Sustainable fiscal policy and economic growth in South Africa

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SUSTAINABLE FISCAL POLICY AND ECONOMIC GROWTH IN SOUTH AFRICA

Philippe Burger and Estian Calitz

Abstract

Following years of fast-rising public debt levels and low economic growth, how can the South African government re-establish fiscal sustainability? To assess the sustainability of South African fiscal policy, we use Markov-Switching VARs to estimate fiscal reaction functions. The fiscal variables considered are the primary balance, total non-interest expenditure, total expenditure and total revenue. The MS-VAR also considers the impact of fiscal policy on economic growth. We subsequently consider what size of primary balance adjustment is required to stabilise the public debt/GDP ratio, followed by an assessment of the various revenue and expenditure adjustment options open to government to achieve the required primary balance adjustment. We find little scope to increase revenue, and that government's salary bill and goods-and-services budget should carry the load of the adjustment. In addition, state-owned enterprises (SOEs) should be restructured urgently to arrest the fiscal risk SOE debts and guarantees hold for government finances.

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1. Introduction: The loss of fiscal sustainability

For a decade and despite efforts to contain it, South Africa's public debt/GDP ratio has been on the rise. As Figure 1 also shows, the government's guarantees as percentage of GDP are also on the rise following the increasingly weak financial position of South Africa's state-owned enterprises (SOEs). Indeed, as percentage of GDP both gross public debt and government guarantees more than doubled during the past decade. Driving the increase in the public debt burden arithmetically is a conventional budget deficit (total revenue minus total expenditure) that hovered between 4% and 5% of GDP since 2009 (see Figure 2).

Therefore, the questions the government faces and which this article seeks to answer, is how can fiscal policy regain its sustainability, and what will be the impact on economic growth of returning to sustainabiliy? In addition to fiscal consolidation in the form of adjustments to government expenditure and revenue, higher economic growth, lower interest rates, and government's active management of its debt portfolio to lower debt servicing cost, all improve the sustainability of fiscal policy. However, unlike government expenditure and revenue, economic growth cannot simply be increased, while interest rates are set to achieve monetary policy targets and must be in line with international interest rates to attract foreign capital flows. That leaves cutting non-interest expenditure or increasing revenue as primary instruments to attain fiscal sustainability. Nevertheless, in theory, doing so might negatively impact economic growth, thereby undermining the political will and efforts to restore fiscal sustainability.

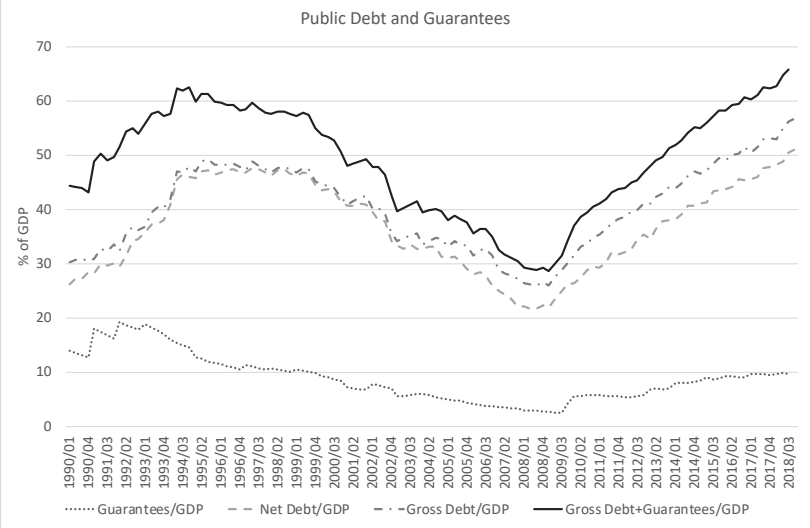


Figure 1: Public Debt and Guarantees
Source: SARB Quarterly Bulletin and authors' calculations

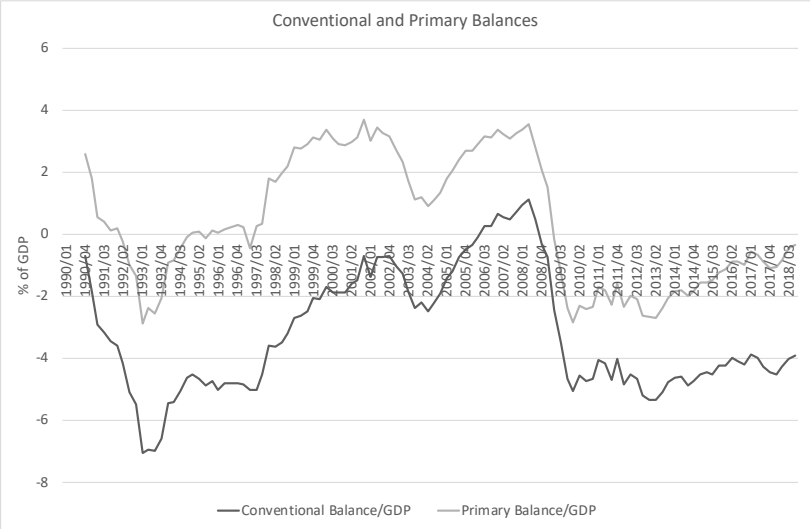


Figure 2: Conventional and Primary Balances
Source: SARB Quarterly Bulletin and authors' own calculations

2. Empirical evidence on successful fiscal consolidation

International literature considers the question 'what constitutes a durable consolidation?', with 'durable' meaning less likely to have been reversed within a few years after satisfying the chosen criteria for a successful consolidation. Most of the earlier literature show that in OECD countries cuts in transfer payments and the government wage bill were more likely to have achieved significant and durable reductions in fiscal deficits than those based mainly on tax increases (Alesina and Ardagna, 1998; 2010; 2013; Alesina and Perotti, 1997; Von Hagen and Strauch, 2001; Ardagna, 2004; Guichard, Kennedy, Wurzel and André, 2007). In emerging market countries, older empirical literature also links the success and persistence of fiscal consolidations to the extent that the government cuts back current expenditure (cf. Adam and Bevan, 2003; Baldacci, Clements, Gupta and Mulas-Granados, 2004; 2006; Gupta et al., 2003; Gupta, Clements, Baldacci and Mulas-Granados, 2004). However, it also recognises the role of revenue adjustments in successful fiscal consolidation. More recent findings for emerging

markets concur with earlier finding. For Sub-Saharan African countries, Arizala, Gonzalez-Garcia, Tsangarides, and Yenice (2017) found that although fiscal consolidation has negative short- and medium-run impacts on output, the impact is less severe if the consolidation is done through cuts in public consumption and tax increases than through cuts in public investment. Végh, Vuletin, Riera-Crichton, Friedheim, Morano, and Camarena (2018) have a similar result for Latin America and the Carribean in the short run, but also find that fiscal consolidation leads to higher economic growth in the longer run. They also found that if taxes are low, increasing taxes might have less of a negative impact than cutting public investment and social transfers.

Kickert, Randma-Liiv and Savi (2015) argue that cutbacks on operational costs (hiring and pay freeze, wage reduction, staff reduction) followed a similar pattern across Europe. Virtually no country undergoing a successful fiscal adjustment could escape a freeze on hiring and pay, or capping replacements. Still, in most countries, governments introduced politically sensitive measures such as reducing wages and employment only in the later stages of the crisis. The exception were European countries receiving bail-outs on condition of cuts to their public sector wage bill, in which case cuts in salaries and employment were made immediately. The IMF (2011:88) found that in Europe only 10 of 66 adjustment plans it studied were characterised by revenue increases, and in some countries, governments, in efforts to stimulate economies, even planned to lower taxes (thus requiring even larger expenditure cutbacks). Nevertheless, the IMF (2011:91) also found that plans did not materialise as envisaged, with actual expenditure cuts being significantly smaller than planned, and revenue increasing by more than planned as a result of rebounding growth. In line with this, Kickert and Randma-Liiv (2017) in a study of European countries, rejected earlier empirical findings that cuts in expenditure are more successful in reducing deficits than tax increases.

