INTERNATIONAL MONETARY FUND

SOUTH AFRICA

Selected Issues

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Approved by African Department

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SOUTH AFRICA: BASIC DATA

Area:	1.22 million square kilometers
Population (2004 mid-year estimate)	46.6 million
Annual rate of growth	1.0 percent
IMF Position (July 25, 2005)	
Quota:	SDR 1,868.50 million
Fund holding of rand	SDR 1,868.00 million
Holdings of SDR	SDR 222.8 million
Exchange rate (end July)	US$1 =R6.58

	2001	2002	2003	2004
	(Annual percent change, unless otherwise indicated)			
National income, prices, and labor market				
Real GDP	2.7	3.6	2.8	3.7
Real GDP per capita	1.6	2.4	1.8	2.7
Nominal GDP (billions of rand)	1,020	1,165	1,251	1,374
GDP deflator	7.7	10.3	4.5	5.9
CPI (annual average)	5.7	9.2	5.8	1.4
CPIX (period average) 1/	6.6	9.3	6.8	4.3
Unemployment rate (in percent)	29.5	30.5	28.2	26.2
External sector				
Merchandise exports, f.o.b. 2/	-3.5	2.6	21.2	25.8
Merchandise imports, f.o.b. 2/	-5.8	4.6	30.2	38.1
Export (goods and services) volume	1.8	0.5	-0.9	2.9
Import (goods and services) volume	0.2	4.9	8.5	12.9
Terms of trade	1.2	2.4	3.7	0.8
Nominal effective exchange rate 3/	-15.0	-21.7	25.1	9.1
Real effective exchange rate 3/	-8.8	-9.8	24.8	6.6
Money and credit				
Net domestic assets 4/	12.4	9.8	7.2	10.9
Broad money (including foreign exchange deposits)	16.5	18.1	12.9	13.1
Velocity (GDP/average broad money)	1.8	1.7	1.6	1.6
	(In percent of GDP, unless otherwise indicated)			
Investment and saving				
Investment (including inventories)	15.3	16.1	17.2	17.7
Gross national saving	15.4	16.8	15.7	14.4
National government budget 5/				
Revenue, including grants	23.4	23.4	23.4	24.4
Expenditure and net lending	24.9	24.6	25.4	26.1
Overall balance	-1.5	-1.2	-2.0	-1.7
Primary balance	3.1	2.9	1.7	1.8
National government debt	41.4	37.1	35.7	35.8
Borrowing requirement of the nonfinancial public sector	1.0	1.0	2.0	2.1
External sector				
Current account balance	0.1	0.7	-1.5	-3.2
Overall balance of payments	0.6	3.2	4.1	3.8
Total external debt	26.0	29.5	22.4	19.8
Gross reserves (SARB, in billions of U.S. dollars)	7.5	7.6	8.0	14.7
(in months of total imports)	2.9	2.8	2.2	3.1
International liquidity position of SARB (in billions of U.S. dollars) 6/	-4.8	-1.6	4.8	11.4
U.S. dollar exchange rate (end of period)	12.13	8.64	6.64	5.64

Sources: South African Reserve Bank (SARB); IMF, International Financial Statistics; and Fund staff projections.

1/ CPIX is the consumer price index (CPI) excluding the interest on mortgage bonds.
2/ In U.S. dollars; annual percent change.
3/ Annual average; Information Notice System (INS) definition.
4/ Contribution (in percentage points) to the growth of broad money.
5/ Calendar-year figures, based on National Treasury data.
6/ Gross reserves minus foreign loans and minus forward position. The SARB's open position in the forward market was closed in February 2004.

I. A Quantitative Analysis of Inflation Dynamics in South Africa[1]

A. Introduction

1. Over the past decade, the South African Reserve Bank (SARB) has been remarkably successful in bringing inflation under control. Following the sharp depreciation at the end of 2001, inflation peaked at 11.3 percent in October 2002. The subsequent appreciation of the rand, monetary tightening and continuous improvements in the SARB's inflation targeting framework led to a steady decline of inflation and, since September 2003, inflation has remained within the official target range of 3 to 6 percent. The conduct of monetary policy, however, has been complicated by a variety of unanticipated events that have had important effects on inflation. These include the recent sharp increase in petroleum prices, large fluctuations of the rand against other major currencies, but also the very benign development of food prices over the past years. Most of these unanticipated events or shocks tend to reflect exogenous factors which originated outside South Africa such as developments in international commodity prices, or portfolio rebalancing effects of international investors which may affect the exchange rate.[2]

2. This chapter applies a dynamic general equilibrium model, calibrated to the South African economy, to analyze inflation dynamics and risks to the inflation outlook in view of these shocks, including exchange rate shocks. A dynamic model that incorporates the central features of inflation targeting provides a consistent framework for understanding and interpreting inflation developments and for evaluating the central inflation forecast. In an inflation targeting framework, a sound inflation forecast is key to successful monetary policy. While the short-term outlook relies heavily on available high frequency data, the central forecast is usually based on various models.[3] Most of these have, until recently, featured only backward looking behavior. The model applied in this chapter is a useful tool to integrate the short-term outlook into a medium-term framework that embodies the basic principle that the fundamental role for monetary policy is to provide an anchor for inflation and inflation expectations. We show that the model is able to display important empirical features of the monetary transmission mechanism. Exposed to exchange rate and other shocks, the model confirms that a delayed policy response to inflationary shocks leads to persistently higher inflation rates and, subsequently, to a sharp real contraction of the economy. The model can help to assess the policy response for exchange rate, other price and demand shocks that affect inflation.

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[1] Prepared by Thomas Harjes (AFR) with Luca Ricci (RES).

[2] It is unclear, however, if and to what extent the sharp depreciation of the rand at the end of 2001 may have been due to the monetary policy stance in 2001.

[3] Amongst others, the SARB employs econometric time series models, structural inflation models, and macroeconometric models.

B. A Small Open Economy Model

3. The model features a small open economy including forward-looking aggregate supply and demand with microfoundations, and with stylized (realistic) lags in the different monetary transmission channels.[4] South Africa as the small economy faces internal shocks as well as external shocks from the rest of the world (here captured by the Euro area and the U.S). The rest of the world is not modeled and all variables related to it enter as exogenous variables. Output developments in the rest of the world feed directly into the small economy as they characterize foreign demand for South African products. Changes in foreign inflation and/or interest rates affect the exchange rate and, subsequently, demand and inflation in the South African economy.

4. Aggregate supply is described by a "New Keynesian Phillips" curve:[5]

$$\pi_t = \alpha_\pi \pi 4_{t+4} + (1-\alpha_\pi)\pi 4_{t-1} + \alpha_Y ygap_t + \alpha_z (z_t - z_{t-1}) + RES_t^\pi ,$$

$$\pi_t \equiv 400[\ln(cpi_t) - \ln(cpi_{t-1})]$$

$$\pi 4_t \equiv 100[\ln(cpi_t) - \ln(cpi_{t-4})]$$

$$z_t = s_t + \ln(cpi_t^*) - \ln(cpi_t) .$$

This augmented Phillips curve specification not only includes current inflation (π) and the output gap (*ygap)* but also expected and past inflation levels. The output gap is defined as the difference between actual and potential output. Expected inflation enters the equation due to the assumption of staggered price-setting (Calvo-style)[6] while indexation schemes can rationalize the backward-looking inflation component. This somewhat stylized lag structure leads to a substantial degree of inertia in the inflation process which is observed empirically. The real exchange rate (*z*) reflects the effect of imported goods' prices on inflation in an open economy.[7] A residual captures other temporary exogenous effects that are not explicitly modeled.

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[4] The particular specification of the model follows closely the one developed by Berg, Karam and Laxton (2005) for the Canadian economy.

[5] For a detailed derivation of the following equations within a dynamic general equilibrium framework, see Woodford (2003) and Svensson (2000).

[6] See, G. Calvo (1983).

[7] An increase in the real exchange rate (*z*) corresponds here to a real depreciation.

5. Aggregate demand is modeled as follows:

$$ygap_t = \beta_{ygap}^{Lead}\, ygap_{t+1} + \beta_{ygap}^{Lag}\, ygap_{t-1} - \beta_{RRGAP}\,(RR_{t-1} - RR_{t-1}^{Equi.}) + \beta_{ZGAP}\, zgap_{t-1} + \beta_{ygap*}\, ygap_t^* + RES_t^{YGAP}.$$

Demand for domestic goods depends on real interest rates (*RR*), the gap (*zgap*) between the real exchange rate and its equilibrium, the foreign output gap (*ygap**) and expected and past demand. Only deviations of real interest rates, the exchange rate and foreign demand from long-run equilibrium levels matter, not their levels. Past demand affects current demand if habit persistence in consumption or adjustment costs of investment is assumed. A residual captures other temporary, exogenous effects.

6. The uncovered interest rate parity condition determines the exchange rate:

$$z_t = z_{t+1} - (RR_t - RR_t^* - RiskP_t^{Equi.})/400 + RES_t^{LZ}.$$

The model displays Dornbusch-style overshooting due to the assumption of uncovered interest rate parity. In contrast to the foreign real return, the domestic return is assumed to be subject to some risk and, therefore, a risk premium is introduced. As the exchange rate in this model refers to quarterly data while interest rates are expressed in annual terms, some normalization is required. A residual captures other temporary, exogenous effects.

7. The monetary authorities are assumed to set nominal interest rates (*RS*) according to the following monetary policy rule (or reaction function):

$$RS_t = \gamma_R^{Lag}\, RS_{t-1} + (1-\gamma_R^{Lag})[(RR_t^{Equi.} + \pi 4_t + \gamma_\pi(\pi 4_{t+4} - \pi 4_{t+4}^{Target}) + \gamma_{YGAP}\, ygap_t] + RES_t^{RS}.$$

In an inflation targeting framework, the inflation forecast plays a crucial role in determining the policy rate. Any expected deviation of inflation from its target triggers a response of the nominal policy rate. The respective coefficient of these deviations has to be larger than one (Taylor Principle) to ensure stability of the model.[8] In this case, real interest rates increase if inflation is expected to be above target, and vice versa. While inflation is the primary target, the output gap is also included in the reaction function reflecting the fact that the monetary authorities are not indifferent to output developments.[9] Past levels of the policy rate are included in the reaction function to account for the fact that there is also some degree of partial-adjustment dynamics for the interest rate.

[8] This strictly holds if there is no interest rate smoothing.

[9] In this model, the exchange rate is a forward-looking variable determined on the basis of rational expectations and, at time *t*, does not offer additional information to that included in the output gap and inflation. It, therefore, does not need to be included in the monetary reaction function.

C. Parameterization of the Model

8. The parameters of the model can be determined in several different ways including: (i) by simultaneous estimation of the four equations using historical data; (ii) estimation of the structural parameters related to preferences and technology of the underlying general equilibrium model which determine the parameters above, and (iii) calibrating the model to display stylized facts of the monetary transmission mechanism.

9. Reliable estimation is complicated by several issues including; misspecification, nonobservability of some variables and structural breaks in the data.

- The simple structure of the model is useful for tractability and understanding of the key transmission of and reaction to various shocks; however, it may imply misspecification, as important variable are omitted, such as commodity prices and production, fiscal variables, etc.

- Some variables are not observable or very hard to proxy, such as the output gap and inflation expectations.

- South Africa underwent major structural changes in the past decades, including the recent introduction of an inflation targeting regime. Inflation targeting aims precisely at altering the formation of inflation expectations, thus exacerbating the issue of structural breaks. In addition, the usual problems of data measurement error and frequent data revisions further complicate the analysis. While it is a future goal to formally estimate the parameters of the model, at present, only a calibration exercise is being performed.

