Impact of the recession on fiscal sustainability

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The opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the Bank of Finland.

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1 Introduction

The objective of policies aimed at fiscal sustainability has been to strengthen public finances enough to enable incurrence of debt by the government at a time when growth in expenditure related to population ageing starts to accelerate. Another central aim has been on promoting longer working lives. The third priority has been enhancement of public service provision.

The current recession has rapidly eroded strategies based on budgetary buffers. There are also clear signs of working lives starting to shorten again. Another concern is the danger that the economic downturn may crowd young people out of the labour market, as in the recession of the 1990s. Basically, Finland was already confronted with the long-term problem that even without the downturn the financing gap due to population ageing could not have been handled without changes to revenue or expenditure structures. In Finland’s stability programme update of December 2008, the government estimated that public finances would remain broadly balanced over the next decade but would turn to deficit in the decade thereafter, in response to stronger expenditure growth caused by population ageing.

The recession thus strongly alters the long-term outlook for public finances. This report considers the implications of the downturn for fiscal sustainability, while simultaneously evaluating labour market prospects from the sustainability point of view.

2 Fiscal balance weakens sharply

In recent months, the economic downturn has led to an unprecedentedly severe deterioration in near-term prospects for public finances. As late as autumn 2008, public finances were still projected to remain in sizeable surplus, but the forecasts released in March–April 2009 already pointed to a substantial deficit. All national

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forecasters hold similar views on the development of public finances. A deficit of about 1% is now projected for 2009. The deficit-to-GDP ratio for 2010 will rise to between 3% and 4%, ie some 5 percentage points weaker than predicted in the autumn forecasts (Chart 1). The situation is also perceived to remain fragile from now on. The Bank of Finland forecast foresees a further deterioration in the deficit ratio, and the prognoses of the Ministry of Finance and the Research Institute of the Finnish Economy (Etla) envisage only a slight improvement in the situation in 2011. According to projections underlying the Ministry of Finance expenditure framework, the deficit ratio is likely to remain at 2% still in 2013.

Chart 1. General government budget balance, September 2008 and March 2009 forecasts

The speed of the change can be compared with the recession of the 1990s. At that time, a good 5% surplus ratio turned to a deficit of a similar size in two year’s time (Chart 1). Currently, there is nothing in sight that could boost the economy and again trigger a surplus in public finances as quickly as at the end of the 1990s. Then, the prompt recovery of the export industry and the fact that Finland benefited from rapid growth in the ICT sector contributed essentially to the improvement in the situation. Public revenue was boosted by many windfall gains, such as bonuses, strong growth
of sales profits and privatisation proceeds, as well as healthy corporate earnings. The likelihood of a corresponding positive shock is presently very small, as the export outlook is exceptionally bleak given the global nature of the economic downturn.

In the following, we assess how much taxation should be tightened or expenditures cut over the long term in order to ensure the sustainability of public finances. Long-term adjustment means that the sustainability gap is not intended to be closed immediately, but gradually over a longer period of time. The importance of longer working lives for the sustainability shortfall in public finances is another area of assessment. We also estimate how sustainability would be affected if the downturn were to reduce the labour force potential over the longer term.

3 Calculation of the effects of the recession

3.1 Main features of the calculation method

We estimate the need for long-term adjustment in public finances, caused by the recession, by means of sustainability calculations based on debt-deficit dynamics. Such calculations are mechanical, lacking responses of economic agents to the economic outlook or policy choices. Changes to the tax rate, for example, are assumed not to have any impact on the labour market. We thus deal with rough sustainability calculations, which at best provide a rough guide for the scale of adjustment needs.

In the calculation, the public sector is divided into two parts, ie employment pension funds and the rest of the public sector. These both are assigned long-term targets for budgetary balance. Public expenditure and revenue are in turn broken down not only on a sectoral basis but also according to expenditure items affected by population ageing.

The calculations use the same assumptions as the stability programme update for Finland submitted in December 2008, except for the assumption as to the
development of labour force. It is based on a Bank of Finland estimate that exploits historically observed volatility by age cohort in labour force participation and relies on data from the latest population forecast, from 2007. Accordingly, these calculations suggest slightly faster population growth than does the stability programme, but a lower average labour force participation rate.

Growth in the contribution to GDP of age-related expenditure, the interest rate level, the change in productivity and the unemployment rate are the same as in the stability programme. Thus, we assume that productivity growth in the next few years will be close to 2% pa, from which it will gradually slow to 1.75%; the unemployment rate will progressively decline to 6½%; the real interest rate will be 3%; and the inflation rate will pick up moderately to 2%. Unlike the stability programme, these calculations endogenise the rise in the employment pension insurance contribution by setting an explicit long-term target for pension funds. Based on these assumptions, there will be an average annual real GDP growth of 1.8% in 2012–2030, ie broadly the same as in the stability programme.

