FISCAL INDICATORS IN A RULE-BASED FRAMEWORK

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Introduction

The increased attention given to rule-based budgetary frameworks creates a platform for designing indicators to assess fiscal policy performances and plans. Both at international and national level, efforts have been made to develop refined indicators that capture the budgetary stance and performance in the short, medium and long term.

Sweden provides a pertinent example as it has operated an elaborate national rule-based fiscal policy framework for some time. This stipulates that the general government budget position should satisfy a 2 per cent of GDP surplus over the cycle. This is complemented by medium-term expenditure ceilings on central government expenditure and a balance requirement for local government budgets. In addition, as Sweden is an EU Member State, the rules of the Stability and Growth Pact (SGP) apply.

In Sweden, as in all countries, a number of institutions assess budgetary performance and each has developed its own battery of indicators to that end. At national level, the Ministry of Finance (MoF), the National Institute of Economic Research (NIER) and the Riksbank are particularly involved, while at EU level, the European Commission and the ECB apply their standard indicators. At world level, the OECD and IMF, for example, use similar indicators.

In this paper we compare some of the different indicators used for assessing the Swedish budgetary and fiscal position. We will concentrate on the 2000-05 period as it was one of relative stability in comparison to the structural changes that followed the economic crises in the early 1990s, though they were marked by both strong and weak cyclical positions. The purpose is to assess, with references to Swedish experiences, the performance of different indicators across economic circumstances and the policy objective at hand, and on this basis, to draw some conclusions that we believe are valid also in a wider budgetary surveillance context.

The paper is organised as follows: Section 1 provides, as a background, a short description of the Swedish rule-based budgetary framework and its performance. Section 2 provides a general "job description" of fiscal indicators. In Section 3 we assess, with reference to Section 2, the qualitative features of the fiscal

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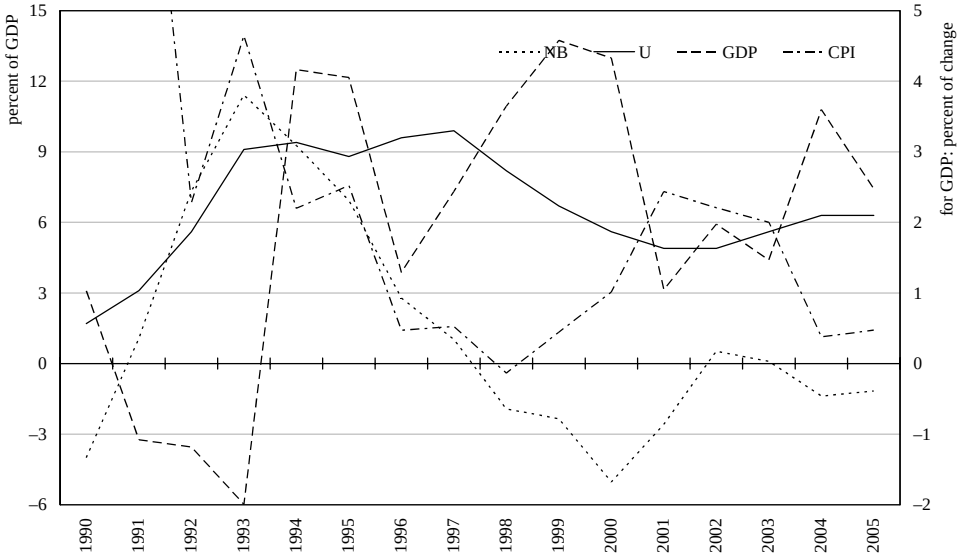
Figure 1

The Swedish Economic Performance, 1990-2005



Source: European Commission services (Ameco database).

indicators applied by the Riksbank, the NIER, the MoF and the European Commission for measuring the discretionary component of a budget change, the fiscal stance and the structural budget balance. This section also describes what these indicators have to say about the Swedish budgetary and fiscal performance between 2000 and 2005. In Section 4 we discuss *ex post* revisions of fiscal indicators, to what extent these revisions are caused by forecast errors in the actual budget balance and what it means for *ex ante* policy advice based on fiscal indicators. Finally, in Section 5, based on the Swedish experience, we discuss what lessons can be drawn for budgetary surveillance in general.

1. The Swedish budgetary framework

The budget surplus of 4 per cent of GDP in 1990s was transformed into an 11 per cent deficit in 1993 as a result of the deep economic crises in the beginning of the 1990. This became the catalyst for the creation of the stability-oriented Swedish macroeconomic framework of today, including substantial changes regarding the conduct of fiscal policy.

Between 1994 and 1998, a consolidation programme amounting to 7.5 per cent of GDP and a more austere budget process were implemented. Due to this and a

more favourable economic development in general, in 1998 the budget balance was again back in surplus (see Figure 1). To safeguard the consolidation of public finances and to prevent fiscal policy from being used pro-cyclically, a set of budgetary rules were introduced.

In 1997, the Riksdag (the Swedish parliament) decided to introduce a surplus target for the general government sector, with full effect from 2000. The target was that general government net lending should be 2 per cent on average over a business cycle. The principal aim of the surplus target, as it is applied and defined by the Government today, is to strengthen, via lower government debt, the public sector's position up to around 2015 ahead of the strains that will be placed on government finances thereafter by demographic factors. A budget surplus in normal cyclical conditions also lessens the risk of incurring a substantial deficit during a protracted economic slowdown; according to the SGP, a deficit in the general government must not exceed 3 per cent of GDP.

The year 1997 also saw the introduction of an expenditure ceiling for central government spending, with the overall objective of supporting the surplus target. The expenditure to which the target applies – called the expenditure subject to the ceiling – comprises all central government expenditure, excluding interest on government debt and expenditure related to the old-age pension system. The expenditure ceiling for an individual year, normally established three years in advance, prevents temporary rises in revenue, during a boom, for example, from being used to finance increased spending. In that way, the expenditure ceiling contributes to preventing a pro-cyclical fiscal policy (at least on the expenditure side). It also contributes to preventing a trend rise in government expenditure as a share of GDP and helps to ensure that consolidation measures are implemented if expenditure risks exceeding the ceiling.

To further bolster the surplus target, a balanced-budget requirement was brought in for local governments in 2000; if a local government runs a deficit one year, it has to rebalance its finances within three years.

1.1 The performance of the rules

1.1.1 The expenditure ceilings

As regards the *expenditure ceilings*, during the first years of the new framework, 1997-2000, the ceilings were set so that expenditure covered by the ceilings was reduced from above 36 per cent of GDP in 1997 to just above 32 per cent of GDP in 2000. Since then, the expenditure ratio has been roughly constant. More recently, the guiding principle has been that additional ceilings are set as a constant share to potential GDP (Budget Bill 2005).

The expenditure subject to the ceiling has been below the ceiling every year since it was adopted in 1997 (see Table 1). However, the expenditure ceiling system has not been applied fully according to the Budget Act's intentions. The difference

Table 1

Central Government Expenditure Ceiling
(SEK billion)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Expenditure ceiling	723	720	753	765	791	812	822	858	870
Expenditure subject to ceiling	698	718	751	760	786	812	819	855	869
Budgeting margin	25	2	2	5	5	0	3	3	5

Sources: The NIER, the Riksbank and the Swedish National Financial Management Authority.

between the expenditure subject to the ceiling and the expenditure ceiling – the budgeting margin – is supposed to be a buffer both against uncertainty in economic developments and against factors that may cause unforeseen increases in expenditure, such as increased sick leave. The budgeting margin has been very small, with the exception of 1997. That is because it has been used to increase spending. The expenditure ceiling has, to a large extent, been circumvented by giving new benefits in the form of tax reductions in periods when tax revenue has improved. This behaviour undermines the purpose of the expenditure ceiling.

1.1.2 The surplus target

The surplus target, as it is defined from 2000, can be evaluated by calculating the general government sector's annual net lending for a whole business cycle. If net lending is 2 per cent on average over the cycle, the surplus target has been met. In practice, a problem when assessing to what extent budget positions or budget plans are in compliance with the surplus target "on average over the cycle", is that there is no method within the framework for calibrating "the cycle" and measuring surpluses against it. As these variables are not directly observable and measurement uncertainty is large and a variety of possible estimates are available, the lack of an agreed method makes an assessment of compliance unclear. Nor is it clear how "on average" should be understood. Even so, during the period 2000-04, net lending averaged 1.7 per cent (see Table 2). Resource utilisation is judged by many, however, to have been relatively low for the greater part of this period, suggesting that an average net lending of 1.7 per cent may have been broadly consistent with the target. However, since the period does not cover an entire business cycle, it is difficult to determine whether this surplus has been consistent with the target. Even so, a measure of the structural budget balance provides answers to which extent the budget position in an individual year is in line with the target (we will come back to that in the next section). Also, when assessing the fulfilment of the surplus target and whether central government will run an underlying deficit in the period ahead it should be remembered that the temporarily high tax receipts around the years 2000

Table 2

Net Lending of General Government and Sub-sectors and Accumulated Budget Balance in the Local Government Sector
(percent of GDP and SEK billion)

	2000	2001	2002	2003	2004	2005
Total	5.0	2.6	–0.5	–0.2	1.5	1.6
Central government	2.6	7.4	–1.8	–1.8	–0.6	–0.8
Old-age pension system	2.2	–4.6	1.9	1.9	1.9	2.0
Local government sector	0.2	–0.2	–0.5	–0.2	0.2	0.4
Accumulated budget balance in local government sector			–7	–8	–6	5

and 2004 as well as low interest expenditure on government debt have helped to push up average net lending during this period.

