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## A Flat Tax in Denmark?

### 1. Introduction

The Danish tax system is a classic system with progressive taxation of labour income and positive net capital income. Compared to most countries the Danish system is characterised by relatively high marginal tax rates at relatively low-income brackets and almost no social security contributions as a means of financing public expenditures.

Furthermore the Danish tax base is to a wide extent based on comprehensive income with the major qualification that most tax credits are not (fully) deductible in the base of the state and progressive income taxes. This is especially true for net negative capital income (i.e. interest payments), which is treated more in line with a dual income tax system.

High marginal taxes and complicated rules for the calculation of taxable income has led to public debate on the possibilities and effects of introducing a flat tax in Denmark. So far the debate has stranded due to the potentially very big distributional effects of such a tax reform. Also the debate in Denmark has not been very clear as to whether one was referring to a flat tax rate or a flat tax.

This paper starts by describing the existing Danish tax system in sections two to four. Some parts of the system might seem to be very far from a flat

tax while other parts comes close to the archetypical flat tax. In fact – measured in revenue – the Danish tax system is not very far from being a flat rate tax system. But the distributional effects from a revenue neutral transmission from the current tax system to a flat tax system seem to be quite large compared to what historically has been accepted when reforming the Danish tax system.

In section five I show the effects of three different revenue neutral flat tax experiments to illustrate the difficulties in implementing a flat tax reform. The experiments shown in this paper are based on calculations made on the Danish micro simulation model. There are no estimates of effects on labour supply etc.

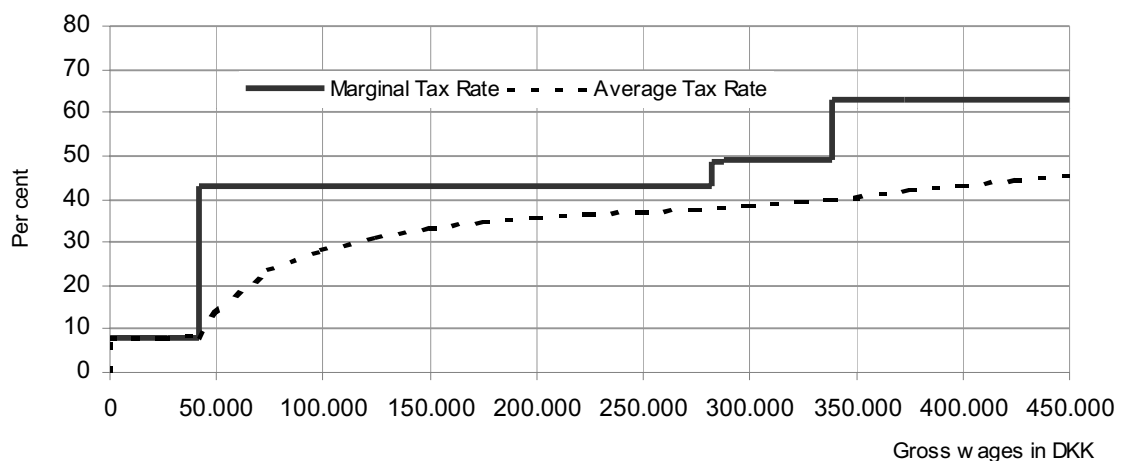
Finally in section six I briefly discuss the trends in the development of the Danish tax system and take a look at what the future might bring.

### 2. Personal Income Taxation

#### 2.1. Labour Income

The Danish taxation of labour income is progressive following the schedule shown in figure 1. Total marginal tax rates vary from 8 % to 63 %. An 8 % labour market contribution is levied on all labour income in practice with no tax credits.

Fig. 1.: Marginal and average tax rates, 2005.



