

# SA's structural budget balance – some fiscal restraint

March 2017

*Jean-François Mercier*

## Abstract

Cyclically-adjusted, or structural budget balances are frequently-used tools to calibrate a country's fiscal stance; however, there have been few estimates for South Africa so far. This note tries to decompose the SA budget deficit between a cyclical and a structural component, and finds that most of the changes in the budget balance over the past 25 years or so have been of a structural nature. Following a marked deterioration in the structural balance during and in the immediate aftermath of the 2008-09 recession, fiscal policy appears to have been tightened at a pace of about 0.4% of GDP per year since 2012/13, a stance which looks roughly set to continue in the next two years. However, this restraint falls short of the tightening implemented in the late 1990s, and mostly relies on tax hikes, whereas expenditure remains close to record highs relative to both actual and potential GDP.

## Introduction

The structural, or cyclically-adjusted budget balance, is a widely used concept among economists and policymakers as it helps to: (1) better measure the degree of fiscal restraint or loosening in the economy (the “fiscal stance”); (1) make a better assessment of the medium-term sustainability of specific fiscal policies. In turn, knowledge of the fiscal stance improves economic forecasting and facilitates monetary policy-making, under the (rough) assumption that a restrictive fiscal stance allows for a looser monetary stance (and vice versa) in order to achieve a specific inflation goal.

While estimates of structural budget balances have existed for many years in advanced economies (calculated, among others, by the OECD), such estimates – a fortiori reliable ones – are harder to come by in emerging countries. To some extent, this reflects the greater difficulty in measuring potential growth, and therefore the output gap, in economies which experience more frequent and sizable structural shifts. South Africa fits into that category: As of now, the IMF Fiscal Monitor is the only publication with an estimate of the structural budget balance.<sup>1</sup> In this note, the level and drivers of the SA's structural budget balance is investigated. Findings suggest that the bulk of changes in the actual budget balance, including the marked deterioration in the wake of the Global Financial Crisis, were structural. They also confirm that some gradual fiscal policy tightening is taking place at present, though mostly through tax hikes rather than expenditure restraint.

## Methodology – augmenting the traditional OECD approach

This note's calculations are based on the OECD's traditional approach, as explained in Giorno et al. (1995), which links potential tax revenues and government expenditure to a ratio of potential to actual output, adjusted for the elasticity of that specific revenue (or expenditure) to GDP. In the South African case, however, we assume that both non-tax revenues and government expenditure do not have a meaningful cyclical component (the latter is in contrast to OECD countries, where cyclically-influenced unemployment benefits generally represent a more important component of public spending).<sup>2</sup> Hence,

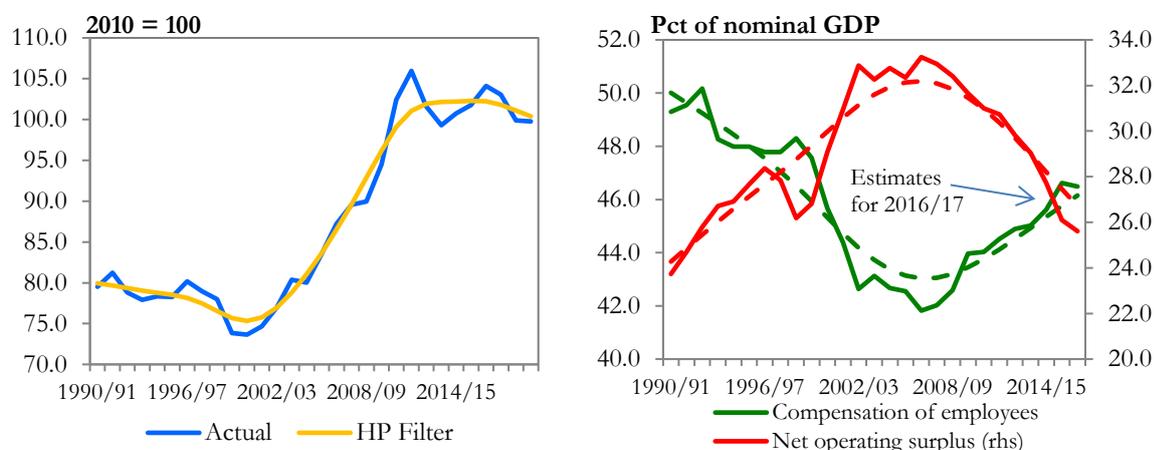
---

<sup>1</sup> At some stage, National Treasury published a chart of the structural budget balance in its annual Budget Review; however, that exercise was later discontinued.

