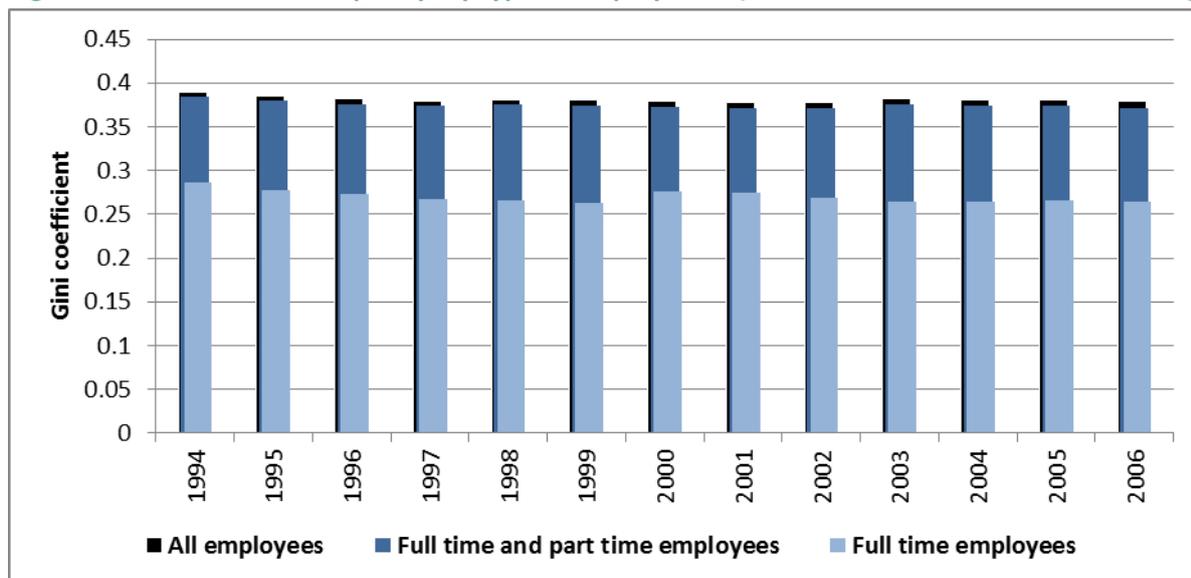
The situation of men on the labour market is different. The share of men working full-time jobs has decreased, on average, with 0.7%, between 1980 and 2006 while the share of men working in part-time jobs has decreased, on average, with 0.13% and the share of self-employed increased with 0.3% (see Appendix).

**Figure 18: Evolution of female participation on the labour market**



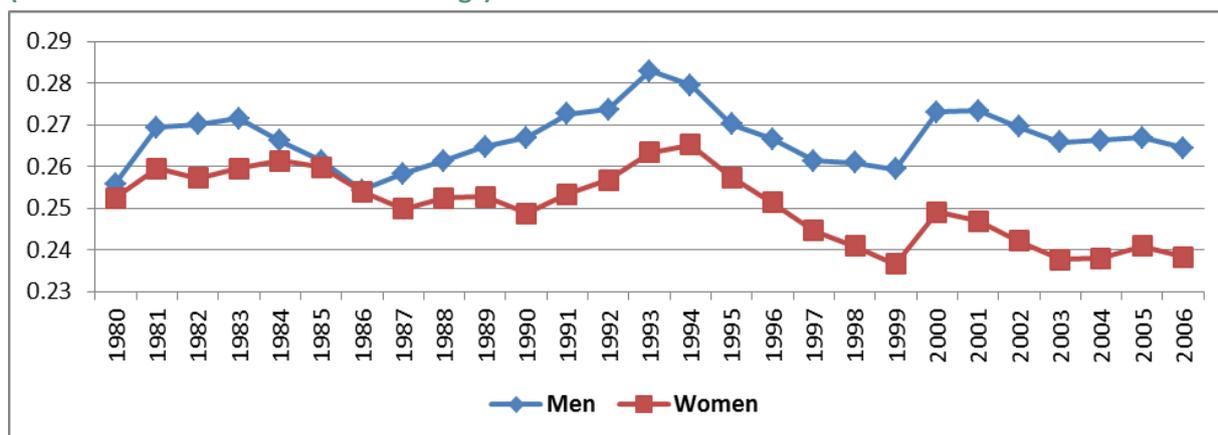
The next question is how does the number of hours worked affect the inequality in Denmark. Figure 19 plots the Gini coefficient for all the employees against the full-time workers and part-time workers and shows that earnings inequality is highly influenced by the type of employment people have. The wage inequality of full-time workers is certainly lower than the wage inequality of full-time and part-time employees with 10 percentage points. Also, this figure shows that earnings inequality is influenced very little by self-employed people (only 1 percentage points). Thus, differences in working hours have a large impact on the earning equality.

Figure 19: Labor market inequality, by type of employment (Gini coefficient for individual earnings)



Zooming-in into the inequality of earnings between full-time employees, we notice the same trend as in Figure 20, namely an increase in inequality among men and a decrease among women. The gap between genders started to expand in 1987 (after the change in the Equal Pay Act in 1986) and, although they follow the same trend thereafter, the gap continues to widen. This gap can be explained by the job structure where almost 50% of women are employed in the public sector<sup>4</sup> in education, health and social work, which can also contribute to a more equalized wage among women<sup>5</sup>.

Figure 20: Evolution of labour market inequality between full-time employed men and women (Gini coefficient for individual earnings).



<sup>4</sup> Grunow and Leth-Sørensen, 2004

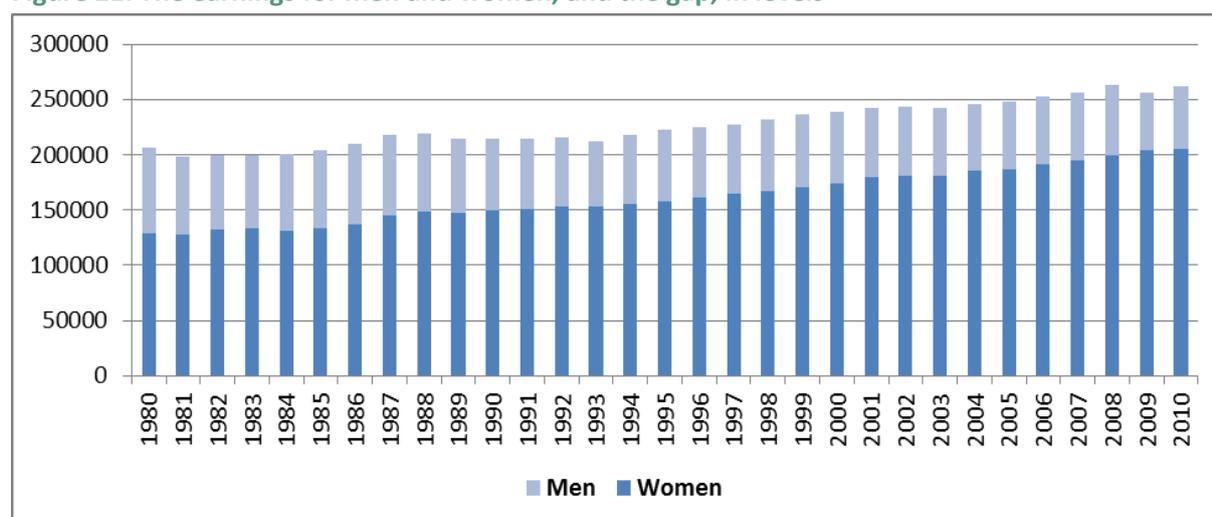
<sup>5</sup> Roseberry, 2002

Other contributing factors are the possibility of extended maternity leave, which could lead to an increased likelihood of temporary exits from the labour market in favour of child caring and thus, slowing the career path, and thus increasing equality among women. The likelihood of exiting the labour market for women has increased in the 1990's compared to the 1980's to a large extent due to the long maternity leave programs introduced in 1995 and running with various changes until around 2000. The changes in the Gini coefficient in Figure 20 seem to reflect this.

Both at the high and low end of the earnings' distribution we register a gap in wages between men and women and this is significant for the high end of the distribution, reinforcing the wage inequality gap between genders, by showing that the highest wage earners among women are not very high compared to the average.

The wage gap between men and women represents a source of inequality among individuals and several laws have been passed by legislators to lower this gap. Figure 21 shows the evolution of women's earnings, compared to men. If in 1980, women were earning, on average, little above 50% of the men's average wage, in 2005, they earn over 70% of the men's wage, which represents a gap reduction of 20 pp. Also, the gap between wages of full-time employees is reduced considerably, with 0.4 pp. There were two major changes in legislation. First the Equal Pay Act, in 1986, which reduced the gap consistently in the years that followed and then again in 2001, where the law against wage and gender discrimination was passed. Both seem to have an effect on the gap between genders and therefore, inequality in general but it is remarkable that the effect seems to happen before the acts were passed by Parliament.

**Figure 21: The earnings for men and women, and the gap, in levels**



Note: The wage for men is represented by the grey and black area, The grey area illustrates the gap between the wages of men and women.

#### 2.2.4 Educational attainments

Education is compulsory for children until 9<sup>th</sup> grade in Denmark, but most pupils continue in 10<sup>th</sup> grade or go straight to gymnasiums. The age of children when they complete 9<sup>th</sup> grade is usually 15 years due to a relatively late school start as 7 years old. The upper secondary education starts after the completion of the full-time mandatory education (9<sup>th</sup> grade) or after 10<sup>th</sup> grade and includes gymnasium that qualifies for higher education or vocational courses that qualifies students for entering the labour market. The education in Denmark is free of charge not only for Danish citizens but also for EU citizens and foreign citizens that have equal status. The Danish government offers financial support for all Danish citizens over the age of 18 to continue their studies, conditioned on passing all the examinations. The rule is extended also to foreign citizens who qualify for equal status.

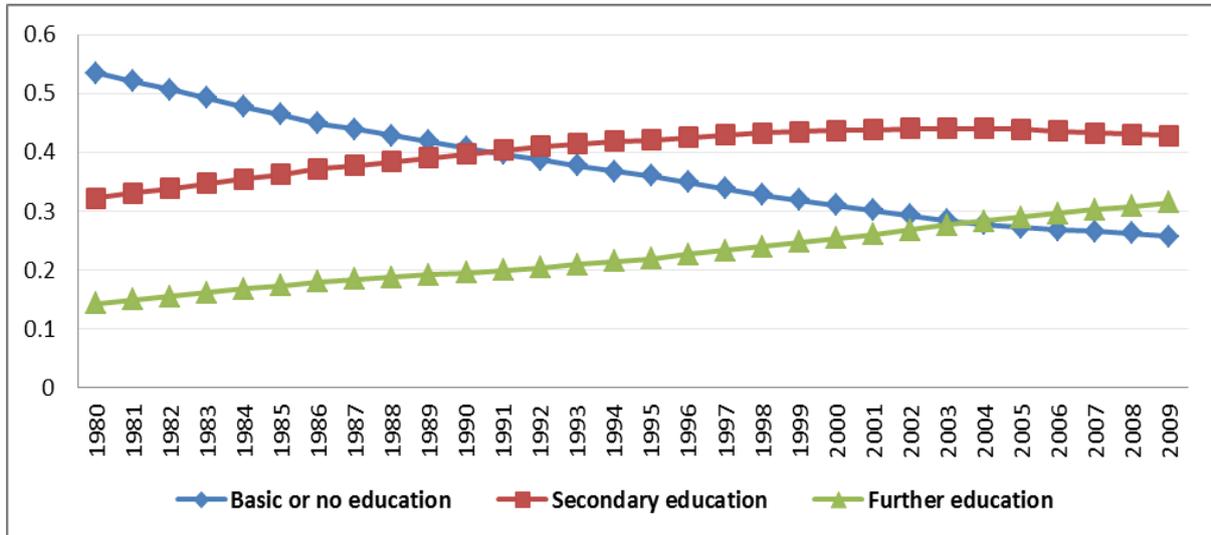
The Danish education system is dominated by a large apprentice system, which is organized much like in Germany, Austria and Switzerland with a so called dual training system where the apprentice works for a master for a relatively low payment and goes to (technical) school in-between. An apprentice training takes 3.0-4.5 years and can only start after mandatory school has been completed. The apprentice training is organized by the Ministry of Education in cooperation with Trade Unions and Employers Federations, which is another example of the cooperation, which is part of the so called Danish model. The apprentice training is undoubtedly one of the decisive factors keeping youth unemployment down in Denmark as it is in the other “apprentice countries”.

At the same time Denmark has a relatively modest proportion of highly educated people. Thus, 30% have gone through further (tertiary) education in Denmark as described in Figure 22. This is lower than in many other countries without a large apprentice system.

The main reason for the low share of people with tertiary educations is that the apprentice system is “crowding out” part of further education. The explanation may be that it is too complicated for those who have completed an apprentice training to build extra years of education on top of their apprentice training. The same pattern is seen in the other big apprentice countries Germany, Austria and Switzerland. Another reason is that the average return to one extra year of education is among the lowest within the OECD area with about 6% in 2003. A couple of years earlier, the return was even lower with The Netherlands and the rest of Scandinavia in the same league, (Harmon et al, 2001). The third group of workers consists of those who do not have any formal vocational training after their basic schooling (23%). Many of those, however, also have some sort of training, but compared to the apprentices their skills are more firm specific and less general. The skilled workers (with apprentice training) are clearly those on the manual labour market with the best jobs, highest

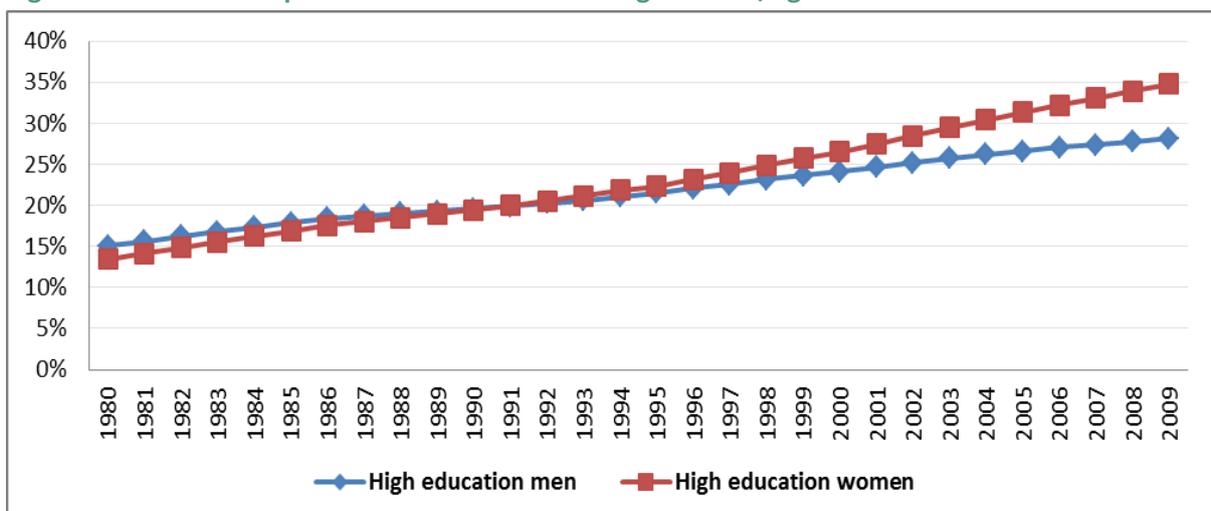
wages and lowest unemployment risks etc. Though the difference in income for different educational groups is small, the type of work, the working conditions, and expected work-life are all lower for the less educated.

**Figure 22: Evolution of education rates, by type of completed education, population aged 25-65 years old**



The share of people who finished upper secondary or higher education is 73.01% in 2006, and this does not include the ones currently following these courses. Figure 23 shows an upward trend in the share of highly educated people, indicating that more and more Danes get university degrees. The number has tripled compared to 1981.

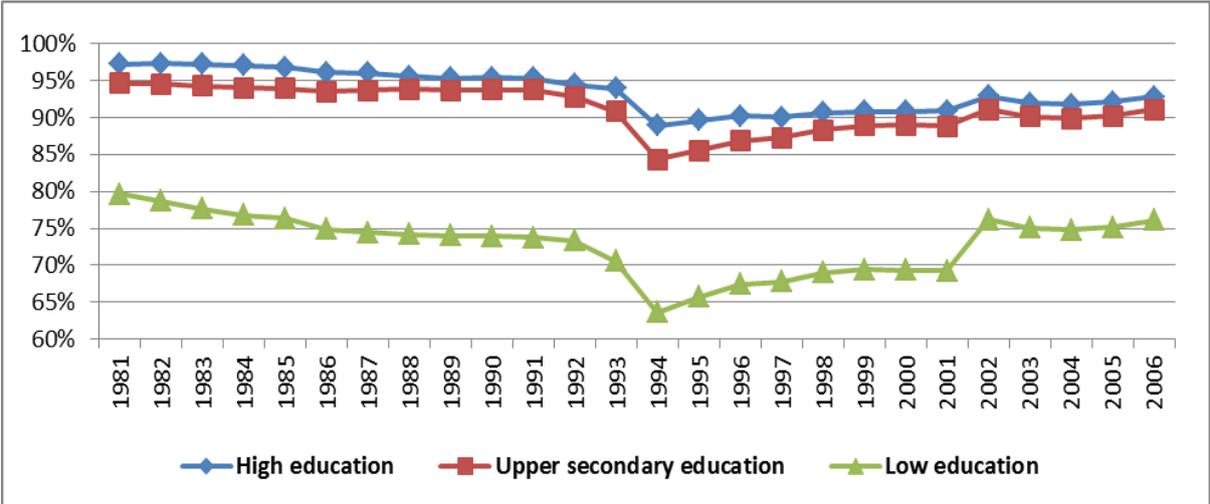
**Figure 23: Gender composition of further educated graduates, age 25-65**



In the case of further educated graduates, the gender composition has shifted, from being dominated by men (1980's-mid-1990's) to being dominated by women (mid-90's onwards).

One thing is that more young women and men receive more further education. Another is to what extent this education leads to a job. The following figure shows the employment level of the different degrees of education. Figure 24 presents the share of employed individuals, by levels of education.

**Figure 24: Evolution of employment, according to different levels of education.**



Note: Data methodology changed in 2002.

Due to a change in data, the variable accounting the labour market status of individuals in Denmark has changed, making the levels before and after 1994 incompatible. Nevertheless, the aim of this paper is to show trends and Figure 24 shows that, before 1994 there was a slightly falling trend among all professions probably due to the bad employment situation 1987-1993. This tendency is turned around in 1994 and the employment of all educational groups picks up again. The pick-up in 2002 can be attributed to a slight change in the measurement of the labour market participation variable.

**2.3 Whom has it affected?**

In the first parts of this chapter we have looked at the overall development in the distribution of incomes in Denmark. In this chapter we will take the analysis a step further by looking at the development of the household and/or individual income distribution with respect to age groups, ethnicity, education, regions and employment.

### 2.3.1 Age groups

It is well known from Human Capital studies that income grows with age to a certain point simply because experience together with the level of education are the main drivers of income.

Table 6 shows that inequality is highest for the youngest and older individuals of the population. These groups have the highest gaps between the richest and the poorest, as illustrated by the P ratios.

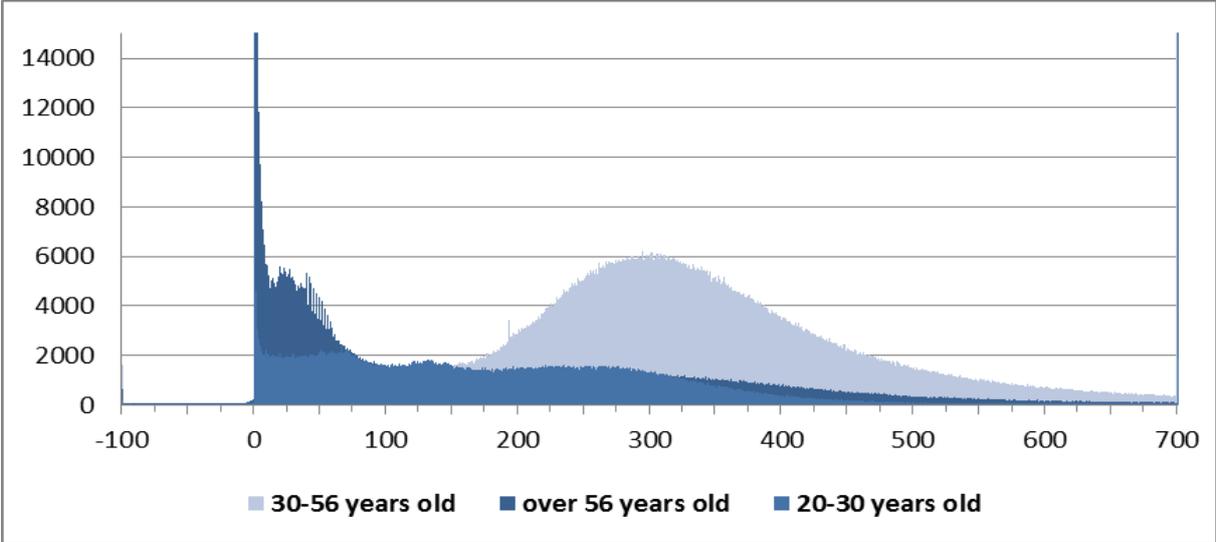
The development in median incomes before tax and transfers and after taxes and transfers as well as the Gini coefficients are illustrated in the following. These earned incomes are, however, influenced by taxes and transfers, where the young and the oldest are getting the highest transfers while the 30-56 year olds are paying the highest taxes. The Gini coefficients for primary income (shown in the appendix) are almost constant among the same age groups. The only age group changing position during the observation period is the 20-30 years old. They appear to become more unequal over time. The result of the redistribution is that the median income of the 30-56 group is lowered substantially due to taxation.

**Table 6: Summary statistics-household primary income, by age groups**

Primary income	1980	1990	2000	2006	1980	1990	2000	2006
	P90P50				P10-P50			
Age 15-20	3.82	4.24	4.38	4.39	0.07	0.04	0.05	0.02
Age 20-30	1.64	1.83	2.02	2.20	0.23	0.06	0.10	0.08
Age 30-56	1.84	1.82	1.78	1.77	0.26	0.13	0.14	0.18
Age over 56	4.07	5.93	8.97	6.56	0.02	0.00	0.00	0.00
	Gini				Median			
Age 15-20	0.54	0.56	0.56	0.57	28846	21478	18727	18405
Age 20-30	0.32	0.40	0.41	0.43	164515	154211	148322	139966
Age 30-56	0.36	0.37	0.36	0.36	208463	227965	254265	277002
Age over 56	0.61	0.65	0.70	0.66	74820	51916	37602	60129

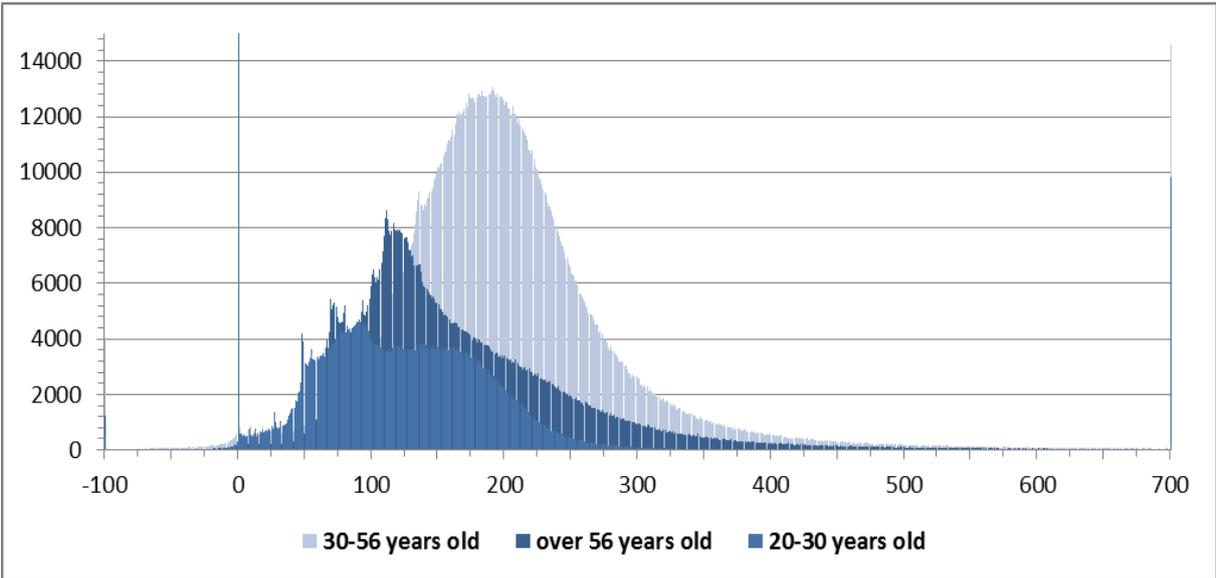
This means that this group is elevated to a higher median income after tax and transfers than the group of 20-30 years old. The Graphs in Figure 25 shows the distributions of the primary income before taxes and transfers. Direct inspection of the distributions tells us that the mid age group has an almost symmetric distribution around the median income.

Figure 25: The primary earnings distributions for age groups in 2006



The distribution for the 20-30 years old is much more influenced by the many that do not have a high income because many of them have a student status. Furthermore, the oldest age group has many with very low or even nil earnings because of status as retired. When we change to after tax and after transfers, the picture changes dramatically. Now each distribution looks more symmetrical around their respective median incomes. The distribution curve for the oldest and the youngest show clearly that a number of these groups are dependent on transfer income. Figure 26 also shows that young individuals (less than 30 years old) have the lowest median income from the entire population, but move to a new, higher median income as they grow older and reduce their incomes again after the age of 56.

Figure 26: After tax and transfer income distributions for age groups in 2006



When we look at the income after taxes and transfers, in Table 7, the picture changes somewhat, as expected. The Gini-coefficients are substantially reduced but nothing happens with the relative size, and nothing is added to the previous picture.

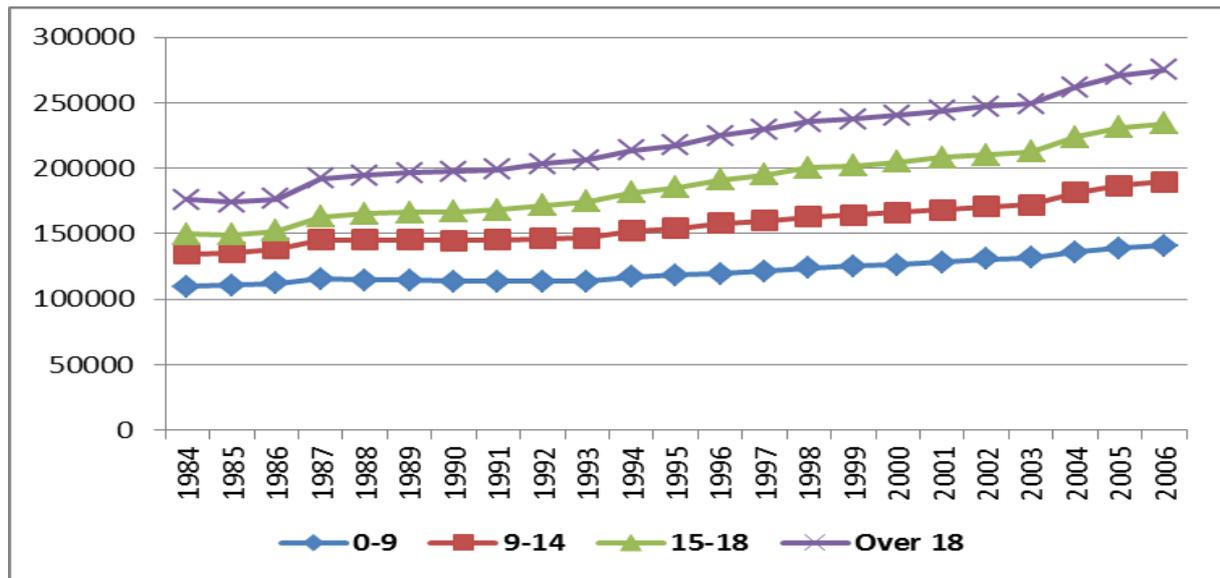
**Table 7: Summary statistics of disposable income, by age groups.**

Disposable income	1980	1990	2000	2006	1980	1990	2000	2006
	<b>P90-P50 ratio</b>				<b>P10-P50 ratio</b>			
15-20	2.68	2.73	2.90	3.11	0.08	0.07	0.11	0.08
20-30	1.38	1.39	1.55	1.66	0.49	0.48	0.45	0.44
30-56	1.51	1.47	1.51	1.54	0.48	0.59	0.61	0.59
Over 56	2.04	1.78	1.90	1.94	0.55	0.55	0.57	0.55
	<b>Gini coefficient</b>				<b>Median</b>			
15-20	0.47	0.47	0.47	0.48	31140	24455	21877	21622
20-30	0.21	0.21	0.25	0.27	107068	106639	108123	111052
30-56	0.25	0.22	0.23	0.25	118079	128138	151080	174531
Over 56	0.32	0.28	0.30	0.33	81137	96179	110308	132227

### 2.3.2 Educational groups

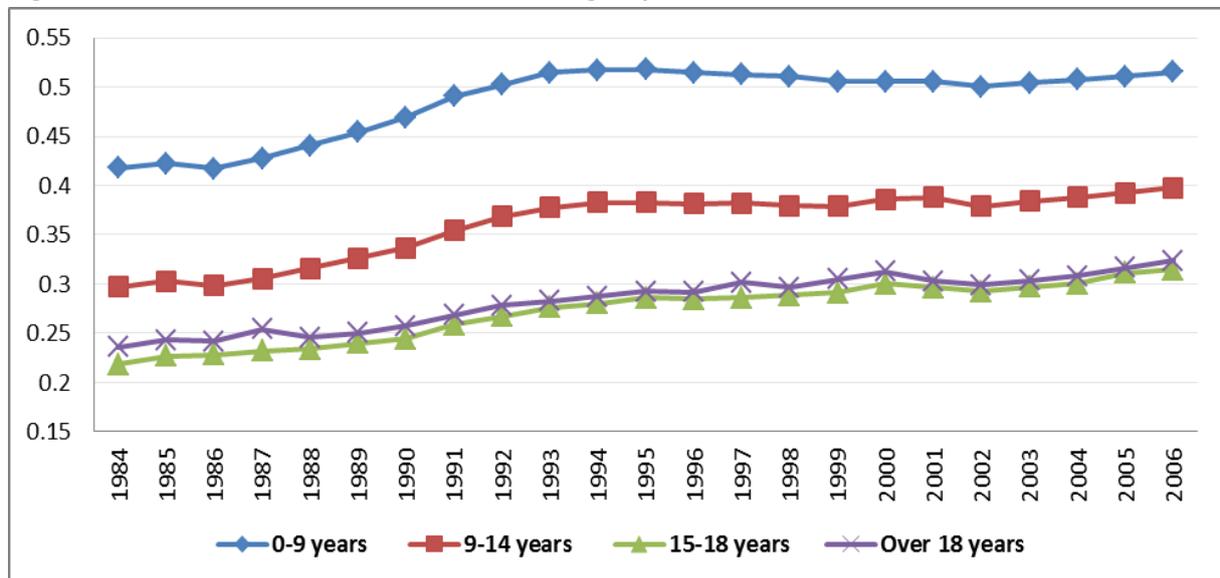
In this section we will take a brief look at educational dimension of inequality. The interesting dimension is not so much to prove that education creates inequality as to show if this changes over time. Just to illustrate this point, we report the median incomes after tax and transfers for the usual education groups, basic 9 years, gymnasium and apprentice 10-12 years, short further education 9-14 years, master 15-18 and finally PhD and doctors 18+ years of education.