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**Table 1: Average taxes paid**

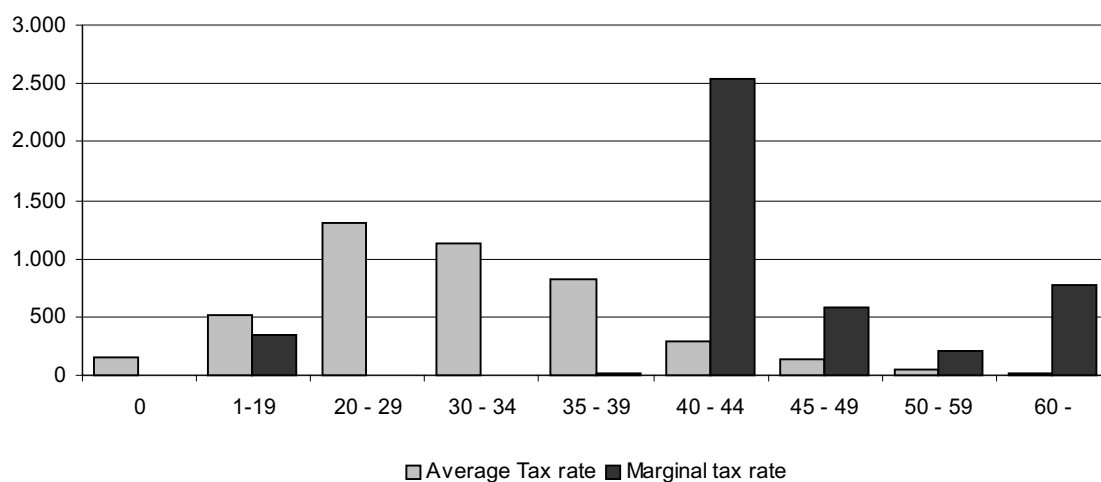
Income	Singles		Married couples		All households	
	Number	Average Tax	Number	Average Tax	Number	Average Tax
DKK	(1,000)	DKK	(1,000)	DKK	(1,000)	DKK.
Below 100,000	318	12,155	7	35,550	325	12,680
100,001-150,000	577	34,370	8	34,665	585	34,375
150,001-200,000	311	52,210	83	44,035	394	50,495
200,001-250,000	276	74,705	57	66,500	333	73,300
250,001-300,000	253	95,150	69	80,595	322	92,040
300,001-350,000	175	118,465	65	100,665	240	113,560
350,001-400,000	100	146,500	63	120,640	163	136,525
400,001-500,000	80	188,690	158	155,260	238	166,530
500,001-600,000	28	257,405	195	192,090	223	200,250
600,001-800,000	18	334,250	216	265,960	234	271,300
800,000 -	8	630,575	111	508,450	119	517,015
<b>Total</b>	<b>2,144</b>	<b>71,725</b>	<b>1,032</b>	<b>197,350</b>	<b>3,176</b>	<b>112,555</b>

On top of the labour market contribution municipal and county taxes of 33.3 % on average are levied on all taxable income above a personal allowance of DKK 37,600 (€5,035). Taxable income includes both labour, most transfers and some capital income with credits for interest payments, expenses aiming at maintaining income, membership of labour union etc. Also an in work tax credit is deducted as well as the labour market contribution.

The basic state tax of 5.48 % is levied on all personal income including positive net capital income with credits for the labour market contribution, pension savings and expenses for self-employed.

The middle (6 %) and top (15 %) state taxes are levied on the same income as the basic state tax above thresholds of DKK 259,500 (€ 34,740) and DKK 311,500 (€ 41,700) respectively. It is allowed to transfer unexploited personal allowance and middle state tax threshold to the spouse. The average taxes paid are shown in table 1. In figure 2 the resulting average and marginal tax rates are illustrated.

Part of the argument put forward by some in favour of a flat tax in Denmark is that it is difficult to calculate taxable income and tax due to the differences in tax base, tax credits that may be deducted in the different tax bases and the different tax rates applicable to the different tax bases.

**Fig. 2.: Number of average and marginal taxpayers**

At a first glance this might seem to be a convincing argument. In reality however the vast majority of Danish tax payers spend little or no time doing their tax returns. Tax authorities receive information on income and tax credits from employers and banks etc. and do the calculation for the taxpayer. Thus the actual gains in reduced administrative costs to tax payers would be relatively modest compared to the current tax system.

The revenue from the different parts of the personal income taxation is shown in table 2.

The total Danish tax burden is around DKK 765,000 million (€102,410 million) and GDP is around DKK 1,540,000 million (€206,160 million) in 2005 leaving the tax-to-GDP ratio at 49.6 %. Personal income taxes amount to 23.5 % of GDP and 47 % of total taxes.