The Swedish surplus target, as presently defined, does not preclude the use of an asymmetric fiscal policy. The target can be met even with small surpluses when times are good, but fiscal policy would then have to be contractive during economic downturns. However, such a policy works pro-cyclically and will not contribute to an appropriate fiscal and monetary mix in terms of stabilisation policy. Aware of this problem, in its 1999 Convergence Programme (pp. 4-5) the Swedish government stated:

"As the medium-term goal refers to the public sector fiscal balance seen over the business cycle, the actual budget surplus could fall below 2 per cent of GDP in a phase of the business cycle with relatively high idle capacity in the economy, but conversely exceed 2 per cent of GDP in the peak phase of the business cycle. Thus, the level that the budget surplus will reach in an individual year is dependent on the phase of the business cycle, which provides scope for the automatic stabilisers to work. In this way it is possible to refrain from a pro-cyclical policy. A medium-term goal of a public sector surplus equivalent to 2 per cent of GDP should also be compatible to some extent with conducting an active fiscal policy, with the aim of moderating swings in the business cycle without risking excessive deficits during downturns".

Obviously, the Swedish government aimed to avoid a pro-cyclical fiscal policy using the medium-term objective and some measure of the automatic stabilisers, to define yearly targets for the budget balance. Rather than translating this view into a formal rule determining targets for the annual budget balances, the government instead chose to refer to the use of the nominal expenditure ceiling for the central government as a means of supporting a symmetric fiscal policy.

Table 3

A Comparison of Required and Expected Budget Balance
(percent of GDP)

	2004	2005	2006	2007
(1) Budget balance	0.7	0.6	0.4	0.9
(2) GDP gap	–1.3	–0.5	–0.2	0.0
(3) Automatic stabilisers	0.9	0.4	0.1	0.0
(4) Annual target for budget balance (required by the surplus target)	1.1	1.6	1.9	2.0
(5) Under/overshooting, (1)–(4)	–0.4	–1.0	–1.5	–1.1

Sources: 2005 Budget Bill, Swedish Ministry of Finance, and own calculations.

However, the government has deviated from those intentions. The 2005 budget bill, for example, provides clear evidence on this. Given the forecast of the automatic stabilisers and the annual budget balance as provided by the Swedish government in the 2005 Budget Bill, Table 3 shows the difference between the expected actual budget balances and those that would have been required if they had to be determined by the medium term objective adjusted for the effect of the automatic stabilisers. The annual required budget balance is calculated as $S^{target} = 2 + 0.7\left(\left(Y - Y^*\right)/Y^*\right)$.[1]

For example, in the Budget Bill for 2005, the output gap for 2005 was estimated at –0.5 per cent of GDP. The cyclical effect can then be estimated at –0.4 per cent of GDP [0.7x (–0.5) = –0.4]. During the relevant forecast period the annual target would, *ex ante*, have been missed for every year. The government must have been aware that the forecasts of the annual budget balances were not in line with the medium-term objective. The government's *ex post* defence has been that a labour market upswing has been delayed despite strong GDP growth and that this has motivated some discretionary stabilisation measures which weaken the actual and the structural budget balances. A closer look at the reforms in the latter years indicates, however, that most of them are intended to be permanent and hence cannot be regarded as stabilisation policy measures. One explanation for the *ex ante* non-adherence to the medium-term objective is rather that the government has largely circumvented the expenditure ceiling by introducing new tax expenditures.[2] A further sign of this is that the government's own forecast in the Budget Bill for 2005 showed that the surplus would not reach 2 per cent of GDP even when the

[1] This section follows Boije (2005).

[2] See also Boije (2002 and 2005) and Fischer (2005).

GDP gap was expected to be closed in 2007. This means that the surplus target has not been seen as a binding *ex ante* restriction. However, *ex post*, net lending outcomes have been shown to be better than expected *ex ante*, mainly due to positive surprises on the revenue side, something we will come back to in Section 4.

1.1.3 Net lending in sub-sectors and the budget balance requirement for local governments

The balanced-budget requirement for local governments, evaluated in terms of the accumulated results, has been achieved with a lag. It should, however, be noted that the increase in local government net lending has, to some extent, via higher central government grants, come at the price of lower central government net lending. It is likely that the implicit bailout commitment from the central government creates incentives for local governments to set spending at the limit when revenue growth is healthy, leading to expansionary policies in good times, and to rely on additional central government transfers in bad times.

This is one reason why central government net lending has been negative since 2002. Another is that since 1998, the central government budget has been highly expansionary almost every year. The reforms concerning the central government budget during the period 1998-2006 total just over SEK 200 billion, neutralising the effect of the consolidation programme.[3] However, central government net lending, expressed as a share of GDP, has decreased relatively little in relation to the overall size of these reforms. One explanation for that may be the introduction of the new austere budget process, which even in the absence of regulatory changes can improve the underlying balance since some nominal expenditure is not automatically adjusted for inflation in the same way as before. Another possible explanation is that revenue has been relatively high for several years, partly due to temporary factors and that interest expenditure has been low (lower than expected).

Summing up: The Government's budget policy targets, on the whole, have been broadly achieved to date. However, some distance to the surplus target has been built up, local governments have fulfilled the balanced-budget requirement with a lag and the expenditure ceiling has not been applied fully according to the Budget Act. In addition, the central government budget has been expansionary most years since 1998. The less-than-strict application of the budget policy targets risks contributing to a gradual erosion of their purpose. For example, the government's tendency to circumvent the expenditure ceiling by using increased (temporary) revenue to create benefits on the revenue side of the budget may lead to a pro-cyclical policy. In the long run, this may make it more difficult to manage the future strain on government finances resulting from demographic developments. One conclusion to be drawn from this is that budgetary and fiscal policy should be

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[3] See the box "Expenditure cuts and reforms" in *The Swedish Economy*, March 2003, NIER, and *Budgetpropositionen för 2006* (The Budget Bill for 2006), Ministry of Finance.

Figure 2

Determinants of the Actual Budget Balance

	Temporary	Permanent
Economy	A	C
Policy	B	D

closely monitored. One way of doing this is to use fiscal indicators, and in the next section we discuss in general terms different indicators used for assessing budgetary and fiscal policy performance. Thereafter, we describe and compare the different indicators used nationally and by the European Commission to assess the fulfilment of the Swedish surplus target and assess whether fiscal policy on the whole has been expansionary or not.

2. Budgetary indicators: job description

The basis for all fiscal indicators is the actual budget balance. It is therefore useful to define its determinants in an appropriate way. Figure 2 provides a two-dimensional description of the factors affecting the budget balance. In the first dimension, the factors are divided into those which are economy-induced and those which are policy-induced, while in the second dimension the distinction is between temporary and permanent factors.

Square A includes factors related to the temporary state of the economy at given tax and expenditure rules, such as unemployment-related expenditure or cyclical interest rate movements. It also includes, for example, temporary higher/lower tax revenues due to some tax bases being temporarily higher/lower than their trend values or tax elasticities being temporarily higher/lower than normal. Square B, includes, for example, temporary higher expenditures due to discretionary stabilisation policy measures. Square C captures, for example, how potential GDP

and demographic trends affect the budget balance, while square D includes the effect on the budget of permanent changes to tax and expenditure rules.[4]

Let us more formally identify the main effects associated with the different squares. For simplicity, let us assume that there is only one tax and one tax base and that there is no expenditure (or alternatively, that the expenditure is seen as a negative tax, in terms of, for example, benefits). Let us also ignore interest. The tax base is assumed to be GDP (Y) and the tax (or net tax) is proportional to GDP. The actual tax income, T, (or the budget balance if we assume that it captures also negative taxes) can then be expressed as:

$$T = \tau Y \tag{1}$$

while the structural tax income can be written as:

$$T^* = \tau Y^* \tag{2}$$

where Y^* is potential GDP. The change in the actual tax income can be expressed as:

$$\Delta T = \tau Y - \tau_{-1} Y_{-1} = \tau Y - \tau_{-1} Y_{-1} + \tau_{-1} Y - \tau_{-1} Y = \tau_{-1}(Y - Y_{-1}) + (\tau - \tau_{-1})Y = \tau_{-1}\Delta Y + \Delta \tau Y \tag{3}$$

The change in the structural revenue can, equivalently, be written as:

$$\Delta T^* = \tau_{-1}\Delta Y^* + \Delta \tau Y^* \tag{4}$$

Now, let us divide the changes in the tax rate into temporary and permanent changes. Then, the change in the actual tax revenue and the structural tax revenue can be written as:

$$\Delta T = \tau_{-1}\Delta Y + \Delta \tau^{temp} Y + \Delta \tau^{perm} Y \tag{5}$$

$$\Delta T^* = \tau_{-1}\Delta Y^* + \Delta \tau^{perm} Y^* \tag{6}$$

Note that in our definition of the change of structural tax revenue, we take only permanent changes in the tax rate into account.

