Taxation of capital and wage income: Towards separated or more integrated personal tax systems?

Danish Economic National Report

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1. Introduction and summary

The Danish personal income tax system has seen a series of reforms during the last 20 years. The headline has been base broadening and rate reductions. In the middle of the 1980ies the Danish income tax system was characterized by very high marginal tax rates and large deductions in the tax base creating a relatively narrow income tax base. The results were lacking incentives to supply labour and big incentives to borrow instead of save.

A series of tax reforms and smaller adjustments have been implemented in the decades that have since passed. The marginal and average tax rates have been reduced. Incentives to supply labour have been increased significantly and tax incentives to borrow have been limited. From an economic perspective the Danish tax system has all in all become far more efficient and sound.

But the road towards lower tax rates and broader tax bases has been far from straight. The Danish income tax system has moved from a classical comprehensive income tax system towards a dual income tax system without ever actually implementing a dual income tax system. Instead Denmark is operating a hybrid between a comprehensive and a dual income tax system.

The Danish personal income tax system is also still characterised by high marginal tax rates taking effect at relatively modest income levels by international standards. At the same time capital income is taxed through a mixture of separate taxes with real effective tax rates ranging from zero to at least 100 pct.

The current public debate on income tax cuts is primarily concerned with the effects on the income distribution and whether income tax cuts should be preferred to increasing public expenditure.

If and when further changes to the personal income tax system is implemented it seems fair to assume that politicians will continue down the path of reduced marginal tax rates on capital and labour income. The scope for broadening the tax base could be further explored limiting some tax credits, but much has already been done. However, it is also likely that the earned income tax credit will be extended, thus tending to narrow the tax base.

Possible changes to the tax schedule might be reductions in the middle income tax. Seen together with an extension of the earned income tax credit future tax cuts will probably focus at the lower and middle-income brackets. If taxes are cut at all, tax cuts in the brackets where people are paying the top marginal tax will probably be rather small. Smaller tax cuts at the higher income brackets could consist of increasing the top marginal tax threshold thereby reducing the ever-increasing number of taxpayers in the top tax bracket. As an alternative or supplement, the top marginal tax rate might be reduced slightly.

Taxation of capital income is still very high and varying between different kinds of savings and investments. At the moment political attention to this problem seems to be limited. But nevertheless capital tax rates will probably gradually be reduced and a more uniform capital tax system adopted. It is likely that more emphasis will be put on achieving a dual taxation of capital and labour income.

Finally it should be noted that this economic national report relies heavily on the corresponding legal report for the more detailed descriptions of the Danish tax system in order to avoid repetitions. For further details I refer to the legal national report.

The views expressed in this economic report are the personal views of the author and does not necessarily coincide with the views of The Danish Ministry of Taxation.

2. Danish tax structure and economy

2.1. Tax burden and structure

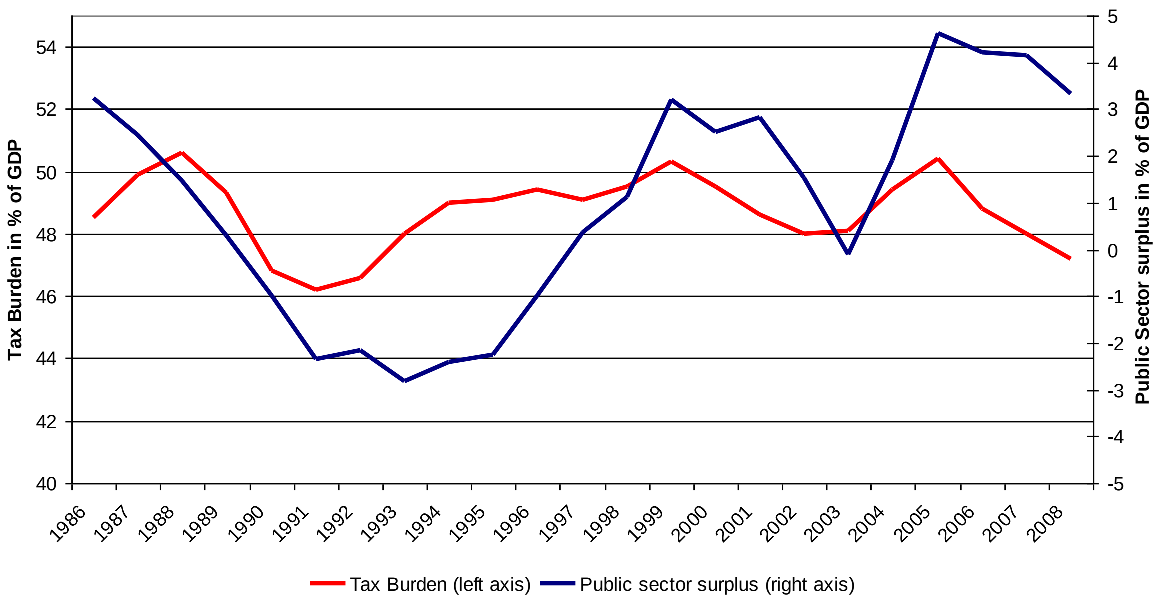
The overall picture looking at the Danish tax burden and tax structure during the years 1986-2008 is relative stability. Both the tax burden and the structure have been fairly constant.

The Danish tax-to-GDP-ratio is among the highest in the world. Since the mid 1980ies the ratio has been varying between 46% and 52% with an average of nearly 49%. Seen over the period 1986-2008 the tax-to-GDP-ratio has been relatively constant and there have been no clear trends in the overall tax burden, see fig.1.

Looking at the post World War II history of the tax-to-GDP-ratio the picture is somewhat different. In the decade after WWII the ratio varied between 20% and 25%. From 1955 to 1986 the tax ratio increased almost uninterrupted from 23% to 49% in parallel with the expansion of the Danish welfare state. In part increasing tax receipts might also have driven the increasing expenditures.

During the last two decades the variation in the ratio is mostly due to economic trends and to a lesser degree to direct changes in tax policy. It is also worth noting that most of the one point change in the ratio from 1993 to 1994 was due to a technical change in the benefits system where benefits since 1994 has been paid out on a gross base and then taxed at the personal level.

Fig. 1. Danish Tax Burden and Public Sector Surplus, 1986-2008.



Source: Danmarks statistik.

The Danish tax structure differs from most other countries due to the almost complete absence of social security contributions. Where the OECD average for social security contributions is 26% of total taxes the Danish share is now less than 3%. Instead Denmark relies heavily on personal income taxes making up 50% of total taxes. The combined share of personal income taxes and social security contributions, which is the magnitude of real economic importance, is however in line with most other OECD countries.

Table 1 shows the tax structure for selected years during the period 1986 to 2008. The overall picture shows a fairly constant tax structure during the two decades, though some smaller changes have taken place.

Table 1. Total taxation and the main types of taxes from 1986 to 2008.

	1986	**1996**	**2001**	**2006***	**2007***	**2008***
			DKK billion			
Total taxes and duties	**339.0**	**528.2**	**648.9**	**798.7**	**821.3**	**837.8**
1. Total income taxes	**190.6**	**324.2**	**385.0**	**475.1**	**487.9**	**498.0**
1.1 Personal income taxes	162.4	280.7	347.1	402.4	420.7	429.0
Of which						
1.1.2.Labour market contribution	-	*40.3*	*59.3*	*71.4*	*75.0*	*77.7*
1.1.3. Property value tax	-	-	*9.5*	*11.1*	*11.9*	*12.2*
1.2 Corporation tax etc.	20.9	26.9	37.0	*59.0*	*53.5*	*55.9*
1.3 Real interest tax/tax on pension returns	7.4	16.6	0.9	*13.7*	*13.8*	*13.1*
2. Total compulsory contributions to social schemes	**10.3**	**11.4**	**23.0**	**17.6**	**17.8**	**18.3**
2.1 Social contributions paid by employees	6.2	11.4	22.9	17.1	17.3	17.8
2.2 Social contributions paid by employers	4.0	0.0	0.2	0.5	0.5	0.5
3. Total other labour market contributions	**1.8**	**2.3**	**3.4**	**3.2**	**3.9**	**3.9**
3.1 Labour market contributions paid by employees	0.8	-	-	-	-	-
3.2 Labour market contributions paid by employers	1.0	2.3	3.4	3.2	3.9	3.9
4. Total tax on assets, property and ownership	**13.4**	**18.5**	**25.4**	**32.0**	**33.0**	**33.9**
4.1 Wealth tax	1.8	0.7	-	-	-	-
4.2 Inheritance tax and gift duties	1.7	2.3	2.7	3.5	3.5	3.6
4.3 Vehicle excise duty	3.4	5.2	8.0	9.8	10.1	10.3
4.4 Property taxes	6.5	10.3	14.7	18.7	19.3	20.0
5. Total duties on goods and services	**121.9**	**171.8**	**211.9**	**270.7**	**278.6**	**283.5**
5.1 General sales tax	65.8	105.9	132.5	170.1	180.6	187.0
5.2 Customs and import duties	1.9	1.9	2.3	3.5	3.6	3.7
5.3 Duties on goods and services	46.5	57.0	67.6	79.4	79.8	79.1
5.4 Duties on specific transactions	5.8	4.2	5.0	8.8	7.9	7.1
5.5 Duties on specific services	2.1	2.8	4.4	6.9	6.6	6.5
5.6 Various duties	-0.1	0.1	0.1	0.1	0.1	0.1
6. Other production taxes in total	**1.0**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
6.1 Duties regarding control and inspection etc.	0.7	0.0	0.1	0.1	0.1	0.1
6.2 Duties in connection with licenses etc.	0.3	0.0	0.1	0.1	0.1	0.1
Gross domestic product GDP	**698.8**	**1,069.5**	**1,335.6**	**1,637.6**	**1,710.4**	**1,773.6**
Tax burden, % of GDP	**48.5**	**49.4**	**48.6**	**48.8**	**48.0**	**47.2**
Public sector surplus, % of GDP	**3.2**	**-1.0**	**2.8**	**4.2**	**4.2**	**3.3**

Source: Ministry of Taxation and Danmarks Statistik, Skatter og afgifter.
*: Estimates, May 2007.

The share of income taxes as part of total taxes has been increasing over the period from just below 57% in 1986 to now more than 59%. Mainly, the introduction of the labour market contribution[1] in 1994 and the continued broadening of tax bases, which has not been fully offset by the reductions in the other personal income taxes, have caused this.

At the same time the share of duties on goods and services has been decreasing from 36% to 34%. Behind this decrease lies mainly an increase in the revenue from the VAT of around 2%-point and a decrease in duties on specific goods and services and transaction of 5%-point. The share of duties on specific goods and services has thus been decreasing even though a green tax shift was carried out during the years 1993-2002.

2.2. Fiscal sustainability

Denmark currently has a solid public sector surplus and rapidly declining debt. Currently the public sector is running annual surpluses in the order of 3%-4% of GDP corresponding to 50-70 billion DKK.

This has increased pressures for tax cuts and public expenditures. However, the favourable economic conditions experienced in the short run are not a sufficient condition for sustainable tax cuts or increased expenditure. In the longer run the financing of the public sector is expected to come under substantial pressure due to the aging Danish population leading to more expenditures and a smaller work force, and due to the pressure on the tax system from increasing globalisation.

It is an important part in the ongoing debate on sustainable public finances, whether tax cuts or tax reforms could be part of the solution making the public sector sustainable in the long run.

The Welfare Commission[2] and the DREAM-group[3] have analysed the pressure on public finances from primarily an aging population, from increasing wealth and the effects on demand for leisure and public service, and from globalisation.

