

# National saving and fiscal policy in South Africa: an empirical analysis

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This article studies the dynamics of gross national saving, government saving and private saving in response to fiscal shocks, by using the impulse response functions (IRF) obtained from the structural vector autoregressive (SVAR). This article aims to determine the extent to which fiscal policy influences savings in South Africa, and to test whether the Ricardian equivalence proposition holds in South Africa. It concludes that the full Ricardian equivalence does not hold in the short term, and in the long term the response of national saving to fiscal policy shocks is neutral.

## Nasionale besparing en fiskale beleid in Suid-Afrika: 'n empiriese analise

Hierdie artikel bestudeer die dinamiek van bruto nasionale besparing, owerheids- en privaatsektorbesparing in reaksie op fiskale skokke, deur gebruik te maak van impuls-reaksiefunksies (IRF) wat van die strukturele vektor outoregressiewe (SVOR) model verkry is. Die doel van hierdie artikel is om die omvang van fiskale beleid se invloed op besparing in Suid-Afrika te bepaal asook om te toets of die Ricardiese gelykwaardigheidstelling in Suid-Afrika geld. Die gevolgtrekking is dat die volledige Ricardiese gelykwaardigheidstelling nie in die korttermyn geld nie en dat die reaksie van nasionale besparing tot fiskale skokke in die langtermyn neutraal is.

*Mr L Bonga-Bonga, Dept of Economics, University of Johannesburg, P O Box 524, Auckland Park 2006; E-mail: lbonga@uj.ac.za*



An important issue in South Africa is the extent to which fiscal policy affects national saving. The decline in national saving in South Africa has been attributed to the decrease in government saving, especially from the early 1980s to the early 1990s (Tsikata 1998, Heyns 1995). Furthermore, the low-growth trap experienced by South Africa since the mid-1980s has been assigned to the continuous decline in national saving. An improved national performance with regards to saving is frequently regarded as a prerequisite for higher economic growth in South Africa (Aron & Muellbauer 2000). Recently the South African government, through its Accelerated and Shared Growth Initiative South Africa (ASGISA) strategy, opted to reach a 6% economic growth by 2010. This objective may be at risk if the country is unable to reverse the current decreasing trend in national saving.

As far as the importance of fiscal policy on national saving is concerned, Barro (1974), in support of the Ricardian Equivalence Proposition (REP), demonstrated that if households are fully rational and take the well-being of their descendants into account in formulating their consumption and savings patterns, a decline in taxes now would be balanced by offsetting increases in private saving now. In particular, households would recognise that the reduction in taxes now would increase future tax liabilities and therefore save the tax cut. Thus the implication of the full REP is that an increase in the budget deficit is neutral on national saving. However, a number of empirical evidences suggest only limited offsets from private savings in response to budget shifts and therefore reject the full REP. For example, Gale & Potter (2002), estimating the impact of the 2001 tax cut in the USA, find that private saving only offsets 31% of the decline in public saving, thus budget deficit decreases national savings. Underlying the importance of budget surplus on national saving, Pesaran & Smith (1995) find that in the long run an increase in the public sector financial surplus of 1% of GDP raises national saving by 0.32% of GDP.

The adoption of the Growth, Employment and Redistribution (GEAR) policy as the South African macroeconomic policy in 1996 has emphasised fiscal discipline characterised by a low ratio of deficit

by gross domestic product (GDP) as the anchor of fiscal policy. In order to determine the extent to which fiscal policy, especially fiscal discipline policy, influences gross national saving in South Africa, this article studies the dynamic of gross national saving in response to fiscal shocks by using the impulse response functions (IRF) obtained from the SVAR model. The aim of this article is twofold: first, it will assess the response of gross national saving and its components, namely government and private savings, to fiscal policy shocks. Secondly, as the relationship between fiscal policy and national saving is often evaluated in the light of the Ricardian Equivalence Proposition (REP), the article will follow the same pattern in assessing whether the REP holds in the South African context. This is followed by the literature review on the importance of fiscal policy on saving where the REP is discussed. The subsequent section emphasises the recent development of gross saving in South Africa, followed by the data and methodology applied for empirical analysis. The article then discusses the results of the empirical analysis and draws the conclusion.

## 1. Literature review

The relationship between fiscal policy and national saving is widely debated with regard to the REP which holds that whenever the government runs a budget deficit, the private sector will save more in order to offset the unfavourable effect of the budget deficit in the next generation (Barro 1974). The REP involves forward-looking agents who perceive that a cut in taxes as a result of expansionary fiscal policy constitutes a deferred payment. Because the government borrows in order to finance the budget deficit resulting from its expansionary fiscal policy, households, in particular, will increase their current savings in order to protect the next generation from a probable high-tax burden (Giorgioni & Holden 2003). Likewise, an increase in government expenditure, according to the REP, will decrease private consumption and increase private saving (Feldstein & Elmendorf 1990). The consequence of the REP is that the response of national saving to fiscal policy is neutral as the increase in private saving due to the expansionary fiscal policy (decrease in taxation) should be fully offset by the decrease in government saving.