Hardiman, Dellepiane and Hardiman (2015:28) investigated fiscal consolidation in Ireland, Greece, Britain and Spain (in the period 1980 to 2012) and found that older literature on fiscal consolidation from the 1990s and 2000s overlooked core issues in domestic political economy, including the role of interest group representation, political legitimacy, and policy contestation. Without bringing in politics – including the new politics of multi-level economic governance – the analysis of credibility and efficacy in fiscal consolidation policies is unlikely to deliver plausible policy advice. (Also see Figari & Fiori, 2015:15). Kaplanoglou, Rapanos, and Bardakas (2015) found that fiscal consolidation in OECD countries stands a better probability of succeeding if accompanied by improvements in the targeting of social transfers and the effectiveness of poverty alleviation programmes, while Wiese, Jong-A-Pin and De Haan (2018) found that a fiscal adjustment's success improves if a left-wing government relies on spending cuts and a right-wing government relies on tax increases. Haffert and Mehrtens (2015) found that in the six countries they studied (Australia, Canada, Denmark, Finland, New Zealand and Sweden), consolidation through expenditure cuts were followed by tax cuts, leading to a smaller role for government in the economy. Furthermore, Baldacci, Clements, Gupta and Mulas-Granados (2004) and Gupta, Baldacci, Clements and Tiongson (2003) found that protecting or increasing the share of capital spending in total government expenditure during consolidation episodes increased the probabilities of success and persistence.

Regarding the impact of fiscal adjustment on economic growth after the 2008 financial crisis, Fatás and Summers (2018) found that fiscal consolidation is self-defeating, as efforts to consolidate lowers growth, thus leading to higher and not lower debt/GDP ratios. In studies of fiscal adjustment, particularly when it is a large adjustment, authors often delineate their studies by focusing on adjustments made under IMF programmes. Earlier literature offers contradictory conclusions about the impact of IMF programmes on GDP growth. For instance, Barro and Lee (2005), as well as Przeworski and Vreeland (2000) conclude that IMF

programmes have a negative effect on output growth, while Dicks-Mireaux, Mecagni and Schadler (2000) as well as Bas and Stone (2014) conclude that IMF programmes have a positive effect on growth. However, in a recent study, Binder and Bluhm (2017) show that the effects of IMF programmes on economic growth is positive only if it is accompanied by a sufficient improvement of the country's institutional framework. Using the World Bank's Country Policy and Institutional Assessment Index (CPIA) as an indicator in their empirical work, Binder and Bluhm (2017) show that when countries under IMF programmes improve public sector governance, institutions, and social inclusion before and during the programme period, the IMF programme has a positive impact on economic growth. Binder and Bluhm (2017) also show that the positive effects can last up to six years after the IMF programme started and three years after the programme's conclusion.

3. Empirical findings: Economic growth and the sustainability of fiscal policy

What has been the behaviour of fiscal policy in South Africa? Did the government take steps to re-establish fiscal sustainability and arrest the increase in the debt/GDP ratio (this is done by increasing the primary balance in reaction to an increase in the debt/GDP ratio)? And what has been the impact of fiscal policy on economic growth? To explore these questions, we conducted an empirical analysis estimating fiscal reaction functions.

Fiscal reaction functions have their origin in the work of Henning Bohn (1995; 1998; 2007; 2010). To establish whether or not fiscal policy reacts to an increase in the debt/GDP ratio, the primary balance/GDP ratio (B_t/Y_t in Equation 1) is regressed on a lag of the debt/GDP ratio (D_{t-1}/Y_{t-1} in Equation 1). The question is whether β_1 in Equation 1 is positive, i.e. if (D_{t-1}/Y_{t-1}) increases, the primary balance increases in period t:

$$B_t/Y_t = \beta_0 + \boldsymbol{\beta_1}(\boldsymbol{D_{t-1}/Y_{t-1}}) + \beta_2 g_{t-1} + \beta_3 B_{t-1}/Y_{t-1} + \varepsilon_t \quad (1)$$

Where:

- B_t/Y_t is the primary balance (surplus (+)/deficit (-))
- D_{t-1}/Y_{t-1} is the debt/GDP ratio
- g is the economic growth rate, its inclusion measures a business cycle reaction, i.e. if β_2 is negative lower growth leads to a more stimulating fiscal policy.
- B_{t-1}/Y_{t-1} is included to allow for inertia in government's behaviour.

The primary balance is the difference between non-interest expenditure (NIE_t) and revenue (T_t). Thus, if it is found that the government changes the primary balance/GDP ratio in reaction to changes in the debt/GDP ratio, the question is whether the government reduced the total non-interest expenditure/GDP ratio or increased the total revenue/GDP ratio (or both) in reaction to an increase in the debt/GDP ratio. Since the government may also be able to manage its interest bill down (by buying back bonds issued at higher rates with funds raised through issuing bonds with lower rates) in reaction to an increase in the debt/GDP ratio, we also considered the reaction of total expenditure (E_t) to a change in the debt/GDP ratio (note that the prevailing interest rate level at the time of issuing the new bonds will determine whether this is a viable option). Thus, following Claeys (2008) and Favero and Marcellino (2005) we also estimated the following regressions:

$$NIE_t/Y_t = \beta_0 + \beta_1(D_{t-1}/Y_{t-1}) + \beta_2 g_{t-1} + \beta_3 NIE_{t-1}/Y_{t-1} + \varepsilon_t \quad (2)$$

$$E_t/Y_t = \beta_0 + \beta_1(D_{t-1}/Y_{t-1}) + \beta_2 g_{t-1} + \beta_3 E_{t-1}/Y_{t-1} + \varepsilon_t \quad (3)$$

$$T_t/Y_t = \beta_0 + \beta_1(D_{t-1}/Y_{t-1}) + \beta_2 g_{t-1} + \beta_3 T_{t-1}/Y_{t-1} + \varepsilon_t \quad (4)$$

We expect β_1 to be negative in Equations (2) and (3) and positive in Equation (4). Equations (1) to (4) were each estimated in a model that also contained a version of Equation (5). Thus, we estimated a Vector Autoregressive (VAR) Model.

$$g_t = \beta_0 + \beta_1(D_{t-1}/Y_{t-1}) + \beta_2 g_{t-1} + \beta_3 F_{t-1}/Y_{t-1} + \varepsilon_t \quad (5)$$

Where F_{t-1}/Y_{t-1} is the fiscal variable used in that model. Thus, in the model estimated with the primary balance F_{t-1}/Y_{t-1} is B_{t-1}/Y_{t-1}, while in the other models it is respectively NIE_{t-1}/Y_{t-1}, E_{t-1}/Y_{t-1}, and T_{t-1}/Y_{t-1}. Lastly, to allow for two behavioural regimes of fiscal policy, we used the Markov-switching methodology to estimate the VAR (see Ricci-Risquete, Ramajo, and De Castro (2016) who also used an MS-VAR model for Spain).

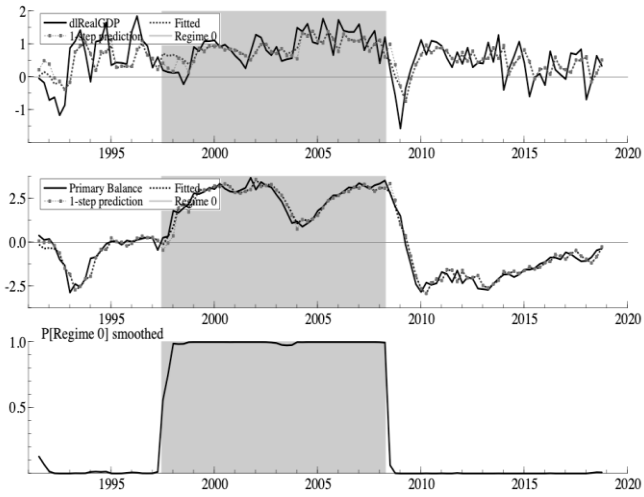
The public debt, expenditure and revenue data used in the empirical analysis originate from the South African Reserve Bank's Quarterly Bulletin and pertains to the national government. The revenue and expenditure data used are recorded monthly, but was summed for 12 months to create quarterly values to fit with the quarterly available public debt and GDP data. GDP[1] growth was calculated using National Accounts data. The period covered is 1991Q3 to 2018Q4.