The Welfare Commission found in their 2006 report that total public expenditures will increase by 6.8% of GDP to 57.5% from 2003 to 2040. At the same time total income will only increase by 2.8% of GDP to 55.4% leaving a deficit of around 2.1% of GDP excluding interest payments and around 3% including interest payments. If the tax freeze[4] is maintained the deficit will be 5% rather than 2.1%. However, the Welfare Commission also found that the public sector would run surpluses until around 2020.

The Welfare Commission has calculated that the bottom state tax rate should be increased gradually from 2011 to 2021 by a total of 7.9% to create sustainable public finances at the beginning of the time period from 2003 to 2100.

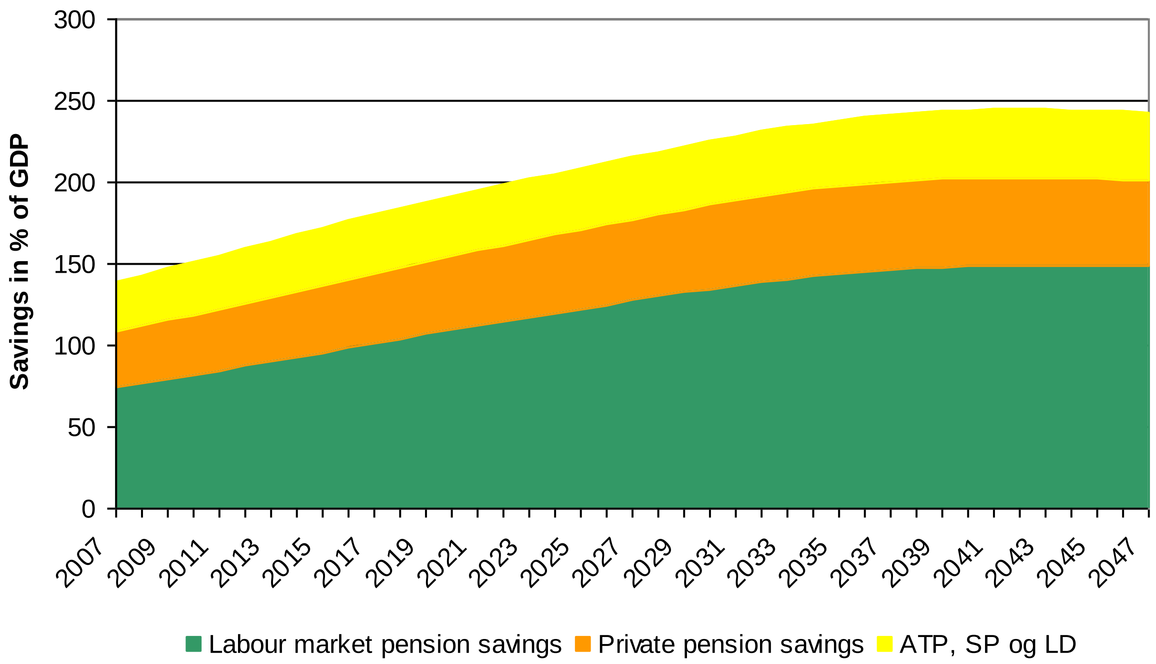
[1] Arbejdsmarkedsbidraget. In spite of the name, the labour market contribution is a personal income tax.
[2] The Welfare Commission – or Velfærdskommissionen – was an independent commission set up the government in 2003. The commission delivered the final report in January 2006.
[3] Danish Rational Economic Agents Model.
[4] See section 6.1 of the Danish legal national report for a description of the tax freeze. In most economic forecast the tax freeze only runs to the end of 2010 after which tax rates follow the inflation.

Estimations made on the DREAM model in the second half of 2006 used a new forecast on the development of the population and took into account the result of the welfare negotiations in Folketinget. These latest estimates indicate that public finances need to be improved permanently by around 2% including interest payments to create fiscal sustainability.

Part of the discussion on sustainability is also whether future generations should pay for the welfare of current generations or current generations should be responsible for ensuring fiscal sustainability for future generations.

Before leaving the subject of fiscal sustainability it is worth taking a quick look at one very interesting feature of the Danish tax system; that is the very large and increasing deferred taxes on pension savings.

Fig. 2. Building up pension funds in Denmark.



Source: The Ministry of Taxation.

Pension savings are taxed according to an ETT system meaning that taxation is deferred until savings are paid out to the pensioner while only annual yields are taxed annually on an accrual base. New savings now amount to more than 100 billion DKK a year. Deferred taxes are around 50 billion DKK or 3% of GDP. Pension savings are still building up and will not mature until around 2045 where total savings will reach an estimated 250% of GDP. Deferred taxes will correspond to 130% of GDP, which is a doubling of the present level. However, the increased pension savings will most likely crowd-out free savings, where returns are taxed at higher effective rates. This shift in savings reduces the positive fiscal effects of the increased pension savings.

These very large deferred taxes might pose a problem for the future financing of the public sector if Denmark due to increasing globalisation and EU-rules is not able to collect the taxes when pensions are paid out. On the other hand the large deferred taxes implies a large fiscal reserve in the future. The increasing funding of the pension system and the deferred taxes play an important role in the long-term fiscal sustainability.

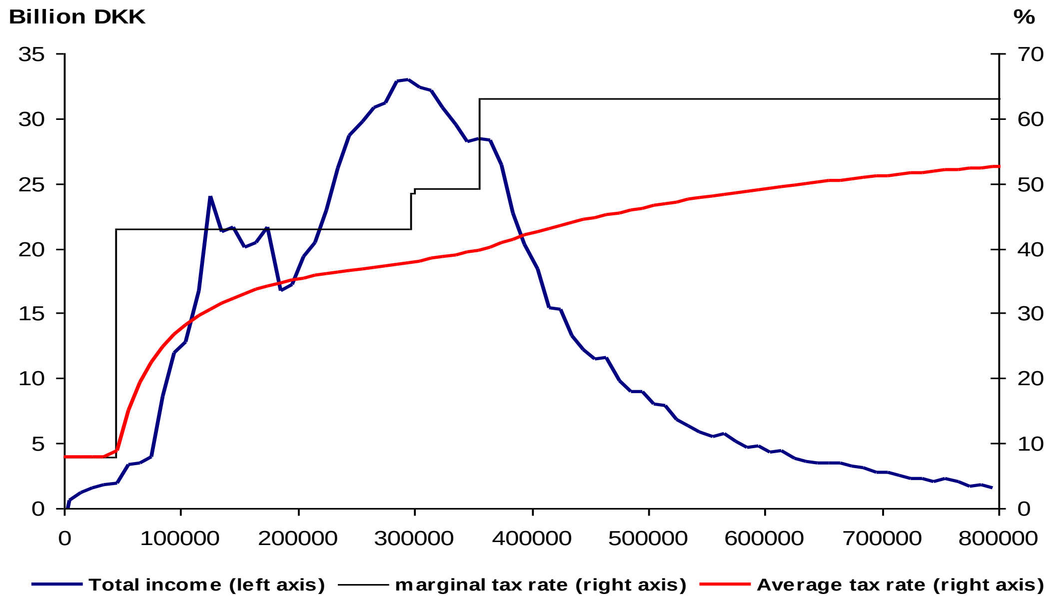
A limitation of the amounts of yearly tax-exempt savings has been voiced. The revenue could be used for financing increased expenditure or tax cuts. Even though there would be short term financing from such a tax change the long-term revenue would basically be unchanged leading to an unsustainable fiscal expansion.

3. Introduction to the personal tax system

3.1. The current tax schedule

Section 1 in the legal national report gives a detailed description of the elements in the current personal income tax system. Here the different elements are combined to show the resulting total tax schedule for labour income, see fig. 3.

Fig. 3. The Danish tax schedule in 2007 for labour income.



Source: The Ministry of Taxation.

In 2007 labour income is taxed on a broad gross base due to the 8% labour market contribution. The labour market contribution is deductible when calculating the other income taxes. Income above the personal allowance of nearly 44,000 DKK (income before labour market contribution) is taxed by the bottom state tax, the health contribution and the municipal and church tax. The marginal effective rate is 42.9% on average including the labour market contribution and the earned income tax credit.

The earned income tax credit is granted as a credit in base of the health contribution and the municipal tax. The earned income tax credit is 2.5% of labour income with a max of 7.500 DKK and reduces the effective marginal tax rate by 0.8% for income until 300.000 DKK.

The middle state tax of 6% is levied on income above approximately 296,000 DKK. The effective marginal tax rate is 49.2% in the middle tax bracket.

Finally income above approximately 356,000 DKK is charged with the top state tax of 15%. In the top tax bracket the marginal effective tax rate is 63.0%.

The Danish income tax system is highly progressive – that is average taxes are increasing in income – due to the thresholds in the tax schedule. Especially the personal allowance is important in this respect. This is illustrated by the steepest part of the average tax curve in figure 3 being the income bracket between the personal allowance and around 200,000 DKK. Because of the income thresholds and the personal allowance average tax rates are substantially lower than marginal tax rates.

3.2. Distributional effects

The Danish income distribution is very dense and the progressive income tax system reduces the variation in after tax income additionally. In table 2 and figures 3 and 4 the distribution of income and taxes are shown for different income brackets.

The first thing to note from table 2 is, that the average effective income tax is 37.3%. This is lower than the lowest marginal tax rates of 42.9%. Only about 1% of the taxpayers pay 50% or more in effective average tax. More than 80% of the 4.6 million taxpayers pay less than 37.3% in average effective tax.

Almost 50% of the taxpayers have incomes between 150,000 and 350,000 DKK. Less than 20% have income above 350,000 DKK and around 30% have income below 150,000 DKK. For comparison the average wage is around 330,000 DKK and the maximum unemployment benefit is around 170,000 DKK.