The extent to which the REP holds is a matter of empirical analysis. The change in private saving may not necessarily be fully offset by the change in government saving. For example, a study by Lopez *et al* (2000) found that there is a difference between industrial and developing countries in the response of national saving to fiscal policy change. The authors found that consumers internalise the government budget constraint when predicting future taxes, and the proportion of individuals doing so is considerably smaller in developing countries (including South Africa) than in industrial countries. Therefore REP holds more for industrial than for developing countries.

In opposing the REP, Feldstein (1976) showed that when the growth rate of the economy exceeds the real interest rate, the government can permanently postpone the repayment of debt and then no generation has to pay any portion of the debt left by previous generations. Thus, a cut in taxes as a result of expansionary fiscal policy will not necessarily result in the increase in private savings.

Barro (1989) identifies five reasons why the REP hypothesis does not necessarily hold. First, people do not live forever and thus do not care about taxes that may be levied in future. Secondly, private capital markets are “imperfect” with a private person’s real discount rate exceeding that of the government. The consequence of this fact is that the present value of the extra future taxes fall short of the current tax cut, and therefore private-person saving will be different to government saving. Thirdly, the REP does not necessarily hold that future taxes and income are uncertain. According to Feldstein (1976: 335) the uncertainty about individuals’ future taxes implies a high rate of discount by private individuals in capitalising future liabilities. Consequently, discount private saving will be different from government saving. The fourth reason is that taxes are not necessarily lump-sum (non-distortionary taxes). With a lump-sum tax, substitution and income effects (on saving) are neutral. The fifth reason is that the REP results are relevant under the condition of full employment, which condition is not always satisfied, in particular in developing economies.

It is important to mention that the best way to assess the interaction between fiscal policy and national saving is by evaluating how fiscal policy affects the components of gross national saving. Gross

national saving is made up of saving by households, corporate and general government saving, as well as consumption of fixed capital or provision for depreciation (Mohr 2007: 40). The sum of corporate saving and saving by households constitutes private saving. Because government saving is derived from the government budget surplus, fiscal policy should have a direct effect on government saving in such a way that countries that run a budget surplus will increase government saving and countries that run budget deficits will have a lower or negative government saving. Nevertheless, the manner in which fiscal policy influences private saving should be a matter of empirical analysis unless one is fully convinced that hypotheses such as the REP fully hold.

As far as the literature related to saving behaviour and fiscal policy in South Africa is concerned, Jonsson & Teferra (2001) draw the important conclusion that private saving only partially offsets changes in public saving, hence, the existence of partial rather than full REP. Both authors believe that the fall in public saving in the 1970s and 1980s is likely to have played a significant role in the reduction of national savings in South Africa. Thus, policies directed towards increasing the national saving rate should aim at increasing public saving. This suggests that fiscal discipline, which is characterised by a low deficit ratio, should provide solutions to increasing national saving. The same view is expressed by Prinsloo (1997), Barr & Kantor (1994) and Tsikata (1998) who believe that policies aimed at improving national saving in South Africa should be focused on raising the government's saving rate, rather than the private saving rate. According to these authors, there is an offsetting pattern in the trend of personal and corporate saving (elements of private saving) and not between private and government saving. A rise in corporate saving is completely offset by the fall in household saving and therefore the compositional change in private saving would be of little policy consequence. In explaining the relationship between fiscal policy, government saving and personal saving, Aron & Muellbauer (2000) assert that fiscal policy in South Africa is transmitted to personal saving through rise of income expectations. Fiscal discipline, for example, raises future income expectations above current income

and, consequently, private individuals increase their current consumption and decrease personal saving. For this reason, government saving should be expected to be negatively related to personal income and hence to private saving. In the light of the above there seems to be support of partial REP in South Africa where the positive effect of fiscal policy on government saving more than offsets its negative effect on private saving.

## 2. Recent development of gross saving in South Africa

Figure 1 shows the trend of gross national saving as percentage of GDP in South Africa. It also shows that in the early 1980s South Africa experienced a steady decline in its gross national saving rate. While the gross saving rate reached its peak of 33.94% in 1980, the rate was 13.96% in 2006. The continuous decline in national saving constitutes a cause for concern as a low national saving rate hinders investment-driven growth in the medium term and creates dependence on foreign borrowing for investment financing.