<sup>2</sup> In South Africa, the main budget does not incorporate unemployment benefits. Social security payments (including jobless benefits) are part of the consolidated government budget; however, adjusting these payments for the real income gap only has a marginal impact on the estimated structural budget balance.

our approach focuses on extracting the cyclical component from the different tax revenues (see Annexure for details).

**Figures 1 and 2: SA terms of trade (left) and proxy tax bases for personal and corporate income taxes (right) versus HP filter trends**



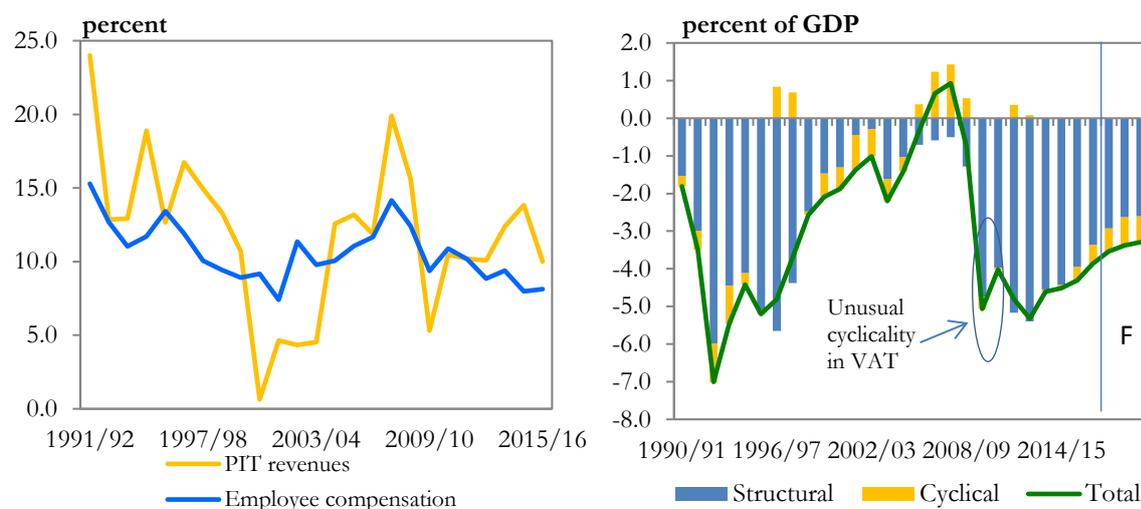
However, because of some specific characteristics of the South African economy, we feel that a simple approach as described above fails to accurately reflect all the cyclical fluctuations that have affected the economy over the past two decades. In particular, we feel that:

- A real income gap (the output gap adjusted for a terms-of-trade gap) is a better measure of the influence of the business cycle on the budget balance than a simple output gap measure. This follows the recommendations of Turner (2006) for commodity-exporting countries.<sup>3</sup> Indeed, South Africa has experienced large terms-of-trade fluctuations over time (see Figure 1);
- The structural balance should be adjusted for a composition effect; that reflects the shifts in the different tax bases over the years relative to trend, following the approach of Braconier and Forsfält (2004) in the case of Sweden. Historical experience suggests such tax bases have indeed not been stable over time (see Figure 2).

In both cases, however, we only consider as cyclical the deviation of the terms of trade (and of the different tax bases) from their trends, proxied here by standard Hodrick-Prescott (HP) filter values. This approach assumes that cycles are short-term in nature, which may be a sound enough assumption for the business cycle but less valid if one discusses, for instance, the financial or commodity cycle. For example, as Figure 1 shows, the use of the HP filter implies that the trend rise in the SA terms of trade from 2002 onwards is mostly structural, and hence affects the structural budget balance. Detractors may argue this was instead a commodity “super-cycle” that will eventually reverse. Yet equally, especially in light of the key role of Chinese growth in reshaping commodity markets in past decades, one can also claim that SA terms of trade have experienced a structural upward shift in the last fifteen years.

<sup>3</sup> Admittedly, because commodity prices influence real South African GDP, the output gap already incorporates some of the effects of the commodity cycle. However, they probably do not capture all of the effects, in particular the contribution to nominal profit variations. An alternative approach is to augment the real output gap with deviations from trend of the GDP deflator; however, it yields roughly similar results to using a real income gap.

