Countercyclical Fiscal Policy in South Africa: Role and Impact of Automatic Fiscal Stabilisers

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ABSTRACT

As actual budget balances reflect both cyclical developments and discretionary measures, they are not very useful when seeking to assess the orientation of underlying fiscal policy and possible structural imbalances in the budget balance. The influence of fluctuations in economic growth on the government's budget balance can be examined by decomposing the actual budget into a cyclical and a structural or cyclically adjusted component. The former component shows the effect on the government budget of cyclical fluctuations in economic activity, the latter reflects what the budget balance would be if economic activity were at its trend level. This paper calculates the extent to which fiscal policy stabilises output fluctuations in South Africa and estimates the cyclically adjusted budget balance of the consolidated general government as an alternative fiscal indicator that can contribute to more effective fiscal policy and fiscal analysis.

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1 INTRODUCTION AND BACKGROUND

Economic fluctuations and the size of the government budget balance are interdependent. A weakening of the budget balance can sometimes be masked temporarily by strong economic growth, whereas during a recession, conversely, the government budget balance can also be overstated on account of cyclical factors. Many institutions, including the IMF, OECD and the European Commission, produce estimates of cyclically adjusted budget balances (correcting actual government budget balances for business cycle fluctuations) in order to eliminate short-term fluctuations and reveal the "hard core" of the budget balance.

The economic cycle has an important short-term impact on the public finances and these effects need to be taken into account when assessing its underlying

(structural) position. Serious policy mistakes can occur when purely cyclical improvements in the public finances are treated as if they represent structural improvements, or if structural deterioration is interpreted as a cyclical effect. Therefore, when assessing fiscal prospects, it is essential to adjust fiscal indicators for the effects of the economic cycle.

Fiscal policy can help to stabilise the economy through the operation of automatic stabilisers. Government balances tend to rise when output is above trend, and fall when output is relatively low. During a boom, with growth in incomes, consumption, output and employment, government revenue will rise due to higher direct and indirect taxes and lower expenditure such as unemployment insurance benefit payments. During a recession, the opposite applies. Rising government borrowing represents a net increase in domestic demand so that this automatic fiscal effect tend to moderate economic downturns. Conversely, falling government borrowing helps to dampen economic booms.

The aim of this paper is twofold: firstly to determine to what extend fiscal policy stabilises output fluctuations in South Africa and secondly, to calculate the cyclically adjusted budget balance that can be used as an alternative fiscal indicator in South Africa. The paper is organised as follows. The next section comments on the theoretical interdependence between fiscal policy and the business cycle, highlighting the need for using cyclically adjusted budget balances as fiscal policy indicators. The main fiscal policy objectives and trends in the South African general government finances are documented in Section 3, while Section 4 estimates the cyclical and structural components of the South African general government balance. Section 5 concludes.

2 FISCAL POLICY AND THE BUSINESS CYCLE

2.1 Business cycle properties of fiscal policy

Some components of the government budget react automatically to the cycle, increasing public deficits in recessions and decreasing them in expansions. Government revenue and expenditure are both highly cyclical, with expenditure decreasing and revenue increasing in an economic upswing. Hence, the effect of fiscal policy will be stronger when the economy is operating above trend, and weaker when the economy is below trend. If the economy is operating close to trend, then this suggests that the public finances should broadly be in balance to be sustainable. Countercyclical fiscal policy requires the government deficit and debt to increase during recessions and to decrease during booms.

2.2 Discretionary vs. non-discretionary fiscal policy

Fiscal policy can be used as a stabilising tool of economic activity either through the work of built in automatic stabilisers, through discretionary tax or expenditure measures or through both. The main difference between discretionary and non-discretionary fiscal policy is that non-discretionary fiscal policy does not involve any deliberate government action, while discretionary fiscal policy can be defined as a deliberate attempt by government to obtain a certain objective. Discretionary fiscal policy can therefore be interpreted as changes in fiscal variables that can be considered unrelated to changes in economic activity. There are many practical economic and political difficulties encountered in discretionary fiscal stabilisation policy. These include amongst others, time lags, crowding out effects, political constraints, irreversibility, inflexibility, practical problems in measuring and forecasting the state of the economy and determining how much fiscal stimulus is needed at any particular point in time (Swanepoel & Schoeman, 2002: 568). Against this background, most economists have become highly sceptical about the potential benefits of "fine tuning" the economy.

Automatic fiscal stabilisers provide a solution to these problems because economic conditions cause government expenditure and revenue to change in response to economic fluctuations without any deliberate government action, ensuring that they can act in a much quicker and timelier fashion compared to the use of discretionary measures. Governments have the option of either allowing these stabilisers to work or reinforcing or restraining their effect via discretionary budgetary policy.

2.3 Monetary policy vs. fiscal policy

Fiscal policy affects the economic environment in which monetary policy operates. In order to be effective, central banks have to systematically adjust monetary policy in accordance with the non-discretionary components of fiscal policy. With stronger automatic stabilisers in place, an increase in aggregate demand would have less affect on output and inflation, and the central bank would not need to respond as aggressively. Automatic responses can always be over-ridden by discretionary action, while the predictable fiscal responses from automatic fiscal stabilisers are also likely to facilitate the use of monetary policy. Automatic fiscal stabilisers can therefore play an important role as a complement of countercyclical monetary policy.

2.4 Definition and impact of automatic fiscal stabilisers

The European Central Bank (2002: 33) describes automatic fiscal stabilisers as the reaction of the government budget to economic fluctuations in the absence of any government action. The stabilisers operate symmetrically over the economic cycle, moderating overheating in boom periods and supporting economic activity during economic downturns, in principle without affecting the underlying soundness of budgetary positions as long as fluctuations remain balanced.

