

Towards a growth strategy for the South African economy

Bill Gibson & Dirk Ernst van Seventer

To cite this article: Bill Gibson & Dirk Ernst van Seventer (1996) Towards a growth strategy for the South African economy, *Development Southern Africa*, 13:4, 511-537, DOI: [10.1080/03768359608439913](https://doi.org/10.1080/03768359608439913)

To link to this article: <https://doi.org/10.1080/03768359608439913>



Published online: 27 Feb 2008.



Submit your article to this journal [↗](#)



Article views: 123



View related articles [↗](#)

Towards a growth strategy for the South African economy

Bill Gibson & Dirk Ernst van Seventer¹

This article outlines the elements of a growth strategy, that is, a set of policies designed to promote an increase in real income in the medium term. The consistency of the policy package suggested here is investigated by way of a multi-sectoral, dynamic computable general equilibrium model. A savings-based growth strategy is compared with a more heterodox approach in which public sector spending lowers the marginal capital-output ratio in various sectors, small and medium-sized enterprises are encouraged and some real devaluation is achieved. The results show considerable improvement in growth and employment performance vis-à-vis the orthodox model.

1. INTRODUCTION

Two schools of thought have emerged in the debate on macroeconomic policy in South Africa. The first, loosely characterised as the 'fiscal discipline school' (FDS), is based on the view that the private economy is savings-constrained. This definition of 'fiscal discipline' is not to be confused with a more microeconomic view, which would stress rational project evaluation, strategic integration and, above all, the absence of corruption. In the discussion to follow, microeconomic fiscal discipline is assumed throughout; it is the macroeconomic concept, as expressed by the principle that the economy is savings-constrained, which we shall critically evaluate. Public sector dissaving absorbs resources that would otherwise be more productively invested by the private sector. The implicit policy prescription of the FDS is to reduce or eliminate current government dis-savings and limit public sector borrowing to finance investment projects. A second approach holds that the economy is constrained not by savings, but by markets, both internal and external. This 'growth strategy school' (GSS) is less concerned about the magnitudes of government savings and investment per se and would evaluate public policy in terms of its effectiveness in promoting growth and improving distribution.

1. Professor in Economics, University of Vermont and Policy Analyst, Development Bank of Southern Africa respectively. We are grateful for constructive comments from Nick Vink, Andre Roux, Craig McKenzie, Diane Flaherty and especially Lance Taylor and Stephen Gelb, who collaborated on an earlier version of the model. The comments of two anonymous reviewers are also gratefully acknowledged. All views expressed in this article are those of the authors and not the DBSA.

Gibson and Van Seventer (1995b) examined the consequences of FDS policies on the assumption that lowering the public sector borrowing requirement (PSBR) affects private sector expectations. It is shown that the impact has to be strong in order to outweigh the direct, contractionary effects of fiscal discipline. An alternative to the pure FDS policies is an approach in which fiscal discipline, as measured by the various ratios of government intervention to gross domestic product (GDP), is the outcome of a successful, growth-promoting strategy rather than an instrument.

This article proposes a stylised and tentative growth strategy, which is suggested in the following spirit. Any growth strategy, not necessarily the one proposed and described in the article, would be superior to the FDS. This conclusion is based on the finding that the FDS amounts to contractionary fiscal policy and would be second best to a set of policies that would directly induce growth. The elements of the growth strategy enumerated here are not unique and should be taken as an illustration of one possible heterodox, proactive fiscal stance that would induce growth in output and employment.

The consistency, plausibility and performance of the policy package are examined by way of a dynamic multi-sectoral computable general equilibrium model (Gibson & Van Seventer, 1995a, 1995b). A direct comparison is made with the orthodox framework according to these three criteria. The results suggest that the medium-term performance of the modelled economy could be greatly enhanced by direct government intervention to ease the capital-output ratio and stimulate small and medium-sized enterprises. The most general conclusion is that careful attention must be paid to demand management as well as supply-side effects. Neglecting either will significantly reduce the potential growth of the modelled, and presumably, the real economy.

The article is organised as follows: Section 2 is devoted to a review of the stylised facts essential to the modelling exercise. Section 3 discusses the fundamentals of growth from the perspective of a savings-driven model and presents what, in our view, is a more balanced approach. Section 4 describes the general features of the growth strategies that derive from these two theoretical perspectives. Section 5 compares the orthodox and heterodox growth strategies numerically, whereas the last section draws together some general conclusions.

2. RECENT STYLISTED FACTS

From 1990 to 1994, there was no real GDP growth in the South African economy. Per capita income in 1994 was approximately the same as it was in the mid-1960s (SARB, 1995: S-129). Owing to the worst recession since the 1930s there has been no growth in employment or real wages for unskilled labour. General government (as opposed to the public sector) has become the employer of last resort, but only partially offsetting the decline in private sector employment (SARB, 1995: S-115). In anticipation of the end of the apartheid period, public sector wages also increased dramatically. The wage bill rose from 11,3 per cent of GDP in

1990 to 13,7 per cent by 1994, despite a decline in employment in public enterprises by 17,6 per cent.

The rise in relative public sector participation provided some stability and undoubtedly kept the economy from sinking further. As a result, the ratio of the PSBR to GDP rose to record levels and a consensus view emerged that the size of the public sector had to be reduced (Pereira da Silva, 1995). Little attention, however, has been given to the highly cyclical nature of the PSBR ratio, since it depends, *inter alia*, on revenues that are themselves functions of the level of economic activity. After breaking down the cyclical and structural components of the PSBR, Harber (1995: 24) found that at least a third of the PSBR was due to the extraordinarily low level of output growth experienced in the last five years. This suggests that there is considerable scope for achieving fiscal balance through a growth strategy. There is apparently little room for raising the ratio of fiscal intervention relative to GDP above its 1994 level.

Currently, new programmes must be budget neutral. Essential components of any coherent growth strategy, such as the Reconstruction and Development Programme (RDP), therefore depend on budget reprioritisation, restructuring public sector assets and economic growth itself. Some effort to privatise existing public assets that are devoted to the provision of private rather than public goods may be undertaken to reduce interest payments. Since privatisation is a highly complex policy option with an uncertain impact on the budget, it is not considered here. Other shifts in the budgetary composition are considered, however, including a freeze on nett hiring, maintaining government consumption constant in real terms and holding transfers in nominal terms fixed.

A potentially important source of momentum for the budget reprioritisation process is the public sector wage bill. Counting both general government and public authorities, Reserve Bank data show no increase in government employment from 1990 to 1994. Neither has the real wage index grown significantly although the share of government wages and salaries has increased by 2,4 per cent of GDP. This implies that there has been a substantial upgrading of skills in the public sector, with a corresponding increase in the real wage bill of some 18 per cent over the five-year period. There is no evidence of this, however, and it might well have been the case that public sector employees awarded themselves promotions in anticipation of a change in government (as has occurred in many developing countries around the world). It is also possible that the data are inaccurate.

The large share of government wages has effectively crowded out expenditure that could otherwise have contributed to growth in capital productivity. As a result, private sector investment has been less effective in generating output and employment, in the process reducing tax revenues. There has been no concerted industrial strategy, policy or other attempt to rationalise government participation in the economy. The room for adjustment could be considerably increased with more moderate growth in public sector wages in the future.

Although the field of play is thus somewhat restricted, a virtuous circle is still possible. If government programmes are to be successful in the next half decade, it is essential that growth be restarted to generate the revenues to sustain public sector projects. So far, the economy appears to be off to a good start. Buoyant post-election expectations, coupled with the widely held hope that a significant devaluation would follow the demise of the financial rand mechanism, have caused a sharp increase in private sector investment.

The investment boom has spurred imports of capital goods, which in turn raises capital productivity and will probably reduce the rate of economic depreciation as the age composition of the capital stock shifts down. The pressure on reserves could, however, induce further tightening of the interest rate by the central bank, crowding out some private investment, but this would raise serious objections (*Business Day*, 1995). The majority of the business community is positive about the recent (1995/6) budget, with 73 per cent rating it favourably, while only 7 per cent responded negatively (*Weekly Mail*, 1995). This rise in business confidence will unquestionably accelerate future GDP growth. Counterbalancing this expectational effect on investment is the continued slump in mining and the volatile behaviour of agriculture.