10. The calibration exercise is performed on the basis of several criteria. First, country-specific knowledge about structural parameters or estimates available in other studies are employed. Second, model parameters are chosen to reflect some stylized facts of the monetary transmission mechanism. Third, parameters for similar models of other countries might provide a benchmark; in particular, the Canadian model prepared by Berg, Karam, and Laxton (2005), which has been refined over several years, serves as a benchmark. The properties of the key parameters, their values and the steady-state values of the model variables are discussed in Appendix A.

D. Shock Scenarios

The monetary transmission mechanism

11. The response of inflation, the output gap and the exchange rate to a monetary policy shock in the model concurs with the facts found in other empirical studies on the monetary

transmission mechanism (Figure I.1).[10] Two monetary policy shocks describing monetary tightening are analyzed: (a) a purely transitory shock that raises the policy rate by 100 basis points for one quarter above the baseline, and (b) a more persistent shock that raises the policy rate by 100 basis points for one year above the baseline.[11] The temporary increase in interest rate will lower domestic demand and appreciate the exchange rate. Consequently, output drops and prices fall. The main effect of a monetary policy shock on inflation occurs in the quarters following those in which the output response is strongest. The effect on inflation peaks after about five to eight quarters while the impact on the output gap peaks after two to five quarters. The effect on the exchange rate is relatively small. Even the more persistent shock results in an immediate nominal appreciation of less than one percent.[12]

Exchange rate, other price and demand shocks

12. Shocks to the exchange rate have persistent effects on inflation and output only if the shock itself is serially correlated (Figure I.2). In this scenario, two different policy responses are analyzed: (a) interest rates are adjusted immediately according to the policy reaction function, and (b) the policy response is delayed and interest rates are kept at the baseline levels for two quarters before they are adjusted. An exchange rate shock that causes an unanticipated immediate depreciation of ten percent and displays some serial correlation[13] raises inflation by about 0.6 percentage points one year later if monetary policy reacts immediately. Output rises by about 0.5 percentage points above potential three quarters later and then recedes, falling slightly below potential two years after the shock. If the policy response is delayed by half a year, inflation goes up by 0.8 percentage points a year later and the positive output response is stronger. The following output contraction, however, is more severe and inflation more persistently remains above the baseline.

13. A persistent price shock would require a relatively strong policy response (Figure I.3). Exogenous price shocks could be interpreted as international oil or food price shocks. Even a temporary (lasting for a single quarter) price shock that raises the annualized quarterly inflation rate by one percentage point, requires a persistent increase in the interest rate which would peak at about 70 basis points above the baseline after three quarters. This is

[10] Smal and de Jager (2001) find a transmission lag of a monetary policy shock to inflation in South Africa of about 6-8 quarters.

[11] The baseline refers to the basic model forecast without the shock.

[12] In an empirical study for Australia, Canada, New Zealand and the U.K., Kearns and Manners (2005) find that an unanticipated tightening of 25 basis points immediately appreciates the nominal exchange rate by 0.2 to 0.4 percent.

[13] This shock is modeled as an AR(1) process and the AR(1) parameter is 0.75, that is, after a year the shock is at about 30 percent of its initial level.

mainly due to the inflation inertia in the model. A delayed policy response would require a very sharp upward adjustment in interest rates.

14. Exogenous demand shocks could be interpreted as changes in the fiscal policy stance that is not explicitly modeled here. A positive demand shock will raise output and consequently the output gap and will gradually put upward pressure on prices. This would require a tighter monetary policy stance that would lower demand and appreciate the exchange rate. Depending on the persistence of the shock, inflations would peak after 4-6 quarters. Again, a delayed policy response would result in a more severe adjustment.

E. Conclusion

15. This chapter has analyzed a dynamic small open economy model that is calibrated to the South African economy and embodies the basic principle that the fundamental role for monetary policy is to provide an anchor for inflation and inflation expectations. The model is able to display important empirical features of the monetary transmission mechanism that have been found in other studies. Exposed to exchange rate and other price shocks, the model confirms that a delayed policy response to inflationary shocks triggers persistently higher inflation rates and will eventually lead to a sharp real contraction of the economy. The model can serve as a useful policy tool. It helps to integrate the short-term inflation outlook into a consistent medium-term framework and to design the policy response for various shocks that affect inflation.

F. References

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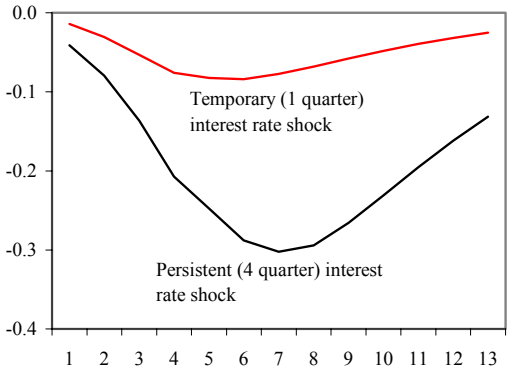
Svensson, L., 2000, "Open-economy inflation targeting", *Journal of International Economics* (50), pp. 155-183.

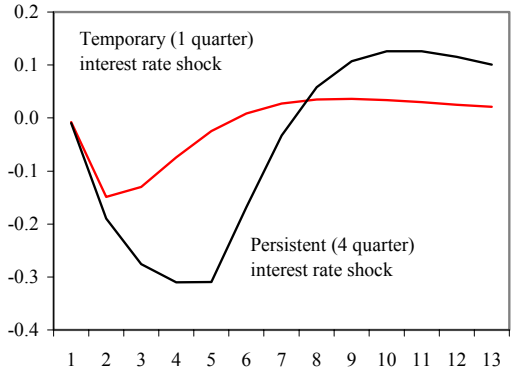
Woodford, M., 2003, *Interest and Prices: Foundations of a Theory of Monetary Policy*, (Princeton University Press, Princeton, NJ).

Figure I.1. The Monetary Transmission Mechanism. Response of Inflation, Output and the Exchange Rate to Interest Rate Shocks

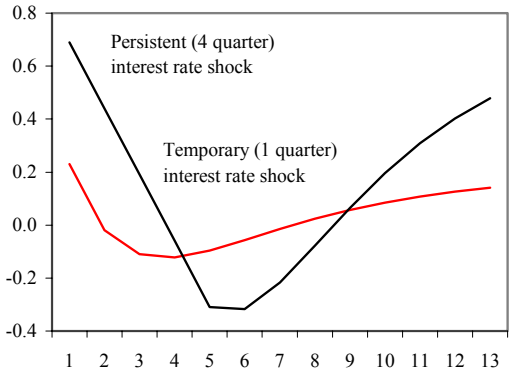
Inflation (percentage point difference from baseline)



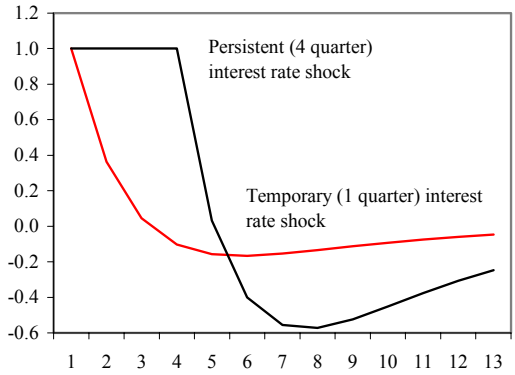
Output gap (percentage point difference from baseline)



Nom. exchange rate (percent deviation from baseline)



Interest rate (percentage point difference from baseline)

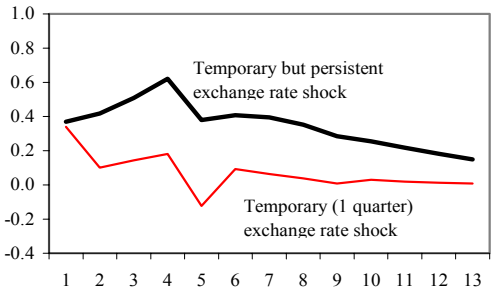


Source: Fund staff calculations.

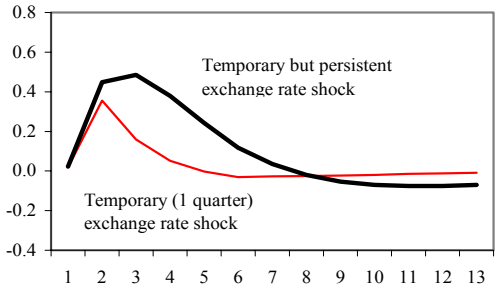
Figure I.2. Response of Inflation, Output and the Interest Rate to Exchange Rate Shocks

Immediate Policy Response

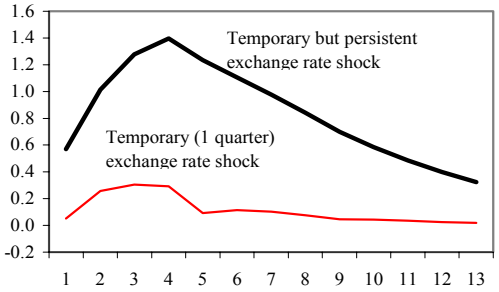
Inflation (percentage point difference from baseline)



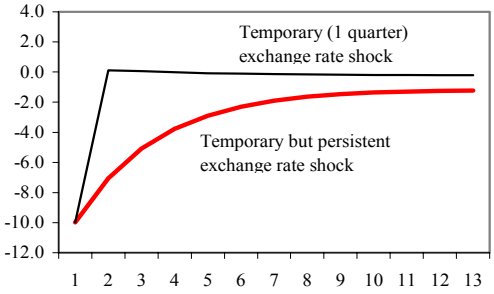
Output gap (percentage point difference from baseline)



Interest rate (percentage point difference from baseline)

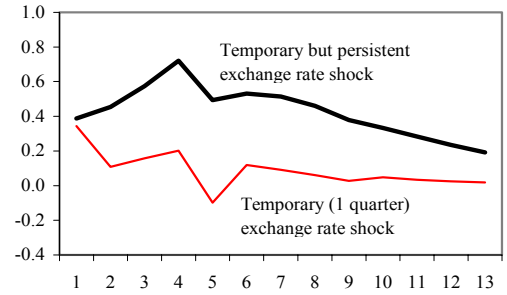


Nom. exchange rate (percent deviation from baseline)

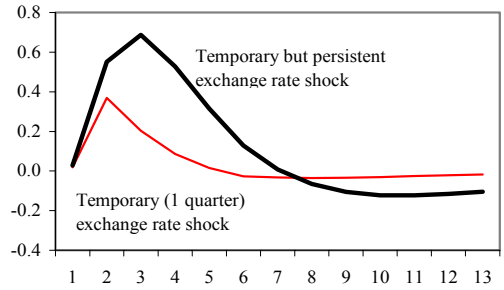


Policy Response Delayed 2 Quarters

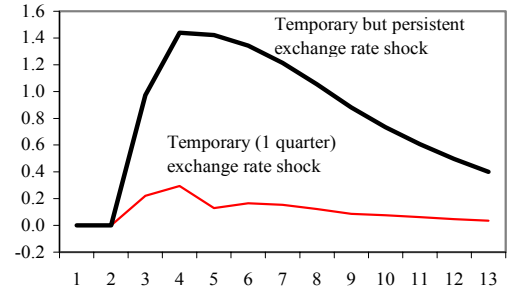
Inflation (percentage point difference from baseline)



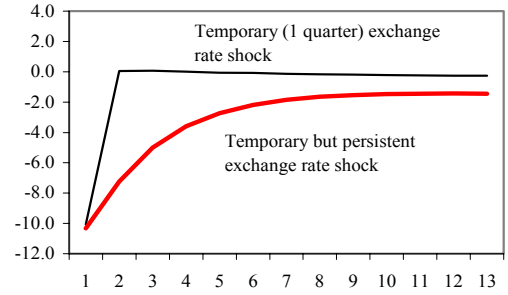
Output gap (percentage point difference from baseline)



Interest rate (percentage point difference from baseline)



Nom. exchange rate (percent deviation from baseline)

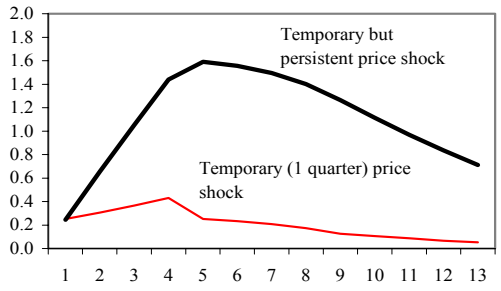


Source: Fund staff calculations.