The two most important types of automatic fiscal stabilisers are personal income tax and unemployment insurance benefit payments. Although automatic fiscal stabilisers are usually stronger on the revenue side of the budget, fiscal action on the expenditure side is more effective. This is due to the fact that fiscal expenditure feeds directly into demand, while on the tax side, part of the revenue is saved or dissaved. Taxes are used for stabilisation purposes either by way of discretionary tax rate changes or via their built-in stabilisation properties. According to the OECD (1993: 44), tax-based automatic stabilisers have the advantage that they are rule-based because they respond immediately to changes in activity and generate expectations of future reversals that may limit the impact of greater public borrowing on long-term interest rates. Unemployment Insurance (UI) programmes attenuate the hardships of involuntary job losses while individuals are searching for alternative employment. However, they may also serve wider economic goals. While a UI programme can effectively limit a decline in consumption for those who become unemployed, it can also dampen the severity of a recession by sustaining consumption so that total spending during periods of high unemployment does not fall as much as would otherwise be the case (Orszag, 2001: 9 and Dunson, 1991: 4).

With a given cyclical pattern of the economy, the amplitude of budgetary fluctuations reflects the size of automatic stabilisers, which in turn is determined by many factors. The size of automatic fiscal stabilisers depends, *inter alia*, on the importance of the government sector in the economy (OECD, 1993: 37), the tax structure and the sensitivity of budgetary components to changes in the cycle (Van den Noord, 2000: 7), the effectiveness of stabilisation efforts in relation to the openness and structure of the economy (Barrell & Pina, 2000: 23 and OECD, 1993: 42), restrictions on deficits and debt (Eichengreen, 1997: 94), the relationship between automatic and discretionary stabilisation (OECD, 1999: 141) and the proportion of households and firms that are credit-constrained (Di Bella, 2002: 26). It is important to note that large automatic stabilisers are not necessarily preferable as they may indicate high tax burdens, highly distorting tax rates or overly generous benefit systems fraught with potentially large deadweight costs that could delay adjustments to a changing economic

environment and reduce incentives to work, invest and innovate, thereby weakening economic activity (Tam & Kirkham, 2001: 5 and European Central Bank, 2002: 35).

The European Central Bank (2002: 46) argues that automatic stabilisers are the appropriate way to stabilise output, as they have foreseeable, timely and have symmetrical effects. Discretionary fiscal policies are often inappropriate demand management tools, except in extraordinary circumstances such as where consolidation or fiscal structural reforms are required. Automatic fiscal stabilisers react with an intensity that is adapted to the amount to which economic conditions deviate from what was expected when budget plans were approved. These features of automatic stabilisers are almost impossible to replicate with discretionary reactions by policy-makers.

There are drawbacks and limits to automatic fiscal stabilisation as well. According to Di Bella (2002: 6), fiscal stabilisers may not work, or may actually increase output variability if there are perverse effects associated with their functioning. Such a case would be where fiscal deficits during recessions give rise to increases in interest rates due to public debt risk or sustainability issues. The European Commission (2001: 56) points out that automatic stabilisers are useful for stabilising output in the case of temporary shocks, but that high automatic stabilisers, in the case of permanent (mainly supply) shocks, may delay inevitable structural adjustment and, if they are symmetric, imply a stronger response by monetary authorities.

Discretionary fiscal policy measures are also important as they are needed to implement structural changes in public finances and to deal with exceptional situations, particularly when the economy experiences extraordinary shocks. Discretionary fiscal policy decisions are also needed to preserve the sustainability of public finances in the medium term. Active fiscal consolidation using discretionary policies is also appropriate when budgetary positions are unsound or when there are risks to fiscal sustainability arising from high debt and future fiscal obligations. (European Central Bank, 2002: 38).

2.5 Cyclically adjusted budget balances

The previous sub-sections pointed out that fiscal policy cannot easily be assessed on the basis of developments in actual government balances, since these reflect the impact of the cycle via the operation of automatic stabilisers in addition to policy measures approved by government. The impact of the business cycle on government budgets therefore needs to be disentangled if fiscal developments are to be monitored accurately.

Hagemann (1999: 1) describes the structural budget balance as the government's actual fiscal position purged of the estimated budgetary consequences of the business cycle that is designed in part to provide an indication of the medium-term orientation of fiscal policy. Cyclically adjusted government balances provide a clearer picture of the underlying fiscal situation, because they abstract from cyclical developments in economic activity to show what the government balance would be if output was at its potential level. Hagemann (1999: 3) maintains that, in assessing or formulating fiscal policy, failure to distinguish between temporary and permanent influences on the budget, poses the risk that fiscal levers may be over- or under- adjusted in response to budgetary developments that might be reversed automatically over the course of the business cycle.

3 FISCAL POLICY IN SOUTH AFRICA

3.1 Fiscal policy objectives and trends in general government finances

The consolidated general government in South Africa comprises the consolidated central government (national government, social security funds and extra-budgetary institutions), provincial governments and local authorities. Swanepoel and Schoeman (2002: 585) maintain that discretionary fiscal policy played an important role in South African fiscal policy over the period 1970 to 2000. Moreover, no explicit role was defined for automatic fiscal stabilisers, no estimates were published and their impact on the budget and the economy was not properly accounted for.

As mentioned previously, countercyclical fiscal policy requires the government deficit and debt to increase during recessions and to decrease during booms. Figure 1 illustrates the various periods in which the government deficit and debt did not move countercyclically in South Africa. The deficit and debt responded slightly more countercyclically during the latter half of the sample period. Moreover, deficits were more countercyclical during periods of positive output gaps, while debt was more countercyclically during periods of negative output gaps.