**Figures 3 and 4: Annual growth in PIT receipts and compensation of employees (left) and split of national government budget balance (right)**



Another difficulty relates to tax elasticities. The initial approach of Giorno et al. (1995) recommended using long-term elasticities of tax revenues to GDP. However, in the South African case, these long-term elasticities do not differ significantly from 1.0,<sup>4</sup> yet shorter-term elasticities (also referred to as tax buoyancy) can significantly vary (see Figure 3). Ignoring these shorter-term variations could result in mistaking an amplifying effect of the cycle on some tax revenues as a structural one – like, for instance, when corporate income tax (CIT) receipts were unusually strong in the pre-crisis years. To account for these shifts, we use a rolling short-term elasticity in our calculation of potential tax revenues, as explained in the Annexure. In the pre-crisis years in particular, it has some impact on our structural balance calculations.

### The results – four distinct phases in SA fiscal policy

Our calculations – based on the national budget balance, for which data are available over a long period – suggest that while the cyclical component of the deficit has been at times non-negligible, in particular in periods of wide output gaps or terms-of-trade gaps, the majority of medium-term shifts in the fiscal balance are of a structural nature (see Figure 4). Specifically, we see four different phases in South Africa’s fiscal stance since the mid-1990s:

- A significant fiscal tightening (equivalent to 5½% of GDP over six years) from 1996/97 onwards, which followed the government’s implementation of the GEAR (Growth, Employment and Redistribution) strategy. Expenditure restraint and improvement in the tax collection were key to that achievement;
- A period – lasting up to the eve of the Global Financial Crisis – of relative stability in the structural budget balance, while the emergence of a positive output gap was enough to shift the actual budget into surplus;
- A sharp deterioration in the structural balance in 2009/10 – at the worst of the recession – as public expenditure surged as a share of GDP, followed by a more muted deterioration (on average) in the following three fiscal years;<sup>5</sup>

<sup>4</sup> We calculate long-run elasticities to GDP of 1,2 for personal income tax and VAT, 1,1 for corporate income tax, and 0,7 for other taxes

<sup>5</sup> The surprising pattern in our results – which show a net tightening in 2010/11 followed by renewed easing in 2011/12 – is largely explained by developments in VAT revenues, which rebounded strongly (from very low levels)

- A renewed period of fiscal consolidation – mostly via tax increases – since a 2012/13 peak in the structural deficit. Based on National Treasury’s estimates for the fiscal year ending this month and on projections from the 2017 Budget, we estimate that fiscal consolidation averaged 0.5% of GDP per year in the last four years, and should average 0.3%-0.4% of GDP in the next two years, before flattening out in 2019/20.

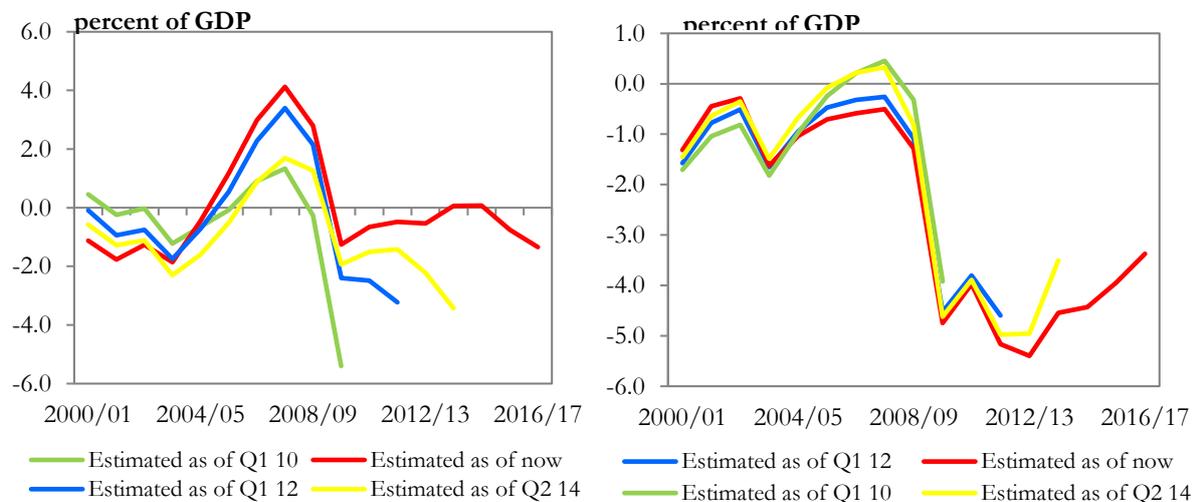
So far, we have based our calculations on national budget data. However, extending our analysis to consolidated government data – including provincial government and social security agencies, and going back to 2000 – does not fundamentally change our conclusions. In particular, we find that the consolidated structural government deficit falls by a moderate 0.3% of GDP per year, on average, from 2012/13 to 2019/20. By the end of the budget projection period in 2019/20, the consolidated structural budget deficit would be about 2.0% of GDP, the lowest since 2008/09 but still not matching the near-zero deficit of the immediate pre-recession years.