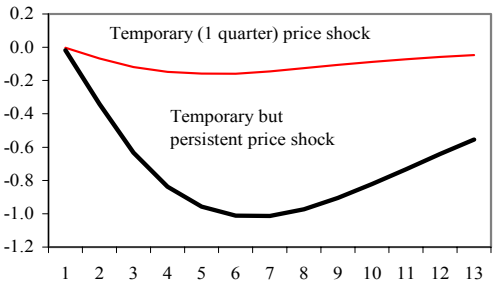
Figure I.3. Response of Output, the Interest Rate and the Exchange Rate to Price Shocks

Immediate Policy Response

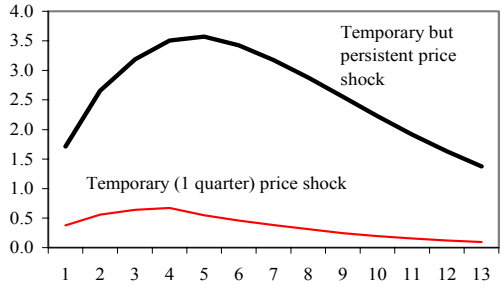
Inflation (percentage point difference from baseline)



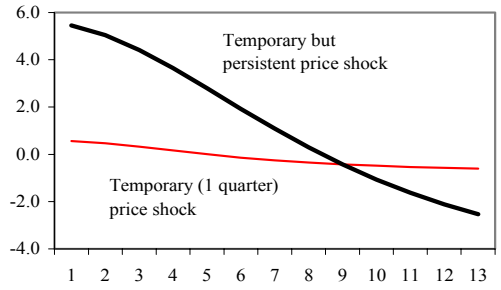
Output gap (percentage point difference from baseline)



Interest rate (percentage point difference from baseline)

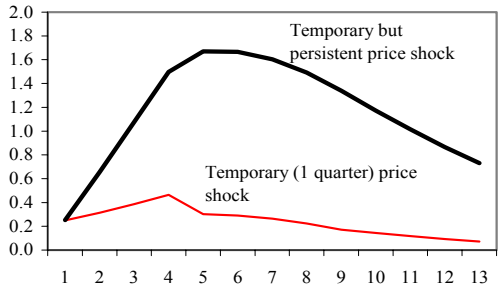


Nom. exchange rate (percent deviation from baseline)

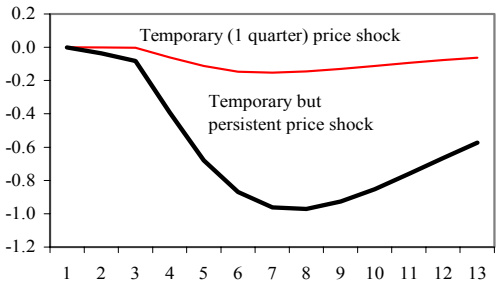


Policy Response Delayed 2 Quarters

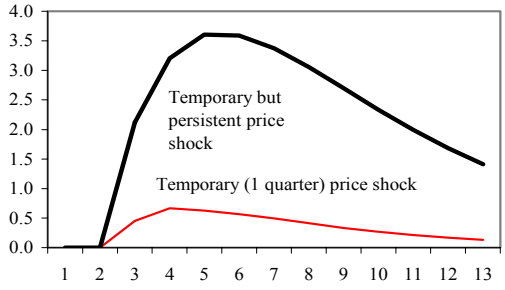
Inflation (percentage point difference from baseline)



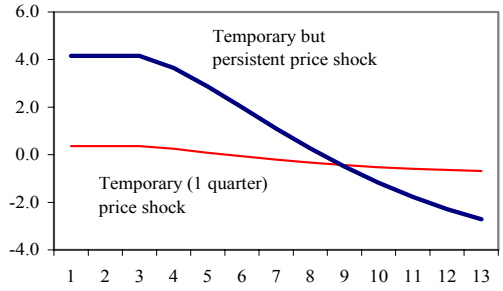
Output gap (percentage point difference from baseline)



Interest rate (percentage point difference from baseline)



Nom. exchange rate (percent deviation from baseline)

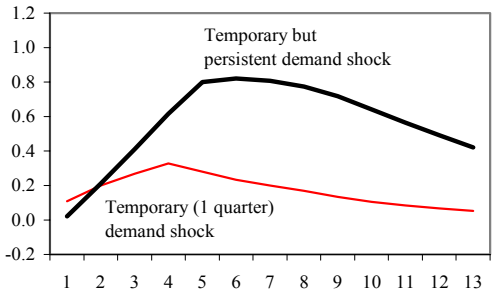


Source: Fund staff calculations.

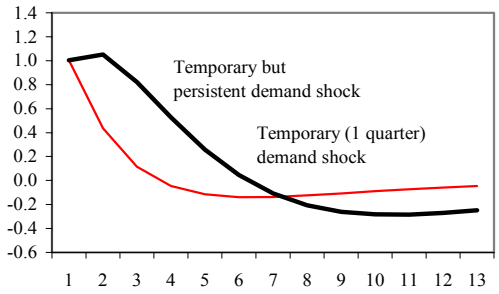
Figure I.4. Response of Output, the Interest Rate and the Exchange Rate to Demand Shocks

Immediate Policy Response

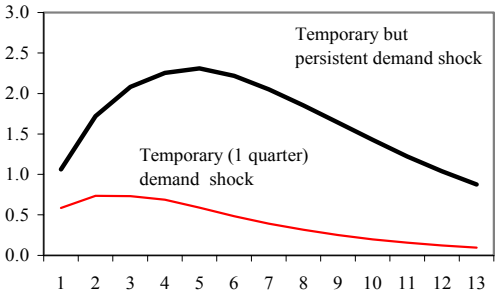
Inflation (percentage point difference from baseline)



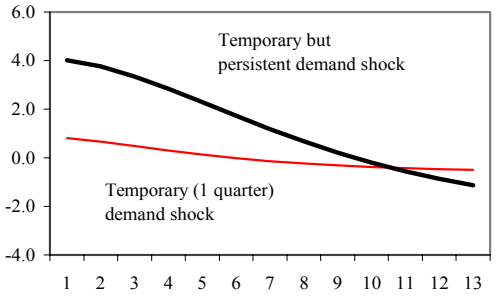
Output gap (percentage point difference from baseline)



Interest rate (percentage point difference from baseline)

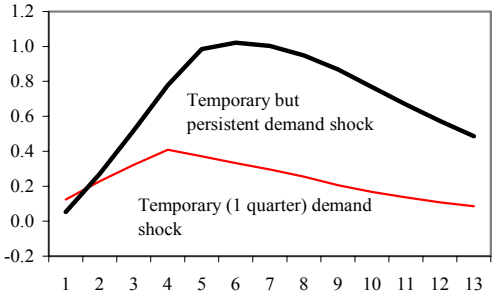


Nom. exchange rate (percent deviation from baseline)

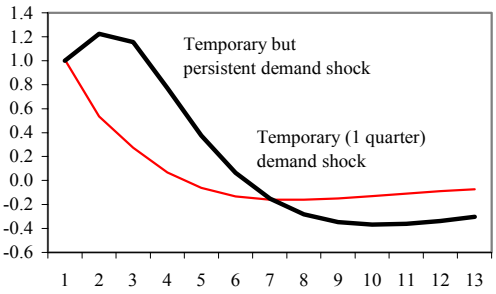


Policy Response Delayed 2 Quarters

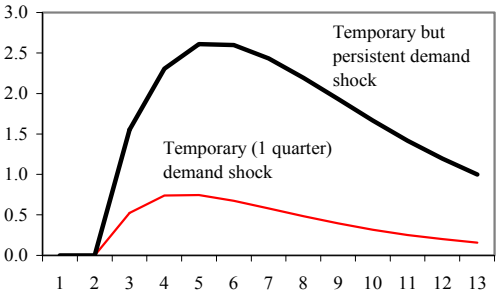
Inflation (percentage point difference from baseline)



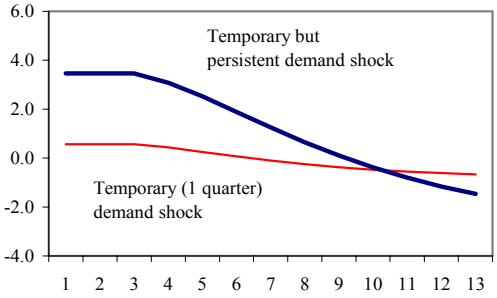
Output gap (percentage point difference from baseline)



Interest rate (percentage point difference from baseline)



Nom. exchange rate (percent deviation from baseline)



Source: Fund staff calculations.

G. Appendix

Phillips curve:

- α_π determines the importance of forward (and backward) looking components in inflation expectations. For example, a larger wage indexation to past developments would imply a lower α_π. It is important to note that the lower α_π, the more difficult it is for the monetary authorities to change inflationary patterns. α_Y characterizes the relation between the output gap and inflation. It increases, for example, with the number of firms that adjust prices every period.[14] The larger α_Y, the less output responds to price level fluctuations. Hence, the larger α_Y, the smaller would be the sacrifice ratio (i.e. the cumulative loss in output as a percent of potential output necessary to permanently bring down inflation by 1 percentage point).[15]

- α_z relates directly to the weight of imported goods in the CPI basket and the pass-through of foreign-currency prices (and hence the nominal exchange rate) on to the domestic-currency prices of imports.[16]

α_π	α_Y	α_z
0.25	0.50	0.15

Aggregate demand (IS) curve:

- The output gap tends to exhibit substantial inertia (high β_{ygap}^{Lag}) which is normally lower in developing than in industrial countries, and the effect from lead output (β_{ygap}^{Lead}) is usually limited. The effect of interest rates is crucial for the monetary transmission mechanism, as a larger β_{RRgap} would imply a more effective monetary policy. The effects of exchange rates (β_{Zgap}) and of foreign output (β_{ygap*}) tend to be larger in more open economies. Significant lags in the transmission of monetary

[14] Woodford (2003) shows also how it would decrease with the degree of strategic complementarity of pricing decisions amongst producers, as more firms would tend to mimic price stickiness behavior.

[15] The sacrifice ratio is 0.75 percent in this model.

[16] A coefficient of about 0.15 can be derived from a weight of imports in the CPI of about 30 percent and an immediate pass-through to domestic prices of imports of about 40 percent.

policy imply that the sum of β_{RRgap} and β_{Zgap} should be relatively small compared to β_{ygap}^{Lag}.