Figure 1 Deficit and debt during positive and negative output gaps

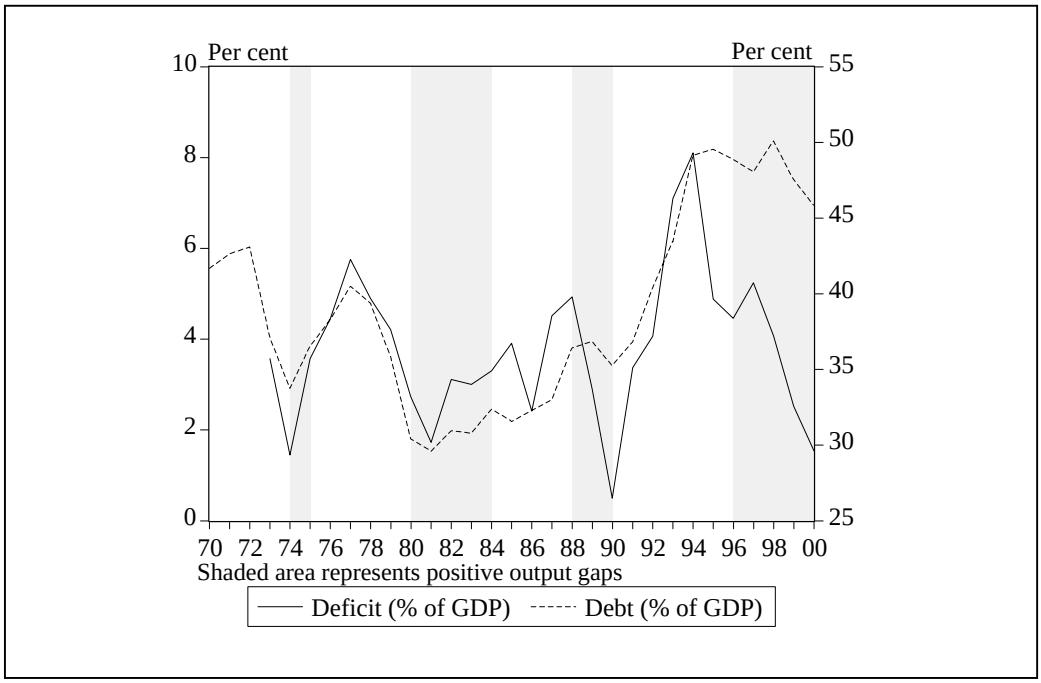


Table 1 Budgetary developments, percentage of GDP

	Budget balance	Change in budget balance	Change in budget balance due to:		Change in budget balance due to:	
			Revenue	Expen-diture	Structural component	Cyclical component
1973	-1.7	2.8	-0.1	-2.9	2.7	0.1
1974	-4.0	-2.3	0.3	2.5	-2.4	0.1
1975	-5.0	-1.0	1.4	2.4	-1.0	0.0
1976	-6.4	-1.4	0.1	1.5	-1.3	-0.1
1977	-5.8	0.7	1.3	0.7	0.8	-0.2
1978	-5.1	0.6	-1.3	-1.9	0.5	0.1
1979	-3.5	1.6	-0.2	-1.9	1.5	0.1
1980	-2.0	1.6	0.6	-0.9	1.3	0.3
1981	-3.6	-1.6	-0.6	1.0	-1.7	0.2
1982	-3.4	0.1	1.2	1.1	0.4	-0.3
1983	-3.9	-0.4	-0.5	-0.1	-0.3	-0.1
1984	-4.5	-0.6	1.3	1.9	-0.7	0.1
1985	-2.9	1.6	1.9	0.3	1.8	-0.2
1986	-5.3	-2.4	-2.2	0.2	-2.4	0.0
1987	-5.9	-0.7	0.1	0.8	-0.8	0.1
1988	-3.5	2.5	1.2	-1.3	2.3	0.2

Table 1 continued

	Budget balance	Change in budget balance	Change in budget balance due to:		Change in budget balance due to:	
			Revenue	Expen-diture	Structural component	Cyclical component
1989	-0.6	2.9	1.3	-1.6	2.8	0.1
1990	-3.9	-3.3	-1.0	2.3	-3.2	-0.1
1991	-4.5	-0.7	-0.7	0.0	-0.5	-0.2
1992	-8.2	-3.7	-0.8	2.9	-3.4	-0.3
1993	-9.1	-0.9	0.4	1.3	-1.0	0.1
1994	-5.5	3.6	0.5	-3.0	3.4	0.2
1995	-5.0	0.5	-0.4	-1.0	0.4	0.1
1996	-5.8	-0.8	0.0	0.8	-0.9	0.2
1997	-4.4	1.4	0.9	-0.5	1.4	0.0
1998	-2.4	1.9	1.4	-0.5	2.1	-0.2
1999	-1.4	1.1	0.6	-0.4	1.1	0.0
2000	-1.9	-0.5	-1.6	-1.1	-0.6	0.1

Source: South African Reserve Bank and own calculations

As shown in Table 1, the general government budget balance as a ratio of GDP reached a minimum value of -9.1 per cent in fiscal 1993/94, while the maximum value of -0.6 per cent was reached in fiscal 1989/90. The largest improvement in the general government budget balance ratio occurred in fiscal 1994/95, while the largest deterioration occurred in fiscal 1992/93. The deterioration in the general government balance ratio during the early 1990s resulted more from increases in the general government expenditure ratio than from decreases in the revenue ratio, while the improvement in the general government budget balance ratio towards the end of the sample period resulted more from increases in the general government revenue ratio than from decreases in the expenditure ratio.