In our calculations, expenditure other than age-related expenditure is broken down into unemployment expenditure, expenditure related to asset holdings and other items (Table 1). In order to bring the starting level of age-related expenditure in line with the forecasts, we converted public expenditure to a form that enabled identification of items of key importance with age-relatedness. This conversion was based on public expenditure classified by function, which Statistics Finland produced until 2007. In practice, the figures for 2008 had to be estimated using data on sectoral accounts, benefits and allowances. The contribution of unemployment expenditure to GDP is affected by changes in the number of unemployed. Other expenditure is assumed to remain constant relative to GDP. Interest expenditure is determined by the debt level of the previous period and the interest rate assumption. Of the age-related expenditures, pension expenditure is dealt with separately. Other

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5 The stability programme assumes a rise of 1.9 percentage points in employment pension insurance contributions relative to GDP, with a corresponding decline in other labour taxes, leading to a constant overall tax rate.
age-related expenditures include expenditure arising from health care, long-term treatment and education.

Table 1. Primary expenditure (excl. interest payments), % of GDP

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Age-related expenditure</td>
<td>24.8</td>
<td>27.5</td>
<td>30.5</td>
<td>32.9</td>
<td>5.4</td>
</tr>
<tr>
<td>Pension expenditure</td>
<td>10.9</td>
<td>11.9</td>
<td>13.8</td>
<td>14.7</td>
<td>2.9</td>
</tr>
<tr>
<td>Unemployment expenditure</td>
<td>2.6</td>
<td>2.9</td>
<td>2.0</td>
<td>2.0</td>
<td>-0.9</td>
</tr>
<tr>
<td>Other expenditure</td>
<td>21.1</td>
<td>22.9</td>
<td>23.4</td>
<td>23.4</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>Total primary expenditure</strong></td>
<td><strong>48.6</strong></td>
<td><strong>53.3</strong></td>
<td><strong>55.8</strong></td>
<td><strong>58.2</strong></td>
<td><strong>4.9</strong></td>
</tr>
</tbody>
</table>

Sources: Statistics Finland and Bank of Finland calculations.

On the revenue side, the tax base is made up of the payroll, private consumption or GDP, which, in these calculations, grow at a similar pace. Income distribution is thus not assumed to change. Pension funds’ asset income is determined by the level of pension funds (which are affected by developments in employment pension funds’ budget balances) and the interest rate assumption. Other income from government assets is divided into interest income and dividend income. The investment stock underlying this income and its composition are assumed to remain constant. Interest income grows, however, in the initial stage, as the starting interest rate assumption is higher than implicit return on assets other than dividends accruing to central and local governments.\(^6\) Variation in dividend income is determined by GDP growth rate. Hence, dividend income declines in euro terms, as GDP growth slows. Total income from government assets other than from pension funds decreases relative to GDP. Other income grows at the rate of payroll or GDP growth. The rate of growth in output and payroll is determined by the productivity assumption, labour input and inflation.

In order to illustrate the effects of the recession, the sustainability calculations were carried out separately as extensions to the Bank of Finland September 2008 and March 2009 forecasts. These calculations allow for tax-rate flexibility so that sustainability can be achieved towards the end of the review period. The tax rate

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\(^6\) The implicit rate of return was calculated by means of general government (excl. employment pension funds) assets and corresponding asset income according to the financial accounts.
calculated on the basis of the March 2009 forecast is several percentage points higher than that based on the September 2008 forecast. The difference between these tax rates indicates the impact of the recession on fiscal sustainability. As the calculations exclude the effects of the dynamics of the economy, the need for adjustment in terms of the tax rate may equally well be interpreted as a need to adjust expenditure. The analysis runs to 2030, by which time the impact of population ageing on public finances will already have materialised.

3.2 Need for adjustment due to the recession

The long-term implications of the recession and fiscal policy stimulus for public finances are substantial. As a consequence of the downturn, the primary balance, which still served as a buffer for age-related expenditure growth in the September projections, will turn negative during the forecast period, ie in 2009–2011. Improvements in employment will reduce public expenditure and boost GDP growth. Accordingly, the primary deficit will contract. This will slow debt expansion, but will not suffice to turn the trend of indebtedness downward. Self-reinforcing indebtedness will still accelerate, as growth in age-related expenditure picks up (see Appendix).

The need for adjustment in expenditure or revenue structures that would be sufficient to reverse the trend of indebtedness is illustrated by a calculation where the tax rate is endogenised. Fiscal sustainability is assumed to depend on central and local government debt stabilising at a level consistent with the Stability and Growth Pact, 60% of GDP. The target set for employment pension funds implies that pension fund assets relative to GDP should over the long term accord with the Bank of Finland’s projection for 2011. The adjustment period was set at about 20 years. The debt ratio should thus stabilize at 60% by 2030 and pension funds at a slightly lower level.