Figure 2 shows the trend of each component of gross national saving. The trend of gross national saving by GDP seems to be influenced by the trend of private saving. As in Figure 2, contrary to the trend of private saving and gross national saving, the government saving trend started picking up from 1996, depicting an increasing movement with its value becoming positive from 2006. This reflects the effort of the South African government to maintain fiscal discipline, characterised by the low ratio of government's budget deficit by GDP. Fiscal discipline has been an important objective assigned by the GEAR policy.

Figure 1: Gross national saving as percentage of GDP

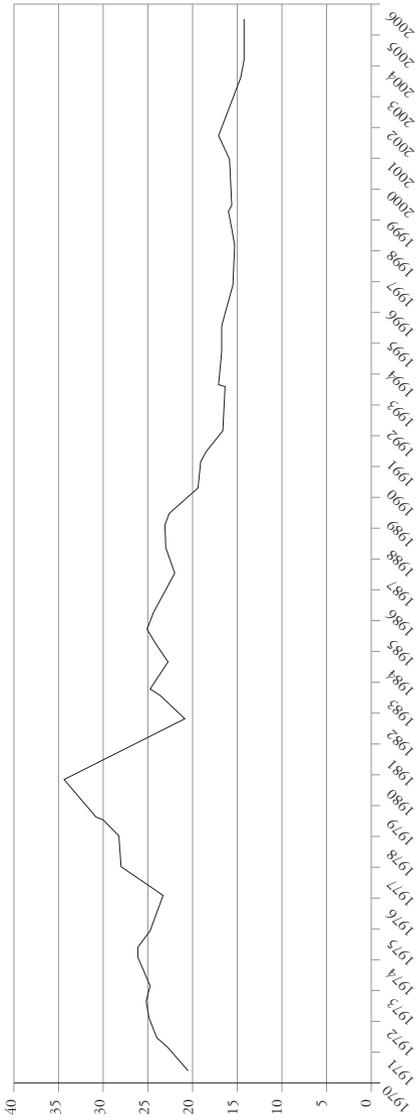
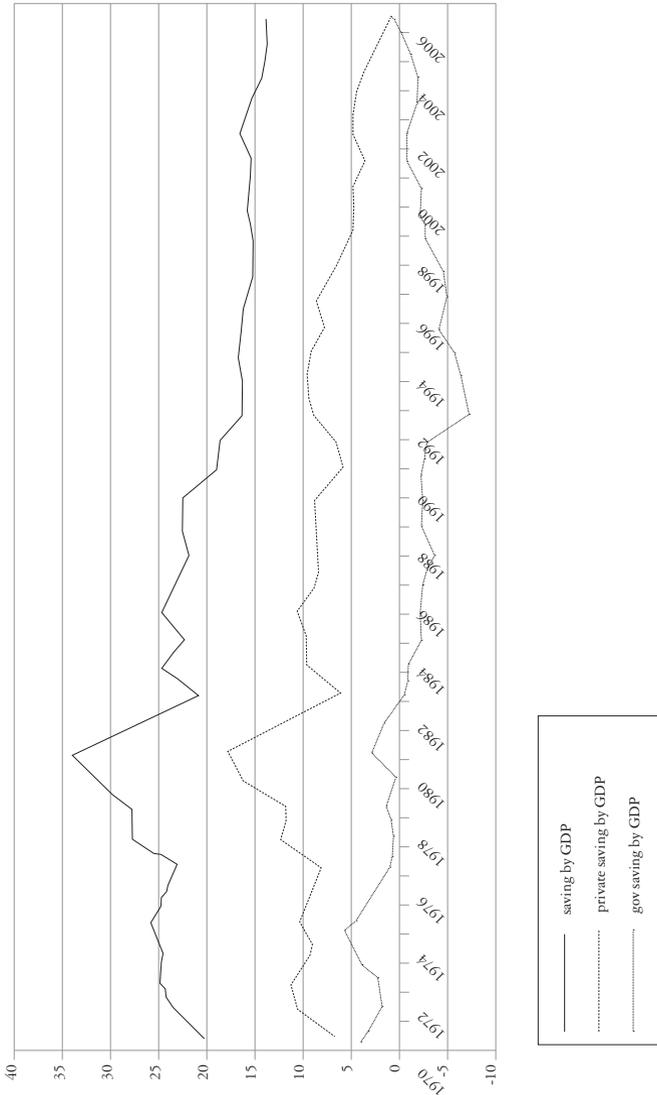