Equation (5) can, equivalently, be written as:

$$\Delta T = \underbrace{\tau_{-1}\Delta Y^*}_{C} + \underbrace{\tau_{-1}\left(\Delta Y - \Delta Y^*\right)}_{A} + \underbrace{\Delta \tau^{temp} Y}_{B} + \underbrace{\Delta \tau^{perm} Y}_{D} \tag{7}$$

The first term on the right-hand side captures the effects of the factors in square C in Figure 2. It thus measures the impact on tax revenue from permanent changes in GDP (the tax base), at given tax rules. The second term captures the effects belonging to square A. It measures the cyclical part of tax revenue, at given tax rules. The third and the fourth terms capture the effects devoted to square B and D respectively. The term B captures the effect on tax revenue caused by a temporary

[4] See also, Braconier and Forsfält (2004).

change in the tax rate, at a given tax base. Finally, the term D captures the effect on tax revenue caused by a permanent change in the tax rate, at a given tax base.

To get an idea of how the change in actual tax revenue relates to the change in structural tax revenue, the last term in equation (7) can be split into two parts, giving us the following expression:

$$\Delta T = \underbrace{\tau_{-1}\Delta Y^{*}}_{C} + \underbrace{\tau_{-1}\left(\Delta Y - \Delta Y^{*}\right)}_{A} + \underbrace{\Delta\tau^{temp}Y}_{B} + \underbrace{\Delta\tau^{perm}Y^{*}}_{D'} + \underbrace{\Delta\tau^{perm}\left(Y - Y^{*}\right)}_{D''} \quad (8)$$

As can be seen, terms C and D' (which, thus, is a part of square D in Figure 2) together capture the change in structural tax revenue. We are now in a position to define the different fiscal concepts, by referring to Figure 2 and the equations (7) and (8).

2.1 The structural budget balance and the CAB

Many institutions make no difference between the structural budget balance and the cyclically adjusted budget balance (CAB). Others use the CAB as an indicator of the structural budget balance. The CAB was originally constructed to answer one question: what would the budget balance be if the economy were in equilibrium (or at full employment), given unchanged tax and expenditure rules. A calculation of the CAB involves estimation of the cyclical balance, measuring the cycle's impact on the actual budget balance, that is, the effect on the budget balance of the automatic stabilisers (captured by square A in Figure 2). Subtracting the cyclical part of the budget balance from the actual budget balance leaves a measure of the CAB.

The structural budget represents the budget balance based on permanent trends, or adjusted for all temporary flows. The difference compared with the CAB is that the CAB only corrects the actual budget balance for the cycle in economic activity.

Distinguishing between permanent and temporary factors is, however, not straightforward, besides being dependent on the purpose of the study and the relevant time perspective. In the long run everything is temporary. For calculations of the structural budget balance in the short and medium term, it is reasonable to treat the cyclical impact in the form of the automatic stabilisers as a temporary flow. Ideally, one should also exclude other effects of a temporary nature, such as temporary fiscal policy measures (including stabilisation policy measures), one-off measures (for example, revenues from auctions of mobile phone licenses) and fluctuations in tax receipts caused by changes in asset prices (non-linearly related to economic activity). From this perspective, the structural budget balance (or the change in it) should only be based on the factors belonging to squares C and D.

What value has an estimator of the structural budget balance? (this applies also in part to the CAB). It can be politically tempting to use large budget surpluses

in good times for what are intended to be permanent reforms: increased expenditure, for example. If a budgetary surplus is largely due to a favourable economic situation, so that when this normalises it will be greatly diminished, scope for such reforms does not exist (provided that the public debt is not allowed to increase). Thus, the structural balance can be used to assess whether or not proposed tax and expenditure reforms are appropriate in the medium term (over the business cycle). It can also be used to assess whether the government is likely to run a balanced budget over the cycle or to achieve more ambitious medium-term objectives. The change in the structural budget balance measures the improvement or deterioration of the medium-term budget balance.

2.2 The fiscal stance

The fiscal stance may be defined as the budgetary impact of all factors affecting the actual budget balance, excluding that of automatic stabilisers (thus, it includes the factors captured by B, C and D). The objective is to assess whether discretionary fiscal policy works pro-cyclically on aggregate demand or not. Thus, the stance has to be evaluated against a measure of the cyclical position. Since we know that the automatic stabilisers work counter-cyclically, there is no point in including these in the definition of fiscal stance (although they also affect aggregate demand). Unlike the change in the structural budget balance, the stance should include the effects of temporary discretionary measures, because such measures are likely to affect aggregate demand, although they do not change the structural budget balance. However, it is arguable whether factors belonging to square C should be included in a proper measure of fiscal stance. Some structural changes in the economy may be caused by fiscal policy and should therefore be included in the measure of fiscal stance. However, should structural changes in the economy not caused by fiscal policy be included?

Indicators of the fiscal stance are sometimes used together with the deviation of the key interest rate from its (estimated) equilibrium value to assess whether fiscal and monetary policy, taken together, has a neutral, expansive or tightening effect on demand. A pro-cyclical fiscal policy accentuates swings in GDP and makes the conduct of monetary policy harder. The latter apply to monetary policy, irrespective of whether it is conducted within a single country, as in Sweden, or within a currency union, like the EMU.

In practice, the change in the primary CAB (PCAB) is often used as an indicator of the fiscal stance (thus, including factors belonging to square C in Figure 2), although other indicators exist as well, as we will see later on. Primary here means that the effect of changes in interest expenditure (and interest income) has been excluded.[5] A decrease in the PCAB between two points in time is

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[5] If this effect is not excluded, a change in the CAB caused by a change in the net interest expenditure may be incorrectly interpreted as discretionary policy.

interpreted to mean that discretionary fiscal policy is expansionary, while an increase is taken to signify contractionary policy.

2.3 The volume of discretionary measures

When assessing fiscal and budgetary policy it can be of value to know to what extent changes in the actual budget balance are due to discretionary policy actions rather than to the economic environment. In terms of Figure 2, such an indicator should capture changes in the actual budget balance related to squares B and D. The first best solution would, of course, be to directly measure the value of taken policy measures, *i.e.* using a down-up approach. However, in the absence of detailed data on different tax and expenditure bases and rates, the change in the PCAB might still be used as a rough indication of discretionary measures, because in such cases there are no obvious alternatives. For example, at EU level, the change in the PCAB, adjusted for temporary and one-off measures, is currently used to assess whether EU Member States in excessive deficits have taken "effective action" in consolidating their budgetary positions in line with Council recommendations.[6] However, one drawback in using the PCAB for this purpose is that it also captures changes in the actual budget balance represented by square C in Figure 2.

2.4 Fiscal impact and impulse

From a macroeconomic perspective it can be of value to have an idea of the fiscal impact, that is, how fiscal policy affects aggregate demand, irrespective of whether the effect results from discretionary policy or automatic stabilisers. One simple fiscal indicator that can be used for this purpose is the change in the total budget balance (thus, capturing the effects in the squares A, B C and D).[7] On the other hand, this measure does not reveal what part of the change in demand has affected the budget balance and what part has, conversely, been influenced by the budget. To avoid this endogeneity problem, the change in the PCAB is instead often used as a rough indicator of fiscal impact. Since the CAB indicates what the budget balance would be if the economy were in equilibrium (or at full employment), it should eliminate this type of endogeneity problem, provided that the CAB is estimated such that it is orthogonal to the cycle. In practice, however, there are different shortcomings in estimating the CAB which often leads to the estimated CAB being correlated with the cycle.[8] Moreover, if one is interested in the overall

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[6] See the 22 February 2006 Communication from the European Commission to the Council on the assessment of the action taken by Italy in response to the Council opinion under Article 104.7.

[7] One could, of course, argue that not only the change of the net lending but also the level should be of importance for aggregate demand. If public revenue is higher than expenditure, this should have a contractive effect on demand, even if net lending is decreasing.

[8] See, for example, Boije (2004), for a brief and non-technical discussion of these factors and how they can be solved.