β_{ygap}^{Lead}	β_{ygap}^{Lag}	β_{Zgap}	β_{RRgap}	β_{ygap*}
0.05	0.50	0.05	0.12	0.25

Monetary policy reaction function:

A reliable policy function for South Africa has not yet been estimated and would be difficult to obtain given the short time period during which inflation targeting is practiced. In fact, these parameters represent the policy choices about a temporary trade-off between inflation and output fluctuations rather than empirical laws. A key parameter in this function is γ_{π}, which captures the degree of aggressiveness of monetary authorities. Hence, a higher value for γ_{π} implies that the authorities will respond to a given shock with a larger change in interest rate. This normally tends to frontload the output costs. The parameter γ_R^{Lag} measures the degree of aversion of authorities to alter the interest rates, so that a higher coefficients implies a slower monetary reaction to a given shock. Orphanides (2003) and others have argued that in light of the high degree of uncertainty about the output gap and substantial real-time measurement errors in output, the parameter on the output gap (γ_{YGAP}) should be rather small.

γ_R^{Lag}	γ_{π}	γ_{YGAP}
0.5	2.0	0.5

The long-run steady state values for the variables of the model are as follows:

$\pi 4_t^{Target}$ = 5.0 percent,

RR_t^* = 2.25 percent (historic average for the U.S. real short-term interest rate),

$RiskP_t^{Equi.}$ = 1.75 percent.

The previous two figures imply a long-run equilibrium real interest rate of about 4 percent and a nominal short-term rate of about 9 percent. All gaps that measure deviations of actual variables from their long-run equilibria are by definition zero. Equilibria for the exchange rate and potential output are defined statistically through use of an HP filter. For the forecast period, potential output growth is set equal to 3.5 percent and the real equilibrium exchange rate is held constant.

II. PUBLIC DEBT IN SOUTH AFRICA: A RISK ANALYSIS[1]

A. Introduction

1. Analyses of public debt sustainability commonly rely on medium-term projections of the debt-to-GDP ratio given macroeconomic forecasts and fiscal policy assumptions. While such projections per se do not allow to determine the sustainability of a particular public debt position, the expected debt path nevertheless provides some indication as to whether the underlying policies can be sustained under plausible macroeconomic conditions without endangering government solvency. Specifically, a projected decline in the debt ratio will generally be interpreted as a signal that government policies do not jeopardize sustainability, whereas a positive trend or even stabilization at a high level may motivate concerns about sustainability.

2. Uncertainty about future macroeconomic conditions and fiscal policy inevitably weakens the diagnostic based on such analyses. An assessment of the risks affecting the "baseline" projection of public debt could thus help form a more nuanced and more credible assessment of long-term sustainability. One simple way to appraise those risks is to estimate alternative debt paths that would prevail under less favorable circumstances than in the baseline. These alternative scenarios, or "bound tests," typically envisage pessimistic macroeconomic forecasts (low growth, high interest rates,...), fiscal policy slippages and exogenous debt shocks—such as valuation effects resulting from exchange rate movements or the recognition of off-budget obligations, including loan guarantees. Although bound tests give a good sense of the sensitivity of the sustainability assessment to adverse developments, it is difficult to quantify the risks to the baseline scenario.

3. To measure those risks properly, a complete probability distribution of the debt ratio would be needed for each year of projection. One way to estimate such distributions is to build a large sample of bound tests corresponding to different constellations of shocks likely to affect the debt dynamics. The sample can be generated by means of stochastic simulations where both the size and co-movements of random shocks are calibrated to fit the statistical properties of relevant historical data, including correlations among economic variables, as well as their respective dynamics (see e.g., Garcia and Rigobon, 2004). Particular attention also needs to be paid to the systematic response of fiscal policy to these shocks and to public debt developments themselves (accounting for the government's explicit concern for solvency, see Bohn, 1998), a response that can be appraised with estimated fiscal policy reaction functions. One important dimension of this approach is that every individual scenario produced in the context of the simulation exercise makes a more efficient use of the data needed to carry out standard debt sustainability analysis (DSA). This chapter uses the

[1] Prepared by Xavier Debrun (FAD).

simulation algorithm developed in Celasun, Debrun, and Ostry (2005), which explicitly accounts for endogenous fiscal policy.[2]

4. From a policy perspective, more complete information on the debt risk profile should help improve the design of medium-term fiscal policy plans.

- *First, awareness of the risks to public debt would promote greater caution in the conduct of fiscal policy.* In particular, this could imply a lesser reliance on debt to finance new productive expenditure programs, thereby reducing the likelihood that the debt dynamics spins out of control due to extraneous macroeconomic factors and ultimately forces cutbacks in those valuable programs. More generally, governments with low credibility and operating in a volatile economy could better grasp *ex-ante* the potential costs of policies implying higher public debt ratios, while governments with greater credibility and facing relatively stable economic conditions could avoid taking excessive comfort in a favorable baseline outlook for public debt.

- *Second, an explicit quantification of risks to the debt dynamics could help in the design of fiscal consolidation strategies.* Governments could indeed evaluate the relative merits of alternative adjustment plans in regard of the corresponding probabilities to bring the public debt below a certain target.

5. The risk analysis in this chapter confirms South Africa's sound public debt position. Upside and downside risks are well-balanced under the baseline policy scenario, whereas the upside risks associated with a moderate fiscal expansion sustained over the medium term, and with an adverse shock on the public debt stock (akin to the recognition of contingent liabilities) appear to remain manageable. The analysis underscores the responsiveness of the primary balance to the public debt as a key determinant of that relatively benign outlook.

6. This chapter is structured as follows: Section B briefly illustrates the outcome of the traditional approach to debt sustainability; Section C describes the interaction between fiscal policy and debt dynamics, suggesting that policy behavior is important for a proper assessment of the debt risk profile; Section D describes the stochastic simulation method and applies it to South Africa; policy implications are discussed in Section E.

B. Debt Sustainability Analysis and Risk Assessment

7. To evaluate the risks to the debt dynamics, the commonly used debt sustainability analysis subjects the baseline projection to a series of deterministic and isolated shocks ("bound tests") likely to deteriorate the outlook. These typically include lower GDP growth,

[2] Marcos Souto (Research Department) assisted in the preparation of the simulation algorithm. Related algorithms have been developed by Penalver and Thwaites (2004) and Garcia and Rigobon (2004).

higher interest rates, a weaker primary balance, a depreciation of the exchange rate, and the recognition of off-budget obligations. The historical variance of the underlying series generally determines the magnitude of the simulated disturbances, but co-movements among them are ignored. Also, and most importantly, fiscal policy is assumed not to respond to the simulated economic developments.

8. Calibrating bound tests to reflect economic and policy patterns observed in a particular economy is challenging. One possibility is to devise a small number of standardized scenarios—where isolated shocks are expressed as a fraction or a multiple of historical standard deviations of the variables—such that both the shock itself and the resulting debt path appear plausible in probabilistic terms (IMF, 2003a). By nature, this approach lends itself very well to the construction of standardized bound tests applicable to many different countries, and requires only a fairly parsimonious dataset. One inevitable downside, however, is that the underlying scenarios hardly ever follow these common patterns in the economy where shocks typically trigger persistent responses from other variables—including those that matter for debt dynamics. Moreover, the small number of scenarios prevent quantifying the risks to public debt. And from a purely presentational perspective, there is also a chance that observers might judge the plausibility of these scenarios on the sole basis of their simplified core assumptions—e.g., a growth slowdown without repercussions on interest rates or fiscal policy—rather than on the intrinsic likelihood of the resulting debt path.

9. A legitimate question is thus to ask whether a diagnostic based on a few highly stylized scenarios is sufficiently robust to more realistic constellations of shocks. If a joint distribution of economic disturbances can be estimated for the country under review, stochastic simulation reflecting actual co-movements of shocks in the economy can produce a large sample of more realistic bound tests from which frequency distributions of debt can be derived. These frequency distributions provide a quantitative assessment of the risks to baseline debt projections, that may ultimately help refine fiscal policy recommendations.

10. Another important issue is the extent to which the sustainability diagnostic is sensitive to the assumed fiscal policy behavior. Commonly used DSA scenarios assume that fiscal policy is invariant to the stylized shocks. However, recent attempts to characterize systematic patterns in the conduct of fiscal policy have established that the primary balance systematically responds to variations in public debt and to business cycle developments, among other factors.[3] The estimation of fiscal policy *reaction functions* provides a quantitative characterization of the average relationship between economic developments and policy scenarios (see below). Integrating systematic features of the policy process into the analysis should clearly improve the reliability of the risk analysis.

[3] See Bohn (1998), Galì and Perotti (2003) or IMF (2003b, 2004).

11. Overall, the stochastic simulation approach emerges as a potentially interesting complement to deterministic bound-testing. The main features of the two methods are summarized below (Table II.1).

Table II.1—Debt Sustainability Analysis and Risk Assessment

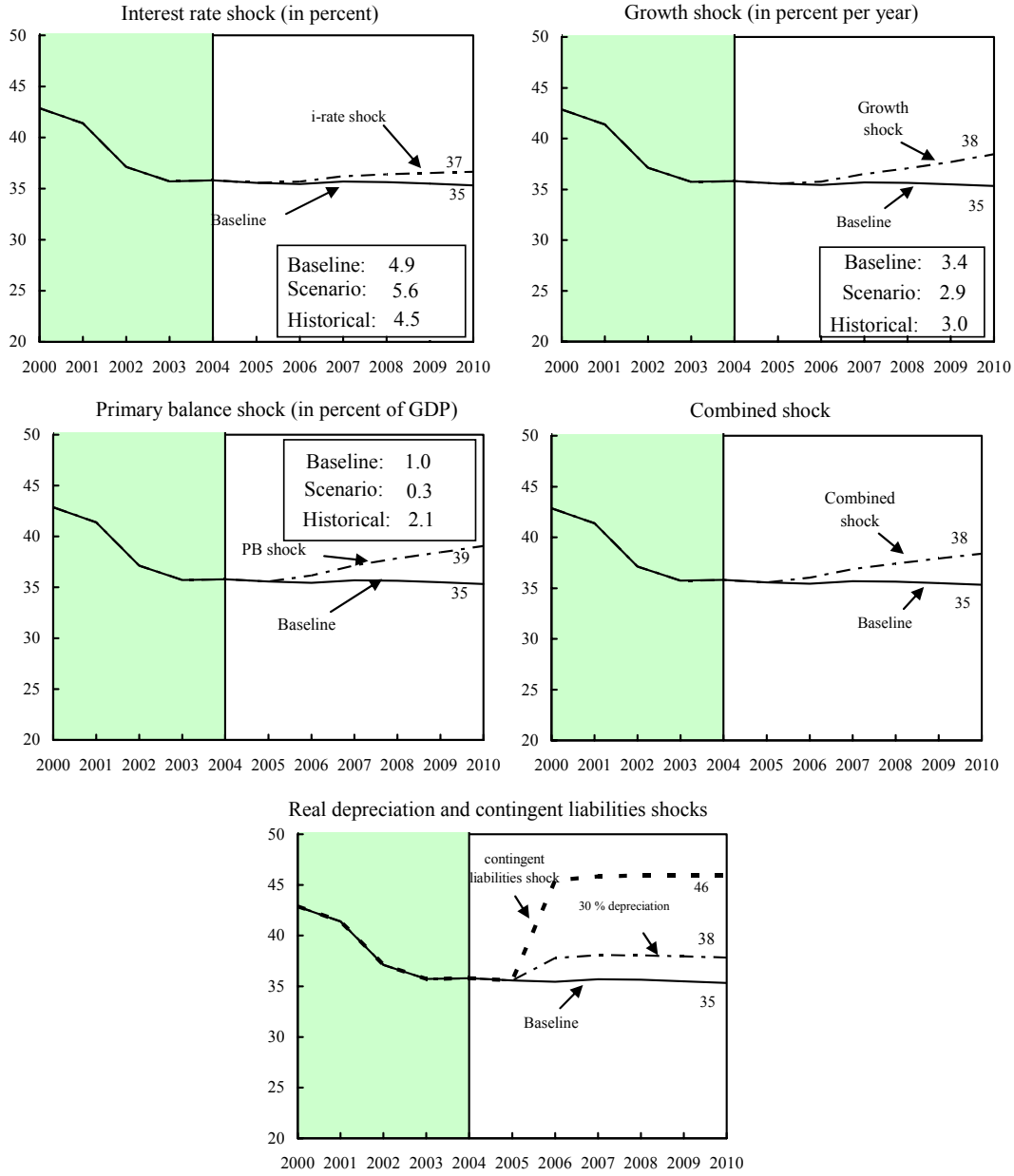
	Deterministic bound-testing	Stochastic simulations (in this chapter)
Shocks	...a few stylized, isolated shocks.	...a large number of shock constellations drawn from an estimated joint distribution.
Calibration of shocks	Fraction or multiple of historical standard deviations of the actual time series.	Directly based on the estimated joint distribution of disturbances.
Fiscal policy	Exogenous	Endogenous, represented by a reaction function estimated on the basis of past experience.
Output	Large shocks provide a probabilistic upper bound to the debt ratio; small shocks delineate interval of most probable outcomes.	Frequency distributions of the debt ratio over time, "fan charts."
Main advantage	Amenable to standardized bound tests; low data requirement.	Better reflection of country specificity; endogenous fiscal response.