For a growth strategy to become an authentic development strategy, growth must produce employment. While it is probable that growth in 1995 will exceed the 2,3 per cent achieved in 1994, a recovery in employment growth is more dubious. There has been evidence of significant labour-shedding in many sectors of the South African economy since 1990, especially in mining, with economy-wide labour coefficients dropping rapidly (SARB, 1995: S-122). Initially, labour productivity will increase as output rises and existing overhead labour is more productively employed. The nett effect on income distribution can be expected to be negative as real wages for unskilled labour are held down by mass unemployment and as bottlenecks in the market for skilled labour develop. The most likely source of employment growth will be in trade and the labour-intensive sectors of manufacturing.

There are several serious barriers to recovery that are considered in the growth simulations to follow. The first is the foreign exchange constraint that could make itself effective through further tightening of the interest rate. Foreign capital inflows in the first quarter of 1995 surged to Rb 5, equivalent to the entire 1994 capital inflow (*Business Day*, 1995). The current account deficit of Rb 2,2 for the first quarter was more than offset by the inflow. Foreign capital eased the transition to a single exchange rate, but in the process has prevented devaluation of the real exchange rate. While under the current policy environment it might be difficult to control the effect of these inflows on the exchange rate, real appreciation will undermine profitability in key export sectors. To the extent that these sectors have significant backward linkages, real devaluation will be needed to produce an increase in employment, albeit at lower real wages.

Another possible barrier to increasing demand along with the growth in supply might well be organised labour. An investment-led recovery will be less likely if the formal sector real wage continues to grow. The increase

in labour militancy since the 1994 election might, ironically, cause the market to grow more slowly in the medium term. Relaxed labour legislation, combined with optimistic post-election expectations, contributed to a wave of strikes in 1994. The combination of protected internal markets, liberal multinational corporations and monopolistic rents due to the high levels of concentration allowed more wage flexibility in the past than may be available in the future (Fallon, 1992). The simulations presented below do not depend on wage restraint, but some measure of growth is clearly inflation-financed. Given the other constraints that are effective, a consumption-led boom in the current environment appears to be unlikely. A main element of the growth strategy set out below is sufficient inflation to transfer resources from *all* labour, both skilled and unskilled, for accumulation and further job growth.

Yet another constraint on recovery may be the central bank itself. In the past, the South African Reserve Bank (SARB) has pursued highly restrictive monetary policies in an effort to reduce the rate of inflation. However, despite intervention by the foreign exchange market to anchor the nominal exchange rate, the inflation rate did not decline much below double digits. With the end of financial sanctions, foreign borrowing of domestic firms is likely to accelerate. This will weaken the control of the SARB over the level of domestic activity and free credit to be allocated to smaller firms. A second effect is that increasing the level of foreign borrowing strengthens the reserve position. The outcome is that the SARB will have less ability to control the domestic inflation rate. Higher growth will thus correlate with higher inflation, especially if capacity constraints are encountered in the short run.

Sector rigidities may also pose problems. It will be seen below that the critical sector in the model is construction. While the capital-output ratio is relatively low in this sector, full capacity utilisation will nonetheless push prices up. This will necessarily slow down the rate of investment and, as the price increases filter through to the rest of the economy, increase costs and reduce profits. The RDP housing subsidy will add additional inflationary pressure. However, the counterpart might well be a rapid increase in employment in that sector, as small and medium-sized producers enter the long-depressed market.

The theoretical models and numerical simulations produced below attempt to weave together these and other structural features of the South African economy. The models presented here, like all models, are necessarily incomplete and probably fail to capture some important elements of the economic landscape. They are nevertheless exceedingly complex. In what follows, there will be only a limited attempt to sketch the adjustment mechanisms of the computable general equilibrium model employed. The reader is referred to the base document which provides complete details, as well as an intuitive explanation of the model and how it works (Gibson & Van Seventer, 1995a).

3. SOME FUNDAMENTALS OF GROWTH

Traditional growth theory is centred on a production function in which output is related to input, capital and labour. In this view, growth of output *must* be related to the growth of input.

Formally, let X be output, K be capital stock and L be labour, all measured in natural units. These variables all refer to the private sector; government will be considered separately. The production function which relates the output to input is:

$$(1) \quad X = f(K, L)$$

Output growth is necessarily linked to input growth, since:

$$X' = f_K K' + f_L L'$$

where the prime denotes time differentiation and the subscripts are used for partial derivatives. Under the assumption that the two factors are paid their marginal products, we can write:

$$(2) \quad X'/X = \delta K'/K + (1-\delta) L'/L$$

where X'/X is the growth of output and K'/K and L'/L are the growth rates of the factors of production. The share of income going to capital is δ .

Since Schumpeter (1934), critics of the production function approach have asserted that the growth in factor supplies is less important than how the factors are combined (Stiglitz, 1989). This means that not only are factor supplies changing, but the functional form relating input to output is changing as well. At first blush, this seems to cast doubt on the entire enterprise of relating output growth to factor supplies.

Technical improvement can be captured using the same production function, however, if input is thought of as growing more rapidly than its natural rate. Labour supply, for example, may double every quarter century. *Effective* labour supply could grow much more quickly, doubling, say, every ten years. In this case, the rate of labour augmenting technical change would be just over 4 per cent per year. Labour growing at 2.8 per cent per year will double in approximately 25 years. Effective labour must be growing at 7.2 per cent to double every 10 years. The rate of labour augmenting technical change is 4.2 per cent per year. In other words, it would take 4 per cent more labour *using last year's technology* to produce the same amount as natural labour can with this year's methods. The same can be said for capital. If the rate of capital augmenting technical change is the same, it can be said that *multifactor productivity growth* (MPG) is 4 per cent per year. If the two rates of technical change differ, the MPG is the weighted average of the two, with weights equal to the respective factor shares in national income.

This can be seen as follows. Let the factors of production in equation 1 be *effective*. Then g_K and g_L can be written:

$$K'/K = g_K + \kappa$$

$$L'/L = g_L + \lambda$$

where g_k and g_L are the rates of growth of *natural* as opposed to effective capital and labour, and κ and λ are the rates of *capital and labour augmenting technical change*. Substituting these definitions into equation 2 gives:

$$g_x = \delta g_k + (1-\delta) g_L + [\delta \kappa + (1-\delta) \lambda]$$

where the growth of output is given by g_x . The rate of multifactor productivity growth is:

$$m = \delta \kappa + (1-\delta) \lambda$$

and is just a weighted average of the rate of technical change of capital and labour respectively.

The rate of growth of capital stock depends on the rate of investment which, in the orthodox model, depends on savings. In the simplest framework, the growth in the supply of capital is determined by the quotient of the rate of savings and the capital-output ratio. This result can be generalised by disaggregating savings into private, S_p , government, S_g , and foreign, S_x . We have:

$$S_p + S_g + S_x = I_p + I_g$$

where I_p and I_g are private and government levels of *gross investment*. Normalising by *private sector income*, Y , and writing the PSBR share as $\rho = (I_g - S_g)/Y$, we have:

$$(3) \quad (s_p + s_x - \rho) / k = g_k + d$$

where lower case s is the savings rate, k is the private sector capital-output ratio, g_k is the growth rate of the capital stock and d is the rate of depreciation. This is an *ex post* accounting relationship and as such says nothing about causality. Substituting into the equation for g_k above, we have:

$$(4) \quad g_x = \delta [(s_p + s_x - \rho) / k - d] + m (1-\delta) g_L$$

In the orthodox model, therefore, output growth depends directly on savings rates, the capital-output ratio, multifactor productivity and the growth in labour *supply*. Evidently, the model is indeterminate when there are excess supplies of labour. If the growth of output is known, then labour utilisation can be calculated from equation 4, but this leaves open the question of what determines the rate of output growth. For the theory to be complete the orthodox model must assume full employment, or at a minimum, a time-invariant rate of unemployment.

Orthodox, long-run growth theory provides the following policy recommendations:

1. *First and foremost, savings should increase.* Output growth will increase with the savings rate, both domestic and foreign. To the extent that households save less than business, it is better to shift income from households to business in order to stimulate growth. A higher PSBR ratio, ρ , will retard growth, since it subtracts from savings.