3.2 International comparisons

Table 2 compares South Africa's central government finances with six other developing countries. Such comparison with international practice allows the judgement of how far South Africa may be below (or above) the "international norm" of disciplined fiscal policy. Excluding Romania, South Africa has the highest average revenue and expenditure to GDP ratios over the period 1972 to 2000. South Africa's revenue to GDP ratio (24.3 per cent) and expenditure to GDP ratio (28.8 per cent) are also well above the six country averages of 21.5 per cent and 23.9 per cent respectively. India has the highest average deficit to GDP ratio (-5.9 per cent) followed by South Africa (-4.5 per cent) and Mauritius (-4.4 per cent). South Africa's deficit to GDP ratio is nearly twice the size of the

six country average of –2.4 per cent. Chile and Romania, on average recorded surpluses over the sample period. India has the lowest average revenue to GDP ratio, while Mexico has the lowest average expenditure to GDP ratio. Romania has the highest average revenue, expenditure and budget balance to GDP ratios. South Africa's revenue, expenditure and budget balance to GDP ratios are on average very close to those of Mauritius.

Table 2 An international comparison of consolidated central government aggregates, 1972 to 2000

Country	Revenue to GDP ratio			Expenditure to GDP ratio			Balance to GDP ratio		
	Av.	Min.	Max.	Av.	Min.	Max.	Av.	Min.	Max.
South Africa	24.3	19.1	29.2	28.8	22.8	34.1	-4.5	-9.1	-0.2
Chile	23.0	13.2	30.0	22.8	17.8	28.9	0.2	-5.6	4.8
India	12.7	9.4	14.5	18.7	12.3	23.0	-5.9	-9.0	-2.9
Indonesia	17.6	12.4	22.5	18.8	14.7	24.4	-1.3	-3.8	2.2
Mauritius	22.7	16.8	25.2	27.1	19.5	36.1	-4.4	-13.9	0.9
Mexico	14.0	8.9	16.7	17.9	11.6	30.6	-3.9	-14.3	4.2
Romania	39.0	27.0	53.6	38.2	27.3	53.4	0.8	-4.7	8.2

Source: IMF, GFS CD-ROM (November 2002) and WEO Database (September 2002) and own calculations

4 AUTOMATIC FISCAL STABILISERS IN SOUTH AFRICA

This section provides estimates of the size of automatic fiscal stabilisation in South Africa as measured by the cyclical component of the budget balance over the period 1970 to 2000, as well as the estimation of the cyclically adjusted budget balance as an indicator of the medium term orientation of fiscal policy. The calculation of cyclical components and the cyclical adjustment of budget balances generally involve three main steps. The first step involves measuring the economy's potential output in order to identify an output gap (difference between actual and potential output) which indicates the economy's cyclical position. As a second step, the elasticities of cyclically sensitive tax revenue and expenditure categories with respect to output are calculated in order to estimate the sensitivity of these items to the business cycle. In the third step, the overall budget balance is adjusted according to the results obtained in the previous steps.

In this paper, automatic fiscal stabilisers are determined on the revenue side of the budget by tax revenue and on the expenditure side by unemployment insurance benefit payments. Taxes are assumed to be increasing in output with a constant elasticity, while unemployment insurance benefit payments are assumed to be decreasing in output with a constant elasticity. Other revenue and expenditure categories are considered to remain unaffected by economic fluctuations.

Following the methodology of Van den Noord (2000), the cyclical components of the budget balance are calculated by subtracting the estimated structural components of tax revenues and government expenditure from their actual levels. The structural components are calculated from actual tax revenues and expenditures, adjusted proportionally according to the ratio of trend output to actual output and the assumed built-in elasticities. Thus:

$$b^{**} = b - b^{*} \tag{1}$$

$$b^{*} = \frac{\sum_i T_i^{*} - G^{*} + X}{Y^{*}} \tag{2}$$

where:

b^{**} = cyclical component of budget balance (ratio to trend output)
b^{*} = structural component of budget balance (ratio to trend output)
b = actual budget balance (ratio to actual output)
G^{*} = structural unemployment insurance benefit payments
T_i^{*} = structural component of the *i*th category of tax
X = total revenue and grants (excluding tax revenue) *minus* total expenditure and net lending (excluding unemployment insurance benefit payments)
Y^{*} = trend output

and:

$$\frac{T_i^{*}}{T_i} = \left(\frac{Y^{*}}{Y}\right)^{\alpha_i}; \frac{G^{*}}{G} = \left(\frac{Y^{*}}{Y}\right)^{\beta} \tag{3}$$

where:

T_i = actual tax revenue for the *i*th category of tax
G = actual unemployment insurance benefit payments
Y = level of actual output

α_i = elasticity of *i*th tax category with respect to output ($\alpha_i > 0$)

β = elasticity of unemployment benefit payments with respect to output ($\beta < 0$)

In order to allow for shifts in the composition of tax revenue and to capture the impact on the budget of changes in the composition of output, a distinction is made between direct taxes[2] and indirect taxes and the elasticity of each tax category with respect to output ($\eta_{Ti,Y}$) is calculated as the product of the elasticities of the tax categories with respect to their tax bases ($\eta_{Ti,Bi}$) and the elasticities of these tax bases with respect to output ($\eta_{Bi,Y}$).

Thus:

$$\eta_{Ti,Y} = \eta_{Ti,Bi} * \eta_{Bi,Y} \tag{4}$$

The current income of households was selected as the tax base for direct taxes, while private consumption expenditure was selected as the tax base for indirect taxes. In this study, regression analysis is used to estimate the average elasticity of tax revenues over the period 1970 to 2000. The results are reported in Table 3[3].