Figure 2: Gross national, private and government saving as a percentage of GDP



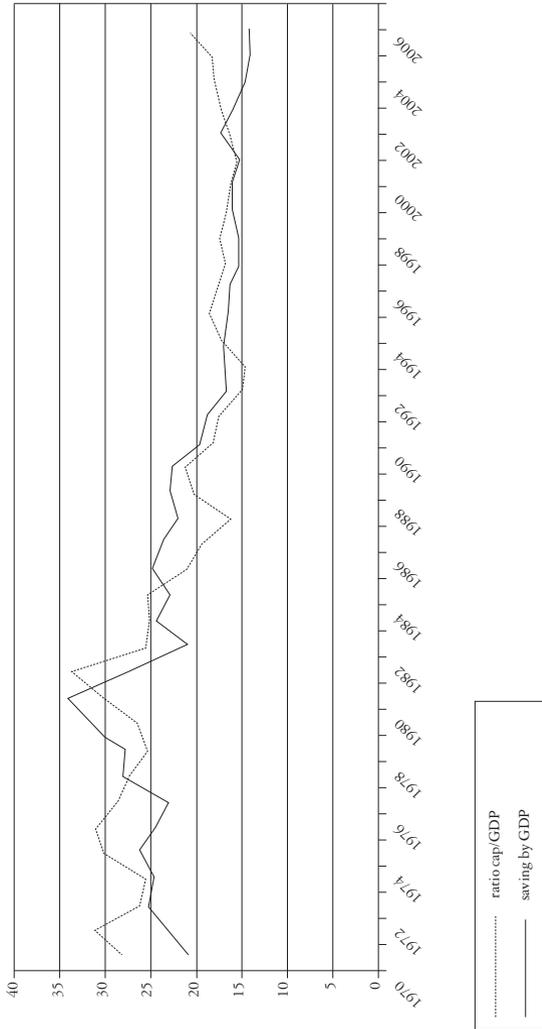
Gross national saving is important for investment-driven growth. Domestic investment which is mainly financed by national saving reduces foreign borrowing exposure to a large extent and consequently reduces the ensuing default risk.

The reality in Figure 2 challenges the opinion of many authors that redressing the national saving trend in South Africa should start by redressing government saving. The figure shows that the decline in government saving started to be reversed from 1993 while the national saving has continued its decreasing trend. The trend of national saving did not follow that of government saving but rather that of private saving, especially after 1994.

Figure 3 compares gross national saving (saving by GDP) and gross investment (ratio of cap/GDP). It shows that prior to 1994, especially in the period between 1984 and 1994, the ratio of gross saving by GDP remained above gross investment in South Africa. This can be explained by the isolation of the country as victim of international sanctions as a protest against the apartheid policy institutionalised by the then government. As a result of the isolation, South Africa had to rely on its national saving to finance investment demand. Situations changed with the opening and integration of the country in 1994. The abolition of sanctions by the international community resulted in the increasing inflow of foreign capital and the country could sustain a trade deficit and finance part of the domestic investment by foreign borrowing. Figure 3 indicates that the gap between national saving and investment has increased since 2003, reflecting an increase in trade deficit and large-scale foreign borrowing that finances much of South Africa's investment.

In order to reduce its dependence on foreign borrowing and any default or sovereign risk that occurs, as well as to break the low-growth trap endured for decades, South Africa needs to adopt a strong policy action to reverse the current decreasing trend of national saving. This is the reason why, in its empirical analysis, this article will assess the extent to which fiscal policy, especially fiscal discipline adopted by the South African government in its GEAR policy, will be able to influence national saving. The empirical analysis will therefore use the SVAR technique to characterise the dynamic impact of fiscal policy on national saving.

Figure 3: Ratio of capital formation by GDP and gross saving by GDP



### 3. Data analysis and methodology

To characterise the dynamic impact of fiscal policy on national saving, this article uses the SVAR technique to obtain the response of national saving to fiscal policy shocks. The “traditional” VAR approach to modelling dynamic behaviours of economic variables is widely used to provide insight into forecasting the dynamic of variables through its impulse response functions analysis. Nevertheless, since there are few economic inputs in a traditional VAR modelling, it should not be surprising that there is little economic content in the results provided by the IRF or by the variance decomposition analysis

The SVAR model eventually attempts to deduce a structural form relationship from the reduced-form VAR, and in this way a VAR can be viewed as the reduced form of a general dynamic structural model. In fact the reparametrisation of Equation 1 below, representing a structural form model, leads to a reduced-form relationship as represented by Equation 2.

$$\Gamma Y_t = B(L)Y_t + e_t \quad (1)$$

$$Y_t = \Gamma^{-1}B(L)Y_t + \Gamma^{-1}e_t \text{ or } Y_t = B^*(L)Y_t + \mu_t \quad (2)$$

where  $Y_t$  is a  $nx1$  vector of endogenous variables,  $\Gamma$  is  $nxn$  parameter matrix with ones on the main diagonal and the off-diagonal elements capturing the contemporaneous relationship between the variables.  $B(L)$  is a polynomial matrix in the lag operator.