Figure 27: Household disposable income by number of years of education



The similar curve for primary incomes before the redistributive system sets in look like it, though all amounts are higher. The ranking is completely as expected from a Human Capital model with the longest educations earning most.

Figure 28: The Gini coefficients for educational groups before tax and transfers



The largest differences are found for the least educated and the smallest differences are found for the most educated, suggesting that the further educated have the opportunity of working in jobs with high but more equal wages while the least educated have a higher spread of earnings

### 2.3.3 Ethnicity

In this section we present a short summary statistics of the same inequality measures in an attempt to shade some light on the differences in incomes between nationals and foreigners in Denmark.

Tables 8 and 9 show the primary and disposable income for Danish, foreign and mixed families and indicate the high equalization effect of taxes and transfers, not only for the Danish families but also for the foreign ones. The gap between inequalities within each group, but also between ethnic groups is reduced through redistribution.

**Table 8: Summary statistics for household primary income, by household ethnicity**

Primary income	1980	1990	2000	2006	2009	1980	1990	2000	2006	2009
	<b>P90P50</b>					<b>P10P50</b>				
Danish family	1.92	2.06	2.11	2.16	2.02	0.07	0.04	0.04	0.04	0.05
Foreign family	2.48	4.36	3.85	3.29	2.78	0.03	0.00	0.00	0.00	0.00
Mixed family	1.86	2.02	2.14	2.13	2.02	0.24	0.13	0.12	0.12	0.13
	<b>Gini coefficient</b>					<b>Median</b>				
Danish family	0.41	0.45	0.47	0.48	0.44	166625	180719	202392	216938	239137
Foreign family	0.50	0.62	0.59	0.56	0.53	113206	62270	73019	93427	1193181
Mixed family	0.37	0.41	0.43	0.44	0.41	206612	223335	220991	234345	252139

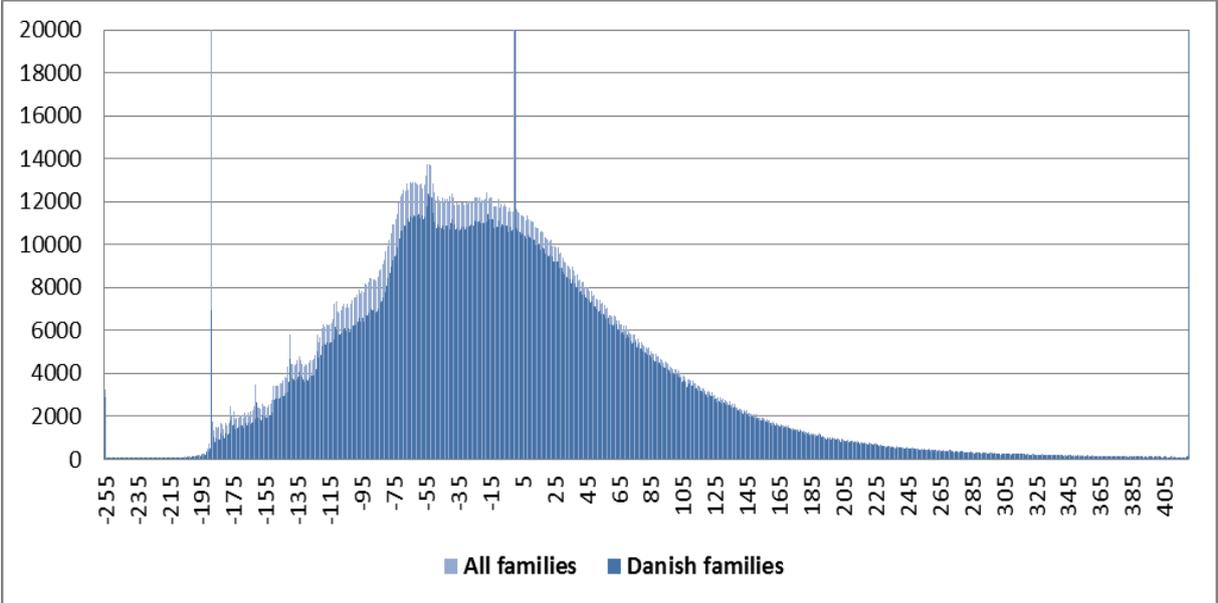
**Table 9: Summary statistics for household disposable income, by household ethnicity**

Disposable income	1980	1990	2000	2006	2009	1980	1990	2000	2006	2009
	<b>P90P50</b>					<b>P10P50</b>				
Danish family	1.59	1.58	1.68	1.75	1.69	0.49	0.48	0.47	0.45	0.51
Foreign family	1.76	1.63	1.70	1.80	1.81	0.38	0.39	0.36	0.31	0.35
Mixed family	1.59	1.60	1.71	1.76	1.69	0.55	0.55	0.45	0.36	0.41
	<b>Gini coefficient</b>					<b>Median</b>				
Danish family	0.25	0.25	0.28	0.30	0.27	106874	119786	140813	160291	172070
Foreign family	0.31	0.29	0.30	0.33	0.32	90249	92238	97476	106193	116305
Mixed family	0.24	0.24	0.29	0.32	0.29	123207	138294	154291	172668	181453

As for the entire population, the inequality between Danish households has increased in the past 30 years, with the richest moving further away from the average, while the median income is increasing and the poorest are moving further away from it. The opposite can be said for the foreign household,

which, after an increase in inequality in the '90s are on an downward trend now, as seen in Figure 29. As expected, there is quite a big gap between a typical Danish family and a foreign family.

**Figure 29: Disposable income distribution of foreign and Danish families in 2006**



Note: The difference represented by the gray area is the foreign families

The grey area between them represents the income of foreign families. As shown in Tables 8 and 9, the incomes of these families spread from the low to the high end of the distribution but are concentrated in the left side of the median, indicating that foreign families earn less than a typical Danish family. Surprisingly, there is very little inequality among mixed families, in Denmark.

**2.3.4 Regions**

Historically, Denmark is divided into five regions: the Capital zone, the North, the South, the Middle and finally Sjaelland. We use this division and look at the inequality within and between the regions. Tables 10 and 11 summaries the most important inequality measures for each group. They show that there is not a big discrepancy between regions in Denmark, neither before nor after redistribution, although the capital region has the lead, with the highest inequality, probably because the richest 10% of the region earn 2.15 more than the middle class, according to the P90 to P50 ratio.

At the same time it should be remarked that the Great Recession has lead to lower P90 to P50 and higher P10 to P50 in all regions.

**Table 10: Summary statistics for primary household income, by region of the country**

Primary income	1980	1990	2000	2006	2010	1980	1990	2000	2006	2010
	<b>P90 to P50</b>					<b>P10 to P50 ratio</b>				
Capital zone	1.89	2.14	2.27	2.37	2.15	0.07	0.02	0.02	0.03	0.08
Middle zone	1.92	2.04	2.08	2.13	1.91	0.08	0.05	0.05	0.04	0.09
Nord zone	1.98	2.10	2.15	2.20	1.92	0.07	0.05	0.04	0.03	0.08
Sjaelland	1.84	2.01	2.10	2.13	1.93	0.08	0.05	0.04	0.04	0.09
South zone	1.89	2.03	2.08	2.13	1.93	0.07	0.04	0.04	0.03	0.08
	<b>Gini coefficient</b>					<b>Median</b>				
Capital zone	0.41	0.46	0.49	0.49	0.45	118549	123870	141023	158923	306999
Middle zone	0.41	0.45	0.46	0.48	0.42	100445	116519	137853	156160	271152
Nord zone	0.42	0.45	0.47	0.49	0.42	98244	114359	133886	150882	252901
Sjaelland	0.39	0.44	0.46	0.46	0.42	108965	122437	142043	162368	260906
South zone	0.41	0.45	0.46	0.47	0.42	101549	116958	137210	153714	274297

**Table 11: Summary statistics for disposable income, by region of the count**

Disposable income	1980	1990	2000	2006	2010	1980	1990	2000	2006	2010
	<b>P90 to P50 ratio</b>					<b>P10 to P50 ratio</b>				
Capital zone	1.57	1.64	1.79	1.90	1.84	0.49	0.47	0.45	0.42	0.45
Middle zone	1.59	1.56	1.65	1.71	1.65	0.48	0.47	0.45	0.43	0.49
Nord zone	1.60	1.55	1.64	1.70	1.63	0.49	0.49	0.47	0.45	0.52
Sjaelland	1.56	1.57	1.67	1.72	1.64	0.49	0.49	0.49	0.46	0.53
South zone	1.59	1.54	1.63	1.69	1.64	0.48	0.48	0.47	0.45	0.52
	<b>Gini coefficient</b>					<b>Median</b>				
Capital zone	0.26	0.26	0.31	0.34	0.32	118549	123870	141023	158923	191180.6
Middle zone	0.25	0.25	0.28	0.30	0.27	100445	116519	137853	156160	189534.1
Nord zone	0.25	0.24	0.27	0.29	0.26	98244	114359	133886	150882	182606.7
Sjaelland	0.25	0.24	0.27	0.29	0.26	108965	122437	142043	162368	193151.8
South zone	0.25	0.24	0.27	0.29	0.26	101549	116958	137210	153714	185292.3

### 2.3.5 Employment

This section presents the description of primary (Table 12) and disposable income (Table 13) by type of employment. We have considered three categories – employed (people who have been employed for the entire year), unemployed (people who have been employed at least 6 months) and temporarily employed (people who have been unemployed less than 6 months).

**Table 12: Summary statistics of primary income for households, by employment status of spouses**

Primary income	1980	1990	2000	2006	2009	1980	1990	2000	2006	2009
	<b>P90-P50</b>					<b>P10-P50</b>				
Unemployed	2.87	3.45	3.32	3.15	2.87	0.05	0.00	0.00	0.00	0.01
Employed	1.97	2.04	2.20	2.27	2.04	0.05	0.03	0.02	0.02	0.03
Temporary unemployed	1.68	1.94	1.92	1.95	2.20	0.26	0.12	0.10	0.11	0.03
	<b>Gini</b>					<b>Median</b>				
Unemployed	0.50	0.57	0.56	0.55	0.52	45256	30179	36412.21	43043	47669
Employed	0.43	0.46	0.49	0.50	0.45	171245	194091	201048	211473	241895
Temporary unemployed	0.31	0.38	0.38	0.38	0.44	146147	127893	143086	150843	126772

Table 12 shows that, among the unemployed individuals there are some who do not work because they can afford not to work (given the high P90 to P50 ratios) but the poorest have very low primary incomes (P10 to P50), the median for this group is almost 5 times less than the median of employed individuals.

It is remarkable how much the inequality is reduced after tax and transfers, from over 0.50 for the unemployed to around 0.20 or less in Gini coefficients, indicating that the share of very poor individuals is very high in this category. Also, the median now has values close to the group of working individuals, showing once again the efficiency of redistribution in Denmark

**Table 13 Summary statistics of disposable income for households, by employment status of spouses**

Disposable income	1980	1990	2000	2006	2009	1980	1990	2000	2006	2009
	<b>P90-P50</b>					<b>P10-P50</b>				
Unemployed	1.32	1.32	1.36	1.45	1.40	0.56	0.62	0.68	0.65	0.71
Employed	1.69	1.62	1.74	1.81	1.71	0.47	0.45	0.44	0.41	0.49
Temporary unemployed	1.39	1.45	1.50	1.54	1.63	0.49	0.48	0.53	0.50	0.46
	<b>Gini</b>					<b>Median</b>				
Unemployed	0.18	0.17	0.17	0.20	0.16	100309	91787	99551	105308	109589
Employed	0.27	0.27	0.30	0.32	0.28	102381	120334	138672	157101	171804
Temporary unemployed	0.21	0.22	0.22	0.23	0.25	112842	103651	113721	124525	116097

## 2.4 Why has inequality grown?

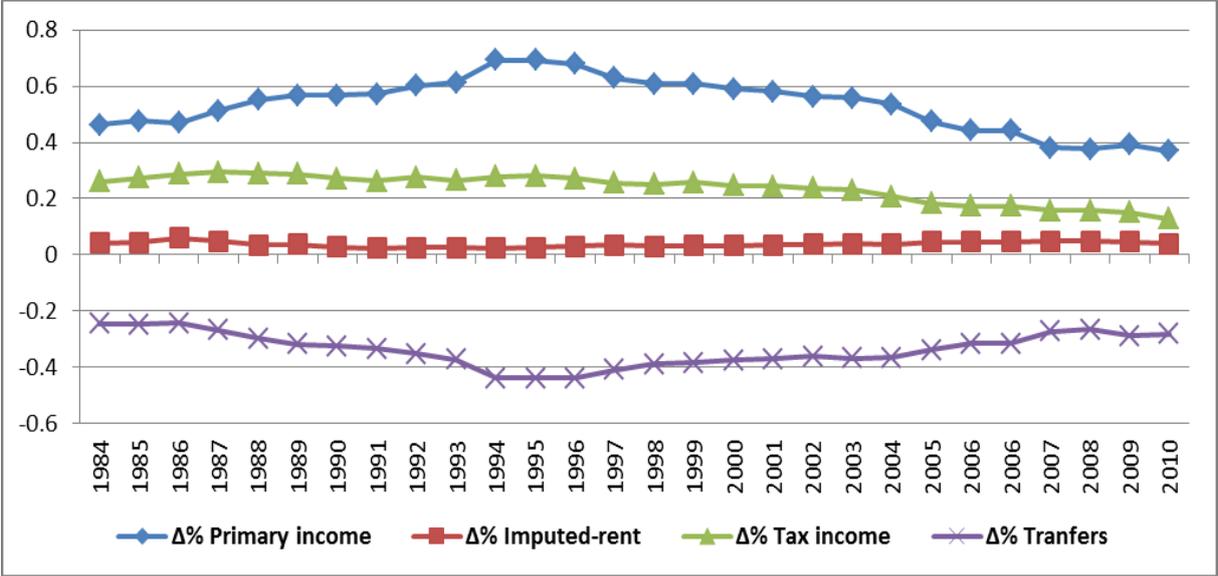
The Gini coefficient for household incomes after tax and transfers is found to be slightly increasing over the years since 1984. However, it is also clear from the graphs in this chapter, that primary income inequality has decreased somewhat after 1993 but after tax and after benefits income has become more unequal since 1983 (see Figure 3). Furthermore, family income has become more unequal than individual incomes (see Figure 4).

In this section we will investigate possible explanations. Especially, we will investigate the composition of the total income after tax and benefits on sources and sub groups. In order to do this we will apply a method of decomposing Gini-coefficients developed in Stark, Taylor and Yitzhaki, 1986, which allows the division of the Gini coefficient of a particular income type into different sub-groups. (See the appendix for the description of the method).

First, we divide the population into two sub-group, individuals between 15 and 64 years of age and over 64. The Gini coefficients for before and after tax incomes for individuals in the age group 15-64 show the same trend as household income inequality, namely that inequality has risen more for after tax and transfers income than before tax. The decomposition into transfers and imputed rent, and tax and before tax income shows us that before tax income and taxes each contribute less inequality over the investigated period. At the same, time imputed rent and transfers play a larger role.

Furthermore, we looked at the changes in inequality due to changes in the named type of income and the results are presented in Figure 30.

**Figure 30: Changes in inequality due to a 1% increase in the mean income in the type of income**



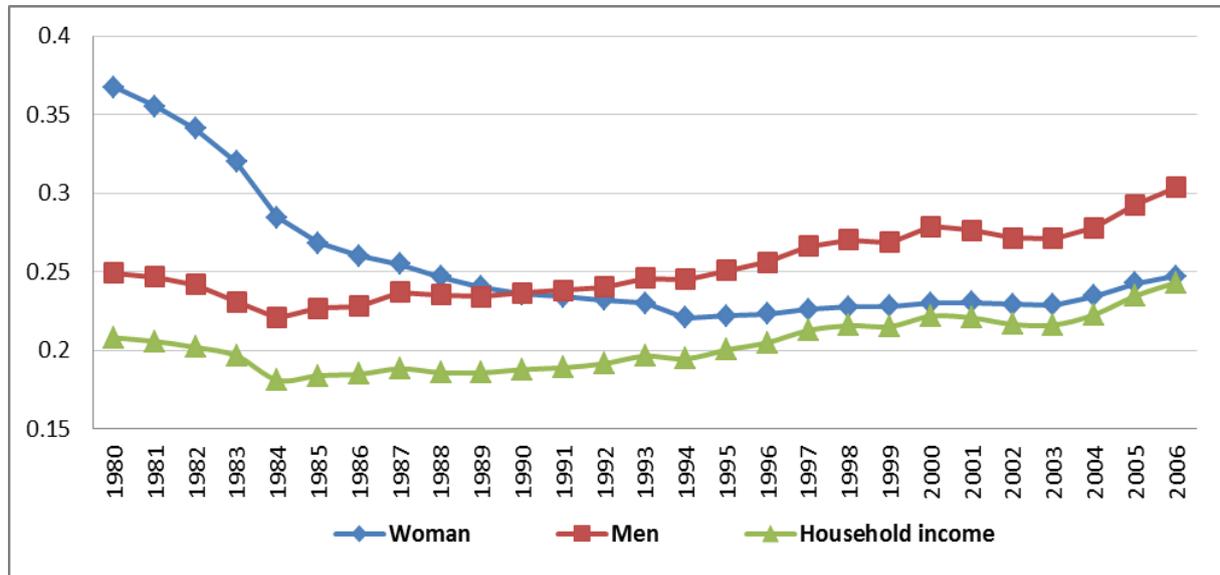
This shows that a 1 % increase in before tax income will actually only increase the Gini coefficient with .4 percentage point, which is down from more than 0.6 in 1994-1996. Similarly for tax and transfers. They all have become less sensitive with respect to the Gini coefficients. Only imputed rents have an increasing effect, though the total income distribution is only modestly influenced by imputed rent. The ability of transfers on reducing the inequality of net household income has constantly weakened since 1984 and became more intense after 1996.

Second, we investigate if household composition has a consequence for the overall income distribution. We look at households consisting of two adults (spouses) Figure 31 below illustrates that the Gini coefficient of men has been increasing from around 1984 throughout the period with almost constant Gini coefficients under the two crises, 1987-1993 and again the dot com crisis from 2001 to 2003. The female Gini coefficient used to be fairly high due to large differences with respect to working hours as shown in earlier in this chapter. These differences level off in the 1990s and female Gini coefficients start increasing around 2003. The resulting curve of Gini coefficients for couples combines these effects with the correlation between the two groups according to the decomposition formula.

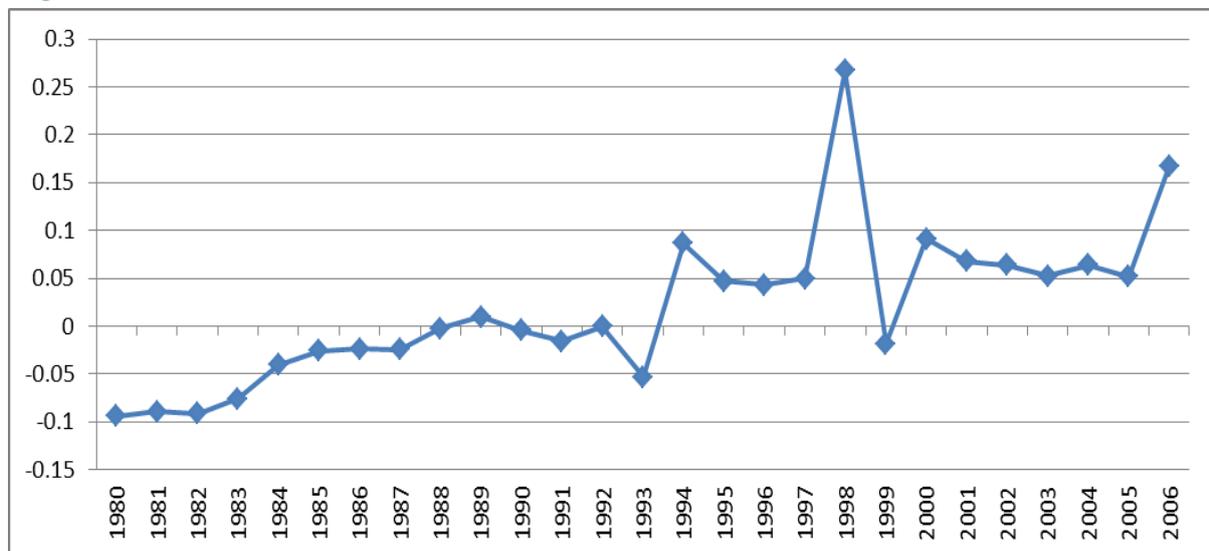
Another interesting aspect shown in Figure 31 is that the Gini coefficient of couples, although with the same trend as the Gini’s for the entire population, is considerably lower, indicating that part of

the increase in inequality is given by the single households, which have constantly increased in number since 1986 (Chapter 3).

**Figure 31: Gini coefficients for spouses and the equalized disposable household income**



**Figure 32: The correlation between incomes of spouses, after tax income including positive and negative incomes.**



However, it appears that this correlation is not trivial and constant but it is influenced by a demographic change that has affected household incomes. Previously, men with higher incomes could afford to let their wives work less and vice versa with the result that there was a negative correlation between the incomes of spouses, see Figure 32 below. But the increasing full time work for women meant that the correlation becomes almost 0. At the same time, women improve their educational background and thus their earnings capacity, which increases the Gini coefficient.

If matching on the marriage market at the same time becomes more and more related to education, we will see an increasing correlation between the incomes of spouses. Figure 32 shows exactly this pattern. Therefore, the changing correlation becomes responsible for part of the increase in Gini coefficients in Denmark in recent years.

Third, we investigated if the huge transfer system and the huge number of people not working have had an impact on the development of the Gini-coefficient. Though the Gini coefficient for non-working students or the unemployed has been above the Gini coefficient for the employed, there is no trend in the former, and if anything, the Gini coefficient of the non-working has decreased over the last 10 years. Furthermore, we still see that the inequality of before tax and transfers income inequality for the working measured is pretty constant, and we also see that the Gini-coefficient after tax and transfers for the working is increasing.

Finally, we also looked at the 65 years plus group and find that the increasing imputed rent has a larger impact for the distribution of income for the retired than for any other sub group. This is an expected consequence of differences in ownership among the older generations.

The conclusion is that several factors have been contributing to the increasing Gini coefficient. One is that married men have had an increasing Gini coefficient; another is related to the increasing labour market participation by women combined with a slightly increasing Gini coefficient for women in the most recent years. These effects have been amplified by an increasing correlation between the incomes of men and women. The latter may be a consequence of the higher propensity for women to study at the same educational institutions as men. That means that household formation according to education has become more prevalent and this will have an amplifying effect on the income inequality.

### **3. The social impacts of inequality**

#### **3.1 Introduction**

This chapter deals with the social conditions in Denmark over the past 40 years or less. It attempts to give a picture of the development of the Danish society, from family formation and fertility rates to crime rates and material deprivation as well as the social cohesion, life satisfaction and life expectancy in the presence of increased income inequality.

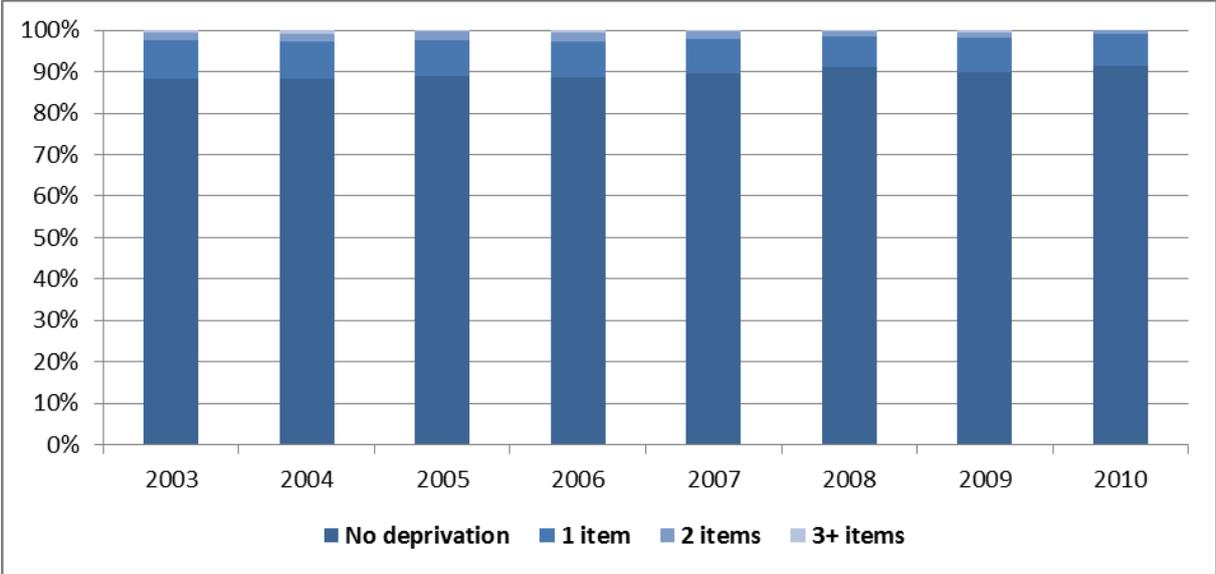
#### **3.2 Material deprivation**

OECD defines material deprivation as the inability for individuals or households to afford those consumption goods and activities that are typical in a society at a given point in time, irrespective of people's preferences with respect to these items. Material deprivation, using the EU-SILC definition is the inability of a household to afford 3 of 9 items, while severe material deprivation is the inability to afford at least 4 of the 9 basic items.

Though income inequality has steadily increased in Denmark for the past 20 years (see Chapter 2) the material deprivation of durable goods has decreased in the past six years, as shown in F 1. Material deprivation for the population below 60% of the median has the same trend as the one for the entire population.

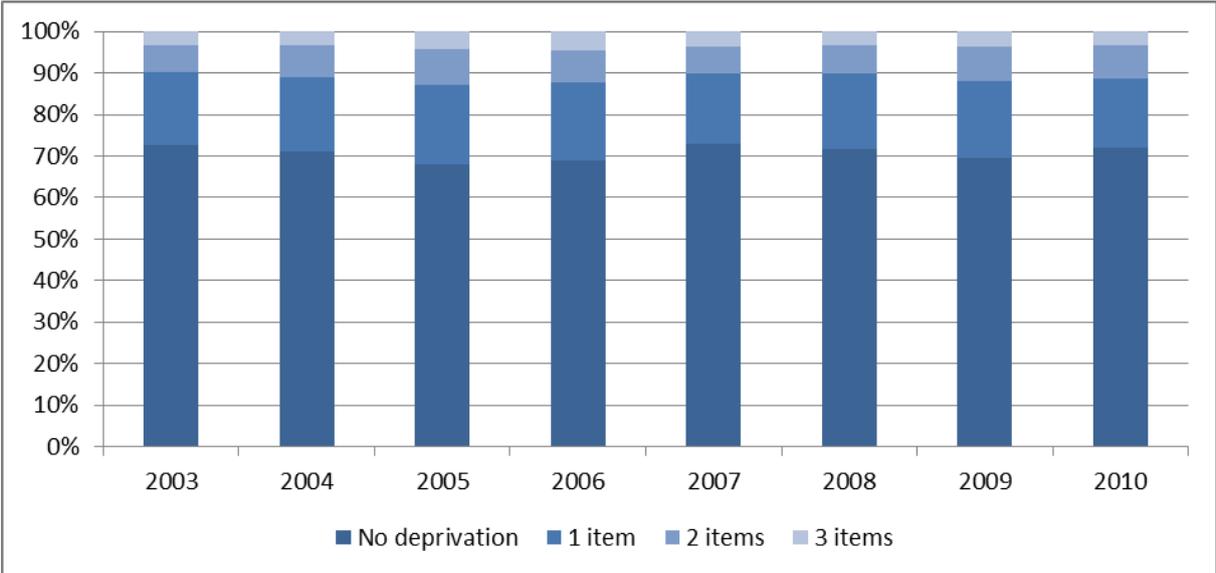
If we use economic strain and durables as a measure for material deprivation, as in Figure 2, the picture changes somewhat, showing that the percentage of deprived population is actually higher.

**Figure 1: Material deprivation – durables for the entire population**



Source: Eurostat

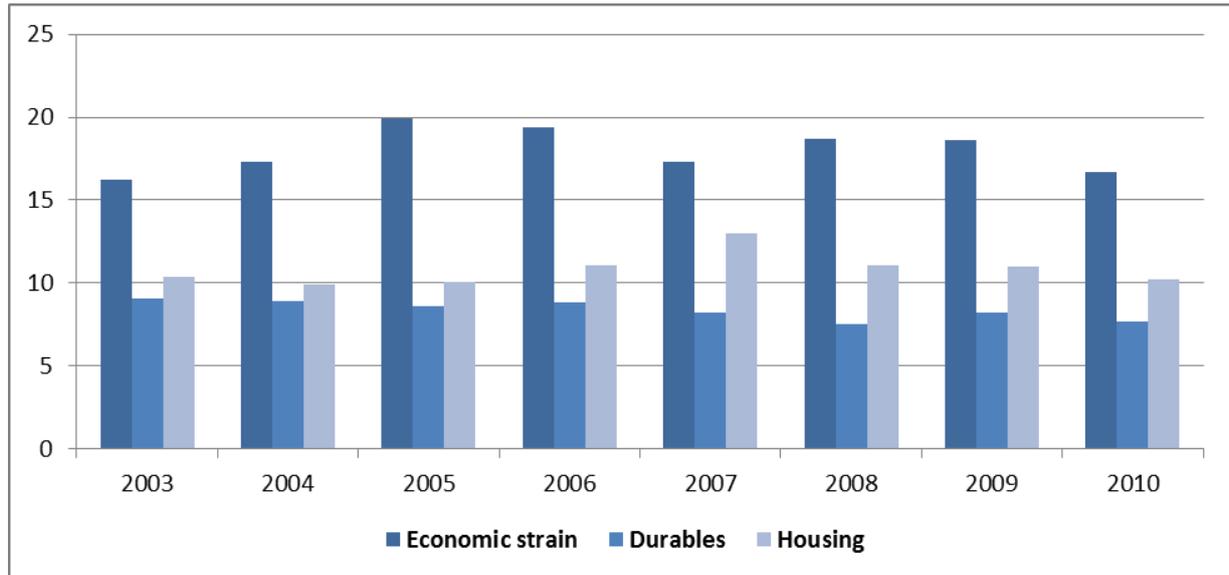
**Figure 2: Material deprivation – economic strain and durables for the entire population**



Source: Eurostat

Depending on the dimension chosen to represent material deprivation and the number of items included, the percentages change. Figure 3 shows material deprivation for 1 item and different dimensions.