Table 2. Taxpayers distributed according to income in 2007

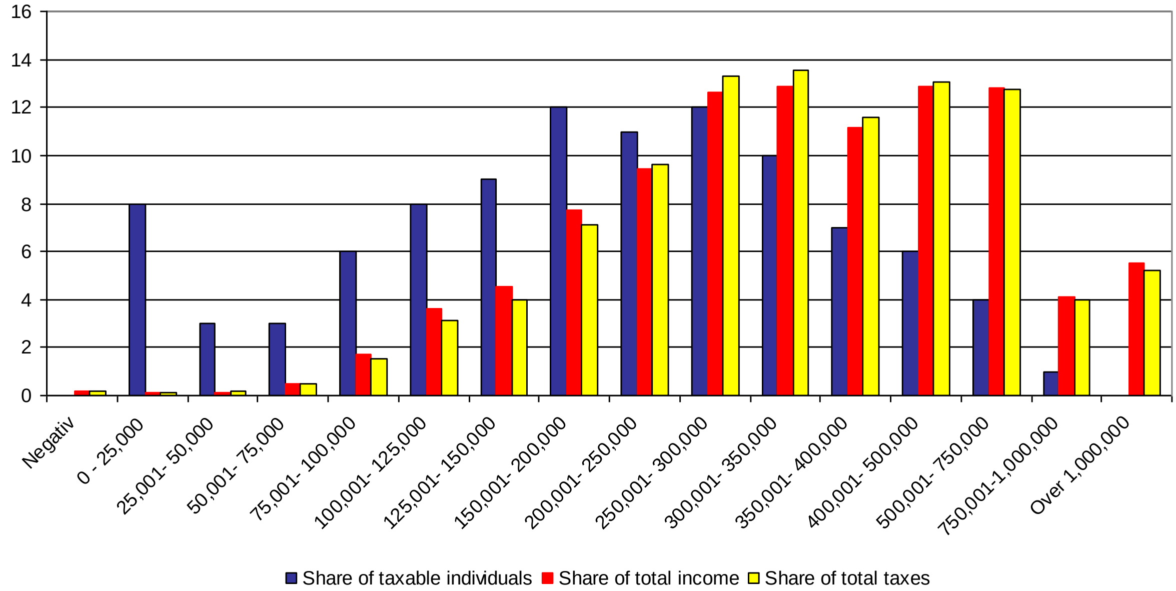
Personal income before labour market contribution	Number of taxpayers		Total income[1)]	Income tax	Labour Market Contribution [2)]	Income tax and Labour Market Contribution in % of income[1)]
DKK	(1,000)	%	Billion DKK	Billion DKK	Billion DKK	%
Negativ	20	0	-5.0	0.6	0.1	-
0 - 25,000	370	8	2.4	0.4	0.2	25.0
25,001- 50,000	125	3	4.6	0.5	0.3	17.4
50,001- 75,000	140	3	8.7	1.6	0.3	21.9
75,001- 100,000	285	6	25.4	5.7	0.4	24.0
100,001- 125,000	390	8	44.8	11.8	0.6	27.7
125,001- 150,000	405	9	55.2	14.8	0.9	28.5
150,001- 200,000	535	12	93.0	25.4	2.8	30.3
200,001- 250,000	515	11	116.0	31.0	7.0	32.8
250,001- 300,000	565	12	155.0	41.5	11.1	34.0
300,001- 350,000	465	10	150.1	42.2	11.4	35.7
350,001- 400,000	320	7	119.1	36.7	9.2	38.6
400,001- 500,000	275	6	122.2	42.2	9.5	42.3
500,001- 750,000	180	4	105.8	42.0	8.3	47.6
750,001-1,000,000	35	1	30.0	13.5	2.3	52.7
Over 1,000,000	20	0	33.7	18.1	2.6	61.5
All taxpayers	4,645	100	1,061.0	228.2	67.1	37.3

Source: The Ministry of Taxation.
Note: Calculations by Lovmodellen on the base of a sample of 3.3 % of the population.
1) Personal income before Labour Market Contribution.
2) Excluding contributions from pension funds administered by employers.

In figure 3 the amount of income in the income intervals are pictured together with the marginal income tax schedule. From this figure 3 it is also obvious that the bulk of income lies below the top tax bracket. Taking a closer look at the figure it also seems that there might by significant effects of the tax schedule on income even though caution in the interpretation is required. Especially the top tax bracket seems to have an effect where the normal decline in the amount of income is interrupted just before the top tax kicks in and then take on even faster after the top tax threshold. This effect could perhaps be explained by that fact that a self-employed is able to manage the wage level and take out dividends instead of wages when they exceed the top tax bracket. Another possible explanation is that people in general reduce their labour supply when they reach the top tax bracket.

The distribution of income and taxes is also shown in figure 4. Here the progressive nature of the Danish tax system also becomes obvious. In general average taxes are increasing with income. For income levels below 200,000 DKK the share of income is higher than the share of taxes. Then for income levels between 200,000 DKK and 500,000 DKK the share of total taxes are higher than the share of total income. For income levels above 500,000 DKK the share of total taxes is again below the share of total income.

Fig. 4. Relative distribution of taxpayers, income and tax, 2007.



Source: The Ministry of Taxation.

Table 3. Taxpayers distributed according to type of tax in 2007.

Type of tax	**Number of taxpayers**	
	(1,000)	%
All taxable persons	4,645	100
Persons paying either income tax[1)] or labour market contribution	4,455	96
Persons paying neither income tax[1)] nor labour market contribution	190	4
Taxpayers paying:		
Municipal income tax	4,215	91
Church tax	3,525	76
Health contribution	4,215	91
Bottom tax	4,165	90
Middle tax	1,195	26
Top tax	960	21
Middle and/or top tax	1,315	28
Middle tax but not top tax	360	8
Top tax but not middle tax	125	3
Top tax and middle tax	835	18
No income tax	425	9
Labour market contribution	3,250	70
Labour market contribution but no income tax	235	5

Source: The Ministry of Taxation.
Notes: Calculations on Lovmodellen on the base of a sample of 3.3% of the population.
1) Including the property value tax.

In table 3 the number of taxpayers paying the separate types of tax on personal income is shown. All in all nearly 4.7 million Danes are registered taxpayers in 2007 and nearly 4.5 million pay some kind of income tax. Around 90% of all taxpayers pay the basic income taxes, which are the municipal income tax, the church tax[5], health tax and the bottom state tax. Because the labour market contribution is only levied on labour income it is only paid by 70%.

26% and 21% of taxpayers pays the progressive middle and top taxes respectively. Due to the possibility of transferring unexploited thresholds in the middle income tax to the spouse some taxpayers actually pay top tax but not middle tax. This is the case for 3% of the taxpayers. 5% of the taxpayers only pay the labour market contribution.

4. Recent Reforms

4.1. Overall changes to the personal income tax 1986-2007

The reforms and changes to the Danish income tax system in the years 1986-2007 can be grouped under to headings:

- Changes to the tax schedule – i.e. the calculation of the tax
- Changes to the taxable income – i.e. the calculation of the tax base.

These changes are described in detail in the Legal National Report. Here the focus is on the broader economic effects on distribution and incentives. Before turning to these effects it is worth summarizing the main changes to the tax scale and the tax base. This is done in figures 5-7.

The tax schedule

The changes in the tax schedule are shown in figure 5 for selected years at fixed prices and wages at 2007 level. Comparing the four years it becomes obvious that the tax schedule has become flatter and that marginal taxes have decreased.

Measured in 2007 price and wage level the top tax threshold has been moved from 311,200 DKK to 355,600 DKK since 1986, a real increase of 14%. At the same time the top marginal tax rate has come down from 73.2% to 63.0%.

The middle tax threshold has been moved from 189,600 DKK in 1986 to 296,300 DKK corresponding to a real increase of 56%. The middle tax rate has been reduced from 62.4% to 49.2%.

The tax rate at the bottom bracket has been reduced from 48% to 42.9% while the personal allowance has been practically unchanged in real terms during the period. The level is 44,000 DKK.

Finally taxation of labour income below the personal allowance was increased from 0% in 1993 to now 8% with the introduction of the labour market contribution.

The total reduction in the marginal tax rates consists of two opposite changes. The reductions in the income tax rates levied by the state and increases in the municipal and county tax rates. On average municipal and county tax rates have increased from 27.3% in 1986 to 32.6% in 2006. From 2007 the counties are abolished and the 8% health contribution is levied by the state instead of parts of the old county tax.

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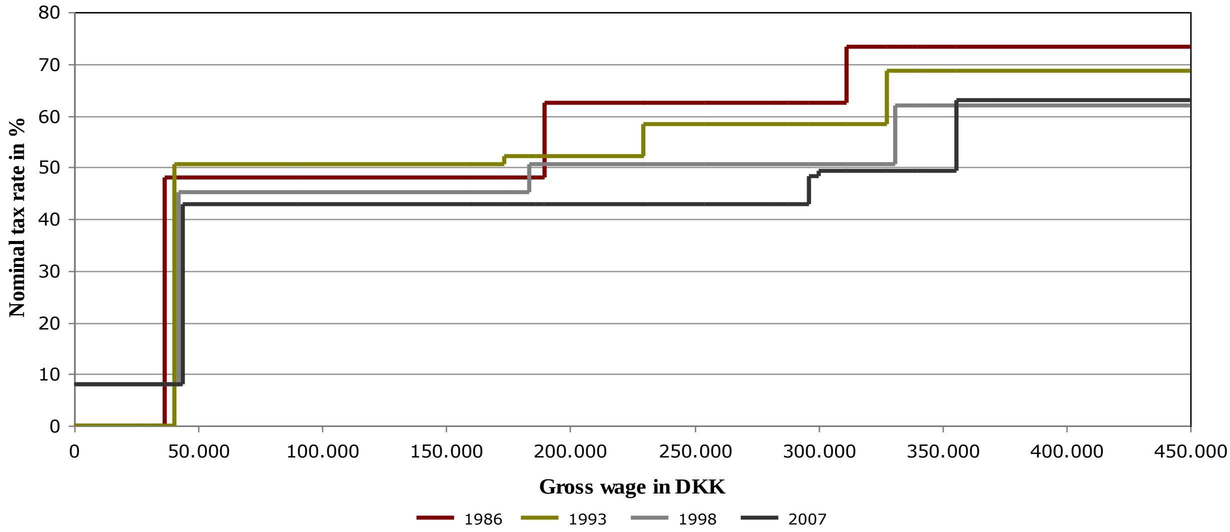
[5] Only paid by members of “Folkekirken”.

Fig. 5. The Danish Tax Schedule in 2007 prices and wages, 1986-2007



Source: The Ministry of Taxation.

The tax base

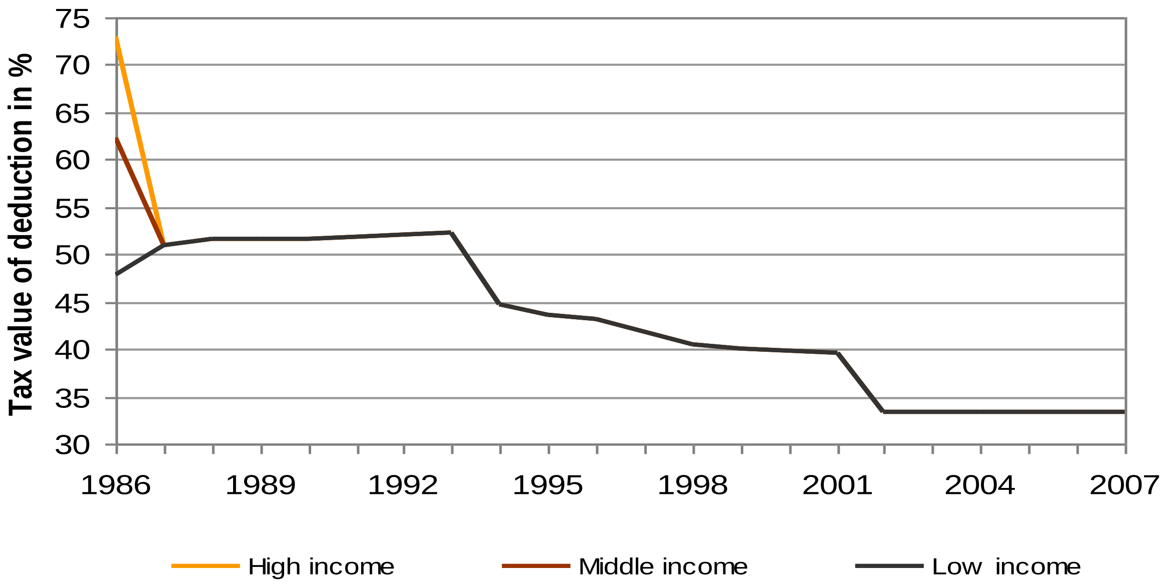
The major changes to the calculation of the tax base is the introduction of a partly dual tax treatment of labour income and capital income and the reductions of the tax value of deductions and allowances in the taxable income hence moving away from a classical comprehensive income tax system. The change to the calculation of the tax base is done by introducing new income definitions and corresponding tax rates.