The defined target is attainable, on a steady path for the tax ratio and contribution changes within the desired period of time, by letting the tax ratio respond slowly to deviations from the target level. Technically this means assignment of appropriate
values for the adjustment parameters of the tax equation.\(^7\) In addition, in order to avoid overshooting, the debt and the tax ratio need to be derived together, meaning that the model must be solved simultaneously. As no targets are set for individual years, the simulations extending the March 2009 forecast push the central government debt ratio slightly over the target level in certain years. Similarly, pension fund assets decline in the initial phase of the period concerned, in the simulations extending the September 2008 forecast.

According to the calculation, the downturn requires considerable tax tightening to achieve the sustainability target. Over the long term, taxation would have to be raised by about 5 percentage points (Chart 2). The necessary fiscal adjustment for central and local governments would be a good 4 percentage points relative to GDP, and pension insurance contributions would have to be raised by almost 1 percentage point. Measured by the average tax ratio, the effect of the recession is even greater. In fact, the targets for public debt and pension fund assets would have allowed a temporary easing of taxation in the next few years. This is because the central government debt ratio in the September 2008 forecast is lower than the target set in our calculation. The lower-than-previously-forecast level of pension fund assets has the same, albeit minor, effect.

\[ \text{TRATE}_t = \text{TRATE}_{t-1} + \alpha_1 (B_t - B^*) / P_t Y_t + \beta_2 \Delta (B_t - B^*) / P_t Y \]

Where TRATE is the tax rate, B is the debt, \( P^* Y \) is nominal GDP and \( \alpha \) and \( \beta \) are adjustment parameters. (For tax rules in various macroeconomic models, see Mitchell, P.R., Sault, J. E., Wallis, K.F. Fiscal policy rules in macroeconomic models: principles and practice, Economic Modelling 17 (2000) 171–193).
3.3 Impact of longer working lives

Breaking the debt spiral that emerges as a result of constant revenue and tax bases requires changes in expenditure criteria, tightening of taxation or measures that increase output, without provoking equivalent growth in public expenditure. The central aim of the population ageing strategy for lengthening working lives is in line with this criterion. Labour force growth does not add upward pressure on public services expenditure unlike, for example, a pick-up in output growth induced by productivity growth. In this case, the public expenditure share in GDP will decline only if public sector wages and salaries lag behind overall earnings developments. Increased employment will not necessarily entail corresponding savings in pension expenditure over the long term, unless the criteria for determining pensions are altered at the same time. Accordingly, for public finances as a whole, increased labour supply impacts above all central and local government finances.

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8According to the calculations of the Finnish Centre for Pensions, the raising of the retirement age, one of the objectives of the pension reform, does alter the profile of pension expenditure so that the share of pensions of the payroll decreases in the early phase, but increases later in response to a rise in average pensions (see Biström, P., Elo, K., Klaavo, T., Risku, I. and Sihvonen,
We assess below the importance of longer working lives from the perspective of adjustment needs caused by the downturn, assuming that the average retirement age rises by one year. This is based on the assumption that for the age groups over 55 labour participation rates always rise to the level of those who are one year younger. Another assumption is that the changes will commence in 2012, but advance slowly so that not until the end of the 2020s will the average retirement age have risen by one year. This would mean a labour force size of about 50,000 employees more than previously foreseen.

A one-year average rise in the retirement age will reduce the need for adjustment by 1.4 percentage points. It is then assumed that the pension scheme is actuarially sound, meaning that pension expenditure relative to GDP remains unchanged. If, however, pension benefits are simultaneously altered so as not to compensate for longer working lives, this will reduce the need for adjustment by 0.3 percentage point over the long term.

The impact of labour supply is slightly understated, as the model does not account for taxation dynamics. Even so, compared with simulations of the general equilibrium model, where the impact of taxation on labour supply and wage formation was included, the results are strikingly similar. In simulations of the Bank of Finland Aino model, the lengthening of average working lives by two and a half years reduced the need for age-related tightening of taxation by a good 3 percentage points.

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H. Statutory pensions in Finland, Long-term projections 2007; executive summary in English, the whole report in Finnish only, Reports of the Finnish Centre for Pensions 2007:2).

9See Kostiainen, J.

10A one-year higher exit age corresponds to an increase in the expected retirement age of over 50-year-olds from 1996 to 2008. See Effective retirement age in the Finnish earnings-related pension scheme, Statistics and Statistical Reports of the Finnish Centre for Pensions 2/2009.