The output gap was calculated as the percentage deviation of observed real GDP from trend real GDP. Trend output was estimated by a Hodrick-Prescott (HP) filter (lambda = 100)[4]. According to Cerra and Saxena (2000: 4), trend output (y*) derived using the HP-filter is obtained by minimising a combination of the gap between actual output (y) and trend output and the rate of change in trend output for the whole sample of observations (T):

$$\text{Min} \sum_{t=0}^{T} \left(y_t - y_t^*\right)^2 + \lambda \sum_{t=2}^{T-1} \left[\left(y_{t+1}^* - y_t^*\right) - \left(y_t^* - y_{t-1}^*\right)\right]^2 \tag{5}$$

where the detrending parameter λ determines the degree of smoothness of the trend.

From relationships (1), (2) and (3) the cyclical component of the budget balance is derived as:

$$b^{**} = \frac{1}{Y} \sum_i T_i \left[1 - \left(\frac{Y^*}{Y}\right)^{\alpha_i - 1}\right] - \frac{G}{Y}\left[1 - \left(\frac{Y^*}{Y}\right)^{\beta - 1}\right] + \frac{X}{Y}\left[1 - \left(\frac{Y^*}{Y}\right)^{-1}\right] \tag{6}$$

This formula shows that the cyclical component corresponds to the cyclical components of tax revenue and unemployment insurance benefits, which in turn are sensitive to the estimated output gaps and the built-in elasticities.

Table 3 Correlation coefficients and elasticities of budget components

Correlation coefficient between the cyclical components of budget and output[5]						
Direct taxes	**Indirect taxes**	**UI benefit payments**	**Total revenue and grants**	**Total expenditure and net lending**	**Budget balance**	**X[6]**
0.3	0.19	-0.47	0.26	-0.3	0.38	0.26
Elasticity of budget components with respect to output[7]						
Direct taxes	**Indirect taxes**	**UI benefit payments**	**Total revenue and grants**	**Total expenditure and net lending**	**Budget balance**	**X**
0.42	0.19	-1.23	0.91	0.76	0.04	0.07

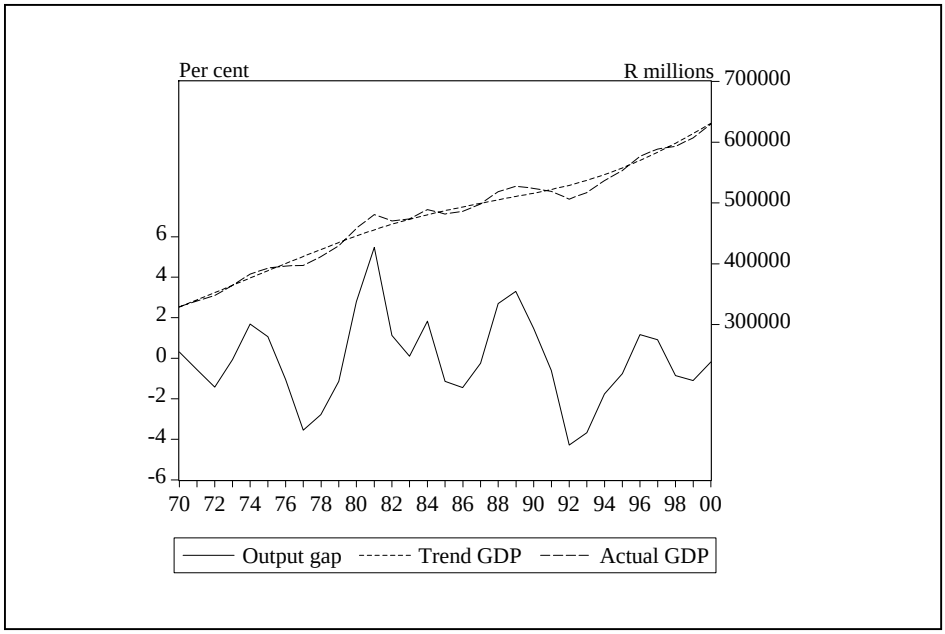
Table 3 shows correlation coefficients between the cyclical components of the budget balance and output. All the correlation coefficients have the correct sign, indicating that tax revenue and total revenue and grants are procyclical, while UI benefit payments and total expenditure and net lending are countercyclical. The elasticity estimates, however, indicate that total expenditure and net lending are procyclical[8]. This destabilising effect from expenditure components offsets the stabilising effect from revenue components, so that the budget balance only has a small stabilising impact. The elasticity of the budget balance with respect to output growth is 0.04, indicating that a 1 per cent decrease in output growth leads to a 0.04 per cent decrease in the budget balance as a ratio of GDP.

The average marginal sensitivity[9] of total revenue and grants to GDP and total expenditure and net lending to GDP were estimated at 0.25 and 0.24, respectively. This implies an average marginal sensitivity of the budget balance to GDP of 0.01, indicating that each widening of a negative output gap by 1 percentage point reduces the general government budget balance to GDP in South Africa by 0.01 percentage points.

Figure 2 illustrates South African real GDP, the trend in real GDP derived using the Hodrick-Prescott filter, and the GDP gap measured as the percentage deviation of observed real GDP from trend real GDP. Over the years, economic activity was volatile in terms of large and persistent deviations from trend as measured by the output gap. The output gap reached its peak of 5.5 per cent in

1981 during a period that was marked by a surge in the gold price. The lowest value of -4.3 per cent in the output gap was reached in 1992 during one of the worst recessions since the Great Depression. The main macroeconomic events and developments that impacted on the South African business cycle are documented in Van der Walt and Pretorius (1995), Pretorius, Venter and Weideman (1999) and Venter and Pretorius (2001). These include, *inter alia*, structural economic reforms, the domestic political transition, weather conditions, international economic developments and labour market turmoil. The volatility in economic activity and the fact that some changes in the business cycle resulted from exogenous factors and exceptional circumstances leave ample room for automatic fiscal stabilisers to smooth the cycle.