3.1 Primary balance reaction functions

The primary balance/GDP ratio reacts to an increase in the debt/GDP ratio (see Table 1). The reaction has the appropriate sign. A one percentage point increase in the debt/GDP ratio leads to a 0.012 percentage point increase in the primary balance/GDP ratio.[2]

[1] Gross domestic product (GDP**)**, total market value of the final goods and services produced by a country's economy during a specified period of time.

[2] This can be explained as follows. Percentage points describe the difference between two percentages. The above means that, should the debt/GDP ratio for example increase from 60% to 61% (i.e. by one percentage point), this will result in an increase (improvement) of the primary balance by .012 percentage points, for example from -2% to -1.988%. The same changes will occur, whatever the initial debt/GDP or primary balance/GDP ratios are.



Note: dlRealGDP = quarterly GDP growth rate; Primary Balance = Primary Balance/GDP ratio

Figure 3: Regime-switching behaviour in the primary balance/GDP and economic growth model

Table 1: Primary balance to debt reaction function

	Primary Balance/GDP	GDP growth
Primary Balance/GDP (t-1)	0.866 (0.000)	-0.039 (0.757)
Primary Balance/GDP (t-2)	0.250 (0.034)	-0.069 (0.684)
Primary Balance/GDP (t-3)	-0.269 (0.001)	0.024 (0.830)
GDP growth (t-1)	0.170 (0.003)	0.499 (0.000)
Debt/GDP (t-4)	0.012 (0.021)	-0.003 (0.734)
Constant (0)	-0.193 (0.424)	0.768 (0.028)
Constant (1)	-0.742 (0.001)	0.226 (0.475)
Linearity LR-test	Chi^2(4)	226.59 (0.000)
Vector Normality test	Chi^2(4)	4.587 (0.332)
Vector ARCH 1-1 test	F(4,174)	0.224 (0.925)
Vector Portmanteau(12)	Chi^2(44)	45.99 (0.390)
Transition probabilities	Regime 0,t	Regime 1,t
Regime 0,t+1	0.972	0.017
Regime 1,t+1	0.028	0.983
Regime 0	Quarters	Average probability
1997(3) - 2008(2)	44	0.981
Regime 1	Quarters	Average probability
1991(3) - 1997(2)	24	0.987
2008(3) - 2018(4)	42	0.998

Other coefficients (Std Error): scale[0] 0.502 (0.035); scale[1] 0.342 (0.024); L[1][0] -0.069 (0.066); p{0|0} 0.972 (0.028); p{1|1} 0.984 (0.017)
Probabilities ( ); Sample: 1991(3) - 2018(4)
Regime 0: Total: 44 quarters (40.00%) with average duration of 44.00 quarters.
Regime 1: Total: 66 quarters (60.00%) with average duration of 33.00 quarters.

Although this regression shows that the primary balance/GDP ratio reacted throughout the sample period, the constant of -0.742 in Regime 1 (1991Q3 to 1997Q2 and 2008Q3 to 2018Q4) is lower than the statistically insignificant constant value of -0.193 in Regime 0 (1997Q3 to 2008Q2) (see Figure 3 for graphical presentation of regimes). This means that the average primary balance/GDP ratio during Regime 1, in place since 2008, has been too low to prevent

an increase in the debt/GDP ratio. The estimation detects no impact of the primary balance/GDP ratio on economic growth.

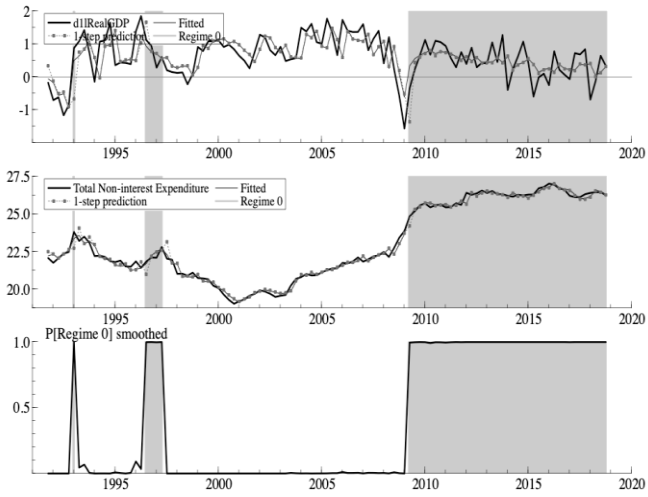
3.2 Total non-interest expenditure reaction functions

Two regimes were identified with respect to the reaction of the total non-interest expenditure/GDP ratio to specifically changes in the debt/GDP ratio. Regime 0, the higher-expenditure/GDP regime, has existed from 2009Q2 (it also existed for 1993Q1 to 1993Q1 and 1996Q3 to 1997Q2), while Regime 1, the lower-expenditure/GDP regime, existed from 1991(4) to 1992Q4, 1993Q2 to 1996Q2 and 1997Q3 to 2009Q1 (see Figure 4). In Regime 0 total non-interest expenditure ***did not*** react to increases in the debt/GDP ratio, which also helps to explain why the debt/GDP ratio kept increasing from 2009Q2 onwards. In Regime 1, which existed from 1997Q3 to 2009Q1, total non-interest expenditure did react to increases in the debt/GDP ratio; with the non-interest expenditure/GDP ratio falling by 0.032 percentage point for every percentage point increase in the debt/GDP ratio (see line 5 of Table 2). This partially explains the reduction in the debt/GDP ratio in the 2000s. In addition, the non-interest expenditure/GDP ratio fell in reaction to an increase in the growth rate, with the fall being larger in Regime 0 (2009Q2 to 2018Q4) than in Regime 1 (1997Q3 to 2009Q1) – unfortunately average growth during Regime 0 was much lower than during Regime 1.

Table 2: Total non-interest expenditure to debt reaction function

	Total Non-interest Expenditure/GDP	GDP growth
Total NI Exp/GDP (t-1)	0.865 (0.000)	-0.060 (0.147)
GDP growth (t-1) (0)	-0.237 (0.000)	0.220 (0.056)
GDP growth (t-1) (1)	-0.109 (0.027)	0.810 (0.000)
Debt/GDP (t-4) (0)	-0.007 (0.104)	-0.014 (0.119)
Debt/GDP (t-4) (1)	-0.032 (0.000)	0.010 (0.278)
Constant (0)	3.969 (0.000)	2.474 (0.023)
Constant (1)	4.175 (0.000)	0.970 (0.367)
Linearity LR-test	Chi^2(4)	288.21 (0.000)
Vector Normality test	Chi^2(4)	5.368 (0.252)
Vector ARCH 1-1 test	F(4,174)	0.585 (0.674)
Vector Portmanteau(12)	Chi^2(44)	48.48 (0.413)
Transition probabilities	Regime 0,t	Regime 1,t
Regime 0,t+1	0.949	0.048
Regime 1,t+1	0.051	0.952
Regime 0	Quarters	Average probability
1993(1) - 1993(1)	1	1.000
1996(3) - 1997(2)	4	0.999
2009(2) - 2018(4)	39	0.999
Regime 1	Quarters	Average probability
1991(4) - 1992(4)	5	1.000
1993(2) - 1996(2)	13	0.980
1997(3) - 2009(1)	47	0.993

Other coefficients (Std Error): scale[0] 0.475 (0.032); scale[1] 0.243 (0.017); L[1][0] -0.011 (0.052); p{0|0} 0.949 (0.035); p{1|1} 0.952 (0.028)
Probabilities ( ); Sample: 1991(4) - 2018(4)
Regime 0: Total: 44 quarters (40.37%) with average duration of 14.67 quarters.
Regime 1: Total: 65 quarters (59.63%) with average duration of 21.67 quarters.