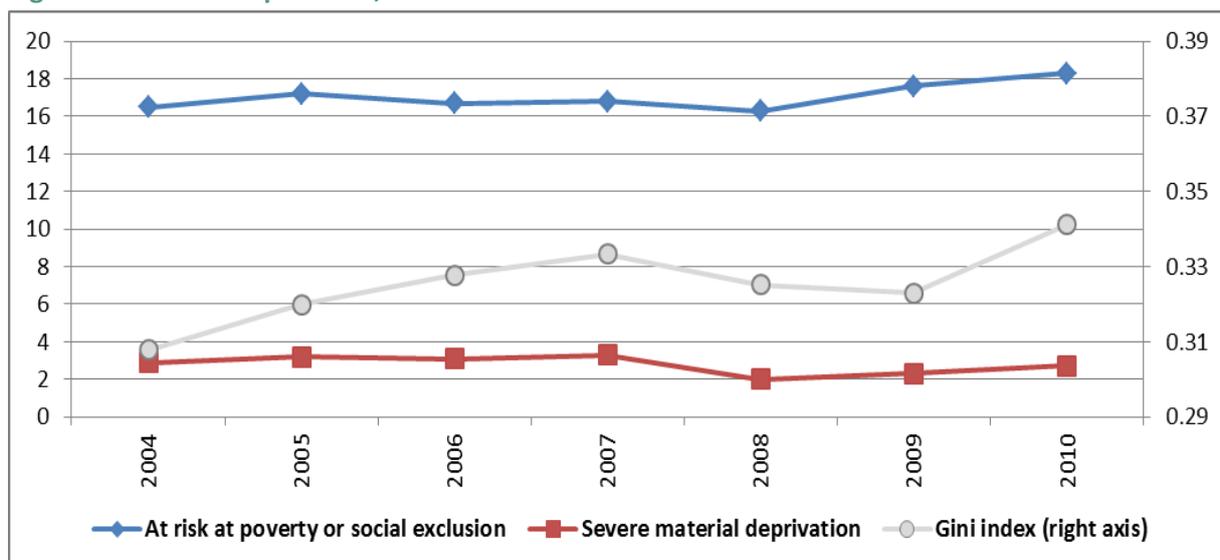
The economic strain has a different trend than housing deprivation. If the economic strain has decreased from 2005 to 2007, housing deprivation has increased in the mentioned period. The lack of durables is fairly constant ( $\% \Delta > 1\%$ ), suggesting a certain hierarchy in face of financial difficulties: housing, economic strain and durable goods.

**Figure 3: Material deprivation, 1 item, for different dimensions at household level**

Source: Eurostat

### 3.3 Multidimensional measures of poverty and social exclusion

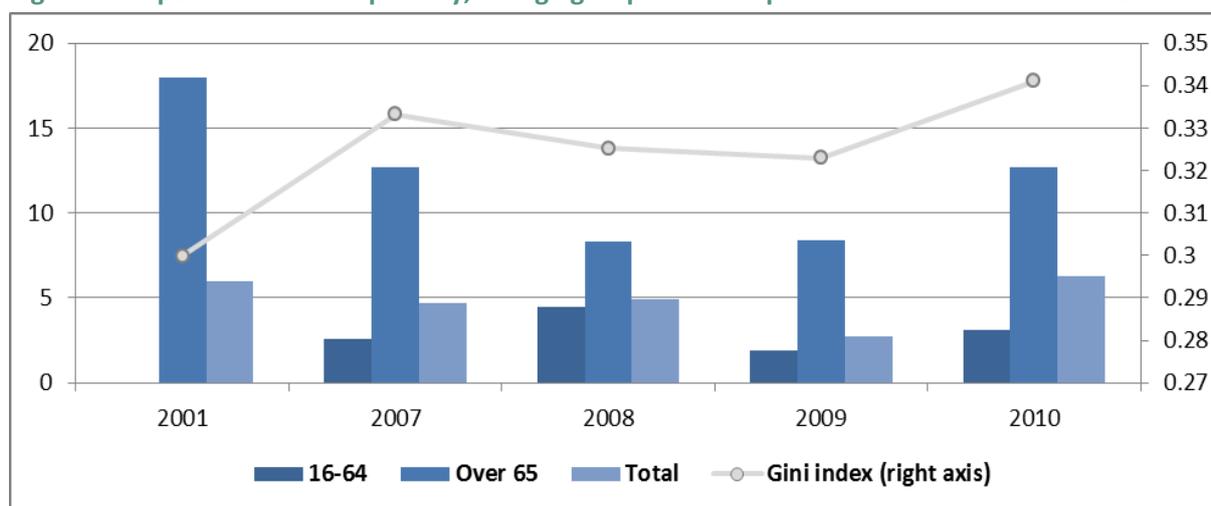
Figure 4 presents the share of individuals at risk at poverty or social exclusion and the share of severely deprived individuals alongside with the trend in inequality in the same period. It can be observed that the trend of severely deprived population and the trend in inequality have the same peaks (2007 and 2010) but are not similar in other ways.

**Figure 4: Material deprivation, different measurements at individual level**

Source: Eurostat

The same comparison can be made between inequality and the population at risk of poverty and social exclusion<sup>6</sup>. While the former is increasing, the latter is decreasing until the onset of the financial crisis, suggesting that the increase in inequality is driven by other forces, such as the persistent risk of poverty for individuals, as shown in Figure 5. The persistent risk of poverty is driven by the older population (over 65 years old), but the other age groups move in the same direction. At persistent risk of poverty refers to the population that is at-risk-of poverty (below 60% of median income) for 3 out of 4 years.

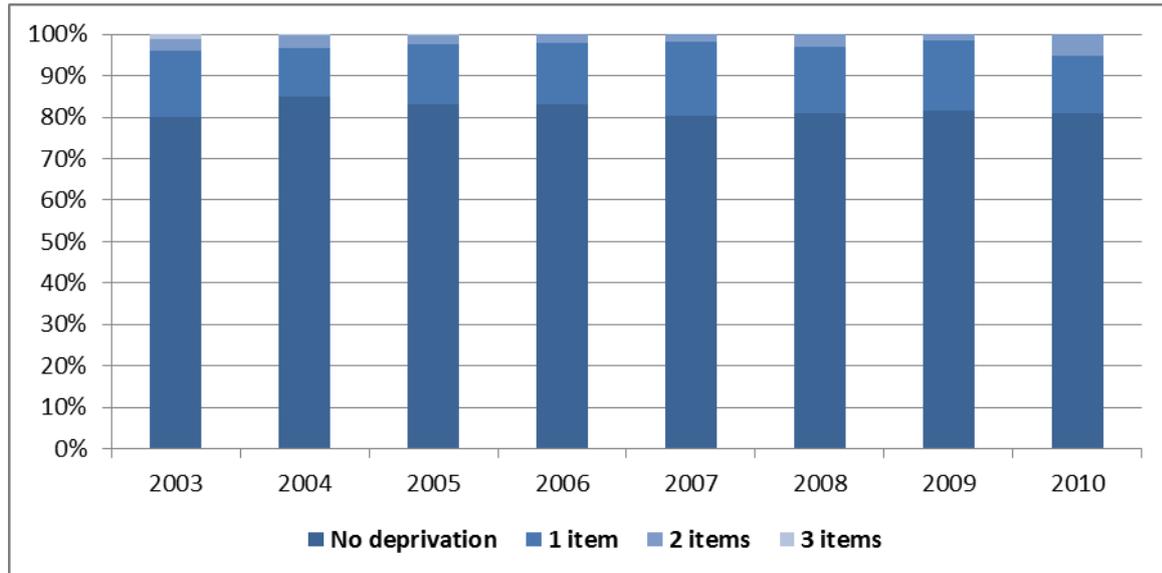
**Figure 5: At persistent risk of poverty, for age groups and comparison with the Gini coefficient**



Source: Eurostat

Figure 6 presents the distribution of housing deprivation, for up to 3 items, for individuals at-risk-of-poverty. There is a very small percentage of the population suffering from housing deprivation in Denmark, most of them lacking one or maximum 2 items. 2007 and 2008 are remarkable, the former by the increase of deprived households and the later by the increase in deprivation for 2 items, probably as a consequence of the financial crisis. Interestingly, in 2008 it affected households already deprived, making them quit one extra item, while in 2007 it is characterised by a decrease of 2 items deprivation simultaneously with a decrease in non-deprived households, suggesting that the financial crisis hit in waves, different segments of the population at different times.

<sup>6</sup>Social exclusion relates to being unable to enjoy levels of participation that most of society takes for granted. It is a complex, multi-dimensional, multi-layered and dynamic concept. Social exclusion is multi-dimensional in that it encompasses income poverty, unemployment, access to education, information, childcare and health facilities, living conditions, as well as social participation. It is multi-layered insofar as the causes of exclusion can be at the national, community, household or individual level (Eurostat definition)

**Figure 6: Housing deprivation for the population below 60% of equalized household income**

Source: Eurostat

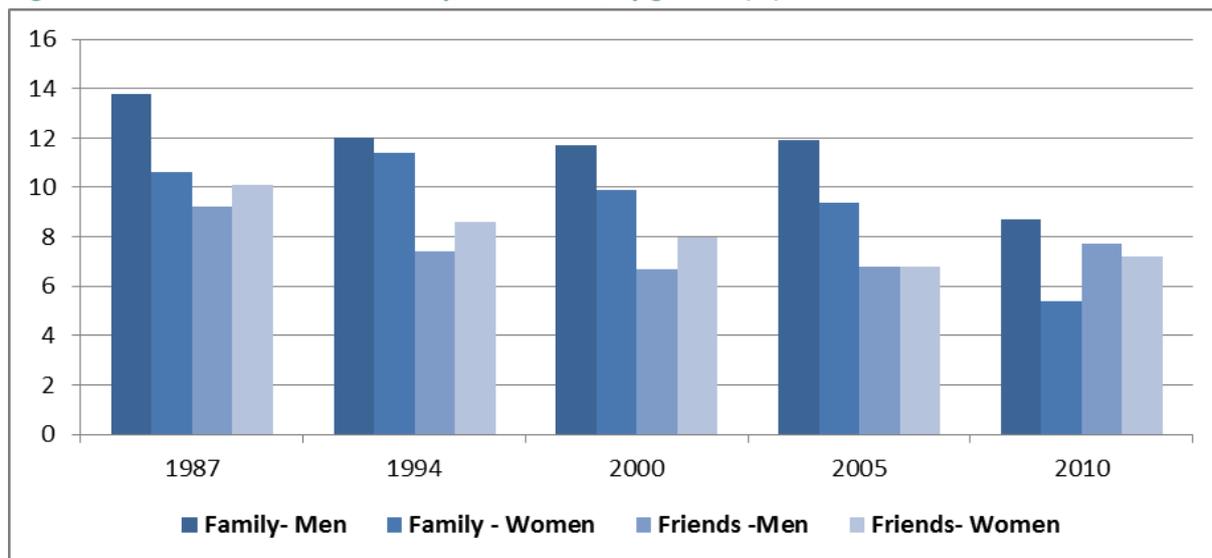
After a year of well-being in 2009, 2010 restarted the cycle described before, with the difference that in 2010, the percentage of deprived household increased compared to 2009, suggesting an worsening effect of the crisis.

### 3.4 Social isolation

Social isolation can have multiple causes such as poverty, sickness, old age, depression, etc. In a survey conducted by the Danish National Institute of Public Health participants have been asked about the frequency they meet with family, friends or acquaintances. Surprisingly, education was not a predictor of social isolation, while region seems to make a difference because the most socially isolated persons live in the capital area. At the opposite were people in the Nord and Central of Denmark, who meet their families most often.

Figure 7 presents the share of people who meet their families, friends or acquaintances rarely or never. In 1987, this percentage was quite high, but it decreased over time by 4 %p., for families and 3%p. for friends. As expected, men are more socially isolated than women and individuals prefer meeting friends than family.

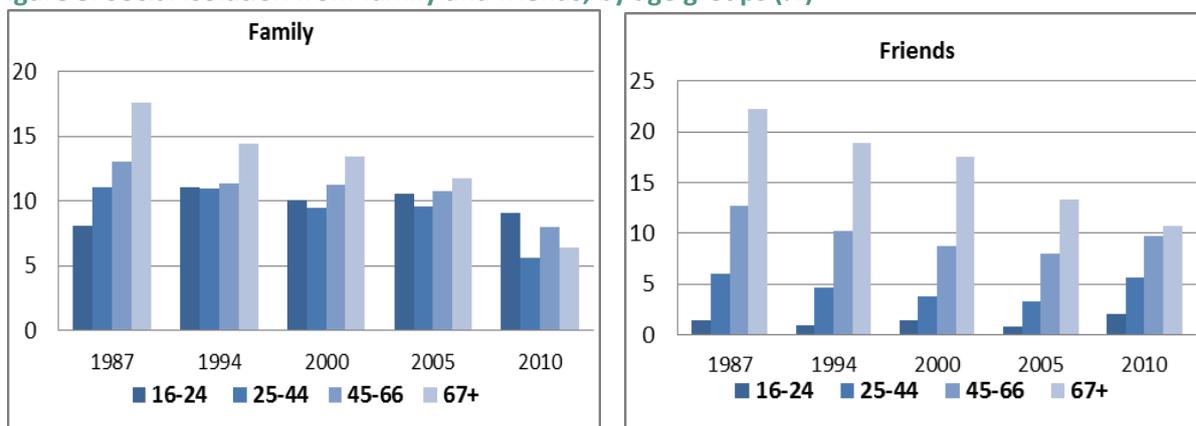
**Figure 7: Social Isolation from family and friends, by gender (%)**



Source: Danish Health and Morbidity Survey (SUSY)

Figure 8 shows the percentage of socially isolated individuals from the society, divided by age groups. Social isolation increases with age, although it has been decreasing from 1987. After 2000, the isolation from family for young people has increased, compared to the other age groups.

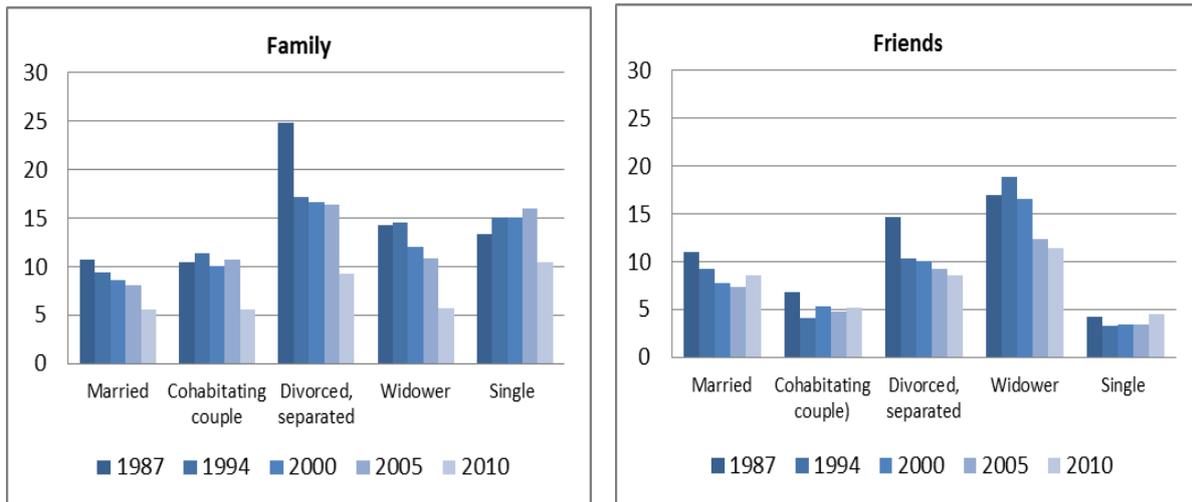
**Figure 8: Social isolation from family and friends, by age groups (%)**



Source: Danish Health and Morbidity Survey (SUSY)

Social isolation by household type (figure 9) reveals that married couples are more socially active than single people. Moreover, widowers tend to be socially isolated from friends, more often than divorced or single people. Interestingly, divorced people have been very isolated from their families in 1987, probably because of the stigma that came with divorce. Today, things have changed and they are better integrated socially even though they remain among the most isolated. The widowers are the group with the highest social isolation percentage. This can be explained by the fact that most widowers are older and older individuals are more likely to be socially isolated.

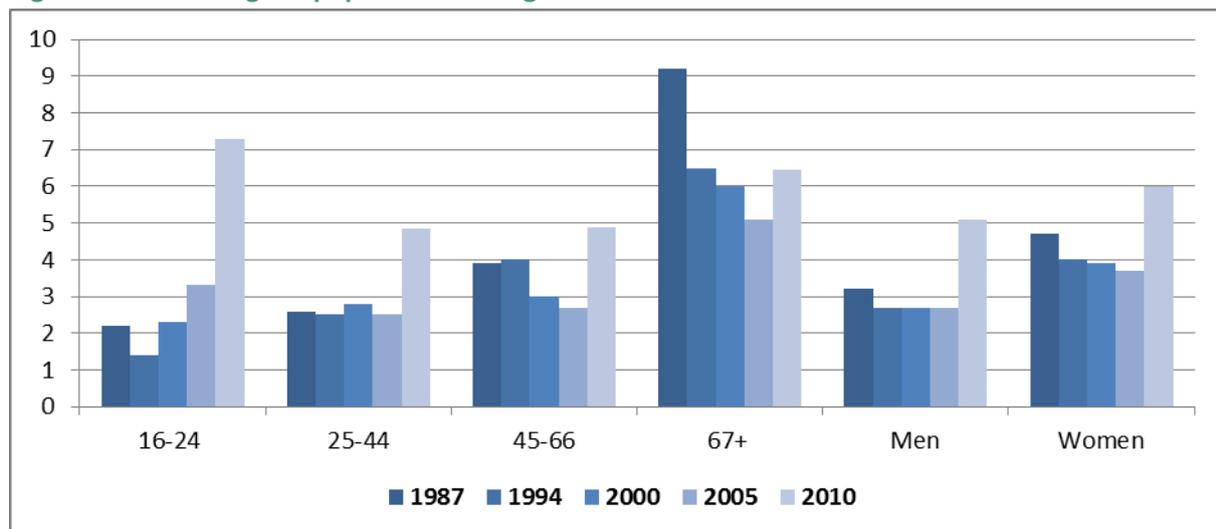
**Figure 9: Social isolation from family and friends, by social status (%)**



Source: Danish Health and Morbidity Survey (SUSY)

The rare contact with families and friends could be a voluntary decision. Figure 10 shows the percentage of individuals who feel alone, by age and by gender. As expected, older individuals feel lonely, but somewhat surprising women feel lonelier than men. Even more surprisingly, in 2010, the percentage of people feeling alone has increased for most groups. Other categories affected by loneliness are the ones with low education (6.23% in 2010) and divorced and widowers (12 % and 13.6% respectively). Overall, the feeling of loneliness has increased from 3.04% in 2005 to 5.6% in 2010.

**Figure 10: Percentage of population feeling alone.**

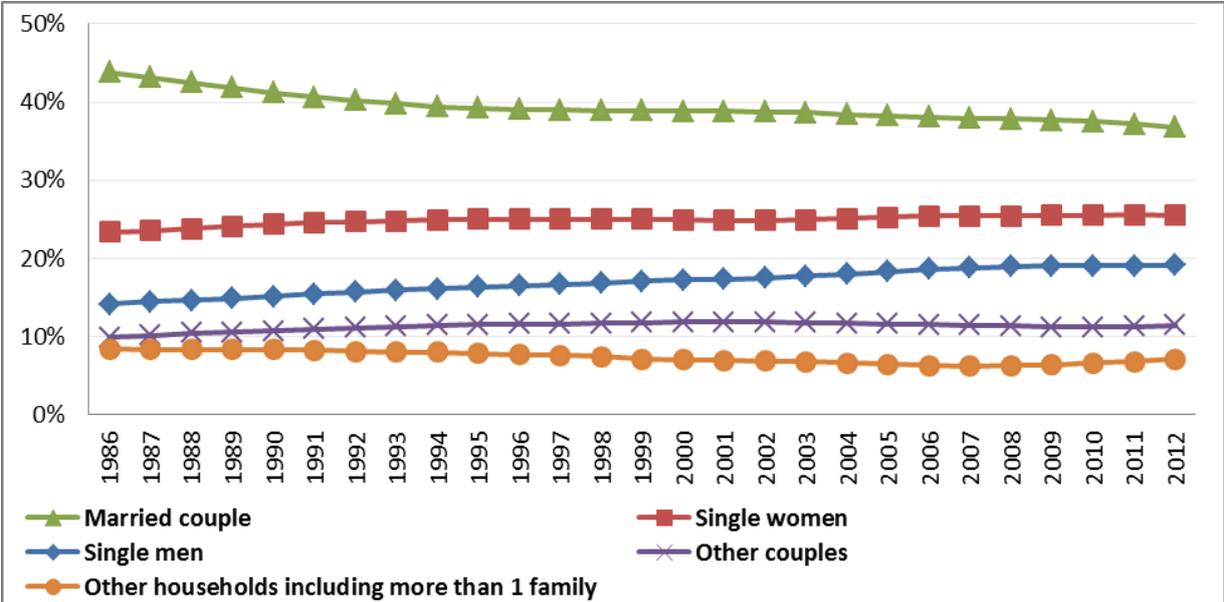


Source: Danish Health and Morbidity Survey (SUSY)

### 3.5 Family formation

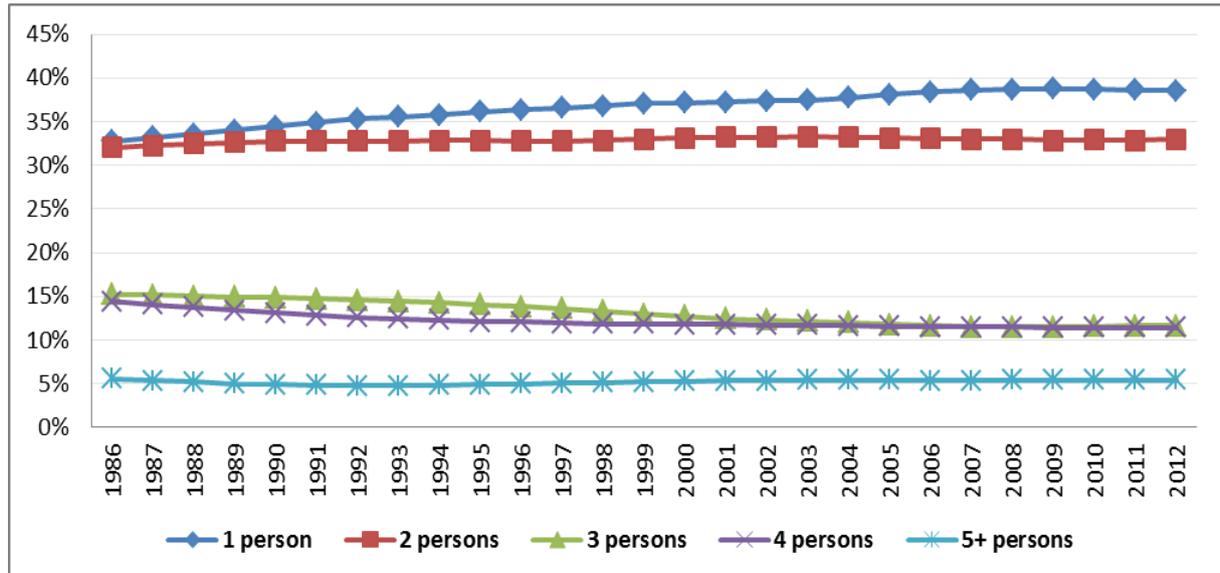
In Denmark, as in most developed countries, the number of married couples has decreased over time, by 8 %p from 1986, while the share of cohabitating couples has increased, indicating that more and more couples do not engage in formal marriages anymore. But the decline in the number of married couples is mostly explained by the increase in single men, while the share of single women has been almost constant. Surprisingly, the share of single men has increased with 5%p, but the gap between genders, at birth, has not changed much over time (on average, 0.02%).

**Figure 11: Evolution of household formation, by type of household in Denmark (% of total households)**



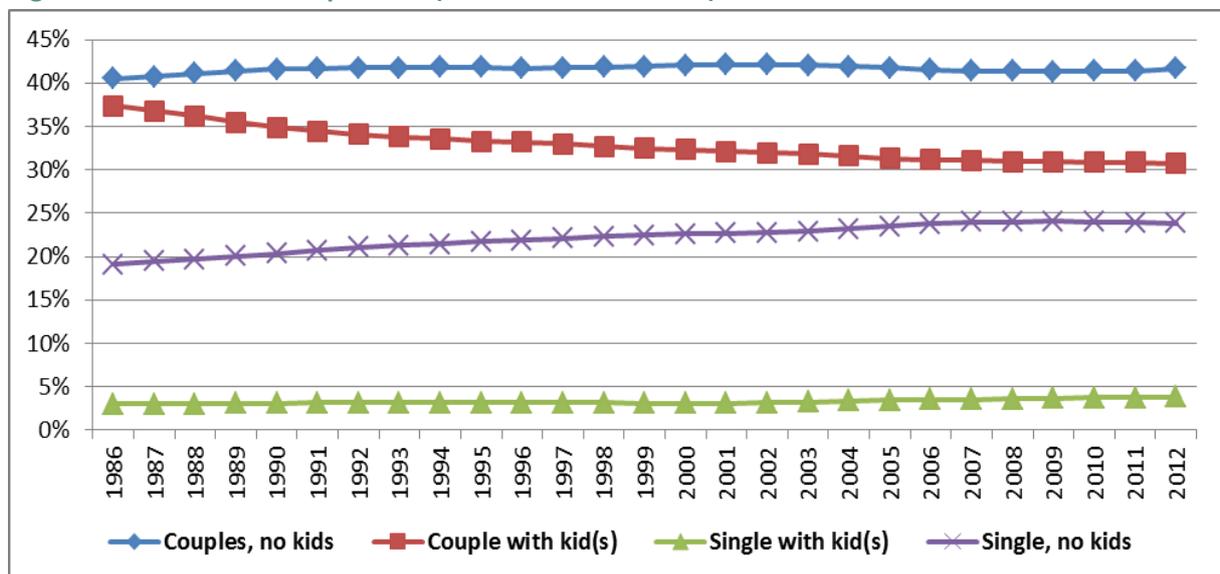
Source: Statistics Denmark

In line with the picture depicted by Figure 11, the share of single persons increased while the share of households with 2 and 5 or more persons is almost constant. Also, the number of households with 3 and 4 members has decreased.

**Figure 12: Decomposition of household, by number of members (% of total households)**

Source: Statistics Denmark

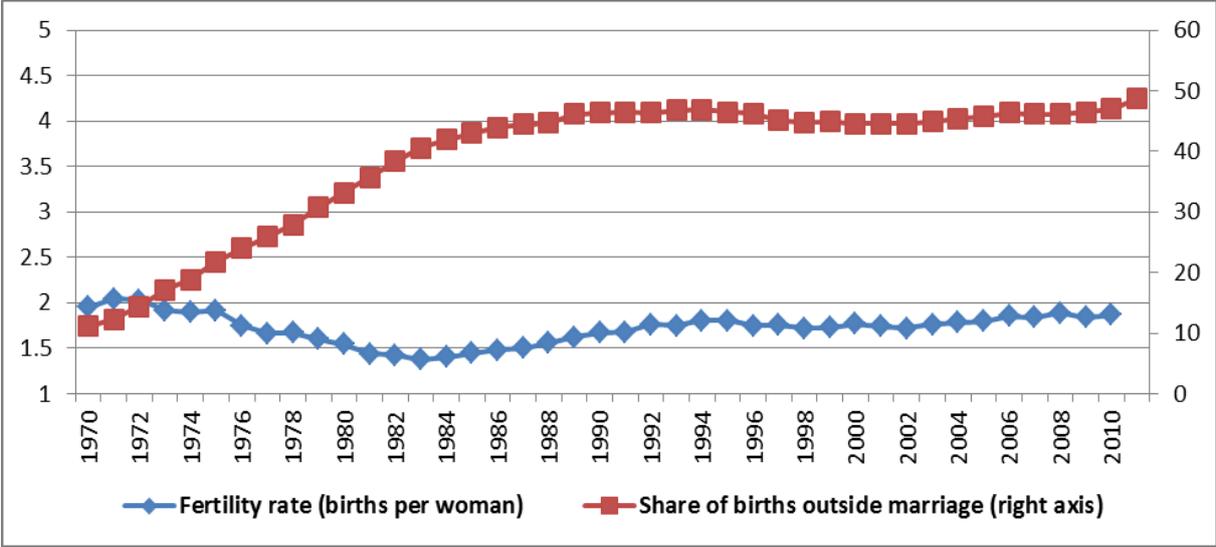
The dynamics within couples has also changed over time. The share of couples without children has increased, while the share of couples with kids had decreased substantially. The share of single persons with kids has remained fairly constant, as shown in Figure 13.

**Figure 13: Household composition (% of total households)**

Source: Statistics Denmark

The fertility rate in Denmark has had a cyclical evolution for the past 50 years, reaching in 2010 almost the same value as in 1970, after an absolute low of 1.47 in 1982. A large share of all births happens outside wedlock as can be seen in Figure 14. The share quadrupled from 1970 to 1986 and has been almost constant since then. Figure 14 also shows that the modern Danish woman has a little less than 2 children.

Figure 14: Trends regarding the fertility rate and the number of children born outside the marriage.

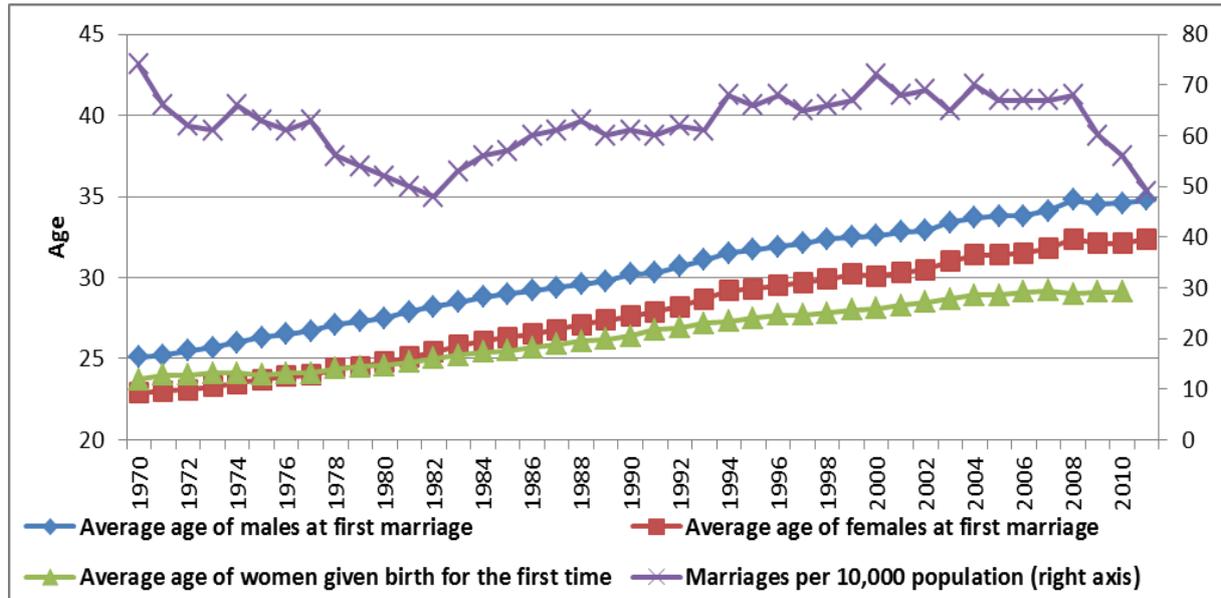


Source: Statistics Denmark and World Bank

The age of the mother, at the time of the first baby is shown in Figure 15. It is seen that it has been constantly increasing over the period. Furthermore, it is shown that the mother is most likely not married at the time of the first birth, and that she is becoming older and older before giving birth the first time.

