Structural balances, fiscal rules and medium-term objectives

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Introduction

Since the 1970s, fiscal rules have become increasingly popular and at the last count 81 countries had adopted some form of permanent quantitative constraint on fiscal policy (Schaechter et al., 2012: 10). However, simple and overly rigid deficit rules can generate pro-cyclical outcomes. In some instances, efforts to comply with the rules encouraged deceitful accounting rather than improved fiscal practice. A good example of these problems was the European Union's (EU) stability and growth pact, which entered into force in 1999. The treaty imposed an across the board deficit target of 3 per cent of GDP and a debt ceiling of 60 per cent of GDP, but these constraints were largely observed in the breach. The European fiscal crisis that emerged a decade later fully exposed the extent of the SGPs failure to deliver sustainable fiscal policy.

This experience did not dampen the EU's enthusiasm for fiscal rules, but led to a reconsideration of their design, with an emphasis on more stringent oversight and greater flexibility in numerical anchors, including through the use of structural deficit targets[2]. These lessons have influence well beyond the European Union. Fiscal rules anchored to a structural budget balance have been adopted in many countries, including several middle income countries. The IMF increasingly advises the use of fiscal rules anchored to structural deficit targets and debt ceilings, and the introduction of independent fiscal councils to strengthen oversight.

But does use of a structural budget balance as the primary anchor of fiscal policy have universal appeal? The success of the Chilean example suggests it has salience beyond the advanced economies of Europe, helping to achieve counter-cyclical policy outcomes in a commodity-producing emerging market. Although South Africa has reported a structural balance since 2007, it has not gained traction as a key fiscal policy metric. While of interest to academic economists and multilateral institutions, policy-makers and bond market analysts continue to focus on directly observable fiscal measures such as the primary balance, or debt

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[1] National Treasury of South Africa. The views expressed in this paper are those of the authors and should not be reported as or attributed to National Treasury.

[2] The 'fiscal compact' signed of March 2012 authorises the EU Economic and Financial Affairs Council to place a deviant sovereign under an 'excessive deficit procedure', effectively revoking its fiscal autonomy. It also requires signatories to strengthen monitoring by establishing independent fiscal councils. Greater flexibly in targets in introduced by targeting structural balances and introducing time-bound, but automatic correction mechanisms for debt levels above 60% of GDP.

stock. Does this experience suggest there are technical or political factors that mean the structural balance is of less significance in South Africa? If so, are these factors temporary contingencies related to the Great Recession and its aftermath, or are they enduring features of the policy-making or economic environment?

This paper raises some issues with respect to the use of structural balances in South African fiscal policy. From a technical perspective, estimating the structural balance is complicated by uncertainties about the size of the output gap and tax-to-GDP elasticities, especially during periods of change in the structure of the economy and public finance policy. Operationally, the use of structural targets in a medium-term budgeting context is of limited use where the output gap is usually expected to close over the forecast period. Politically, the complexity of structural balances and the opaqueness of their underlying calculations – which are based on metrics that are not directly observable – can make public communication of the fiscal stance more difficult, and shift debate away from more concrete measures of fiscal performance.

Structural balance and potential output

The structural budget balance accounts for the impact of the business cycle on government revenue and expenditure by estimating the elasticities of these aggregates to the output gap[3]. Because revenue growth is closely linked with economic activity, most of the adjustment takes place on the tax side. In countries with large social security systems, there can also be extensive automatic stabilisers on the expenditure side, but this is generally not the case in developing countries. Other once-off transactions, like privatisation receipts, are also typically excluded. Together, these adjustments should provide a government with an accurate reflection of longer-term, underlying fiscal trends.

Structural balance targets aim to entrench fiscal sustainability, while enabling flexibility over the business cycle. By explicitly taking account of the business cycle, a government could allow the observed deficit to widen during a downturn without jeopardising the underlying structural target. Conversely, during a boom the fiscal balance can be calibrated to take account of the revenue windfalls and the temporary easing of spending pressures, thus justifying a larger (actual) surplus. In theory, there is little that does not commend the use of a structural balance rule. In practice, operationalising it can present a number of problems for policymakers that are likely to be particularly severe in developing countries.