Table 4

Definitions of Fiscal Concepts

Change in structural budget balance	C+D’
Fiscal stance	B+C (or only a part?) +D
Discretionary policy	B+D
Fiscal impulse	A+B+C+D

fiscal impact on demand, including the effect of the automatic stabilisers, the change in the PCAB does not tell the whole story.

The use of budget-balance-based fiscal indicators as measures of the fiscal impact on aggregate demand has been heavily criticised from several points of view. For example, indicators based only on budget balance do not take into account that the expenditure and revenue sides of the budget have different multipliers and that households’ expectations about the future, the current economic situation, the size of public debt and the structure of the tax and expenditure system are important factors to consider in an assessment of the fiscal impact. Obviously, such an analysis requires sophisticated models. However, in such models, the results will heavily depend on the specific assumptions made when they were constructed. In the absence of such models, or when there is no consensus on the choice of the most appropriate model, there are simply no easily implementable alternatives. Indicators of the fiscal impact based on budget balance provide information that is better than nothing.[9] However, since these indicators do not measure the actual impact on aggregate demand, it would be fairer to say that they, at best, measure the fiscal *impulse* on demand.

Summing up: With reference to Figure 2 and equations (7) and (8), Table 2 provides our definition of the change of the structural budget balance, the fiscal stance, the volume of discretionary measures and the fiscal impulse.

We will use this framework as a reference when, in the next section, we compare the qualitative features of the indicators used for assessing the fiscal and budgetary performance in Sweden. As will be evident, some practical aspects apply that are not covered by this stylised framework.

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[9] See also Krogstrup (2002).

3. The Swedish budgetary and fiscal performance: the fiscal indicators' story

In this section we assess the fulfilment of the surplus target in recent years as well as the fiscal stance and the discretionary fiscal policy. We compare the results of the indicators used by the Riksbank, the NIER, the MoF and the European Commission and describe the *main* qualitative differences between the different indicators.

3.1 Indicators of the CAB

3.1.1 Methodology

The MoF calculates the CAB on the basis of an estimated output gap and an "aggregated" budget elasticity that is assumed to be 0.7. That means that if the (estimated) output gap changes by 1 percentage point, the cyclical component of net lending as a share of GDP is judged to change by 0.7 percentage points. To estimate the GDP gap for the individual years during the forecast period, the MoF usually assumes that the GDP gap is to be closed in the end of the forecast period (*i.e.* three years ahead). The formula used for calculating the CAB (as a percentage of GDP) is:[10]

$$\frac{S^*}{Y} = \frac{S}{Y} - \hat{\beta}\frac{Y - Y^*}{Y^*} \tag{9}$$

where S is the actual budget balance, S^* is the CAB, Y is GDP, Y^* is potential GDP and $(Y - Y^*)/Y^*$ is the output gap expressed in per cent of potential GDP. The aggregate budget elasticity $\hat{\beta}$ (thus, assessed to be 0.7) is *assumed* to catch the impact of the automatic stabilisers (thus, belonging to square A in Figure 2) but not the effect on net lending of temporary stabilisation policy measures (belonging to square B). In principle, the European Commission uses the same approach. However, it estimates the output gap using the commonly agreed production function approach in combination with an aggregated budgetary elasticity estimated on the basis of calculations made by the OECD, which is somewhat lower than 0.6 (see European Commission, 2004).

The Riksbank uses different methods to calculate the CAB. Here we will refer only to the method used by the Riksbank in its analyses for the European Central Bank (referred to here as the ESCB method).[11] The ESCB method decomposes several tax and expenditure bases into a trend and a cyclical part (using a HP filter). The cyclical component of each tax and expenditure is obtained by multiplying the

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[10] When this equation is used in practice, the output gap is expressed in real terms while the actual budget balance and the CAB is expressed as a share of *nominal* GDP.

[11] This method can not be regarded to be the Riksbank's official method.

"gap" that the decomposition results in by an estimated elasticity that shows how the tax or expenditure varies with each "gap". For instance, if actual private consumption, which is the principal base for indirect taxes (e.g. VAT), is above the estimated trend value in a particular year, this is interpreted to mean that the revenue from indirect taxes in that year is higher than "normal", *i.e.* that there is a positive "cyclical component" in the indirect taxes. Consequently, this method does not estimate the CAB on the basis of an assessment of the aggregate output gap. The formula used for calculating the CAB (in levels) is:[12]

$$S^* = S - \sum_i T_i \varepsilon_{T_i,B_i} \frac{B_i - B_i^*}{B_i^*} + E_U \varepsilon_{E_U,U} \left(\frac{U - U^*}{U^*} \right) \qquad (10)$$

where T_i represents a special tax category (for example, indirect tax revenue), B_i is the *i*-th tax base (for example, private consumption), B_i^* is the trend value of the *i*-th tax base (obtained by a HP filter), ε_{T_i,B_i} is the *i*-th tax elasticity (measuring, for example, how indirect taxes respond to a change in private consumption), E_U is unemployment-related expenditure, the elasticity $\varepsilon_{E_U,U}$ measures how unemployment-related expenditure respond to a change in unemployment, U is the number of unemployed and U^* is its (HP-filtered) trend value.[13]

One advantage of this method compared with the "aggregated" method based on an output gap and aggregated budget elasticity is that, at least in some measure, it takes account of composition effects, *i.e.* that different kinds of macroeconomic shocks can affect the tax and expenditure bases in different ways and that tax bases are not necessarily linearly related to GDP. The benefit of the "aggregated" method, on the other hand, is that it is somewhat more transparent and the results are directly related to a total measure of economic conditions.

The NIER adjusts the actual net lending for:

(i) the difference between the actual output and the estimated potential output (the output gap),

(ii) the difference between the actual unemployment rate and the estimated equilibrium unemployment rate (the unemployment gap), and

(iii) the deviation of principal tax bases from their normal proportion of GDP.

The equilibrium base-to-GDP ratios are estimated with help of an HP filter. Tax revenues are assumed to be proportional to their respective tax bases, thus, the tax elasticity is *assumed* to be 1 for all taxes (in contrast to the ESCB method where they are allowed to differ from 1). Other revenue is assumed to be proportional to GDP. Unemployment expenditure is assumed to be proportional to unemployment.

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[12] See Bouthevillain *et al.* (2001) for a derivation of this formula.

[13] For simplicity, the same index has been used for the tax and its base.

Other expenditure, such as public consumption, is assumed to be proportional to nominal potential GDP and thus independent of the cyclical state of the economy. The formula used for calculating the CAB is:[14]

$$S^* = S - \sum_i \frac{T_i}{B_i}\left(Y\left(\frac{B_i}{Y}\right) - Y^*\left(\frac{B_i}{Y}\right)^*\right) + \frac{E_U}{U}\left(U - U^*\right) \tag{11}$$

This formula states that the difference between the actual budget balance and the CAB depends on the output gap, the unemployment gap and the deviations of base-to-GDP ratios from their equilibrium levels (the composition effect). Worth noting is that this formula, under some conditions, is similar to equation (10). In defining the CAB, the NIER makes use of the trend values of the base-to-GDP ratios while the Riksbank (or ESCB) uses the trend values of the bases in levels (thus not related to GDP). The trend value of the base divided by the trend value of GDP is not necessarily the same as the trend value of the base-to-GDP ratio. Let us assume, however, that this is the case (under most circumstances the discrepancies should be small). The equation (11) can then be written as:

$$S^* = S \ - \sum_i T_i \frac{B_i - B_i^*}{B_i} + E_U\left(\frac{U - U^*}{U}\right) \tag{12}$$

Under this assumption, the only difference between equations (10) and (11) is that equation (10) includes elasticities allowed to differ from 1 and that the trend values of *B* and *U* show up in the denominators instead of the actual values. For small tax base and unemployment gaps and for elasticities close to one, these differences should have only a minor impact on the level of the estimated CAB. The NIER's practical implementation, however, gives rise to some other discrepancies which may induce quite large differences in results. Equation (11) explicitly makes use of an estimated output gap, while equation (10) does not. Furthermore, the NIER applies several sophisticated models and indicators to estimate the unemployment gap, not just an HP filter (the same applies to the estimation of the output gap).

3.1.2 Comparison of results

Table 5 shows how the CAB has developed between 2000 and 2005 according to the four different measures described above. All measures indicate that the surplus target has been overshot in some years, while it has been undershot in others. The measure used by the MoF indicates that the surplus has been met *on average* during this period, while the measures used by the European Commission and the NIER state that it has been slightly undershot. In comparison to the European Commission figures, it would appear that in general the MoF has estimated larger negative output gaps over the period. The indicator used by the Riksbank (the ESCB) states that the target has been undershot significantly. As can

[14] See Braconier and Forsfält (2004) for a derivation of this formula.