12. The outcome of the IMF's deterministic bound-testing approach is illustrated in Figure II.1 for South Africa over the 2005-2010 time horizon. The IMF template provides debt paths corresponding to several standardized scenarios: the baseline (reflecting macroeconomic projections and policy assumptions); small but permanent, adverse shocks (half a standard deviation) to real GDP growth, the real interest rate and the primary balance; a combination of these three shocks (this time assuming a quarter of a standard deviation); and two large temporary disturbances, namely a 30 percent real depreciation and a shock to the debt stock (mimicking the recognition of contingent liabilities) equivalent to 10 percent of GDP.

13. The selected bound tests suggest fairly low risks to public debt sustainability over the medium term. Although all permanent shocks entail a growing debt ratio, government debt

remains below 40 percent of GDP in 2010. Only a one-off realization of contingent liabilities equivalent to 10 percent of GDP in the first year of the projection yields a significant increase in the public debt ratio. However, the size of the shock in that particular scenario

Figure II.1. South Africa: IMF Standard Debt Sustainability Analysis—2004-2010



Sources: South African National Treasury and IMF staff estimates.

may be deemed unlikely in the case of South Africa. This would indeed presume that virtually all identified contingent liabilities of the national government materialize in one year (or equivalently that national government would take over the debt of all state-owned enterprises, or any convex combination of both).

14. Before presenting the results of the stochastic simulation approach, the next section discusses the importance of fiscal policy behavior in shaping the risks to debt dynamics.

C. Debt Dynamics and the Conduct of Fiscal Policy

15. A fiscal reaction function can illustrate the contribution of fiscal policy to debt sustainability. This section shows how the systematic policy response to variations in public debt affects debt dynamics and, thereby, the risks to long-run sustainability. Estimates of explicit reaction functions for a panel of emerging market economies (including South Africa), and for South Africa itself, are also presented and discussed.

16. The linkage between fiscal policy and debt dynamics is described by the following identity:

$$\Delta d_t \equiv \left(r_t\left(d_{t-1}\right) - g_t\right)d_{t-1} + p_t\left(d_{t-1}, Z\right) + x_t \qquad (1)$$

where d_t is the debt-to-GDP ratio at time t; $r(d)$ represents the real interest rate (which itself depends on the level of public debt, with $\partial r/\partial d > 0$); g symbolizes the real growth rate; x is an exogenous shock to debt; and Δ denotes the first difference operator. The primary surplus p_t is a function of the lagged public debt and other non-debt determinants (gathered in the vector Z) such as business cycle conditions and relevant commodity prices (see below).

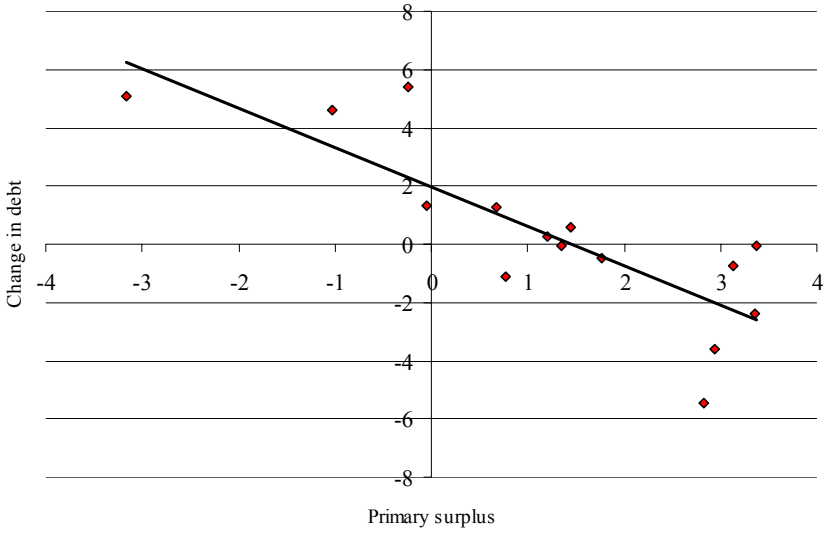
17. Looking at descriptive evidence for South Africa, changes in the public debt have indeed been related to the level of the primary surplus (see Figure II.2). In particular, high primary surpluses helped bring down public indebtedness while periods of rising public debt were associated with very low primary surplus and primary deficits. Overall, fiscal policy behavior has been a key determinant of public debt dynamics, and this relationship does not appear to have been weakened by significant stock-flow ("below-the-line") adjustments.

18. Fiscal policy itself seems to have been responsive to developments in the debt-to-GDP ratio (Figure II.3). The strong, positive relationship between the *lagged* public debt ratio and the primary surplus is consistent with the idea that debt stabilization has been a key ingredient of the fiscal policy strategy since 1994.[4] It is also particularly interesting to note that starting in 2002, the primary surplus has declined significantly, suggesting that the

[4] For detailed information on fiscal policy developments in South Africa since the end of apartheid, see Nowak and Ricci (forthcoming).

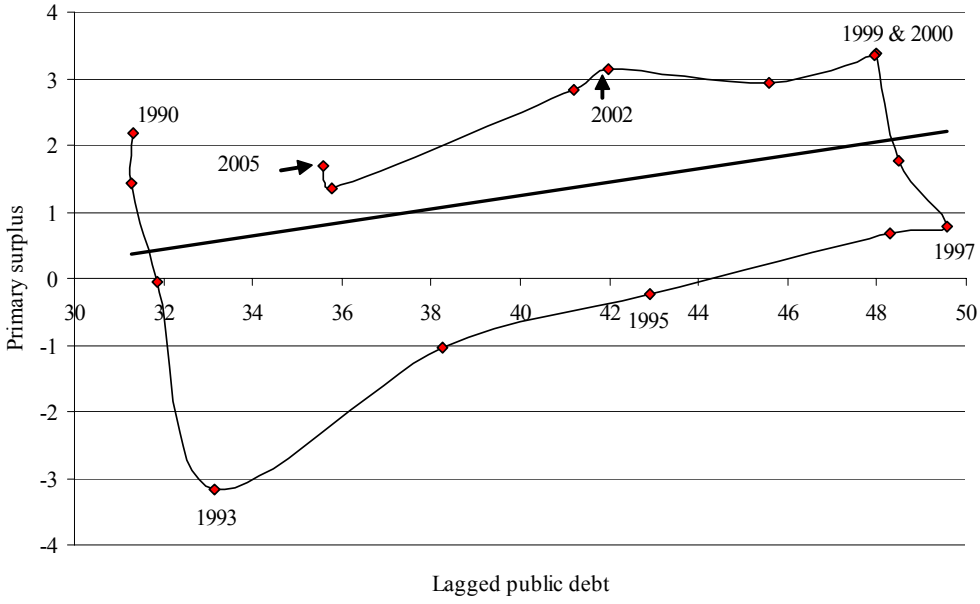
Figure II.2. South Africa: Changes in the Public Debt Ratio and the Primary Surplus, 1990-2005

(in percent of GDP)



Sources: South African National Treasury and IMF staff calculations.

Figure II.3. South Africa: Primary Surplus and Lagged Public Debt, 1990-2005
(in percent of GDP)



Sources: South African National Treasury and IMF staff calculations.

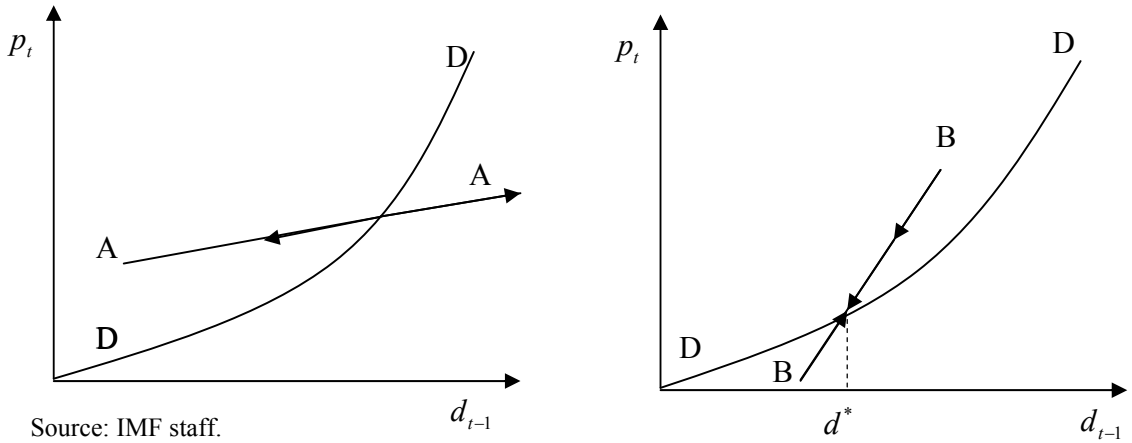
government has taken advantage of more favorable debt dynamics (helped by higher growth and lower interest rates) to increase spending and offer tax relief. That result now needs to be corroborated econometrically. Econometric methods will also make sure that the unconditional correlation is not spurious.

19. In standard general equilibrium frameworks, such a positive response of the primary balance to an increase in the debt ratio (i.e., $\partial p_t / \partial d_{t-1} > 0$) is *sufficient* to ensure long-run solvency (Bohn, 1998).[5] If that condition is fulfilled, then the absence of drift in the elements of Z implies that the debt ratio is always going to converge towards some finite value (mean-reversion).[6]

20. In a partial equilibrium context, phase diagrams neatly illustrate the importance of the primary surplus' response to d_{t-1}. Along the separation line DD in Figure II.4, the primary surplus is such that the debt ratio is constant. The greater the difference between the real interest rate and real GDP growth, the steeper DD—the convexity of DD captures the impact of rising public debt ratio on interest rates. Any primary surplus located above (below) DD is consistent with a declining (rising) debt ratio. The line AA (left panel) depicts a fiscal reaction function with a weak response of the primary surplus to the debt. In that case, the

Figure II.4. Debt Dynamics and the Response of the Primary Surplus to the Debt

Low responsiveness and risks to sustainability *Strong responsiveness and stability*



Source: IMF staff.