2. *The power of the effect of savings depends positively on the share of capital in national income and negatively on the capital-output ratio.* The 'multiplier' of savings on growth is easily calculated as δ/k from equation 4. It is therefore advisable to shift income from labour to capital for savings to have a higher impact on growth. Any activities undertaken by the private or public sector that lower the capital-output ratio will increase the savings multiplier.
3. *Depreciation reduces growth and is offset by the growth in multifactor productivity.* These two factors affect output growth in opposite directions. The effect of capital on growth is drained away by depreciation and is enhanced by multifactor productivity growth, the latter with unitary elasticity.
4. *Growth in labour demand raises output growth in proportion to labour's share.* The demand for labour increases with the fall in the real wage. If the elasticity of substitution is one, then labour's share is constant and growth increases with the decline in the real wage. Lower elasticities of substitution will diminish the effect of growth in labour demand, since the share of labour will fall with the real wage (although savings will be made more effective by this change). Still, the orthodox growth model implies that lower real wages will raise output growth.

The production function approach to growth theory is clear in its implications: Faster growth is achieved through measures that redirect income from those segments of society with low savings to those with high savings, reduce government's participation in the economy, increase the pace of technological change and reduce real wages. It is clear, then, that the FDS is theoretically grounded in the orthodox growth model and the principal mechanism by which fiscal discipline is supposed to increase growth is through its effect on savings.

3.1 Reality check

The performance of the growth model of equation 4 can be easily evaluated by reference to published data, as shown in Table 1. Observed growth in *private* GDP, excluding government, is shown in the first column of the table from 1989 to 1994. When data for the remaining variables are substituted into the model of equation 3, it is seen that the MPG is highly volatile, jumping as much as 4 percentage points in one year. The average is broadly consistent with historical estimates of total factor productivity growth for South Africa, which are in the order of 1 to 1.8 per cent. The Industrial Development Corporation (1991: 4), for example, places manufacturing MPGs in this range for 1972–90. However, note that the extreme volatility of MPG hardly suggests that it is a fundamental determinant of GDP growth. Multifactor productivity appears to be driven more by factor utilisation than growth in factor supplies. The chief difficulty with the orthodox model of economic growth on which the concept is based, is that it assumes that the factors of production are always fully utilised. Labour demand in the model is sometimes interpreted as endogenous and therefore not limited by the growth in labour supply. This interpretation clearly makes little sense unless one takes GDP growth as exogenous. The central quality of the orthodox model is that factor growth determines output growth, not the other way around.

Table 1: The orthodox growth model

Year	GDP growth ¹ g _y	Capital share δ	Private savings S _p	Foreign savings S _x	PSBR/ y, ρ	Capital output k	Dep d	Private empl g _l	Multi-factor m
1989	2,5	47,2	27,2	-1,9	6,5	2,1	8,3	0,4	2,0
1990	-1,1	45,9	23,8	-2,5	5,3	2,5	7,0	-0,3	-0,6
1991	-1,7	45,4	24,3	-2,6	6,0	2,6	6,7	-3,6	0,6
1992	-3,0	44,7	27,3	-1,5	9,8	2,8	6,4	-3,5	-0,8
1993	1,5	45,5	28,6	-2,0	10,2	2,7	6,3	-2,6	3,2
1994	2,4	46,3	27,7	0,6	8,5	2,7	6,3	0,5	1,6

Source: SARB (1995: S-128) and the authors' calculations.

1. Excludes government.

The volatile estimates of multifactor productivity reflect, in part, the loss in employment the South African economy has suffered in the last six years. The average growth in capital and labour has been negative over the period, but labour demand has decreased ten times faster than capital, which gives an average of almost 2 per cent per year. Even though there was no growth in real GDP from 1990 to 1994, it appears that the economy is able to produce more with less input and thus productivity growth is positive. In fact, the data simply reveal a defensive reduction in the workforce in the face of declining demand. If, in the effort to maintain profitability, firms could have shed capital as easily as labour, they would have done so, and multifactor productivity would have risen even faster.

3.2 Simulating the role of the PSBR in the orthodox model

Growth in private sector capital stock in the orthodox model is governed by savings from which the PSBR is, in principle, a deduction. With a rising PSBR, nett savings slows down and thus capital stock growth is less. Figure 1 shows the effect of the PSBR on growth in the savings-driven scheme. It is constructed under the assumption that the shares of capital and private savings are fixed at the 1994 levels shown in Table 1. Foreign savings, however, is allowed to rise to 2 per cent and depreciation falls to 5 per cent. The capital (private sector) output ratio is assumed to stabilise at 2,9. Multifactor productivity is set at 1 per cent. Finally, the growth of labour is set at 80 per cent of the growth in output. This last parameter was taken from the CEAS (1995: 27) estimate for the upper bound of the elasticity of employment with respect to output. Its historical value is reported by the CEAS as 0,2 for the 1987-93 period. These parameter values were chosen to enhance the plausibility of the model's assumptions by enforcing consistency with historical and cross-country data.

The graph illustrates how lowering the PSBR will increase growth in a direct, linear fashion. The power of the assumption of faster multifactor productivity growth in the orthodox model is reflected by the top line on the graph which corresponds to an MPG of 2 per cent. This increases growth for every level of the PSBR by almost 2 per cent. The power of the MPG assumption is clearly seen by comparing the effect of an autonomous shift in private sector savings as a fraction of private GDP. The middle schedule of the graph shows how savings shifts the growth locus up by almost one percentage point for every PSBR ratio. By denying that government investment spending might increase investment,

productivity and demand, the orthodox model concludes that higher public sector spending can only be a drain on economic activity and growth.

Figure 1: The orthodox growth model

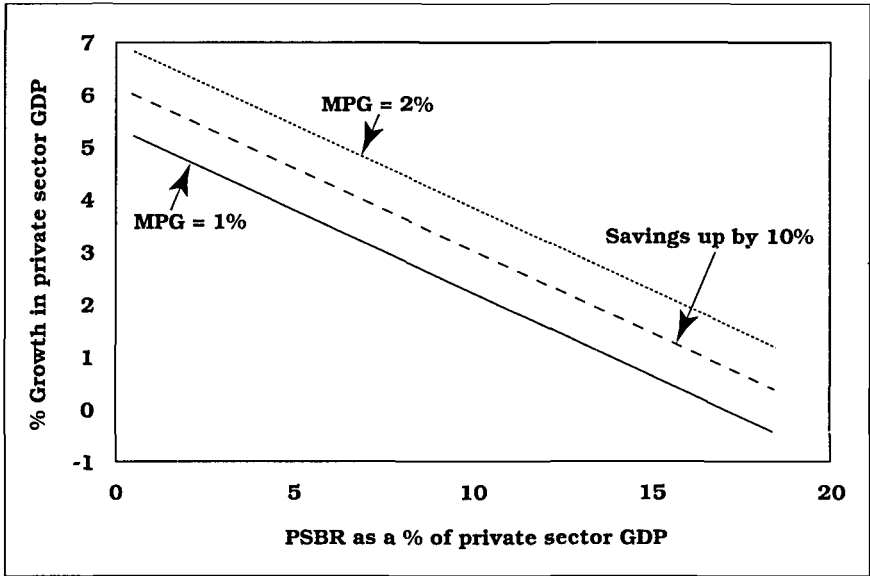
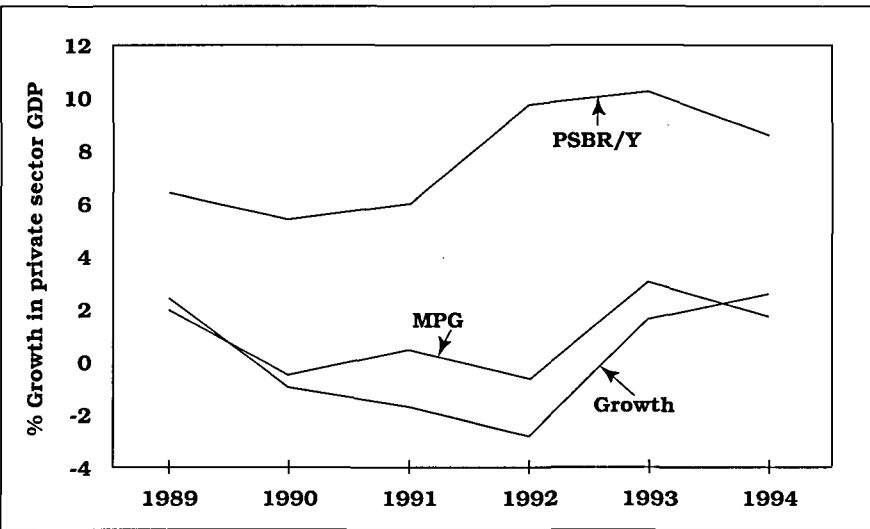


Figure 1 strongly suggests that there should be a negative correlation between the PSBR to GDP ratio and growth. Figure 2 shows actual data for the 1990–4 period. The PSBR ratio is positively correlated with multi-factor productivity growth as well as GDP growth.