The most obvious operational drawback is that the structural balance relies on the real-time estimation of unobservable variables. The current state of the business cycle is typically measured as the output gap in each year, the difference between observed and potential GDP. Potential GDP is usually calculated by applying a statistical filter to observed GDP, a production function approach, or using a multivariate model[4]. In most advanced economies

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[3] The structural balance is defined as follows:

$$B^* = \sum T_i \left(\frac{Y^*}{Y}\right)^\alpha - G \left(\frac{Y^*}{Y}\right)^\beta$$

where *B** is the structural budget balance, T_i is the amount of tax type collected from tax type *i*, *Y* is GDP and *Y** is potential GDP , *G* is government expenditure, *α* is the elasticity of tax *i* with regard to the output gap, and *β* is the elasticity of expenditure with regard to the output gap.

[4] Popular methods include Hodrick-Prescott filters, Kalmann filters and structural vector autoregressions (SVARS)

the cycle is typically a well-defined oscillation around a steady trend, implying a degree of certainty about the size of the output gap in 'normal' times. However, most studies have concluded that real-time estimation of the output gap is subject to substantial error in advanced economies. With the respect to the Euro area, Marcellino and Musso (2010) concluded that "both the magnitude and sign of the real time estimates of the … output gap are very uncertain".
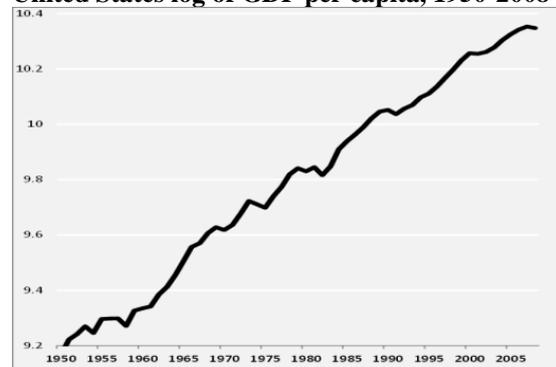
Where advanced economies experience unusually large or persistent deviations from their growth path – such as that associated with the Great Recession since 2008 – uncertainty about the size of the output gap increases. In such circumstances, policy makers have less confidence in distinguishing the cyclical from the structural components of growth, and the risk of policy errors is correspondingly greater. One consequence has been the breakdown of consensus amongst economists about appropriate monetary and fiscal policy stances, to an extent that debate has become increasingly ideological. In respect of fiscal rules, the great recession has seen the widespread deployment of escape clauses (allowing temporary suspension of the rule) where they exist, or attention to the need for such clauses where they do not.

Cyclical behaviour in developing countries tends to be far more volatile (over the cycle) and erratic in respect of the trend. As pointed out by Pritchett (2000) "almost nothing that is true of U.S. GDP per capita (or that of other countries of the Organisation for Economic Co-operation and Development) is true of the growth experience of developing countries. A single time trend does not adequately characterise the evolution of GDP per capita in most developing countries". There are many reasons for this distinct behaviour in developing countries, but is often related to reliance on a narrow basket of exports. The consequence is greater vulnerability to terms of trade shocks. Domestic and idiosyncratic factors can also play an important role.

This rings true for South Africa's recent growth history, as illustrated in figure 1 comparing the log of GDP per capita since 1950 in the US and South Africa. Excepting the great depression, the USA has grown along a linear trend. Growth in South Africa has been characterised by a number of accelerations and decelerations. In South Africa's case, the decline in GDP per capita in from the late 1980s can be linked to both the commodity cycle, the structural decline of the gold mines and the political economy of the decline of apartheid.

