

## Analysis 2: “Reformpakke”

1<sup>st</sup> July 2011

### Introduction

This report shows the marginal effects of a set of different shocks on the DREAM model. These shocks are listed in Table 1, where also the effect on fiscal sustainability (FSI) is shown. To summarize, the first two shocks consist of a reduction of tax rates (top tax and corporate tax), whereas the last six consist of a reduction of subsidies, public employment and public consumption<sup>1</sup>. These two different sets of shocks have two opposite effects on public finances. On the one hand the reduction in taxes worsens fiscal sustainability, since the increased production and wages cannot compensate for the direct loss in public revenues. For instance, removing the top tax worsens fiscal sustainability by 0.59 pct. points, whereas setting the corporate tax rate at 12.5 pct. worsens the FSI by 0.77 pct. points. On the other hand, reducing public expenditures improve fiscal sustainability. In particular, removing the “*efterløn*” and increasing the retirement age improves fiscal sustainability by 1.34 pct. points, reducing 4000 public employees/year for a period of ten years improves the FSI by 1.08 pct. points, and a reduction of 15 bil. Kr. in municipality expenses improves the FSI by 0.78 pct. points. Table 1<sup>2</sup> shows the FSI in detail. Note that the experiment as a whole (“*Reformpakke*”) improves fiscal sustainability by 2.54 pct. points, meaning that the effects on fiscal sustainability of reducing public expenditures is stronger than the effects on the FSI of reducing public revenues.

**Table 1 – Fiscal sustainability**

Experiment	FSI change (pct)	FSI change (bil. Kr.)
<b>Analysis 2: Reformpakke</b>	<b>2.54</b>	<b>43.84</b>
1. Remove top tax (topskatten)	-0.59	-10.14
2. Halve corporate tax rate to 12.5% (selskabsskatten)	-0.77	-13.28
3. Reduced subsidies of 10 bil. Kr. to private economy (Fjern erhvervsstøtteordninger)	0.21	3.7
4. Reduced number of public employees by 4000/year for the next 10 years	1.08	18.65
5. Savings of 15 bil. Kr. in municipality expenses (kommunerne)	0.78	13.47
6. Savings 2.5 bil. Kr. in health costs financed by the patients	0.24	4.15
7. Extra public expenditure savings of 1 bil. Kr.	0.06	0.95
8. Removing “ <i>efterløn</i> ” and increasing pension age	1.34	23.13

Source: Own calculations in DREAM.

<sup>1</sup> The details for the shock number 8 are given in the paper “*Afvikling af efterlønsordningen og forøget pensionsalder*”. DREAM, June 2011. To summarize, the “*efterløn*” is removed in 2012, and the retirement age is increased compared to the base run scenario.

<sup>2</sup> GDP in 2010 is 1726 Bil. DKK (Økonomisk Redegørelse 2009), the fiscal sustainability index (FSI) is -0.55 pct. of GDP in the DREAM base run scenario.

## Technical assumptions

The marginal experiments are conducted as shocks in DREAM (the temporary 2011 projection, which has 2008 as base year). The announcement to the agents and the implementation of the changes for the experiment “Analysis 2 - Reformpakke” happen in 2012.

Fiscal sustainability is ensured by a foreign transfer from abroad to the public sector in 2081 (the so called foreign closure). The discounted value of this transfer is used in the reporting to measure the degree of unsustainability (or sustainability) of public finances.

## Macroeconomic effects

The effects on the main macroeconomic variables of the sets of experiments “Reformpakke” are summarized in Table 2. A lower corporate tax rate implies that the marginal cost of capital decreases. Firms will therefore invest more (+ 4 pct.) to increase the amount of capital. The strong decrease in public sector employment is due to the radical savings in public consumption, which fall by 7.4 pct. in the long run. The people laid off by the government will mainly move into the private sector. The removal of the “efterløn” and the increase of the retirement age are the main responsible for the strong increase in private employment (+ 7.5 pct. in the long run). The reason is that people that cannot benefit from the early pensions or pensions anymore (in part) enter the labor force.