The number of marriages has decreased considerably since 1970, with a drastic fall in 1982, the year with the lowest fertility rate. In the 1970s, women first got married and then started having children. After 1982 the average age of females at the first marriage is higher than the average age of getting the first child. Nevertheless, there seems to be a clear positive correlation between marriage and fertility rates until late 2000s.

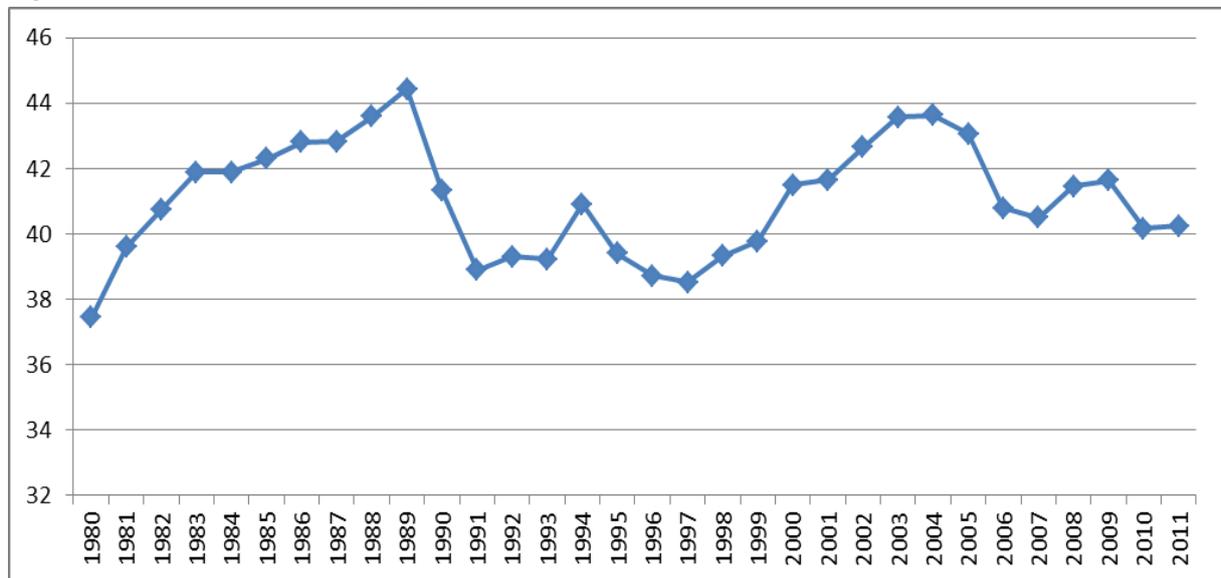
Figure 15: Average age for marriage and child birth and the number of new marriages.



Source: Statistics Denmark

Figure 15 shows that the number of marriages has an upward trend after 1982, quite different from the trend in figure 5, where the percentage of married couples decreased over time. This suggests that the divorce rate in Denmark is quite high, as shown in Figure 16. Overall, the divorce rate has fluctuated, having two minima, in 1991 and 1997 and after 2004 it seems to be on a downward trend

Figure 16: Divorce rate – trend (%)

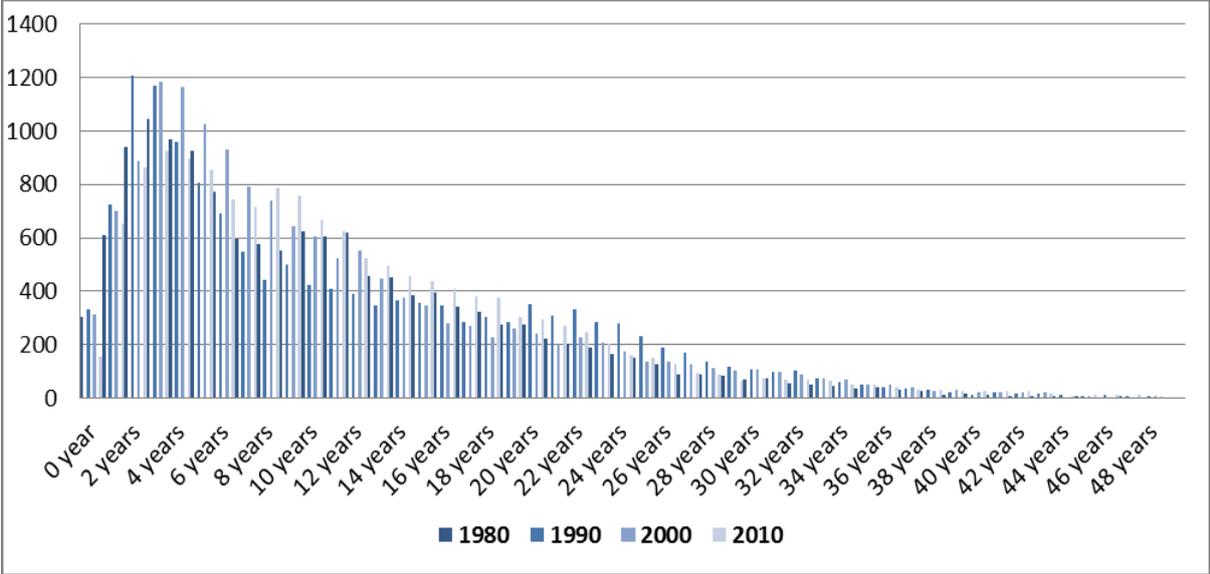


Source: Statistics Denmark

Figure 17 shows the divorce distribution, by the number of years of marriage. It can be seen that there are two critical periods, when the likelihood of getting a divorce is higher, between 2 and 4 years of marriage and between 8 and 10 years of marriage. The distribution shows some changes

over time. The share of couples getting a divorce early in the marriage decreased over time. In 2010, families have a lower divorce rate in the beginning of the marriage than in 2000 or 1990. Now the divorce rate is more spread-out over the first 10 years of marriage.

**Figure 17: Divorce distribution, by the number of years of marriage, for specific years**



Source: Statistics Denmark

**3.6 Health**

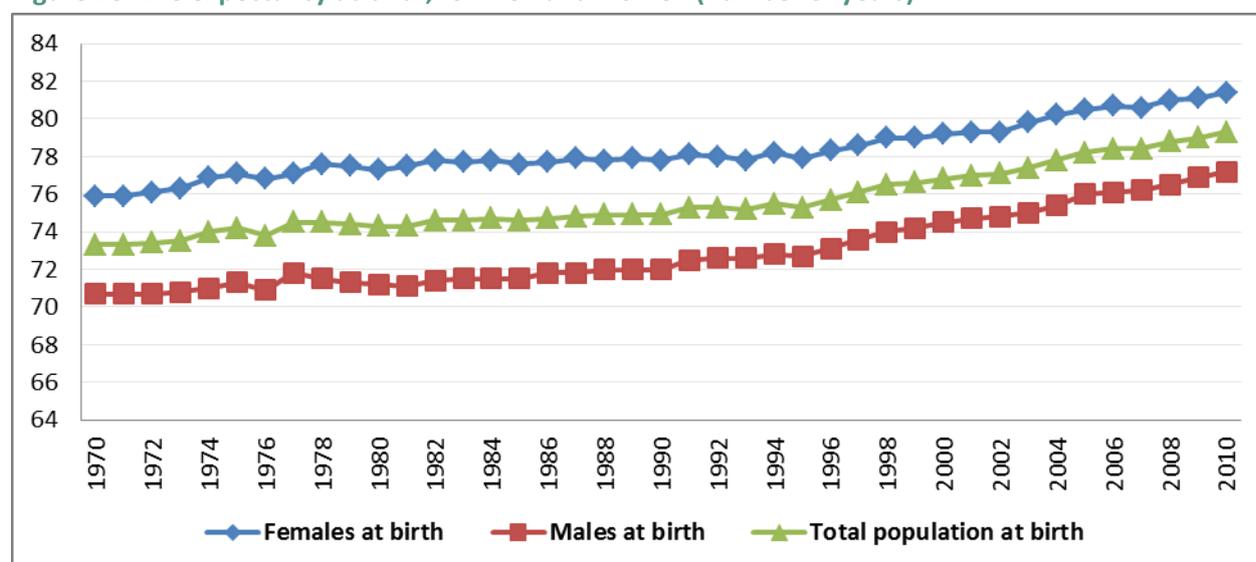
Life expectancy in Denmark is lower than in many comparable countries, see Table 1. While it is among the countries with the highest life expectancy in 1970 it did not increase as much as in most other comparable countries. One reason for the lower growth is undoubtedly that anti-smoking campaigns were slower getting initiated in Denmark than in other countries.

**Table 1: Life expectancy in different OECD countries**

Year	1970	1980	1990	1995	2000	2005	2010
Australia	70.8	74.5	77	77.9	79.3	80.9	81.8
Austria	70	72.6	75.6	76.7	78.2	79.4	80.7
Belgium	71	73.3	76.1	76.9	77.8	79	80.3
Canada	n.a	75.3	77.6	78	79	80.1	n.a
Denmark	73.3	74.3	74.9	75.3	76.8	78.2	79.3
Finland	70.8	73.6	75	76.6	77.7	79.1	80.2
Germany	70.5	72.9	75.3	76.6	78.2	79.4	80.5
Greece	73.8	75.3	77.1	77.5	78	79.2	80.6
Italy	n.a	74	77.1	78.3	79.8	80.8	n.a
Netherlands	73.7	75.8	77	77.5	78	79.4	80.8
Norway	74.3	75.9	76.7	77.9	78.8	80.3	81.2
Spain	72	75.4	77	78.1	79.4	80.3	82.2
Sweden	74.7	75.8	77.6	78.8	79.7	80.6	81.5
Switzerland	73.1	75.6	77.5	78.6	79.9	81.3	82.6
United States	70.9	73.7	75.3	75.7	76.7	77.4	n.a

Source: OECD

Nevertheless, life expectancy in Denmark increased in the past 40 years by 6 years, for both men and women. The gap between women and men, regarding life expectancy at birth has decreased by 1.2 years from 1970 until 2010 and it is now close to 4 years. Nevertheless, the gap between women's and men's life expectancy at the age of 65 is only 3 years. Figure 12 also shows that the increase in life expectancy for women has been slower than the increase for men, by 9 days per year.

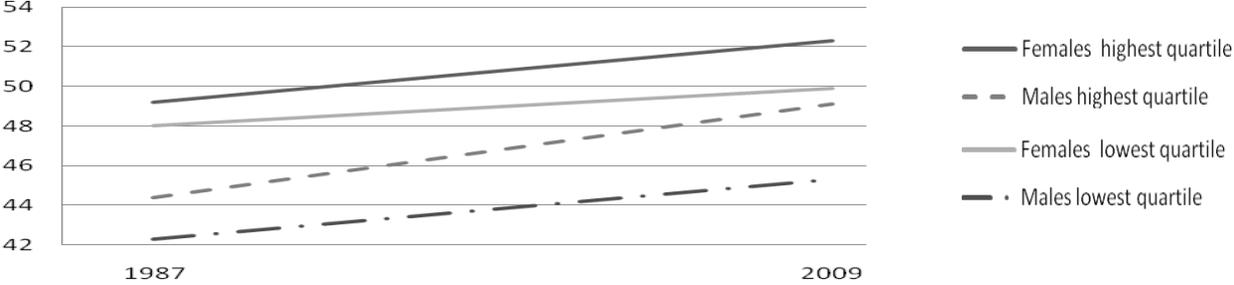
**Figure 18: Life expectancy at birth, for men and women (number of years)**

Source: OECD

Life expectancy varies also with the income or educational level of the individuals. Figure 19 shows the life expectancy for men and women at 30 years of age and with different educational background. The gap between highest and lowest educated individuals has increased over time, to a

higher degree among men than women and it clearly demonstrates an element of health inequality among Danish citizens.

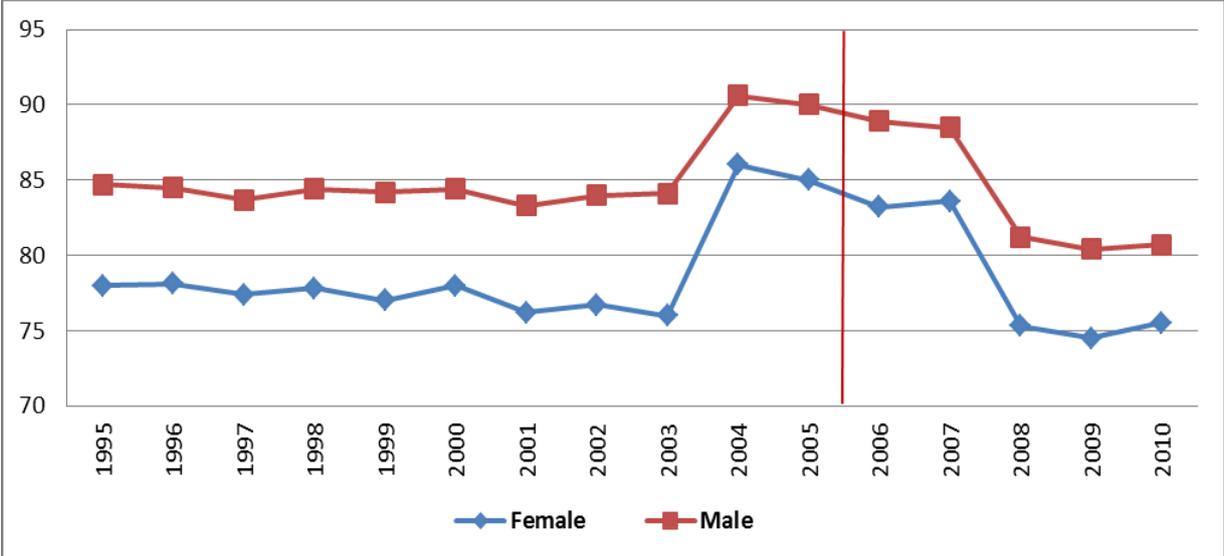
**Figure 19: Remaining life expectancy for 30-year olds in the highest and lowest educational quartiles. Denmark 1987 and 2009**



Source: The Economic Council of the Labour Movement and The National Institute of Public Health from Diderichsen et al, 2011.

Quality of life is another important aspect when we discuss life expectancy. Figure 20 shows the percentage of healthy years expected for women and men from the total number of expected years of life. The health indicator is calculated using a self-perceived health indicator by Eurostat and refers to moderate and severe health problems that might affect the respondent’s daily activities for up to 6 months. While women may live longer, men have a higher percentage of healthy years than women.

**Figure 20: Expectancy of healthy years (% of total life expectancy)<sup>7</sup>**

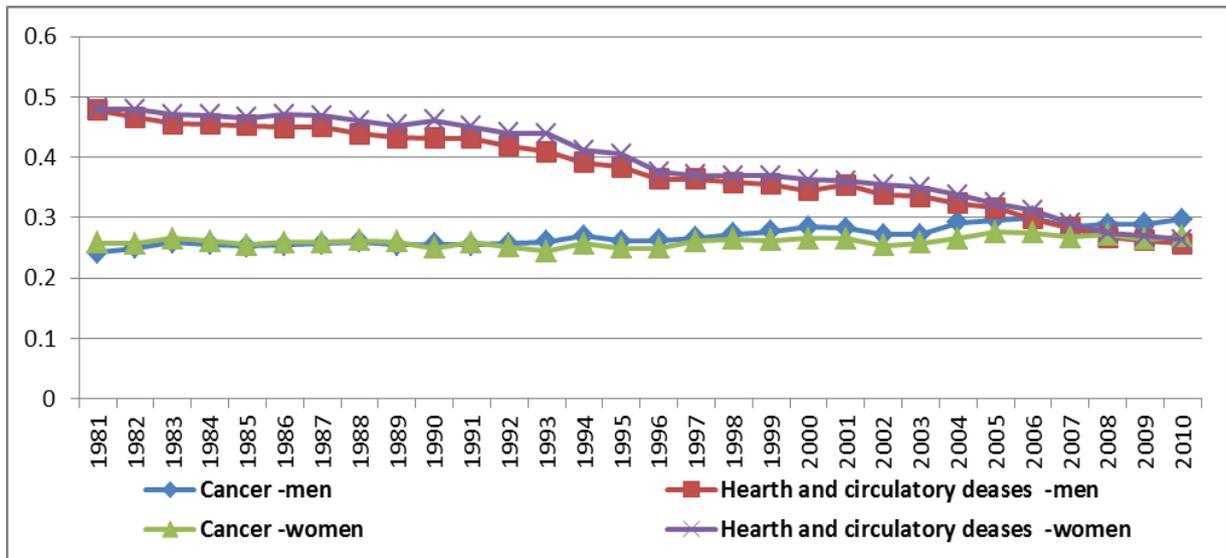


Source: Eurostat. Note: Methodology changed from 2004 onward.

<sup>7</sup> The abrupt increase from 2003 to 2004 is the result of a methodology change. The sudden decrease in healthy life year’s expectancy from 2007 to 2008 is probably a result of another change in methodology.

The most common deadly diseases are presented in Figure 21. It can be seen that the incidence of heart and circulatory diseases is decreasing, while the incidence of cancer is increasing. Men are more prone to diseases than women, especially lung cancer (25% of all cancer cases in 2010), while for women the highest deadly cause of cancer is breast cancer.

**Figure 21: Trends for the most common deadly diseases in Denmark, by gender.**

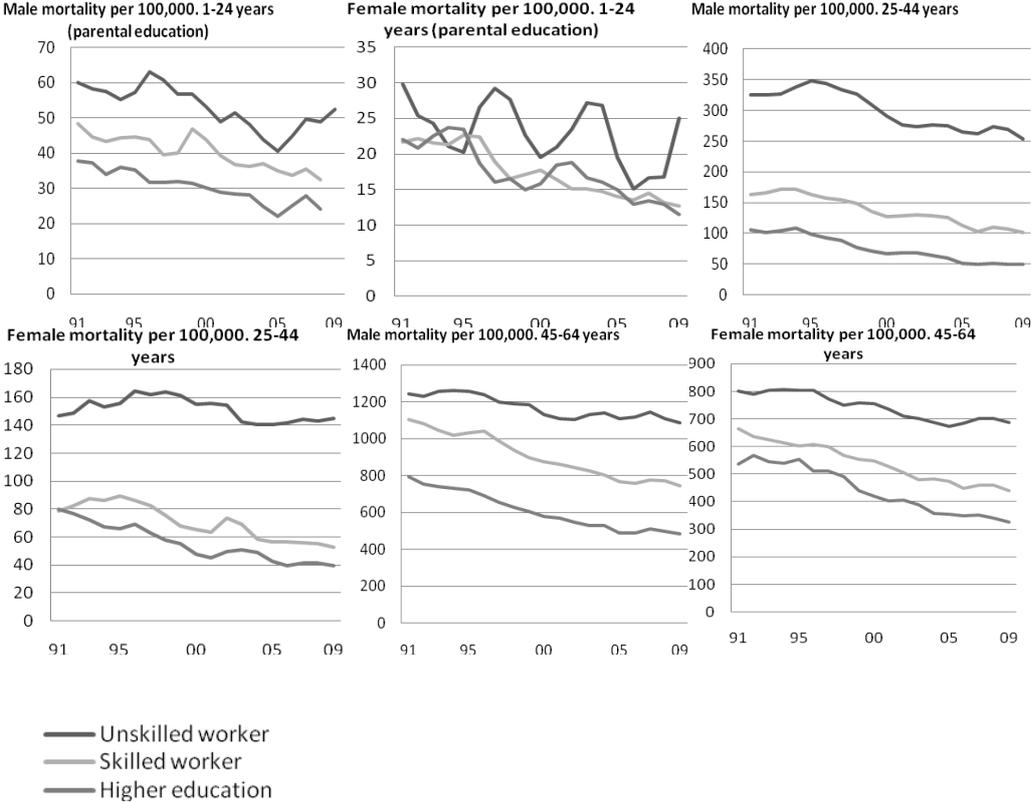


Source: Statistics Denmark

The decrease in the number of deaths caused by heart and circulatory diseases and a small increase of cancer cases indicate the fact that prevention, awareness and regular consultations together with better treatment have increased. It is also an indication of a healthier life style among Danes.

Figure 22 shows the number of deaths among men and women by level of education and skills (of parents for the 1-24 years old group) and age groups. Clearly, for all age groups, the most educated have the lowest mortality among each age group, indicating once again the important role that education plays in health inequality in Denmark.

**Figure 22: Collage of mortality for men and women, by education level and group age.**



Source: The Economic Council of the Labour Movement and The National Institute of Public Health, from Diderichsen et al, 2011.

In a survey conducted by the Danish National Institute of Public Health, participants have been asked about their health. Their answers have been summarized in Table 2

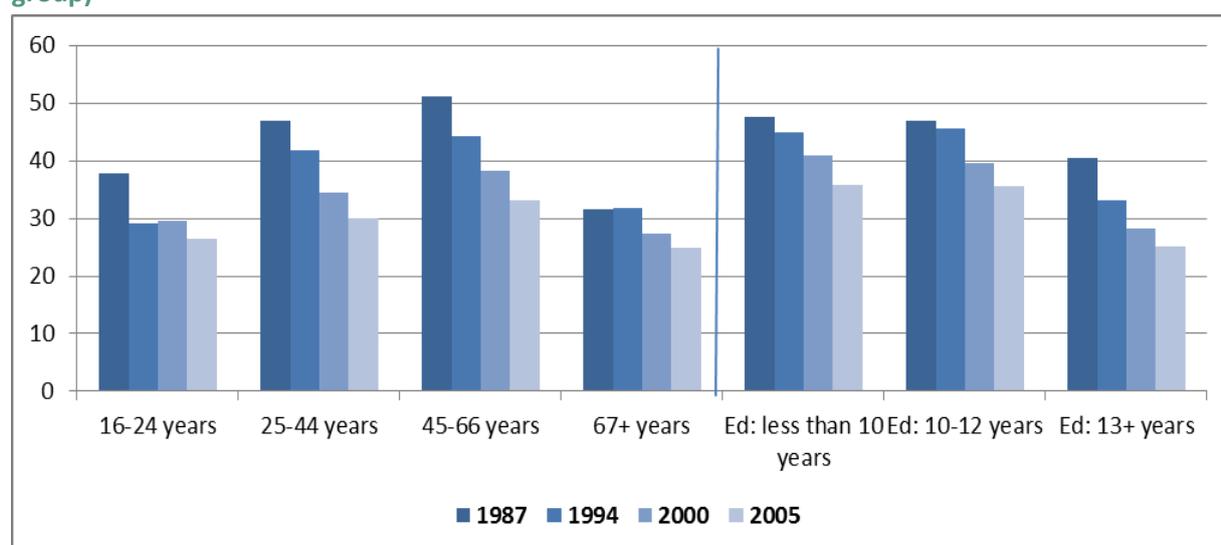
Overall, the health of Danish individuals has increased over time, for all groups considered. Nevertheless, health decreases by age and increases by education level. The higher the education level, the less sickness reported.

Smoking is one of the most important factors affecting health in Denmark (as shown by the incidence of deaths from lung cancer among men) and it is a good predictor of poor health. Figure 23 shows its development over time, using the earlier mentioned surveys. As expected, smoking has a negative correlation with education and it has a decreasing trend among all categories. The same trend is shown by the OECD.

**Table 2: Self-reported health, by age group and education level**

	Age (years)	Very good and good	Bad and very bad	Education (years)	Very good and good	Very poor
1987	16-24	93,4	0,8	Less than 10	62,3	13,1
	25-44	88,1	2,5			
	45-66	68,3	9,6			
	67+	54,7	17,9			
1994	16-24	92,4	0,7	Less than 10	61,6	11,9
	25-44	86,7	2,6			
	45-66	73,9	7,9			
	67+	56,9	14,2			
2000	16-24	89,3	1,4	Less than 10	61,2	12,2
	25-44	85,5	3,2			
	45-66	74,1	7,7			
	67+	59,2	12,8			
2005	16-24	92,2	0,8	Less than 10	61,5	11,5
	25-44	85,8	3,3			
	45-66	77,0	6,6			
	67+	66,7	9,6			
				10-12 years	80,2	5,3
				Over 13	90,7	2,0
				10-12 years	79,4	5,9
				Over 13	87,7	2,5
				Over 13	85,6	3,2
				Over 13	85,5	3,4

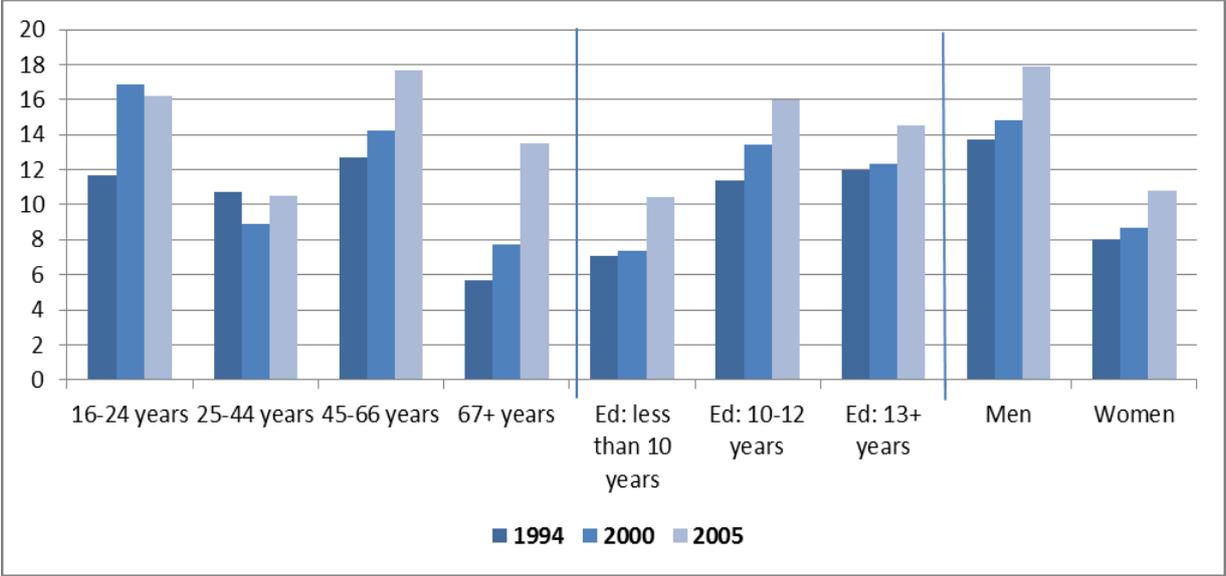
Source: Danish Health and Morbidity Survey

**Figure 23: Daily smokers, by age group and by years of education (Ed.) (% of total units within group)**

Source: Danish Health and Morbidity Survey

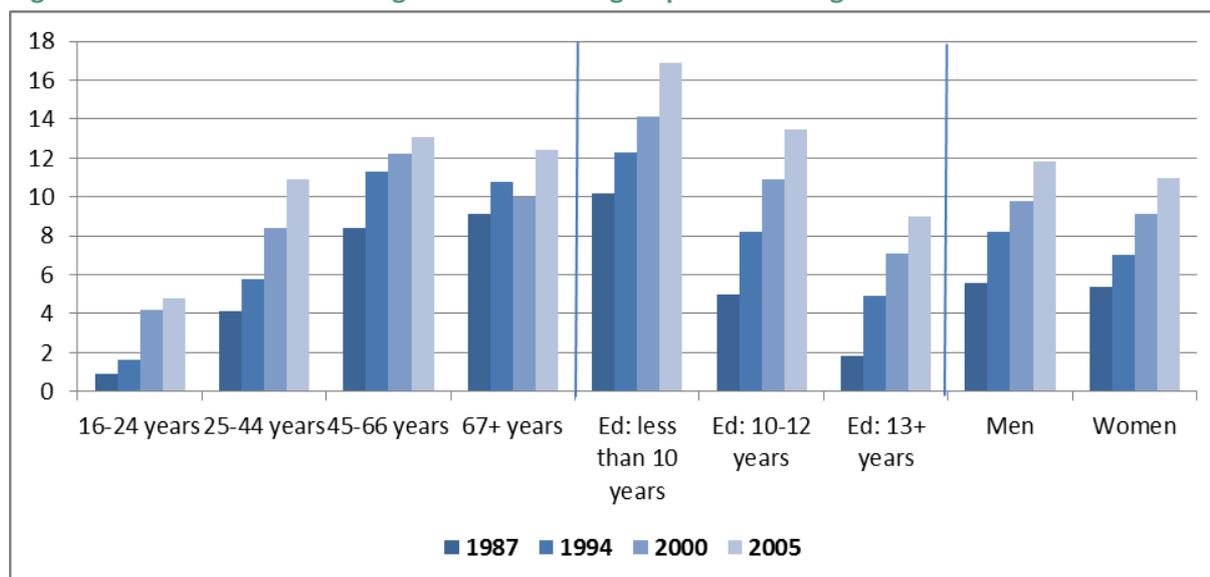
Figure 24 shows that the amount of alcohol units drunk in excess has increased over time and that the correlation between education and alcohol consumption is not as strong as for tobacco consumption.

**Figure 24: Excess of weekly alcohol units recommended, by age, by education and by gender (% of total units within group)**



Source: Danish Health and Morbidity Survey (SUSY)

Obesity is becoming a world-wide problem and can be considered an indicator of unhealthy life style. Figure 25 presents the share of individuals with a BMI higher than 30. A few conclusion can be made – the relationship between obesity and age has an inverse U shape, decreasing after the age of 66; education plays an important role in controlling the body mass though excess BMI is growing for all education groups. The share of obese women is slightly lower than the share of men, but it is remarkable that the share has doubled from 1985 for both men and women.

**Figure 25 : The fraction of the age and education group with BMI higher than 30.**

Source: Danish Health and Morbidity Survey (SUSY)

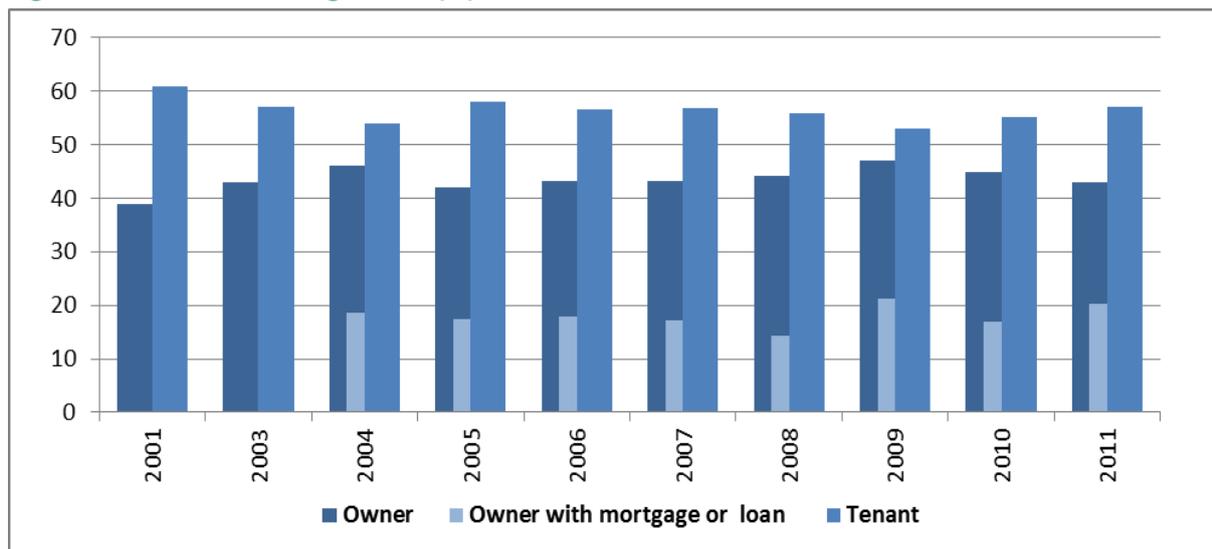
Obesity increased substantially among all groups, especially among young people (16-44 years old) and medium and highly educated. This suggests that income inequality is not at the root of this increase because BMI has increased for all educational groups though there is still a difference in levels so that the highly educated in 2005 are almost at level with the least educated in 1987. If one were to look at overweight as a BMI>25, than the share of overweight and obese individuals in Denmark would be 44.6% in 2005 and 46.7% in 2010<sup>8</sup>.