It can be inferred from Equations 1 and 2 that:

$$B^*(L) = \Gamma^{-1}B(L) \quad (3) \text{ and } \mu_t = \Gamma^{-1}e_t \quad (4).$$

Equation 4 is the core representation of the SVAR model whereby the reduced-form disturbance  $\mu_t$  is related to the underlying structural shocks  $e_t$ . Because structural shocks have an economic interpretation, the IRF thus obtained can be interpreted meaningfully.

The important challenge in a SVAR modelling is to recover the structural shocks from the observed reduced-form innovation  $\mu_t$ . This refers to the identification problem. To identify structural shocks, a number of restrictions are imposed on the elements of the coefficient  $\Gamma$  from Equation 4. Because the article estimates a SVAR with contemporaneous restrictions, two types of restrictions are then imposed.

The first restriction, referred to as orthogonality restriction, is imposed on the covariances of the structural innovations or shocks. This restriction ensures that structural innovations are uncorrelated and independent from one another. The second restriction is imposed on the parameter matrix  $\Gamma$  in order to model the contemporaneous relationship between the reduced-form and structural-form innovations. However, the fact that contemporaneous restrictions are imposed does not imply that there is no feedback among certain variables in the SVAR structure. The lagged values enter each equation in the SVAR structure and thus all variables are linked (Breitung *et al* 2004: 162).

By using the SVAR technique in assessing the response of fiscal shocks to savings, this article adds a dynamic dimension in analysing the relationship between fiscal policy and savings (national saving, private saving and government saving), as well as in testing the REP theorem. A number of articles have used the cointegration technique in testing the REP where the cointegration technique was used to inform on the long-term relationship between private and government saving without showing how this relationship evolves in time (cf, for example, Drakos 2001, Mandal & Payne 2007).

To identify the effects of fiscal policy on national and private savings, this article uses two different vectors. Each vector is made up of four variables. The first vector is constituted of the following variables: the ratio of gross national saving by GDP (SAV), the general government budget balance (DEF) represented by the ratio of deficit by GDP, the real interest rate (RATE) and the first difference of the log of permanent or potential output (GROW) calculated by using Hodrick-Prescott (HP) filter. The second vector contains DEF, GROW, RATE and the ratio of government saving by GDP (PSAV). As mentioned earlier, while it is a natural reality that fiscal discipline increases government saving, the implication of fiscal shocks on national and private savings is rather a matter of empirical analysis.

All data series are sourced from the South African Reserve Bank's (SARB) quarterly bulletin. Table 1 shows the variables used in the model. Usage is made of permanent output in testing for the REP because the proposition relies on forward-looking agents who base their decisions

to consume or to save on their permanent income. In the permanent income approach, individuals distinguish between expected and unexpected components of some economic variables, and reformulate their consumption and saving plans accordingly (Seater & Mariano 1985). With regard to the importance of real interest rate in testing for the REP, Feldstein (1976), on explaining why the REP does not necessarily hold, noted that when the growth rate of the economy exceeds the real interest rate, the government can permanently postpone the repayment of debt and then no generation has to pay any portion of the debt left by previous generations. Thus, real interest rate should be taken into account when testing for the REP. Furthermore, models based on inter-temporal optimisation identify a role of real interest rate in determining gross national saving. There are two possible effects of real interest rates on national saving. Whether gross national saving is positively or negatively related to the real interest rate will depend on the relative strength of the income and substitution effects of changes in real interest rates. The substitution effect of a higher interest rate is to encourage agents to sacrifice current consumption for future consumption and therefore save more. But the income effect is to discourage current saving by giving agents more income in the present and hence more prone to consume than to save (Warman & Thirlwall 1994). The net effect is ambiguous and should be considered as a matter of empirical analysis.

Table 1: Data

Variable	Calculation	Source and code
DEF	Budget deficit as % of GDP	SARB, 4420F
PSAV	Sum of corporate and household Savings by GDP	SARB, 6201J*, 6202J* 6006Y
SAV	Total saving by GDP	SARB, 6203J*, 6006Y
RATE	Real interest obtained as nominal retail deposit minus inflation	SARB, 2007J, 7032J
GROW	First difference of the log of potential GDP (HP filter of real GDP)	SARB, 6006Y

\* Transformed into 2000 constant value

Contrary to different studies that use structural budget balance as a proxy for fiscal policy in South Africa, the use of the actual budget balance is justified by three reasons. First, in South Africa the cyclical components of the general government budget balance represent only a small part of the total balance since the 1970s (Swanepoel & Schoeman 2003). Secondly, though there are different opinions on how structural balance budget should be calculated in the case of South Africa, actual and structural balance budget have been trending in the same direction since the 1970s (Swanepoel & Schoeman 2003: 815, Du Plessis *et al* 2007: 397). The third reason is related to the aim of this study, namely to evaluate the effect of the observed or actual fiscal shocks on saving. Given the common trend of actual and structural balance budget, the outcome of the SVAR analysis should relatively be the same, once either actual or structural balance budget is used.