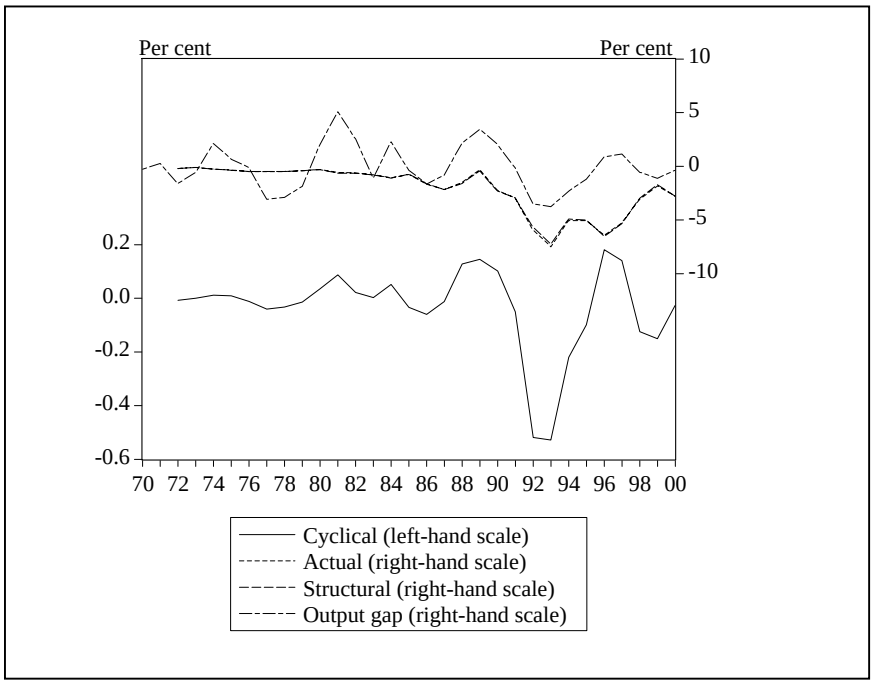
Figure 2 Actual real GDP, trend real GDP and the output gap



The actual, structural and cyclical components of the general government budget balance against the output gap are portrayed in Figure 3. The cyclical component of the budget balance responds more or less in line with changes in the output gap and it seems as if automatic fiscal stabilisers in South Africa were allowed to operate in both the up and down sides of the business cycle. Although the cyclical component of the general government budget balance represents only a small part of the total balance, the results illustrate a more prominent role of automatic fiscal stabilisers during the latter half of the sample period. It is clear from Figure 3 that the structural budget balance improved significantly from fiscal 1996/97 to fiscal 1999/2000. Table 1 indicated that large discretionary fiscal consolidation efforts were made in this period. These efforts worked against automatic fiscal stabilisers during a period of slower economic growth and could have contributed to the subdued economic growth

recorded at this time. Table 1 also indicated that changes in the budget balance could mainly be ascribed to changes in the structural component over the sample period.

Figure 3 Comparison of the actual, structural and cyclical components of the budget balance against the output gap



It is clear from Figure 4 that fluctuations in revenue account for a much larger share of automatic stabilisers than fluctuations in expenditure. The largest automatic stabilising effect arises from direct taxes. The small stabilising effect of unemployment insurance benefit payments can be ascribed to its small share in total public finances[10]. The average contribution of direct taxes, however, decreased from 73.8 per cent in the first half of the sample period to 67.0 per cent in the last half, while the average contribution of indirect taxes (UI benefit payments) increased from 23.8 (2.4) per cent to 28.1 (4.9) per cent over the same period.