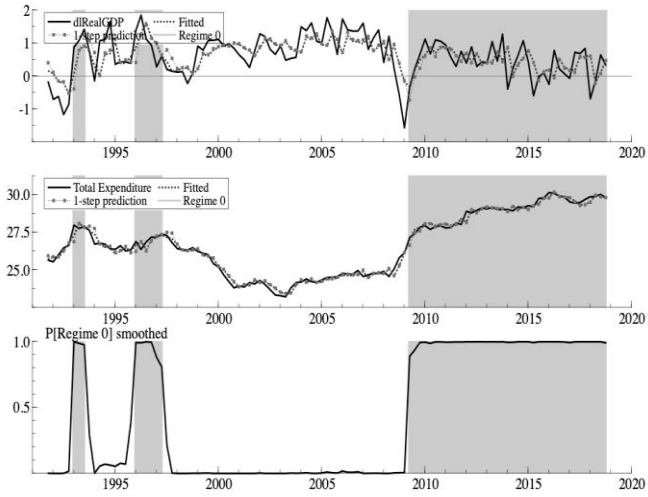


Note: dlRealGDP = quarterly GDP growth rate; Total Non-interest Expenditure = Total Non-interest Expenditure/GDP ratio

Figure 4: Regime-switching behaviour in the total non-interest expenditure/GDP and economic growth model

3.3 Total expenditure reaction functions

An increase in the debt/GDP ratio leads to a reduction in the total government expenditure/GDP ratio. This is indicated by the number -0.214 (second line, Table 3). In addition, an increase in economic growth leads to a reduction in the total government expenditure/GDP ratio (see the number -.009, third line, Table 3).



Note: dlRealGDP = quarterly GDP growth rate; Total Expenditure = Total Expenditure/GDP ratio

Figure 5: Regime-switching behaviour in the total expenditure/GDP and economic growth model

Table 3: Total expenditure to debt reaction function

	Total Expenditure/GDP	GDP growth
Total Expenditure/GDP (t-1)	0.895 (0.000)	-0.145 (0.004)
GDP growth (t-1)	-0.214 (0.000)	0.522 (0.000)
Debt/GDP (t-4)	-0.009 (0.025)	0.006 (0.393)
Constant (0)	3.581 (0.000)	4.194 (0.002)
Constant (1)	3.125 (0.000)	3.707 (0.002)
Linearity LR-test	Chi^2(4)	272.08 (0.000)
Vector Normality test	Chi^2(4)	2.798 (0.592)
Vector ARCH 1-1 test	F(4,174)	1.440 (0.223)
Vector Portmanteau(12)	Chi^2(44)	59.50 (0.087)
Transition probabilities	Regime 0,t	Regime 1,t
Regime 0,t+1	0.953	0.052
Regime 1,t+1	0.047	0.948
Regime 0	Quarters	Average probability
1993(1) - 1993(3)	3	0.988
1996(1) - 1997(2)	6	0.946
2009(2) - 2018(4)	39	0.994
Regime 1	Quarters	Average probability
1991(4) - 1992(4)	5	0.996
1993(4) - 1995(4)	9	0.882
1997(3) - 2009(1)	47	0.993

Other coefficients (Std Error): scale[0] 0.504 (0.035); scale[1] 0.254 (0.018); L[1][0] -0.0799 (0.050); p{0|0} 0.953 (0.033); p{1|1} 0.948 (0.030)
Probabilities ( ); Sample: 1991(3) - 2018(4)
Regime 0: Total: 48 quarters (44.04%) with average duration of 16.00 quarters.
Regime 1: Total: 61 quarters (55.96%) with average duration of 20.33 quarters.

Furthermore, an increase in the total government expenditure/GDP ratio leads to a reduction in economic growth. Specifically, a one percentage point increase in the total government expenditure/GDP ratio led to a reduction in economic growth of 0.145 percentage points. In addition, an increase in the economic growth rate led to a reduction in the total expenditure/GDP ratio. As with the non-interest expenditure regression, Regime 0 largely represented a higher-expenditure regime/GDP, while Regime 1 represented a lower-expenditure/GDP regime. Regime 0 existed from 1993Q1 to 1993Q3, 1996Q1 to 1997Q2 and 2009Q2 to 2018Q4, while Regime 1 existed from 1991Q4 to 1992Q4, 1993Q4 to 1995Q4 and 1997Q3 to 2009Q1 (see Figure 5).

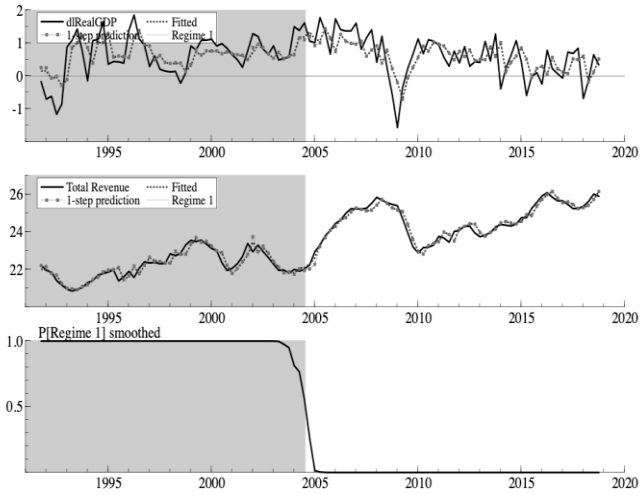
3.4 Total revenue reaction functions

The total revenue/GDP ratio increased following an increase in the debt/GDP ratio. A one percentage point increase in the debt/GDP ratio caused a 0.01 percentage point increase in the total revenue/GDP ratio (see line 4, Table 4). The total revenue/GDP ratio did not impact economic growth. The model identified two regimes, Regime 0, a higher-revenue/GDP regime, ran from 2004Q4 to 2018Q4, while Regime 1, a lower-revenue/GDP regime, ran from 1991Q4 to 2004Q3 (see Figure 6).

Table 4: Revenue to debt reaction function

	Total Revenue/GDP	GDP growth
Total Revenue/GDP (t-1)	1.088 (0.000)	0.008 (0.943)
Total Revenue/GDP (t-3)	-0.217 (0.000)	-0.121 (0.262)
GDP growth (t-1)	0.034 (0.387)	0.533 (0.000)
Debt/GDP (t-4)	0.010 (0.008)	0.001 (0.932)
Constant (0)	2.798 (0.001)	2.999 (0.047)
Constant (1)	2.421 (0.001)	2.796 (0.039)
Linearity LR-test	Chi^2(4)	296.76 (0.000)
Vector Normality test	Chi^2(4)	5.729 (0.220)
Vector ARCH 1-1 test	F(4,174)	1.170 (0.326)
Vector Portmanteau(12)	Chi^2(44)	49.12 (0.312)
Transition probabilities	Regime 0,t	Regime 1,t
Regime 0,t+1	1.000	0.019
Regime 1,t+1	0.000	0.981
Regime 0	Quarters	Average probability
2004(4) - 2018(4)	57	0.995
Regime 1	Quarters	Average probability
1991(4) - 2004(3)	52	0.982

Other coefficients (Std Error): scale[0] 0.516 (0.035); scale[1] 0.249 (0.017); L[1][0] -0.000 (0.047); p{1|1} 0.981 (0.019)
Probabilities ( ); Sample: 1991(4) - 2018(4)
Regime 0: Total: 57 quarters (52.29%) with average duration of 57.00 quarters.
Regime 1: Total: 52 quarters (47.71%) with average duration of 52.00 quarters.



