

THE NBB'S WORK ON STRUCTURAL OR CYCLICALLY-ADJUSTED FISCAL INDICATORS

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The purpose of this paper is to offer a brief overview of the NBB's research activities with respect to so-called structural or cyclically-adjusted fiscal indicators. The latter has been a long-time research interest of the NBB. In making any form of fiscal assessment, it is essential to have an unbiased measure of the real policy stance. It is therefore necessary to identify all elements which are not directly related to fiscal policy per se but which do affect the public accounts and, preferably, quantify their impact.

This paper is organized as follows. The first section contains some general remarks concerning cyclical adjustment. The second discusses the method which was traditionally used in the NBB. The third describes some preliminary work concerning new methods which are currently being developed. The fourth presents some empirical results of both the traditional and the new methods. The fifth and final section concludes the paper.

1. General remarks

Fiscal outcomes are not exclusively determined by the policy stance but are also influenced by other elements. Predominant among those is the macro environment, since government revenue, and, to a lesser extent, primary expenditure is directly linked to macro-economic variables. For this reason, these fiscal outcomes often do not accurately reflect the fiscal policy stance.

¹ The views expressed are those of the author. They do not necessarily reflect official positions of the NBB.

In the past, research has mainly focused on identifying the so-called cyclical component in the fiscal balance which is defined as the incidence of deviations from potential GDP. In that way a cyclically-adjusted fiscal balance can be derived, which gives a better idea of the fiscal stance. However, it is clearly desirable to go much further since GDP growth is only one channel through which the macro environment influences public finances. In the next section, for instance, it will be argued that changes in the GDP composition and differential price evolutions also affect fiscal variables and that these effects should, ideally, just as well be isolated from the fiscal indicators. In general, it seems appropriate to broaden the GDP-centered approach so as to identify as many non-policy elements as possible, in order to come up with the best proxy for the concept of fiscal stance².

In principle, any fiscal variable could be cyclically adjusted. It is clear, however, that only by taking the overall or the primary balance as the point of departure, one can obtain a sufficiently broad view of the fiscal stance. Although most research concentrates on the overall balance, it could be argued that the analysis should not deal with interest charges because they only depend on the public debt (which reflects the past rather than the current fiscal stance) and on the implicit interest rate on this public debt (which is - apart from the incidence of debt management - beyond the scope of fiscal policy). Therefore, the primary balance seems to be better suited for cyclical adjustment.

2. Traditional method

Over the past few years, a cyclical-adjustment method has been developed by the National Bank of Belgium, the results of which have been published most recently in the Bank's 1997 Annual Report³. The

² In that sense, the term 'cyclically-adjusted' budget indicators appears to be ill-chosen since the main aim ought to be to go further than simply adjusting for the purely cyclical incidence. The alternative - 'structural' budget indicators - is confusing because this suggests that one-off measures are not taken into account, which is not (necessarily) the case. For convenience's sake, however, both concepts will be used throughout the paper.

³ National Bank of Belgium, Report 1997, chapter 4 (Public Finances), pp. 57-59.

general idea is to find a fiscal indicator that gives the best view on the fiscal policy stance. This traditional method has the following characteristics:

- it focuses on the primary instead of the overall balance;
- it tries to explain changes rather than levels;
- it provides a comprehensive analysis, instead of only separating out the purely cyclical component.

More specifically, the method tries to break down the observed change in the primary balance into:

- a purely cyclical change (due to non-average GDP growth);
- composition effects (related to modifications in the structure of incomes and expenditure);
- the incidence of relative prices (stemming from different evolutions of the GDP deflator and the consumer price index);
- the residual change in the primary balance deemed *structural*.

Interest charges are left out of the analysis, the above effects (business cycle, GDP composition, relative prices) being considered less relevant for them. Instead, the emphasis is placed on the interest rate sensitivity of interest charges. Moreover, the whole analysis is done in terms of changes rather than levels because, intuitively, the benchmark case - i.e. the macroeconomic environment which is thought to be 'normal' - is easier to determine in changes rather than in levels. The remainder of this section deals with the technicalities of the traditional method.

2.1 *The purely cyclical component*

The first non-policy element in the evolution of the primary balance is the change due simply to the business cycle. The estimation of this cyclical component hinges crucially on assumptions concerning the elasticity of government revenue and the trend growth of real GDP, g^* , and unemployment, ΔU^* .

Government revenue is assumed to have unit elasticity. This hypothesis derives from a partially judgmental approach based on an analysis of the most important categories of public revenue: household taxation (above unit elasticity due to progressivity of personal income tax), company taxation (close to unit elasticity in view of the proportional tax system for corporations), social security contributions

(close to unit elasticity the rates being flat) and indirect taxes (lower than unit elasticity due to excise duties being levied upon real measures of consumption). All in all, unit elasticity for total revenue seemed to be a fair assumption.