Figure 1: Log of GDP per capita in South Africa and the USA, 1950-2008

United States log of GDP per capita, 1950-2008   **South Africa log of GDP per capita, 1950-2008**
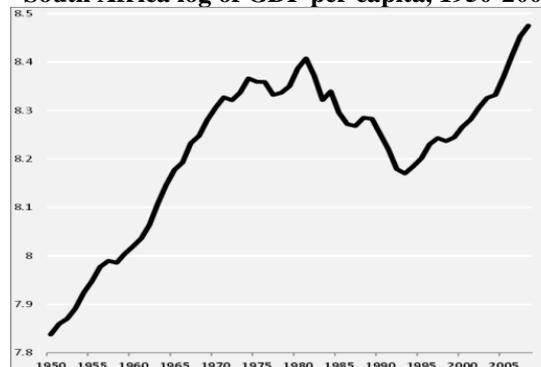
Source data: Maddison

The empirical analysis in Pritchett (2000) suggests that large and persistent shifts in the path of structural growth are not unusual in developing countries. Where the business cycle is

more directly tied to the state of the global economy, it is not always simple to distinguish temporary from permanent shocks. Temporary volatility in commodity prices may generate technological shifts in supply and demand that result in permanent changes to the structure of the economy and potential growth. At a more fundamental level, growth in developing countries is by definition a process of rapid structural change, as recognised by the earliest models in development economics (Lewis, 1952) and the most recent contributions to growth theory (Rodrik, 2013). Models that assume a constant economic structure based on historical observations – as do most output gap estimates – are vulnerable to significant criticism in real time.

The consequence of these factors is that the uncertainty associated with output gap estimation can be very large in developing countries, where uncertainty about the future path of structural growth – and thus the extent to which current observations represent structural or cyclical factors – is greater. Using Brazilian data, Cusinato et al. (2010) for Brazil, find that a quarter of real time estimates generate the wrong sign for the output gap.

The second stage of estimating the structural balance concerns the elasticity of revenue to the output gap. The choice of correct elasticity magnifies the impact of uncertainty about output gap, and most structural balance calculations assume some average elasticity over the business cycle. Varieties of exogenous shocks can generate qualitatively different impacts on the composition of demand. The resulting cyclical shifts will have direct consequences for specification of cyclical revenues. For instance, a positive terms-of-trade shock is likely to be felt most directly on profits, raising the cyclical component of company income tax. An interest rate shock will impact on the price of assets, affecting capital gains and similar taxes. A domestic demand shock will be felt most directly on consumption taxes. This can be addressed somewhat by taking account of 'composition effects' of the tax base, and the elasticities between the cycle, revenue, and expenditure. These uncertainties are even greater where large and fundamental reforms to the institutional structures of tax administration or policy have taken place in recent history.

In line with international studies, estimates of the business cycle are also highly uncertain in South Africa. Klein (2011) showed a wide range of potential GDP growth rates for South Africa, ranging from 5.5% to -1% between 2008 and 2010. Kramer and Farrell (2013) find real-time estimates having opposite signs from ex-post output gaps between 35 and 40 per cent of the time depending on the method used. This can result in contradictory assessments of the structural fiscal stance.

Even looking back at recent history, there are widely divergent views of recent performance and the appropriate methodology in the technical literature. Hodrick-Prescott filters, which are commonly used by the IMF to estimate output gap, have been the subject of strong criticism. The use of Cobb-Douglass production functions has been questioned in a society where a large proportion of (labour) resources are permanently under-utilised (Du Plessis and Boshoff, 2007). Indeed, concepts such as 'potential output' and a 'natural rate of unemployment' are fraught with both theoretical complexity and political sensitivity in a country where a quarter of the labour force is regularly unemployed.

This feeds into a lack of consensus about the cyclical stance of macroeconomic policy over recent decades. With respect to fiscal policy, Horton (2005) finds discretionary policy has become increasingly counter-cyclical since the transition to democracy using a fiscal impulse methodology. Ajam and Aron (2009) use the same methodology by calibrating potential output to a different base year and find pro-cyclicality over the same period. Fiscal impulse

measures are the subject of many theoretical and methodological criticisms (Chand, 1993) and more recent studies use a structural vector autoregressive analysis to develop an account of cyclicality. However, as is the case with fiscal impulses, SVAR studies appear to generate inconclusive results. Frankel, Smit and Sturzenegger (2006) conclude that policy has been pro-cyclical. But Du Plessis, Smit and Sturzenegger (2008) show procyclicality occurs only during the most recent expansion, which was unusual in its size and duration, and that fiscal policy did not generate large effects on real output.