[5] Of course, that relationship needs to hold only on average, not every single year.

[6] For a more comprehensive discussion, see IMF (2003b). Mean-reversion cannot rule out that the debt-to-GDP ratio would stabilize at an implausibly high level. One should also bear in mind that long-run solvency per se does not imply a "default-proof" fiscal behavior since default can also be triggered by liquidity constraints, or by strategic considerations.

debt ratio is either on an explosive path or converges towards zero; and shocks (vertical shifts in AA) can easily jeopardize sustainability. In contrast, the line BB (right panel) describes an aggressive response of the primary surplus to variations in the debt ratio; and the debt ratio will always converge to some finite debt level (denoted by d^*), irrespective of the shocks affecting the budget.

21. The specification of the fiscal reaction function is fairly standard[7] and takes the following general form:

$$p_{i,t} = \alpha_i + \rho d_{i,t-1} + \beta D_i\left(d_{i,t-1} - \tilde{d}\right) + \sum_{k=1}^{K} \gamma_k Z_{k,i,t} + \varepsilon_{i,t} \qquad (2)$$

where i is a country-specific subscript, α, ρ, β and the γ's are parameters to be estimated, and $\varepsilon_{i,t}$ is an error term. Notice that α_i is a country-specific intercept (fixed effect). In line with IMF (2003b), equation (2) also allows for a "spline" parameter that captures a possible break in the relationship between debt and the primary surplus at a debt level $\tilde{d}$; D_i is a dummy variable equal to 1 when $d_{i,t-1} > \tilde{d}$ and to zero otherwise.

22. The short time-series available for fiscal variable in most countries (some of them with no more than 15 years of annual data) motivated attempts to estimate fiscal reaction functions with panel data techniques.[8] One obvious caveat is that linear panel estimation presupposes identical fiscal behavior across countries. As suggested in IMF (2003b), allowing for non-linear relationships between the primary balance and its determinants may help alleviate the problem. Panel estimates presented in Table II.2 cover a broad sample of 33 emerging market economies[9] over the period 1990-2004. These estimates allow for two types of "non-linearities": a "kinked" response to the public debt (assuming that responsiveness to debt changes beyond a given threshold), and an asymmetry in the cyclical response between "good times" (positive output gap) and "bad times" (negative output gap). Celasun, Debrun and Ostry (2005) discuss in detail technical issues related to the specification and estimation of fiscal reaction functions, including the risk of a small upward bias in the estimated value for ρ.

23. In terms of coverage, the dataset generally refers to the widest possible definition of the public sector as the government is likely to provide at least implicit guarantees to

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[7] See Favero (2002), Galí and Perotti (2003) and Fatàs and Mihov (2003) for detailed discussions of the issues related to the specification and estimation of fiscal policy equations.

[8] See Bohn (1998), IMF (2003b), and Galì and Perroti (2003) among others.

[9] Argentina, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Ecuador, Hungary, India, Indonesia, Israel, Jordan, Korea, Lebanon, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Panama, Peru, Philippines, Poland, Russia, South Africa, Thailand, Turkey, Ukraine, Uruguay, and Venezuela.

decentralized entities and key public enterprises. For most countries, debt and primary balance data cover the nonfinancial public sector (NFPS) or the general government. For data availability reasons, central government data had to be used for Côte d'Ivoire, Indonesia, Morocco, South Africa ("national government"), and Ukraine.

24. The estimated reaction functions yield interesting results regarding debt sustainability in emerging market economies (Table II.2). On average, the primary surplus exhibits a positive and significant response to the debt ratio, in line with long term debt sustainability. However, that sensitivity sharply declines once debt exceeds 50 percent of GDP, a threshold often considered in the literature as the upper limit of the "comfort zone" for an average emerging market economy in terms of debt accumulation.[10] Beyond that point, the risk of embarking on an unstable debt path is indeed non trivial as illustrated in Figure II.5.

Table II.2. Selected Emerging Market Economies: Fiscal Policy Reaction Functions (1990-2004)

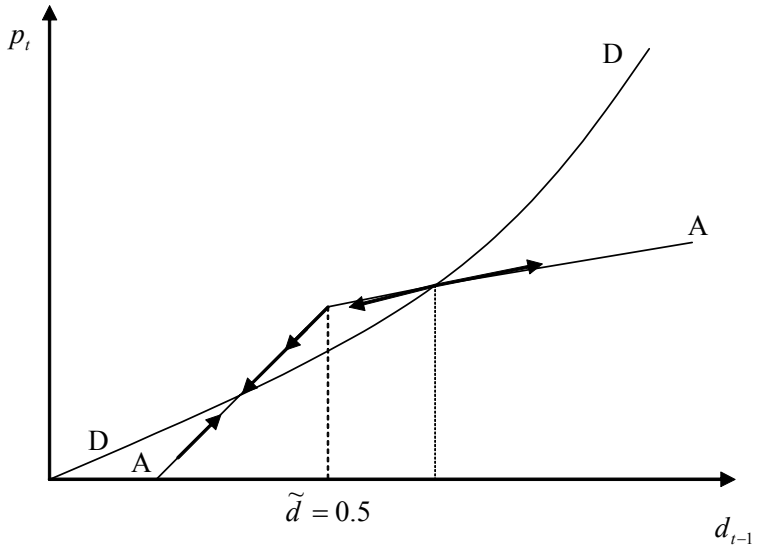
Dependent variable: Primary surplus of NFPS in percent of GDP or GNP

	Linear response to debt 1/	Spline 2/	Spline 1/	Asymmetric cyclicality 1/	South Africa effect 1/	
					Non-SA/common	South Africa
Constant	-0.274	-3.843 **	-3.732 ***	-0.081	-3.565 ***	-
	[0.937]	[1.901]	[1.147]	[0.926]	[1.118]	-
Output gap	0.283 ***	0.190 ***	0.283 ***	-	0.316 ***	0.592 ***
	[0.093]	[0.049]	[0.087]	-	[0.095]	[0.054]
Lagged debt	0.045 ***	0.094 ***	0.108 ***	0.051 ***	0.108 ***	0.263 ***
	[0.007]	[0.026]	[0.017]	[0.008]	[0.013]	[0.004]
Spine at 50 percent	-	-0.060 **	-0.080 ***	-	-0.075 ***	-
	-	[0.031]	[0.018]	-	[0.013]	-
Default	0.94 ***	0.948 **	1.162 ***	1.018 ***	0.996 ***	-
	[0.287]	[0.439]	[0.320]	[0.289]	[0.332]	-
Real oil prices (exporters)	0.285 **	0.358 ***	0.337 ***	0.271 ***	0.315 **	-
	[0.121]	[0.144]	[0.083]	[0.098]	[0.130]	-
Institutions	-0.804 ***	-0.467	-0.588 ***	-0.846 ***	-0.680 ***	-
	[0.227]	[0.295]	[0.221]	[0.197]	[0.175]	-
IMF supported program	0.479	0.858 **	0.457 *	0.599 **	0.350	-
	[0.301]	[0.435]	[0.268]	[0.296]	[0.287]	-
Election year	-0.545 *	-	-	-0.598 **	-0.549 **	-
	[0.291]	-	-	[0.284]	[0.286]	-
R-squared	0.64	0.55	0.54	0.60	0.67	
Number of obs.	397	418	418	397	397	
Number of cross-section	32	33	33	32	32	

1/ Panel two-stage EGLS, instrumenting the output gap; country fixed effects included.
2/ Panel IV, instrumenting the output gap; country fixed effects included.
Robust standard errors in brackets.

[10] See IMF (2003b) for a fuller discussion. Cross-country variation in public sector coverage within the panel creates some uncertainty as to whether this ceiling applies to the NFPS or the central government. Since most of the data used in the estimations covered the NFPS, the latter might be the most appropriate concept. In South Africa, adding municipal and non-financial state-owned enterprise (SOE) debt to national government debt yields a debt-to-GDP ratio close to the 50 percent threshold. However, as shown in the last column of Table II.2, the national government exhibits a much stronger debt-stabilizing response than other countries in the panel, in line with a stable, low-debt equilibrium (Figure II.4). As both municipal and SOE's debt has exhibited a downward trend (in terms of GDP) comparable to (or more pronounced than) national government debt, it is likely that South African NFPS behavior is not materially different from that of the national government.

Figure II.5. Primary Surplus and Lagged Debt in Emerging Market Economies



25. The estimated reaction function also allows to quantify *policy-related* risks.[11] For instance, fiscal policy reacts to random cyclical developments in a way that may amplify their impact on the debt ratio. The estimated coefficients of the output gap indeed point to a mildly counter-cyclical behavior, as the primary balance deteriorates (improves) in the event of an adverse (positive) GDP shock. Notice that in good times (GDP above trend level), the coefficient is not significantly different from zero, suggesting that *pro-cyclical* discretionary actions (for example, additional spending financed with revenue windfalls) undermine automatic stabilizers.[12] Also, oil exporters' budgets appear quite sensitive to oil price developments, with oil-related revenue windfalls or shortfalls being partly reflected in the primary balance. (The impact of non-oil commodity prices was found to be non-significant among commodity exporters). Interestingly, election years[13] tend to be associated with lower

[11] In Figure II.5, the realization of upside (downside) risks to public debt entails a downward (upward) shift in the AA schedule.

[12] If left unchecked, that tendency may lead to a growing deficit bias, raising concerns about long term sustainability (IMF, 2004, and Balassone and Francese, 2004).

[13] The "election year" dummy variable identifies presidential elections. The effect of legislative elections was found not to be significant.

primary balances, supporting the idea of a political business cycle. Hence, political instability and the risk of frequent elections may entail more frequent negative shocks to the primary surplus. Other possible sources of risks captured by the estimated reaction function include discretionary fiscal surprises (reflected in the residuals), and the uncertainty about the true magnitude of the responses to these events (captured by the standard error of estimated coefficients). The results in Table II.2 thus allow to study the effect of plausible changes in fiscal behavior (assuming that such changes have no effect on the estimated distribution of disturbances).

26. Finally, other structural and institutional factors potentially affecting the capacity to generate primary surpluses can be assessed. These factors include the overall quality of economic and political institutions (government stability, low corruption, high bureaucratic quality, efficient law enforcement), adherence to an IMF-supported program, and default/restructuring episodes. Everything else being equal, countries with better institutions seem to need lower surpluses, presumably because they enjoy greater credibility and correspondingly lower financing costs. As expected, countries implementing a program supported by the IMF generate higher primary surpluses on average, whereas the tight financing conditions faced by countries renegotiating their debt obligations (or in default) force them to run higher surpluses.

27. South Africa appears to behave quite differently from the rest of the sample as regards countercyclicality (more pronounced) and responsiveness to debt (almost 3 times stronger). This is evident from the last column of Table II.2 which provides South-Africa specific estimates for these two key coefficients, while keeping all other coefficients uniform across the panel (including for South Africa). The magnitude of these differences prompted us to base the stochastic simulation exercise on a simpler, country-specific reaction function estimated over the last 15 years (Table II.3).