Experiences from the previous recession have shown that the labour market's recovery from recession takes a long time. There are already signs of many older employees exiting the labour market through various early retirement arrangements, notably by taking the unemployment pathway to retirement. On top of this, long-term unemployment will increase. From the viewpoint of financing public expenditure, it is a serious concern that the downturn may also have long-run consequences that weaken the employment of age groups currently entering the labour force. This was what happened during the recession in the 1990s.\textsuperscript{12} If this is repeated, it will have a long-term effect on labour supply. According to a very rough estimate, exit from the labour force by older employees, long-term unemployment and crowding out of

young people would together reduce the labour force by some 2% over the medium term and by a good 1% over the long term.\textsuperscript{13}

Such a reduction in labour force potential would slow average annual output growth in 2012–2030 by approximately 0.3 percentage point. This would call for a tightening of the tax rate by a good 2 percentage points over the long term. In this case, however, the central government debt would temporarily rise considerably above the target level, up to 70%. By contrast, if the debt ratio were aligned with the level of the baseline calculation (ie the debt ratio would not notably exceed 60% at any stage) taxation would have to be increased vigorously immediately in 2012–2015, after which it could be moderately lowered (Chart 4).

\textsuperscript{13}\textit{Effects of recession on potential output, Box 4, Bank of Finland Bulletin, Economic Outlook, Special issue 1/2009.}
4 Conclusion

The pressures from the economic downturn on the long-term prospects for public finances are significant. The calculations show that even if growth returned to potential and cyclical expenditure diminished accordingly, sustainable public finances could not be achieved without sizeable changes to expenditure or revenue structures. However, the calculations also show that, owing to long-run improvements in budgetary positions, fiscal policy leeway exists such as to likely enable budget balancing without recourse to special measures in the very near future. Even so, if the downturn were to impair the labour market over the long term, the need for adjustment would become more urgent.

The results of the analysis suggest that the lengthening of working lives to the extent realised after the previous recession alleviates the sustainability gap only slightly. Viewed schematically, closing the sustainability shortfall due to the recession would require a lengthening of the effective retirement age by about 4 years. If, however, the actuarial nature of the pension scheme is compromised so that the lengthening of working lives is not reflected in pension benefits, a corresponding target can be achieved by a slight lengthening of working lives.

There is reason to underline the mechanical nature of the calculations. They do not take account of the dynamic effects of the economy. For this reason, too, the need for adjustment measured by the tax rate will be understated. The responses of economic agents, for example, to tax tightening may further widen the sustainability gap. On the whole, the need for adjustment also largely depends on the policy choices made forremedying the situation.
## Appendix

Table 2. General government budgetary position in the stability programme and in the constant tax rate environment in the calculation

<table>
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<tr>
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<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2030</th>
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<td><strong>Net lending</strong></td>
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<td>Stability programme</td>
<td>2.5</td>
<td>1.1</td>
<td>-0.1</td>
<td>-4.2</td>
<td></td>
</tr>
<tr>
<td>Bank of Finland: Sept 2008</td>
<td>2.7</td>
<td>3.0</td>
<td>3.8</td>
<td>1.8</td>
<td>-2.4</td>
</tr>
<tr>
<td>Bank of Finland: March 2009</td>
<td>2.6</td>
<td>-3.0</td>
<td>-3.2</td>
<td>-6.5</td>
<td>-13.4</td>
</tr>
<tr>
<td><strong>Primary balance</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability programme</td>
<td>4.2</td>
<td>2.4</td>
<td>1.8</td>
<td>-1.1</td>
<td></td>
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<tr>
<td>Bank of Finland: Sept 2008</td>
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<td>4.5</td>
<td>4.9</td>
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<td>-1.1</td>
</tr>
<tr>
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<td>-0.3</td>
<td>-2.6</td>
<td>-5.7</td>
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<tr>
<td><strong>Gross debt</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Stability programme</td>
<td>44</td>
<td>35</td>
<td>39</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Bank of Finland: Sept 2008</td>
<td>45</td>
<td>32</td>
<td>20</td>
<td>10</td>
<td>29</td>
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<tr>
<td>Bank of Finland: March 2009</td>
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<td>48</td>
<td>65</td>
<td>86</td>
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<td><strong>Pension fund assets</strong></td>
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<tr>
<td>Stability programme</td>
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<td>68</td>
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<td>Bank of Finland: Sept 2008</td>
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<td>Bank of Finland: March 2009</td>
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<td><strong>Tax rate</strong></td>
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<td>Stability programme</td>
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<td>Bank of Finland: Sept 2008</td>
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<td>41.7</td>
<td>42.0</td>
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Sources: Statistics Finland, Ministry of Finance and Bank of Finland calculations.