Regarding revenue elasticities, various attempts have been made to capture shifts in the tax base over the cycle on South Africa's revenue collections. Aydin (2011) included a commodity price index and credit extension into the elasticity regressions with only limited success. Jooste and Naraidoo (2010) find that, in the upwards phase of the cycle, the elasticities of personal income tax, corporate income tax and value added tax can increase to over 1.5 per cent. During a downswing, these elasticities fall to below 1 per cent. All such attempts, however, rely on analysis of historical data and are limited in their ability to take account of the restructuring of South Africa's tax administration and tax policy institutions in the late 1990s and early 2000s. These reforms add a particularly difficult dimension to the attempt to distinguish cyclical from structural revenues.

A structural balance rule in a medium-term budget framework

Regardless of its technical weaknesses, a structural balance rule might effectively anchor ex-ante expectations of future behaviour, even if real-time assessments of current conditions turn out to be wrong. A rule's main objective is to enable counter-cyclical flexibility within a credible framework of fiscal sustainability. This will be achieved if there is general acceptance that policy is anchored to the best unbiased assessment of current economic conditions, and operates within an institutional framework that constitutes an effective pre-commitment to change the stance over the cycle to achieve the structural target.

A good example is provided by Chile, where an independent council of experts estimates the output gap and the long-term price of copper (which accounts for a significant proportion of public revenue). This approach reduces bias by delegating the calculation of real-time estimates to an independent body, and also by averaging the experts' calculations. The process is highly transparent and considerable effort is invested in explaining the process and its outcomes to the public. The Chilean context is one where there is solid and enduring bipartisan support for fiscal sustainability (Hawkesworth et al, 2013). Also important is the fact that "Chile's fiscal rule is supported by a solid and highly hierarchical institutional arrangement… Under this hierarchical system, fiscal discipline depends excessively on the commitment of a relatively small group of actors" (IMF, 2010). In particular the legislature has – for a Congressional system – unusually severe constraints on its fiscal role, dating back to before the period of military rule.

Arguably, the keys to success in Chile's case are not the numerical rule or the accuracy of the data on which it is based, but an effective combination of rules and institutions. Wyplosz (2012) distinguishes between rules, which have the characteristic of imposing a numerical norm, and institutions, defined as formal arrangements that prescribe actions. In an uncertain world numerical rules can never anticipate all future contingencies. Conditions regarded as unthinkable when the rule was designed are sometimes realised (for instance when the great moderation gave way to the great recession). In such circumstances, institutional

arrangements allow greater flexibility without sacrificing credibility[5]. But institutions can easily lose credibility if they are too open-ended. An institutional arrangement that is tethered to an appropriate numerical rule might realise the best of both rules and institutions, achieving a delicate balance between credibility and flexibility.

In South Africa fiscal governance is entrenched in the 1996 constitution, which requires transparency, accountability and effective financial management. Critical reforms to the budget process were introduced in 1996. At the heart of these reforms was a medium term budgeting system with two components. The October Medium Term Budget Policy Statement (MTBPS) sets out the goals of policy, forecasts the economic environment and projects the fiscal framework, including the budget deficit, over the next three years. When the annual budget is introduced the following February, National Treasury publishes a Medium Term Expenditure Framework (MTEF), which specifies departmental allocations and headline expenditure and revenue over the same three-year period. This framework created a more predictable, open and transparent budget process. MTEF projections have the status of rolling forecasts rather than hard commitments and, unlike annual budget allocations, are not voted on by parliament. Therefore, while they do facilitate discussion of – and agreement on – an expenditure path over the medium term, they do not constitute a binding medium-term numerical target.