**Table 2: Revenue from the majority of personal income taxes in 2005, DKK 1,000 million**

<b>State income tax:</b>	<b>65.0</b>
- Basic tax	42.2
- Middle tax	7.6
- Top tax	15.2
<b>Labour market contribution:</b>	<b>67.2</b>
<b>Municipal and county taxes:</b>	<b>230.1</b>
- Municipal taxes	145.7
- County taxes	68.8
- Municipal and county tax on owner occupied houses	10.8
- Church tax	4.8
<b>Total revenue from personal income taxes</b>	<b>362.3</b>

## 2.2. Capital Income

The Danish capital income tax system is quite complicated and tax rates on net positive capital income are very high. In some cases real tax rates exceed 100 percent. The lowest tax rates vary from 0 % on gains on owner occupied housing and 15 % on the yield from pensions savings. In the middle range taxes on shares are taxed progressively with either 28 or 43 %. Finally interest payments from bank accounts and bonds are taxed with the progressive income taxes mentioned above with a maximum of 59 %.

Net negative capital income is deductible in the municipal and county tax with an average rate of 33.3 %. Since the 1980'ies this rate has been reduced substantially from 73 %.

## 3. Corporate Taxation

The Danish corporate tax rate is 28 %. The rate has been reduced continuously from 50 percent to the current level since the 1980'ies. Rate reductions have been followed by base broadening.

Revenue is currently around DKK 50,000 million (€ 6,695 million) corresponding to 3.1 % of GDP or 6.3 % of total taxes. In addition there are specific taxes on the extraction of hydrocarbons.

## 4. VAT and Excise Duties

The Danish VAT-system only operates with one rate of 25 % on almost all goods and services. There are no reduced rates although some services are exempt or zero-rated in accordance with EU regulation.

Revenue is currently around DKK 155,000 million (€ 20,750 million) corresponding to 10 % of GDP or 20 % of total taxes.

The Danish Tax system also includes a wide range of excise duties on cars, energy, tobacco, alcoholic beverages, waste and water etc. These excises are used to pursue several different goals being both fiscal as well as goals within different policy areas like environment, traffic, energy and health.

Revenue is currently around DKK 95,000 million (€ 12,715 million) corresponding to 6 % of GDP or 12 % of total taxes.

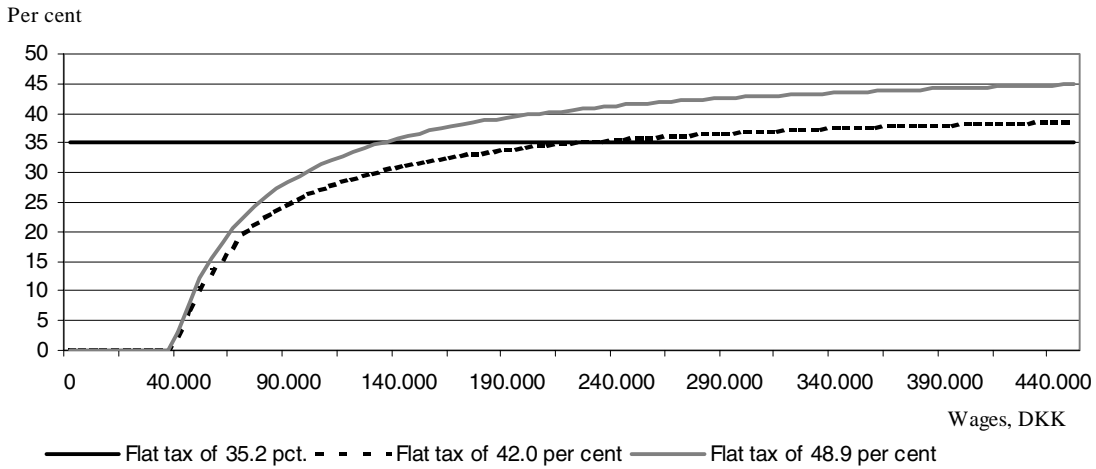
## 5. Modelling Flat Tax in Denmark

It is possible to model at least three different main categories of flat tax experiments in the Danish economy that have been touched upon in the public debate. Other variations of calculation of income, size of basic allowance and tax rates could have been considered. The effects of the following three revenue neutral flat tax experiments are analysed:

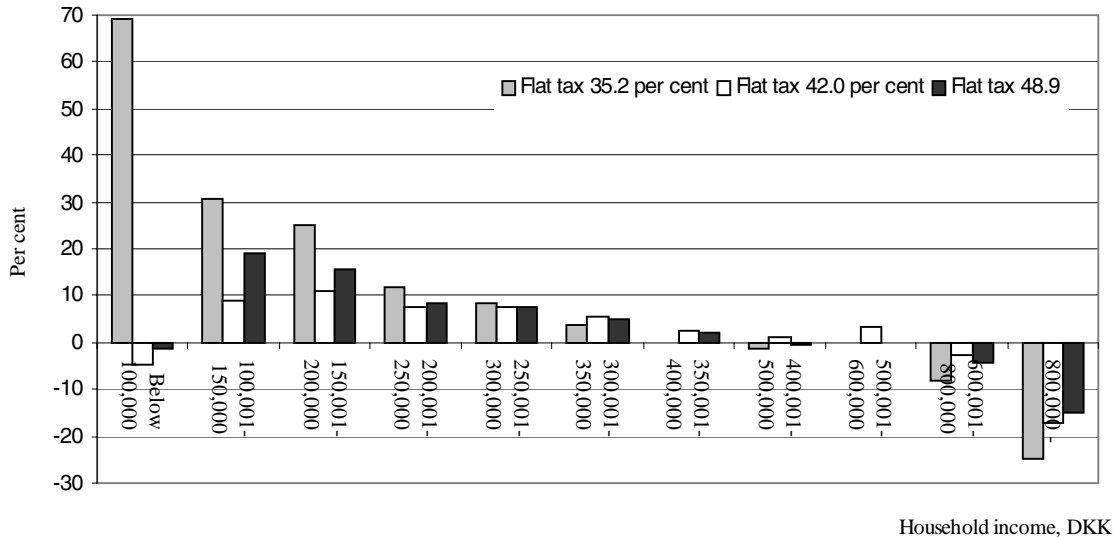
- A flat tax of 35.2 % on all positive income. The only tax credit is for pension savings.
- A flat tax of 42.0 % on all positive income above a basic allowance of DKK 37,600. The only tax credit is for pension savings.
- A flat rate of 48.9 % on existing taxable income above a basic allowance of DKK 37,600.

These experiments might seem simple. In reality however, a flat tax reform might be extremely

**Fig. 3.: Average tax rates of three flat tax experiments.**



**Fig. 4.: Changes in average taxes paid.**



complicated to implement, as most income transfers are gross of taxes and would have to be recalculated to take into account the changes in tax rates. Also the treatment of self-employed and majority shareholders should be addressed. And it would be necessary to decide upon the treatment of existing pension savings.

In figure 3 the resulting average tax rates are shown with increasing income. As is the case in figure 1, the shown tax rates are not taking into account possible tax credits. Results from micro simulations on a sample of the actual Danish population of taxpayers are shown in table 3-5. The changes in average taxes paid are shown in figure 4.

In the first experiment (A) the marginal and average tax rates are equal. This flat tax experiment will shift more than DKK 30,000 million (€4,015 million) in tax revenue from poorer households

to more wealthy households. More than 2.3 million Danish households will lose an average of DKK 12,735 (€1,705) a year. Only 780,000 households will gain on average DKK 39,430 (€5,275) a year. In general households with income of less than DKK 350,000 (€46,855) will lose. Households with income of more than DKK 350,000 will gain.

The loss (gain) will be reduced (increased) as income increases. Thus the result of the experiment is highly regressive. The poorest households face an increase in average taxes paid of 68 % while at the other end of the income scale the wealthiest households receive average tax cuts of 25 %.