Table II.3. South Africa: Fiscal Reaction Function (1990-2004)
Dependent variable: Primary surplus of general government in percent of GDP

	OLS	IV
Constant	-11.280 ***	-9.991 **
	[2.613]	[4.056]
Output gap	0.558 *	0.802
	[0.290]	[0.646]
Lagged debt	0.309 ***	0.280 ***
	[0.062]	[0.094]
R-squared	0.83	0.83
Number of obs.	14	14
Standard error of regression	1.13	1.16
Durbin-Watson	1.43	1.40

Robust standard errors in brackets.

28. The estimated coefficients on debt and the output gap are close to those identified with panel estimation, which controls for other potential determinants of the primary surplus. They have the advantage to come from a model providing the best fit to South African budgetary data.

D. Assessing the Risks to Debt Dynamics

29. This section applies a stochastic simulation algorithm to derive frequency distributions of South African government debt over the next 5 years.[14] As in the standard DSA framework, each individual simulation yields public debt projections using equation (1). However, unlike the standardized, deterministic bound tests, shocks stem from a random draw of disturbances affecting real GDP growth, the real interest rate (long-term government bond deflated by GDP prices), the real effective exchange rate, and the primary fiscal balance. The joint distribution of all non-fiscal shocks is calibrated using the variance-covariance matrix of a VAR model estimated with quarterly data over the period 1980-2004. The fiscal shock is assumed to be orthogonal to the other variables and is consistent with the standard error of regression (OLS) reported in Table II.3. New macroeconomic disturbances occur every quarter and feed into VAR forecasts of the 3 non-fiscal variables. The persistence of shocks is therefore fully accounted for. After annualization of macroeconomic variables, debt and primary balance projections are determined recursively using equation (1). Annual frequency distributions for public debt are calculated on a sample of 1000 stochastic simulations.

30. While this approach makes a more efficient use of the data entering standard DSA, two significant limitations remain. First, the disconnect between low frequency (annual) fiscal data and higher frequency macroeconomic data prevents the simulation algorithm to incorporate the feedback effect of fiscal variables (deficit and debt) on growth, interest rate and the real exchange rate.[15] The uneasy mix of annual and quarterly data present in the simulation framework is a sacrifice to the fact that most countries only publish reliable and detailed budgetary data at annual (or at best semi-annual) frequency. Besides, quarterly fiscal data reflect a number of developments unrelated to policy behavior per se, and with only little bearing on medium-term sustainability concerns. Still it would be ideal from a statistical point of view to incorporate the fiscal reaction function into the VAR model whenever sufficiently long and reliable quarterly fiscal series are available (see Penalver and Thwaites, 2004).

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[14] Technical aspects are described Celasun, Debrun, and Ostry (2005).

[15] Notice that in a comparable exercise for Brazil, Penalver and Thwaites (2004) used quarterly fiscal data and could formally test the null hypothesis of orthogonality between fiscal and non fiscal disturbances. They failed to reject the hypothesis.

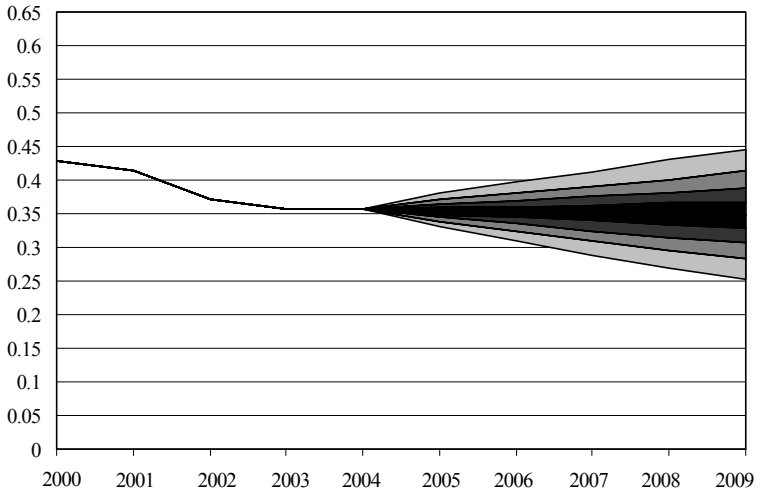
31. Second, the risk analysis only concerns debt projections and cannot appraise the solvency risk per se. Barnhill and Kopits (2003) directly estimate the probability of government insolvency by deriving probability distributions for the government net worth. However, this "Value-at-Risk" approach is much more demanding in terms of data as it requires reliable estimates of the government balance sheet.

32. The following simulations will thus ignore potentially important aspects, such as the growth effect of higher public investment, or the reaction of interest rates to rising deficits and debts. One might conjecture that a strong response of interest rates to public debt developments is likely to widen confidence intervals around projected debt paths, whereas strong growth effects of high-quality fiscal expansions would presumably contain the upside risks associated with a deterioration of the primary balance. These are important considerations to bear in mind when interpreting the results.

33. In the remainder of this section, particular attention is paid to the public debt risk posed by three hypothetical fiscal developments in South Africa. First, it is assumed that a discretionary increase in public expenditure by 1 percentage point of GDP is sustained over 5 years and entirely financed with new debt over the first 3 years (scenario 1). After 3 years, the primary surplus is progressively allowed to reflect increases in the public debt, and an adjustment takes place (in line with the reaction function). This presumes that the expenditure boost will ultimately be funded with new revenues and expenditure reallocations. Second, a reduction in the sensitivity of the primary surplus to the public debt (by one standard deviation of the estimated coefficient—see Table II.3) is introduced to examine the implications of a reduced focus on debt sustainability in overall policy behavior. Third, a contingent liability shock identical to the IMF standard bound test (10 percent of GDP) is imposed, mainly to show the importance of introducing an endogenous policy response.

34. First, a baseline scenario is constructed, based on VAR projections of the macroeconomic variables and the reaction function reported in Table II.3. A series of shocks to interest rates, growth and the exchange rate affect the economy over a time horizon of 5 years. The risks to the debt dynamics are best summarized by a fan chart (Figure II.6). Different colors delineate deciles in the distributions of debt ratios, with the zone in dark grey representing a 20 percent confidence interval around the median projection and the overall cone, a confidence interval of 80 percent. Comparing Figure II.6 with the outcome of simple bound tests (reported in Figure II.1) suggests that the debt paths associated with most bound tests fall well within the 80 percent confidence interval. The fan chart also nicely illustrates the significant uncertainty typically surrounding public debt projections, giving a better idea of the overall risks to public debt in comparison to Figure II.1 (especially as regards the balance between upside and downside risks).

Figure II.6. South Africa: Public Debt Risk Profile, 2005-2009 (baseline)



35. Scenario 1 indicates that financing new expenditure plans with debt while retaining the same reaction function does not substantially deteriorate the overall debt risk profile. The probability to observe the national government debt above 40 percent of GDP by 2009 rises from 0.25 in the baseline to 0.38 (see Table II.4) while the median debt projection for the same year increases from 34.6 percent of GDP under the baseline to 37.7 percent. The fan chart (Figure II.7) also illustrates that the balance of risks is now tilted to the upside. The fiscal adjustment implied by the estimated reaction function is visible near the end of the forecasting horizon, with the debt ratio reverting to a steady state level of about 35 percent of GDP.

Figure II.7. South Africa: Public Debt Risk Profile, 2005-2009
(scenario 1: higher discretionary spending financed with new borrowing)

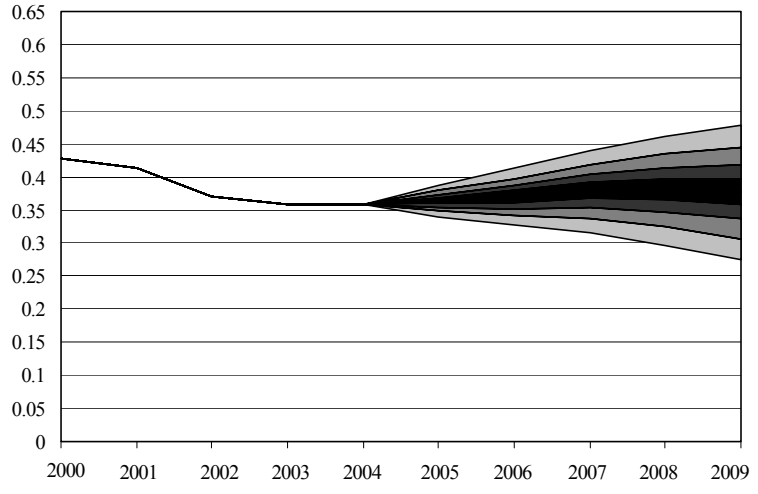


Table II.4. South Africa. Public Debt Risk Profile under Alternative Scenarios: Key Statistics

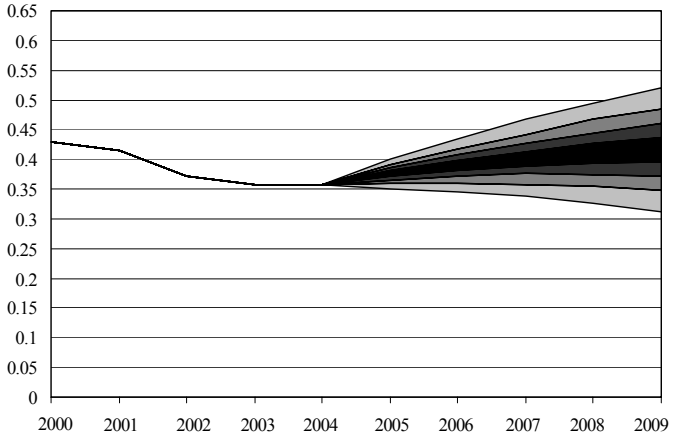
	2005	2006	2007	2008	2009
Baseline					
Maximum	41.37	44.81	50.05	51.45	57.77
Median	35.38	35.26	35.09	34.81	34.64
Average	35.45	35.19	34.99	34.84	34.79
9th decile	38.00	39.67	41.22	43.12	44.61
1st decile	32.98	30.88	28.77	26.88	25.16
Probability that debt ratio is					
below 30 percent	0.00	0.07	0.15	0.22	0.27
above 40 percent	0.01	0.08	0.15	0.20	0.25
Scenario 1					
Maximum	41.50	45.93	52.31	56.05	64.04
Median	36.39	37.10	38.01	38.02	37.74
Average	36.35	37.00	37.82	37.94	37.67
9th decile	38.66	41.24	43.99	46.13	47.90
1st decile	33.90	32.64	31.53	29.60	27.43
Probability that debt ratio is					
below 30 percent	0.00	0.02	0.06	0.11	0.18
above 40 percent	0.02	0.17	0.33	0.38	0.38
Scenario 2					
Maximum	42.75	52.15	58.93	63.27	68.35
Median	37.44	39.00	40.11	41.09	41.77
Average	37.51	38.97	40.12	41.00	41.62
9th decile	39.95	43.38	46.70	49.33	51.98
1st decile	34.99	34.56	33.94	32.65	31.08
Probability that debt ratio is					
below 30 percent	0.00	0.01	0.02	0.04	0.08
above 40 percent	0.10	0.39	0.51	0.56	0.58
Scenario 3					
Maximum	41.70	54.50	58.49	58.50	63.44
Median	35.29	45.08	41.58	39.18	37.42
Average	35.22	44.93	41.62	39.27	37.55
9th decile	37.64	49.02	47.91	47.48	48.13
1st decile	32.66	40.57	35.43	31.01	27.37
Probability that debt ratio is					
below 30 percent	0.00	0.00	0.01	0.08	0.16
above 40 percent	0.01	0.92	0.63	0.44	0.37

Source: IMF staff calculations.