### Did the wrong estimates of the output gap confuse policy?

Our calculations are based on the Reserve Bank’s present estimates of the historical and projected output gap. However, “real time” estimates of the output gap have changed significantly over the years; because the Bank has regularly revised lower its estimates of potential GDP growth. In particular, the Bank’s view now is that the positive output gap prior to the crisis was larger than thought back in 2010; but that it did not turn as negative afterwards as was thought in 2012 and 2014 (see Figure 5). Hence, it is worth asking the question: Could fiscal policy have avoided the present challenges had it been better informed about the true degree of slack in the economy back in 2010-12?

Our answer is mixed. Because of revisions to the output gap, we now estimate the structural budget balance to have been worse over these years than we would have judged back then based on real-time output gap estimates. However, the magnitude of the deterioration in the structural balance in the post-crisis years remains broadly the same whether we use current or real-time estimates (see Figure 6). In a word, uncertainties about the output gap cannot be blamed for the scale of past fiscal deterioration. Policymakers must have known the degree of structural loosening they allowed, even though they believed they were coming from a stronger starting point and hence had more leeway.

**Figures 5 and 6: Present and “real-time” estimates of the history of the SA output gap (left) and of the structural budget balance (right)**



in 2010/11 before disappointing again in 2011/12. Overall, though, we estimate that the structural balance worsened by about 4.5 percentage points of GDP within a period of four years.

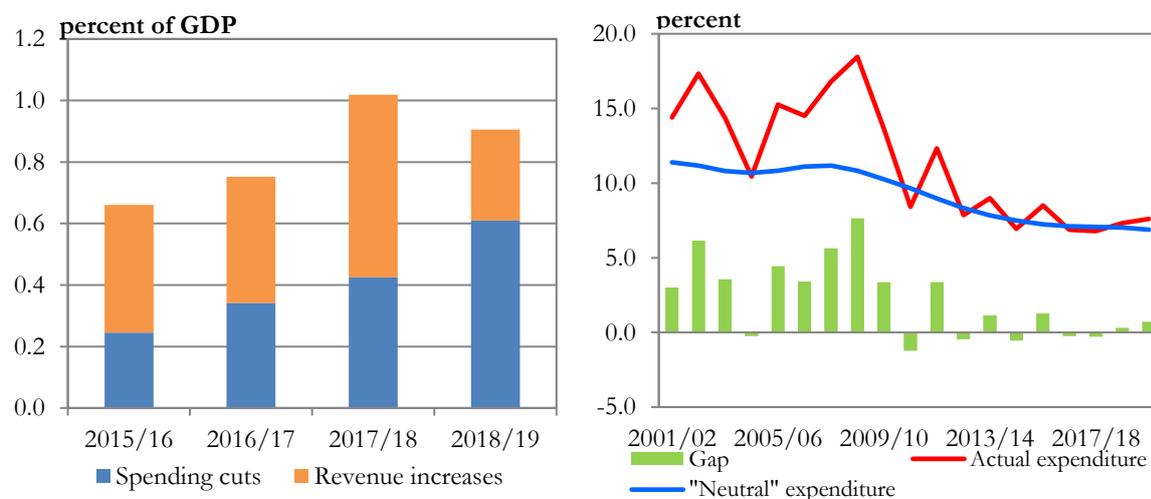
## Is there as much expenditure restraint as National Treasury claims?