In the second experiment (B) the marginal tax rate is 42.0 % above a personal allowance of DKK 37,600. This of course introduces progression in the tax schedule and average tax rates increase

gradually from 0 towards 42.0 %. The effect of this change compared to experiment (A) is that only around DKK 20,000 million (€ 2,675 million) shifts from lower and middle-income households to high-income households. On average more than 2.2 million households lose DKK 8,845 (€ 1,185) while 820,000 households gain DKK 24,980 (€3,345). Because of the personal allowance very low-income married couples actually gain. The introduction of a personal allowance does repair some of the distributional problems faced in experiment (A). Both losses and gains from the experiment are reduced. The losses

are no longer decreasing with increasing income due to the introduced progression in the tax schedule.

The downside of this perhaps less unacceptable distribution of taxes is that only households with income of more than DKK 600,000 (€ 80,300) will gain. The lower to middle income households face tax increases of around 10 % of current average taxes while the high income households receive tax cuts of 3-17 % on average.

The third experiment (C) is closer to the current Danish tax system in the sense that the tax base is

**Table 3: Total change in household taxes - experiment (A)**

Income	Singles		Married couples		All households	
	Number	Average Tax	Number	Average Tax	Number	Average Tax
DKK	(1,000)	DKK	(1,000)	DKK	(1,000)	DKK
Below 100,000	318	8,940	7	-3,110	325	8,670
100,001-150,000	577	10,410	8	22,080	585	10,580
150,001-200,000	311	9,850	83	23,590	394	12,735
200,001-250,000	276	6,660	57	18,760	333	8,730
250,001-300,000	253	3,920	69	22,055	322	7,800
300,001-350,000	175	-1,645	65	20,580	240	4,370
350,001-400,000	100	-11,740	63	18,385	163	-120
400,001-500,000	80	-28,850	158	11,615	238	-2,025
500,001-600,000	28	-59,640	195	8,370	223	-125
600,001-800,000	18	-89,925	216	-16,415	234	-22,165
800,000 -	8	-232,470	111	-121,260	119	-129,060
<b>Total</b>	<b>2,144</b>	<b>2,655</b>	<b>1,032</b>	<b>-6,200</b>	<b>3,176</b>	<b>-225</b>

**Table 4: Total change in household taxes - experiment (B)**

Income	Singles		Married couples		All households	
	Number	Average Tax	Number	Average Tax	Number	Average Tax
DKK	(1,000)	DKK	(1,000)	DKK	(1,000)	DKK
Below 100,000	318	-245	7	-15,970	325	-600
100,001-150,000	577	3,155	8	755	585	3,120
150,001-200,000	311	5,730	83	4,715	394	5,515
200,001-250,000	276	6,140	57	3,025	333	5,605
250,001-300,000	253	6,580	69	9,410	322	7,185
300,001-350,000	175	4,295	65	11,140	240	6,145
350,001-400,000	100	-2,575	63	12,245	163	3,140
400,001-500,000	80	-15,015	158	10,530	238	1,920
500,001-600,000	28	-38,745	195	13,110	223	6,635
600,001-800,000	18	-60,525	216	-2,820	234	-7,330
800,000 -	8	-173,260	111	-81,885	119	-88,290
<b>Total</b>	<b>2,144</b>	<b>1,180</b>	<b>1,032</b>	<b>-2,830</b>	<b>3,176</b>	<b>-125</b>

**Table 5: Total change in household taxes - experiment (C)**

Income	<u>Singles</u>		<u>Married couples</u>		<u>All households</u>	
	Number	Average Tax	Number	Average Tax	Number	Average Tax
DKK	(1,000)	DKK	(1,000)	DKK	(1,000)	DKK
Below 100,000	318	200	7	-15,525	325	-150
100,001-150,000	577	6,645	8	80	585	6,550
150,001-200,000	311	7,765	83	8,925	394	8,005
200,001-250,000	276	6,235	57	6,690	333	6,315
250,001-300,000	253	5,105	69	13,320	322	6,860
300,001-350,000	175	3,190	65	13,105	240	5,870
350,001-400,000	100	-2,745	63	10,905	163	2,520
400,001-500,000	80	-13,710	158	5,455	238	-1,025
500,001-600,000	28	-34,115	195	4,370	223	-440
600,001-800,000	18	-51,695	216	-8,310	234	-11,700
800,000 -	8	-148,875	111	-71,840	119	-77,240
<b>Total</b>	<b>2,144</b>	<b>2,500</b>	<b>1,032</b>	<b>-4,485</b>	<b>3,176</b>	<b>230</b>