Figure 2: PSBR and growth



The data are consistent with a range of studies which have found a positive crowding-in effect by government investment on private sector investment (Blejer & Khan, 1984; Severen & Solimano, 1993). Mlambo and Nell (1995: 22) show that, for South Africa, private and public investment have moved together since 1970. They conclude that a one percentage point increase in the share of public investment in GDP raises the ratio of private investment to GDP by between 4 and 5 per cent. This strong positive correlation is quite robust across a range of regressions. In the sub-Saharan region, the effect is less pronounced after the debt crisis, but this is explained in part by the tendency for public sector investment to be financed residually. As interest payments rise, private sector investment is crowded out through the associated decline in public sector investment. Growth slows as a result of the twin effects.

We conclude that the orthodox growth model has little to do with the statistical profile of the South African economy. Models which assume that the economy is supply-constrained and then conclude that dramatic gains in MPG are required for even minimal employment creation, lack credibility. As seen in equation 4, multifactor productivity enters the growth equation with a coefficient of one; that is, a 1 per cent increase in MPG causes output growth to increase by 1 per cent. However, MPG is difficult to estimate with precision and is unstable over time. Growth estimates based on the orthodox model must therefore be regarded with caution.

3.3 A more balanced model

This section is devoted to the elaboration of a growth strategy that is then modelled in a far more comprehensive way than the traditional savings-driven framework. The model developed here employs an independent investment function. It is no longer adequate to assume that total savings will automatically be invested; the proper incentives must exist for the investment to be undertaken.

It is easy to see how an independent investment function fundamentally alters the character of the model. Beginning with equation 3 above, we simply let the growth rate of the capital stock (including depreciation) be written as:

$$(5) \quad g_k + d = \alpha u + \beta i_g - \gamma r$$

where α is the accelerator coefficient and u is capacity utilisation. Government investment, i_g , is assumed to crowd in private capital accumulation with a coefficient β . Crowding out is captured by γ , the coefficient on the interest rate, r , or the cost of capital. The capacity utilisation ratio is defined as:

$$u = X / Z$$

where Z is capacity output. Public investment is normalised by capacity:

$$i_g = I_g / Z$$

The capital-output ratio on the right-hand side of equation 3 can be re-expressed in terms of capacity utilisation, since:

$$(6) \quad k = K / X = K/Z \cdot Z/X = k_c / u$$

where k_c is the private capital-capacity output ratio. Substituting equations 5 and 6 into 3, the savings-investment balance can be expressed:

$$\alpha u + \beta i_g - \gamma r = (s_p + s_x - \rho) u / k_c$$

Solving for capacity utilisation:

$$(7) \quad u = k_c (\beta i_g - \gamma r) / (s_p + s_x - \rho - \alpha k_c)$$

This last equation underscores the difference between the two models. Observe, for example, that capacity utilisation *rises* with an increase in the PSBR to GDP ratio, ρ . Similarly, higher savings *rates* cause output in the short run to decline, for a given level of investment. The reasoning is as follows: If, in the short run, output adjusts to balance savings and investment, a higher savings rate will force output to contract so that the balance is achieved. A critical parameter is the accelerator coefficient, α . An increase in α causes the capacity utilisation ratio to rise.

Observe from equation 7 that an increase in the capital-output ratio, k_c , causes capacity utilisation to rise. This signals that the role of productivity is more complex in this model. If more capital were required per unit of output, investment requirements would be higher for the same rate of growth. If the saving propensities were the same, then capacity utilisation would necessarily rise to produce the mass of savings required to finance the new level of investment.

Crowding out through the interest rate, r , works in the standard fashion. The direct effect of government investment is positive and measured by the coefficient β , as discussed above. Nonetheless, public sector investment does crowd out private investment indirectly through two channels. First, it causes capacity utilisation to increase, which raises the interest rate through the central bank's reaction function. Second, the increase in capacity utilisation strengthens labour's hand in wage negotiations and some cost-push inflation results.

Is there some way of reconciling the orthodox and heterodox visions of the economy? The traditional answer is that the orthodox model applies 'in the long run', in which capacity is fully utilised. In this long run, investment adjusts to the supply of savings market participants are willing to undertake. There is no reason for investment to rise or fall according to the accelerator since capacity utilisation is fixed. Further, if the long-run interest rate is fixed by the social rate of discount, crowding out is irrelevant as well. Finally, in the long run the level of government investment should fall to that required to repair market failures and provide purely public goods. The problem of economic growth is then reduced to the growth of the factors of production. Their rates of utilisation are not at issue since the problem has been effectively assumed away.

A second view of the dynamics of savings and investment is that the capital stock at any moment is simply the sum of *short-run* levels of investment less discards or depreciation. There are no *long-run* forces at work, only empirically observed tendencies and countertendencies in the contemporaneous measure of the relevant variables. The capital stock is a cumulative record of investment flows which themselves depend on fluctuations in demand. *Ex ante* savings is largely irrelevant; savings plans can be made entirely moot if demand is insufficient and lay-offs cause existing savings to be drawn down. The orthodox model can be seen as a special case, in the sense that market forces always ensure full employment and thus *ex ante* savings plans are fulfilled.

Without the assumption of smoothly functioning markets bringing about full employment of the factors of production, the causality between output growth and factor demand is reversed. In the heterodox model there exists a 'virtual' production function that relates growth in input to the growth in output, where the latter is tied to investment through the multiplier. In this approach it appears that MPG does not determine output growth, as in the orthodox model, but rather that output growth and thus demand serve to determine the path of the MPG.

We may summarise the essence of the difference between the two models by asserting that a fundamental precept of this article is that a coherent growth strategy must pay attention to the balance of supply *and* demand. It is simply inadequate to assume full capacity utilisation and ignore problems of inadequate balance of both sides of the model. Policies based on the long run are inherently one-sided and can impair the performance of the economy as measured in the actual data. Policies designed to lift the savings rate, for example, may be successful in stimulating the supply of investible funds, but not in raising the observed rate of capital accumulation if other compensating demand-boosting policies are not pursued simultaneously. Projections based on long-run tendencies can also be wildly inaccurate, especially if the economy has no demonstrated propensity to converge to the long-run position.

4. ELEMENTS OF A CONSISTENT GROWTH STRATEGY

With the shortcomings of the traditional model in mind, we turn our attention to the components of a growth strategy that does account for a wider array of variables. This strategy is labelled a *consistent growth strategy* (CGS) inasmuch as it considers policies which must be simultaneously applied in order to bring about a sustained expansion of the economy as well as an increase in its labour-absorbing capacity. The policies are balanced in the sense that they refer to both supply growth and demand management to validate expanded capacity. As noted above, they are not necessarily uniquely qualified to bring about growth. (One CGS not considered here is export-led growth in which exports rise a proportion of total production. For a detailed discussion, see Gibson and Van Severter, 1995c.)