Before 1987 certain expenses to acquire and maintain income[6] could be deducted at the full marginal tax rate. From 1987 the deductions have a reduced taxable value below the top and middle marginal tax rates. For people paying the highest marginal tax rate of 73.2% in 1986 the tax value of these deductions were reduced to 51% in 1987 and is now 33.3% in an average municipality, see figure 6. Interim arrangements have been applied during the transitional periods following the tax changes to alleviate the effects of the tax increase.

The tax-deductible expenses amount to around 65 billion DKK in 2007. They are expenses for commuting (13 billion DKK), unemployment insurance premiums and early retirement premiums (18 billion DKK), labour union dues (8 billion DKK), earned income tax credit (17 billion DKK) and various other expenses (10 billion DKK).

[6] This group of expenses belong to the group on the income tax return called assessment oriented deductions - the so-called *ligningsmæssige fradrag*.

Fig. 6. Tax value of "ligningsmæssige" deductions, 1986-2007.



Source: The Ministry of Taxation.

The gradual reductions in the tax value of these deductions constitute a significant broadening of the personal income tax base. In 2007 the tax value of the deductions in taxable income amount to around 21 billion DKK. Without changes to the tax base and tax scale the total tax value would instead have been around 40 billion DKK.

In the 1993-94 and 1998 reforms the tax treatment of pension savings was also changed. Firstly, the tax value of pension saving was gradually reduced by the gradual introduction of the labour market contribution levied on a new gross income base. Secondly, deductions for pension saving in so called capital pension arrangements[7] were limited to a maximum tax value corresponding to the middle tax bracket. Consequently these changes both imply a bringing forward of taxation and a broadening of the tax base in the short term.

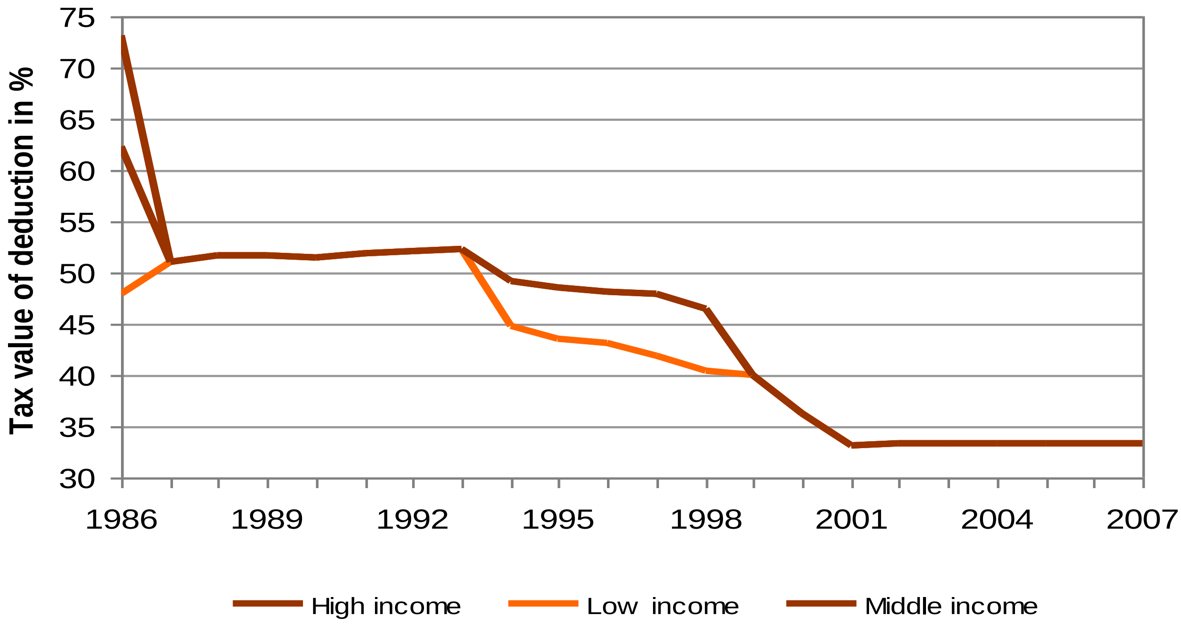
In 2007 the yearly savings in capital pension arrangements amount to around 20 billion DKK. Full deductibility at the current top marginal tax rate would give a revenue loss of around 1 billion DKK Total pension savings are around 110 billion DKK and short term revenue from the labour market contribution on pension saving is around 9 billion DKK.

Before 1987 interest payments on i.e. mortgages could be deducted at full value in the taxable income. Since 1987 the tax value of negative net capital income has been gradually reduced to now 33.3% in an average municipality, see figure 7 and sections 4.3 and 6.

In 2007 negative net capital income is estimated at approximately 74 billion DKK with a tax value of 24 billion DKK. A rough estimate of the revenue from this base broadening is 8-10 billion DKK before behavioural changes and using current average marginal tax rates.

[7] Savings schemes with a one-off payment as opposed to schemes with yearly payments.

Fig. 7. Tax value of deductions of interest payments, 1986-2007.



Source: The Ministry of Taxation.

4.2. Average and marginal tax rates

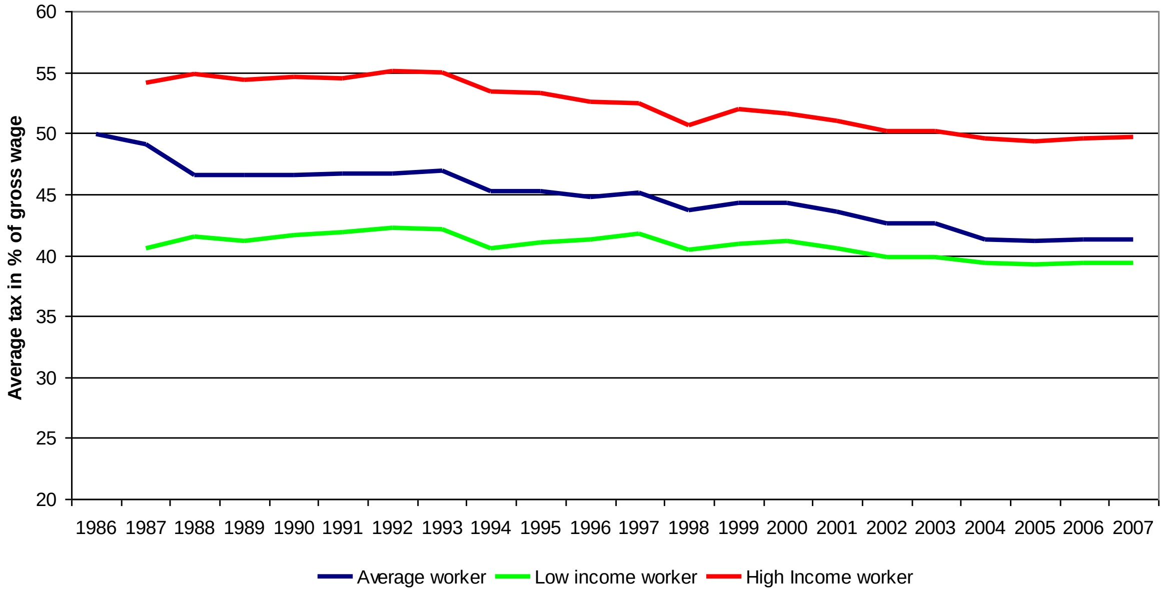
In figures 8 and 9 the development of average and marginal tax rates are shown for the average wage following the OECD-definition and for a high- and a low-income worker at 167% and 67% of average wages respectively. The average gross wage is approximately 345,000 DKK in 2007. The general picture is steadily decreasing average and marginal tax rates from the very high levels of taxation in the mid 1980ies.

The average tax for the average wage has been steadily decreasing from 49.9% in 1986 to 41.3% in 2007. This means that the average after tax income has increased by 17% thus increasing the incentive to participate on the labour market. The same development is seen for high and low wage individuals although the reductions are smaller.

It should be noted that the average tax calculations shown in figure 8 does not include tax credits for interest payments, pension savings etc. The tax value of theses deductions in the income base have been reduced thereby tending to increase average taxes for individuals with such deductions.

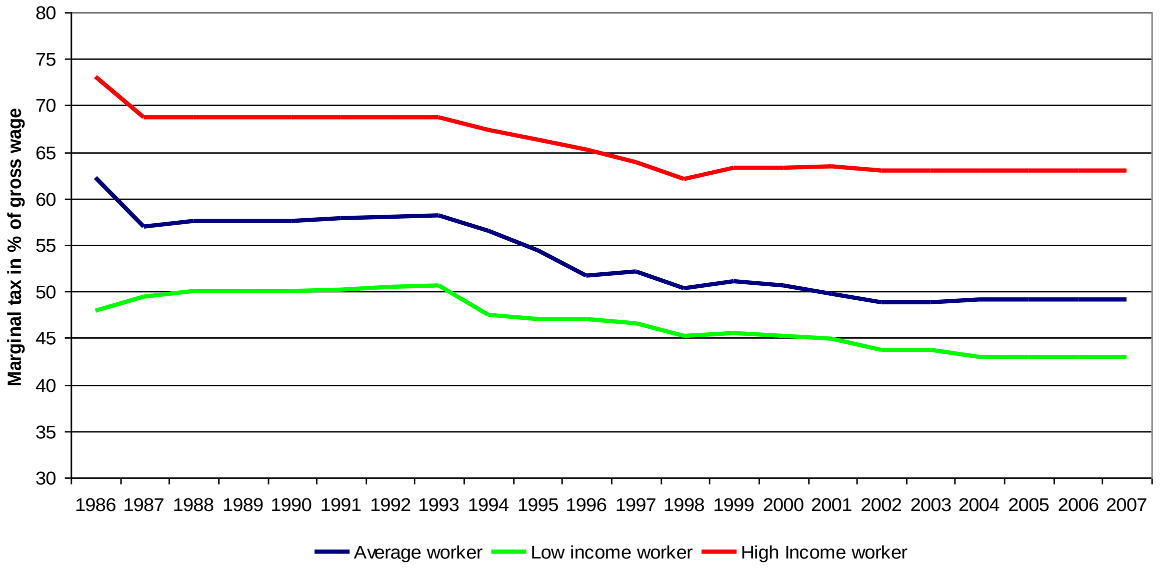
The marginal tax for the average wage has been reduced even more substantially than the average rate. In 1986 the marginal tax for the average wage was 62.3%. This has been reduced to 49.2% in 2007. This is a reduction in the marginal tax rate of 13%-point and an increase in the after tax income of 35%. The marginal tax for a high-income individual is reduced by 10%-point from 73.2% to 63.0% leading to an after tax increase in return of 37%. The low income individual has on the other hand only seen a decrease in the marginal tax rate from 48% to 43% and an increase in after tax return of 10%.

Fig. 8. Average tax rates for high, low and average wages worker, 1987-2006.



Source: OECD Taxing wages and The Ministry of Taxation.

Fig. 9. Marginal tax rates for high, low and average wages worker, 1986-2007.



Source: OECD Taxing wages and The Ministry of Taxation.

Table 4. Increase in average after tax income from 1986/1987 to 2007.

	1986	2007	Increase in average after tax income
Low wage [1)]	40.5	39.3	2%
Average wage	49.9	41.3	17%
High wage[1)]	54.1	49.7	10%

Source: OECD Taxing wages and The Ministry of Taxation.

[1)] The changes in taxes on low wage and high wage earners are only available from 1987. For these wage levels calculations are made by The Ministry of Taxation and does not completely correspond to the OECD definition.

Table 5. Increase in marginal after tax income from 1986 to 2007.