### 3.7 Housing tenure

In 2010, 43% of all households in Denmark are homeowners. Conversely, 57% are tenants. The share of tenants has decreased since 2001, with slight increases in 2005 and 2010. The slight increase in home ownership from 2005-2010 might be a consequence of the price boom in the housing market from around 2005 to 2008 followed by the price reductions on the real-estate market after 2008 together with effects of a lower interest rate due to the economic crisis. Among the homeowners, the share of households paying a mortgage has fluctuated, with a high in 2009 mostly because banks withdrew from giving loans to homeownership during the crisis and that forced many to take out mortgages, where interest was also lower. The evolution of housing tenure for the past 10 years is presented in figure 26, while figure 26 presents the housing tenure by type of household.

<sup>8</sup> Source: OECD, reporting the SUSY 2005 and 2010 results.

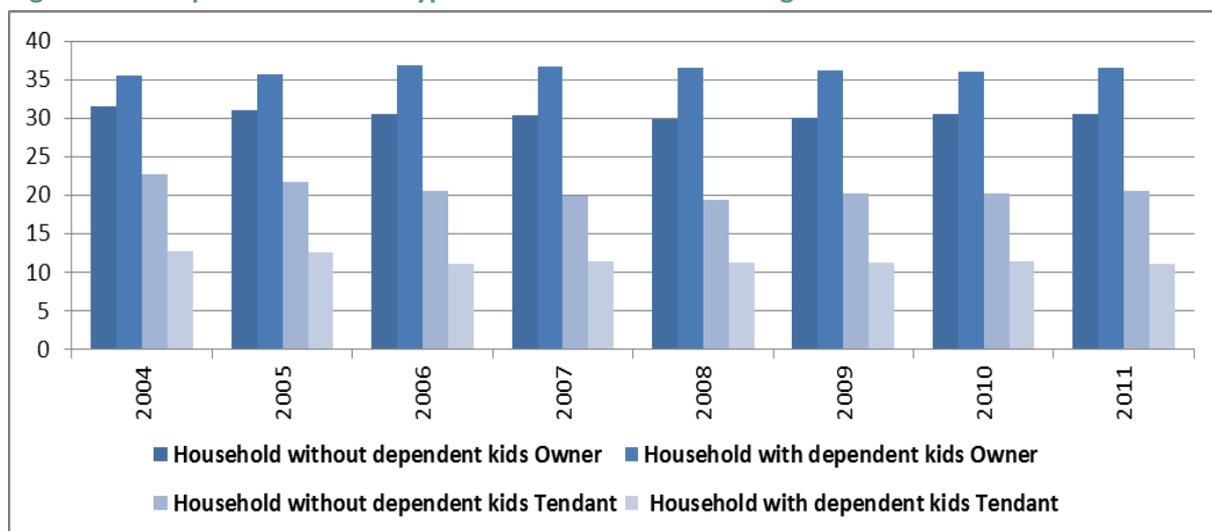
Figure 26: Share of housing tenure (%)



Source: Eurostat, EU-SICL

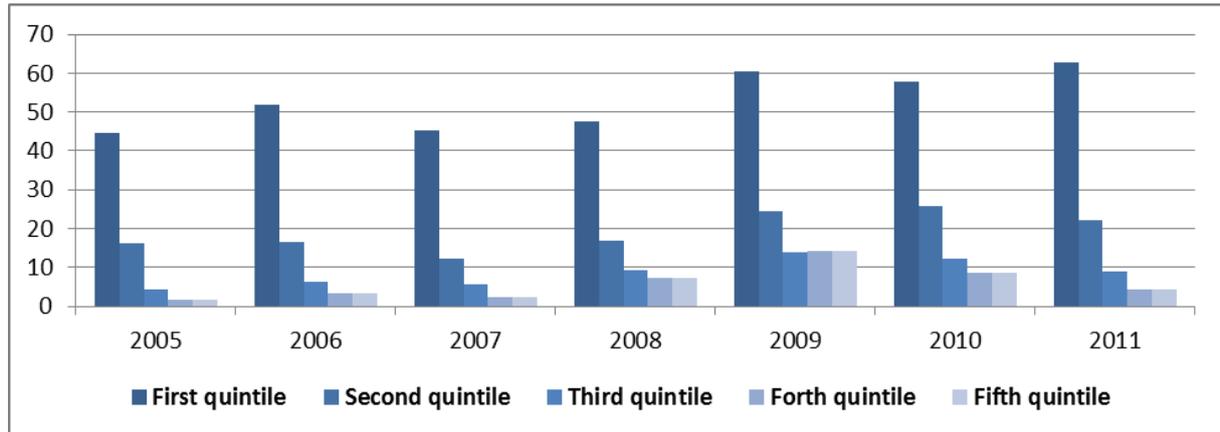
Households with dependent children are more likely to own a house than households without children.

Figure 27: Comparison between type of households and housing tenure



Source: Eurostat, EU-SICL

Looking at the share of housing costs by quintiles in Figure 28, we see that housing costs have increased with 19%p for people with low income (first quintile), while the costs for households in the second quintile increased only with 6%p. The housing costs include total mortgage repayments or rent, insurance and service charges (maintenance, repairs, utility costs etc.) and represent more than 40 % of disposable income ('net' of housing allowances).

**Figure 28: Housing costs, by income quintile**

Source: Eurostat, EU-SICL

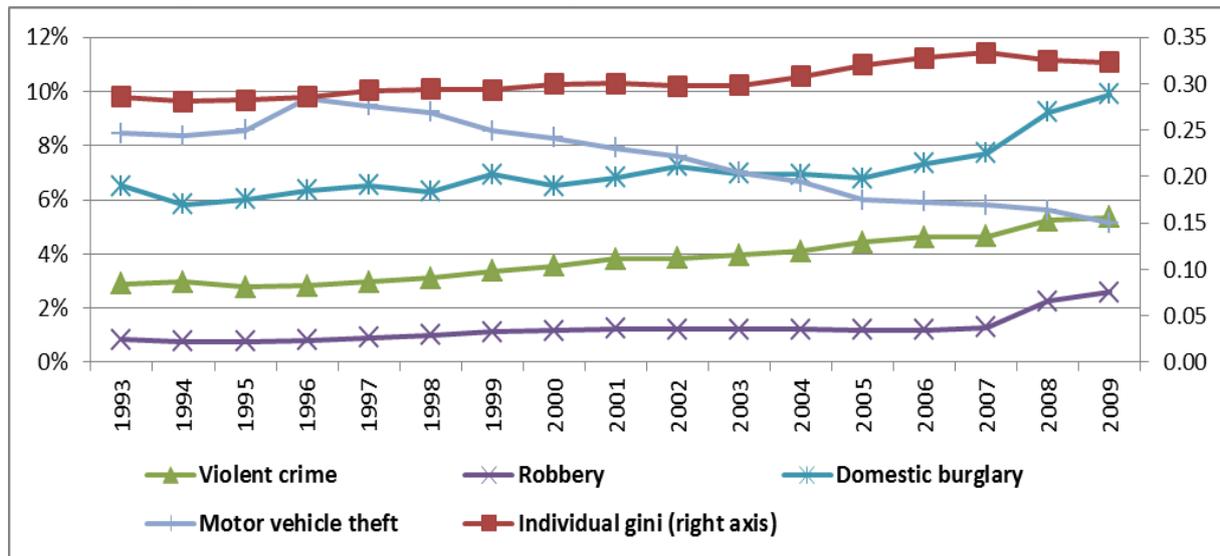
### 3.8 Crime and punishment

The number of crimes has increased in Denmark in later years, having the same trend as the income inequality. Figure 29 shows that, apart from motor vehicle thefts, the frequency of violent crimes, robbery and domestic burglary has increased continuously together with the rise in income inequality but it seems to increase even more after 2007, which could be a consequence of the Great Recession. Unfortunately, the recent decline in inequality (after 2009) did not trigger a decline in crime rates yet.

The percentage of incarcerated population, from the total crimes reported is presented in Figure 30 and it shows that it has the same trend as the income inequality of individuals although a causal relationship cannot be determined.

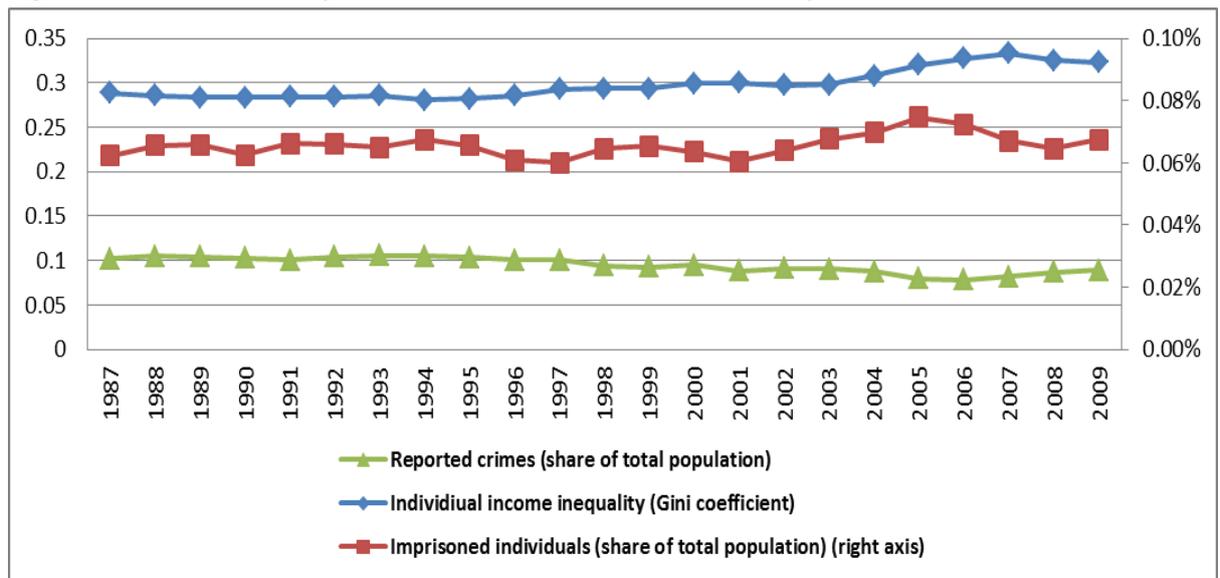
Strangely, the total number of reported crimes related to the total population has a negative relationship with inequality and are decreasing in the observed time frame. This means either that reporting of crimes has gone down or incarceration has become longer or that the police have become more efficient in catching criminals.

**Figure 29: Trends in crimes recorded by the police, comparison with the income inequality (% of total crime registered and the Gini coefficient)**



Source: Eurostat and Statistics Denmark.

**Figure 30: Evolution of imprisoned individuals and total crimes reported**



Source: Eurostat and Statistics Denmark.

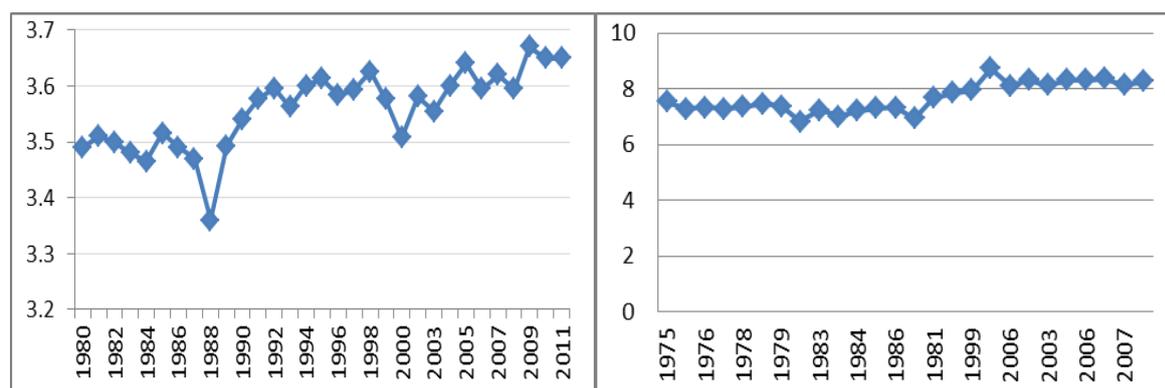
### 3.9 Life satisfaction

There are many studies concerned with happiness and life satisfaction. It is, however, a question of what is the expected impact on life satisfaction if inequality increases. Though common wisdom suggests that an increase in income inequality may lead to a decrease in life satisfaction if the increase in inequality is generated by a decrease in median income, life satisfaction in Denmark, as reported by individuals answering the survey question “How satisfied are you with the life you lead?”

and ranking it on a scale from 1 to 4, has an upward trend<sup>9</sup> and it is reported on the left side, in Figure 31. Income inequality in Denmark has an increasing trend, as well, suggesting that the increase has not negatively affected the perception of well-being for individuals. The explanation could very well be that as long as the growth in inequality is related to life cycle differences, where those who have got less know that they will be compensated later in life there may even be a positive impact of increasing inequality. This conclusion is consistent with results from a panel study on Danish citizens where it appears that respondents are more happy working in a firm where there is larger income dispersion than in a firm where there is less, as long as they have a rational expectation that they will also someday get the higher income, Clark, Kristensen and Westergaard-Nielsen (2009). A further study of Clark, Kristensen and Westergaard-Nielsen (2009) showed that increasing income of your neighbour actually increases your own happiness.

This is supported by findings from Bjørnskov et. al. (2008) that well-being is not affected by the changes in real GDP, but by accelerations in GDP growth.

**Figure 31: Trend in life satisfaction(left) and happiness (right)**



Source: Euro Barometer (left) and The World Dataset of Happiness (right)<sup>10</sup>

Happiness in Denmark has also an upward trend and is, on average, 8.3. Currently, the happiest individuals in the world have an average of 8.5, making Denmark one of the happiest nations in the world, despite the increase in income inequality. Happiness is calculated by self-reported answers to the question “Generally speaking, how happy do you feel?” with answers ranging from 0 to 10. Conversely, happiness and life satisfaction are not related to any development in Danish inequality, consistent with other evidence that inequality is in general not related to life satisfaction (cf. Cullis et al., 2011).

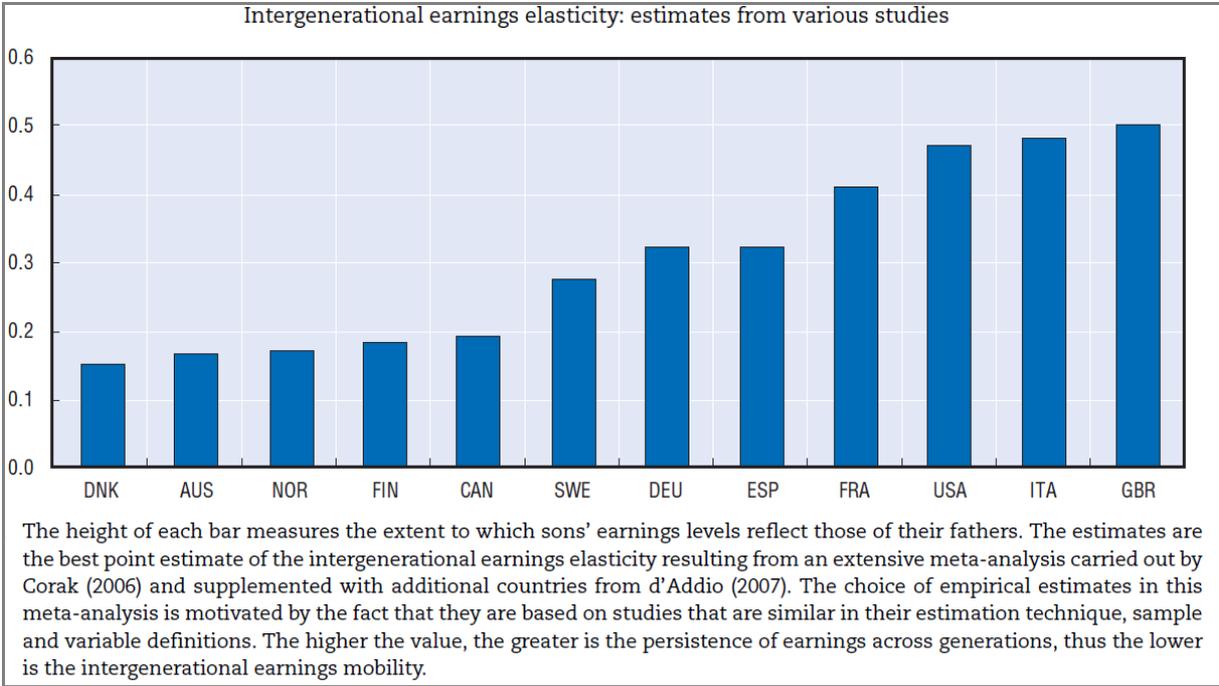
<sup>9</sup> It should be mentioned that the strong tick down in 1988 is a general feature of European countries in the Euro Barometer survey. Most scholars attribute it to a structural change in the questionnaire, and thus not to any real change in life satisfaction or background variables.

<sup>10</sup> <http://worlddatabaseofhappiness.eur.nl>

### 3.10 Intergenerational mobility

One way of evaluating the evolution of a society is through the changes that occur between generations. It is very important, when discussing about inequality in a country, to know if it affects the same individuals, if the children of unprivileged individuals are the ones that will continue to be unprivileged. Therefore, intergenerational mobility of income and earnings, education attainment and occupations is a concern for many international organizations. OECD has created a hierarchy of the most mobile countries and Denmark was, in 2007, at the top of the list, regarding earnings mobility (OECD, 2010).

Figure 32: Intergenerational mobility of earnings among OECD countries

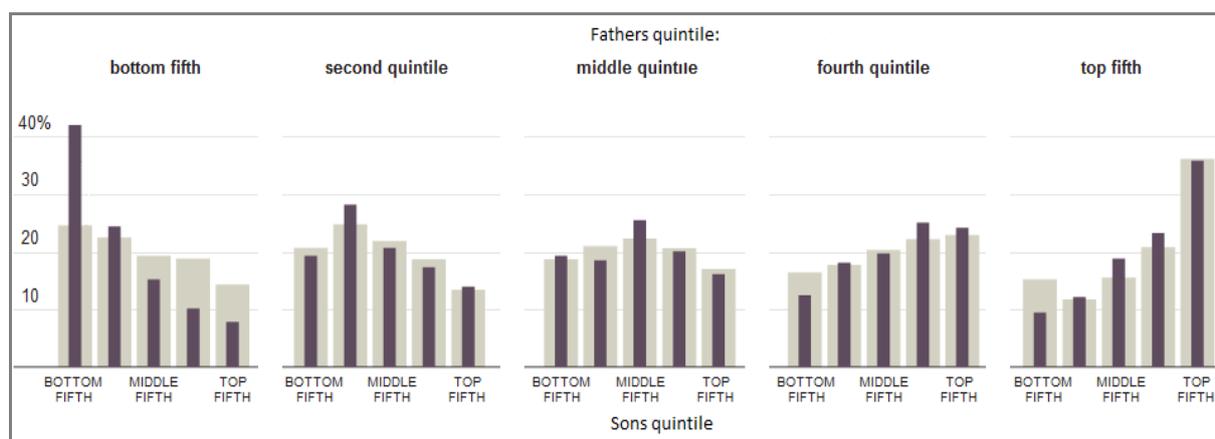


Source: OECD, 2010 presentation of results from d'Addio, 2007

A more detailed picture of the intergenerational mobility of earnings, for Denmark and US is presented in Figure 33. This shows that there is a high mobility between Danish fathers and sons for the year 1995. In their investigation of intergenerational mobility in the Nordic countries and US, Jäntti et al, (2006) show that the bottom-to-top mobility is the highest in Denmark, compared to the other Nordic countries and the US.

This conclusion is supported also by a study conducted by the Social Research Institute of Denmark, where they looked at the mobility between fathers and sons cohorts in 2002. Although the division of earnings distribution is different, these studies both show that, irrespective of the age of the children or the point in time when the comparison is made, the picture is the same (Table 3).

**Figure 33: Intergenerational mobility of earnings between sons and fathers, for Denmark (gray) and US.**



Source: NY Times graph<sup>11</sup> based on Jäntti et al. (2006) results

There is a high intergenerational mobility in Denmark, indicating a high equality of chances among individuals from different social classes.

**Table 3: Intergenerational mobility of wage earnings for sons and fathers and their position in the earnings distribution**

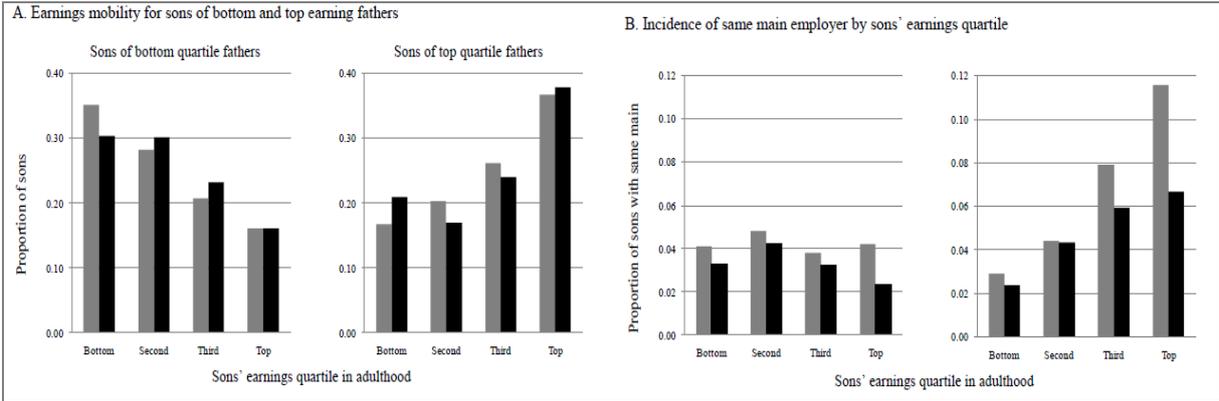
Son's quartile position in 2002:				
Father's quartile position in 1980-84:	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
1 <sup>st</sup>	31.9	27.4	23.1	17.6
2 <sup>nd</sup>	28.2	26.7	24.4	20.7
3 <sup>rd</sup>	23.6	25.5	25.4	25.5
4 <sup>th</sup>	18.4	20.6	24.9	36.0

Source: Bonke et al, 2005

Similar results have been obtained by Bingley et al, 2011. In their paper they investigated not only earnings mobility but also the conditions for intergenerational occupational mobility and found that 30 to 40% of young adults have been, at some point, employed at the same firm as their fathers. Clearly, this phenomenon is more prevalent among the richest families because of networks and direct ownership, compared to the poorest, as shown in Figure 34. This offers a glimpse at how young adults start their careers and how they tend to follow the footsteps of their fathers, in Denmark.

<sup>11</sup> <http://www.nytimes.com/interactive/2012/01/04/us/comparing-economic-mobility.html>

**Figure 34: Incidence of earnings mobility and same main employer (%) by earnings quartiles of sons and fathers**



The grey columns are Canada, the dark curves are Denmark  
 Source: Bingley et al, 2011

Many studies have been concerned with the transmission of educational levels from parents to their children and, in the case of Denmark, it seems that parents education, especially mother’s education is very important for the children’s educational attainment, especially in the case of highly- educated parents. For the low educated parents, the educational attainment of children depends more on the living condition and not on the parents’ educational background (Deding and Hussain, 2002). As shown in Chapter 2, the share of highly educated individuals has increased constantly since 1980.

Table 4 shows the changes in children’s educational attainment, depending on their parent’s level of education but also the intergenerational mobility in education from parents to children. For example, while only 2.1% of fathers have completed long further education, 8.8% have completed this level of education, suggesting high upward education mobility in Denmark. This mobility towards higher education is higher for girls than boys, and the education level of the mother is more correlated to their own education for the case of girls than boys. Also, for boys, the influence of maternal or paternal level of education is very similar (Deding and Hussain, 2002).

**Table 4: Educational attainment of sons/daughters (age 25-35 in 1998) , depending on mother's education**

	Mother's educational distribution	Child's education								Non ac.	Ac.	Father's educational distribution	Child's education								Non ac.	Ac.
		Low	Upper	Voc	Short	Med	Long	All	Low				Upper	Voc	Short	Med	Long	All				
Lower secondary school	48.8	27.2	4.8	<b>50.6</b>	5.1	9.3	3.0	100			38.4	26.1	5.2	<b>48.0</b>	4.6	11.3	4.8	100				
Upper secondary school	1.2	14.3	19.0	<b>23.8</b>	4.8	<b>23.8</b>	14.3	100			1.2	5.3	26.3	26.3	5.3	5.3	<b>31.6</b>	100				
Vocational training	33.3	15.9	8.0	<b>45.6</b>	7.2	14.8	8.5	100			39.9	20.1	6.4	<b>50.5</b>	5.8	11.3	5.8	100				
Short further education	5.3	14.3	13.2	<b>27.5</b>	4.4	24.2	16.5	100			4.6	13.3	5.3	<b>48.0</b>	13.3	12.0	8.0	100				
Medium further education	9.3	10.1	13.3	<b>27.2</b>	6.3	14.6	<b>28.5</b>	100			9.3	5.9	18.4	23.0	6.6	21.7	<b>24.3</b>	100				
Long further education	2.1	5.6	27.8	5.6	5.6	16.7	<b>38.9</b>	100			6.7	10.1	16.5	18.3	4.6	22.0	<b>28.4</b>	100				
All	100	20.6	7.8	<b>44.2</b>	5.9	12.7	8.8	100	78.5	21.5	100	19.9	7.9	<b>44.5</b>	5.7	13.0	9.0	100	78.0	22.0		
Non academic	88.6								81.5	18.5	84.1								82.9	17.1		
Academic	11.4								54.6	45.4	15.9								52.1	47.9		

Note: 1,702 observations used, thus excluding 112 representing missing mother's

1,637 observations used, thus excluding 177 representing missing father's. Both generation's education is defined in the same way

Source: Deding and Hussain, 2002. Note; the differences in total education attainment for children comes from the difference in the number of observations, due to the missing observations for mother's/father's education level.

One of the mechanisms for the high generational mobility is undoubtedly the widespread day care system. Esping-Andersen, 2008, argues that maternal employment reduces child poverty and in combination with substitution to high quality non-parental care, can diminish reproduction of inequality. Bingley and Westergaard-Nielsen, 2012, used the previous variation of day care to show that the participation in organized day care increases the educational attainment of children compared to their parents and it does not lower the educational level of the sons and daughters of the better-educated parents. Thus, there is little doubt that the now widespread publicly subsidized day care program is one of the most important factors for ensuring a high inter-generational mobility in Denmark.

### 3.11 Conclusions

The social situation in Denmark has changed over the past 40 years. The family structure has changed, people marry less, the age at the first marriage has increased by almost 10 years and the divorce rate has increased. Meanwhile, life expectancy at birth has also increased, on average by 6 years and the gap between men and women has decreased. The self-reported health suggests an improvement of health conditions from 1987 onwards, especially for individuals over 45. The cases of obesity have doubled since 1987, while the death incidence due to heart and circulatory problems have decreased but cancer on the other hand has still a high death rate. Also, the number of heavy drinkers and smokers has decreased over this period.

The number of people at-risk-of-poverty and at persistent risk of poverty has increased unlike the materially deprived population. Also, the rates for violent crimes, robberies and incarcerated

population have increased since the 1990s, while life satisfaction and happiness have increased in Denmark. This is not so surprising considering that Denmark is the country with the highest equality of opportunities in the world, according to OECD. There is a high degree of intergenerational mobility in education, but most importantly in the earnings distribution.

Thus, the picture is mixed. Some factors point at a more unequal society, where especially the income distribution and the risk of poverty are dominating. Others point towards a country of the highest level of opportunities. In the next chapter we will look at indicators at the societal level and see if that will bring more clarity to the picture we have painted so far.

## 4. Political and Cultural Impacts

### 4.1 Introduction

A long literature associates income inequality with social attitudes and behaviour. The key claims are that increased inequality in general has adverse social impacts. As we document in Chapter 2, Danish income inequality has increased since 1980, although the increase has been modest and not clearly generalizable to all groups in society.

In this chapter, we therefore provide a closer look at trends in Danish attitudes and social beliefs, political values and participation in civil society. However, as we note, it is often difficult to reconcile these developments with developments in Danish income inequality, or merely relate them to the development in inequality.

We begin by tracing trends in political and civic participation since 1980, as measured by turnout in elections, unionization rates and strike activity as an alternative measure. We thereafter turn to trust in others and in formal institutions. Finally, we illustrate the development of political values and the perceived legitimacy and support of EU institutions and EU membership.

### 4.2 Political and civic participation

First, we document the development of a set of political factors and measures of civic participation. These include turnout in elections, union membership, and strike activity. These and several other indicators or political and civic participation, along with other measures broadly within the concept of 'social capital', are known to be very high in the Nordic countries and Denmark is no exception.

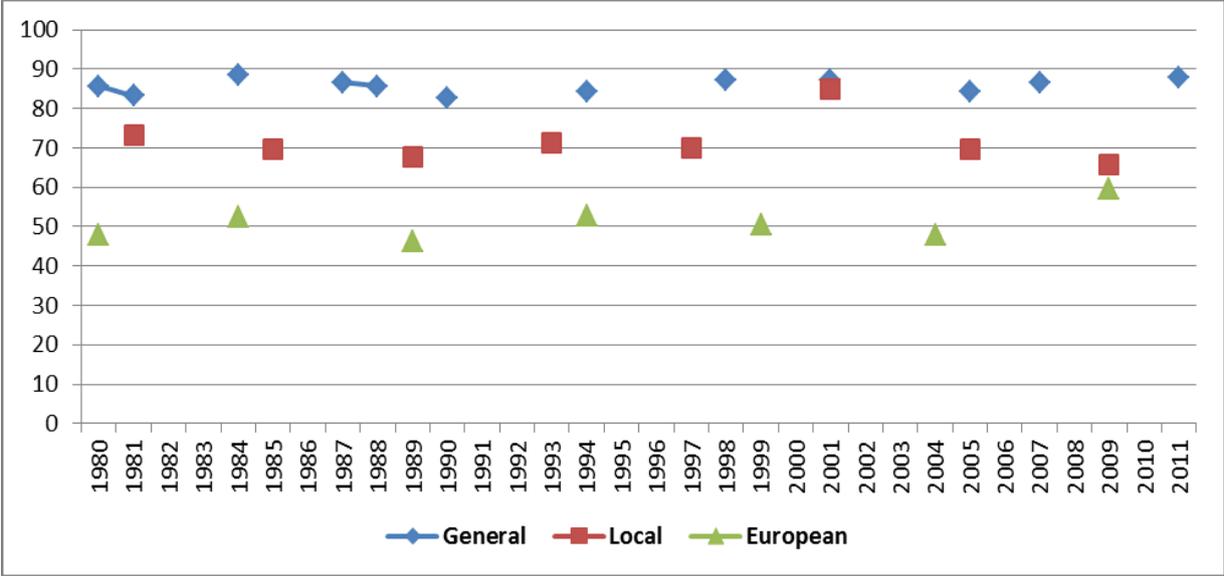
#### 4.2.1 Total electorate turnout in general, local and EP elections

First of all, it is clear from the below chart that the turnout in Danish general elections is higher than the turnout of the local and European parliament elections; it is moreover one of the highest among countries without mandatory voting.