Annual data from 1970 to 2006 are used in the model estimation. Table 2 presents the results of the unit root test of all the data series. The study employs the Kwiatkowski, Phillips, Schmidt & Shin (KPSS) methodology for the test of stationarity of the data series as it is considered to be more powerful compared to the Augmented Dickey-Fuller (ADF) methodology in small samples (DeLong *et al* 1989, Lee & Schmidt 1996). The results in Table 2 show that all the series are stationary.

Table 2: Unit root test of different series

Variables	KPSS (LM-statistics)
DEF	0.124323
PSAV	0.162406
SAV	0.119609
REAL	0.090379
GROW	0.18463

KPSS is the Kwiatkowski-Phillips-Schmidt-Shin test for which the null hypothesis is that the series is stationary. Given the 1% level asymptotical critical value of 0.216000, the null hypothesis is not rejected for all the variables.

The VAR models were estimated with constant, linear trend and two lags (suggested by the Akaike Information Criteria). The exogenous dummy variable was used in the VAR estimation to account for structural break in the national and private savings series. The AR root lag structure indicates that no root lies outside the unit circle; hence, the VAR satisfies the stability condition (cf Tables 3 and 4).

Table 3: Stability condition of the VAR process, variables: DEF, RATE, GROW, PSAV

Root	Modulus
$0.970787 - 0.166256i$	0.984921
$0.970787 + 0.166256i$	0.984921
$0.271073 - 0.653733i$	0.707706
$0.271083 + 0.653733i$	0.707706
$0.502130 - 0.395307i$	0.639063
$0.502130 + 0.395307i$	0.639063
$0.243347 - 0.251517i$	0.349969
$0.243347 + 0.251517i$	0.349969

No root lies outside the unit circle; VAR satisfies the stability condition

Table 4: Stability condition of the VAR process, variables: DEF, RATE, GROW, SAV

Root	Modulus
$0.966735 - 0.166848i$	0.981027
$0.966735 + 0.166848i$	0.981027
$0.290125 - 0.648406i$	0.710354
$0.290125 + 0.648406i$	0.710354
0.579094	0.579094
$0.380527 - 0.417022i$	0.564542
$0.380527 + 0.417022i$	0.564542
0.037449	0.037449

No root lies outside the unit circle; VAR satisfies the stability condition

The identification condition in the four-variable VAR is represented by the matrix below as:

$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ a_{21} & 1 & 0 & 0 \\ a_{31} & a_{32} & 1 & 0 \\ a_{41} & a_{42} & a_{43} & 1 \end{pmatrix} \begin{pmatrix} DEF_t \\ RATE_t \\ GROW_t \\ SAVE_t \end{pmatrix} = \begin{pmatrix} e_t^{DEF} \\ e_t^{RATE} \\ e_t^{GROW} \\ e_t^{SAVE} \end{pmatrix}$$

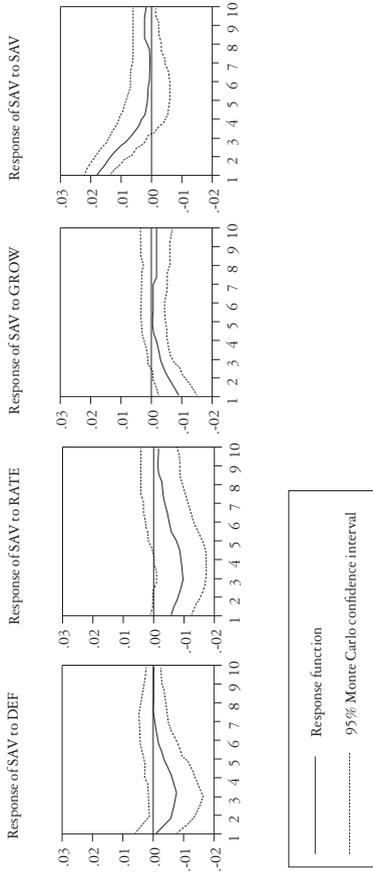
where  $SAVE_t$  contains  $SAV_t$  or  $PSAV_t$ . The study uses contemporaneous restrictions to identify structural shocks, which are given as  $e_t = (e_t^{DEF}, e_t^{RATE}, e_t^{GROW}, e_t^{SAVE})$ . The restrictions imposed on matrix  $A$  imply that unanticipated changes in fiscal policy will not contemporaneously respond to national saving and output growth or to the economy in general. This should hold in light of the definition of discretionary or unanticipated change of fiscal policy (Hayford 2005: 985). In setting  $a_{23}$  and  $a_{24}$  equal to zero, the study assumes that there is a lag response of real interest rate to change in national or private saving as well as to output growth. In setting  $a_{34}$  equals to zero, it is assumed that output growth changes directly from the change in investment and indirectly (with lag) from the change in saving. Saving should first influence investment before it impacts on GDP.