	1986	2007	Increase in after tax income
Low wage	47.9	42.9	10%
Average wage	62.3	49.2	35%
High wage	73.2	63.0	37%

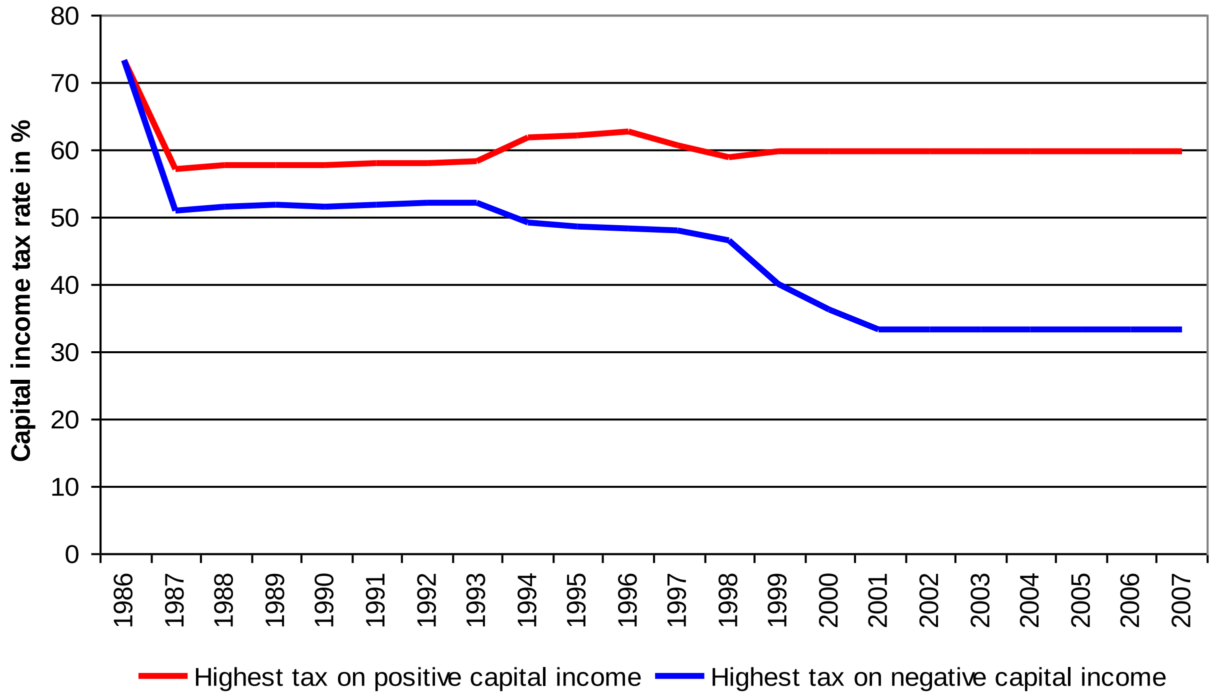
Source: OECD Taxing wages and The Ministry of Taxation.

4.3. Capital income tax rates – 1986-2007

The Danish tax system taxes capital income with several different rates depending on both the type and size of capital income. Nominal tax rates vary from 0% to 59.7%. Real tax rates can in some cases exceed 100%. The economic effects of the various capital tax rates are discussed in more detail in section 6. This section will focus on the development of the taxation of primarily interests.

In figure 10 the movement from a classical tax system in 1986 to a hybrid dual/classical system with increasing difference in the taxation of positive and negative capital income is shown.

Fig. 10. Taxation of positive and negative capital income, nominal tax rates 1986-2007.



Source: The Ministry of Taxation.

In the classical pre 1987 system all income net of interest payments is taxed with the same marginal tax rates. The figure shows the case for a taxpayer paying the highest marginal tax rate. In 1986 it was 73.2% for both positive and negative capital income.

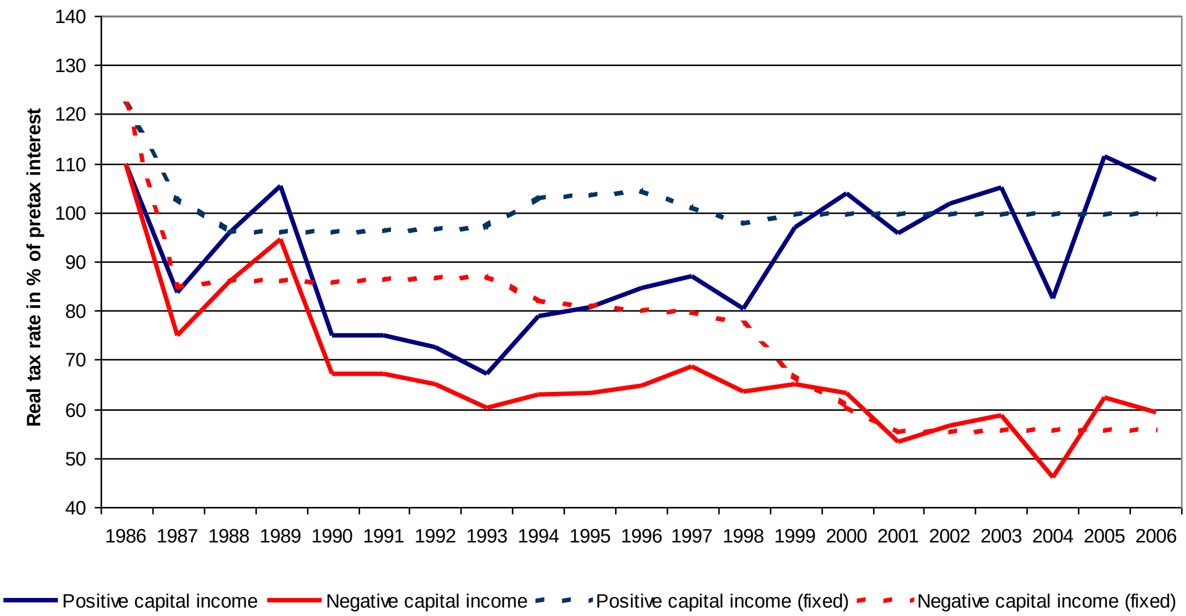
From 1987 positive and negative capital income is taxed at lower rates than labour income but negative capital income is taxed at a (much) lower nominal rate than positive capital income. Since

the 1993-94 tax-reform positive capital income is only taxed slightly lower than labour income (59.7% versus 63.0% in 2007) while negative capital income is only taxed by 33.3%.
The effects of these changes to the tax system have been very profound. This can be illustrated by taking a look at the real tax rates. This is done in fig. 11 where real tax rates are calculated both on actual interest (average of all bonds) and inflation rates during the period and on a fixed assumption of 5% interest rate and 2% inflation.

Fig. 11 shows that real taxation of capital income is very high and usually around 100% for realistic combinations of interest rates and inflation. The isolated effect of tax reforms since 1986 have been to reduce real tax rates and especially reduce the real tax rate of negative capital income thereby effectively reducing the tax incentive for borrowing and increasing the incentive for saving.

The total effects of changes to the tax system and actual variations in inflation and interest rates is however less straightforward. Here the declining real interest rates mean that real taxation of positive capital income is again above 100% while borrowing face comparably lower real rates of around 50%-60% since the early 1990ies. During the latest years with very low real interest rates for some kinds of borrowing real tax rates might in some cases have been around 100% or even more. But without the tax reforms carried out since 1986 the real tax rates would have been even higher – approximately 20-25%-points higher than the real positive capital income tax rate.

Fig. 11. Real capital income tax rates, 1986-2006.



Source: The Ministry of Taxation.

4.4. Distributional effects of tax reforms 1987-2004

The isolated effects of the income tax changes of all of the four tax reforms from 1987-2004 were a general increase in after tax income. The effects on the distribution are shown in tables 6 and 7.

In table 6 the changes in after tax income as % of total income are shown for income deciles. The total effect of the four tax changes for all taxpayers on average is an increase in after tax income of 6.3% of total income before tax. An average taxpayer has an income of approximately 230,000 DKK in 2007 and pay income taxes of around 86,000 DKK. Without the four tax changes she would have paid approximately 15,000 DKK more in income taxes. Taxpayers in the second and 10th deciles would likewise have paid approximately 5,000 DKK and 30,000 DKK more in income taxes respectively.

In total the tax changes seem to give the largest relative tax cuts to lower income individuals. The tax rates have been reduced the most in the middle- and high-income brackets. But these income brackets also tend to be affected by the reductions in the tax value of interest payments and other tax credits. The introduction of the special child benefit in 1987 also helps increase after tax income in the lower and middle income brackets.

Table 6. Distributional effects of tax reforms from 1987-2004.

Deciles	1987-reform	1994-reform	1999-reform	2004-reform	Total
			Change in income after tax in % of total income		
1.	4.0	6.0	1.1	0.3	11.4
2.	1.0	4.1	1.5	0.2	6.8
3.	1.4	3.8	1.4	0.1	6.7
4.	1.4	3.7	1.3	0.2	6.6
5.	1.4	2.8	1.3	0.3	5.8
6.	1.3	2.6	1.3	0.6	5.8
7.	1.0	2.7	1.1	1.2	6.0
8.	0.8	3.1	0.9	1.6	6.4
9.	0.7	3.6	0.5	1.6	6.4
10.	0.7	3.9	-0.1	1.1	5.6
All taxpayers	1.0	3.5	0.8	1.0	6.3

Source: Ministry of Finance and Ministry of Taxation. Calculations by Lovmodellen.

It is worth noting that the distributional effects do not include the changes to environmental taxes made in the 1994 and 1999 reforms. These changes tend to burden lower income deciles relatively more than higher income deciles. In total environmental taxes were increased by approximately 20 billion DKK during the period 1994 to 2002. The same magnitude as the personal income tax cuts in those years. On the other hand the 1994 reform included closing loopholes, changing taxation of capital gains and an effort to reduce moonlighting and improve the assessment all of which tend burden taxpayers with higher income.

Furthermore the distributional effects do not include the increase in the proportional municipal and county taxes that have taken place during the period.

In table 7 the changes in the average marginal tax rates on labour income are shown according to type of work. All groups working have received cuts in the marginal tax rates while people not working face smaller increases in the marginal tax rates on labour income. Skilled and unskilled workers in the middle of the income distribution received the largest reductions in marginal tax rates both in absolute and relative terms. The estimated marginal tax rates are including the effects of the increasing municipal tax.