As mentioned above, there are not many published estimates of South Africa’s structural budget balance to which we can compare our calculations. Projections in the IMF’s October 2016 Fiscal Monitor show a lesser degree of a restraint (the structural deficit is only expected to fall by 0.3% of GDP between 2016 and 2020, to 2.9% of GDP) but the publication predated the additional consolidation announced in the 2016 MTBPS and confirmed in the 2017 Budget. By contrast, the 2017 Budget review lists the total amount of tax increases and expenditure reductions (relative to National Treasury’s self-imposed ceiling) and this “bottom-up” approach would suggest a larger degree of restraint than our calculations – about 0.8% of GDP per year (see Figure 7).

While we do not dispute that higher personal income taxes and excise duties are contributing to fiscal restraint – although any permanent deterioration in tax collection efficiency, which might be a risk in light of the 2016/7 revenue undershoot, would in part negate such structural restraint – public expenditure restraint may not be as strong as National Treasury claims. We calculate that consolidated primary government expenditure (excluding the volatile payments for financial transactions and contributions to the contingency reserve) is only expected to fall by 0.5% of nominal GDP between 2015/16 and 2019/20. Figures are similar if we look at primary expenditure as a share of *potential* GDP<sup>6</sup>, meaning that subdued growth cannot be blamed for the relative stickiness of the expenditure/GDP ratio.

One can debate, of course, what “neutral” public spending policy is. We propose, as a rule of thumb, that a growth rate of public expenditure equal to real potential GDP growth plus the trend increase in the GDP deflator is “neutral”, in the sense that it is counter-cyclical but does not affect the medium-term “steady-state” of the economy. Using that benchmark, we find that actual growth in primary expenditure – after significantly exceeding the “neutral” rate for most of the 2000s – has been close to it since 2012/13, and that this latter trend is projected to continue in the next three years. Hence, it appears that the government has successfully ended the upward drift in spending relative to GDP, but that it has failed to bring spending growth sustainably *below* its neutral path, hence relying mostly on tax increases to tighten fiscal policy. And consequently, expressed as a share of potential GDP, government expenditure is still close to the highs of the past twenty-five years.

**Figures 7 and 8: Fiscal consolidation measures announced by National Treasury (left) and actual versus “neutral” growth in consolidated government primary expenditure (right)**



<sup>6</sup> In all our calculations, we assume that potential nominal GDP equals potential real GDP times the actual GDP deflator – in a word, that the price of output has a neutral effect on the business cycle.

## Conclusion

Our estimates of the structural budget balance remain fraught with uncertainties (whether the output gap is properly measured, which trends in tax bases or the terms of trade are structural or not, whether elasticities are properly accounted for...) Nevertheless, they concur with the “conventional wisdom” that fiscal policy has been tightened moderately in the past three to four years already, and that budget projections are consistent with a continuation of this moderate tightening. Provided that the output gap eventually closes, and barring a negative terms of trade shock, this should allow the consolidated government deficit to eventually fall to about 2% of GDP, and stabilize the debt/GDP ratio, albeit in excess of 50%.

On balance, recent and prospective fiscal tightening has assisted and should still assist monetary policy in keeping SA inflation under control, as: (1) a tighter fiscal stance curbs household consumption and in turn reduces demand-driven price pressures; and (2) it strengthens the likelihood of eventual debt/GDP stabilization and thus reduces one risk factor of inflationary rand depreciation.<sup>7</sup> Nevertheless, many questions remain unanswered. These comprise: Whether the policy-mix is appropriate, or whether fiscal policy should be tightened more aggressively to “free up” monetary space; whether National Treasury’s reliance on tax hikes rather than spending cuts is detrimental to potential GDP growth; and whether the mix of public expenditure growth (between capital and current outlays, and within the latter, between wages and other consumption) is the optimal one. Further analysis will be required to try and answer these questions.

---

<sup>7</sup> In addition, commitment to fiscal consolidation has been key to avoiding downgrades in SA sovereign debt ratings to sub-investment grade over the past year. Had such downgrades taken place, potentially inflationary rand depreciation could have been a likely consequence.

## Annexure – Our methodological approach to calculating the structural budget deficit

### From actual to potential revenues and expenditures

The basic approach to calculate the structural budget deficit follows the OECD's pioneering work in the subject, by Giorno et al. (1995), which uses the following equation:

$$B^* = \sum_{i=1}^n T^i * \left(\frac{Y^*}{Y}\right)^{\alpha^i} + NT - G * \left(\frac{Y^*}{Y}\right)^{\beta} - K \text{ spending}$$

Where  $B^*$  is the structural balance,  $T^i$  the different taxes,  $Y^*$  and  $Y$  potential and actual GDP,  $G$  government current spending and  $NT$  non-tax revenues,  $\alpha$  and  $\beta$  the elasticities of taxes and spending to GDP. However, in the South African situation, we assume (at least for the national budget) that  $\beta=0$ , as no major component of current government expenditure is specifically linked to the cycle (unlike in OECD countries).