#### 4. Empirical results and discussion

Figure 4 shows the impulse response functions (IRF) for national saving to the identified structural shocks for a period of ten years. With the given time period, the study is in a better position to assess the intertemporal implications of structural shocks, mainly fiscal shocks, on national and private savings. It is worth noting that all the series are standardised to keep the same scale for comparison of the effects of shocks.

The results of the IRF in Figure 4 show that  $SAV$  declines in response to positive fiscal shocks (fiscal discipline), though this effect disappears over time. This should imply that the effect of national saving to positive fiscal policy shocks is negative in the short term but neutral in the long term. In addition, national saving responds negatively to real interest rates shocks. The negative effect of  $SAV$  to positive real rate of interest shocks lasts for a period of seven years before it fades away. Figure 4 shows that the response of national saving to output growth shocks is neutral for most of the periods.

Figure 4: Responses of national saving to one-standard deviation structural shocks



This is in line with the findings of other studies (cf Odhiambo 2005). The last graph in Figure 4 shows that national saving shocks are not persistent. The response of national saving to its own shocks fades away after a period of four years.

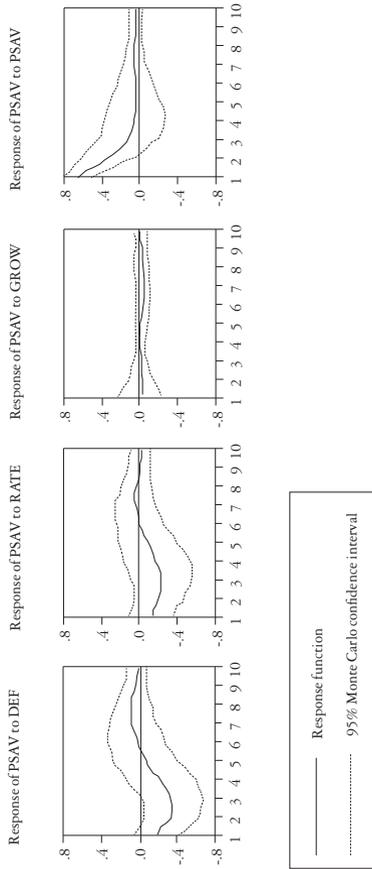
Figure 5 shows the impulse response functions for private saving (PSAV) to the identified structural shocks. PSAV responds negatively to positive fiscal shocks. The negative effects of PSAV to positive fiscal policy shocks last for a period of nearly five years. Afterwards, the effects become neutral. The second graph in Figure 5 shows that private saving responds negatively to real interest rate. The negative effects of PSAV to real rate of interest last for nearly five years before the effects disappear. The third graph in Figure 5 indicates that the response of private saving to output growth shocks is neutral. The last graph in Figure 5 shows that private saving shocks are not persistent.

#### 4.1 Discussion of the results

The IRF for national and private savings to the identified structural shocks show that national and private savings respond negatively to positive fiscal shocks (fiscal discipline) for a period of less than six years. The negative response of national saving to fiscal discipline is an indication that in South Africa the negative response of private saving to fiscal discipline policy more than offsets the positive effect of government saving to the same policy. In addition, this finding lends support to the existence of partial rather than full REP in a period of less than 6 years. This result is contrary to the findings of a number of studies undertaken for developed countries. In a number of developed countries, the negative effect of private saving to fiscal policy shocks less than offsets the effect of government saving to the same shock (Gale & Potter 2002, Pesaran & Smith 1995).

Contrary to expectations, there is a negative effect of national and private saving to real interest rate shocks in South Africa. A number of empirical studies conducted on South Africa also support the finding that national saving responds negatively to real rate of interest shocks (Harjes & Ricci 2005, Hussain *et al* 2003). This should imply that in South Africa the positive income effect of the real rate of interest dominates the negative substitution effect. As mentioned earlier,

Figure 5 : Responses of private saving to one-standard deviation structural shocks



the substitution effect of a higher interest rate is to encourage agents to sacrifice current consumption for future consumption and therefore save more. However, the income effect is to discourage saving by giving agents more income in the present and hence more prone to consume than to save. The reasons why the positive income effect of the real rate of interest dominates the substitution effect is beyond the scope of this article and it is suggested as a topic for further research. Nonetheless, the consequence of this finding is that positive real rate of interest shocks amplify the negative response of private saving. This should probably explain why the negative effect of private saving to fiscal discipline more than offsets the positive effect of government saving.