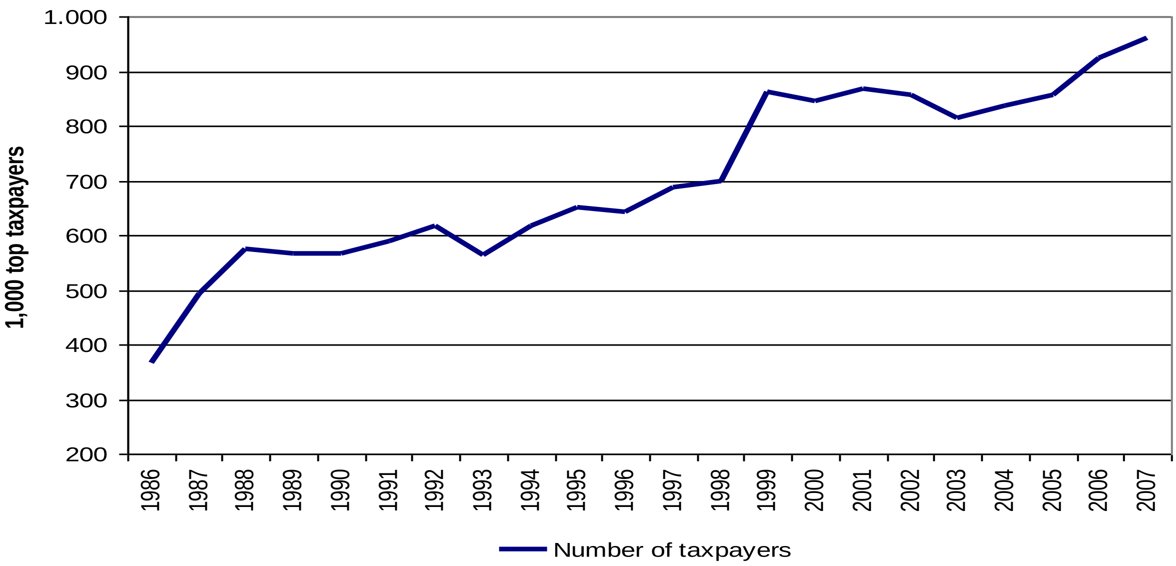
Table 7. Average marginal tax rates for different groups of taxpayers, 1986-2007.						
	1986	1987	1994	1998	2002	2007
	Average marginal tax rate in %					
Farmers	46.5	50.7	47.5	47.0	47.8	46.1
Other self-employed	50.4	49.8	51.2	50.1	50.4	47.7
Superior salaried employees	64.9	65.8	62.6	59.2	60.2	59.8
Managing salaried employees	58.6	59.3	58.0	57.1	58.3	57.2
Other salaried employees	55.1	56.6	54.6	53.7	54.1	52.6
Skilled workers	57.8	57.2	55.9	51.3	50.8	48.1
Unskilled workers	54.3	55.0	53.1	50.7	49.5	47.7
Other employees	50.7	52.8	51.0	48.7	47.2	43.5
Old-age pensioners	40.7	39.3	48.1	46.1	44.8	43.2
Others outside working	21.0	21.9	31.4	33.7	32.9	25.6
Working	54.5	55.5	54.9	52.1	51.8	50.2
Not working	31.4	31.4	40.5	40.2	39.2	37.1
All taxpayers	46.0	46.8	49.3	47.4	46.8	44.4

Source: The Ministry of Taxation.
Note: Calculations of marginal tax rates when labour income increase by 100 DKK. Lovmodellen.

Finally in figure 12 the development in the number of taxpayers in top tax bracket is shown. It is now estimated that around 960,000 taxpayers or 20% of all taxpayers will pay the top marginal tax of 63% in 2007.

This is a rapid increase in the number of top marginal taxpayers since 1986 where 365,000 paid the highest marginal tax. The increase is in part due to the changes in the tax base (the base broadening) in part to a fiscal drag.

Fig. 12. Number of taxpayers paying top marginal tax.



Source: The Ministry of Taxation.

This fiscal drag is caused by a number of factors. In general the annual indexation of the top tax threshold is not following the development in the income and wages as closely as it perhaps could. There has been an underlying change in the composition of the work force towards a higher level of education in general which has pushed up total wages more than the wage index. Also the ageing population means that a larger share of the work force is entering age groups where wages tend to be higher. Finally, more pensioners now have large payments from pension savings, which will be taxed at the top tax rate.

4.5. Incentive effects of tax reforms 1987-2004

Labour supply

Empirical research indicates that income tax cuts have a number of attractive effects on the economy. As is the case with most other taxes levied in the real world income taxes distorts the market – specifically the market for labour and leisure.

Income taxes (and excise duties) reduce the return from working making it less worthwhile taking on a job or increasing work effort. There are several different effects at work:

- Whether to participate in the labour market or not?
- Which education to undertake?
- How many hours to supply?
- How hard to work, when working?
- Whether to make career moves?
- Level of black market activities?

Traditionally focus has been on participation and hours worked. However work intensity and quality, as well as education might also be very important factors. All of these positive effects will reduce the requirements for financing income tax cuts.

Furthermore, focus has traditionally been entirely on income taxes and labour supply measured in hours worked. Newer research takes a more general approach trying to incorporate the effects of intensity and quality as well as the combined effective tax rates including social benefits and excise duties levied on consumption.

Taking excise duties into consideration means that the highest marginal tax rate is actually not 63.0% but really 72.1%. In income brackets where social benefits are reduced as income increase, this effect should also be included. Not taking the total marginal tax rates into consideration could lead to an underestimation of the effects of taxation on labour supply.

In sections 3 and 4 it is shown that the tax reforms carried out during the last 20 years have resulted in substantial reductions in the marginal and average tax rates in all tax brackets. The isolated effects of the tax reforms have thus been to increase both labour market participation and hours worked (including intensity, quality etc.). A rough estimate of the isolated effects might be that labour supply is increased with the equivalent of 85,000 full time employees of which 10,000 come from increased participation and 75,000 from increased hours.

Looking isolated on the introduction of the earned income tax credit in 2003-2004, the effect is more ambiguous. On one hand marginal and average tax rates are reduced for lower paid workers. But on the other hand only average taxes are affected for higher paid workers implying that they will reduce their labour supply. Also the introduction of the earned income tax credit with a cap will make it less profitable to take on education. Finally an earned income tax credit has opportunity costs in the sense that tax cuts could have been granted elsewhere in the tax schedule. This implies that lower marginal tax rates at the lower end of the income scale comes at the cost of higher marginal tax rates at the higher end of the income scale.

Thus from a theoretical point of view it is far from certain that the earned income tax credit will increase labour supply.

Savings

Theoretically it is not possible to determine whether reduced taxes on capital income/savings increase or reduce savings. Empirical research is not very conclusive on this topic either. However, capital income tax rates have not generally been reduced in the same magnitude as labour income tax rates when taking account of inflation.

In effect the substantial change in the taxation of capital income is the introduction of the split between negative and positive net capital income in 1987 where the tax rate on negative net capital income was reduced from up to 73.2% to now 33.3%. An isolated reduction in the tax on negative capital income has unambiguous positive effects on savings. The effect of this has not been quantified but using the rough assumptions based on The Ministry of Finance[8] the effect on private sector financial savings can be estimated to be in the magnitude of 1-2% of GDP or 17-34 billion DKK.

Tax rates on positive capital income and other types of capital income have not been reduced to the same extent as for negative net capital income. Furthermore, it is not possible to say whether these changes have increased or decreased savings. However, what is obvious is, that the many different tax rates on the different types of capital and savings schemes distort the composition of savings, see section 6.

The high real tax rates on savings might also pose a problem in an increasingly globalising economy where the free flow of capital might become difficult to control and tax.

Tax shift from income taxes to green taxes

During the decade from 1992 to 2002 Denmark made a shift in the tax structure from income taxes to green taxes that received much attention. The idea was to tax environmentally harmful behaviour and the use of resources while using revenue from the green taxes to reduces taxes on labour income. The most persevering proponents of such tax shifts claimed that this would create a double dividend both increasing labour supply and improving environment.

The green tax shift involved an increase in environmental taxes in the order of 1-1.5% of GDP. This implied the increase and introduction of a number of taxes on petrol, diesel, heating, electricity, waste, water, motor vehicles etc. In many cases tax rates actually came to exceed externalities connected with the taxed behaviour.

There is probably no doubt that the tax shift helped improve labour supply. But this effect is not caused by using environmental taxes to finance tax cuts. Here it is important to remember that excise duties also affect the labour supply as they are paid out of income. Hence, the increased labour

[8] Finansministeriet. Finansredegørelse 1998/99.

supply was a result of the reduction in the total progression of the tax system that followed the environmental taxes, which tend to be more proportional (or even regressive) than income taxes and also burden people outside the labour force. When willing to change income distribution in this way, many other tools are available. It is nothing inherent to environmental taxes. Thus there is no real double dividend from a so-called green tax reform.

5. Taxation of wage and wage-related income

5.1. Statistics on fringe benefits

In sections 3.1 and 3.2 of the legal national report the general rules on taxation of fringe benefits and employee shares is described. In table 8 the use of fringe benefits is estimated for the years 2005 and 2006. The general observation is that the number of people receiving different kinds of fringe benefits is increasing. The traditional and relatively high taxed benefits like free company car, board and lodging and free residence seem to be on a stable level. On the other hand new and often tax favoured benefits like PC, data communication and health insurance seem to be rapidly increasing.

Table 8. Prevalence of fringe benefits, 2005-2006.

Fringe benefit	2006			2005	
	Number of persons	Average DKK	Total Million DKK	Number of persons	Total Million DKK
Free company car	84,394	51,650	4,359	84,568	4,207
Board and lodging	16,338	4,520	73	16,511	73
Free residence	5,084	23,465	119	5,236	125
Free summer residence	11,545	2,135	25	12,486	25
Free pleasure boat	14	3,445	0	12	0
Free licence fee	1,763	2,185	4	1,641	4
Free telephone	173,047	2,435	422	162,675	395
Employee share of new PC	45,036	2,125	96	16,888	31
Warrants (LL § 28)	4,074	95,100	388	3,035	182
Employee shares (LL § 7 H)	1,023	-	-	1,870	-
Employee loans	1,720	-	-	1,173	-
Free summer residence abroad	1,149	-	-	1,335	-
Free public transportation	26,250	-	-	33,292	-
Health insurance	460,000	1,600	735	370,000	592
ADSL without connection to employer network	75,000	6,000	450	50,000	300
Free PC	230,000	3,500	805	220,000	770
ADSL with connection to employer network	125,000	6,000	750	50,000	300
Warrants (LL § 7 A, nr. 1)	1,000	10,000	10	1,000	10
Employee shares (LL § 7 A, nr. 2)	10,000	16,250	163	10,000	163
Employee bonds (LL § 7 A, nr. 3)	6,300	8,000	50	3,400	25

Source: The Ministry of Taxation. Statusrapport til Folketinget om personalegoder /naturalieydelser, December 2006.

The most important fringe benefits measured in coverage and expenditure is health insurance, company car, data communication, PC and telephone.

In table 9 the distribution of fringe benefits is shown from 2004 – the latest year with available data. The conclusion is that the frequency and value of fringe benefits tends to increase with income. For

Table 9. Distribution of fringe benefits on gender and personal income including labour market contribution, 2004.

Personal income including labour market contribution	Men					Women					Total					
	All working men		Share with fringe benefits			All working women		Share with fringe benefits			All working		Share with fringe benefits			
	Number of individuals		Number of individuals		Average value	Number of individuals		Number of individuals		Average value	Number of individuals		Number of individuals		Average value	
DKK	(1,000)	%	(1,000)	%.	DKK	(1,000)	%	(1,000)	%	DKK	(1,000)	%	(1,000)	%	DKK	% of income
Under 100,000	77	5	3	2	23,445	62	5	1	2	13,450	139	5	4	2	20,360	-[1)]
100,001-200,000	238	17	7	4	9,760	373	29	4	9	5,305	611	23	11	5	7,960	5
200,001-300,000	477	33	19	12	11,575	561	43	12	25	7,515	1,038	39	31	15	9,985	4
300,001-400,000	365	26	41	25	15,920	214	17	14	30	10,975	579	21	55	26	14,670	4
400,001-500,000	138	10	34	20	22,070	47	4	8	17	16,185	185	7	42	20	20,970	5
500,001-750,000	96	7	41	25	32,465	21	2	6	13	26,905	117	4	47	22	31,720	5
over 750,000	32	2	19	12	57,785	4	0	2	4	43,710	36	1	21	10	56,700	5
I alt	1,423	100	164	100	25,710	1,282	100	47	100	13,760	2,705	100	211	100	23,030	5

Source: The Ministry of Taxation. Statusrapport til Folketinget om personalegoder /naturalieydelser, December 2006.
Note: Calculations by Lovmodellen on the base of a sample of 3.3 % of the population.

instance 58% of the working population with annual income above 750,000 DKK receives fringe benefits. The average for the entire working population is 47%.