The five elements of the stylised CGS can be grouped as follows:

1. *Capital-output ratio easing activities (KOREA).* Capital accumulation is meaningless unless it results in growth and increased employment. Making South African capital more efficient at the margin requires specific policies to disseminate technological information, to fund and coordinate research and development, and to support productivity-enhancing expenditure. KOREA is partly the result of government policy and depends on the level of government expenditure, both current and capital.
2. *Foreign exchange generating policies.* By the turn of the century, as now, South Africa will fit the traditional model of a primary-exporting/capital-importing economy. This implies that the demand for foreign exchange must be balanced by way of policies which promote exports and direct foreign investment. Much of the trade balance depends on factors beyond the reach of policy, for example, the gold price and rainfall. As the economy recovers, imports will rise dramatically, especially to replace outdated capital goods. To keep the foreign exchange constraint from binding, policies to achieve real effective devaluation must be put into place. By making imported capital goods more expensive, devaluation might well counter the effort to ease the capital-output ratio. It is therefore incumbent upon policy-makers also to promote exports directly and to avoid currency overvaluation.
3. *Market and employment generating policies.* With little growth, yet a rise in capital intensity and therefore labour productivity, South Africa has clearly been spending-constrained in the last five years. A fundamental element in a coherent growth strategy must be the generation of employment and building the internal market. This strategy involves promoting *small and medium-sized enterprises* (SMEs) as a way of raising capital productivity and creating jobs. It is well known that the capital-intensive, large-scale manufacturing sector in South Africa is limited in its ability to absorb significant quantities of labour. This is partly due to the pattern of credit allocation that favours highly concentrated enterprises (see World Bank, 1995; DTI, 1995). Holding-company pyramids often involve financial intermediaries that allocate credit on a preferential basis (IMF, 1995). Mechanisms to enhance the flow of credit to SMEs (eg, interest rate subsidies or state guarantees) could significantly increase the labour-absorbing capacity of the South African economy. A growth strategy that does not involve explicit microlevel policies designed to promote SMEs will run a serious risk of worsening the income distribution.
4. *Social and private wage policies.* The private sector requires profits in order to accumulate productive capital for job growth. Excessively high real wages will reduce the accumulation fund and lead to lower growth and thus fewer employment opportunities for all. Household welfare, on the other hand, depends on a combination of private and social wages; that is, the degree to which they benefit from social spending. It can be argued that spending on health, education and housing, for example, affects productivity in the long run and is therefore an element of KOREA. However, its more immediate and important effect is to ease the wage-profit relationship which allows producers to be

competitive in world markets and earn sufficient profits to plough back into investment projects. The underlying rationale for the RDP is the provision of a social wage as much as social infrastructure. Reprioritising the budget in ways which emphasise substitution of social for private wages is clearly advantageous from the point of view of growth and employment.

5. *Financial policies.* For growth to proceed real interest rates should be low, which implies that the reaction of the central bank to rising inflation must be curbed. This will occur naturally with the end of financial sanctions as large firms go abroad to obtain financing. However, if the Reserve Bank perceives that its ability to control inflation through the interest rate is progressively eroded by the financial opening, it may overreact, raising the interest rate even more to compensate for its weakened impact. This will have two negative effects: First, higher interest rates will disproportionately affect the ability of SMEs to raise capital. Second, it will increase domestic interest payments on government debt. Both will reduce the employment-creating capacity at every growth rate. The Reserve Bank must ultimately support any growth strategy agreed to by the public authorities. Finally, the financial instability which recently plagued Mexico and Turkey must be avoided. A realistically managed exchange rate that smoothes the familiar pattern of creeping appreciation followed by maxi-devaluation is essential to the growth strategy elaborated here. Any resulting inflation will be a small price to pay for improving the employment-generating capacity of the economy.

5. SIMULATION RESULTS

The main question analysed in this section is whether the growth strategy outlined above is in fact internally consistent. By internal consistency, both accounting consistency as well as objective consistency is meant. Although policies have side effects that must be counteracted, they fundamentally should not work at cross-purposes. Whether the entire package serves the overall objective can be determined only by way of an economy-wide, general equilibrium framework.

In what follows, a base run was constructed in which none of the CGS policies enumerated above were followed, apart from an exogenous shift in the business expectations. The simulations presented below are a revised version of what appeared in Gibson and Van Seventer (1995b), where a more detailed discussion of the underlying assumptions can be found.

5.1 The orthodox strategy

Briefly, the simulation was conducted as follows:

- All tax rates were maintained at their base level.
- The PSBR was reduced as a share of GDP from 6,5 per cent to 4 per cent.
- Real government expenditure, including transfers, was maintained at the 1994 level.

- Government employment was maintained at its 1994 level and the wedge between government and private sector wages was not allowed to grow. Private sector expectations rose such that there was an increase in real fixed investment by 8 per cent. (Government investment is determined endogenously by the constraint on the PSBR ratio in Table 2.)

These conditions are given as a numerical interpretation of the constraints on the Government of National Unity implicitly agreed to in the 1995/96 budget. They are also consistent with the notion that 'fiscal discipline' is sufficient as a growth strategy as discussed above. The results of the simulation are shown in Table 2.

Table 2: Macrodata for an orthodox growth strategy

	Capacity utilisation	Real GDP ¹	GDP growth	Capacity growth	Invest/ GDP	Inflation	Interest rate	g	g ₊	m	K/L
1994	83,9	264,3	2,3	0,4	17,5	10,4	15,1	-1,4	-0,3	0,7	4,3
1995	86,8	272,0	2,9	2,6	20,0	14,6	19,3	2,5	1,2	1,5	4,3
1996	86,1	277,4	2,0	2,3	19,5	11,5	16,0	0,5	1,1	1,2	4,2
1997	84,4	279,4	0,7	1,4	18,2	10,9	13,9	-1,0	0,6	0,8	4,1
1998	83,4	280,9	0,6	0,8	17,3	11,7	13,2	-0,9	0,3	0,9	4,1
1999	83,6	284,2	1,1	0,8	17,1	12,4	13,2	-0,1	0,3	1,3	4,1
<i>Period averages</i>											
1990-4	84,5	265,3	-0,2	-0,1	17,5	12,5	14,3	-0,1	0,3	1,2	3,4
1995-9	84,9	278,8	1,5	1,6	18,4	12,2	15,1	0,2	0,7	1,1	4,2

Source: Model computations.

1. Rb 1990 prices.

From the table it follows that without a balanced growth strategy, orthodox policy recommendations will not produce sustained high growth. There was a burst of growth up to 2,9 per cent in 1995, which reflects the assumption of more positive post-election expectations on the part of the private sector. Despite the upward shift in the investment function, growth then tapers off to less than 1 per cent for the intervening years and only begins to recover in the last period. The problem is clearly in the capacity-utilisation variable; growth in investment creates capacity, but the demand is not there to validate it and consequently growth slows in the next period. Inflation remains moderate – below 15 per cent – even when the economy is growing fastest. Note that as the economy takes off, the central bank mounts a very aggressive attack on inflation. The crowding out due to the higher interest rate explains part of the decline in real GDP, but the drop in the PSBR also contributes since there is less crowding in of private investment by the government.

To compare these results with the orthodox growth model of Table 1, consider the last three columns of the table, where growth in employment, capital and multifactor productivity are shown. These figures are entirely derivative and play no causative role in the model whatsoever. Table 3 shows that as growth accelerates, there is a significant increase in the utilisation of the factors of production. Multifactor productivity also rises, and is due to the rise in capacity utilisation and some skilled-labour hoarding that allows output to rise faster than employment.

Table 3: Employment and income for the growth strategy base run

	Private sector				Gini	Sectoral				
	Employment		Real wage			Employment (unskilled)				
	Unskilled	Skilled	Unskilled	Skilled		Mines	Food	EM'	Const	Trade
1994	100,0	100,0	100,0	100,0	0,4732	100,0	100,0	100,0	100,0	100,0
1995	102,8	102,3	98,0	101,0	0,4767	99,7	100,0	101,7	113,2	101,7
1996	103,4	102,7	98,9	104,3	0,4800	102,2	101,4	102,3	111,4	101,9
1997	102,5	101,6	99,3	107,2	0,4830	104,9	101,3	101,6	105,6	100,6
1998	101,8	100,5	98,3	109,3	0,4858	107,5	100,3	100,9	101,5	99,5
1999	101,9	100,3	97,0	111,1	0,4886	109,9	99,5	100,7	101,3	98,9
Period averages										
1990-4	104,0	103,5	102,0	96,2	0,4687	106,4	103,0	104,5	101,0	103,1
1995-9	102,5	101,5	98,3	106,6	0,4828	104,8	100,5	101,9	106,6	100,5

Source: Model computations.