However, turnout in general elections has been quite stable from 1980 to 2011 whereas the turnout in the EP elections has increased over time and turnout in local elections has decreased slightly. In addition, it is worth noting the large increase in the turnout of the local election in 2001. While turnout was the same in the general and the local election, this is due to the fact that these elections

were held at the same time and were indeed only one election. As such, there is no clear change in Danish turnout and the only reason for the high local turnout in 2001 is that a national election drew additional voters to the voting booth.

Figure 1: The electorate turnout in Denmark

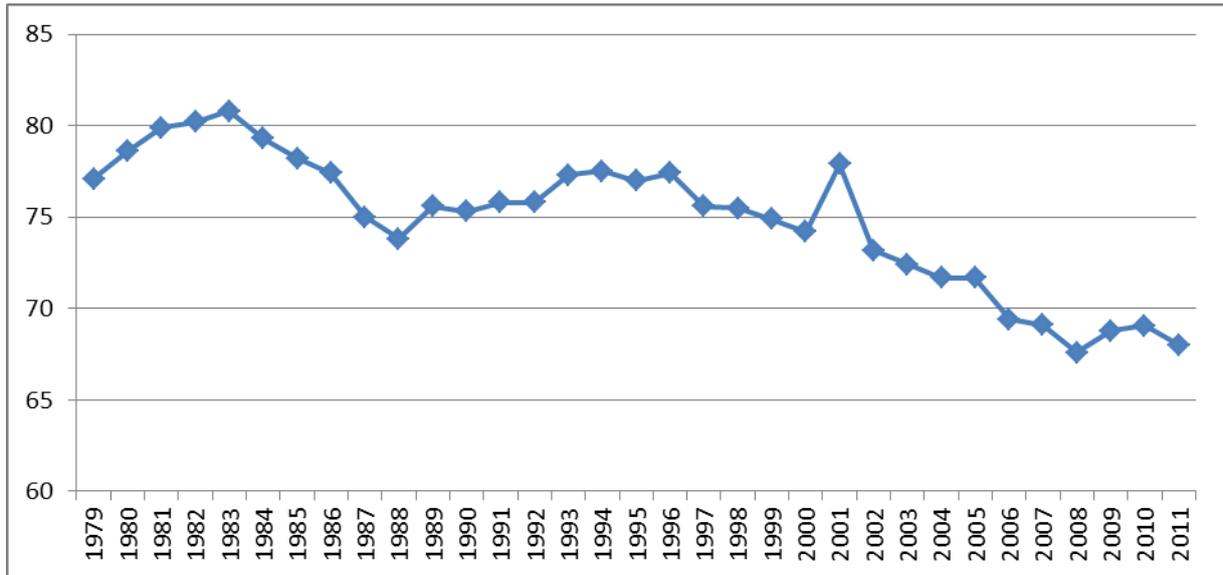


4.2.2 Workforce unionized

Second, the majority of the Danish workforce is unionized; the current level is approximately 68%. Part of the reason is that Danish wages and employment conditions are negotiated freely between employers and labour unions without the intervention of the government. This system rests on a substantial part of the workforce being unionized in order to be considered legitimate and effective. Furthermore, unions also primarily organize the voluntary unemployment insurance system in Denmark, which is often seen as an important factor in explaining the high Scandinavian unionization rates (cf. van Rie et al., 2011).

However, the Danish labour unions have been losing members consistently for the last 15 years. Part of the workforce is now organized in independent labour organizations such as the Christian labour union while others have decided to leave unions altogether.<sup>12</sup>

<sup>12</sup> According to the Christian labour union, by 2012 it organizes 215.000 employees (data available at <http://www.krifa.dk/omos.aspx>). This is roughly 20% of the workforce organized by the Danish Confederation of Trade Unions.

**Figure 2: Unionization, share of workforce**

Source: Statistics Denmark.

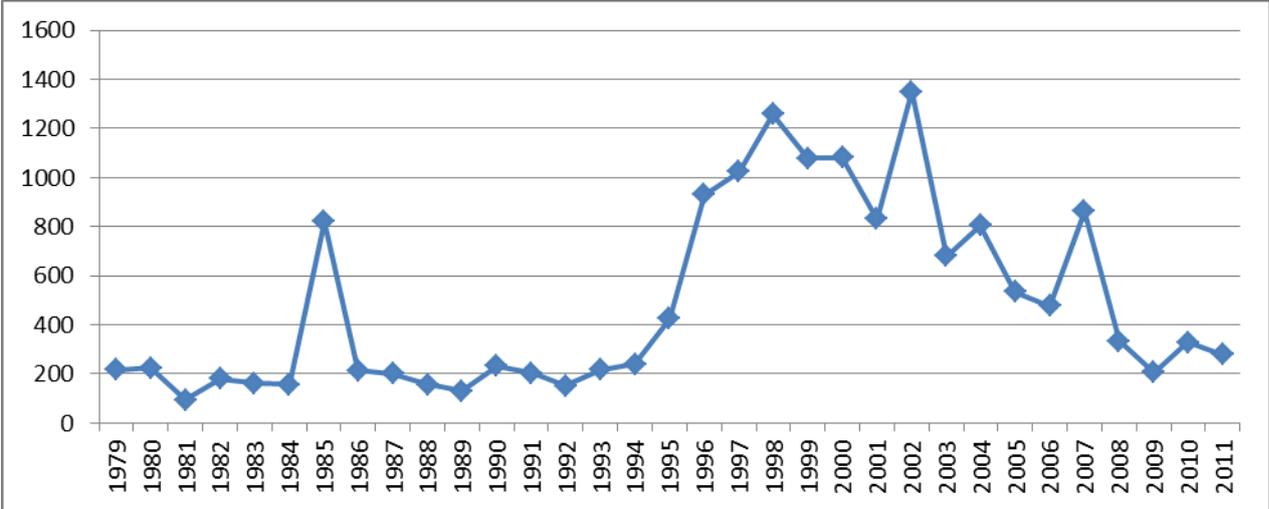
These developments are immediately visible in Figure 2. After an increase in membership in the late 1970s, unionization declined in the crisis years in the early 1980s and thereafter stagnated. From around 1995, unionization has declined steadily almost every year.

#### 4.2.3 Strike activity and labour disputes

As a final example of participation, Figure 3 depicts the number of labour disputes, measured by strikes and lockouts, between 1979 and 2011. Although a peak occurred around a major strike directed against the right-wing coalition government in 1985, activity was relatively stable during the 1980s and early 1990s. However, as a government led by the Social Democrat party took office, strike activity increased dramatically. However, except a high in 2002 after government power shifted to the right-wing again, labour disputes and participation in strikes has decreased since the late 1990s.

The number of employees participating in strikes (not shown) has also decreased, concomitantly with decreasing unionization rates. In total, the number of labour disputes has not been pro-cyclical, as former theories would suggest (Oswald, 1985). Instead, it seems as if Danish labour disputes have been affected more by unionization and the political climate than economic conditions.

Figure 3: Number of strikes and lockouts in Denmark



Source: Statistics Denmark.

### 4.3 Trust in others and in institutions

Next, we turn to examining the status of social and institutional trust in the Danish system; these types of trust are also sometimes known as horizontal and vertical, or moralistic and strategic trust. The data on trust and confidence in democracy and formal institutions are all from the Euro Barometer surveys while social trust is from a set of national surveys and the World Values Survey documented in Dinesen and Sønderskov (2012a).

The measures are trust in parliament, government, the political parties, the legal (judicial) system, and are all measured in a four-point scale. The charts show the share of respondents answering that these institutions can be trusted to some or a large degree. Social trust is measured as is standard by the share of respondents stating, “Most people can be trusted”.

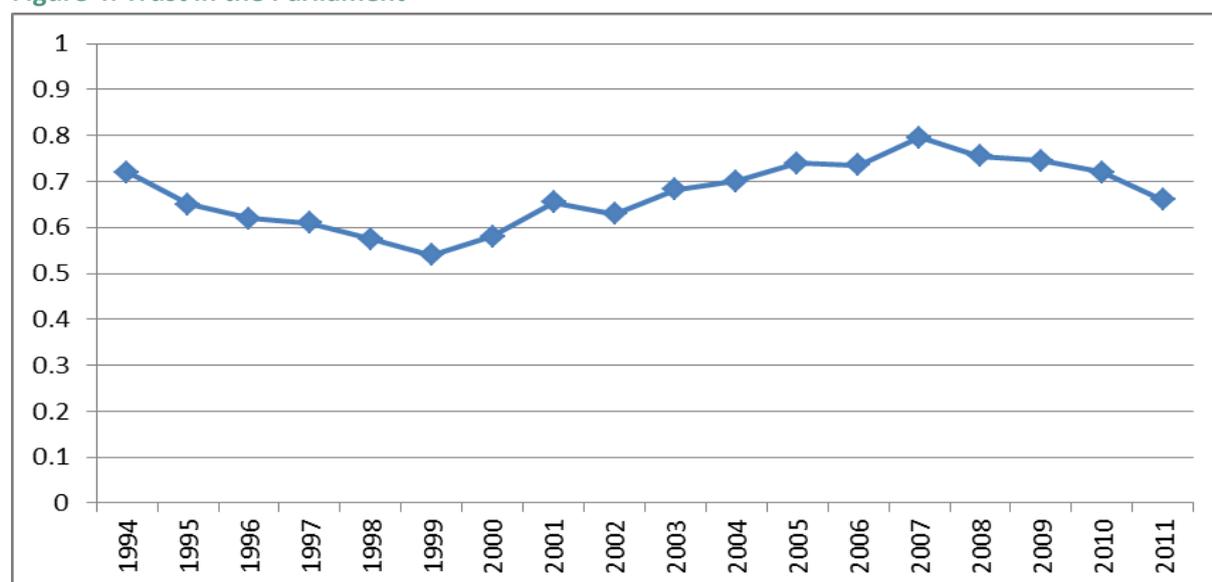
As in a number of studies, Danish indicators of trust are among the highest in the world (e.g. Uslaner, 2002). To the extent that survey data from third-generation immigrants to the US can inform about such matters, trust levels have been very high in Denmark at least since the 1930s (cf. Bjørnskov and Svendsen, in press). They are therefore not likely to have been created by the modern Nordic welfare states but are rather part of a social foundation upon which the welfare state rests (although see Kumlin and Rothstein, 2005, for the opposite argument).

### 4.3.1 Trusting the parliament

In the following, we illustrate the level and trend to trust in a number of components of the Danish institutional set-up: trust in parliament, government, the political parties, the legal system, and other people in general.

First, the trust in the national parliament in Denmark is in general quite high, compared to most other countries. It has nevertheless varied considerably since 1994, as shown in Figure 4. Trust in parliament decreased until 1999, after which it increased until 2007. After 2007, it has decreased again, consistent with how the economy developed in Denmark over the period before and after the crisis. In other words, trust in parliament has been clearly pro-cyclical. It is therefore possible that people are more satisfied with the government when the economy is good. It should, however, be stressed that the spread is large in the data, and any conclusion must be tentative.

**Figure 4: Trust in the Parliament**

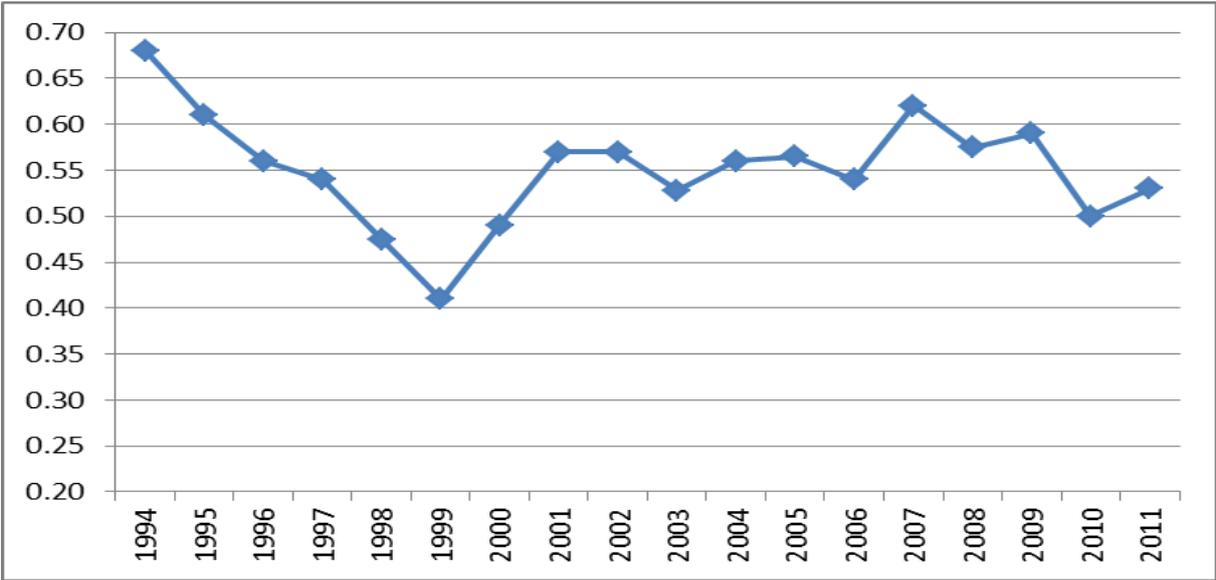


### 4.3.2 Trusting the government

Second, trust in government, depicted in Figure 5, has in general followed the same trend as trust in parliament, but at a lower level and with less variability. It decreased from a high level in 1994 and reached a low in 1999, immediately following a very close election, and has remained relatively stable with a slight peak in 2007 and a decline afterwards since.

In general, this is more consistent with an interpretation of these numbers as measuring Danish confidence in the general government system more than the particular cabinet or government parties at any time.

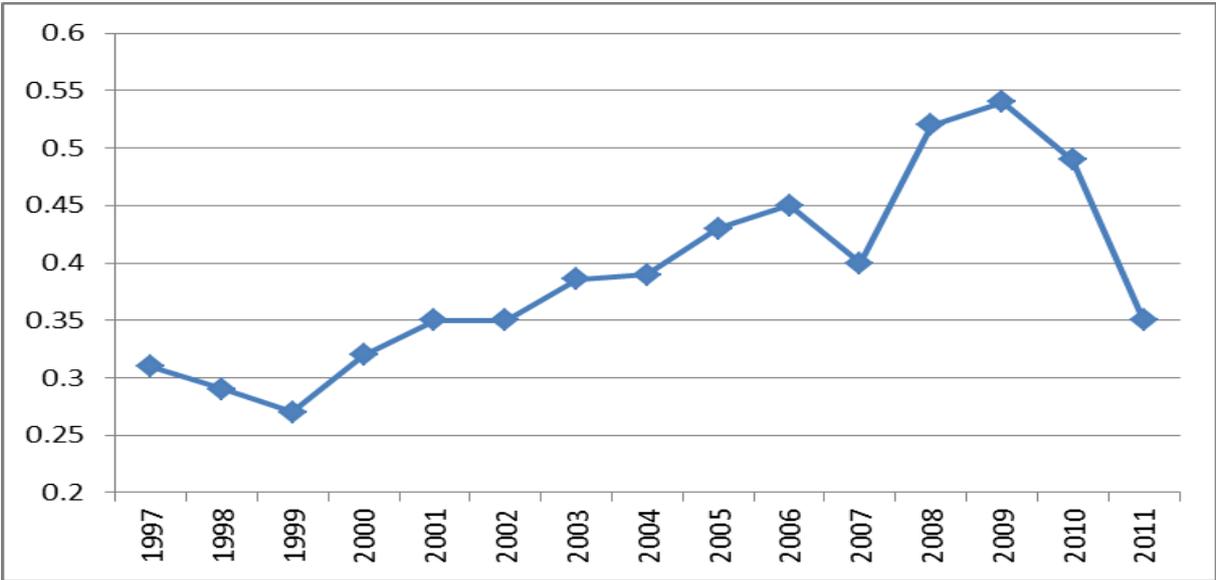
Figure5: Satisfaction with the government



4.3.3 Trusting the parties

Third, Danish trust in the political parties shows a somewhat different trends than that of trust in government. This trend, which is only available in the Euro Barometer survey from 1997, is instead very similar to that of trust in parliament, but around a considerably lower level. Whereas trust in parliament fluctuates around a level of 70% stating that parliament can be trusted to some extent, trust in political parties fluctuates around a long-run level below 40%. However, the fluctuation across time is very similar and decidedly pro-cyclical. In particular, the figure shows a strong downward tick coinciding precisely with the onset of the 2008 financial and debt crises.

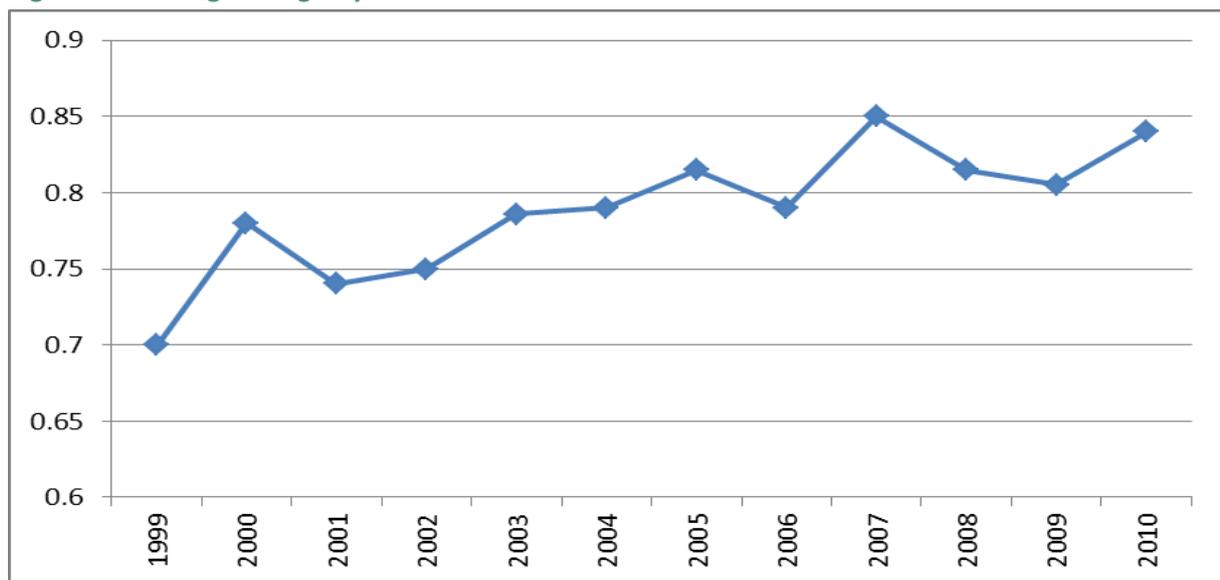
Figure 6: Trusting the political parties



#### 4.3.4 Trusting the legal system

As a final indicator of confidence in formal institutions, Figure 7 depicts the trust in the legal / judicial system, available in the Euro Barometer from 1999. This indicator shows a slight upwards trend, seemingly unaffected by the business cycle, and occurring around a very high level of approximately 80% of respondents stating that they trust Danish legal institutions. This very high level is consistent with previous measures in the World Values Survey dating back to 1990 and 1981.

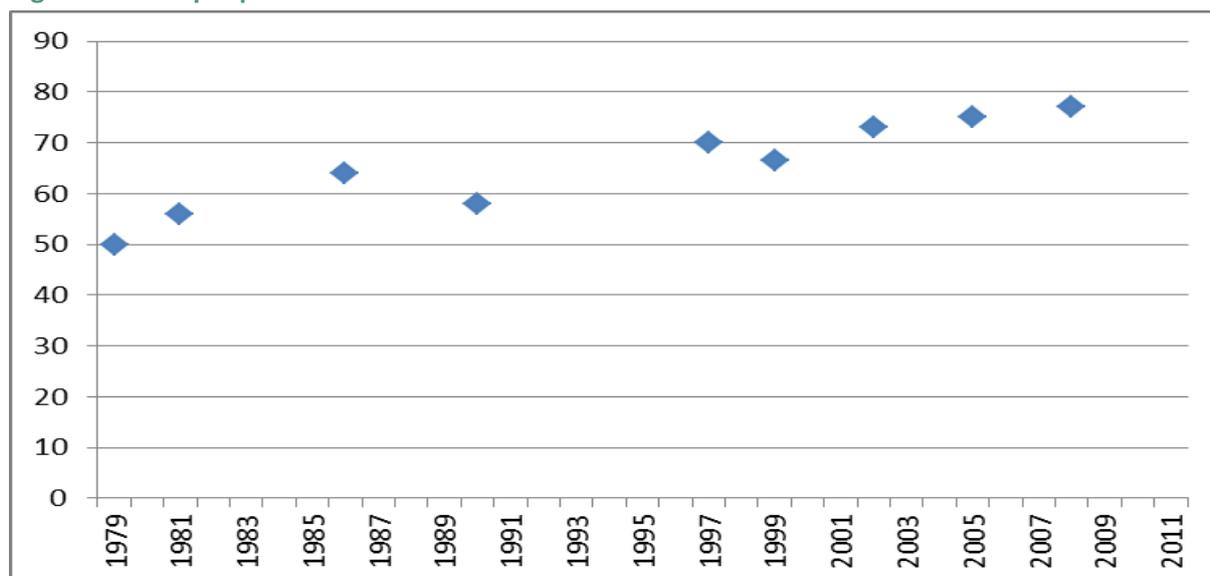
**Figure 7: Trusting the legal system**



#### 4.3.5 Agreeing most people can be trusted

As we note in the introduction to this chapter, the Nordic countries excel by having the highest measured levels of social or interpersonal trust. While the global average is approximately 27% stating that “most people can be trusted”, the Nordic countries in recent years have been the only region in the world to consistently show rates above 65%.

Figure 8 below shows that social trust, i.e. trust in other people whom one does not know personally, has increased in Denmark since its first measurement in 1979.

**Figure 8: Most people can be trusted**

Source: Dinesen and Sønderskov (2012b)

The increase has nevertheless occurred from an already very high level to a record level of almost 80%. As documented by Dinesen and Sønderskov (2012b), most of this increase is due to a cohort effect, as lower-trust generations with experience from WWII die out in the data.

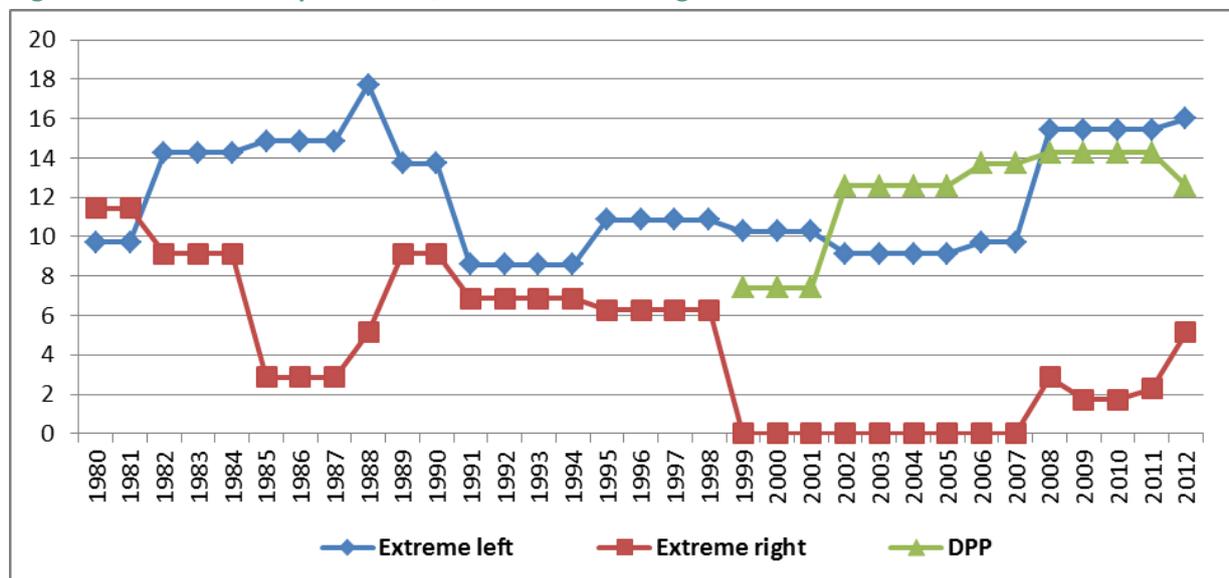
#### 4.4 Political values and legitimacy

Another area in which changes may occur is in political values and legitimacy. The Danish party system today stretches from the unreformed socialist Red-Green Alliance (the Unity List) to the libertarian Liberal Alliance. Formerly, the party system also included a Communist and several extremist socialist parties, which joined forces in the Red-Green Coalition. Likewise, the party system included the quasi-libertarian protest party The Progress Party from 1973 until its collapse in 1998. It is thus one of the most competitive and fractionalized systems in the world, but has a long tradition for coalition governments and substantial cooperation across parties. From the early 1960s to 1982, the Social Democrat party was in power for most of the time and was instrumental in setting up most elements of the Danish welfare state. Since 1982, however, power has shifted between coalitions led by the Social Democrat party and the two major right-wing parties, the Liberal Party and the Conservatives.

#### 4.4.1 Voting for extreme right and left parties

Figure 9 depicts the popular vote for extreme parties as their seat shares in parliament. While Danish politics are usually considered ideologically rather moderate and represents a measurement challenge, parties do and have existed that qualify as being extreme in an ideological sense (Hansen, 2008). Left-wing extremes include the Communist Party, the Left Socialists, the Red-Green Coalition and the short-lived Common Course. The right-wing extreme consists of the Progress Party until 1999 and Liberal Alliance since 2008. The figure also includes the vote share of the Danish People's Party (DPP), which is sometimes treated as an extreme right wing in international political discourse, but is more precisely categorized as a populist party.

**Figure 9: Seat shares in parliament, extreme left and right in Denmark**



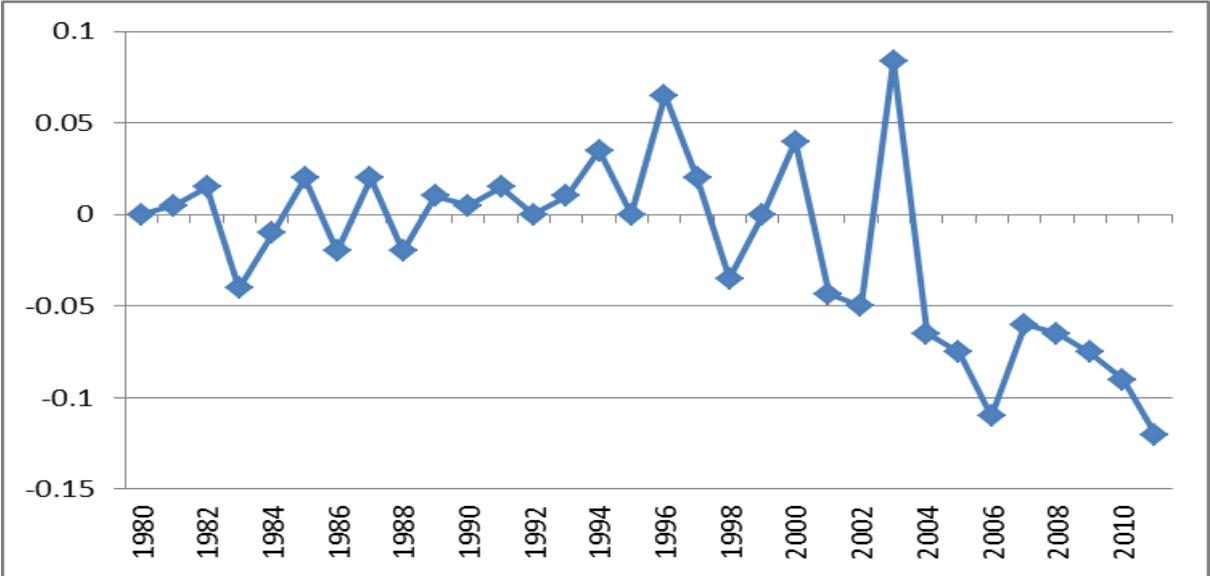
Source: Folketinget ([www.ft.dk](http://www.ft.dk))

Figure 9 thus shows how votes moved towards the extreme left in the mid-1980s while the most recent years have seen a move towards both extremes and thus more apparent political polarization. However, as Kurrild-Klitgaard (2011) shows, the appearance of polarization was accompanied by a move towards the median position for both the Social Democrat party and the major right-wing parties, which effectively has left room for more votes for parties with a stronger ideological position. What has happened to the Danish party spectrum is undoubtedly an expansion in both ideological directions, yet it is unclear what has happened to the preferences of Danish voters and thus if anything has occurred to the overall legitimacy and representativeness of the political system.

4.4.2 EU Membership approval

Another question is how EU membership approval varied across the period since 1980 and thus how the perceived legitimacy of the Union changed. Figure 10 depicts the difference between Danish respondents in the Euro Barometer stating that EU membership is overall a “good thing” and those stating that it is a “bad thing”.

Figure 10: Share of respondents stating, “EU is a good things” minus “EU is a bad thing”



Source: Euro Barometer

Figure 10 shows that, until the early 1990s, Danes were on average neutral in their evaluation of EU membership. The 1990s saw substantial variation eventually resulting in a peak in 2004 around the Danish presidency that negotiated the Eastern enlargement. However, since then evaluations have on average been negative and deteriorating. It may be worth noting that this development started well before the financial crisis.