the familiar tax base used for municipal and county taxes including deductions for interest payments and other tax credits etc. The marginal tax rate is 48.9 % above a personal allowance of DKK 37,600. Again this experiment has a progressive tax schedule. The effect of this experiment is to shift more than DKK 18,000 million (€ 2,410 million) from lower and middle-income households to high-income households. More than 2.3 million households lose an average of DKK 8,130 (€ 1,090) while 762,000 households gain an average of DKK 23,945 (€ 3,205). Again, because of the personal allowance, very low-income married couples actually gain.

Holding on to the tax credits in the current tax system means that the tax rate has to be increased compared to the other flat tax experiments. For household income below DKK 250,000 (€ 33,465) the effect of the higher tax rate dominates the effect of the tax credits. These households face increasing losses compared to experiment (B), but still the losses are lower than experiment (A). Households with incomes between DKK 250,000 and DKK 800,000 (€ 107,095) are better off than in experiment (B). This is because the average and marginal tax rate of 48.9 % is relatively close to the tax rate they face in the current tax system and in fact lower for the more wealthy households. Keeping the tax credits dominates the effect of the relatively high tax rate. Finally the households with the highest incomes will gain. But less than in experiment (A) and (B). The reason for this is again that the higher tax rate dominates the effect of keeping the tax credits.

The low-income households face average tax increases of 10-20 % while the higher income households receive tax cuts of 1-15 %.

The distributional effects shown above are of course calculated before any possible behavioural effects on labour supply, education etc. I have not tried to assess these effects, but they would have to be considerable in order to sufficiently reverse the first order distributional effects from the tax experiments. It is however possible to make one or two notions about what could be expected from effects on labour supply and education.

In the case of experiment (A) almost every household and taxpayer faces lower marginal tax rates. This indicates that labour supply will increase substantially from this kind of tax reform. Also reduced progression will work in favour of increases in the level of education. The costs of these effects are that more than 3 million taxpayers face increased average taxes.

Experiments (B) and (C) try to repair some of the deficiencies in experiment (A). In experiment (B) around 2.8 million taxpayers out of 4.46 million taxpayers face reduced marginal tax rates while the rest of the taxpayers face mostly smaller increases. In experiment (C) only around 1 million taxpayers face reduced marginal tax rates while around 3 million taxpayers face larger increases in the marginal tax rates. While these tax experiments most probably will have positive effects on the incentives to increase education the effects on labour supply is less favourable than experiment (A).

## 6. Is There a Future For the Flat Tax in Denmark?

This paper has shown the effects of three of the most straightforward revenue neutral flat tax experiments that could be envisaged in Denmark. The conclusion to this analysis is that Denmark is not likely to introduce a flat tax due to the distributional effects from such a tax reform. If you - like Denmark - at the outset have a tax system with relatively high levels of progression it will be very difficult to shift towards a flat rate tax system without reducing tax revenue. And the total tax reductions required, might have to be substantial. However, it is very likely that a flatter tax system will gradually emerge during the coming years.

Most parties in the Danish Parliament have plans to reduce marginal and average taxes on labour income. The controversies are mainly related to the financing of the tax cuts and to the mix of the tax cuts between high, low and middle-income earners.

The current government has as a goal to reduce taxes on labour income when it is compatible with

sustainable economic conditions. The Danish Welfare Commission has recommended lower taxes on labour income and positive capital income.

The development since the 1980'ies has shown a history of continuous cuts in marginal labour tax rates. Globalisation and the aging population put increasing pressure on the tax system to promote labour supply, education, R&D etc.

Finally, there are already elements in the current Danish tax system that could be thought of as being similar to a flat tax. For instance the uniform VAT-rate and large parts of the personal income taxation.

Measured as the share of total tax revenue capital taxation is not far from being in effect a flat tax. Reduced rates on parts of positive capital income at gross costs of 1 % of tax revenue would be sufficient to change the taxation of capital (except for housing and pension funds) into a flat tax system. A similar cut in progressive taxes on labour income removing middle and top state income taxes would require gross revenue cuts of around 3 %.