Figure 4 Contributions to the total cyclical component of the budget balance

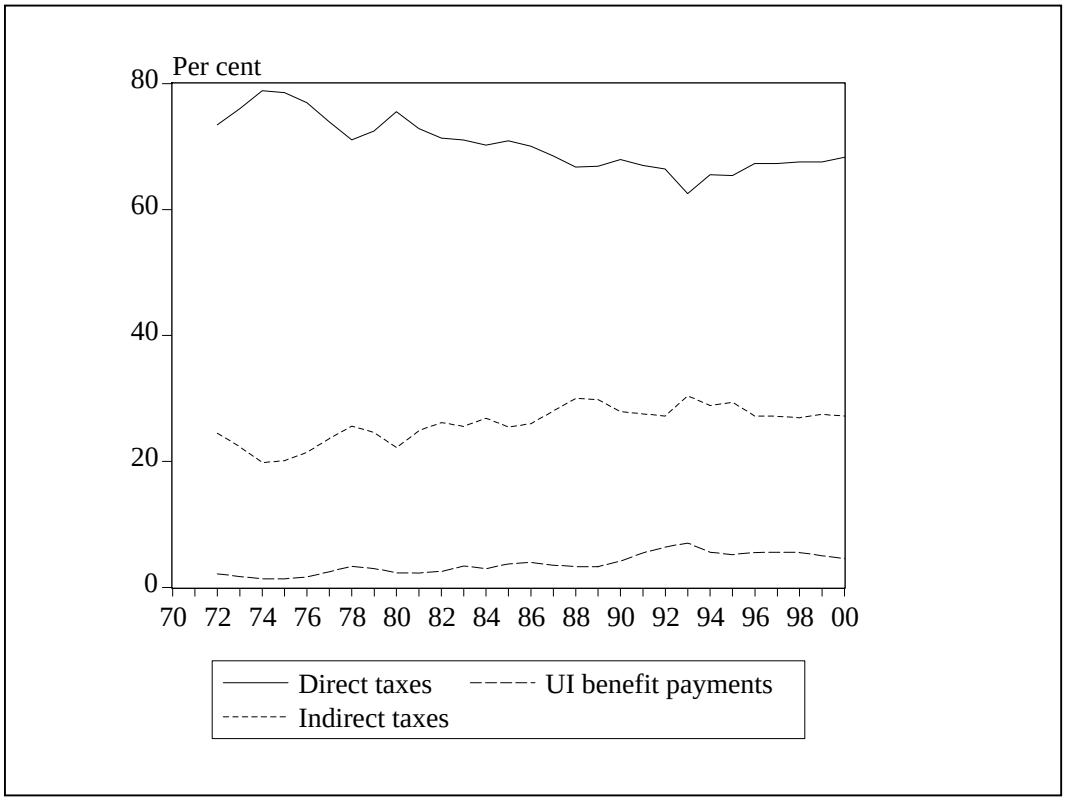


Table 4 Estimated response of the budget balance to the output gap

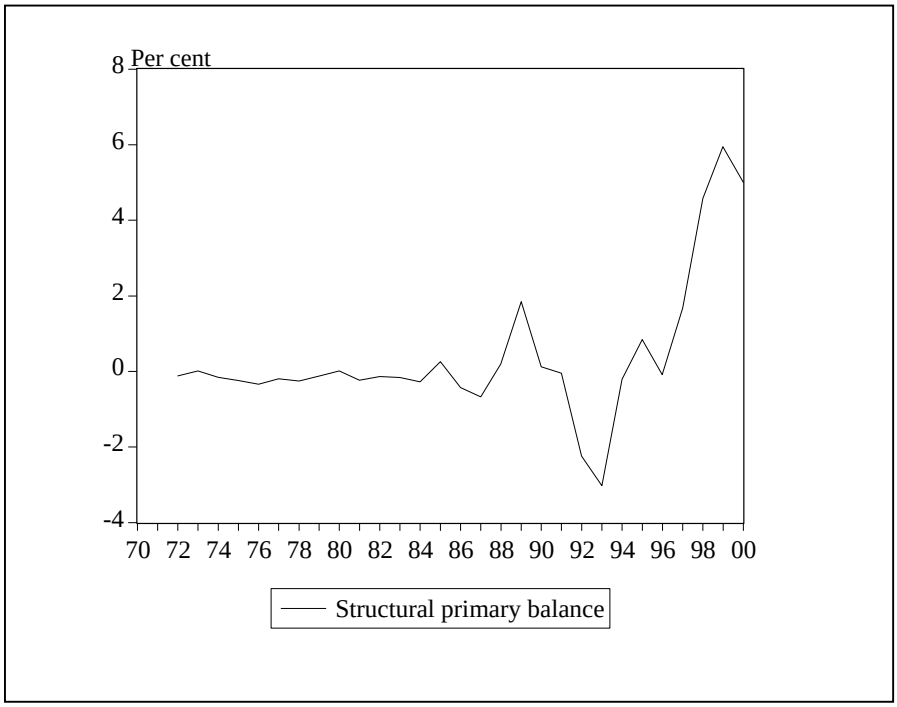
Sample period	Structural component	Cyclical component	Actual
1970-2000	0.36 (0.25)	0.05 (0.01)	0.39 (0.25)
1970-1985	-0.04 (0.07)	0.01 (0.00)	-0.03 (0.07)
1986-2000	0.82 (0.49)	0.10 (0.01)	0.88 0.49
1970-1979	0.12 (0.06)	0.01 (0.00)	0.13 0.06
1980-1989	-0.14 (0.14)	0.03 (0.00)	-0.12 0.14
1990-2000	1.28 (0.63)	0.13 (0.01)	1.35 0.63

Taylor (2000: 33) provides estimates of the responses of the total budget balance, and its structural and cyclical components to the output gap. Using the same methodology for South Africa, Table 4 shows estimates from bivariate

regressions using the output gap (defined as the percentage deviation of real GDP from trend GDP) as the independent variable and the structural, cyclical and actual budget balances (each expressed as a percentage of trend GDP), each in turn as the dependent variable. The impact of the output gap on discretionary fiscal policy (measured by the structural component of the general government budget balance) and automatic fiscal stabilisers (measured by the cyclical component of the general government budget balance) varies significantly according to the chosen sample period. The general government budget balance moved procyclically over the whole sample period, but regressions over two sub samples (1970-1985 and 1986-2000) indicate that it moved countercyclically during the first half of the sample period and strongly procyclically during the latter half of the sample period. The countercyclical behaviour of the budget balance during the first half of the sample period was the result of procyclical discretionary fiscal policy, which worked against automatic fiscal stabilisers. Discretionary fiscal policy was strongly countercyclical during the latter half of the sample period, particularly during the 1990s. The role of automatic stabilisers was much smaller than that of discretionary fiscal policy over the sample period, but the results indicate that automatic fiscal stabilisers became stronger in the latter half of the sample period. Estimated effects of variations in the output gap on the actual budget balance and the structural component of the budget balance are not significant in any of the reported time periods.

According to the European Central Bank (2002: 36), some observers argue that the cyclically adjusted primary balance is a more appropriate measure for assessing a government's fiscal policy stance, insofar as interest expenditure is the consequence rather than the cause of expansionary fiscal policies or consolidation efforts. Figure 5 indicates that the trend of the South African general government structural primary balance is similar to that of the total budget balance. The period 1972 to 1984 reflects a neutral fiscal policy, 1989 to 1993 an expansionary fiscal policy and 1993 to 1999 fiscal consolidation. The improvement in the budget balance since 1993 during a period of slower economic growth worked against automatic fiscal stabilisers and could have contributed to subdued economic growth during this period.