Due to the simplifying assumption with respect to revenue elasticity, the cyclical component reduces to the effect of the business cycle on primary expenditure as a part of GDP. The latter is twofold. First, primary expenditure can depend explicitly on economic growth. It is assumed that, of all expenditure categories, only unemployment expenditure is endogenous to the business cycle and that all deviations from the trend growth of unemployment are cyclical. Secondly, the cyclical stance also has a denominator effect on the primary expenditure ratio. Without any policy discretion, primary expenditure is thought to exhibit more or less the same real growth as trend GDP. Therefore, non-trend GDP growth affects the ratio of primary expenditure to GDP.

Trend growth of real GDP and real unemployment are determined as simple period averages. The cyclical component of the change in the primary surplus, C , then amounts to:

$$C_t = \frac{PE_t - AUB_t (\Delta U_t - \Delta U^*)}{GDP_{t-1} (1 + g^*) (1 + g_{defl})} - \frac{PE_t}{GDP_t}$$

where: PE = primary expenditure

AUB = average unemployment benefit

U = number of unemployed

GDP = gross domestic product

g_{defl} = growth of GDP deflator

2.2 *Composition effects*

Implicit tax rates weighing upon different income or expenditure categories tend to differ greatly. Company profits and income from property generally enjoy a milder tax regime than earned income (wages and salaries and income from one-man businesses). Indirect taxes such as

VAT and excise duties are levied on consumption whereas exports and company investment are generally exempt from taxes.

It is therefore obvious that not only economic growth, but also the composition of this growth, has an important effect on the primary balance. A 1 p.c. increase in GDP will have a less favourable impact on public finances to the extent that the contribution to growth coming from exports and company profits or income from property is higher. Any method that aims to isolate non-policy elements from the actual fiscal stance ought to quantify these composition effects.

2.2.1 *Composition of expenditure*

The benchmark of a neutral expenditure composition of economic growth is defined as a scenario where the sum of private consumption and expenditure on housing⁴ - which is more or less the tax base for indirect taxes - exhibits the same growth as total private expenditure (i.e. GDP minus public consumption and investment). Thus, the incidence of shifts in the composition of expenditure, CE, amounts to:

$$CE_t = \frac{IT_t - IT_t \frac{1 + g_{PE}}{1 + g_{CH}}}{GDP_t}$$

where: IT = indirect taxes

g_{PE} = growth rate of private expenditure (GDP - government consumption and investment)

g_{CH} = growth rate of private consumption and expenditure on housing

2.2.2 *Composition of income*

In a similar way, the benchmark income composition of economic growth is defined as a scenario where earned income grows at the same

⁴ Excluding non-taxable expenditure i.e. mainly health care and rents.

pace as the sum of income from property and primary income of companies. The incidence of shifts in the composition of income, CY , therefore amounts to:

$$CY_t = \frac{DT_t - DTL_t \frac{1 + g_{PY}}{1 + g_{EY}} - ODT_t \frac{1 + g_{PY}}{1 + g_{CYPY}}}{GDP_t}$$

- where: DT = total direct taxes
 DTL = direct taxes chiefly weighing on labor (including social security contributions)
 g_{PY} = growth rate of private-sector primary income (households and companies)
 g_{EY} = growth rate of earned income
 ODT = other direct taxes (= DT - DTL)
 g_{CYPY} = growth rate of the sum of primary company income and property income

2.3 Incidence of relative prices

The ratio of primary expenditure with respect to GDP can also be influenced by price effects, to the extent that prices of government expenditure (which co-determine the numerator) differ from the average price of total production (which co-determines the denominator). The latter is of course represented by the GDP deflator. However, we feel that the price effects in government primary expenditure are better captured by the index of consumer prices.

In the Belgian setting this is quite obvious. Firstly, a large part of government expenditure, compensation of employees and the majority of transfers to households (the major exception being health care) are explicitly indexed to the evolution of consumer prices⁵. Secondly,

⁵ In 1995 the so-called "health index" was substituted for the general index of consumer prices in the indexation mechanism. The health index does not take (continues)

consumer inflation plays an important role in the composition of the budget. For many budgetary items, a specific real growth is targeted, to which inflation is simply added, the latter being identified as the increase of consumer prices rather than the GDP deflator. In addition, budgetary norms are usually defined in real terms, being interpreted as nominal growth minus consumer inflation. Examples include the zero real growth norm of federal primary expenditure which limits the nominal growth to the rise in the index of consumer prices and the norm for health care which targets the nominal increase in health care spending at 1.5 p.c. real growth plus consumer inflation.

A more general case could be made for price effects on government expenditure to be represented by the index of consumer prices rather than by the GDP deflator. Government expenditure usually has a tighter link to the former than to the latter. Even if there is no explicit indexation of government wages and replacement incomes, for instance, consumer inflation will generally be taken into account in deciding upon these expenditure categories.