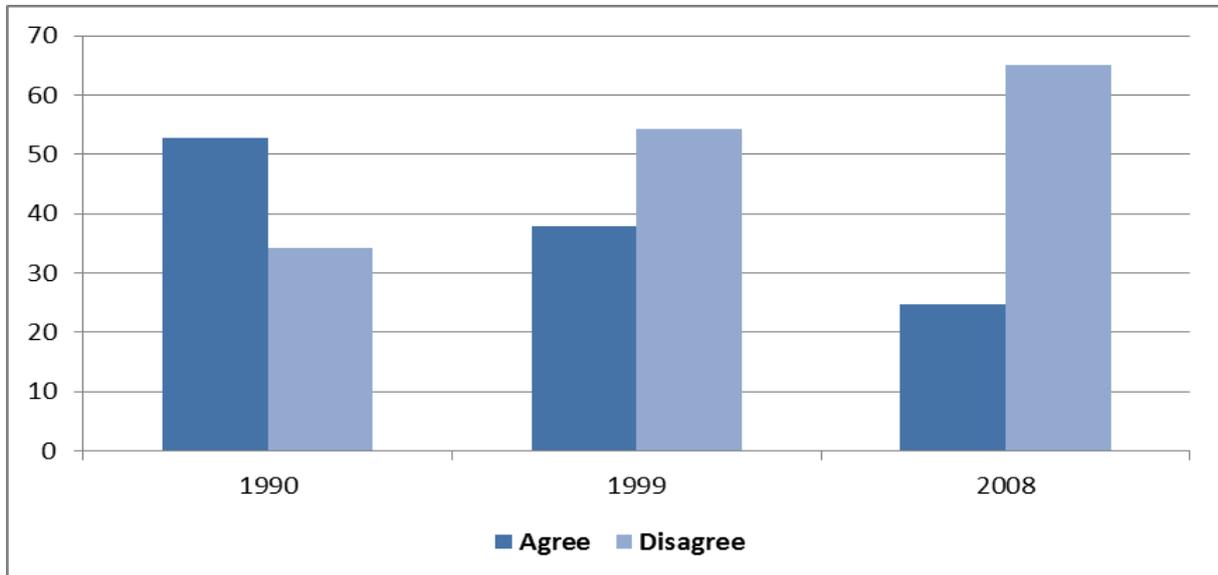
4.4.3 Agreeing no further immigrants to be allowed to country

While the Euro Barometer data does not contain a specific answer to whether or not the immigrants should be allowed into Denmark, we instead employ the three waves of the European Values Survey, which asks “When jobs are scarce, employers should give priority to Danish people over immigrants”. Figure 11 illustrates the development between 1990 and 2008.

In the European debate, Danes are occasionally depicted as sceptical towards immigrants. However, the data shows that Danes have become substantially less likely to state that immigrants ought to be discriminated against in the labour market. In 2008, the latest date for which we have data, those

who disagree that immigrants ought to be favoured over immigrants outweigh those who do think so by about 40%. As far as we can judge from the scarce data, Danes have also become more positive towards immigrants since the early 1990s.

**Figure 11: When jobs are scarce, employers should give priority to Danish people over immigrants**



Source: European Values Survey

In the European debate, Danes are occasionally depicted as sceptical towards immigrants. However, the data shows that Danes have become substantially less likely to state that immigrants ought to be discriminated against in the labour market. In 2008, the latest date for which we have data, those who disagree that immigrants ought to be favoured over immigrants outweigh those who do think so by about 40%. As far as we can judge from the scarce data, Danes have also become more positive towards immigrants since the early 1990s.

## 4.5 Conclusions

Overall, a set of Danish measures of political and cultural attitudes and beliefs have changed to the better since the earlier 1980s. However, not all measures of institutional trust or values have changed in ways that are clearly or consistently associated to any common trend. In general, trust in formal institutions as well as trust in other people is very strong in Denmark and has, in most cases, increased since around 1980. However, some of the trends in trust in certain institutions depict a clear pro-cyclical trend, co-varying with the business cycle, while others are approximately stable or increasing.

None of these trends are easy to associate with the development of income inequality in Denmark. Contrary to the claims in many studies (e.g. Rothstein and Uslaner, 2005), increasing inequality has not caused social or institutional trust to decrease in Denmark. Part of the explanation may be that most Danes have not perceived inequality to be on the increase, as that of women has decreased significantly during the period and has only started to increase slightly in the most recent years. Likewise, causality could arguably also run the other way such that higher trust levels increase support for redistribution and reduce rent-seeking, which subsequently affects income inequality (Nannestad, 2008).

The present exploration must therefore be interpreted with care, as it is necessarily preliminary. We nevertheless note that the increase in the correlation between inequality levels of partners and cohabitants logically seems to imply that inequality measured at the family and household level may be increasing in the years to come. Given that inequality does affect the quality of basic institutions, political participation and social attitudes and beliefs, future increases in inequality could arguably undermine some of the social cohesion of future generations in Denmark.

## 5. Effectiveness of policies in combating inequality

### 5.1. Introduction

This chapter aims at the effects on the income distribution of policies on taxes and transfers. The chapter starts with a short highlight of the institutions and the tax system, which are important for the short and long run tendencies of the income distribution.

### 5.2. Labour income

The Danish way of organizing the labour market has on face value little in common with the Central European organization of the labour market and has more in common with the North American labour markets, because of the lack of direct Government intervention in rules and functioning. One major difference is, however, that Trade Unions play a big role in how workers are treated and remunerated at the work place level. This is also different from France for example, where Unions play a role at the central level but not really at the work place level. Furthermore, the Government pays a relatively high benefit, when people are out of work and supplies training if needed.

The overall labour market model in Denmark is often dubbed “The Danish Model”. The key ingredient in the Danish model is that trade unions and the employer’s federation (the social partners) bargain most of the regulatory issues, and the role of the government is “to pay the bill”. The social partners are responsible for wage bargaining and wage setting. They also make agreements concerning normal working hours, and set rules for labour protection with respect to overtime and work environment.

The role of the Danish government is to provide unemployment benefits and to re-train workers who have lost their jobs due to low productivity. The government also provides health-care and disability pension. In other words, the government provides the safety net. This is also the case with respect to those who are not covered by unemployment insurance. In general these workers are eligible for social assistance, which is equal to the UI benefit at lowest level but with the main difference that all payments are means-tested.

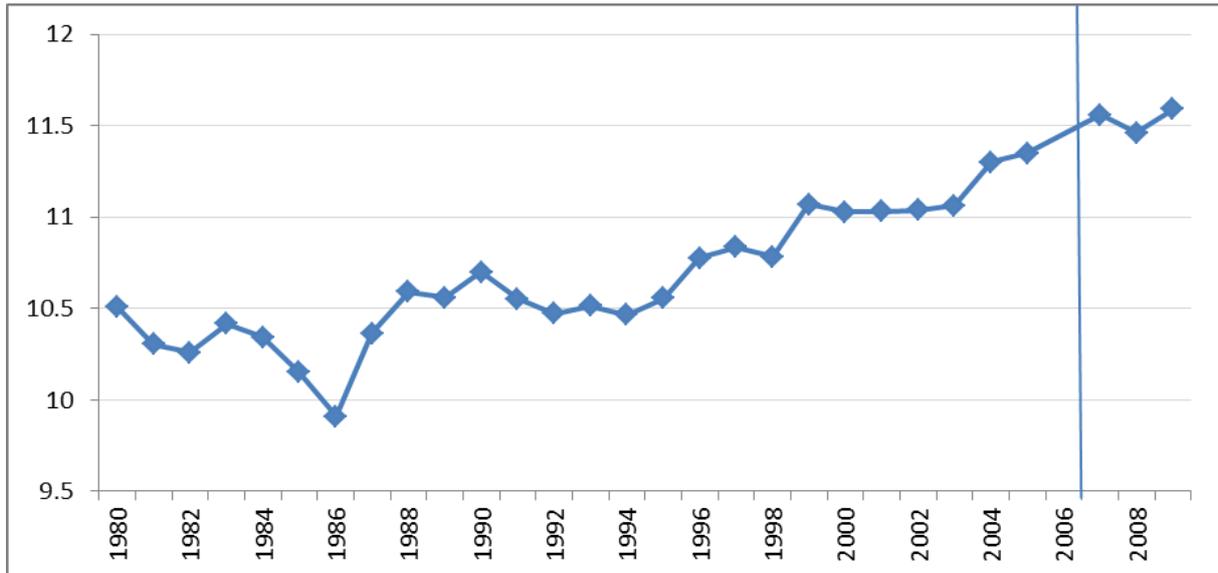
Another aspect of the Danish Model is that the agreements on the labour market assures a certain element of flexibility that in principle should assure that workers can easily shift from one employer

to another, while the Government role is to provide the income security. This is often dubbed “flexicurity”.

Consequently, the Danish labour market has been regulated by agreements between Employers Federation and the Trade Unions more than by legislation since the beginning of the 20th century. Membership of Trade Unions has traditionally been high partly due to an informal link between union membership and membership of the unemployment system. Trade Unions and Employers Federations have agreed on a number of rules for the labour market that have even been adopted by firms and employees outside the organizations. This is the case for a minimum wage and most of the job protection rules and means that there has been no minimum wage legislation and very little formal job protection. Nevertheless, legislation has been passed on issues concerning work environment, safety, vacation pay, and early retirement. This is partly a consequence of the pressure for common legislation within the European Union. The typical pattern is that employers and Trade Unions are involved in the legislation process from the beginning, so that in the end they feel ownership to the legislation. Often the demand for legislation has evolved from agreements among parties on the labour market.

Trade Unions and the Equality of wages have established a special “low wage” policy in the 1980’s in order to reduce the female-male wage gap. That policy culminated, when a law was passed by Parliament on equal pay for equal work. Similarly, Trade Unions have fought for reducing the wage gap between non-skilled and skilled workers but with less success. Although Denmark does not have a minimum wage legislation as said, there is an agreement between the Trade Unions and the Employers Federation which states that an employee/a person covered by any type of contract cannot be paid less than a specific guaranteed hourly wage, which is 97 DKK (13€ in 2012), and must receive extra 15% as vacation pay. The result is a de facto minimum wage of 111 DKK (15€) per hour. On top of that comes 7-10% pension contribution paid by the employer. Also the pension system has been introduced independently of lawmakers as an agreement between the parties on the labour market.

After the extension of EU to the East European countries, Danish Trade Unions were able to prevent most under-bidding of the current wage system by demanding that Eastern workers follow Danish “conditions” even if there is no direct contract with actual employers. The main reason why this worked in Denmark and not in Germany or other countries without a minimum wage legislation is an old rule allowing Trade Unions to demand a contract or start conflicting if the employers are not willing to make a contract.

**Figure 1: Minimum hourly wage in constant 2000 EUR.**

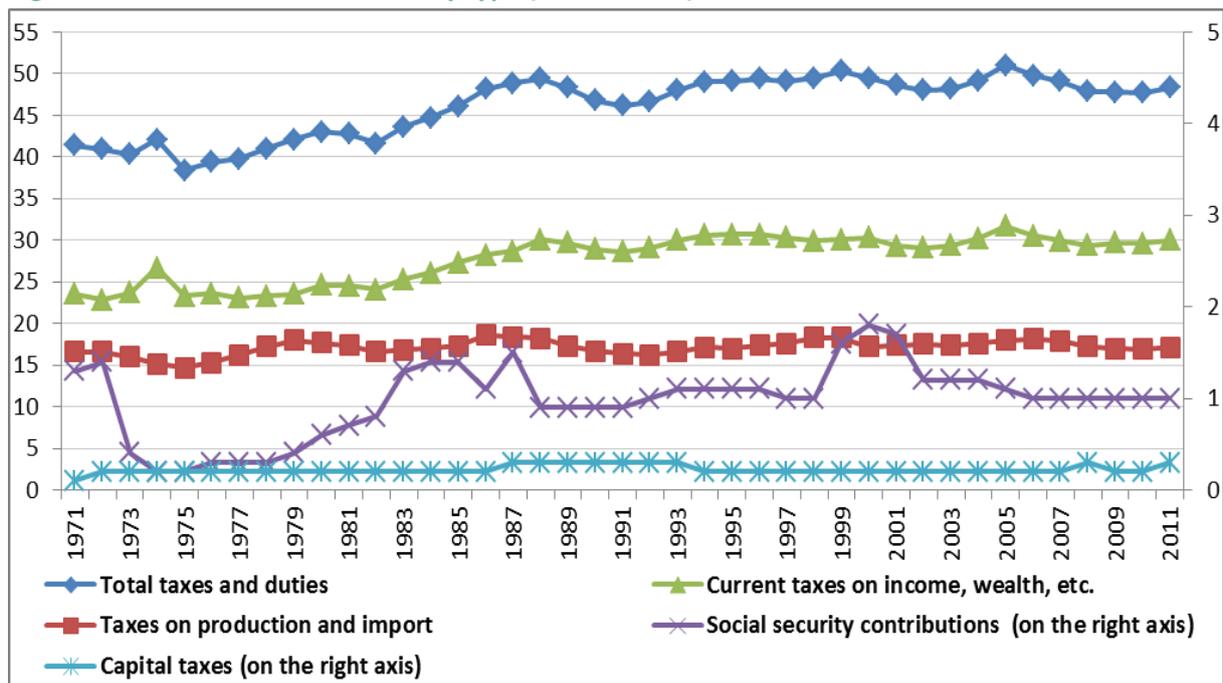
Source: Statistics Denmark (1980-2005), Eurostat (2007-2009)

### 5.3 Taxation

Denmark is one of the countries with the highest total tax payment in OECD, with 48% in 2010. The Danish tax system relies heavily on income tax and less on consumption tax as can be seen in Figure 2. The income tax is based on all types of income including almost all transfer income from the public sector. The tax system has a gross tax on all earnings called social security contributions of 8% of all gross earnings. This is deductible against the income tax. The income tax scale starts with a personal deduction of about 4000 € and all income above that is taxed by 37% and high incomes above 52000€ are taxed with another 15%. Finally there is granted a reduction of 4.25% of income if employed, but that is capped by a maximum of almost 2,000€.

Over the years the income tax has been reformed a couple of times with the purpose of lowering the marginal tax rate but without influencing the overall distribution after tax. The latest cut down the number of people who should pay the top tax by increasing the floor from which this tax should be paid. As compensation, a special tax on the middle income was abandoned. Interest rates are deductible with 33% and that will be lowered to 25% over the next years.

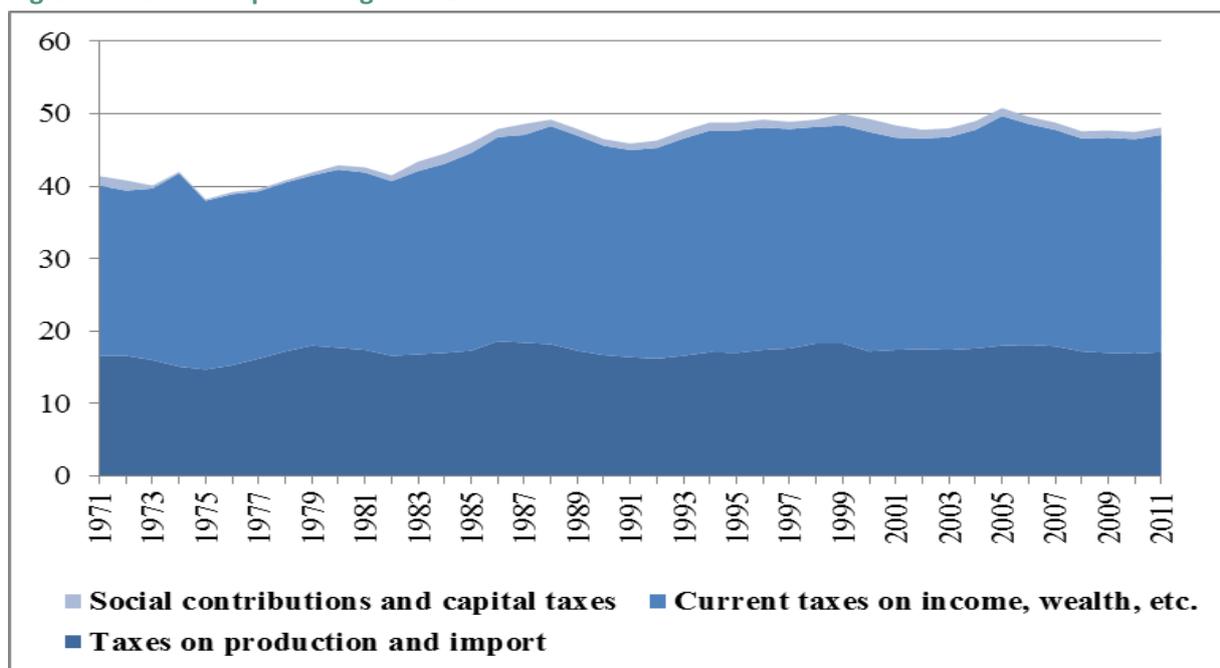
Figure 2: Total taxes – breakdown by type (% of income)



Source: Statistics Denmark

The resulting tax wedge, i.e. the marginal tax rate that includes all sorts of taxes irrespective of who pays them is around 70% in Denmark and places Denmark between Italy and Netherlands on an international scale, Andersen, 2012.

Figure 3. Taxes as a percentage of GDP.



Source: Statistics Denmark

Figure 3 shows the revenue generated by taxes, as percentage of GDP. First, total taxes have been, for long time, close to 50% of GDP. The initial growth in tax revenue until about 1987 is partly the costs of the welfare society. Second, it is remarkable that taxes on production and import is almost constant and around 18 to 19% of GDP the whole period.

#### 5.4 Social expenditures and the welfare system

There is a long tradition for welfare policy in Denmark. Before the end of the 19<sup>th</sup> century the State was subsidizing old age pension at a low level and was also subsidizing the existing sickness insurance and unemployment insurance. The latter was originally organized as private insurances based on guild membership, so prior to the 20<sup>th</sup> century these insurances were for the few and mostly for high wage workers. Gradually, these programs have been taken over by the public sector and extended to what we today known as the welfare state. Therefore, Denmark today provides a social safety net that means that almost all citizens who do not work for one reason or another are covered by a transfer income. This is the case for public pensions covering all, sickness pay, maternity leave, disability pension, unemployment benefit<sup>13</sup>, and welfare pay covering more or less all others. The total costs of the in-cash transfer programs was 18.8% of GDP and all social costs including in-kind transfers is 32.5% of GDP. On top of that comes student support. 31% of the entire population is on a full time basis on a transfer program. Of those 60% are old age related. That leaves 40% among age groups who could have been in the work force. Or put in another way the welfare programs gives full income support to about 11% of the population or 603.000 persons compared to a labour force of 2.8 million, or 21% of the labour force. These expensive transfer programs are financed by a comprehensive tax system dominated by the income tax.

The first public old age pension was based on application and was conditioned on need and evaluated by the authorities. For old age pension that meant that everybody above the age of 65 could apply unconditioned of previous work experience and contributions. Finally, in 1957 the universal pension system was introduced and everyone above the age of 67 got the right to a minimum pension irrespective of own income before or along with the pension. The minimum pension can be supplemented with means tested extra benefits. This system is close to what we know of today. Some of those are related to objective needs with respect to health, housing and heating. Sickness insurance for the poor and mandatory work accident insurance was introduced before the turn of the century. In 1907 a law on the creation of unemployment insurance funds was

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<sup>13</sup> UI benefit is in principle paid by the unemployment fund, which is formally independent of the State and Unions, though the Government covers any deficit.

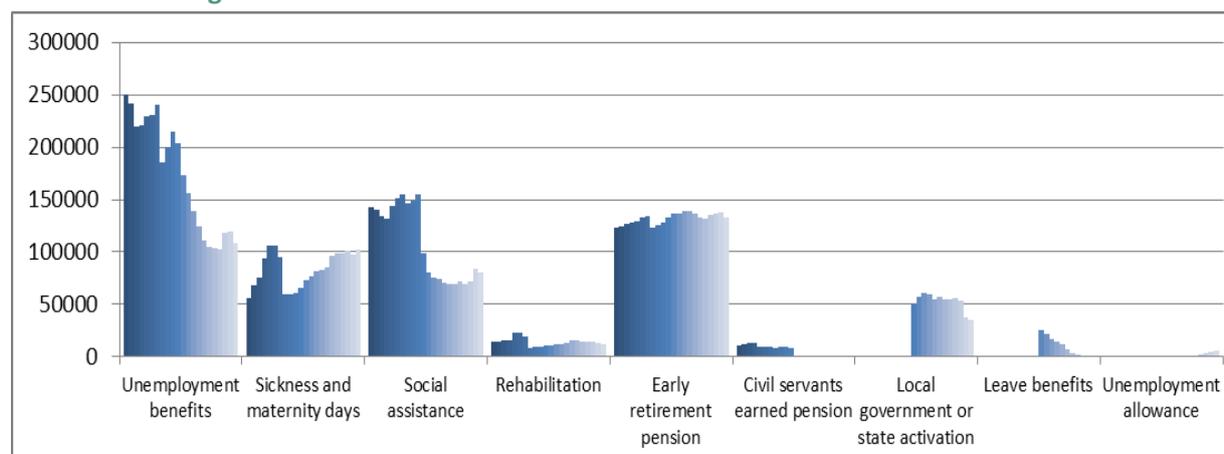
passed in the Parliament. This included a state subsidy and a substantial trade union influence on the management of the UI-funds. The UI funds were based on the old privately organized unemployment funds so a strong relationship between Trade Unions and the UI funds were maintained. Unemployment insurance has more or less remained the same over the years. The main change has been that sickness insurance has been taken over by the State and that the daily pay was increased to a maximum of 90% of the previous salary but with a relatively low upper absolute ceiling in the late 1960s. These amounts have since then been regulated discretionary according to either a wage index or consumer price index. Now, all payments according to these systems are subject to taxation. The whole system means that low waged workers get a relatively high replacement ratio<sup>14</sup> in the event of unemployment or sickness. However, that also means that the incentive to seek work and get out of unemployment is relatively low for this group. At the same time, it is an important feature of the Danish system that the transfer income for the normal labour market participants who are members of the unemployment insurance system are not means tested. This is contrary to the benefits for people who are aged between 18 and 65 and who are not insured and who may not take part in the labour force. All their income transfers are means tested. However, even their benefits will be around the level of unemployment benefits in the short haul and will be around old age pension plus supplements according to need in the longer run. The result is that the lowest level of benefits set a minimum standard for normal pay.

Means tested housing subsidies were introduced in 1966 and gives a means tested benefit to all living in rented housing according to the size of the accommodation compared to an objective need based on the size of the household.

For those not having a work income, nor sickness payment, nor UI-payment nor pension of some type there is the possibilities of receiving a means tested welfare benefit. The social authorities according to rules that are based on needs determine the amount.

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<sup>14</sup> Calculated as the UI benefit per hour divided with the previous wage per hour.

**Figure 4: Reliance on social transfers (number of people) between 1984-2005, by type of transfers, for individuals age 18-66**

Source: Statistics Denmark. Note: Civil servants pensions (1984-1994); State activation (1994-); Leave benefits (1995-); Unemployment allowance (2001-)

**Table 1: Full time equivalent persons receiving transfer income, % of the labour force.**

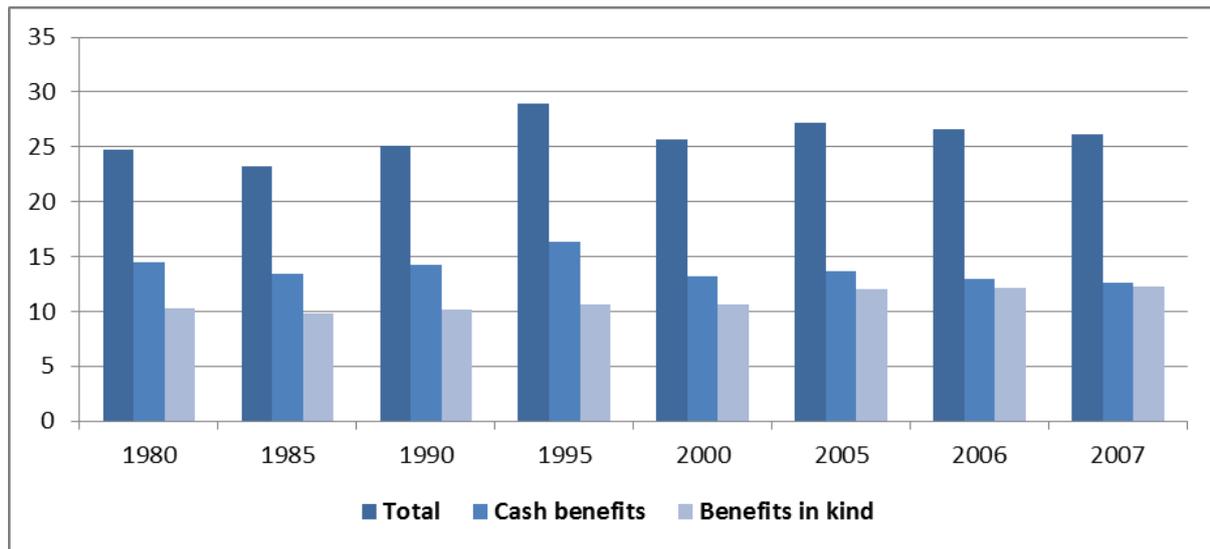
Percent	2007	2008	2009	2010	2011
Registered unemployed persons, total	2.6	1.8	3.4	4.0	3.8
Persons receiving holiday benefits	0.2	0.2	0.1	0.2	0.2
Guidance and activities upgrading skills, total	1.5	1.5	1.8	2.2	1.9
Subsidized employment, total	2.6	2.8	3.0	3.4	3.7
Maternity benefits, etc. total	2.1	2.1	2.1	2.1	2.0
Retirement, total, only below 61	5.8	5.8	5.9	6.0	6.0
Other social benefits, total	5.5	5.2	5.4	5.5	5.7
Total full year equivalent persons	20.3	19.4	21.8	23.3	23.3
Number of people in labour force	2901911	2917425	2875015	2874000	2866000

Source: Statistics Denmark

After 1994 all payments according to these systems are subject to taxation. The whole system means that low waged workers get a relatively high replacement ratio<sup>15</sup> in the event of unemployment or sickness. However, that also means that the incentive to seek work and get out of unemployment is relatively low for this group.

<sup>15</sup> Calculated as the UI benefit per hour divided with the previous wage per hour.

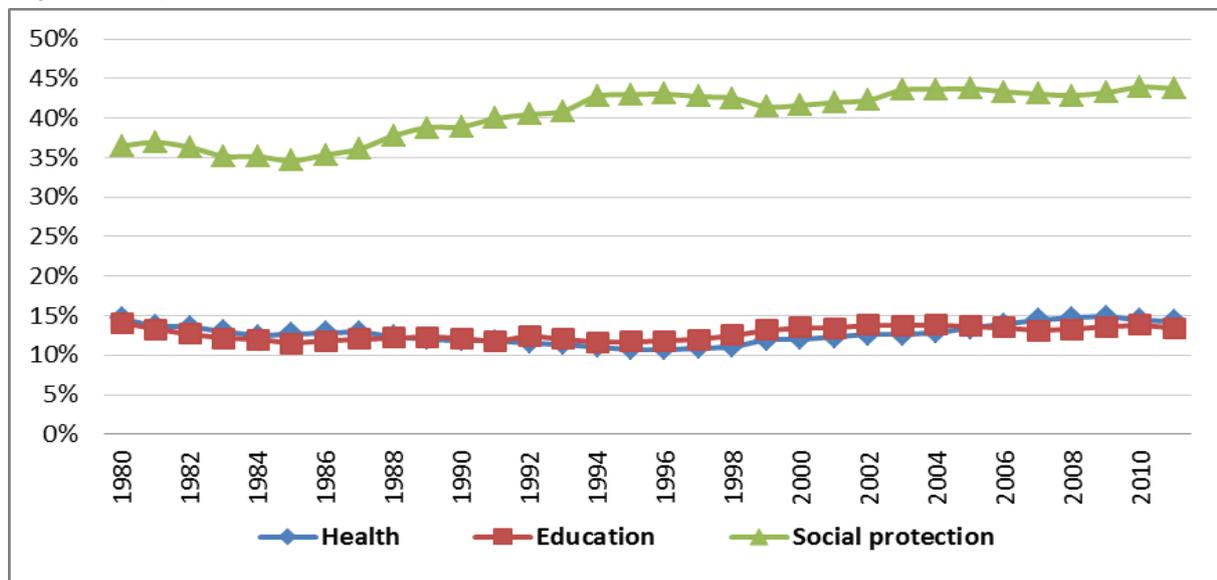
**Figure 5: Total public social expenditure, cash benefits and benefits in kind (% of GDP)**



Source: OECD

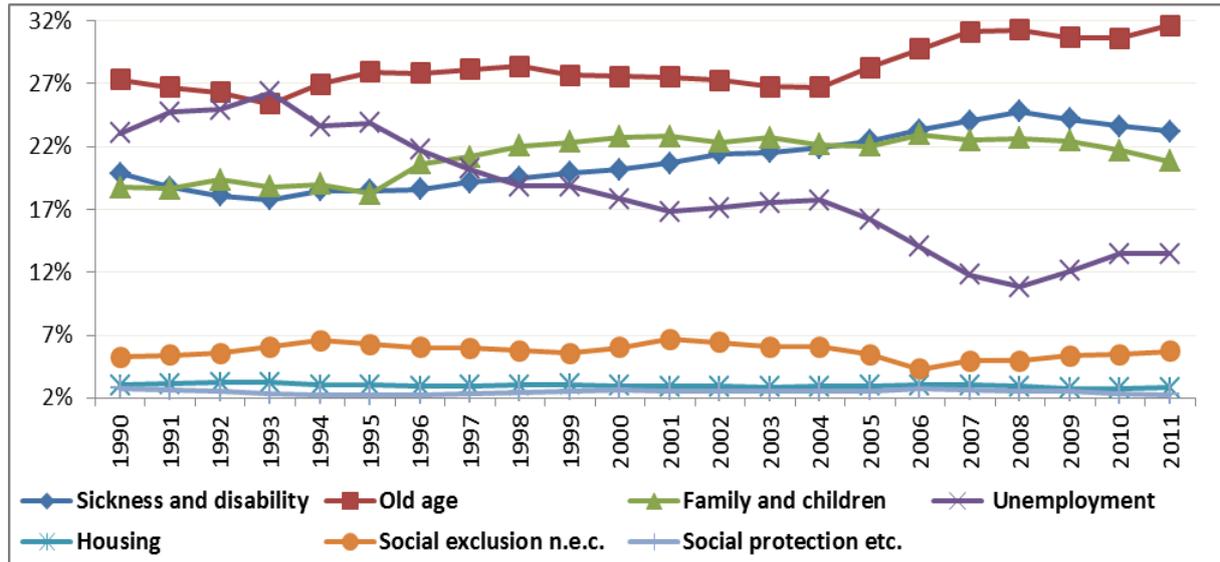
Figure 6 shows the percentage of total governmental expenditure on education, health and social protection in the past 30 years.

**Figure 6: Expenditure on social protection, education and health (% of total governmental expenditure)**



Source: Statistics Denmark

A closer look at the income transfers to individuals and households is offered in Figure 7. Clearly, the biggest part of income transfers goes to retired individuals, over 50% in 1989 and the number has continuously increasing until 2008, when it exceeded 61%. The second largest group benefiting from public transfers is the unemployed, although their share has decreased considerably after 1998, corresponding to the decrease of unemployment rates.