We also assume a neutral role of the GDP deflator in influencing the output gap; consequently the ratio of potential to actual *real* GDP is used as a proxy for that of potential to actual *nominal* GDP.

### Accounting for deviations from trend of the terms of trade

To account for South Africa's nature as a commodity-exporting economy, and for the influence of the terms of trade on tax revenues (in particular, via CIT payments from the mining and mining-related sectors) we replace the ratio of potential to actual real GDP by a ratio of potential to actual real income.

Potential real income is derived from both actual real income and the real income gap, which is calculated as follows, based on the approach of Turner (2006):

$$\frac{I - I^*}{I^*} = \frac{Y - Y^*}{Y^*} + Xshare * \frac{T - T^*}{T^*}$$

Where  $I$  is real income,  $I^*$  potential real income,  $Y$  real output,  $Y^*$  potential real output,  $T$  the terms of trade,  $T^*$  its trend (calculated by a standard HP filter) and  $Xshare$  the export share of GDP.

### Calculating the composition effect

The tax bases of different revenues change over time as a share of GDP, affecting the different government revenues irrespective of the level of the real income gap. While trend shifts should be construed as influencing the structural budget balance (for instance, the long-term rise in import penetration means that customs duties represent a structurally larger share of revenues than in the past, assuming that tariffs are constant), short-term deviations from these trends can be seen as cyclical. To capture the impact of these deviations, we calculate a "composition effect", which follows the approach of Braconier and Forsfält (2004):

$$CE = \sum_{i=1}^n \left( \left( \frac{T^i}{B^i} \right) * \left( \left( \frac{B^i}{Y} \right) - \left( \frac{B^i}{Y} \right)^* \right) \right)$$

Where CE is the composition effect, T and B the respective tax revenues and bases, and  $(B/Y)^*$  the trend in each tax base relative to GDP. These trends are calculated using a simple HP filter for the following: Compensation of employees (as a proxy base for PIT), net operating profits (as a base for CIT), a weighted sum of public and private consumption (as a base for VAT), consumption of food, beverage and tobacco (as a base for excise duties on alcohol and tobacco), consumption of oil products (as a base for fuel taxes) and imports (as a base for customs duties).

### **The treatment of elasticities**

As the first equation above suggests, the influence of the ratio of potential to actual output on potential taxes should be powered by the elasticity of taxes to GDP. However, long-term elasticities do not account for short-term changes in tax buoyancy – which in several cases is stronger in an upward phase of the business cycle – and require different approaches, as illustrated for example by Girouard and André (2005).

Our approach is to compute a rolling elasticity equivalent to an eight-quarter average of the annual elasticity of major tax categories (PIT, CIT and VAT) to nominal GDP. In order to correct for the effect of changes in tax rates, we calculate these annual elasticities as a ratio of ex ante tax revenue growth (i.e. tax revenue as it would have been without the tax changes, indicated in the specific Budget Reviews) to nominal GDP growth.

For other tax revenues, as well as for the difference between consolidated and national government revenues, we assume an elasticity of one to calculate their potential levels.

### **Bibliography**

Braconier, Henrik and Tomas Forsfalt. “A new method for constructing a cyclically-adjusted budget balance: the case of Sweden”, National Institute of Economic Research, Working Paper No. 90, April 2004

Fedelino, A., A. Ivanova and M. Horton. “Computing cyclically-adjusted balances and automatic stabilizers”, Fiscal Affairs Department, IMF, November 2009

Giorno, C., P. Richardson, D. Rosevaere, P. van den Noord. “Estimating potential output, output gaps and structural budget balances”, Economics Department Working Paper No. 152, OECD, 1995

Girouard, Nathalie and Christophe André. “Measuring cyclically-adjusted balances for OECD countries”, Economics Department Working Paper No. 434, OECD, 2005

IMF Fiscal Monitor, October 2016

Turner, David. “Should measures of fiscal stance be adjusted for terms of trade effects?” Economics Department Working Paper No. 519, OECD, October 2006