**Table 2. Effects on the main macroeconomic variables** (relative change, fixed prices)

	2008	2015	2020	2025	2030	2040	2050
		---- <i>Relative change, Index, baseline = 100</i> ----					
<b>GDP</b>	<b>100.0</b>	<b>103.8</b>	<b>109.5</b>	<b>108.3</b>	<b>107.7</b>	<b>105.7</b>	<b>104.8</b>
<b>Private consumption</b>	<b>100.0</b>	<b>105.4</b>	<b>106.2</b>	<b>106.6</b>	<b>106.3</b>	<b>105.7</b>	<b>105.2</b>
<b>Public consumption</b>	<b>100.0</b>	<b>95.0</b>	<b>93.0</b>	<b>92.3</b>	<b>92.4</b>	<b>92.6</b>	<b>92.6</b>
- Individual public consumption	100.0	98.0	96.0	95.3	95.3	95.3	95.3
- Collective public consumption	100.0	87.1	85.1	84.5	84.6	84.6	84.8
<b>Net exports (value)</b>	<b>100.0</b>	<b>87.5</b>	<b>219.4</b>	<b>390.9</b>	<b>456.8</b>	<b>594.7</b>	<b>421.2</b>
- Exports	100.0	102.9	111.2	112.3	111.9	109.5	108.0
- Imports	100.0	104.4	104.5	102.7	102.1	101.5	101.5
<b>Investments</b>	<b>100.0</b>	<b>117.1</b>	<b>123.3</b>	<b>108.2</b>	<b>105.9</b>	<b>102.8</b>	<b>104.0</b>
<b>Employment, 1000 pers.</b>	<b>100.0</b>	<b>102.5</b>	<b>106.5</b>	<b>106.0</b>	<b>106.4</b>	<b>104.6</b>	<b>103.3</b>
- Private sectors	100.0	105.5	112.2	111.6	111.9	109.2	107.5
- Public sector	100.0	95.3	92.5	92.6	93.5	93.7	93.3
		---- <i>Absolute change</i> ----					
<b>Unemployment, percentage</b>	<b>0.0</b>	<b>-0.1</b>	<b>0.0</b>	<b>-0.3</b>	<b>-0.1</b>	<b>-0.1</b>	<b>0.0</b>
<b>Public budget surplus, perc. of GDP</b>	<b>0.0</b>	<b>1.7</b>	<b>4.6</b>	<b>5.4</b>	<b>6.5</b>	<b>8.1</b>	<b>9.8</b>
- Public primary surplus	0.0	1.6	3.9	3.7	3.8	3.2	2.7
- Public net interest payment	0.0	-0.1	-0.7	-1.7	-2.7	-5.0	-7.1

Source: own calculations

Removing the (top) tax rate on income and reducing the tax rate on dividends increase the disposable income of the households. This, plus the higher wage sum due to the higher employment rate strongly increase private consumption (+ 5.2 pct. in the long run). The lower output prices push exports (+ 8 pct. in the long run). Since all the main macroeconomic variables increases, then real GDP does as well; more precisely by 4.8 pct. in the long run. Note that private output increases by 8 pct. in the long run (higher demand) whereas public output decreases by 6-6.5 pct. (due to public savings).

## Public finances

Table 3 summarizes the effects on public finances. Total government revenues decreases (- 5.3 pct. in the long run) because of the removal of the top income tax and the reduction of the corporate tax rate. Note that indirect tax revenues increase (+ 0.9 pct. in the long run). The reason is the higher consumption of the households due to the higher disposable income. This is offset by the fall in direct tax revenues (- 8.5 pct. in the long run).

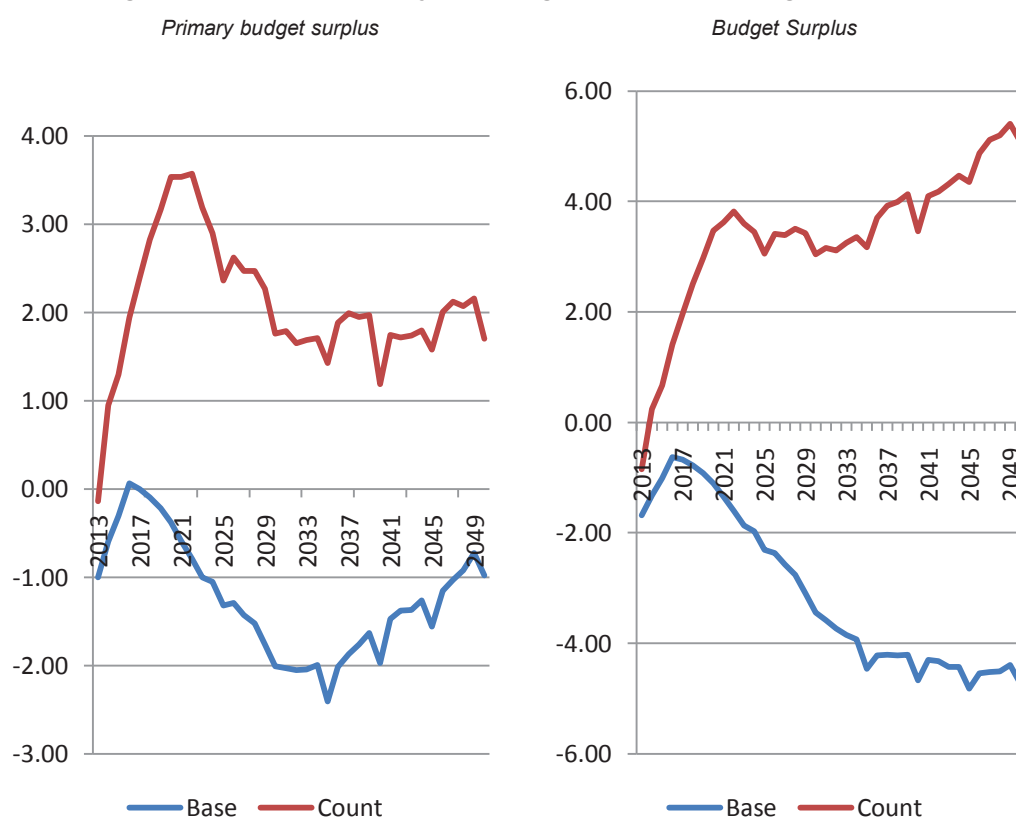
**Table 3 – Effects on public finances** (relative change, share of GDP, market prices, growth corrected)