1. Electrical machinery.

When the economy begins to grow, it employs more unskilled than skilled labour. However, since it is growing relatively slowly, real wages of unskilled workers continue to decline – over the period they lose three percentage points. Skilled labour, on the other hand, benefits disproportionately and the Gini coefficient rises as a result. Public sector employment remains constant by assumption and thus the balance of employment growth shifts slightly towards the private sector and within the private sector towards unskilled labour. These compositional changes are in the appropriate direction, but weak in magnitude as is demonstrated in the table.

The growth sectors are mining, which shows some recovery in the medium term, and construction, which bulges during the period of higher growth but then fades as growth slows (not shown in the table). If mining output does not in fact recover, the figures may be less favourable than in the table. It is to be stressed that what is being modelled here is a medium-term scenario. In the long term, mining faces decreasing returns which do not necessarily plague the manufacturing sector. The medium-term success of mining depends on shifting the composition away from gold and toward other minerals.

Employment in the primary sectors expands most rapidly despite high levels of labour productivity growth. In the case of mining, employment rises by 10 per cent over the forecast period, while in construction there is an initial boost in employment in the effort to build structures that are ultimately underutilised. Because of lagging demand, sectors which might show substantial employment growth, such as food and trade, do not expand as quickly. Employment opportunities in both of these sectors contract and employment in manufacturing (not shown) is flat. Table 3 tells a story of missed opportunity, in that employment of unskilled labour only grows 1.9 per cent over the five-year forecast period.

Table 4: Public sector under the orthodox growth strategy (% of GDP)

	PSBR	Tax	Goods	Empl	Transfers	Domestic interest	Foreign interest	Debt	Invest- ment
1994	6,4	25,3	8,0	13,6	3,7	4,7	0,1	52,8	2,3
1995	6,0	25,3	7,8	13,3	3,6	5,2	0,2	53,3	2,9
1996	5,5	25,3	7,6	13,3	3,5	5,2	0,2	54,4	2,3
1997	5,0	25,3	7,6	13,4	3,5	5,3	0,2	55,4	1,5
1998	4,5	25,2	7,5	13,5	3,4	5,4	0,2	55,7	0,8
1999	4,0	25,2	7,5	13,5	3,4	5,5	0,2	55,0	0,5
<i>Period averages</i>									
1990-4	4,5	25,2	7,9	13,0	3,2	3,4	0,1	48,6	2,2
1995-9	5,0	25,3	7,6	13,4	3,5	5,3	0,2	54,8	1,6

Source: Model computations.

Table 4 shows that the public sector is shrinking its participation in the economy, consistent with the precepts of the orthodox strategy. The assumed decline in the PSBR to GDP ratio is recorded in the first column. The tax burden remains relatively constant as a percentage of GDP. On the expenditure side, employment, transfers, and domestic and foreign interest payments are also stable. Debt climbs from 52,8 per cent of GDP to 55 per cent. Given the relatively slow growth engendered by the declining PSBR ratio, public investment – the residual – falls from 2,3 per cent in 1994 to only half a per cent of GDP by 1999. As argued in Gibson and Van Seventer (1995b), the intended shift from the current to capital account has not materialised owing to the relatively slow rate of growth and thus tax revenue.

Table 5 provides some detail on the foreign sector under the orthodox growth strategy. It is evident that the growth is export-led with the fraction of exports rising from 23,6 per cent to 25,2 per cent of GDP. It can be seen that under a fiscal discipline approach exports are rising owing to the sluggish growth of the domestic economy. Note that imports remain stable and the real exchange rate, by assumption, is fixed at 1,0. The individual sectoral exchange rates may in fact differ according to the sectoral behaviour of prices, but the aggregate is pegged at 1,0 by policy. Capital flight, measured as a stock of foreign assets, rises due to the low level of investment, but not by much. In the model, capital flight is a residual asset which absorbs excess savings over investment for firms and households. The declining PSBR causes foreign borrowing by the government to remain a small fraction of GDP. By 1997, the current account returns to surplus after the expectations-fed growth spurt causes it to move temporarily into deficit. The rise in capital flight offsets the current account surplus, however, and reserves decline. (This series should be considered an index since no attempt was made to model foreign capital inflow or foreign borrowing by the SARB to protect its reserve position.)

Table 5: Foreign sector under the orthodox growth strategy
(% of GDP)

Year	Exports	Mining	Other	Import	Real exchange rate	Capital flight ¹	Current account deficit	Govt foreign borrow ¹	Foreign reserves ¹
1994	23,6	15,1	8,5	21,6	1,0	7,0	0,00	4,7	0,4
1995	23,0	14,7	8,3	22,1	1,0	8,1	1,20	3,7	-5,9
1996	23,3	15,1	8,2	21,9	1,0	4,7	0,70	3,6	-2,0
1997	24,0	15,6	8,4	21,5	1,0	7,5	-0,40	3,6	-7,8
1998	24,7	16,2	8,5	21,2	1,0	10,0	-1,50	3,5	-12,1
1999	25,2	16,7	8,5	21,1	1,0	11,6	-2,10	3,5	-13,4
<i>Period averages</i>									
1990-4	24,8	15,0	9,8	21,7	1,0	5,6	-1,4	2,9	0,7
1995-9	24,0	15,7	8,3	21,6	1,0	8,4	-0,4	3,6	-8,2

Source: Model computations.

1. Stocks.

It is evident that the orthodox approach is inadequate as a growth strategy, not to mention a strategy for authentic development. If the principal objective of the public sector is to reduce its contribution to demand, there will ultimately be a mismatch between capacity growth and its utilisation. No amount of factor productivity growth can resolve this dilemma. If both sides of the model fail to grow at approximately the same rate, medium-term growth will suffer.

5.2 A heterodox strategy

In this section, a far more extensive role for the public sector in stimulating growth and employment in the economy is considered. A number of new assumptions are added to those enumerated above. The complete list is as follows:

1. PSBR

The PSBR, as a share of GDP, declines from 6,4 per cent to 6 per cent in 1995 and remains constant thereafter. This replaces the assumption of a declining PSBR.

2. Wages

The differential between government and private sector wages declines by 1 per cent per year. (The RDP White Paper suggested that public sector employment could be reduced and this was modelled in Gibson and Van Seventer (1995b). That assumption is replaced here with the declining wedge between public and private wages. The effect on the wage bill is very similar.)

3. KOREA

The rise in government capital expenditure is assumed to increase the capacity growth rate, as is shown in Table 6.

Table 6: KOREA

Sector	Percentage increase in capacity growth
Food	0,25
Manufacturing	1,00
Electrical machinery	0,25
Construction	5,00
Trade	0,25

The higher level of autonomous growth in the construction sector is partially endogenous in that a lower level of growth of capacity would imply much more than 100 per cent capacity utilisation. As argued in Gibson and Van Seventer (1995b), the result implies that the construction sector will attract many small and medium-sized enterprises which have extremely low capital and financing requirements. The sectors excluded from this table are those for which government participation would not ease the capital-output ratio: agriculture, mining, electricity and financial services. This assumption may or may not be correct, especially in the case of agriculture.

4. Credit

Credit to small and medium-sized enterprises is assumed to boost their share in output. Since these firms use more labour per unit of output than their larger counterparts, it is deemed reasonable to *lower* the growth of labour productivity (from 1,25 per cent across the board) as follows:

Table 7: Stimulating the SMEs

Sector	Percentage decline in labour productivity
Food	0,25
Electrical machinery	0,25
Construction	0,25
Trade	0,25

5. RDP housing subsidy

The subsidy is awarded to low-income households. It is direct and non-fungible and increases household savings by the same amount. Thus, the consumption of these households as well as their financial surplus remains constant, except for macroeconomically induced changes.

Table 8: Housing subsidy

Period	Per cent of GDP	Rm, current prices
1995	0,10	506
1996	0,15	908
1997	0,25	1 798
1998	0,30	2 571
1999	0,40	4 171

The last column of the table is a result of the simulation, inasmuch as it is based on the endogenous level of GDP.

6. Devaluation

As in the orthodox simulation, it is assumed that the rand would devalue with the nominal price level. Here we accelerate this rate of nominal devaluation by *one per cent*. Since the SARB does not set the rand-dollar exchange rate, it is assumed that the devaluation would be brought about by a looser monetary policy (see below). The attempt at real devaluation was successful, as shown in Table 9 below. The inflation provoked by the devaluation was slightly more than one tenth of one per cent and thus the *ex post* real devaluation achieved was about nine tenths of one per cent.