Note: dlRealGDP = quarterly GDP growth rate; Total Revenue = Total Revenue/GDP ratio

Figure 6: Regime-switching behaviour in the total revenue/GDP and economic growth model

3.5 Summary of empirical findings

With regard to the reaction of fiscal policy to changes in debt/GDP:

- When the public debt/GDP ratio increased during the period 1991 to 2018, the government, in reaction, the increase in the increased the primary balance/GDP ratio may be interpreted as the outcome of a combinations of events, including a fiscal attempt to arrest the increase in the debt/GDP ratio (and the opposite when the debt/GDP ratio fell). Notwithstanding

this reaction, what the analysis also shows is that since the third quarter of 2008 the overall level of the primary balance was too low to prevent an increase in the debt/GDP ratio. Thus, although fiscal policy took steps to arrest the increase in the debt/GDP ratio, since 2008 those steps were just not enough.

- When the public debt/GDP ratio increased during the period 1991 to 2018, the government, in reaction, on balance increased the total revenue/GDP ratio – albeit marginally. However, total non-interest expenditure/GDP has not reacted to changes in the debt/GDP ratio since the second quarter of 2009. Thus, the reaction observed in the primary balance/GDP ratio to changes in the debt/GDP ratio during the last decade, is due to the reaction of revenue/GDP, not non-interest expenditure. In short, though it failed to stabilise the debt/GDP ratio revenue, revenue did the work of preventing the debt/GDP ratio from increasing any faster.

With regard to the impact of fiscal policy on economic growth:

- Increases in the debt/GDP ratio in the period 1991-2018 did not impact economic growth negatively.
- Changes in the primary deficit/GDP, total non-interest expenditure/GDP and total revenue/GDP in the period 1991-2018 did not impact on economic growth.
- Increases in total expenditure/GDP in the period 1991-2018 did impact economic growth negatively. This provides period-specific evidence that higher levels of government expenditure relative to GDP dampen economic growth. The reverse is also true: given similar circumstances, a reduction in the total expenditure/GDP ratio, may lead to higher economic growth. The regression analysis does not consider the various channels through which this may occur, but typically lower levels of government expenditure might release resources for private investment (thus, the crowding-out process in reverse), while any negative multiplier effect resulting directly from the reduction in government expenditure might be offset by a positive confidence and multiplier effect of higher private investment and consumption expenditure.

4. What size of fiscal adjustment is required?

The above analysis shows what the fiscal response was in the past. This section briefly sets out the requirements for future adjustment. Figure 7 contrasts the actual primary balance/GDP ratio (solid black line) in each year with the primary balance/GDP ratio that was required in each year to stabilise the debt/GDP ratio at its level in the previous year (broken black line) – thus, the debt/GDP ratio used to calculate the required primary balance is a moving target; each year it is reset at the level of the actual debt/GDP ratio of the previous year.[3] Figure 7 shows that from 1999 to 2008 the actual primary balance/GDP ratio exceeded the required primary

[3] To calculate the required primary balance we use the debt dynamics equation:

$$\Delta(D_t/Y_t) = ((r_t - g_t)/(1 + g_t))(D_{t-1}/Y_{t-1}) - B_t/Y_t \quad \text{(fn.1)}$$

Which becomes:

$$B_t^{Required}/Y_t = ((r_t - g_t)/(1 + g_t))(D_{t-1}/Y_{t-1}), \text{ assuming } \Delta(D_t/Y_t) = 0 \quad \text{(fn.2)}$$

Usually the real interest rate is taken as the effective interest rate, which is merely interest expenditure divided by total debt in the previous year. However, interest expenditure on the budget is recorded on a modified cash basis, which excludes the discount on bonds issues at a discount, the revaluation of inflation-linked bonds and of foreign-denominated bonds. Dealing with this problem is straightforward, using Equation (fn.1) to derive the effective real interest rate:

$$r_t^{effective} = \frac{\left(\Delta\left(\frac{D_t}{Y_t}\right) + \frac{B_t}{Y_t}\right)(1+g_t)}{\left(\frac{D_{t-1}}{Y_{t-1}}\right)} + g_t \quad \text{(fn.3)}$$

balance/GDP ratio, which explains why the debt/GDP ratio fell during this period (see Figure 1 above). The reverse holds for the period since 2009.

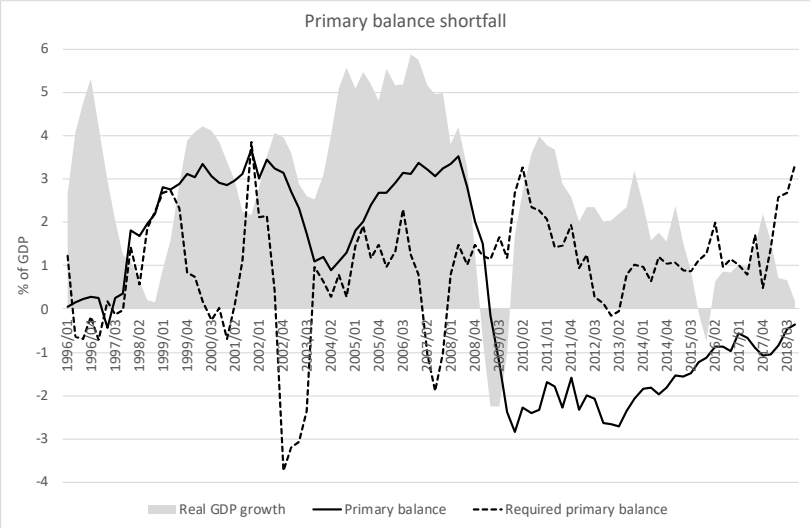


Figure 7: The primary balance shortfall (A)
Source: SARB Quarterly Bulletin and authors' calculations

Figure 8 presents the difference between the actual and required primary balances (thus Figure 8 shows the difference between the solid and broken black lines in Figure 7), and therefore shows the change in the actual primary balance required to ensure that the debt/GDP ratio remains stable at the level of the debt/GDP ratio in the previous year. The change required since 2012 was approximately 3% of GDP, though approaching 4% by the end of 2018. A required adjustment of 4% is also the average adjustment the International Institute of Finance (IIF) (Lanau, Castellano, and Khan 2019) found in 38 episodes of fiscal adjustment in emerging market economies. The IIF found that these adjustments are made in a two-year period, and then maintained thereafter.

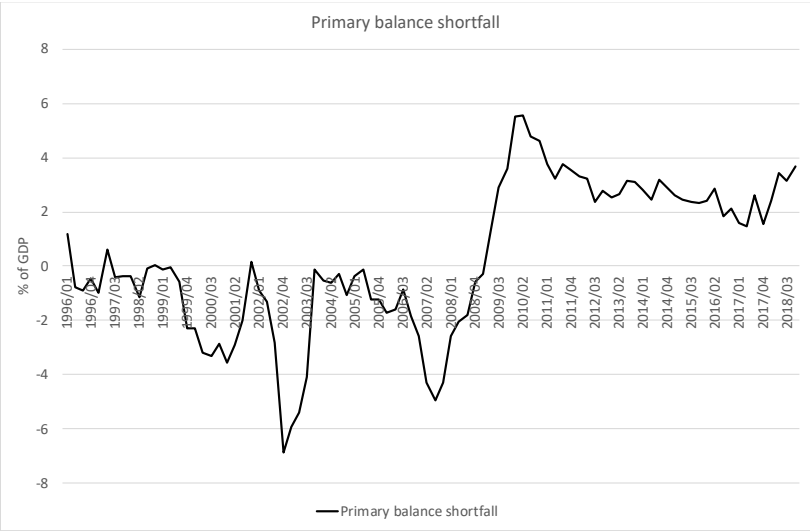


Figure 8: The primary balance shortfall (B)
Source: SARB Quarterly Bulletin and authors' calculations

What should be the adjustment path of fiscal policy in South Africa? To explore a realistic adjustment path Table 5 and Figure 9 present two adjustment options. The first, Scenario 1, is a stabilising fiscal policy that aims at merely arresting the increase in the gross/debt GDP ratio, keeping it stable afterwards, while the second, Scenario 2, is a consolidating fiscal policy that seeks to reduce the gross debt/GDP ratio to below 40% by the mid-2030s.