	2015	2020	2025	2030	2040	2050
	----- Index, baseline = 100 -----					
<b>Public revenues</b>	<b>94.4</b>	<b>92.6</b>	<b>93.4</b>	<b>93.8</b>	<b>94.5</b>	<b>94.7</b>
- Direct taxes	90.1	88.0	89.9	90.3	91.4	91.5
- Income taxes	93.5	89.6	91.9	92.5	94.0	93.9
- Corporate taxes	48.4	50.1	46.8	47.8	47.7	48.2
- Other direct taxes	102.9	102.5	104.7	104.0	103.1	102.2
- Indirect taxes	102.3	101.6	100.4	100.5	100.6	100.9
- VAT	101.2	100.0	97.8	98.0	98.5	99.0
- Excise duty	101.8	101.2	101.8	101.9	102.2	102.3
- Land taxation	106.5	108.0	110.6	110.5	110.1	109.3
- Other indirect taxation	107.1	108.6	107.9	106.6	105.1	104.6
- Other income	91.4	86.4	87.8	90.1	91.0	90.8
<b>Public expenditures</b>	<b>91.3</b>	<b>85.1</b>	<b>86.6</b>	<b>87.0</b>	<b>88.8</b>	<b>89.7</b>
- Public collective consumption	83.5	77.3	78.5	79.0	80.7	81.4
- Public individual consumption	94.0	87.2	88.5	89.0	90.8	91.4
- Health care spendings	92.8	86.2	87.5	88.1	89.9	90.6
- Spendings toward education	94.7	87.9	89.2	89.6	91.5	92.0
- Social care spendings	94.7	87.9	89.2	89.6	91.5	92.0
- other individual spendings	94.7	87.9	89.2	89.6	91.5	92.0
- Public income transfers	93.4	85.1	87.3	87.7	90.5	92.2
- Public old age pension	95.9	72.5	76.3	82.0	89.3	90.8
- Voluntarily early retirement pension	27.7	0.0	0.0	0.0	0.0	0.0
- Public disability pension	99.7	116.4	113.5	108.6	103.2	102.6
- Unemployment insurance	96.2	95.9	93.8	97.1	97.3	98.2
- Public cash assistance	97.5	95.8	94.7	96.0	96.6	97.5
- Public Maternity leave	95.9	91.6	92.2	92.6	94.6	95.5
- Public study grant	95.9	91.6	92.2	92.6	94.6	95.5
- Other income transfers	98.3	95.2	95.1	95.2	96.2	97.0
- Public investment	87.0	84.1	86.9	87.0	88.2	89.7
- Other spendings	88.1	88.1	88.1	87.9	87.3	86.9

Source: Own calculations in DREAM

Public expenditures are reduced (- 10.3 pct. in the long run) by more factors. The reduction in collective public consumption (- 18.6 pct. in the long run) is due to the reduction in the municipality (“Kommune”) expenses and the reduction of public employees. The lower individual public consumption (- 8.6 pct. in the long run) is due to the reduction of public employees and the lower expenses to health (- 9.4 pct. in the long run). Income transfers are lowered (-7.8 pct. in the long run) in part because of the lower subsidy from the government to the private economy (“erhvervsstøtte”). But the biggest share accounts for the removal of the “efterløn” and the increased pension age. Note that some of the people who do not any longer benefit from neither “efterløn” nor public pensions move in part into the labor force and in part into other social benefit schemes. Table 3 shows that almost all transfers as a share of GDP decrease, but in current prices they actually increase.

**Figure 1 – Effects on primary- and budget surplus, percentage of GDP**



Source: Own calculations in DREAM

**Table 4 – Change in the public budget balance** (Bil. DKK, 2010 level)

	2015	2020	2025	2030	2040	2050
Primære offentlige saldo	26.22	64.01	60.25	61.66	51.76	43.83
Offentlige saldo	27.64	74.94	87.76	106.11	133.08	160.72

Source: Own calculations in DREAM

Figure 1 and Table 4 show the effects on the public budget balance. As already mentioned in the introduction, fiscal sustainability is improved. The primary- and budget balance improves in the counterfactual (“Reformpakke”) scenario, both as a percentage of GDP (Figure 1) and in money term (Table 4).