Figure 5 Structural primary balance as a ratio of trend output



5 CONCLUSION

Fluctuations in economic activity influence government revenue and expenditure automatically. During an economic upswing, tax bases grow and unemployment decreases while the opposite happens during recessions. As a result, tax revenue and unemployment-related social security expenditure fluctuate according to the business cycle and the budget balance responds automatically to cyclical movements in the economy. These automatic fluctuations help to smooth out fluctuations in the business cycle by automatically moving the budget toward a deficit during a recession and toward a surplus during an expansion.

As actual budget balances are affected both by cyclical factors (automatic stabilisers) and structural (discretionary) measures, they may not, in general, be very useful when seeking to assess the orientation of underlying fiscal policy and possible imbalances in the budget balance. The impact of the business cycle on government budgets, therefore, needs to be disentangled if fiscal developments are to be monitored accurately. Fiscal policy implementation and analysis in South Africa can therefore be improved by making use of alternative fiscal indicators such as the cyclically adjusted budget balance. Failure to distinguish between temporary and permanent influences on the budget increases the risk that fiscal levers may be over- or under- adjusted in response

to budgetary developments that might be reversed automatically over the course of the business cycle.

The results have shown that fiscal policies in South Africa exacerbated economic fluctuations in some periods rather than moderating them. During these periods, fiscal contractions took place in periods of low growth, with fiscal expansions occurring during economic booms. Consequently, these discretionary fiscal policies were frequently procyclical, overriding automatic stabilisers and possibly contributing to economic instability.

The aim of this paper was to determine to what extend fiscal policy stabilises output fluctuations in South Africa and to calculate the cyclically adjusted budget balance as an indication of the medium-term orientation of fiscal policy. Automatic fiscal stabilisers in South Africa work through taxes and unemployment insurance benefit payments. The cyclical fluctuations in revenue are much larger than those of expenditure, due to the small share of unemployment insurance benefit payments in the total public budget. Changes in the budget balance can mostly be ascribed to changes in the structural component. The estimates show that unemployment insurance benefit payments move countercyclically, but there is a procyclical response from total expenditure and net lending. This destabilising effect from expenditure components offsets the stabilising effect from revenue components, so that the budget balance has only a small stabilising impact on the economy. Automatic stabilisers seem to have worked more effectively in the latter half of the sample period compared to the first half.

The paper points out how automatic fiscal stabilisers can play an important role as a complement to countercyclical monetary policy and how the operation of monetary policy can be facilitated by the predictable and automatic responses from automatic fiscal stabilisers. The results presented in this paper, however, should be interpreted, at most, as a useful approximation. The calculation of structural budget balances is not only sensitive to the technique of estimating potential output, but also to the assumptions underlying the output elasticities of revenue and expenditure. The cyclically adjusted balance should therefore always be assessed in relation to the particular situation and against the background of the overall balance.

ENDNOTES

1 The views expressed in this paper are those of the authors and do not necessarily represent the viewpoint of any institution that they may be involved with. All errors or omissions are for the account of the authors.

2 Consisting of taxes on net income and profits, donations tax, estate duty and taxes on payroll and workforce.

3 The values reported should be interpreted as buoyancy coefficients rather than elasticities, since the analysis did not control for the impact of all discretionary changes in the tax structure.

4 This paper does not attempt to evaluate the strengths and weaknesses of different techniques for calculating potential output or for comparing results for different sets of potential output and output gap estimates. In order to overcome the drawback of the poor reliability of the end of sample estimates associated with the HP filter, the GDP series was extended by forecasts based on GDP growth assumptions taken from the National Treasury's *Medium Term Budget Policy Statement 2002*.

5 Estimates are based on Hodrick-Prescott filtered data.

6 Defined as total revenue and grants (excluding tax revenue) *minus* total expenditure and net lending (excluding unemployment insurance benefit payments).

7 OLS estimation of $d(\log(B_{it})) = \alpha_i + \beta_{Bi} * d(\log(Y_{it})) + \varepsilon_{it}$ with AR(1) correction where Bi represents the respective budget component and Y represents GDP. In the case of the budget balance and X, the dependent variable was defined as d(Bi/Y). The elasticity of direct taxes and indirect taxes with respect to output was calculated as the product of the elasticities of the tax categories with respect to their tax bases and the elasticities of these tax bases with respect to output. The current income of households was selected as the tax base for direct taxes, while private consumption expenditure was selected as the tax base for indirect taxes.

8 The procyclical behaviour of government expenditure is not uncommon in developing countries (see Talvi & Vegh, (2000) & Braun, (2001)). The authors describe the procyclicality of government expenditures in developing countries as an optimal response to tax base volatility and the interaction of political factors combined with limited creditworthiness caused by the debt crises of the early 1980s.

9 Defined as $\eta_{Bi,Y} * (Bi/Y)$ where Bi represents total revenue and grants or total expenditure and net lending, $\eta_{Bi,Y}$ the elasticity of Bi with respect to output and Y output. The marginal sensitivity of the budget balance is the difference between the marginal sensitivity of total revenue and grants and the marginal sensitivity of total expenditure and net lending.

10 On average, UI benefits represent only 0.2 per cent of GDP and 0.7 per cent of total consolidated general government expenditure over the

sample period. Social security and welfare provision, on average, absorbs only 8.0 per cent of consolidated general government expenditure according to the functional classification of expenditure.

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