Schick (2010) points out that introducing an MTEF has been the most popular contemporary budget innovation, partly because of the flexibility it offers:

> "The popularity of the MTEF may be due to the ease with which it can be deployed for different ends. Although initially devised (in Australia) during a period of austerity, the MTEF can be used to protect or enlarge space in future budgets and to plan and finance spending initiatives when resources are plentiful. In fact, this was the manner in which Australia used an MTEF during more than 15 years of uninterrupted growth beginning in the early 1990s (Wanna et al. 2000). When a medium-term constraint is soft, spending units regard the amounts specified for future years as minima and use the budget process to wrest more money from the government."

Australia's experience has salience in South Africa. During the long period of uninterrupted growth between 1999 and 2008, indicative baselines functioned as a floor rather than a ceiling on spending. Figure 2 compares the expenditure projections made in successive MTBPS documents and the expenditure outcomes that resulted, showing the deviation of the outcome as a percentage of the projected expenditure. The in-year projections of spending are generally quite accurate, with the expenditure outcome rarely deviating by more than 1 per cent of the projection. Moreover the projection error appears to be unbiased, with an average deviation of -0.1% over the whole period. However, between 1999 and 2008, expenditure outcomes over the medium term forecast were consistently above projections. Spending in the outer year of the forecast was on average 12.6 per cent higher than the MTBPS projection.

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[5] In Chile this flexibility is achieved since the targeted structural balance can (and has been) changed. The structural target was initially set at a surplus of 1 per cent of GDP, a goal chosen with reference to an estimate of government's net-worth that took account of state-guaranteed minimum pensions, the negative balance sheet of the central bank and other contingent liabilities over a distant horizon. (Rodriguez, Tokman and Vega, 2007). In response to global financial crisis the target was reduced 0.5% of GDP in 2008 and to zero in 2009, and following the earthquake of February 2010 the rule was suspended. Chile is currently considering the design of a 'second generation 'of fiscal rules (Henkworth et al, 2013).

This pattern has moderated quite significantly since the onset of the global crisis, and in the 2013 Budget Review government explicitly indicated for the first time that the MTEF projections would constitute a ceiling on expenditure (National Treasury, 2013:32)

Figure 2: Percentage difference between expenditure outcomes and forward projections contained in the MTBPS
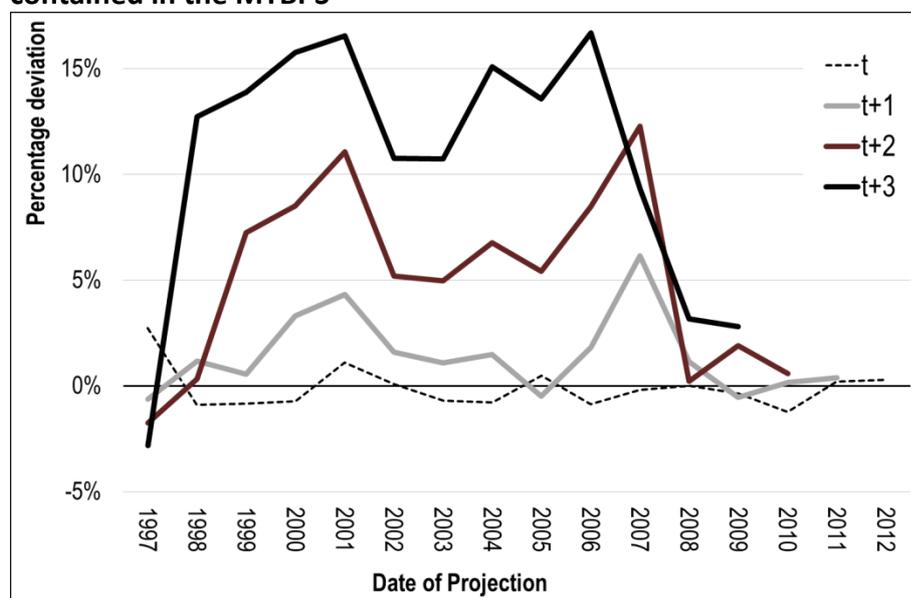
Source: National Treasury

Schick (2010) suggests that:

> "In fact, baseline projections (or forward estimates) legitimise this expansionary tendency of the MTEF by using current spending levels, adjusted for price and workload changes, as the starting point for budget work. *To counter this tendency it is necessary for governments to adopt fiscal rules that harden the MTEF constraint so that it is treated as a ceiling rather than a floor.*" (Emphasis added)

It may be that the objective of hardening the MTEF constraint could be achieved by institutional reform, rather than by adopting a numerical rule. For instance, the outer year projections could be adopted formerly by the legislature as firm targets rather than indicative estimates, entrenching them in legislation. However, if we accept that the adoption of a quantitative constraint is the best solution, the question arises what combination of rules and institutions would be most effective in the context of a successful medium term budget framework? In particular, would a structural balance rule be an appropriate numerical tether for South Africa's budget institutions?

A structural balance rule might assist in setting in-year fiscal objectives and gauging the current year's fiscal stance in terms of a medium term objective. This might complement the MTEFs commitments over the medium term and help to gauge fiscal space within which expenditure objectives are set. However, as a medium-term numerical objective, the structural balance suffers from an important weakness: the distinction between the structural balance and the actual balance is likely to narrow over the projection. This property arises from the manner in which macroeconomic theory treats the business cycle, and the way this

theory is reflected in the outcomes of economic forecasting. In simple terms, economic cycles are frequently viewed as the result of 'shocks' to the economic equilibrium. Over time the macro-economy is assumed to return to that equilibrium, whether defined in terms of the output gap, the natural rate of unemployment or some other concept of economic balance.

As evidence of this tendency, table 1 shows the IMFs forecast of the average output gap for G7 countries as reported in successive editions of the World Economic Outlook. Between 2002 and 2008 the IMF only published projections one year ahead, but for the rest we have a five year projection. In most years the output gap narrows in the year ahead (t+1)[6]. For those years in which we have longer forecasts, the projections all narrow over the medium term, reaching towards zero in the fifth year.

Table 1: IMF projections of the average G7 output gap

		forecast output gap					
		t	t+1	t+2	t+3	t+4	t+5
WEO publication:							
	1999	-1.8	-1.5	-0.9	-0.3	0.0	0.2
	2000	-0.0	0.3	0.4	0.3	0.1	-0.1
	2001	-0.9	-2.1	-1.7	-1.1	-0.5	-0.1
	2002	-1.5	-1.3				
	2003	-1.8	-1.8				
	2004	-1.3	-1.0				
	2005	-1.1	-1.0				
	2006	-0.3	-0.3				
	2007	-0.4	-0.8				
	2008	-0.1	-1.8				
	2009	-4.6	-4.1	-2.6	-1.3	-0.5	-0.0
	2010	-4.2	-3.5	-2.5	-1.8	-1.1	-0.7
	2011	-4.3	-4.0	-3.3	-2.5	-1.6	-0.8
	2012	-3.2	-3.1	-2.5	-1.8	-1.0	-0.3
	2013	-3.3	-2.8	-2.0	-1.2	-0.6	-0.2
Average of absolute values		1.9	2.0	2.0	1.3	0.7	0.3
Median of absolute values		1.5	1.8	2.3	1.3	0.6	0.2

Source: IMF WEO database. Note that April editions of the WEO were used.

The consequences of this for the structural balance is illustrated in figure 3, which shows the difference between IMF estimates of South Africa's structural deficit and actual deficit projected forwards over three years in subsequent editions of the World Economic Outlook. The difference between the two in the third year is practically zero.

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[6] The exceptions being 2001, 2007 and 2008 which are associated with the bursting of the dot.com bubble and the global financial crisis respectively.