Once it has been established that primary expenditure and GDP have different price components, consumer inflation and the GDP deflator respectively, it is then clear that mere price effects can change the primary expenditure ratio (particularly in the event of terms-of-trade shocks). These can be quantified as:

$$RP_t = \frac{PE_t \frac{1 + g_{defl}}{1 + g_{ICP}} - PE_t}{GDP_t}$$

where: g_{ICP} = growth of index of consumer prices

account of the prices of products which are considered to be harmful to health (namely tobacco, alcoholic beverages, petrol and diesel). The rationale behind this modification was fiscal consolidation. Increases in indirect taxes on products left out of the health index would therefore not feed back into higher government expenditure.

2.4 Corrected change in the primary balance

The above effects are not directly related to fiscal policy (even if indirect links may exist). Correcting the evolution of the primary balance for these effects offers a better view of the fiscal policy stance:

$$\Delta PB_t^c = \Delta PB_t - C_t - CE_t - CY_t - RP_t$$

where: $PB_t^{(c)}$ = (corrected) primary balance as a percentage of GDP

3. New methods: progress report

In our view, one of the main assets of the traditional method is its comprehensiveness. While international institutions (EC, OECD, IMF) limit attention to the purely cyclical effect, this method also considers GDP composition and price effects which can have a non-negligible impact on fiscal indicators. An important drawback, however, is the inability to produce *levels* of adjusted fiscal indicators. Therefore, the main objective of new research on cyclical adjustment seems to be to apply an equally comprehensive approach on levels of fiscal variables. As was pointed out in the previous section, this implies an additional hypothesis: the benchmark case reflecting the normal environment needs to be defined in levels rather than simply in changes.

The standard procedure is quite simple. As far as determining potential output (the benchmark GDP) is concerned, the production function approach - where based on the normal usage of available factors of production a production function can be estimated and potential output determined - is theoretically superior⁶. However, due to obvious data problems, one frequently resorts to alternatives using some kind of trend.

⁶ An awkward point, however, is the definition of 'normal use', which requires some arbitrary judgment, e.g. what level of unemployment is 'normal'? As a matter of fact, although the production function approach is conceptually rather different from the alternative trend methods, it frequently uses trends to determine the 'normal use' of factors of production.

One of the most widely used is the so-called Hodrick-Prescott filter that fits a non-linear trend to real GDP. Notwithstanding the well-known end-point problem⁷ this approach is used for cyclical adjustment by the EC, the OECD and the IMF. Cyclical sensitivity of government revenue and expenditure - or, preferably, subdivisions of revenue and expenditure - is estimated on the basis of past observations. The combination of non-trend GDP and budget sensitivity then allows the cyclical component in the fiscal indicator to be identified.

This procedure was applied to Belgian time series. An HP-trend was fitted to real GDP for the 1970-2000 period using OECD forecasts⁸ for 2001-2003. In line with the EC, four revenue categories were considered - direct taxes paid by households, direct taxes paid by companies, indirect taxes and social security contributions - and cyclical sensitivity of public expenditure was postulated to be limited to the unemployment insurance scheme. Revenue elasticities were estimated by simple regressions of the revenue categories on nominal GDP, both variables being expressed in log differences. The elasticity of unemployment benefits was determined by the usual two-step method, estimating both the Okun coefficient⁹ and the sensitivity of unemployment benefits (as a percentage of GDP) to the unemployment rate. Even if the individual revenue and unemployment elasticities are rather different from the EC estimates, the results are broadly in line with the Commission's most recent assessment of the cyclically-adjusted deficit (see section IV).

The main drawback of the above procedure is that it does not fully capture GDP composition and price effects. Composition effects are only included to the extent that they are cyclical, i.e. that they correlate with the business cycle. Price effects are only implicitly considered for unemployment benefits.

⁷ Due to the method's forward-looking nature, the results, especially towards the end of the period, are dependent upon out-of-sample values. Therefore, HP-values for the most recent years need to be determined using forecasts. Evidently the quality of the results depends upon the quality of the forecasts.

⁸ OECD Medium-Term Baseline (Step 64, October 1998).

⁹ This coefficient is estimated by a simple regression of the output gap on the deviation from the natural unemployment rate. The latter is determined by a Hodrick-Prescott trend fitted to the unemployment rate.

An alternative method was therefore considered. HP-trends were fitted to components of GDP rather than to GDP itself: primary household income, primary company income, earned income and private consumption (including expenditure on housing). In a similar way, elasticities of government revenue categories were estimated with respect to these GDP components - which can to a certain extent be interpreted as the respective tax bases¹⁰ - rather than with respect to GDP itself. The change in government revenue due to deviations from trends in GDP components - which not only reflect deviations from trend GDP but also non-trend shifts in GDP composition - can then be quantified. As far as the expenditure side is concerned, the procedure is exactly the same as for the standard method.

The alternative method has the advantage of taking into account composition effects, however they are lumped together with the cyclical incidence¹¹. More importantly, price effects are still left out of the picture. Finally, it is important to point out that the composition effects which are considered here are of a completely different nature than those identified by the traditional NBB method. In this case, each GDP component is considered independently and the composition (and, at the same time, the cyclical) effects are determined solely on the basis of its own trend evolution. This implies that if there is a trend shift from, say, household to company income - which will of course have an incidence on public finances - then this will not be isolated from the structural balance since only deviations from trend are registered as composition effects.