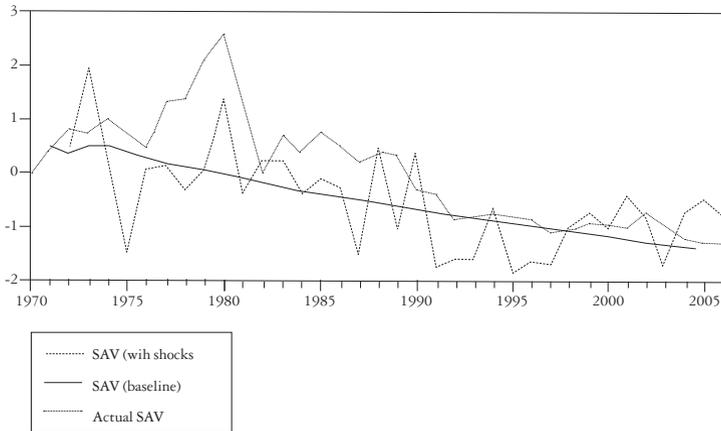
Given the negative response of private saving to positive real rate of interest shocks, not even fiscal deficit policy will succeed to stimulate private saving and therefore national saving. As fiscal deficit policy leads to an increase in the real interest rates (crowding-out effect), the expected positive effect of private saving from fiscal deficit should probably be offset by its negative effect to positive real rate of interest shocks. Given the decrease in government saving as a result of fiscal deficit policy, the net effect of fiscal deficit on national saving should be negative.

The results of the IRF in Figure 4 show that in the long term the response of national saving to positive fiscal shocks is neutral. This should lead to conclude that changes in the fiscal policy have little or no effect on national saving in the long term. While the result may seem to suggest that the REP holds in the long term, it may also simply indicate that the historical movements in national saving cannot be accounted for by fiscal policy shocks. To verify the latter assumption, use is made of historical decomposition.

## 4.2 Historical decomposition

Figure 6 provides an historical decomposition of SAV in South Africa. An historical decomposition of SAV allows one to assess how much of the movement in SAV can be accounted for by fiscal policy shocks. For this assessment the actual SAV is compared with both a baseline forecast of SAV, assuming no shocks to fiscal policy, and a forecast that includes fiscal shocks. Figure 6 shows that when fiscal shocks improve the forecast of national saving in South Africa, they only

Figure 6: Actual SAV, baseline forecast SAV and SAV with fiscal shocks



accurately accounted for the turning points of SAV in the periods between 1978 and 1982, 1983 and 1989 and 1997 and 2000. These findings show that, while fiscal policy is an important factor in explaining national saving (surely by its impact on government saving), it nevertheless does not account for most of the changes in national saving in South Africa. This should indicate why the long-term effects of fiscal shocks are neutral in South Africa. This finding implies that there should also be other important factors (such as extra-economic factors) rather than fiscal policy that can contribute towards improving the level of national saving in South Africa. There is currently an urgent call for South Africa to develop a culture of saving. This leads one to believe that a propensity to save should also be a cultural, rather than solely an economic factor.

## 5. Conclusion

This article endeavoured to assess the extent to which fiscal policy, especially fiscal discipline, affects savings in South Africa. Use was made of the SVAR technique to assess the dynamics of fiscal shocks on national, private and government savings. The results of the impulse

response functions show that the effect of the positive shocks to fiscal policy (fiscal discipline) on the private saving is negative in the short term (less than 6 years). The results of the impulse response functions also show that national saving responds negatively to positive fiscal policy shocks during the same period. These results indicate that the effect of private saving from fiscal shocks more than offsets the effect of government saving from the same shocks. This could be due to the fact that, in addition to its negative response to fiscal discipline, private saving also responds negatively to positive real rate of interest shocks. This finding supports the view that partial rather than full REP holds in South Africa in the short term. As far as the long term is concerned, this article found that there is a neutral response of national saving to fiscal policy shocks. It went further in assessing whether the neutral response of national saving to fiscal policy shocks is the consequence of the REP predictions or that the historical movements in national saving cannot be accounted for by fiscal policy shocks. To this end an historical decomposition framework was provided, indicating that fiscal shocks impact on national saving only in a few periods of the analysis. On average the effect of fiscal shocks on national saving is neutral. The article concluded that, while fiscal policy, especially fiscal discipline, is important in increasing government saving, fiscal policy in general fails to stimulate national and private saving. This is mainly due to the negative response of private saving to positive fiscal policy and real rate of interest shocks. It is recommended that the reasons, particularly of the negative response of private saving to positive real of interest rate shocks, be investigated as this can provide a solution to redressing the decreasing trend in private saving in South Africa.

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