Figure 3 Percentage difference between projections of South Africa's structural and actual budget deficit in the World Economic Outlook
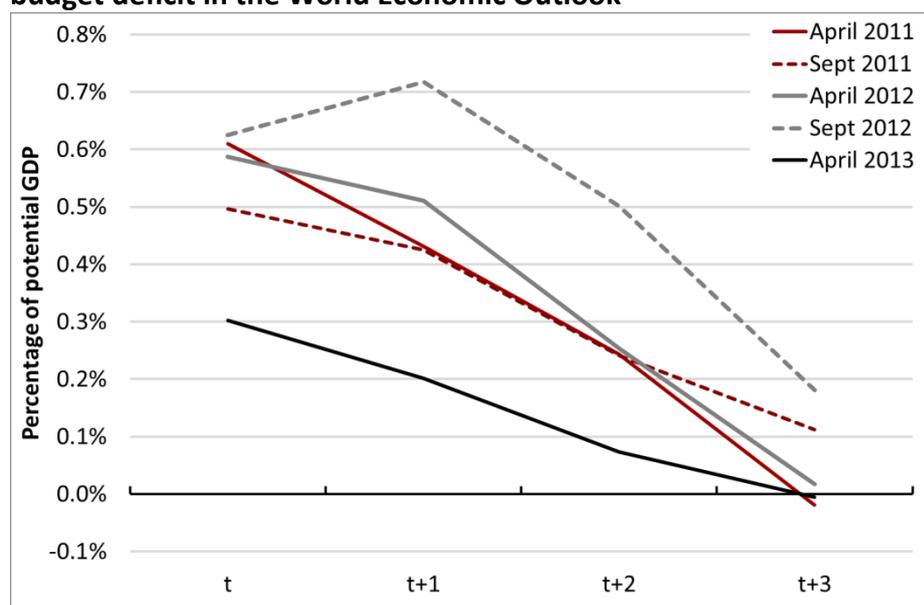

Source: IMF WEO (various)

In the context of a medium term fiscal framework, therefore, there is little practical difference between a structural balance target and an actual balance target, except that the latter is far more transparent, unambiguous and simple to explain to the broader public. It might be objected that the structural balance should be a permanent fiscal constraint, not a medium term target. Nevertheless, where the medium term budget framework functions effectively as an anchor for expectations about the path of fiscal policy it does so by promising fidelity to a medium term objective. In this case, the cost in terms of complexity and ambiguity of the structural balance looms large when set against the small size of the deviation from the actual balance in the outer year.

As is apparent in the figure 3, the difference between structural and actual balances larger in the near term forecasts of the structural balance. But even here the size of the cyclical adjustment appears small, never reaching above one per cent of potential GDP. It turns out that this characteristic of structural balances is not limited to South Africa, nor is it a quirk of recent estimates. The calculation often produces small automatic stabiliser estimates, and little difference between headline and structural balances. The issue of small cyclical adjustment is not universal, but is also not limited to South Africa. Figure 4 shows the observed and cyclically-adjusted primary balances for four commodity exporters (IMF, 2013). Despite the commodity boom of the mid-2000s and the global recession which began in 2008, there is very little distinction between the observed and cyclically-adjusted balances. One of the few outliers is Chile, which made significant adjustment to its observed revenue collections during the boom years, based primarily on cyclically high copper prices. These estimates are included separately in IMF forecasts, and the impact is direct, because the primary copper producer is a state-owned company and copper revenues account for as much as a third of government income.