**Figure 7: Breakdown of social expenditure (% of total social expenditure)**

Source: Statistics Denmark

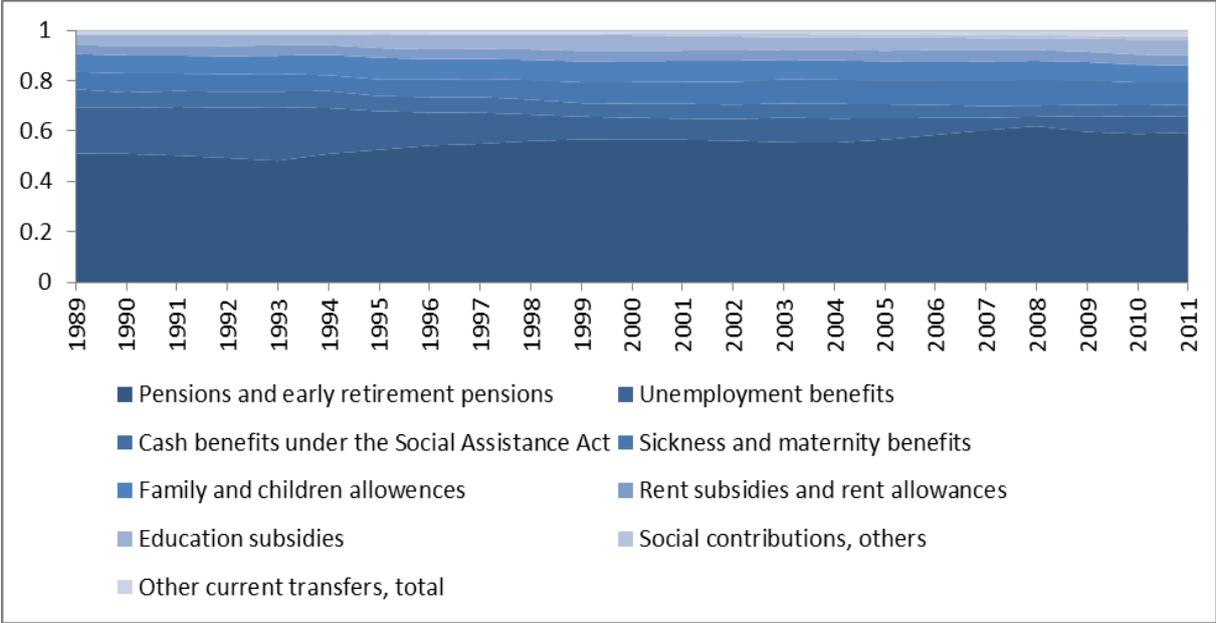
This big change in unemployment spending is mainly due improved business cycles and to changes in unemployment policy implemented in the early 1990s which limited the unemployment benefits from basically an unlimited time period to only 4 years. During this period, the beneficiary had to, either work or take part in job training or education. This is still the case today, with the change that in 2010 the maximum period on unemployment benefit has been reduced to two years.

The transfers for family, child and young children allowances have decreased slightly from 1989 to 2011, while the sickness and maternity benefits have increased in the same period, partially driven by the increase in fertility rates (shown in Chapter 3). Subsidies for rent and education are fairly constant over the period.

Therefore, we can conclude that during the analysed period the social protection expenditures and income transfers have increased, mainly driven by the increase in the old age population and the increase in sickness and maternity benefits.

The most noticeable policies implemented during this period are the postponement of retirement and a limitation of postemployment benefit, allowing retirement from the age of 60. These programs will be changed in the future but the mere discussion of the changes together with the Great Recession have meant that people are already adjusting their retirement behaviour as can be seen in Figure 8.

**Figure 8: Decomposition of governmental income transfers, by functionality**

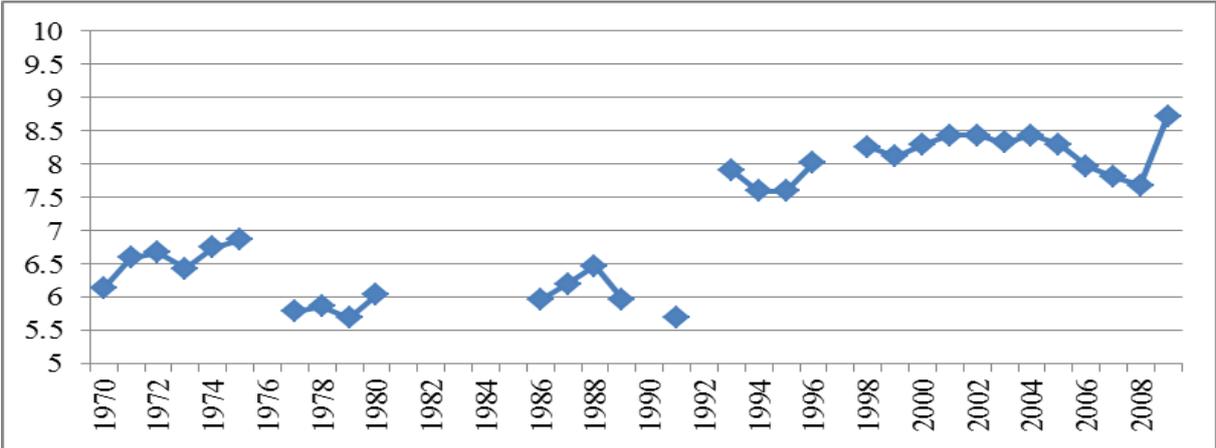


Source: Statistics Denmark

**5.5 Education**

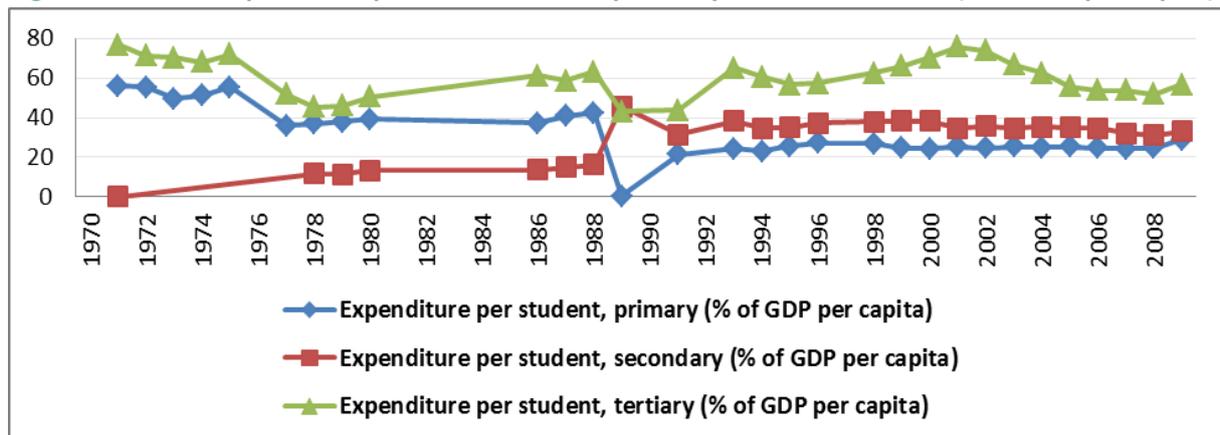
As we showed in Chapter 2, the level of education has increased constantly over the past 30 years, as well as the public spending on education (as percentage of total public expenditure) and as percentage of GDP (Figure 8). This shows almost a doubling for spending on education.

**Figure 9: Public spending on education (% of GDP)**



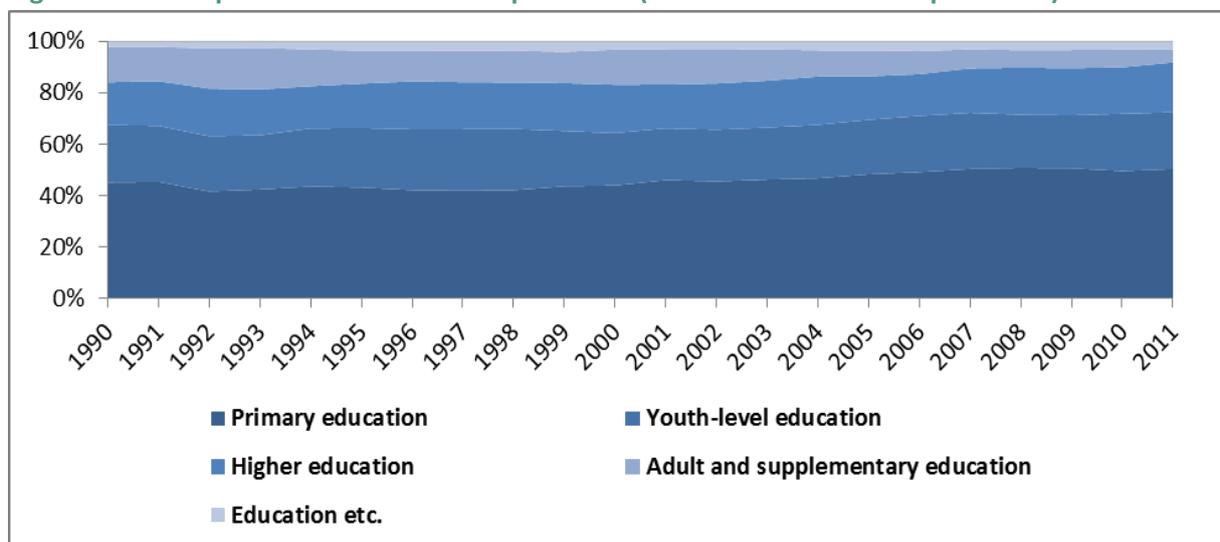
Source: World Bank, WDI. Note: Data for the missing years 1976, 1981-1985, 1990,1992 and1997 have been connected automatically

A breakdown by level of education shows that the expenditures per GDP per capita for primary and tertiary level have decreased, especially after 1988, while the expenditure for secondary education has increased constantly.

**Figure 10: Public expenditure per student, decomposed by level of education (% of GDP per capita)**

Source: World Bank, WDI. Note: Data for the missing years (1976, 1981-1985, 1990, 1992 and 1997) have been connected automatically

The decomposition of educational expenditure is presented in Figure 11. This shows that expenditures for primary, secondary and higher education have increased, while the expenditure for adult and supplementary education has decreased considerably.

**Figure 11: Decomposition of education expenditure (% of total education expenditure)**

Source: Statistics Denmark

## 5.6 Conclusion

Denmark appears to have a rather equal income distribution compared with most countries. The income distribution before tax and transfers is, as in other countries, relatively unequal but even here there are a number of constraints built into the system. A relatively low return to human capital is one of these factors. Another is the large public sector that acts as a monopsony buyer. The largest

and most efficient equalizers are however, the tax and transfer system. This system has been fine-tuned for years to tax the high incomes and to supply transfers to the low wage earners or unemployed. Together, these mechanisms create an income distribution after tax, transfers and imputed rent that are much more close to a symmetric income distribution, with a Gini coefficient in the mid 20% range. Nevertheless, the Gini coefficient has increased in the period we have investigated as demonstrated in Chapter 2.

We find that the main reasons for the increase in inequality are the increase in imputed rents due to higher house prices for the homeowners, an increased participation of women on the labour market and an increase in income correlation of spouses. The latter effect is a consequence of increasing equality between men and women with respect to enrolment in the educational system. Furthermore, the raising tendency has been supported by more single households, who have a higher Gini coefficient and more working age people receiving full time pensions.

Policies in this period has been dominated by a few changes in the tax code with the purpose of lowering the marginal tax in order to create a more efficient labour supply. However, every time it has been discussed it has been important for all political parties to seek changes that do not modify the overall distributive effects. Our analyses show that this has been accomplished. During the same period, the Danish government has implemented a series of policies such as the Equal Pay Act, in 1986, which was a stepping-stone on the way to more equality on the labour market for women. The consequence of that was the integration of women in the labour market with a contribution of more equality in the overall distribution and thus pulling down the increasing wage inequality coming from incomes of men. Later, that same movement was so “successful” that it increased inequality. The increased spending on social protection (sickness, maternity benefits and old age pensions), education and especially day care has undoubtedly also had an impact on the overall distribution. Day care itself is shown to have a large impact on intergenerational mobility and is probably one of the most efficient ways to create equal opportunities.

The paradox is that the increased inequality seems in many ways to be a consequence of a more equal access to education and jobs. It is also remarkable that the qualitative signs of inequality as analysed in Chapter 3 do not reflect a society of growing inequality. However, the tendency seen so far will probably continue and make inequality a new challenge at a time where there will be renewed focus on incentives and the impact of incentives on the productivity.

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## Appendix

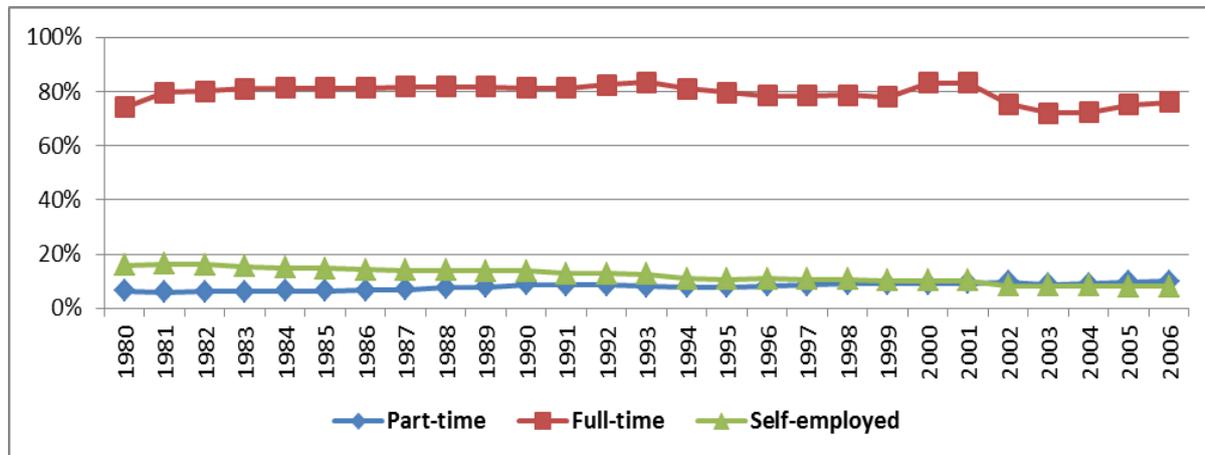
### Data description

**Table A1: Share of negative household incomes, for different types of income**

Year	Before tax, incl. imputed rents	After tax, incl. imputed rent	After tax, excl. imputed rent	Before tax, excl. imputed rent	Redistribution
1980	0.10%	0.98%	0.98%	0.10%	0.03%
1981	0.11%	0.98%	0.98%	0.11%	0.04%
1982	0.10%	0.80%	0.80%	0.10%	0.04%
1983	0.07%	0.54%	0.54%	0.07%	0.04%
1984	0.06%	0.42%	0.46%	0.06%	0.01%
1985	0.06%	0.34%	0.37%	0.06%	0.01%
1986	0.07%	0.39%	0.43%	0.07%	0.01%
1987	0.07%	0.46%	0.59%	0.08%	0.01%
1988	0.07%	0.64%	0.77%	0.08%	0.01%
1989	0.07%	0.62%	0.74%	0.08%	0.04%
1990	0.07%	0.58%	0.70%	0.07%	0.03%
1991	0.06%	0.43%	0.53%	0.07%	0.01%
1992	0.08%	0.46%	0.57%	0.08%	0.07%
1993	0.06%	0.45%	0.55%	0.07%	0.01%
1994	0.06%	0.33%	0.38%	0.06%	0.04%
1995	0.05%	0.32%	0.37%	0.06%	0.02%
1996	0.06%	0.32%	0.37%	0.06%	0.01%
1997	0.06%	0.33%	0.38%	0.06%	0.01%
1998	0.06%	0.36%	0.42%	0.07%	0.02%
1999	0.07%	0.37%	0.44%	0.08%	0.00%
2000	0.06%	0.38%	0.48%	0.07%	0.00%
2001	0.06%	0.40%	0.52%	0.07%	0.00%
2002	0.07%	0.41%	0.54%	0.08%	0.00%
2003	0.08%	0.43%	0.57%	0.09%	0.00%
2004	0.08%	0.39%	0.56%	0.09%	0.00%
2005	0.07%	0.41%	0.59%	0.09%	0.00%
2006	0.08%	0.44%	0.65%	0.09%	0.00%

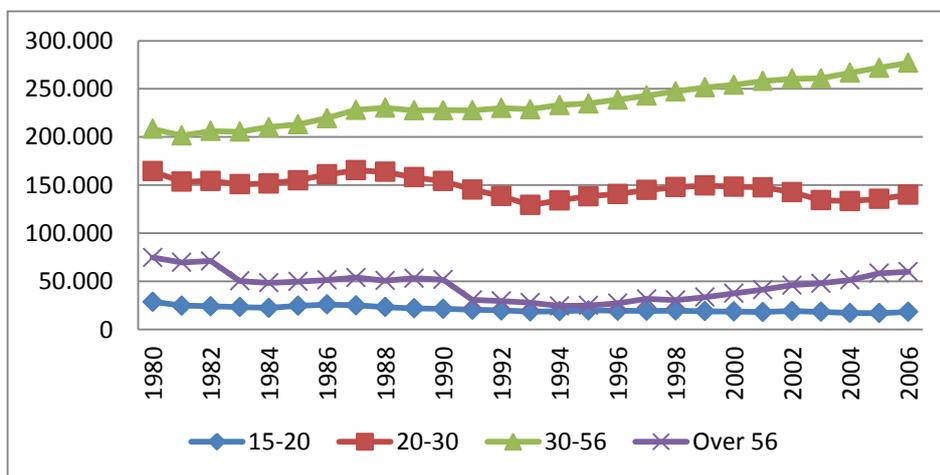
Chapter 2 – extra charts

Figure A1: Evolution of labor market participation of men, share of total labor force



Excluding working students from the labor force increases the share of men in full-time jobs by 2.35%, on average, and leads to an average annual increase in full-time jobs of 0.12%. On the other hand, the share part-time workers decreases with 2.73% on average by year, and the annual average decrease is 0.13%. For self-employed, the average annual increase is 0.34% and excluding students increases the self-employed share with 0.31%, on average.

Figure A2: Median income before taxes and transfers for age groups in 2000 prices



This reminds us that the largest redistribution actually happens between age groups in Denmark. The raw distributions of income are shown in Figure 28 below.

Figure A3: Median income after taxes and transfers for age groups, 2000 prices

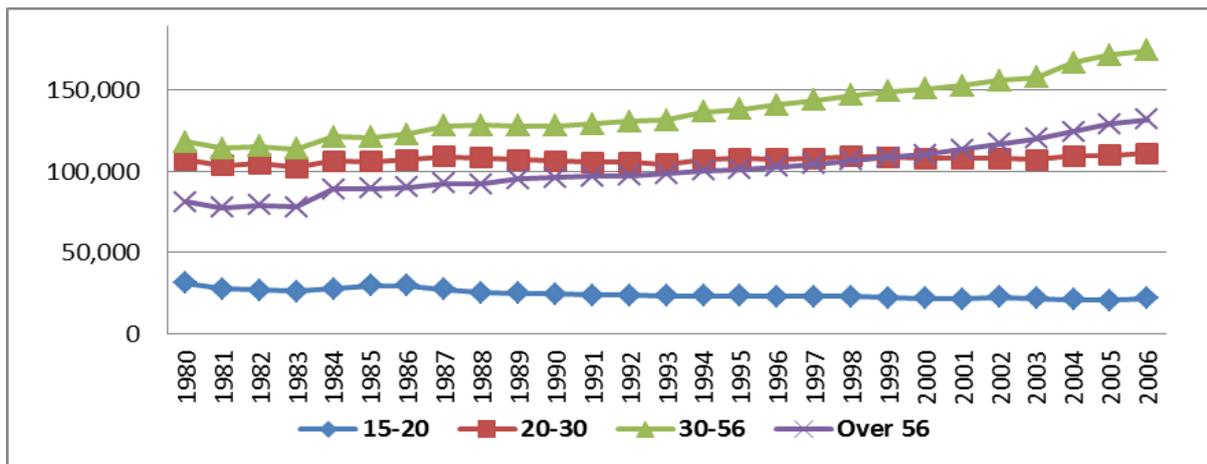


Figure A4: Gini coefficients for primary earnings for age groups

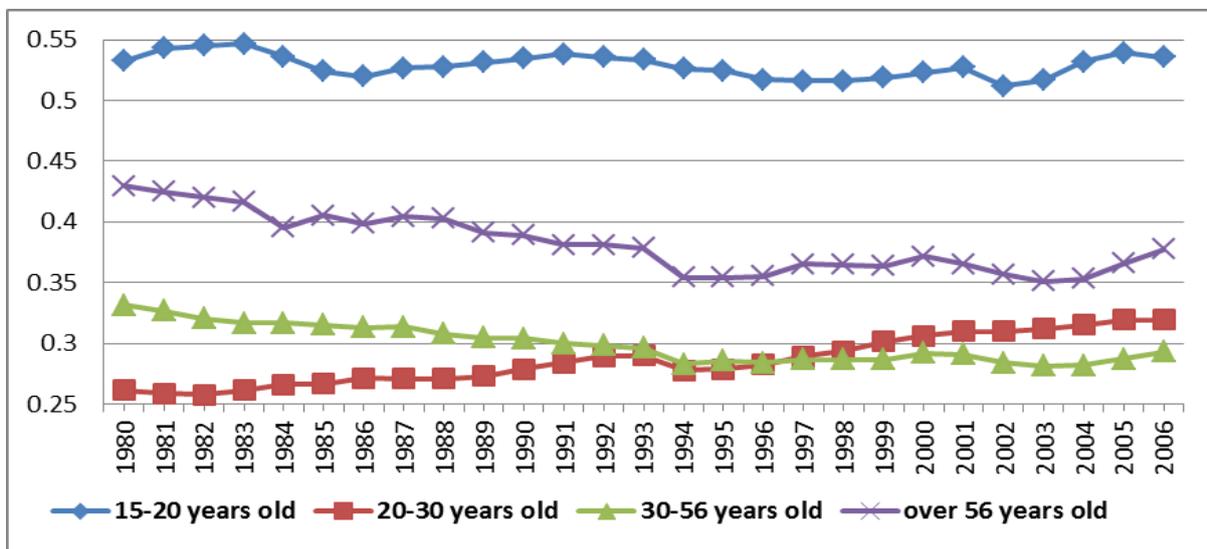
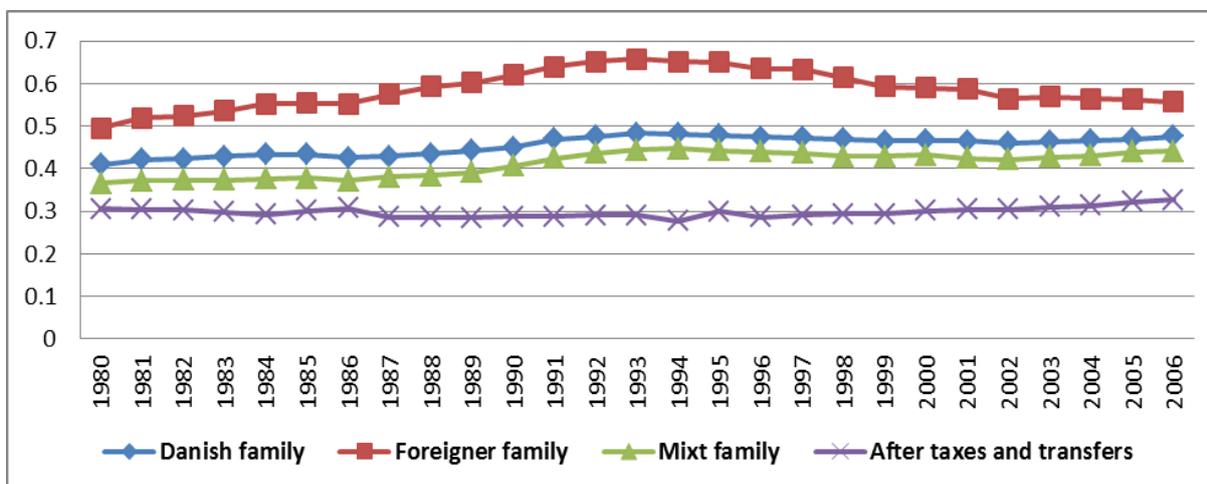


Figure A5: Evolution of inequality (the Gini coefficient) of primary household income, by ethnicity



It must be noted that the big increase in the inequality among foreign families has been absorbed by the redistribution system. The green line indicates the Gini coefficient after taxes and transfers for the foreign family.

### Gini decomposition method

Following Stark, Taylor and Yitzhaki (1986), the Gini coefficient of total income depends on the Gini coefficient of the subgroup  $k$ ,  $G_k$  multiplied by their share  $S_k$  of the total income and by the correlation of the income source and the total income,  $R_k$ , where subscript  $k$  stands for the income source. Altogether we have that the Gini coefficient of the total income can be written as

$$G = \sum_{k=1}^K S_k G_k R_k$$

Furthermore, we can estimate the effect of a 1% change in income from source  $k$  on the total income inequality by the following

$$\frac{S_k G_k R_k}{G} - S_k$$

We have used a Stata program written by Lopez-Feldman to do this decomposition.

## Final summary statistics – the polish tables

Figure A6: Description of the evolution of main variables from Chapter 2

Variable /Period	1980-1983/1987	1984/1987-1993	1994-2001	2002-2006	2007-2009/2010	Chapter. Figure
Primary income Household	→	→	→	→	→	Ch 2- Fig 3
Gross income Household	→	→	→	→	→	Ch 2- Fig 3
Disposable income Household	→	→	→	→	→	Ch 2- Fig 3
Household earnings	→	→	→	→	→	Ch 2- Fig 15
Individual Disposable income	→	→	→	→	→	Ch 2- Fig 4
Individual earnings	→	→	→	→	→	Ch 2- Fig 17
Women's earnings	→	→	→	→	→	Ch 2- Fig 17
Men's earnings	→	→	→	→	→	Ch 2- Fig 17
Household gross wealth	→	→	→	→	→	Ch 2- Fig 11
Household net wealth	→	→	→	→	→	Ch 2- Fig 11
Individual gross wealth	→	→	→	→	→	Ch 2- Fig 12
Individual net wealth	→	→	→	→	→	Ch 2- Fig 12
Variable	1980-1984	1984-1993	1994-2001	2002-2006	2007-2010	Figure
Full-time employment women	→	→	→	→	n.a.	Ch 2- Fig 18
Part-time employment women	→	→	→	→	n.a.	Ch 2- Fig 18
Self-employment women	→	→	→	→	n.a.	Ch 2- Fig 18
Full-time employment men	→	→	→	→	n.a.	Appedix- Fig 1
Part-time employment men	→	→	→	→	n.a.	Appedix- Fig 1
Self-employment men	→	→	→	→	n.a.	Appedix- Fig 1
Basic education	→	→	→	→	→	Ch 2- Fig 22
Secondary education	→	→	→	→	→	Ch 2- Fig 22
Further education	→	→	→	→	→	Ch 2- Fig 22
People living at risk of poverty (disposable income)	→	→	→	→	n.a.	Ch 2- Fig 7
Individuals living in jobless households	n.a.	n.a.	→	→	n.a.	Ch 2- Fig 16

Figure A7: Description of the evolution of main variables from Chapter 3

Variable	1984/1987-1993	1994-2001	2002-2006	2007-2009/2010	Figure
Income inequality (individual income inequality)	→	→	→	→	Ch2- Fig 4
Material deprivation	n.a.	n.a.	→	→	Ch 3- Fig 1
At-risk-of-poverty and social isolation	n.a.	n.a.	→	→	Ch3 - Fig 4
Severe material deprivation	n.a.	n.a.	→	→	Ch3 - Fig 4
Persistent-at-risk-of-poverty	n.a.	n.a.	n.a.	→	Ch3 - Fig 4
Social isolation from family	→	→	→	→	Ch3 - Fig 7
Social isolation from friends	→	→	→	→	Ch3 - Fig 7
People feeling alone	→	→	→	→	Ch 3 - Fig 10
Married couples	→	→	→	→	Ch 3 - Fig 11
Single couples	→	→	→	→	Ch 3 - Fig 11
Other couples	→	→	→	→	Ch 3 - Fig 11
Household with one member	→	→	→	→	Ch 3 - Fig 12
Household with 2 members	→	→	→	→	Ch 3 - Fig 12
Household with 3 or 4 members	→	→	→	→	Ch 3 - Fig 12
Couples, no kids	→	→	→	→	Ch 3 - Fig 13
Couples, with kids	→	→	→	→	Ch 3 - Fig 13
Singles, no kids	→	→	→	→	Ch 3 - Fig 13
Singles, with kids	→	→	→	→	Ch 3 - Fig 13
Fertility rate	→	→	→	→	Ch 3 - Fig 14
Births outside the marriage	→	→	→	→	Ch 3 - Fig 14
Average age at first marriage	→	→	→	→	Ch 3 - Fig 15
Average age of woman giving birth for first time	→	→	→	→	Ch 3 - Fig 15
Number of marriages (per 10000 persons)	→	→	→	→	Ch 3 - Fig 15
Divorce rate	→	→	→	→	Ch 3 - Fig 16
Life expectancy at birth	→	→	→	→	Ch 3 - Fig 17
Expectancy of healthy years	n.a.	→	→	→	Ch 3 - Fig 20
Daily smokers, total	→	→	→	n.a.	Ch 3 - Fig 21
Alcohol excess, total	n.a.	→	→	n.a.	Ch 3 - Fig 22
Overweight population	→	→	→	→	Ch 3 - Fig 23
Housing tenure	n.a.	n.a.	→	→	Ch 3 - Fig 24
Violant crimes	n.a.	→	→	→	Ch 3 - Fig 29
Robbery	n.a.	→	→	→	Ch 3 - Fig 29
Imprisoned individuals (share of population)	→	→	→	→	Ch 3 - Fig 30
Life satisfaction	→	→	→	→	Ch 3 - Fig 31
Happiness	→	→	→	→	Ch 3 - Fig 31

Figure A8: Description of the evolution of main variables from Chapter 4

Variable	1980-1984	1984/1987-1993	1994-2001	2002-2006	2007-2009/2010	Figure
Income inequality (individual income inequality)						Ch 2- Fig 4
Electorate turnout - government						Ch 4- Fig 1
Electorate turnout - local						Ch 4- Fig 1
Electorate turnout - european						Ch 4- Fig 1
Unisation of the labor force						Ch 4- Fig 2
Number of strikes						Ch 4- Fig 3
Trust in parliament	n.a.	n.a.				Ch 4- Fig 4
Trust in government	n.a.	n.a.				Ch 4- Fig 5
Trust in political parties	n.a.	n.a.				Ch 4- Fig 6
Trust in the legal system	n.a.	n.a.	n.a.			Ch 4- Fig 7
Trust in people						Ch 4- Fig 8
Vote for the extrime right party				n.a.		Ch 4- Fig 9
Vote for the extrime left party						Ch 4- Fig 9
Votes for DDP	n.a.	n.a.	n.a.			Ch 4- Fig 9
EU is a good thing - EU is a bad thing						Ch 4- Fig 10
When jobs are scarce, employers should give priority to Danish people over immigrants	n.a.	n.a.				Ch 4- Fig 11

Figure A9: Description of the evolution of main variables from Chapter 5

Variable	1980-1986	1987-1993	1994-2001	2002-2006	2007-2009/2010	Figure
Income inequality (individual income inequality)						Ch 2- Fig 4
Minimum hourly wage						Ch 5- Fig 1
Total taxes and duties						Ch 5- Fig 2
Total public social expenditure					n.a.	Ch 5- Fig 6
Total public expenditure for education						Ch 5- Fig 6
Total public expenditure for health						Ch 5- Fig 6
Social expenditure- sickness and disability	n.a.					Ch 5- Fig 7
Social expenditure - Old age (pensions)	n.a.					Ch 5- Fig 7
Social expenditure - Family and children	n.a.					Ch 5- Fig 7
Social expenditure - Unemployment	n.a.					Ch 5- Fig 7
Social expenditure - Social exclusion	n.a.					Ch 5- Fig 7
Housing	n.a.					Ch 5- Fig 7
Social protection	n.a.					Ch 5- Fig 7