¹⁰ This interpretation is rather awkward for gross primary income of companies which are far removed from the tax base of the corporation tax, since this concept includes write-downs and only concerns retained income (dividends being part of household income). It is possible to use a concept of company benefits which is closer to the tax base, but any meaningful concept should only make use of positive benefits, which is not possible on the basis of national accounts data (where benefits and losses are lumped together). Estimates using a measure of net benefits were not satisfactory.

¹¹ An indirect measure of the incidence of the composition effects can of course always be obtained by comparing the standard method (which only covers the cyclical incidence) with the alternative one (that takes account of both the cyclical incidence and the composition effects).

4. Empirical results¹²

{For the sake of simplicity, the method traditionally used by the NBB shall be referred to as NBB 1, the standard levels method as NBB-2, and the alternative levels method as NBB-3. }

4.1 NBB-1

Table 1 If one considers the fiscal policy stance since 1987, it is tempting to distinguish three subperiods. The first one covers the period from 1987 to 1992 and saw a slight improvement in the primary surplus of 0.9 p.c. of GDP, the marked improvement during the first three years being partially offset by a clear loss of fiscal discipline in 1991. However, if one excludes the cyclical incidence, composition and price effects, the picture becomes somewhat less flattering. GDP growth, well above the trend at the end of the eighties, boosted the primary surplus by more than 2 p.c. of GDP. Furthermore, the improvement in the terms of trade in 1988, 1989 and 1992 accounted for an additional improvement of 1.4 p.c. of GDP. Composition effects, on the other hand, were negative but were significantly outweighed by the cyclical and the relative prices effect. All in all, the primary surplus, corrected to exclude the above effects, did not improve but actually fell by almost 2 p.c. of GDP over the period, i.e. the fiscal stance loosened.

Between 1992 and 1997 the primary surplus increased by another 2.3 p.c. of GDP and soared to 6 p.c. of GDP. As a result of the sharp recession in 1993 the business cycle situation weighed upon public finances. The negative incidence on the primary balance over the whole period amounts to 0.7 p.c. of GDP, due to subsequent above-trend GDP growth softening the blow of the recession which in itself accounted for a deterioration of 1.6 p.c. of GDP. In addition, shifts in GDP composition remained unfavorable. The incidence of relative prices was slightly positive over this period. All in all, the

¹² All calculations take as their point of departure the NBB's latest consistent forecast exercise which is, apart from some minor November modifications, the one used in the ECB's Autumn 1998 Broad Forecast.

corrected primary balance improved by 3.6 p.c. of GDP, which is much more than the increase of the actual one.

Finally, the estimate for the current year and forecasts up to the year 2000 suggest that the drive for enhanced fiscal consolidation is petering out after the unprecedented consolidation efforts which were undertaken in the past: the 6 p.c. of GDP target has been reached and consolidation will stay at this level. However, if one looks at the corrected change of the primary balance, there are some embryonic signs of fiscal fatigue setting in. The growth dividend, almost one percentage point over the period, and the positive incidence of relative prices, outweigh negative composition effects and yet the primary surplus does not increase. The fiscal stance is therefore weakening somewhat, with the corrected change in the primary balance amounting to a drop of 0.4 p.c. of GDP.

4.2 *NBB-2*

Chart 1 Estimates of the potential output show that the current period can be deemed cyclically neutral. The 1993 recession put an end to the favorable business cycle at the end of the eighties and the beginning of the nineties and swung the output gap back into solid negative territory. The 1996 dip worsened the output gap but strong economic growth in 1997 and 1998 brought GDP back to its potential level.

Table 2 Overall revenue elasticity with respect to GDP was estimated at 1.09, slightly higher than the assumed unit elasticity in NBB-1. Looking at the different categories, direct taxes have the highest elasticities. Direct taxes paid by households exhibit an elasticity of 1.33, those paid by companies, 1.14. Indirect taxes were estimated to be relatively inelastic with an estimate of 0.9.

Lastly, the elasticity of social security contributions, has been estimated at 1.14. Revenue not covered by these categories, some 1.2 p.c. of total revenue, was assumed to exhibit unit elasticity.

As far as household taxes are concerned, the high elasticity comes as no surprise in view of the progressivity of the personal income tax system. The figure for companies is

somewhat more surprising: corporation tax is generally proportional but the above-unit elasticity could be accounted for by the tax base, company profits, being fairly elastic with respect to GDP. In addition, the tax system for corporations is quite messy, with a wide range of tax abatements (e.g. for previous losses) such that an a priori assessment of the relationship between company taxes and GDP is rather risky. With respect to indirect taxes, an a priori judgment is equally difficult since two contradictory effects might weigh upon the estimation. Firstly, excise duties are determined by real consumption only and do not take account of price movements, which would point to below-unity elasticity of indirect taxes. Secondly, it is sometimes argued that wealth effects in the consumption pattern, with consumers shifting to luxury goods with higher VAT rates in the event of a favorable business cycle, could suggest elastic indirect taxes. According to our estimations, the former effect seems to dominate since elasticity of indirect taxes is lower than 1. As a matter of fact, the latter effect does not turn up in the time series at all as elasticity of VAT revenue, estimated separately, is even slightly lower than 1 (0.95). As could be expected, elasticity of excise duties separately is considerably lower and works out at 0.83.