Figure 4 Cyclically-adjusted primary balances and actual primary balances of selected commodity exporters, 2006 – 2018
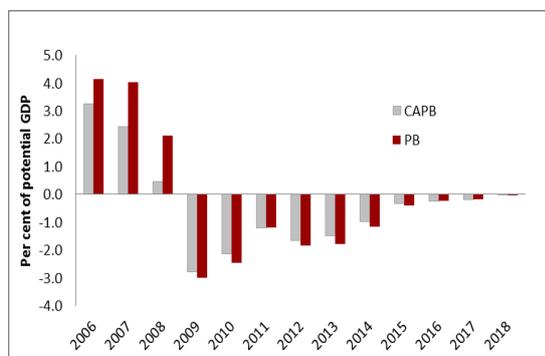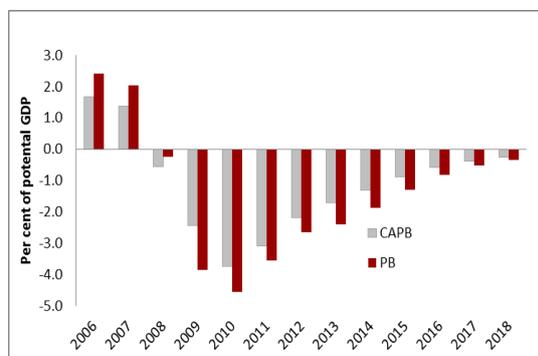
Australia
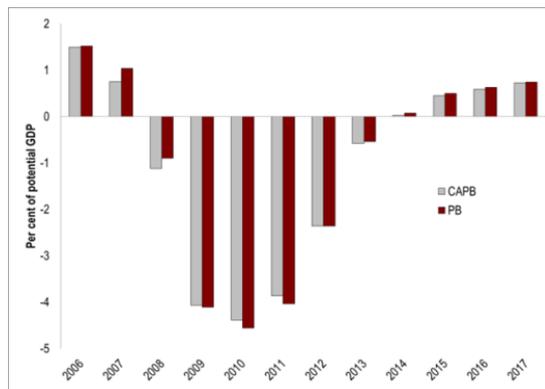
Chile
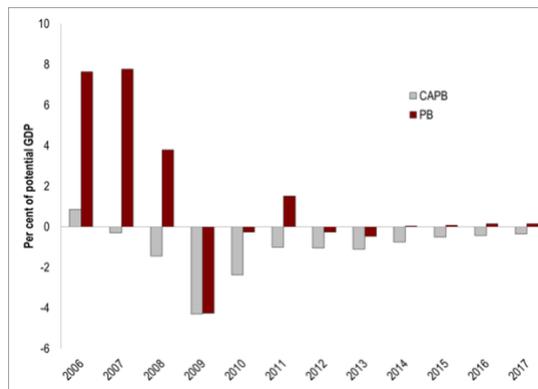
South Africa

Canada

Source: IMF Fiscal Monitor (2013)

The high correlation between observed and structural balances creates several difficulties for the policymaker wishing to introduce a rule. For a relatively small adjustment, calculation of the fiscal stance becomes less transparent and more difficult to communicate. Furthermore, the purpose of introducing a structural rule (i.e. for allowing cyclical widening while maintaining a structural target) is undermined. The result is that, using a standard methodology, targeting a structural budget balance target will produce the same difficulties associated with simpler budget targets.

A more straightforward numerical constraint in the context of a medium term budget framework might be some form of expenditure ceiling. This could be calibrated to achieve medium term structural objectives, but can be communicated in a more straightforward and unambiguous manner, relating directly to the budget process and understood widely by policy makers outside the Ministry of Finance.

Conclusion

Structural budget balance rules have become increasingly popular in recent years. These 'next-generation' rules have been adopted by a number of countries, partly as a reaction to the failure of standard fiscal rules. In 2011, the Government of South Africa proposed the introduction of a structural budget balance rule. However, while the structural balance does appear regularly in budget documentation, no such formal rule has been adopted.

Both for technical and political reasons, adoption of structural rules should be undertaken with caution. Uncertainties about the size of the output gap and tax-to-GDP elasticities complicate the technical process. Politically, the complexity of structural balances can make public communication of the fiscal stance more difficult, particularly when the difference between observed and structural balances is marginal. The narrow spread between structural and actual balances also erodes the flexibility that such rules are meant to ensure.

While perhaps more useful during 'normal' times, these problems are particularly acute during periods of extended economic and fiscal stress. In such periods – which are far more frequent in developing than in advanced economies – fiscal anchors based on directly observable targets may be superior as a means credibly communicate a sustainable fiscal policy. Moreover, the benefits of a structural anchor in balancing flexibility and commitment may be contingent on broader political and historical conditions. The timing and sequencing of the introduction of a structural balance anchor may also be important, as is the character of supporting fiscal institutions.

The successful Chilean experience suggests that the technical underpinnings of a structural rule are less important than the political process and institutional framework. The rule must be 'owned' by government, and have wide-spread public support. In addition, the 'real-time' process of estimating the business cycle must have wide legitimacy. Building this support requires that the rule be placed into a medium-term framework with clear goals.

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