There also seems to be a clear difference between genders even at the same income brackets. In all income brackets the share of persons receiving fringe benefits as well as the value of the fringe benefits are lower for women than for men perhaps due to the fact that more women tend to be employed in the public sector.

5.2. Statistics on the special unincorporated business arrangement "virksomhedsordningen"

In section 3.3 of the legal report the so-called "virksomhedsordning" is described. The main advantages of this special arrangement are that unincorporated businesses can deduct interest payments fully and have the opportunity to retain earnings at a low tax rate of 25% equalling the corporate tax rate. The typical user is a farmer, a professional or performs business activities. The "virksomhedsordning" was a consequence of the 1987 tax reform where interest payments and capital income were no longer taxed at same level as labour income.

In table 10 the use of the special business arrangement is shown. In total 408,000 out of 4.6 million taxpayers received business income in 2004. Of these 156,000 taxpayers used "virksomhedsordningen" while 70,000 used the simplified "kapitalafkastordning". The remaining 182,000 taxpayers used the ordinary personal income tax rules.

Total taxable business income was around 104 billion DKK of which half was taxed in the "virksomhedsordning", 35% in the ordinary income tax system and 15% in the "kapitalafkastordning".

Table 10. Persons with business income distributed by trade and use of the special business arrangement (virksomhedsordning or kapitalafkastordning) in 2004.

Trade	Virksomheds-ordning		Kapitalafkast-ordning		Outside special business arrangement		Total	
	Number	Taxable in-come	Number	Taxable in-come	Number	Taxable in-come	Number	Taxable income
	(1,000)	Million DKK	(1,000)	Million DKK	(1,000)	Million DKK	(1,000)	Million DKK
Main occupation								
Primary sector	25	5,625	3	870	3	375	32	6,870
Manufacturing	5	1,410	1	150	4	520	10	2,080
Construction	10	3,330	2	460	7	1,085	19	4,875
Commerce	16	5,660	2	285	11	1,430	29	7,375
Hotels, restaurants and transport	8	2,160	2	290	7	1,045	17	3,495
Business activities[1]	16	8,675	2	555	16	2,930	34	12,160
Professionals[2]	15	5,930	5	955	17	2,955	37	9,840
Unknown	2	910	0	65	3	410	6	1,385
Total main occupation	97	33,705	18	3,630	68	10,745	183	48,080
Secondary occupation								
White collar workers	23	9,320	14	4,575	31	10,200	68	24,095
Blue collar workers	27	7,165	21	4,680	40	8,850	88	20,695
Other employees	9	1,905	18	2,605	43	6,150	69	10,660
Total secondary occupation	59	18,390	52	11,860	114	25,200	225	55,450
Total								
Total	156	52,095	70	15,490	182	35,945	408	103,530

Source: The Ministry of Taxation.
Note: Calculations by Lovmodellen on the base of a sample of 3.3 % of the population.
1) Includes for instance real estate agents, accountants, lawyers and IT-services.
2) Includes for instance doctors, dentists, vets, hairdressers, beauty parlours and entertainment.

6. Taxation of capital income

6.1. The difference between real and nominal tax rates

Section 4 of the legal report gives a description of the various elements of the Danish taxation of capital income and how different types of capital income are categorised. Table 11 show the nominal tax rates for the most common types of savings and investments.

The nominal tax rates vary from 0% on capital gains on owner-occupied housing to 59.7% on interests from bonds and bank deposits in case of a taxpayer with positive net capital income paying the top marginal tax rate.

Between these extremities nominal tax rates are 15% on annual yields from pension savings but on an accrual base, 1% annually on the assessed value of owner-occupied housing, 28-45% on income from shares, 33.3% on negative net capital income and between 38.8% to 59.7% on interests from bonds and bank deposits.

These are the nominal tax rates. When considering that inflation erode the nominal capital stock the real tax rates vary even more, become considerably higher than nominal rates and gives rise to a real taxation problem where positive capital income is taxed at higher rates than wages.

Real tax rates[9] vary from 0% on capital gains on owner-occupied housing to 100% on interests from bonds and bank deposits. Lower returns and/or higher inflation rates pushes real tax rates even higher. Again different types of savings and investments face different real tax rates.

Compared to tax rates on labour income the real tax rates on capital income are relatively high and in many cases exceed the top marginal tax rate on labour income. It is the real tax rates that determine people's decisions on savings and investments.

Table 11. Nominal and effective tax rates on different types of savings.

	Nominal tax rate	Effective tax rate	Asset stock, % of GDP
Pension savings, net of deferred taxes[2]	15	25	57
Owner-occupied housing without capitalization of real estate tax[1]	1	33.3	
Owner-occupied housing with capitalization of real estate tax	1	50	172
Capital gains on owner occupied housing	0	0	
Bonds, net negative capital income (average municipality)	33.3	55.5	120
Bonds and free savings – bottom tax bracket	38.8	64.7	
Bonds and free savings – medium tax bracket	44.8	74.7	67
Bonds and free savings – top tax bracket	59.7	99.5	
Share Income (28%)	28	46.7	
Share Income (28/43%)	28/43	71.7	23
Share income (28/43/45%)	28/43/45	75	

Source: The Ministry of Taxation.
Notes: In the calculations an inflation rate of 2 % and a nominal interest rate of 5 % are assumed.
[1]: The normal tax rate. Housing assessed at a value above 3,040,000 DKK are taxed at 3%. Furthermore the combination of a number of rebates and the tax freeze has reduced the average rate to around 0.5%.
[2]: Effective tax rates are exclusive of the phase out of income transfers.

Table 12. Revenue from taxation of capital income, 2002-07.

	Revenue, billion DKK					
	2002	2003	2004	2005	2006*	2007*
Taxation of positive net capital income	7.8	6.8	5.9	8.4	9.0	10.2
Tax value of negative net capital income (interests on debt)	-21.1	-20.4	-19.3	-20.0	-22.5	-24.2
Tax on share income (aktieindkomstskat)	7.0	5.9	4.8	6.7	8.3	8.1
Tax on yield of pension scheme assets (pensionsafkastskat)	3.2	7.3	25.0	38.1	13.8	14.3
Virksomhedsskat, net [1)]	1.4	1.4	1.8	2.8	2.9	3.1
Real estate tax (ejendomsværdiskat)	10.2	10.2	10.5	10.9	11.0	11.3
Taxation of capital income in total	**8.5**	**11.2**	**28.7**	**46.9**	**22.5**	**22.8**

Source: The Ministry of Taxation.
Notes: [1)] On account virksomhedsskat on savings in firms under "virksomhedsskatteordningen" net of earlier paid tax offset in the income tax, when savings are withdrawn.
* Estimates.

In table 12 the revenue from the different parts of the capital taxation is shown. The total net revenue from taxation of capital is estimated to be around 23 billion DKK in 2007. Due to the historical-

[9] Real tax rate = (nominal marginal capital tax rate * nominal interest rate)/(nominal interest rate – inflation).

ly large increases in values of shares, bonds and buildings the tax on pensions savings has shown historically large revenues. The normal revenue from this tax is approximately 18 billion DKK.

In normal years the revenue loss from negative capital income – that is primarily interest payments on mortgages – is the most important part making up 20-25 billion DKK. Compared to this taxation of positive net capital income and shares only amount to around 10 and 8 billion DKK respectively.

Finally the real estate tax levied on owner-occupied housing raise revenue of around 11 billion DKK.

6.2. Distributional effects

In this section the distributional effects of the taxation of capital income excluding pension savings and shares is described. The total revenue from taxation of capital income is estimated at approximately -14 billion DKK. In table 13 the distribution of negative and positive net capital income is shown for the income deciles.

Nearly 1.4 million taxpayers have positive net capital income on an average of 16,300 DKK. The average positive net capital income is increasing steadily with increasing income. But the taxpayers with the highest incomes in the 10^{th} decile have a much higher share of capital income than the rest of the population.

Tax deductions for negative net capital income is granted to nearly 2.9 million taxpayers with an average of 25,000 DKK. Net negative capital income is likewise increasing with income. But as opposed to net positive capital income the share of net negative income of total income is declining in the 9^{th} and 10^{th} deciles.

Table 13. The distribution of positive and negative net capital income, 2007.

Income deciles	Average personal income plus positive net capital income	Number of taxpayers with *positive* net capital income	Average positive net capital income	Positive net capital income in % of total income	Number of taxpayers with *negative* net capital income	Average negative net capital income	Negative net capital income in % of total income
	DKK		DKK	%		DKK	%
1	1,926	284,348	1,149	59.6	60,757	19,816	1.029.0
2	77,239	176,823	3,061	4.0	211,506	10,024	13.0
3	116,909	177,433	4,254	3.6	211,140	10,245	8.8
4	143,012	162,485	7,631	5.3	239,080	12,450	8.7
5	176,312	132,247	11,570	6.6	294,280	18,299	10.4
6	215,373	106,640	13,737	6.4	335,616	21,947	10.2
7	252,099	89,418	15,083	6.0	360,892	25,286	10.0
8	290,595	76,250	19,209	6.6	379,023	29,383	10.1
9	342,816	75,325	27,216	7.9	385,289	33,293	9.7
10	553,047	91,652	126,985	23.0	376,274	45,249	8.2
All taxpayers	216,868	1,372,621	16,290	7.5	2,853,857	24,994	11.5

Source: The Ministry of Taxation.

6.3. Incentive effects of capital taxation

The very heterogenic taxation of capital income distorts the decisions on savings and investment. From a social economic perspective welfare is maximised when choices on savings and investments are made to maximise pre-tax returns. With the introduction of taxes the private economic welfare are maximised when after tax returns are maximised. When the tax rates differs for different kinds of savings and investments the tax rates influences the decision on how to save and invest.

The effect of this is excess investment in housing and pension savings as opposed to holding free savings placed in relatively secure bonds and bank deposits. Furthermore it might – depending on interest rates and risk taking – become possible to engage in tax-arbitrage taking up loans with a tax deduction of 33.3% and placing the capital in pension schemes taxed at a 15% nominal tax rate.

In fact this is a very widespread manoeuvre and is essentially what almost everybody on the housing market is doing when they are mortgagors and make pensions savings at the same time.

7. Problems of income transformation and tax evasion

Section 5 of the legal national report gives a description of some of the measures to avoid income transformation and tax evasion. However, there is very limited knowledge about the economical extent of income transformation and tax evasion. As mentioned in section 3.2 parts of figure 3 might indicate that some legal income transformation is going on to avoid paying top marginal income tax and instead pay the lower share tax on dividends. It is not tried to quantify this effect. In section 5.1 the use of fringe benefits is described. The possibility of transforming wage income into tax preferred fringe benefits is also a popular and growing method of bringing down the total tax payment.

This section instead gives a brief overview of research into the size of tax evasion and the shadow economy.

The Danish researcher Gunnar Viby Mogensen[10] has done the most comprehensive and recent work on tax evasion and the size of the shadow economy. His work is focused on the under declaration in relation to personal income tax and extents back to 1903. His major conclusion is that under declaration has fallen from a level of 20% to 30% of total national income in the first half of the century to now between 2% and 3%. This corresponds to perhaps 40 billion DKK. The method of estimation is based on the difference between income from the national account and income registered by the tax authorities.