The estimated elasticities for direct and indirect taxes seem hard to reject on the basis of any a priori assessments. The estimate for social security contributions, however, is more cumbersome. According to our estimations, social security contributions would be fairly elastic with respect to GDP. The high elasticity seems rather implausible: social security contributions are, if anything, proportional to earned income¹³. Earned income would have to be improbably elastic with respect to GDP for a 1.14 estimate of the elasticity of social security contributions with respect to GDP to become

¹³ In the past, social security contributions even exhibited some regressive characteristics.

acceptable¹⁴. Therefore, the elasticity of social security contributions was fixed at 1.

On the expenditure side, a one percentage point output gap is estimated to drive up unemployment benefits by 0.17 percentage point of GDP. This is the result of an Okun coefficient of 1.2 and a sensitivity of unemployment benefits (as a percentage of GDP) with respect to the unemployment rate of 0.2.

The cyclical component of the public account can be identified by combining the output gap with the budget elasticities. This cyclical component can then be deducted from both the primary and the overall balance. As was mentioned in section 2, we feel that the primary balance is the better option. Nevertheless, cyclical adjustment is traditionally done using overall balances. Therefore we report both types of results.

Table 3 - Chart 2 As far as the cyclically-adjusted primary balance is concerned, there is a substantial improvement during the better part of the eighties with an increase from a deficit of 5.1 p.c. of GDP in 1981 to a surplus of 4.3 p.c. of GDP in 1987. The end of the eighties and the beginning of the nineties saw a deterioration of the cyclically-adjusted balance followed by a renewed strengthening of the fiscal stance up to 1997, when the cyclically-adjusted primary balance peaked at 6.4 p.c. of GDP. Estimates for 1998 and forecasts up to 2000, however, again point to a slight decrease.

The cyclically-adjusted overall deficit decreases from 12.9 p.c. in 1981 to 1.2 p.c. in the year 2000. Again, a loss of fiscal discipline is discernible around the turn of the decade. The fiscal fatigue in the projections is however less manifest because the image is somewhat blurred by interest charges that

¹⁴ Surprisingly, earned income was estimated to be slightly elastic with respect to GDP (1.06), but not to the extent that it could account for the aforementioned estimate of the elasticity of social security contributions with respect to GDP, especially in view of the fact that the estimate for the elasticity of social security contributions with respect to earned income was lower than 1 (0.91).

are on a steady downward path. Therefore, the cyclically-adjusted deficit does not go up all that much even if the fiscal stance weakens.

4.3 *NBB-3*

Chart 3 Hodrick-Prescott trends fitted to GDP components reveal gaps that differ from NBB-2 output gaps, which suggests that composition effects matter.

Table 4 Elasticities with respect to the GDP components are estimated at 1.30 for direct taxes paid by households, 0.95 for direct taxes paid by companies, 0.9 for social security contributions and 0.86 for indirect taxes. Since none of these estimates is clearly ruled out by a priori assessment¹⁵, it was decided to use these elasticities.

Table 3 - Chart 2 As far as the structural primary balance is concerned, the conclusions that can be drawn are similar to those of NBB-2. There is an impressive improvement of the fiscal stance from 1981 to 1987 turning a deficit of 5.5 p.c. of GDP into a surplus of 4.5 p.c. of GDP. At the end of the eighties and the beginning of the nineties the primary balance dwindles somewhat which was followed by renewed fiscal consolidation pushing the primary balance up to 6.8 p.c. of GDP in 1997. Again, projections up to 2000 suggest a weakening fiscal stance. Taking into account the evolution of interest charges, the same pattern is visible in the structural deficit that plummets from 13.3 p.c. of GDP to 1 p.c. of GDP by the year 2000.

4.4 *Comparison of different methods*

Table 5 Estimates of the output gap by the EC are fairly close to ours, although the closing of the output gap is slightly slower, with

¹⁵ One possible exception is the elasticity of social security contributions with respect to earned income, for which one might consider fixing the estimate at 1, and the elasticity of direct taxes paid by households with respect to primary household income, for which the estimate seems rather low in view of micro-simulations generally producing figures hovering around 1.6.

actual GDP still lagging somewhat with respect to its potential level in 1998. OECD and IMF series, however, tend to differ more from our estimates.

Table 2 Elasticities for individual revenue items are fairly different from those used by the EC and the OECD. However, the differences are offsetting because overall revenue elasticity is exactly or nearly identical. The sensitivity of unemployment expenditure to the output gap, on the other hand, is a lot higher than the EC estimate, mainly owing to a higher sensitivity of unemployment expenditure to the unemployment rate (0.20 compared with only 0.14 for the EC). A possible explanation is that our estimations did not use official unemployment figures but also added figures for so-called elderly unemployed (which are left out of official statistics) and most forms of early retirement (which are close substitutes for official unemployment), in order to have an economically more meaningful unemployment concept.