Table 5: Stabilising as well as consolidating fiscal policy – assumptions made

	Current trajectory	Scenario 1: Stabilising policy	Scenario 2: Consolidating policy
Primary balance	-1.5%	2019: -1%	2019: -1%
		2020: 0%	2020: 0%
		2021: 1%	2021: 1%
		2022: 1%	2022: 1.5%
		2023: 1%	2023: 2%
		2024 onwards: 1%	2024 onwards: 2.5%
Real interest rate	4%	4%	4%
Real growth rate	1.45%	2019: 1%	2019: 1%
		2020: 1.5%	2020: 1.5%
		2021: 2%	2021: 2%
		2022: 2%	2022: 2%
		2023 onwards: 2.5%	2023 onwards:2.5%

Table 5 shows the assumptions made. It shows that for both policies we assume that the economic growth rate slowly improves to a modest 2.5% by 2023. In the case of the stabilising policy the primary balance improves from a deficit of 1% of GDP in 2019 to a surplus of 1% by 2021. Note that the adjustment is smaller than the adjustment identified in Figure 8 above because in Table 5 and Figure 9 we assume that the economic growth rate improves by 1.5 percentage points. In the case of the consolidating policy the primary balance improves from a primary deficit of 1% of GDP in 2019 to a primary surplus of 2.5% of GDP by 2023.

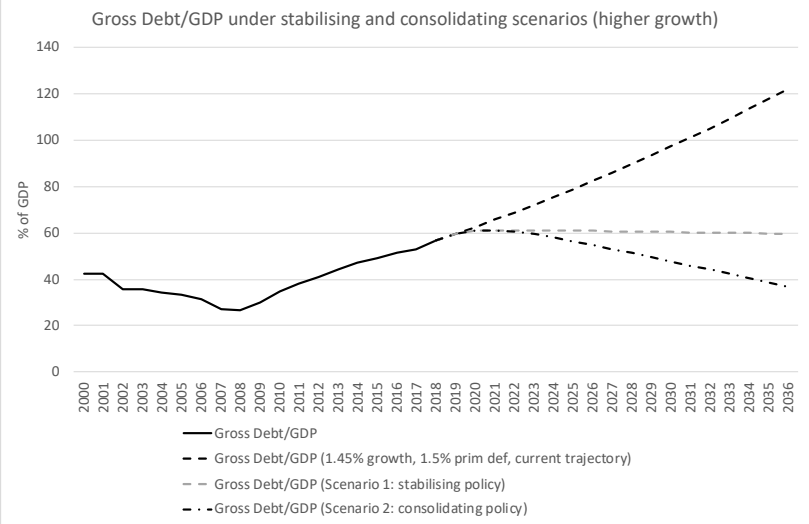


Figure 9: Gross debt/GDP under stabilising and consolidating scenarios
Source: SARB Quarterly Bulletin and authors' calculations

5. What needs to adjust? Expenditure or revenue?

To obtain the right size for the primary balance the government needs to either reduce total non-interest expenditure or increase total revenue (or both).

5.1 Revenue adjustment

In South Africa total tax revenue/GDP, plus other revenue and social security taxes equals total revenue/GDP, which on general government level is 37.5% in South Africa (see Figure 10 which compares South Africa to other countries). This places South Africa in 33rd place, out of 80 countries. Top of the list are Iceland, Norway, Denmark and Finland, followed by France and Belgium. Their total revenue/GDP ratio range between 50% and 57% of GDP. All these countries have large social security systems, with tax bases and public expenditure demands markedly different from that of South Africa.

Of the 32 countries with heavier total revenue burdens than South Africa, 22 are OECD countries and four are Eastern European transition economies with higher per capita GDPs than South Africa. South Africa is highly taxed for an emerging market. Only five emerging economies carry heavier burdens: Brazil, Cyprus, Tonga, Malta and the Seychelles. There are 20 emerging markets which collect less revenue as percentage of GDP than SA, including China, Thailand, Indonesia, Kenya and Uganda. South Africa also has a higher total revenue/GDP ratio than the US, Switzerland, South Korea, Australia and Israel, all of which are developed economies. Although the empirical analysis reported above found that an increase in the total revenue/GDP ratio did not impact negatively on GDP in the period 1991 to 2018, given South Africa's relatively high revenue burden compared to other emerging market economies, there is little scope for South Africa to increase tax rates in future. Doing so will serve as a disincentive for individuals and companies to earn their income and be taxed in South Africa.

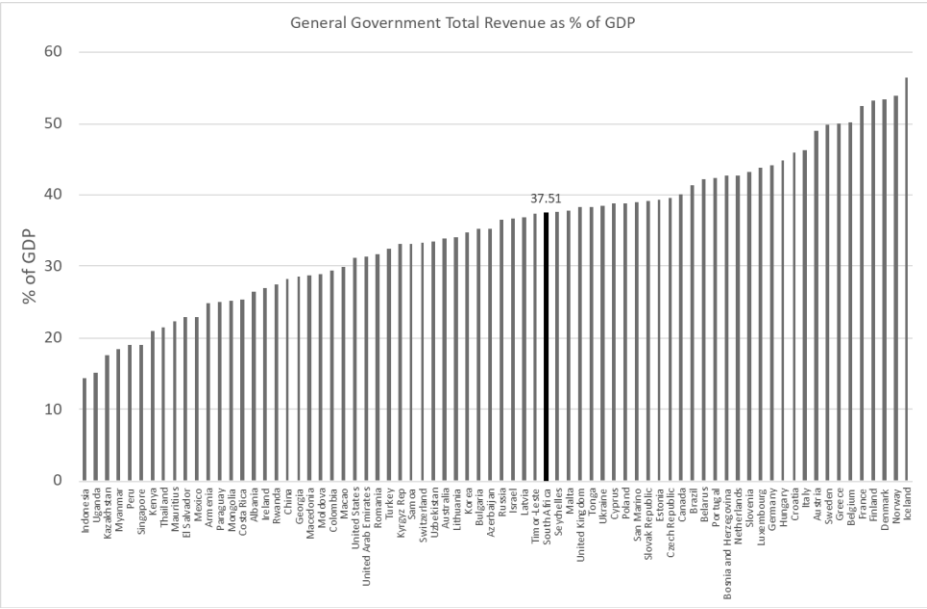


Figure 10: General government total revenue as percentage of GDP
Source: IMF (2019)

5.2 Capital expenditure adjustment

What the government should not be doing is attempt to reduce the government's total expenditure by reducing its capital expenditure. Easterly (1999) argued that a "fiscal adjustment is an illusion when it lowers the budget deficit or public debt but leaves government net worth unchanged". This is indeed what South Africa did between 1994 and 2008 when it reduced the gross debt/GDP ratio of the government by spending too little on capital formation compared to what was needed to maintain government's total capital stock constant as percentage of GDP. Figure 11 presents the gross public debt/GDP ratio (which represents the liability side of government's balance sheet) and the total fixed capital stock of general government/Gross Value Added (GVA) ratio (representing the asset side of government's balance sheet, calculated using national accounts data). Figure 11 shows that between 1994 and 2008 both these ratios decreased, meaning that even though government's gross debt burden decreased, its balance sheet did not improve.