Table 5

Indicators of the CAB
(percent of GDP)

	2000	2001	2002	2003	2004	2005	Average 2000-2005
National Institute of Economic Research	3.5	2.7	0.1	0.4	1.6	1.7	1.7
Ministry of Finance	4.1	3.1	0.4	1.0	2.1	2.1	2.1
European Commission	3.9	2.4	0.0	0.9	1.9	1.6	1.8
The Riksbank	3.0	1.1	–1.2	0.4	2.1	2.3	1.3
Difference highest–lowest	1.1	2.0	1.6	0.6	0.5	0.6	

Sources: Budget Bill 2006 (Ministry of Finance), Wage Formation in Sweden 2005 (NIER, October 2005), European Commission Services and the Riksbank (November 2005).

been seen, the differences in results between the different indicators are substantial in some years. The indicator used by the Riksbank (the ESCB) provides a structural budget balance for 2000-02 that is about 1 per cent lower than what the other indicators show. Let us try to figure out what may explain this huge difference.[15]

As a point of reference we have calculated the cyclical component of the budget balance with a HP-filtered GDP gap using the same de-trending parameter used in the ESCB method and a budget elasticity of 0.7. This method provides a cyclical component for all years that does not differ significantly from that obtained by the ESCB method. This indicates that composition effects do not explain the main differences in results. However, the HP-filtered GDP gap for the year 2000 is much more positive compared to the GDP gaps obtained by the MoF and the NIER. This should be one explanation as to why the CAB obtained by the ESCB method is significantly lower for the year 2000.

For 2001 and 2002 the GDP gaps obtained by the MoF and the NIER provide negative cyclical components while the ESCB method still provides positive ones. Overall, this should at least partly explain why the MoF and the NIER estimates of the structural budget balances for these years are much lower than the ones obtained by the ESCB method.

Summing up: In principle, all major institutions involved in assessing the Swedish budgetary performance have their own method to estimate the cyclically-adjusted or structural balance in the medium term. In this section we have shown that the results can differ substantially for individual years between the

[15] In the comparison we have ignored potential differences in the treatment of one-off effects.

different indicators used to measure the CAB or the structural budget balance. When assessing medium-term trends from a general perspective, such differences for individual years may not be problematic. However, in a context where these indicators are used to assess policy objectives, such as the fulfilment of the Swedish surplus target, and where the assessments lead to short-term policy conclusions, it is particularly important to be aware of the nature of the indicator used.

3.2 Indicators of the fiscal stance and discretionary policy

In this section we will compare the different indicators used by the MoF, the European Commission, the Riksbank and the NIER to assess the fiscal stance and the volume of discretionary measures. None of these institutions uses a "bottom-up" approach to calculate the volume of discretionary measures for the entire public sector. However, the MoF does use such an approach to calculate the volume of discretionary measures in the central government's budget. The MoF and the Riksbank use the change in the PCAB (or the structural budget balance) not only to assess the fiscal stance but also to get an idea of the volume of discretionary measures in the entire public sector. The NIER does not use the PCAB to assess the fiscal stance but a measure it calls the "policy-dependent change in net lending". Since the NIER does not have a "bottom-up" calculated measure of the volume of discretionary measures, we will use its policy-dependent change in net lending also as an indicator of discretionary policy in the entire public sector. The methods used to calculate the CABs were described above. Here we will therefore only describe the MoF's method to calculate the volume of discretionary measures and the NIER's construction of the policy-dependent change in net lending.

3.2.1 The MoF method to calculate the discretionary policy in the central government's budget

The MoF uses detailed information about tax and expenditure bases and rules to calculate the effect on the budget balance of all new decisions. Changes in the tax rates, for instance, are multiplied by the relevant tax bases. The calculation is performed statically, *i.e.* it is assumed that the bases are not affected by the changed taxes (or the changed expenditure). When the effects on net lending of all the rule changes are totalled and related to GDP, this gives a measure of the volume of discretionary measures in the central government's budget.[16] Only new active measures are counted, not *passive* changes in expenditure and tax levels due to indexation (this issue is examined in more depth in the following section).

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[16] See Prop. 2005/06:1, *The Budget Bill for 2006*, Sweden's Economy, Appendix 2.

3.2.2 The NIER's indicator of fiscal stance

The NIER assumes that, given unchanged rules, direct and indirect taxes as well as social security contributions, are proportional to the respective tax and contribution base. If the tax or contribution shares are changed from one year to the next it is interpreted to be the result of discretionary fiscal policy measures. For other revenue, the norm used is that, given unchanged policy, it constitutes over time a constant share of the nominal gross domestic product. A change in the share between two years is interpreted as the result of discretionary measures. As regards expenditure, it is assumed that unemployment benefit, given unchanged rules, is proportional to the number of unemployed. For public consumption and other expenditure, the norm applied is that these, given unchanged policy, constitute a constant share of the nominal potential gross national product. If the expenditure shares change between two years, it is interpreted as the result of discretionary measures. When the deviations from the "norm" share for each revenue and expenditure category are totalled, this gives what the NIER calls the "policy-dependent change in net lending".[17]

A simplified example shows how the NIER's indicator should be interpreted. The principal tax base for indirect taxes is composed of total private consumption. Let us assume that indirect taxes expressed as a share of total private consumption (the implicit tax ratio) is 20 per cent initially (the norm tax rate). If private consumption totals SEK 1,200 billion, indirect taxes in this example will be SEK 240 billion. If private consumption increases by SEK 10 billion and indirect taxes at the same time rise by SEK 2 billion, this is interpreted with the NIER's indicator to mean that discretionary fiscal policy (concerning indirect taxes) is unchanged. However, if taxes increase by more or less than SEK 2 billion (in which case the implicit tax ratio has changed), it is interpreted as a result of discretionary political decisions.

Worth noting is that the NIER uses the "proportionality assumption" both when estimating the CAB and when calculating the policy-dependent change in net lending. There is, however, one main difference between these two indicators: while the policy-dependent change in net lending is intended to capture only policy-induced changes (those represented by square A and B in Figure 2), the change in the CAB also captures structural changes in the economy (square C in Figure 2 – for example, changes in the NAIRU). Still, revisions of the level of potential GDP (due, for example, to changes in the NAIRU) will affect the policy-dependent change in net lending, since it is assumed that public expenditure, other than unemployment-related expenditure, is linearly related to nominal potential GDP, at unchanged rules.

It should also be noticed that, because of the way it is constructed, the NIER uses the policy-dependent change in net lending for measuring not only the effects on the budgetary balance of active decisions, but also those of passive decisions.

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[17] The indicator is based on a method proposed by Braconier and Holden (1999).

Since the NIER assumes that, on the basis of unchanged rules, benefits (and other transfers) grow with nominal potential GDP (*i.e.* that they are in practice indexed), any deviation from this principle is interpreted as a passive discretionary change of the budget balance. Some benefits in Sweden are not indexed in the short term even if they can be regarded as indexed in the medium term, for example the child allowance, which is not changed every year, but in frequent discretionary steps. When the child allowance is raised by an active decision, the MoF's indicator invariably interprets this as a new discretionary measure. However, the NIER's fiscal stance indicator interprets it as a discretionary change in fiscal policy only if the change in benefits, expressed as a percentage, deviates from nominal potential GDP growth. For instance, if nominal potential GDP is assumed to grow by 5 per cent and the government actually increases the child allowance by 5 per cent, the indicator used by the MoF treats this change as a result of an expansionary fiscal policy, while the indicator used by the NIER does not. If the child allowance is not changed at all from one year to another, the NIER indicator interprets this as passive discretionary policy. In terms of Figure 2, the NIER's indicator for the fiscal stance is intended to capture only the effects encompassed by squares B and D *(including* both *active* and *passive* decisions).

3.2.3 The pros and cons…

…as regards the indicators' ability to measure the volume of discretionary measures

The bottom-up approach used by the MoF is the one that most likely gives the best precision as regards the impact on net lending due to active discretionary measures since it is based on actual changes in tax and "benefit rates" and the relevant tax and expenditure bases. Thus, if the purpose is to measure the static budget effect of active discretionary measures, this indicator should be suitable. However, as noted above, the MoF only makes such detailed calculations for those policy changes that concern the central government budget. It would be simple to also include the local government sector in the calculation as regards changes in local government tax rates. Measuring discretionary changes in local government consumption is, however, more difficult.

The advantage of using the NIER's policy-dependent indicator or the change of the PCAB as a measure of the volume of discretionary measures is that these indicators cover the whole public sector and not just the central government budget. One problem with the NIER's indicator – if used for this purpose – is, however, that – as described above – it captures not only changes in the budget balance related to active discretionary measures but also the impact from structural changes in the economy (that is, factors included in square C in Figure 2). The same problem applies to the change in the PCAB.