Table 3 NBB-2 cyclically-adjusted deficits are fairly close to the EC estimates, which comes as no surprise in view of the similar output gap and the identical revenue elasticity. The only striking difference is the increase in the cyclically-adjusted deficit forecast by the EC, whereas we anticipate a further decline. Most probably, this is due to the EC being more pessimistic about actual fiscal outcomes in 1999, since the figures date back to the Spring of 1998 and therefore could not include the 1999 budget. Differences with respect to the IMF and OECD figures are far more important, with our estimates of the cyclically-adjusted deficit being generally higher. In the case of the OECD, this is mainly due to their assessment of the cyclical situation being far more pessimistic than ours: OECD output gaps are systematically lower than the ones we have estimated.

As far as the primary balance is concerned, to our knowledge only the OECD publishes any cyclically-adjusted figures. As could be expected on the basis of the aforementioned difference with respect to the deficit estimates, OECD estimates tend to be higher than those obtained using NBB-2. However, rather surprisingly, the difference between both approaches is generally smaller than and does not seem as stable as the

difference between the deficit estimates (with NBB-2 actually producing higher figures than the OECD for 1990 and 1996).

Chart 2 Comparing the results obtained from the different NBB-approaches is a more awkward issue in that they simply measure different things. NBB-2 only considers the cyclical component, NBB-3 also takes account of composition effects and NBB-1 goes even further and additionally quantifies price effects. Moreover, the definition of these effects differs from one method to another. Trend growth, for instance, is considered to be linear in NBB-1 whereas NBB-2 is based on a non-linear Hodrick-Prescott trend. Furthermore, as was pointed out in section III, the definition of composition effects differs between NBB-3 and NBB-1. Nevertheless, the broad tendencies described by the different approaches are fairly similar.

5. Conclusions

Structural or cyclically-adjusted fiscal indicators are an important issue. An accurate assessment of the fiscal stance is only possible if one isolates as many non-policy elements as possible from the fiscal indicators. If these non-policy elements are defined as deviations from the normal macro-economic environment, then it is obvious that the identification of cyclically-adjusted or structural indicators will always be somewhat arbitrary and depend upon the exact definition of the 'normal' environment.

Traditionally, attention is limited to the influence on the government account of deviations from normal economic growth. We feel, however, that the approach could and should be broadened in order to isolate other non-policy elements having an incidence on the fiscal balance such as changes in the composition of GDP and price effects. In the past a method was developed by the NBB which allowed these elements to be quantified and therefore the change in the fiscal policy stance to be estimated. However, this traditional method clearly suffers from a few shortcomings, such as the use of assumed rather than estimated fiscal elasticities, and the inability to produce an actual structural balance (the whole analysis focusing on *changes* of the primary balance).

There is therefore a clear need for continued research on this topic. Some embryonic results of more recent work are reported in this paper. As a first step, we applied the standard model of estimating an output gap (by using a simple Hodrick-Prescott filter on real GDP) and fiscal elasticities. The results obtained by this standard method are fairly close to EC estimates even if considerable differences were observed for individual fiscal elasticities.

However, the standard model neglects GDP composition and price effects. An alternative model running Hodrick-Prescott trends on GDP components and estimating revenue elasticities with respect to these components rather than with respect to GDP was also considered. This method takes into account shifts in the GDP composition but only to the extent that they are deviations from trend. The incidence of trend shifts between revenue categories on public finances is not isolated from the structural balance. In addition, price effects continue to be neglected. We consider these to be two important drawbacks necessitating further research on the issue.

As far as the empirical part of the paper is concerned, the different methods produce a variety of 'structural' balances. However, the main trend is quite clear. Unprecedented fiscal consolidation took place during the better part of the eighties witnessed by a structural primary deficit turning into a surplus of almost equal magnitude. Then the fiscal stance weakened somewhat from 1988 to 1992 only to be followed by renewed fiscal vigour pushing the structural primary balance up to record levels. Estimates for the current year and the outlook for the 1999-2000 period, however, show some signs of fiscal fatigue because advantage is not being taken of the relatively favorable macro environment to increase the primary balance even further.

Finally, a word of caution seems appropriate. The structural or cyclically-adjusted fiscal balance has been receiving much attention recently. The Stability and Growth Pact, for instance, is being widely interpreted as referring to the structural fiscal stance over the business cycle. However, as is already obvious from this paper, *the* structural balance does not exist. Depending on the methodology, one can determine a wide range of structural fiscal balances which all have their specific characteristics. Therefore, it seems very much premature to give this concept any other status than the one of a high-priority research topic.