However, since 2008 government's balance sheet deteriorated. Even though its total fixed capital stock/GVA ratio stabilised, its gross debt/GDP ratio increased sharply (see Figure 11). Cutting capital expenditure to reduce the debt burden might again, to a limited extent (limited because government's capital budget is small relative to its total expenditure) assist in reducing the debt burden, but the fall in the debt burden will not improve government's balance sheet.

Not only did the general government's fixed capital stock/GVA ratio decrease until 2008, but so too did the total non-financial assets/GDP ratio of state-owned enterprises (see Figure 12). Since 2008 the total non-financial assets/GDP ratio of SOEs improved to over 30%, largely because of the construction of the Medupi and Kusile power plants. However, given that these plants operate only at 40% reliability (Mail and Guardian 2019), are still not complete and suffer from major construction errors and management deficiencies, the increase in the total non-financial assets/GDP ratio is probably inflated. If it is inflated, the true value of the SOE equity/GDP ratio might be much lower than reported in Figure 12. Instead of the reported increase, it might even have decreased since 2008. The increased total-debt-and-other-accounts-payable/GDP ratio in Figure 12 is also reflected in the increased guarantees/GDP ratio reported in Figure 1 and constitutes one of the largest fiscal risks the South African government faces. Moody's already in May 2019 announced that in assessing the country's sovereign credit rating they will consider the public debt/GDP burden inclusive of guarantees. As Figure 1 above shows, the gross public debt-plus-guarantees ratio is in excess of 65% in 2019. With SOE debt as well as guarantees more than doubling as percentages of GDP since 2008, restructuring the finances of SOEs is key to ensure fiscal sustainability.

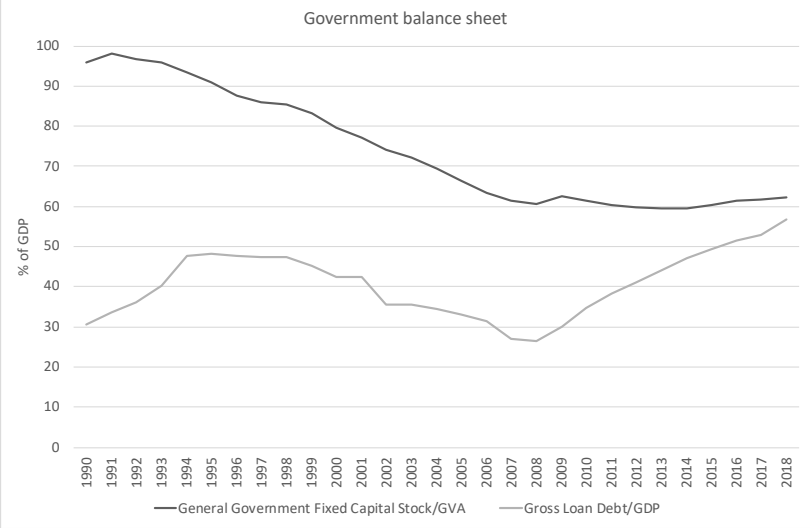


Figure 11: General government balance sheet
Source: SARB Quarterly Bulletin

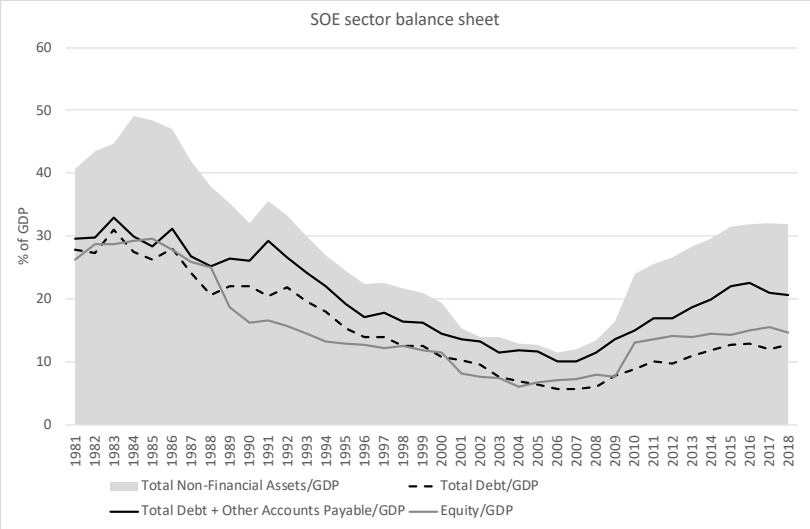


Figure 12: SOE balance sheet
Source: SARB Quarterly Bulletin

Not only has the general government's own balance sheet deteriorated significantly since 2008, undermining the country's longer run economic growth potential, so too has that of SOEs, further undermining the country's longer run economic growth potential. For instance, given the strain on the country's electricity and water infrastructure, there is little prospect in the foreseeable future of reaching the GEAR, ASGISA and the NDP growth targets of 5% and 6%. Attempting to regain fiscal sustainability and reducing the public debt burden by cutting capital expenditure any further will just limit longer-term growth prospects further.

5.3 Current expenditure adjustment

If there is limited scope on the revenue and capital expenditures sides of the budget to adjust the primary balance, the government is left with only the current expenditure side to make the necessary adjustment. Government cash payments for operating activities, on both general and

central government level, expressed as percentage of GDP, increased by 7 percentage points between the 2007/08 and 2015/06 fiscal years, before tapering off by a percentage point in 2017/08 (see Figure 13). Particularly between 2007/08 and 2011/12 the cash payments for operating activities, as a percentage of GDP, displayed a sharp increase of 5 percentage points, coinciding with the sharp deterioration in the primary balance/GDP ratio observed in Figure 2. Thus, a case exists to address the deterioration in the primary balance by rolling back the increase in government expenditure that gave rise to the deterioration in the first place. In other words, spend only what can be afforded; or, only spend more when it can be afforded.

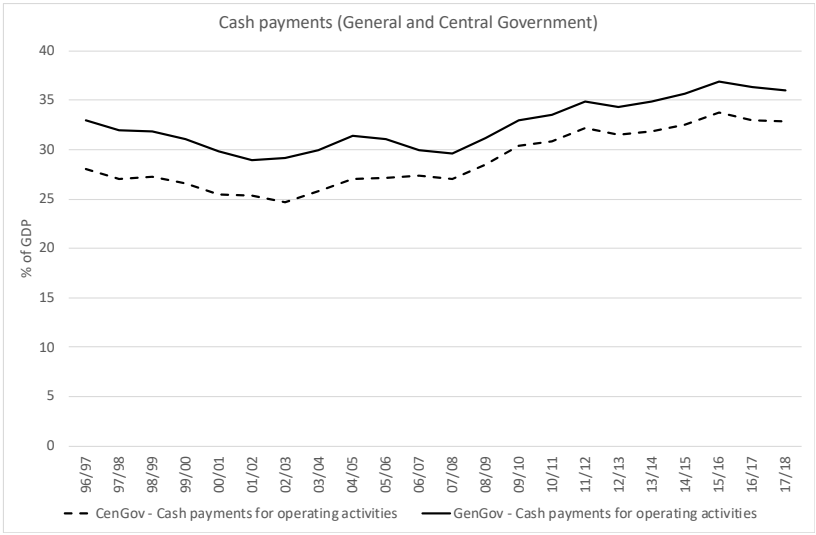


Figure 13: Total cash payments by general and central government
Source: GFS data in SARB Quarterly Bulletin (fiscal years) and authors' own calculations

One category of current expenditure that should not be targeted is social benefits. Although the social benefits/GDP ratio increased from just over 2.5% of GDP in 2001/02 to approximately 4.25% in 2009/10, it has remained between 4% and 4.5% since, with a slight upward trend. However, given the distributional effect of social grants and the important income augmentation role they play for the bottom 40% of households, cutting back social benefits should receive low priority as an expenditure category to be cut.