In a cross-country context, a closely linked issue is how to define discretionary measures to safeguard equal treatment. Take a country *A* where some expenditures are index-linked to inflation and compare with country *B* where the same expenditures also increase with inflation but through yearly discretionary

decisions. In the case of Sweden, the volume of the discretionary annual increase of central government grants to communes, largely intended to cover wage inflation, is exaggerated under the MoF approach in comparison to other countries where expenditures would develop at exactly the same pace but as a result of indexation.

…as regards the indicators' ability to measure the fiscal stance

A proper measure of the fiscal stance should capture the effect on the budget balance not only of discretionary measures, but also due to fiscal circumstances that affect the budget balance and aggregate demand in the same way as active discretionary measures. If all taxes are proportional to GDP and all expenditure is fixed in nominal terms, a growth in nominal GDP improves the budget balance even if there are no active discretionary measures. This should have a similar effect on aggregate demand as, for example, an active increase of the tax rate in a system where all expenditure grows with nominal GDP. The indicator used by the NIER treats both those circumstances in a similar way, which speaks in favour of this indicator. This also has implications in a cross country setting. Let us again consider the two different countries, *A* and *B*, identical in all aspects except that benefits are indexed in country *A*, but not in country *B*. If the measure of fiscal stance is allowed to capture only active discretionary measures, the absence of such measures from one year to another will result in a zero fiscal stance in both countries although the tax and expenditure system, due to non-indexation, will have a more contractive effect on aggregate demand in country *B*.[18]

The main difference between the change in the PCAB and the NIER indicator – as noted above – is that the latter is intended to exclude changes in the budget balances due to structural changes in the economy. However, in practice, structural and behavioural changes may violate the NIER's proportionality assumption. In that case, a change in the tax or contribution shares may incorrectly be interpreted as a result of fiscal discretionary measures. Furthermore, *ex post* revisions of the potential GDP also affects the NIER's estimate of fiscal stance.

3.2.4 Comparison of results between different indicators

Table 6 shows the fiscal stance between 2002 and 2005 as estimated by the Riksbank (ESCB), the NIER, the European Commission and the MoF, using the indicators described above. As mentioned above, those indicators are also treated as proxies for the volume of discretionary measures in the entire public sector. The MoF's "bottom-up"calculation of the volume of discretionary measures in the central government budget is also included in the table as a point of reference.

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[18] This section is greatly influenced by comments provided by Ingemar Hansson, director-general at the NIER.

Table 6

Indicators of the Fiscal Policy Stance, 2001-05
(change in percent of GDP)

	2001	2002	2003	2004	2005
National Institute of Economic Research					
Policy-dependent change in net lending	–1.1	–1.9	0.0	1.0	0.0
Ministry of Finance					
Discretionary fiscal policy in the central government budget	–1.7	–1.8	–0.5	–0.4	–1.3
Change in primary structural balance	–1.1	–2.4	–0.3	0.7	–0.2
The European Commission					
Change in primary structural balance	–2.3	–2.6	0.0	0.7	–0.3
The Riksbank					
Change in primary structural balance	–2.9	–2.1	0.7	1.3	0.1

Note: The Riksbank only excludes interest expenditure on the government debt. The NIER excludes interest income as well. The Ministry of Finance excludes net capital income, including dividends from state-owned companies and the Riksbank.

Sources: Budget Bill 2006, Ministry of Finance (figures adjusted in October due to a NA revision of the net lending), Wage Formation in Sweden 2005, October 2005, NIER, and the Riksbank (November, 2005).

All indicators of fiscal stance show that fiscal policy was expansionary in 2001. However, there are main differences; the indicators used by the NIER and the MoF point to a less expansionary stance compared to the effect on net lending of the discretionary fiscal policy in the central government budget, while the indicators used by the Riksbank and the European Commission show the opposite. As discussed in Sections 3.1 and 3.2.3, there are several methodological differences between the various indicators explaining the differences in results.

All indicators show that fiscal policy was expansionary in 2002: net lending decreased by roughly 2 per cent of GDP due to the expansionary policy. Reforms in the central government budget, e.g. reductions in income tax on work and measures in healthcare, the school system and care services explain the bulk of the expansionary policy that year.

For 2003, the MoF's indicator of fiscal stance points to a somewhat expansionary fiscal policy, in line with the active discretionary measures taken in the central government budget. The indicators applied by the NIER and the

European Commission show a neutral policy whereas the ESCB's method indicates fiscal tightening. So, for that year too, the indicators provide slightly different pictures of the fiscal stance.

For 2004, all indicators of the fiscal stance point to a relatively tight fiscal policy in spite of stimulatory measures in the central government budget. That indicates that 2004 had relatively large contractionary discretionary measures that are not evident in the effects of the measures in the central government budget. Several factors can explain this difference: the MoF's two indicators differ by just over 1 percentage point for 2004. According to the Ministry, some three-tenths of the difference is explained by higher net lending in the local government sector (mainly due to local government tax hikes) and four-tenths by increased corporate tax revenue, partly owing to the recent implementation of interest on tax allocation reserves. Actual public expenditure in 2004 was much lower than implied by the norms applied by the NIER when calculating expenditure for an unchanged policy. In addition, corporate tax revenue was higher than the NIER's norm for an unchanged policy. These deviations are thus interpreted as being the result of contractionary fiscal policy. So these factors mainly explain why the indicators measuring the fiscal stance reflect contractionary fiscal policy in 2004 in spite of expansionary measures in the central government budget.

Despite a considerably expansionary fiscal stance in the central government budget, the fiscal stance indicators on the whole point to a neutral discretionary fiscal policy for 2005. For this year, too, improved local government saving and/or higher corporate tax revenue may explain a large part of the difference between these indicators and the aggregate effect of the rule changes concerning the central government budget.

Summing up: As in the case of CABs and structural balances, there are several methodological differences between the different indicators used to assess the fiscal stance and the discretionary policy. We have shown that those differences have occasionally led to significant differences in results during the period 2001-05. We have shown, for example, that it is particularly important when analysing the stance of fiscal policy to not only take into account the direct effects of rule changes as announced in the central government's budget. However, the differences go deeper as they also relate to different benchmarks used for defining "unchanged policy". Under such circumstances, the conclusions and policy advice – as regards, for example, the degree of pro-cyclicality – may differ substantially depending on the choice of indicator. When discriminating between the different indicators, the pros and cons should be analysed against the objective at hand. For example, a proper indicator of fiscal stance should be indifferent to indexation of taxes and expenditures in the sense that it should capture both active and passive fiscal measures affecting demand in a similar way.

Table 7

Indicators of the Fiscal Policy Stance in 2004, Forecast Revisions
(change in percent of GDP)

National Institute of Economic Research		**ESCB**		**Ministry of Finance**			
Policy-dependent change in net lending		Change in primary structural balance		Discretionary measures in the central government budget			Change in primary structural balance
	2004		**2004**		**2004**		**2004**
December 2002	0.5	November 2002	0.3	BB for 2003	–0.3		–0.2
December 2003	0.5	November 2003	0.2	BB for 2004	–0.2		0.1
December 2004	0.8	November 2004	0.9	BB for 2005	–0.4		0.1
October 2005	1.0	November 2005	1.3	BB for 2006	–0.4		0.7

Note. ESCB only excludes interest expenditure on the central government debt, not interest income on debt securities. The NIER excludes
interest income as well. The Ministry of Finance excludes net capital income, including dividends from state-owned companies and the Riksbank.

4. *Ex post* revisions of fiscal indicators

Revisions of indicators over time are not a problem *per se*: incorporating the most recent information as the quality of the figures improves is indeed welcome. However, revisions of indicators become an important issue when policy advice is given *ex ante*, on the basis of forecasts, and then assessed *ex post* either on the basis of revised forecasts or outcomes. In this section we look closer at the sources of and reasons for revisions of indicators.

Table 7 shows the revisions over time of the indictors used to measure fiscal stance for a single year, here chosen to be 2004. To improve the comparability of the indicators, the compared forecasts are those that have been presented in, or in conjunction with, the 2005 Budget Bill (BB) and that have factored in the reforms announced in the Bill.

When the forecasts were prepared in the autumn of 2002, both the MoF's indicators showed that fiscal policy would be slightly expansionary in 2004, whereas the two other indicators at the time indicated that fiscal policy would instead be slightly contractionary. The indicators taken together showed at that time a broadly neutral fiscal stance.

Between 2002 and 2005 the forecast of fiscal policy austerity for 2004 was revised upwards by 0.5-1.0 per cent of GDP, as measured by the indicators that cover the whole public sector. At the same time, the results show that this revision for 2004 cannot be due to the central government budget having become more contractionary over time owing to additional consolidation measures for that year. Instead, the discretionary fiscal policy in the central government budget for that year has become somewhat more expansionary over time, according to the indicator that measures the effect of rule changes in the central government budget. Lower public (mainly local government) consumption, higher local government taxes and larger-than-expected corporate tax revenue may explain a large part of the revision.[19] Overall this is a pertinent example of the uncertainties involved. If the change in the PCAB is used to measure the fiscal stance in 2004, it would appear that what *ex ante* looked to be a broadly neutral fiscal stance, in the end turned out to be highly contractionary even though very few new discretionary measures were taken to this end. This makes a case to have a closer look at the revisions of the underlying national accounts figures.