Table 9: Real and nominal devaluation (average)

Period	Nominal	Real
1995	17,1	0
1996	14,9	0,88
1997	14,3	0,88
1998	15,2	0,88
1999	16,4	0,87

7. Reserve Bank policy

It is assumed that the SARB will loosen monetary policy, but only marginally. The reaction function for the central bank was scaled back to give, on average, a nominal interest rate of one half of one per cent lower for the same level of capacity utilisation, inflation and reserves. This slightly more accommodating stance implies less crowding out of private sector investment and is consistent with the real depreciation of item 6.

The combination of assumptions listed above was simulated in the model and the results for the basic macrovariables are shown in Table 10. These results can be compared directly with those of Table 2. First note that demand is more balanced with the growth in supply. Capacity utilisation rises substantially (possibly too much) to a period average of 89 per cent, versus 84,9 per cent in the orthodox strategy. Demand maintenance both validates the growth in capacity and stimulates it. The average over the simulated period is seen to be 5,3 per cent, compared with 1,6 per cent in Table 2.

Table 10: Macrodata in the heterodox growth strategy

	Capacity utilisation	Real GDP ^a	GDP growth	Capacity growth	Invest/GDP	Inflation	Interest rate	g	g _c	m	K/L
1994	83,9	264,3	0,0	0,4	17,5	12,0	15,1	-1,4	-0,3	0,7	4,3
1995	87,4	273,4	3,4	3,0	20,5	15,3	18,9	3,2	1,3	1,6	4,4
1996	89,1	284,6	4,1	4,6	22,1	14,2	19,1	3,6	2,2	1,7	4,3
1997	89,2	296,2	4,1	5,2	23,4	14,3	19,5	3,5	2,6	1,5	4,2
1998	89,5	309,8	4,6	5,8	25,0	14,8	20,5	4,2	3,2	1,5	4,1
1999	89,7	325,1	4,9	7,6	26,6	18,7	24,2	4,7	3,6	1,6	4,3
<i>Period averages</i>											
1990-4	84,5	265,3	-0,2	-0,1	17,5	12,5	14,3	-0,1	0,3	1,2	3,4
1995-9	89,0	297,8	4,2	5,3	23,5	15,5	20,4	3,8	2,6	1,6	4,3

Source: Model computations.

1. Rb 1990 prices.

The inflation-growth trade-off is clearly in evidence in that the average inflation rate rises by 3,3 per cent to 15,5 per cent for the period. Note the last year of the simulated period for which RDP expenditure is particularly strong (see Table 8). Additional construction demand increases building costs which are passed along in the form of higher prices. The Reserve Bank attempts to dampen demand by raising the interest rate significantly in the last period. Given the sensitivity of the economy to increased demand for construction (by way of increased public and private investment), this simulation suggests that it is essential to phase in RDP expenditures to allow time for the gestation of capacity in the industry.

The variation in the multifactor productivity in Table 10 clearly illustrates how sensitive this number is to the rate of utilisation of resources. In particular, note that the growth in labour demand is now substantial, rising from 0,2 per cent in the previous simulation to 3,8 per cent in the current scenario. This is a direct result of the lowering of labour productivity that is assumed to be the outcome of stimulating SMEs, as noted above. Multifactor productivity rises to only 1,6 per cent, rather than the much higher number required for savings-based models to generate equivalent GDP growth rates.

The capital-labour ratio must necessarily rise owing to the increase in investment and the continued growth in labour productivity. The latter is consistent with the stylised fact that most technological change is labour-saving rather than capital-saving. Thus, if the economy is growing normally, the capital-labour ratio will tend to increase. To counteract this tendency, policies to stimulate SMEs are necessary to lower the capital-labour ratio and improve the distribution of the benefits of the growth strategy.

Table 11 supplies some detail on how employment and income change under the heterodox strategy. Overall employment growth improves while the distribution of income worsens. Note that real wages rise for both skilled and unskilled labour, but much more for the former. This reflects the skilled labour constraint widely acknowledged to apply in South Africa (Fallon, 1992). Consequently, the household Gini coefficient worsens. This, in part, reflects the fixed coefficients by which income accruing to the production factor labour is distributed to households. If these coefficients change, as they would with a more highly educated workforce, then the Gini would not necessarily rise as much. On the other hand, the worsening of the distribution is consistent with Kuznets' 'inverted U' hypothesis which implies that inequality first increases with growth and then declines once the economy has passed a threshold.

Table 11: Employment and income in the heterodox growth strategy

	Private sector				Sectoral					
	Employment		Real wage		Gini	Mines	Employment (unskilled)			
	Unskilled	Skilled	Unskilled	Skilled			Food	EM'	Const	Trade
1994	100,0	100,0	100,0	100,0	0,4732	100,0	100,0	100,0	100,0	100,0
1995	103,6	103,0	97,7	100,7	0,4768	99,7	100,2	104,8	116,9	102,4
1996	107,7	106,5	97,3	103,0	0,4807	102,2	102,8	109,1	129,4	105,3
1997	112,0	109,9	97,0	105,3	0,4845	105,6	105,6	113,0	142,7	108,2
1998	117,3	114,2	96,1	107,3	0,4881	109,7	108,5	118,0	159,6	111,8
1999	123,5	119,2	93,6	108,1	0,4930	114,9	112,1	123,7	179,4	116,0
<i>Period averages</i>										
1990-4	104,0	103,5	102,0	96,2	0,46870	106,4	103,0	104,5	101,0	103,1
1995-9	110,7	110,6	96,4	104,9	0,48462	106,4	105,8	113,7	145,6	108,7

Source: Model computations.

1. Electrical machinery.

Table 11 confirms that the SME policy is producing the desired results. The biggest gains in unskilled employment occur in the sectors in which there was a slowdown in labour productivity growth. The investment-driven boom causes employment in construction to increase the most – as seen in the table, the index almost doubles. Of the SME-stimulated sectors, food and trade still lag behind the economy-wide average. This suggests that there is scope for accelerated SME policies in these sectors.

Table 12 surveys the simulated impact on the public sector accounts. Note that for 1995 the PSBR only declines to 6,0 per cent of GDP; thereafter it remains constant per assumption. Taxes are marginally higher than in the orthodox strategy, owing to the effect of higher growth on firm income tax (no bracket creep is included here). As growth proceeds, government consumption, employment and transfers decline as a share of an ever-bigger GDP. Interest payments increase owing to a rise in the slope of the yield curve in the model. The discount on government paper is assumed to increase with the PSBR ratio and hence it declined in the orthodox simulation, but not here. Foreign interest payments are stable and not very different from the orthodox simulation. Paradoxically, the higher PSBR has produced a *lower* debt to GDP ratio. The lower ratio shows that the effect of the higher PSBR is overshadowed by the growth and the effect of faster inflation.

Table 12: Public sector under the heterodox growth strategy (% of GDP)

	PSBR	Tax	Goods	Empl	Transfers	Domestic interest	Foreign interest	Debt	Investment
1994	6,4	25,3	8,0	13,6	3,7	4,7	0,1	52,8	2,3
1995	6,0	25,3	7,8	13,2	3,6	5,3	0,2	53,0	3,0
1996	6,0	25,5	7,5	12,7	3,4	5,6	0,2	53,2	3,6
1997	6,0	25,6	7,2	12,3	3,3	5,8	0,2	53,4	4,1
1998	6,0	25,7	6,8	11,8	3,1	6,0	0,2	53,3	4,9
1999	6,0	25,9	6,5	10,9	3,0	6,6	0,1	52,1	5,6
<i>Period averages</i>									
1990-4	4,5	25,2	7,9	13,0	3,2	3,4	0,1	48,6	2,2
1995-9	6,0	25,6	7,2	12,2	3,3	5,9	0,2	53,0	4,2

Source: Model computations.