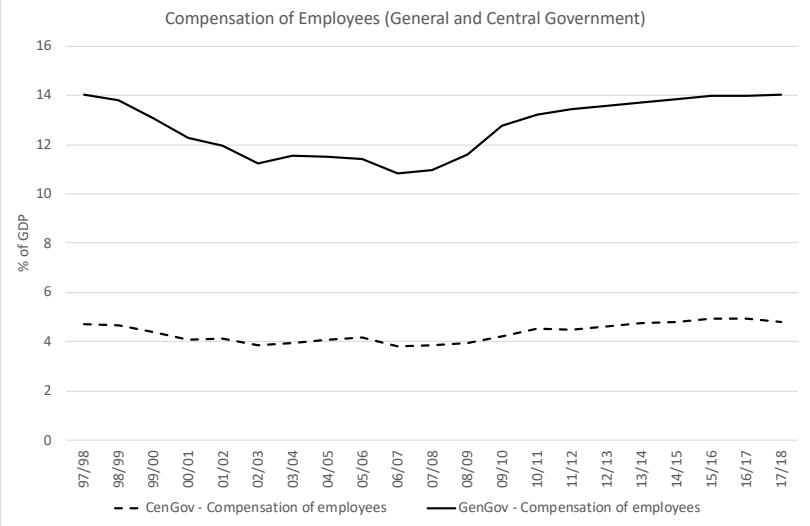


Figure 14: Compensation of employees (general and central government)
Source: GFS data in SARB Quarterly Bulletin (fiscal years) and authors' own calculations

Contributing at least 3 percentage points to the increase in the general government expenditure/GDP ratio is compensation of employees, rising from below 11% of GDP in 2007/08 to 14% in 2018 (see Figure 14). On central government level the increase was modest, from just below 4% of GDP in 2007/08 to just below 5% of GDP in 2018. Thus, the sharp increase on general government level occurred at provincial and local government level, which is not surprising given the constitutional structure of subnational responsibilities.

Reducing the government's wage bill will be difficult from a political point of view. This emphasises the importance of improving economic growth. As the analysis above has shown, if economic growth improves from 1% to 2.5% by 2023, the required increase in the primary balance decreases from 3% to 2% of GDP. Nevertheless, even with better economic growth, the primary balance must still improve and that improvement will to a large extent have to come from reducing the salary bill. The reduction can also be spread over three or four years to limit the impact per year and allow some of the reduction in the compensation of employees/GDP ratio to come from an increase in its denominator rather than a decrease in its numerator. For more on this, see the recommendation in the conclusion and recommendation section below.

There was also an increase, though much more muted, in the government's goods-and-services/GDP ratio. It increased from approximately 9.5% in 2008/09 to almost 11% by 2015/16, before returning to just below 10% in 2017/18. This ratio can probably be reduced further by improving efficiency and eradicating corruption, and fruitless and wasteful expenditure in government procurement. Improved control over the procurement process of new acquisitions as well as a review of existing contracts to identify overpriced goods and services, will improve value for money. The more value-for-money can be improved through better procurement and the eradication of corruption, the more can be saved on the goods-and-services budget, and the less pressure there is on government's salary bill to adjust.

6. Conclusion and recommendations

To stabilise debt/GDP requires a 2% of GDP improvement in the primary balance/GDP ratio (and a 2.5% growth rate by 2023). To consolidate the gross debt/GDP to below 40% by 2036

requires a 3.5% of GDP improvement in primary balance/GDP ratio (and also a 2.5% growth rate by 2023). Should economic growth remain stagnant at its average between 2012 and 2018 of 1.45%, the required adjustment in the primary balance/GDP ratio is at least 1 percentage point higher than in the case where growth improves by 2.5%. Based on the above this article makes the following recommendations to stabilise and reduce the debt burden:

1) *For as long as real economic growth is below 2%, the government attempts to stabilise the gross public debt/GDP ratio, not reduce it.* When growth reaches 2% or more, the government switches to a policy aimed at the reduction of the public debt/GDP ratio to below 40% in the mid-2030s. This of course requires success at improving other determinants of economic growth.
2) *Government engages with public sector trade unions to reach an agreement that limits the nominal growth in general government's salary bill over the period 2020 to 2023 to half of the expected nominal GDP growth rate.* Inflation and above-inflation salary increases will therefore require a reduction in the number of civil servants employed. Such a reduction should be done through early retirement, a moratorium on filling vacant posts and promotions (with the exception of critical key positions that experience higher-than-average staff turnover), as well as voluntary and involuntary severance. With this recommendation, the wage bill will only carry 50% of the required fiscal adjustment.

   Why limit the adjustment to 50%? Depending on the improvement in the economic growth rate by 2023, the adjustment required in the primary balance to stabilise the debt/GDP ratio ranges between 2% and 3% of GDP. If the wage bill had to carry the full fiscal adjustment of 3% of GDP, it will require from government to keep the wage bill constant in nominal terms for the period 2020 to 2023 and nominal GDP to grow at 6.5% per annum (5% inflation plus 1.5% real GDP growth). Such a freeze of the wage bill will reduce the wage bill from 14% of GDP in 2019 to 11% in 2023. However, reducing the salary bill this much is a big adjustment which in all likelihood is not politically feasible. Therefore, by allowing the salary bill to increase annually at half the rate at which nominal GDP increases, means that the salary bill falls to 12.5% of GDP in 2023 (assuming 5% inflation and real GDP growth remaining at 1.5%). This limits the overall fall in the salary bill as percentage of GDP to just more than 1.5%, which is politically much more feasible. However, this step will only deliver half of the required adjustment in the budget deficit. As a result, the goods-and-services budget will have to deliver the other 1.5% of the adjustment. Of course, if economic growth improves to 2.5% in 2023, the required adjustment in the primary balance falls from 3% to 2% of GDP, which will alleviate some of the pressure on the salary and goods-and-services budgets. But for growth to improve, business confidence first needs to improve, and the latter might only occur when investors see a demonstration of government's commitment to take hard decisions such as cutting the salary bill. Therefore, the prudent policy approach would be to plan as if growth will remain at 1.5% and take the effect on the budget of growth in excess of 1.5% as a windfall.
3) *Accompanying the fall in the salary bill as percentage of GDP, create a similarly sized reduction of 1.5% of GDP in the goods-and-services budget.*
4) The government will also have to *contain the financial risks stemming from SOE balance sheets by restructuring these institutions and putting them on a healthy financial footing.* However, the balance sheet restructuring should then be accompanied by the restructuring of SOE operational models to return them to profitability. This will, in cases such as Eskom, require the implementation of cost-cutting measures (including cuts in the SOE salary bill).

Supporting the above three recommendations are three further recommendations with a specific aim of creating a capable state that supports higher levels of economic growth:

1) *Right-sizing the civil service into a capable and fit-for-purpose civil service* where purpose is informed by clear and measurable departmental and programme objectives, which in turn are informed by clear overall policy objectives.
2) *Reforming the government's procurement processes to ensure higher levels of efficiency, less fruitless and wasteful expenditure, less overpriced goods and services, and the roll back of corruption*.
3) In the medium to longer run right-sizing the civil service must accompany *a shift in government expenditure, away from current expenditure such as salaries, towards capital expenditure*. Thus, as percentage of GDP the government's salary bill needs to decrease, not only to consolidate the public debt/GDP ratio, but also to free up revenue to finance capital. That should be the real consolidation dividend. The country's infrastructure is aging and needs additional investment to ensure that infrastructure facilitates future economic growth. Insufficient, aging and dilapidated infrastructure constitutes a drag on economic growth – that must change. Given that the government's borrowing capacity will remain severely constrained by the need to consolidate its fiscal position, the government should increasingly look towards a larger role for the private sector in financing, constructing and managing infrastructure. Independent power producers (IPPs) in the energy sector, independent water producers (IWPs) in the water sector, the use of concession contracts and public-private partnerships for toll roads, railroads, harbours, as well as for the building and operation of school and other government buildings are just some of the examples of roles that private companies can play in the financing, construction and management of public infrastructure.

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