One way of doing this is to look, for individual years over time, at Swedish budgetary figures provided across the different generations of Swedish convergence programme (CP) updates (where figures are based on the respective budget bills). Indeed, it is striking how volatile budgetary outcomes have been in relation to the CP forecasts. This is even so for the short-term forecasts of the coming budget year. In addition, over the last few years surprises have mostly been on the positive side.

Table 8 compares the forecast (for real GDP growth, net lending, revenues, primary expenditures and interest expenditures) made in the programme of year t for the coming budgetary year $t + 1$ with the outcomes as measured in the programme of year $t + 1$ (still a forecast at this point but made towards the end of the year) and year $t + 2$.

The choice of time frame is explained in the context of the following year's budget polices being set taking account of the perceived situation at the time of the budget formulation. It follows that the "surprises" would generally not be explained by new policies as most policies would have been included in the budget. Of course, final data from the most recent national accounts may show even larger differences but it would be difficult to control for changes in accounting rules. However, the figures should still be interpreted with caution as they do not control for possible methodological changes to the accounting rules within the time frame.[20]

Looking at the net lending figures in Table 8, three periods stand out: 2000-01 with positive surprises, 2002-03 with negative surprises and 2004-05 again with positive surprises. It is interesting to see that in most cases the "surprise

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[19] At the end of 2003, Statistics Sweden (SCB) began to report tax revenue fully in accrual-based terms in the National Accounts, which in itself affects the distribution of tax revenue between years. The forecast of the accrual effects has been revised several times, making it difficult to analyse the cause of the changes in forecasts for a certain year over time.

[20] However, changes in figures between accounting standards from ESA79 to ESA95 have been considered.

Table 8

Convergence Programme (CP) Plans versus Outcomes
(percent of GDP)

	Forecast year (*t*+1):	**2000**		**2001**		**2002**		**2003**		**2004**		**2005**	
Difference late forecast for *t*+1 in CP *t*+1 and	**CP of year *t*+1 and *t*+2**	**CP**	**CP**	**CP**	**CP**	**CP**	**CP**	**CP**	**CP**	**CP**	**CP**	**CP**	***n.a.***
Outturn in CP *t*+2 from forecast made in CP*t* for the year:		**2000**	**2001**	**2001**	**2002**	**2002**	**2003**	**2003**	**2004**	**2004**	**2005**	**2005**	
	GDP	0.9	0.6	–1.8	–2.3	–0.3	–0.5	–1.1	–0.9	1.5	1.6	–0.6	*n.a.*
	Net lending	**1.3**	**2.0**	**1.1**	**1.3**	**–0.4**	**–1.0**	**–1.3**	**–1.0**	**0.3**	**1.0**	**0.8**	*n.a.*
	Revenues	0.6	1.2	1.9	2.0	0.2	0.5	0.5	0.2	–0.9	–0.5	1.2	*n.a.*
	Primary expenditure	–0.4	–0.6	0.9	0.8	0.8	1.6	2.0	1.7	–0.7	–0.9	0.7	*n.a.*
	Interest expenditure	–0.3	–0.2	–0.1	–0.1	–0.2	0.0	–0.2	–0.6	–0.5	–0.6	–0.2	*n.a.*

Note: The table shows the difference between the planned figures for year $t + 1$ in the CP of year t with the comparable figures in the CP of year $t + 1$ and $t + 2$. For example, the budget balance outcome for 2000 as reported in the CP submitted in the end of 2001 was 2.0 per cent of GDP better than the figure planned for 2000 in the CP of 1999.

Source: Swedish Convergence Programmes and European Commission Technical Assessments 1998-2005.

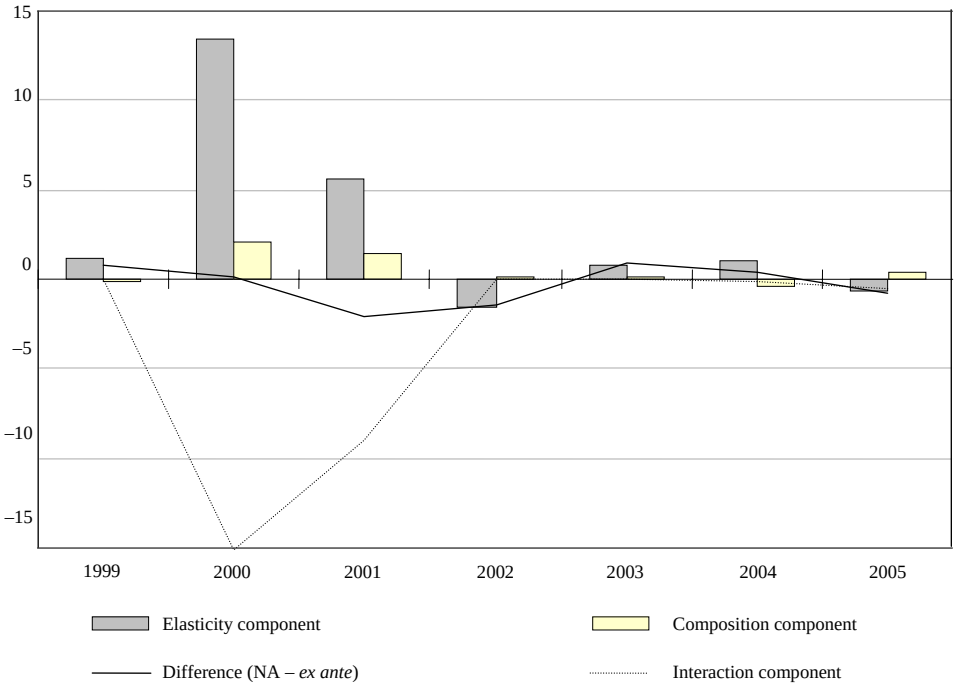
element" increases when more final data is available towards the end of $t + 1$. Very broadly, different factors can help explain the "surprise" elements.

In the year 2000, the reason was mainly economic growth, in that the upswing was substantially more powerful than believed, leading both to higher revenues and lower expenditures. In 2001, the growth upswing was abruptly halted as external demand faltered and household consumption grew more weakly than expected (developments that were further reinforced by the September 11th events). Nevertheless, tax payments grew more than expected due to high household sector capital gains and corporate profits in 2000, taxes which were paid and accounted for in 2001. In addition, employment grew better than expected. In 2002 and 2003 the net lending surprises were on the negative side. Explanatory factors were a continuously weaker cycle than foreseen and the downturn of the ICT sector. Nevertheless, the budgetary impact and persistence of the very expansionary budget for 2002 (an election year) was underestimated. In 2004, growth was substantially higher than forecast, driven by a surprisingly strong export performance. While the budget balance outcome measured at the end of 2004 was better than expected in 2003 it was not much better. This was explained by the low tax content of the export-driven growth and weak labour market developments. According to the current CP, the surplus will be even higher, now largely explained by the one-off corporate tax revenues from the liquidation of corporate tax allocation funds. For 2005, corporate tax developments, largely depending on the 2004 profit levels and also to some extent on the liquidation of the tax periodisation funds, are again explanatory factors. In addition, for the later years the lower interest expenditure, as a consequence of a persistent low inflation (below the Riksbank's inflation target), has contributed to a higher net lending than expected.

Overall, this example illustrates well the level of uncertainty in the basic aggregates even over the very short term and when controlling for new discretionary measures. A further illustration of the volatility of public finance figures in the short term can be given by comparing outcomes with forecasts obtained using standard fiscal elasticities. This provides a tool for demonstrating how forecasts based on standard "average" fiscal elasticities can go wrong. Let us apply this approach to the Swedish case and concentrate on the revenue side of the budget: Figure 3 shows the difference between the changes in the tax ratio according to the national accounts in relation to what would have been expected *ex ante*, using the OECD tax and tax base elasticities estimated for Sweden (see Girouard and André, 2005). In these calculations, taxes on production and imports, social contributions, personal and corporate income tax have been included. The approach is the same as used in the 2005 round of European Commission assessments of Stability and Convergence programmes as regards the comparison between national and European Commission tax forecasts (see European Commission, 2006 and Appendix for a technical description of the method). However, while the European Commission used this approach to compare differences between different forecasts, we use it here to explain the differences between a forecast based on standard fiscal elasticities and the actual outcomes.