Chart 1

Potential GDP, as Estimated by the NBB

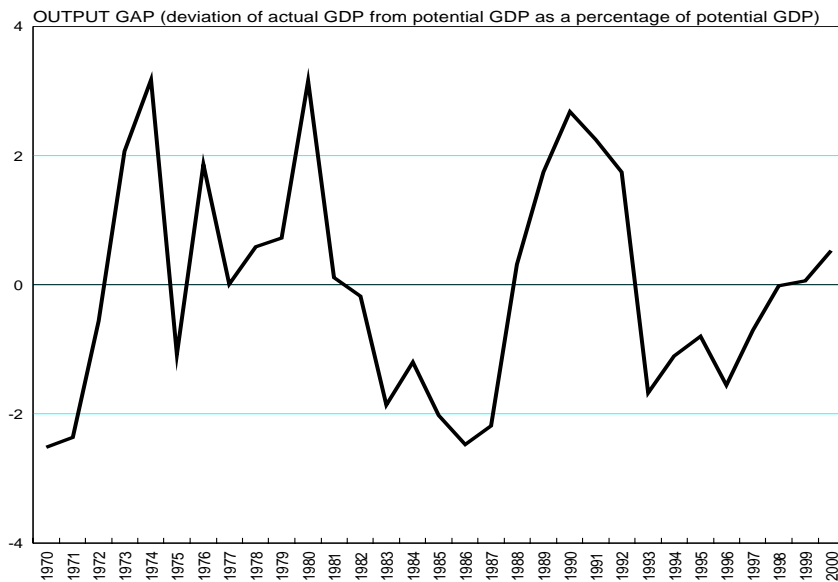
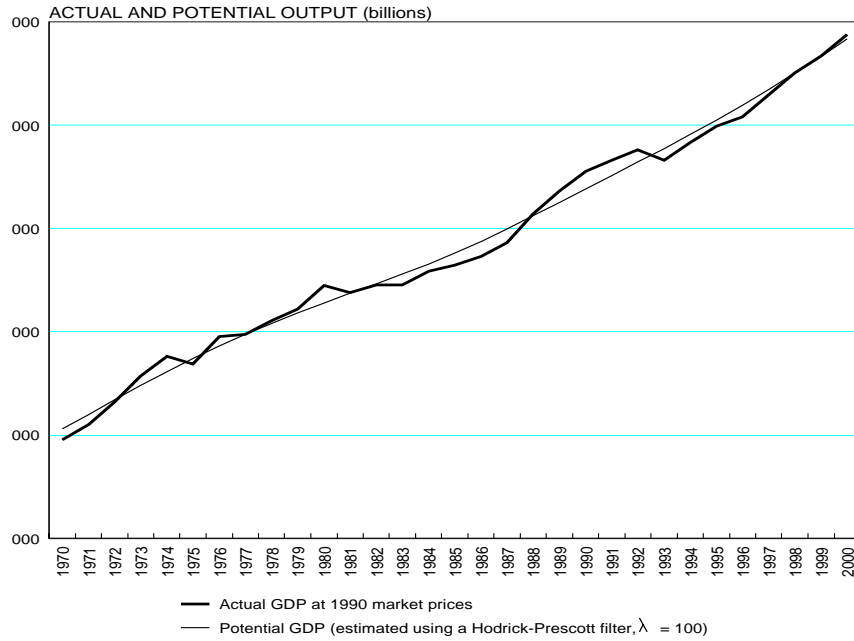