Newer research on the size of the shadow economy indicates a current level of around 3% to 4% of GDP corresponding to 60 billion DKK when measured at market prices.

It is worth noting that these estimates are pre-tax figures and not necessarily equals actual payments in the shadow economy. Thus, the revenue loss from the shadow economy is probably less than the average marginal tax rate times the estimated size of the shadow economy. Furthermore, a significant part – on average 24.5% – of after tax income is paid in indirect

[10] Skattesnyderiets historie – Udviklingen i underdeklarationen i Danmark i 1900-tallet (2003) and Danmarks uformelle økonomi – Historiske og internationale aspekter (2003).

taxes. That is, if undeclared income is consumed, as all income on average, the indirect tax rate will still be 24.5%.

In 2006 the Central Tax Administration for the first time used a measure for under declaration as part of the strategic goals for the production published in the budget proposal for 2007. The method used is based on Gunnar Viby Mogensen.

The goal is to keep under declaration of personal income at 3.1% of GDP corresponding to 53 billion DKK.

8. Future tax reforms

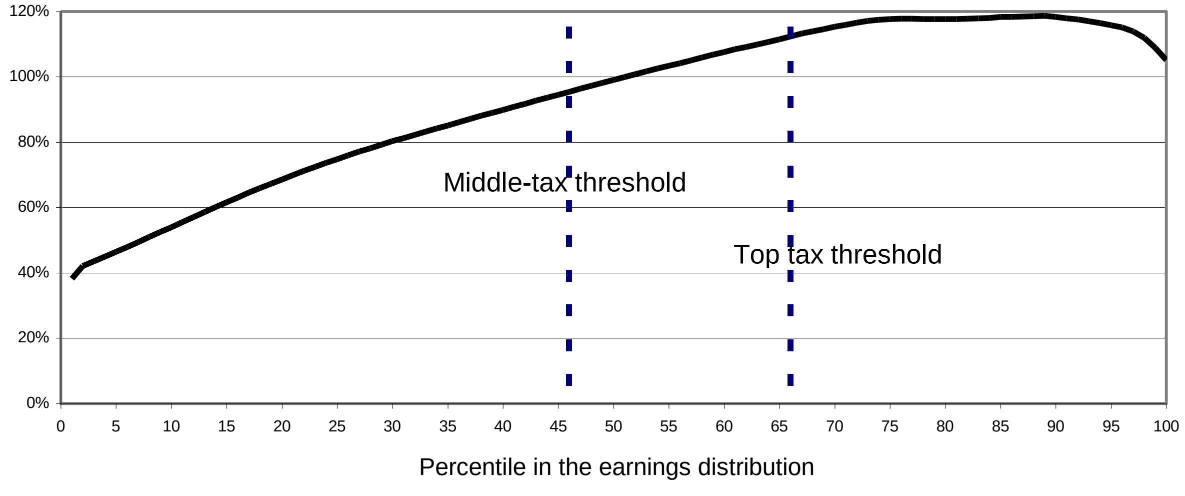
8.1. Cutting tax rates at the top, middle or bottom of the income distribution

Tax cuts have been heavily discussed in the Danish public and political debate during the last 6-7 years. The current government has as a part of the government programme to cut income taxes if it becomes possible within the framework of sustainable finances. Most political parties seem to be aiming to cut income taxes. The discussion is where to cut taxes, how to finance tax cuts and whether tax cuts will be consistent with sustainable finances, the current booming economy and the current push for increased public expenditures.

As some politicians put it somewhat polemic: It's a choice between welfare and tax cuts. Others find that cutting the very high marginal tax rates could solve the problem with a decreasing labour force by increasing labour supply and thereby increasing tax revenue. Perhaps the truth lies somewhere between these opposing perspectives.

Claus Thustrup Kreiner and Henrik Jacobsen Kleven have done some of the most recent research on the effects of cutting marginal tax rates. Amongst others they have been estimating the degree of self-financing from income tax cuts, see figure 13.

Fig. 13. Degree of self-financing of marginal tax cuts.



Source: Claus Thustrup Kreiner and Henrik Jacobsen Kleven.

Thustrup and Kleven[11] find that marginal reductions in the tax rate could be self-financing in the entire upper half of the income distribution from just above the middle tax threshold. On average tax rates could be cut by 0-5%-points in this part of the income distribution still leaving tax revenue unchanged.

The reason for the increasing degree of self-financing is basically that small reductions in the highest marginal tax rates only affect a limited number of people and amount of income while giving these people large relative increases in the after-tax return of labour supply even though they still face high marginal tax rates. On the other hand cutting taxes at the lower end of the income distribution affects very large amounts of income and hence become relatively expensive.

If cutting the higher marginal tax rates could be done at relatively low costs why is this not done? From an economic point of view the answer to this question must be that politicians value equality highly. Cutting marginal taxes would increase inequality. If costs of cutting taxes are very low as at least smaller tax cuts would be according to Thustrup and Kleven then it seems that politicians value equality so much that they are willing to make high-income earners worse off without making others better off.

Nevertheless, cutting marginal tax rates will probably be on the political agenda in the coming years. But the income distribution will play an important role in deciding on the actual tax cut.

Another way of reducing marginal taxation is to increase the thresholds in the income tax schedule, thereby reducing the number of people facing the higher marginal taxes in the middle and top tax brackets. The downside to this approach is that people with income higher than the new threshold only face an income effect that will reduce their labour supply.

The Welfare Commission has proposed the following mix of income tax changes:

- Abolish the middle income tax – resulting in an effective marginal tax rate of 42.9% for income below the top tax threshold.
- Increase the top tax threshold by 68,000 DKK (before labour market contribution).
- Increase the top tax rate from 15 to 17% - resulting in an effective marginal tax rate of 59.2%
- Increase the earned income tax credit (see section 8.2).

The Welfare Commission estimates that this tax reform might increase labour supply by 45,000 full time employees. The direct revenue loss would be approximately 2% of GDP. Tax cuts are proposed financed by increasing taxation of owner-occupied housing and excise duties.

This mix of different income tax changes illustrates the possibilities of a future tax reform quite well. The proposal might though be too advantageous for the highest income groups due to the reduction in the top marginal tax rate.

The current Danish government has on August 21 proposed a small tax change cutting personal income taxes by approximately 10 billion DKK. The elements are:

- An increase in the earned income tax credit to 4.7% with maximum of 14.500 DKK.

[11] In Skat, arbejde og lighed – en undersøgelse af det danske skatte- og velfærdssystem by Torben Tranæs (red.).

- An increase in the middle tax threshold of 48,900 DKK (before labour market contribution).
- An increase in the top tax threshold of 16,300 DKK (before labour market contribution).

The tax cuts are supposed to be introduced gradually in 2008 and 2009. To finance the tax cuts a yearly indexation of the taxes on energy is introduced from 2008 and an otherwise automatic reduction of the labour market contribution from 8% to 7.5% in 2008 is abolished.

It can be estimated that the total effect of tax cuts and increases in labour market contribution and taxes on energy will increase labour supply by approximately 6,000 full time employees.

8.2. Earned income tax credit

The Welfare Commission and several political parties have proposed increases in the earned income tax credit to combat one of the main problems in the income tax system – the very high combined tax rates in the bottom of the income distribution.

As mentioned above it is not obvious that this an effective way of designing tax cuts. Removing the cap could solve the main problem of the current tax credit of having a negative income effect on higher income groups. This would however make the earned income tax credit very expensive.

The Welfare Commission proposes an increase in the earned income tax credit to 45,000 DKK and 11%. This increases the effect on marginal tax rate from the current 0.8% to 3.6%. And at the same time the number of people who have only a negative income effect is reduced, as the effect on the marginal tax rate would be disappearing at income above 410,000 DKK instead of now 300,000 DKK.

To reduce the adverse effects of the earned income tax credit most proposals involve other changes to the marginal taxes.

8.3. Targeted tax credits

It might also be possible to imagine the use of more targeted earned income tax credits. The Family Commission has proposed an increase of the current earned income tax credit by 4 times specifically for single parents. The reason for this is that single parents are one of the groups facing the highest combined tax rates, thus having very limited incentives to increase labour supply.

Earned income tax credits could also be targeted at for instance persons with long time unemployment to increase the gain from taking on a relatively low paid job. Such a tax credit should be carefully designed in order not to create adverse incentives to go in and out of employment to qualify for the tax credit.

Thus, there might also be scope for more targeted tax credits with advantage of having relatively low revenue costs and perhaps relatively high behavioural responses. The downside of such tax credits is administrative costs, the risk of creating adverse incentives and the perhaps limited public acceptance of granting rewards for people who have been unemployed while people with the same income but without an unemployment spell do not receive a tax credit.

8.4. A flat tax?

The so-called flat tax also has its proponents in Denmark. The idea is that the Danish income tax is too complicated and the tax rates are too high. This problem can be solved – so it is said – by introducing one tax rate for all income as it is done in some eastern European countries.

The idea might seem tempting but suffers from several drawbacks. First of all the countries who have introduced flat taxes have not in reality done so. They still operate large systems of social security contributions on separate tax bases with various thresholds and rates. Typically the major part of revenue is collected through these taxes rather than income taxes.

If Denmark were to introduce a completely flat income tax the tax rate would be around 37%, which is the average tax rate for all taxpayers when not taking into account changes in behaviour, see table 2. Almost every taxpayer would face lower marginal tax rates from such a tax reform, but the cost would be that more than 80% of all taxpayers would face increasing average taxes. The taxpayers with the lowest income would receive the highest increases and the taxpayers with the highest income would receive the highest tax cut.

Nothing in the political debate indicates that such a flat tax reform could gather majority in Folketinget or in the population.

It is not really possible to repair the effects by introducing a personal allowance or perhaps maintain the current tax base. The number of people loosing from such a tax reform would still be more than half of the taxpayers and marginal tax rates would creep up towards and at some income brackets above the current level.

9. Integration of capital income and wage income taxation

9.1. Combined corporate and share tax rate

The Danish approach to the question of integration of capital income and wage income taxation has been to try to align the combined corporate and share income tax rate with the level of wage income taxation. This solves the problem of the principal shareholder who could take out dividends instead of wage if dividends were taxed at a favourable rate.

This also means that the double taxation of share income on first the corporate level and then on the personal level does not lead to excess taxation in nominal terms compared to the taxation of wages or compared to the taxation of other capital income from free savings (apart from housing) but "only" compared to people with negative capital income or pension savings. As in the rest of the capital income tax system it still leaves a real taxation problem.

The political priority so far in Danish tax policy has been to almost solve the principal shareholder problem and to a lesser extent the double taxation problem with the cost of leaving the problem of real taxation unsolved.

Whether the double taxation problem is important or not may be discussed. In the case of listed companies facing large foreign and institutional investors the demand for Danish shares a probably determined by foreign tax rates and the low tax on yields from pensions savings. However there still tend to be some home bias in the demand for shares and there is a large amount of unlisted companies for whom double taxation might pose a problem.

The combined effective tax rates on share income are compared to taxation of wages in table 14.

Table 14. Effective combined share income tax rate.

Share income DKK	Corporate tax, %	Share tax, %	Effective combined tax rate, %
0-45,500	25	28	46
45,500-100,000	25	43	57
100,000 -	25	45	59

The effective tax rates from share income can be compared to the middle and top income tax rates of 49.2% and 63.0% respectively. Thus, the result of the current rate schedule is, that there is a small advantage of receiving share income instead of wage income. A taxpayer already paying top income tax would save 10,400 DKK if she received additional 100,000 as share income instead of wage income.

In section 2.2 of the legal report the former system is described.