Figure 3

A Decomposition of the Tax Ratio: Outcome to Expectations
(percent of GDP)



The difference between the actual change in the tax ratio and what would have been expected given OECD elasticities of tax bases to GDP and tax revenues to the tax bases have been split up into an "elasticity component" and a "composition component". In principle, the "elasticity component" reflects for a specific year the difference between how taxes actually grew and how they would have been expected to grow according to the OECD tax elasticity to the tax base. In the same way the "composition component" reflects for a specific year the difference between how taxes actually grew and how they would have been expected to grow according to the OECD tax base elasticity to GDP. It is crucial to be aware that the "elasticity" component also includes the impact of one-off and other temporary measures. There is also an interaction component capturing the interaction between the elasticity and the composition component. Forecasts would generally be expected to closely follow *ex ante* expectations adjusted for specific knowledge on discretionary measures, especially forecasts extending beyond the following budget year.

Looking at the 1999-2004 period where outcomes are available, the differences between the outcomes and the *ex ante* forecast can be large, sometimes even huge. This applies in particular to 2000 (and 2001) when corporate tax receipts

were extraordinarily high (and thus fell substantially in 2001) due to a one-off payment relating to a privatised public corporation (called Alecta) while at the same time tax bases grew very slowly in comparison to expectations given GDP growth. For the other years the "difference components" are smaller but, in some cases, still between 0.5-1.0 per cent of GDP. Overall, this illustrates that annual tax elasticities and tax bases can diverge significantly from average expectations.

Summing up: In this section, we have seen that indicators can change substantially in the very short term. What *ex ante* may seem to be an expansionary fiscal policy can turn out *ex post* to be contractionary. We have shown that such changes are often linked not to changes in policies, but rather, to revisions in forecasts or outcomes of the underlying national accounts figures. Indeed, in the case of Sweden the short-term volatility in public finance figures appears to have been very high. It would appear that the magnitude of this uncertainty overshadows any reductions in uncertainty that can be achieved by developing more refined indicators. If the aim is to improve fiscal policy descriptions on the basis of fiscal indicators, it appears to be more important to concentrate on how to improve national accounts statistics and forecasting.

5. Lessons for budgetary surveillance and policy making

In this paper we have looked at the different indicators used to assess the Swedish fiscal policy performance. Most institutions involved (the Riksbank, the NIER, the MoF and the European Commission) have developed their own individual battery of indicators used for similar aims, for example, to measure the structural budget balance, the fiscal stance and the volume of discretionary measures. While the same applies to most countries, the question is what lessons can be drawn from the Swedish experience for budgetary surveillance and policy making in a horizontal setting.

We can see two major lessons with reference to the Swedish example. We have shown that different indicators can give substantially different results for individual years due to methodological differences. When assessing medium-term trends, such differences for individual years may not be problematic from a general perspective. However, in a context where these indicators are used to assess policy objectives, such as the fulfilment of the Swedish surplus target, and where the assessments lead to short-term policy conclusions, it is particularly important to be aware of the nature of the indicator used. Some features, such as how "unchanged policy" is defined, are particularly important if the indicator is to be used for budgetary surveillance, for example in a cross-country context where equal treatment is required. Different benchmarks used can lead to different conclusions about both the fulfilment of the medium-term objective and the fiscal stance. Let us think about two different EU member countries, *A* and *B*, identical in all aspects, except that benefits are indexed in country *A*, but not in country *B*. If the measure of fiscal stance is allowed to capture only active discretionary measures, the absence of such measures from one year to another will result in a zero fiscal stance in both

countries although the tax and expenditure system, due to non-indexation, will have a more contractive effect on aggregate demand in country *B*. A similar argument can be made as regards an assessment of the size of planned consolidation measures. This may, for example, be part of an assessment within the SGP regarding countries response to Council recommendations. While two countries may follow the same policies it is important to avoid a situation where a technical feature such as different practices in the use of indexing lead to different conclusions.

A second lesson relates to the implications of the overall volatility in public finance figures in the short term. Indeed, we have shown, with reference to the Swedish case, that the "surprise element" in budget forecasting is substantial, illustrating the uncertainties involved. In addition, the revisions of national account figures can also be large in the short term. The degree of uncertainty may be linked to that Sweden is a small export-oriented open economy with a large public sector. However, if this conclusion can be generalised to other countries, it appears that the magnitude of this uncertainty overshadows any improvements in precision that can be achieved by making more refined methodological changes to budget indicators.

APPENDIX

In Section 4, tax outcomes are compared with what would have been expected in a forecast based on the standard *ex ante* elasticities, as estimated by the OECD (see Girourd and André, 2005 and European Commission, 2006). The analysis is carried out on the basis of information for the four major tax categories, *i.e.* indirect taxes, corporate and personal income taxes and social contributions. Conceptually, the analysis draws on the definition of semi-elasticity, which measures the change in a ratio *vis-à-vis* the relative change in the denominator. The semi-elasticity of the tax-to-GDP ratio of the *i*-th tax $\frac{T_i}{Y}$ can be written as:

$$\eta_i = \frac{d\left(\frac{T_i}{Y}\right)}{dY} Y = \left(\frac{dT_i}{dY_i}\frac{Y}{T_i} - 1\right)\frac{T_i}{Y} = \left(\frac{dT_i}{dB_i}\frac{B_i}{T_i}\frac{dB_i}{dY}\frac{Y}{B_i} - 1\right)\frac{T_i}{Y} = (\varepsilon_{T_i,B_i}\varepsilon_{B_i,Y} - 1)\frac{T_i}{Y}$$

where ε_{T_i,B_i} and $\varepsilon_{B_i,Y}$ respectively denote the elasticity of the *i*-th tax T_i relative to its tax base B_i and the elasticity of the tax base B_i relative to aggregate GDP (*Y)*. To the extent that ε_{T_i,B_i} is derived from observed or projected data, it will typically reflect:

(i) the effect of discretionary measures (including one-offs) and

(ii) the tax elasticity.[21]

By contrast, if ε_{T_i,B_i} is the standard *ex ante* elasticity, as estimated by the OECD, it will be net of discretionary measures. The second elasticity $\varepsilon_{B_i,Y}$ can be used as an indicator of the tax intensity of GDP growth; for instance, a higher elasticity of consumption relative to GDP means that for the same GDP growth indirect taxes will be higher.

The definition of a semi-elasticity has two practical implications. First, any change in the tax-to-GDP ratio of the *i*-th tax can be written as the product of the semi-elasticity and GDP growth:

$$d\left(\frac{T_i}{Y}\right) = \eta_i \cdot \frac{dY}{Y}$$

and the change in the total tax-to-GDP ratio is the sum:

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[21] The observed or projected elasticity (*ex post* elasticity) of the *i*-th tax also includes the effect of other factors (OF) such as discretionary measures:

$$\frac{\Delta T_i}{T_i} = \varepsilon_{T_i,B_i ex\,ante}\frac{dB_i}{B_i} + \frac{OF_i}{T_i} = \varepsilon_{T_i,B_i\,ex\,post}\frac{dB_i}{B_i}$$

$$\sum_i d\left(\frac{T_i}{Y}\right) = \sum_I \eta_i \frac{dY}{Y}.$$

Second, differences between two tax projections can be decomposed into an elasticity component and a composition component:

$$d\left(\frac{T_i}{Y}\right)' - d\left(\frac{T_i}{Y}\right) = \left[\left(\varepsilon'_{T_i,B_i}\varepsilon'_{B_i,Y} - 1\right)\frac{T_i}{Y} - \left(\varepsilon_{T_i,B_i}\varepsilon_{B_i,Y} - 1\right)\frac{T_i}{Y}\right]\frac{dY}{Y}$$

If

$$(\varepsilon'_{T_i,B_i} - \varepsilon_{T_i,B_i}) = \alpha_i; \quad (\varepsilon'_{B_i,Y} - \varepsilon_{B_i,Y}) = \beta_i$$

then

$$d\left(\frac{T_i}{Y}\right)' - d\left(\frac{T_i}{Y}\right) = \left[\left(\alpha_i\varepsilon_{B_i,Y} + \beta_i\varepsilon_{T_i,B_i} + \alpha_i\beta_i\right)\frac{T_i}{Y}\right]\frac{dY}{Y}$$

where $\alpha_i\varepsilon_{B_i,Y}\frac{T_i}{Y}\frac{dY}{Y}$ determines the elasticity component and $\beta_i\varepsilon_{T_i,B_i}\frac{T_i}{Y}\frac{dY}{Y}$ the composition component. The third component in the equation $\alpha_i\beta_i\frac{T_i}{Y}\frac{dY}{Y}$ measures the interaction of the elasticity and the composition components. It is generally small but can become significant in some cases. The tax elasticity relative to GDP of total taxes is obtained as $\varepsilon = \sum_i w_i\varepsilon_{T_iB_i}\varepsilon_{B_iY}$ with w_i the share of the *i*-th tax in the overall tax burden.

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