Chart 2a

**Actual and Structural Primary and Overall Balances as
Estimated by the NBB**
(percentages of GDP)

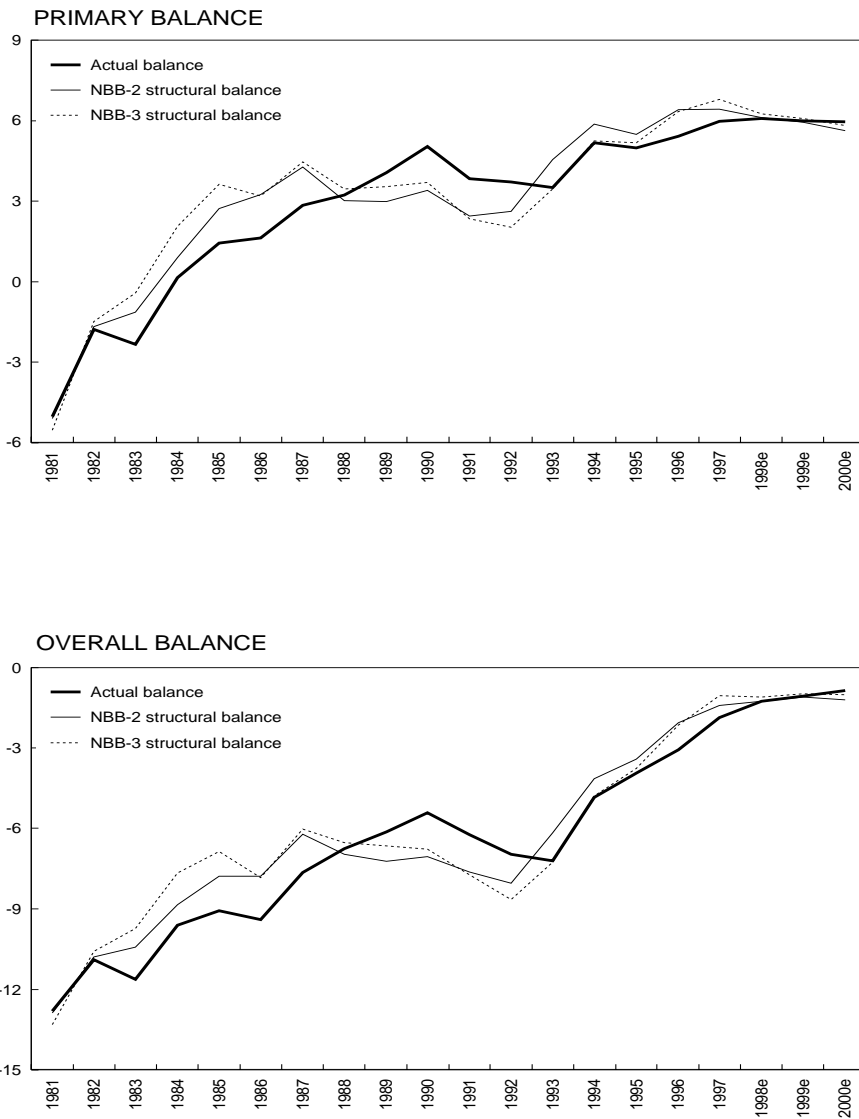


Chart 2b

**Actual and Structural Primary and Overall Balances as
Estimated by the NBB**
(changes with respect to the previous year)
(percentages of GDP)

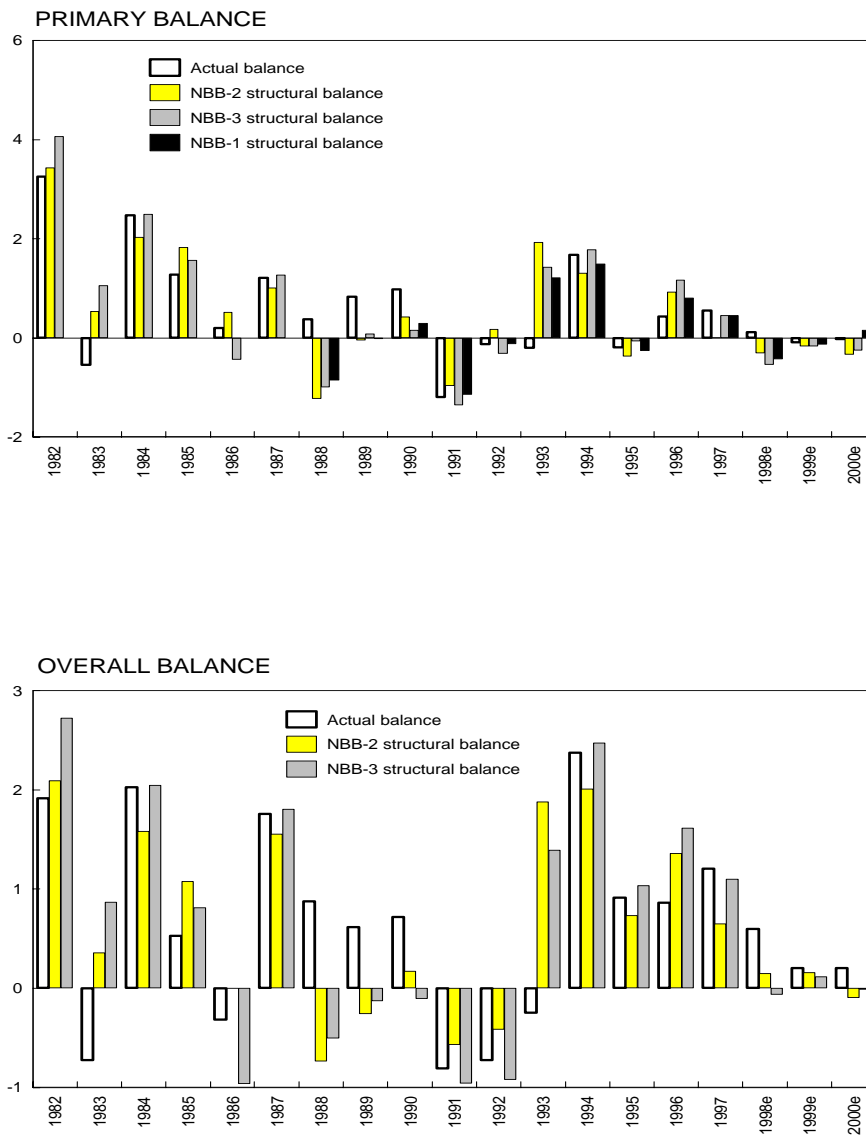


Chart 3

Hodrick-Prescott Trends Fitted to GDP Components
(deviation from trend value as a percentage of trend value)