The last column shows the major impact of the higher PSBR ratio on public sector investment. The shift from current to capital expenditure is clear as investment rises to 5,6 per cent of GDP by the end of the period. The key point to keep in mind is that the KOREA of Table 7 only comes about from this expenditure. It would not be proper, for example, to investigate the effects of KOREA on the economy without at the same time effecting the shift between current and capital expenditure as modelled here. A further claim on resources for KOREA is implicitly made in the wage-wedge savings, which for the purposes of numerical simulation is modelled as an increase in public sector *investment* (see Gibson and Van Seventer, 1995a for details). In actual practice, this expenditure may well be classified as current, but that would have no impact on the simulated economy. The main point is that the policy package studied here cannot be easily unbundled.

**Table 13: Foreign sector under the heterodox growth strategy
(% of GDP)**

Year	Exports	Mining	Other	Import	Real exchange rate	Capital flight ¹	Current account deficit	Govt foreign borrow ¹	Foreign reserves ¹
1994	23,6	15,1	8,5	21,6	1,00	7,0	0,0	4,7	0,4
1995	22,8	14,7	8,1	22,2	1,00	8,6	1,5	3,7	-7,5
1996	22,6	14,6	8,0	22,5	1,14	5,8	2,0	3,5	-8,1
1997	22,6	14,6	8,0	22,7	1,14	5,7	2,4	3,3	-15,3
1998	22,5	14,7	7,8	22,9	1,14	5,5	2,8	3,1	-24,5
1999	22,6	14,9	7,7	23,0	1,15	6,5	3,3	2,8	-41,1
<i>Period averages</i>									
1990-4	24,8	15,0	8,8	21,7	1,00	5,6	-1,4	2,9	0,0
1995-9	22,6	14,7	7,9	22,7	1,11	6,4	2,4	3,3	-19,3

Source: Model computations.

1. Stocks.

Table 13 shows selected variables of the foreign sector under the constellation of growth-strategy assumptions. Because of the expansion in domestic demand, primary exports are higher in absolute terms but lower as a percentage of GDP when compared with Table 5. Non-primary exports are also lower, which implies that there could easily be more aggressive real devaluation. This would, of course, raise the inflation rate somewhat and cause further deterioration in the real wages of unskilled labour. The nett effect of these changes is that the current account would immediately show a deficit, as seen in the table.

The import-intensive pattern of growth ensures that the current account deficit continues through 1999, averaging a reasonable 2,4 per cent of GDP for the period. Government foreign borrowing is stable, however. Because of the investment opportunities in the domestic market, capital flight is lower as funds are productively absorbed. Finally, the reserve position is far worse than under the orthodox strategy, but note that the path of foreign reserves is purely a reflection of the accumulated current account deficits without including any compensating capital inflow.

6. CONCLUSIONS

These simulations suggest that it is essential to maintain relatively full capacity utilisation in order to foster economic growth. No one policy, such as export-led growth, fiscal discipline, or anything else, will bring about the required growth in output and employment. It remains necessary to piece together a coherent policy package, one that will meet the needs of a complex, interrelated and rather fragile economy.

The results also suggest that it is not possible for the public sector to abdicate its role in guiding the economy by way of some reasonable set of policy interventions. Clearly an overactive public sector can cause as much harm as one which allows the market mechanism to fully determine the path of development. However, this article has shown that selective government intervention, particularly in the areas of KOREA, SMEs and RDP programmes, could stimulate output, raise capital productivity and increase labour absorption.

One might find it odd that the RDP is included in this list. However, if an inflation-growth trade-off exists, higher rates of accumulation will be accompanied by lower real wages across the board. If not, stagflation will result and there will be no employment growth. The principal mechanism by which a fall in the private wage rate might be compensated for is through growth in the social wage. The RDP is the premier instrument by which this aspect of a comprehensive growth strategy might be accomplished in South Africa.

A strategy such as that described in this article could be easily undermined by central bank intervention to stop the inflation that inevitably accompanies growth. The link between inflation-eroded real wages, higher profits, faster growth and an increased flow of resources to fund public sector projects could be undone by aggressive monetary control. Other strategies may be devised which imply less inflation, for example, a sectorally balanced growth strategy that avoids overheating the construction industry. One option would be to stimulate the exports of non-primary sectors. The anti-export bias implicit in the current structure of protection could be partially reversed by central bank support for a credit scheme to promote exports by SMEs. In either case, it is evident that the SARB would have to agree to the principles of any growth strategy for it to be successful.

Finally, as a note of caution, there are several weak points of the model which must be acknowledged. First, since there is no long run implied by the model, the expectational structure of the wage equations is adaptive rather than rational. While this is probably a safe assumption for unskilled labour, rational expectations on the part of skilled labour could prove to be more inflationary and undermine improvements in the distribution of income. A second major weakness comes in the lack of any treatment of the capital account in the balance of payments. The extent to which the central bank can determine the trajectory of the exchange rate is probably overestimated here and this would introduce additional noise in the projections. Lastly, the current structure of the South African economy is heavily reliant on the primary sectors. Structural change that

reduces this dependence will be a necessary component of any successful growth strategy. Inasmuch as the model is tied to a historical database, it necessarily reflects this high degree of dependence and thus simulations which do not explicitly account for the necessary structural change will probably be inaccurate.

REFERENCES

- BLEJER, MI & KHAN, MS, 1984. Government policy and private investment in developing countries. *IMF Staff Papers*, 31(2): 370-403.
- BUSINESS DAY, 1995. 18 May.
- CENTRAL ECONOMIC ADVISORY SERVICES (CEAS), 1995. *Macro-economic policy framework*. Submission to the Macro-economic Policy Framework Workshop, Pretoria, April.
- DEPARTMENT OF TRADE AND INDUSTRY (DTI), 1995. *National strategy for the development and promotion of small business in South Africa*. White Paper of the Department of Trade and Industry.
- FALLON, PR, 1992. *An analysis of employment and wage behaviour in South Africa*. World Bank Working Paper.
- FALLON, PR & PEREIRA DA SILVA, LA, 1994. *South Africa: Economic performance and policies*. World Bank Discussion Paper No 7.
- GIBSON, B & VAN SEVENTER, DEN, 1995a. *The DBSA macromodel*. Johannesburg: Development Bank of Southern Africa (mimeo).
- GIBSON, B & VAN SEVENTER, DEN, 1995b. *Restructuring public sector expenditure in the South African economy*. Submission to the Macro-economic Policy Framework Workshop, Pretoria, April.
- GIBSON, B & VAN SEVENTER, DEN, 1995c. The impact of foreign trade on growth and distribution in the South African economy. *Development Southern Africa*, 13(5), August.
- HARBER JR, RP, 1995. *South Africa's public finances*. Pretoria: USAID/South Africa.
- INDUSTRIAL DEVELOPMENT CORPORATION (IDC), 1991. *Sectoral data series: Manufacturing*. Department of Economic Research and Development, Johannesburg (mimeo).
- INTERNATIONAL MONETARY FUND (IMF), 1995. *South Africa: Selected economic issues*. January.
- MLAMBO, K & NELL, K, 1995. *Public policy and private investment in South Africa: An empirical investigation*. Paper presented to the African Economic Consortium Reference on Transition and Long-term Development Issues, Johannesburg, November/December.
- PEREIRA DA SILVA, LA, 1995. *South Africa: Macroeconomic issues and policy options for the budget reprioritisation programme (BRP)*. Submission to the Macro-economic Policy Framework Workshop, Pretoria, April.
- SCHUMPETER, JA, 1934. *The theory of economic development*. Cambridge, MA: Harvard University Press.
- SEVEREN, L & SOLIMANO, A, 1993. Debt crisis, adjustment policies and capital formation in developing countries: Where do we stand? *World Development*, 21(1): 127-40.
- SOUTH AFRICAN RESERVE BANK (SARB), 1995. *Quarterly Bulletin*, March.
- STIGLITZ, J, 1989. Economic organization, information and development. In Chenery, H & Srinivasan, TN, *Handbook of development economics*, Vol 1. Amsterdam: North-Holland Press.
- WEEKLY MAIL, 1995. 5 May.

WHITE PAPER ON RECONSTRUCTION AND DEVELOPMENT (RDP), 1994. *A strategy for fundamental transformation.*

WORLD BANK, 1995. *Establishing a financial APEX for emerging enterprises in South Africa.* Report jointly prepared by the Reference Group on Small Business Development, convened by the Ministry of Trade and Industry and the World Bank, March.

Submitted August 1995; final version accepted for publication March 1996.