36. A reduction in the responsiveness of the primary balance to the public debt entails a non-negligible worsening of the public debt risk profile. In that scenario, a lesser concern for debt stabilization (by one standard deviation or 0.062) entails an initial reduction in the primary balance by 2.2 percentage points of GDP (that is 0.062 times 35.8 percent, the debt-to-GDP ratio at the end of 2004). The primary balance is then allowed to adjust upwards as the debt ratio initially rises, in line with the estimated reaction function. The probability to

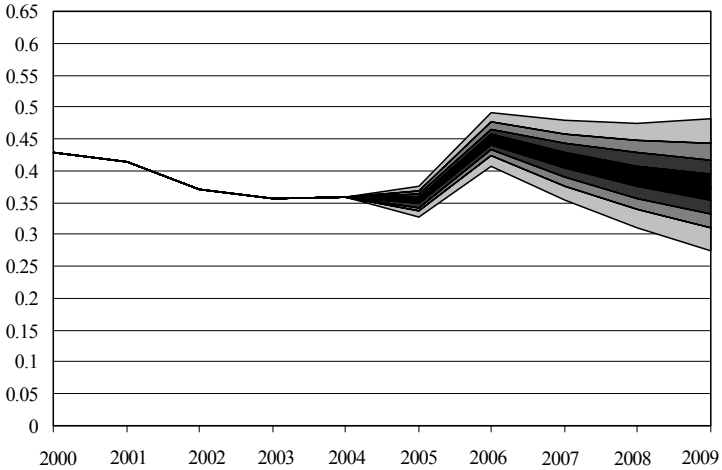
observe a public debt ratio above 40 percent of GDP by 2009 nevertheless increases to 0.58 (up from 0.25 in the baseline). The fan chart confirms that upside risks now clearly dominate the outlook (Figure II.8), and that the change in fiscal behavior raises the steady state debt ratio to about 40 percent of GDP.

Figure II.8. South Africa: Public Debt Risk Profile, 2005-2009
(scenario 2: lower responsiveness of the primary surplus to the debt)



37. The importance of fiscal policy behavior is further illustrated by analyzing the impact a large contingent liability shock (10 percent of GDP), or, alternatively, a full takeover of SOEs' debt. Strikingly, the probability of the debt ratio exceeding 40 percent of GDP by 2009 is below that in the scenarios 1 and 2 (0.37 against 0.25 in the baseline) despite the size of the initial shock. Again, the fan chart shows the impact of the automatic fiscal adjustment imposed by the fiscal reaction function (Figure II.9). This comes out as a startling illustration

Figure II.9. South Africa: Public Debt Risk Profile, 2005-2009
(scenario 3: contingent liability shock)



of how the responsiveness of the primary surplus to the public debt is essential in shaping the overall risk profile of a country's public debt. The contrast with the bottom panel of Figure II.1, which shows the resulting debt path under the invariant-policy assumption is also quite remarkable.

E. Conclusions and Policy Implications

38. This chapter complements the standard debt sustainability analysis—based on medium-term projections of the debt-to-GDP ratio under a limited number of scenarios—by offering a complete assessment of the risks surrounding the baseline debt projection. By means of stochastic simulations, frequency distributions of public debt are obtained over the entire forecasting horizon, allowing for a probabilistic analysis of debt dynamics. An important dimension of the study is to allow for fiscal policy to endogenously react to macroeconomic shocks while preserving the flexibility to look into the consequences of specific policy initiatives (or changes in fiscal behavior) for the public debt risk profile.

39. Overall, the analysis supports the relatively benign assessment resulting from the commonly used DSA, but brings useful nuances to the policy advice. Specifically, the chapter suggests that a protracted fiscal expansion accompanying new spending initiatives should only entail a relatively limited worsening of the debt risk profile. However, the analysis indicates that this benign outlook hinges critically on the continuation of the prudent fiscal policy behavior observed over the last 10 years. For instance, it appears that a lesser attention to public debt stabilization than in the recent past could significantly increase upside risks. Balancing upside and downside risks thus points to a strategy in which new expenditure programs would require additional revenues and expenditure reallocations to be phased in over the medium term. A focus on growth-promoting initiatives would also help contain upside risks although the algorithm used in this chapter could not quantify the gains from such focus in terms of reduced risks to the public debt.

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III. South Africa—Financial Sector Vulnerability[1]

1. This chapter summarizes the main findings of the financial sector surveillance work in the 2005 Article IV mission to South Africa.

A. Structure of the South African Financial System

2. South Africa's banking system is deep compared to those in other emerging economies and its insurance sector has one of the highest penetrations in the world. The ratio of M3 over GDP reached 64 percent in 2004 and insurance company premiums stood at 16 percent of GDP in 2003, led by long-term (mostly life) insurers at 13 percent of GDP.

3. Banks and long-term insurance companies are the most systemically important financial institutions in South Africa. Assets of the banking system reached 109 percent of GDP and deposits 65 percent of GDP at end-2004. In contrast, assets of the long-term insurance sector fell slightly to 63 percent of GDP in 2004. Local capital markets, including derivatives, are well developed and securitization is growing rapidly. Stock and bond market capitalization reached 187 percent and 43 percent of GDP, respectively at end-2004.

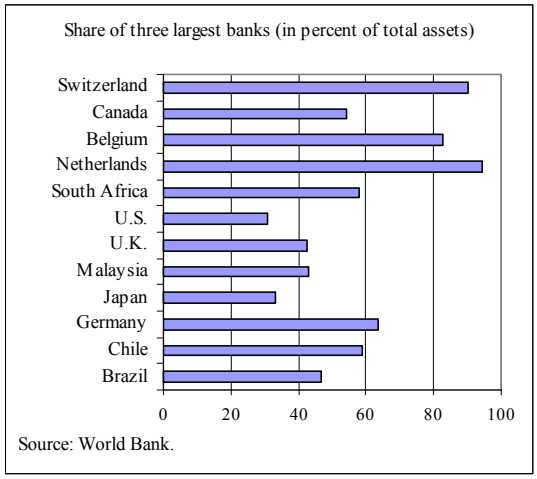
Table III.1. South Africa—Assets of the Financial System
(in percent of GDP)

	1994	1999	2004
Banks	68.2	88.5	109.0
of which:			
Mutual Banks and the Postbank	0.3	0.3	0.2
Land and Agricultural Bank	2.0	2.0	1.5
Foreign controlled	2.1	5.1	10.4
Long-term insurers	67.2	71.2	62.8
Short-term insurers	5.1	6.8	3.6
Public Investment Commissioners	17.8	22.6	25.5
Pension and Provident Funds	41.7	47.4	50.5
Official Pension and Provident Funds	21.5	25.1	27.5
Private Pension and Provident Funds	20.2	22.3	23.0
Unit Trusts	3.4	11.5	21.9
Participation Mortgage Bonds Schemes	1.0	0.6	0.3
Stock market capitalization	...	...	187.0
Bond market capitalization	...	...	43.0

Sources: SARB, FSB, and Staff estimates.

[1] Prepared by Amadou Sy (MFD).

4. The commercial banking sector is highly concentrated with no government ownership. Currently, the four largest banks are universal banks offering a full range of banking services and have a market share of 84 percent in terms of assets. If the fifth largest bank were added, the top five banks would have a market share total of 89 percent, a relatively high concentration by international standards (figure shows three banks due to data availability). As of December 2004, the banking system included 38 registered banks, of which 15 are locally controlled banks, 6 foreign controlled banks, 2 mutual banks, and 15 local branches of foreign banks. In addition, 44 international banks have non-deposit taking representative offices. The banking system also includes development and postal banks—which do not fall under the Banks Act—as well as microfinance institutions. Micro-loans outstanding reached 1 percent of GDP, and one bank accounts for about 35 percent of that total.



5. The penetration of foreign banks in South Africa increased substantially in July 2005. The recent acquisition of one of the four largest banks by a U.K. bank increased foreign presence to about 16 percent of total assets from 8 percent. Foreign banks are mostly active in corporate banking but the acquisition of a large domestic bank may challenge that business model.

6. Through mortgages, banks are mostly exposed to the household sector. At end-2004, mortgage loans and installment debt accounted for about 37 percent and 14 percent of total loans and advances, respectively. In addition, credit card debt is growing rapidly albeit from a low base to reach 2 percent of total loans and advances. In contrast, loans and overdrafts amount to about 25 percent of total as corporates increasingly issue their own paper. Foreign loans—of which 80 percent were extended to Europeans borrowers—stood at about 10 percent of total.

Table III.2. Market Share of Banks and Long-Term Insurers
(In percent of assets and net premium income, respectively)

Banks	Market share	Long-term insurers	Market share
Standard Bank	27	Old Mutual Assurance	22
Nedcor	16	Sanlam Life Insurance	15
FirstRand	15	Momentum	13
Absa	14	Liberty Group	10
Investec	9	Investec Assurance	9

Sources: Capital Intelligence Ltd (2003) and 2003 KPMG Survey.

7. Similar to the banking sector, a few insurance companies dominate the industry: five companies account for 68 percent of total net premium income. The insurance companies and pension funds are heavily exposed to the local equity market.

8. As in many mature markets, complex bancassurance structures have led to cross-ownership between the banking and the insurance sectors. No cross shareholdings between banks are permitted but insurance companies own shares in banks. Although risks appear limited, the cross-shareholdings between insurance companies and banks expose the financial system to possible contagion risk between the two sectors. A failure of one large insurance company could have negative spillover effects on the banking industry. The largest insurance company, Old Mutual, owns 53 percent of Nedbank, the second largest bank and 20 percent of Standard Bank, the largest bank. Similarly, Sanlam, the second largest insurance company owns 23 percent of Absa, the third largest bank.

Table III.3. Large Insurance Companies' Share in Large Banks (in percent, 2004)

	Absa Bank Ltd	Nedbank Ltd	Standard Bank of South Africa Ltd
Old Mutual Life	--	52.7	20.2
Sanlam Life	22.7	--	5.4

Source: SARB.

9. The regulation of banks is governed by the Banks Act of 1990, which gives the Minister of Finance the prerogative to set out a series of regulations with directives and interpretations. SARB's banking supervision department (BSD) supervises banks and the Registrar authorizes and cancels the registration of banks. In contrast, the financial services board (FSB) regulates and supervises nonbank financial institutions and the financial markets, in collaboration with self-regulatory organizations such as the securities exchanges. The Micro Finance Regulatory Council (MFRC) regulates the micro-lending industry.

B. The South African Financial System—Macroprudential Analysis

The macroeconomic environment

10. The macroeconomic environment continues to be favorable to banks. Buoyed by domestic demand, GDP growth remains strong. Real GDP grew by 3.7 percent in 2004 and 3.5 percent in the first quarter of 2005. Inflation has stayed in the 3-6 percent range since end-2003. Consumer spending remained buoyant led by an increase in disposable income, lower debt servicing costs, stronger consumer confidence and the wealth effects from higher property and other asset prices.

11. Interest rates have reached 24-year lows. The SARB has lowered its repo rate by 650 basis points since June 2003. As a result, mortgage rates—which are typically floating rates—fell to 10.5 percent and deposit rates on 6-month fixed deposits to 6.5 percent.

12. Property prices have been rising consistently over the last few years (year-on-year) and equity prices continued to increase in 2005. Increases in nominal house prices exceeded 35 percent in September 2004 but eased gradually thereafter. Similarly, month-on-month increases in house prices declined from a peak of 3 percent in January 2004 to 1 percent in July 2005. Low domestic interest rates and favorable growth prospects coupled with improved business confidence helped push up the JSE all-share index by 24 percent in real terms in 2004, and a further 8 percent in the first half of 2005.

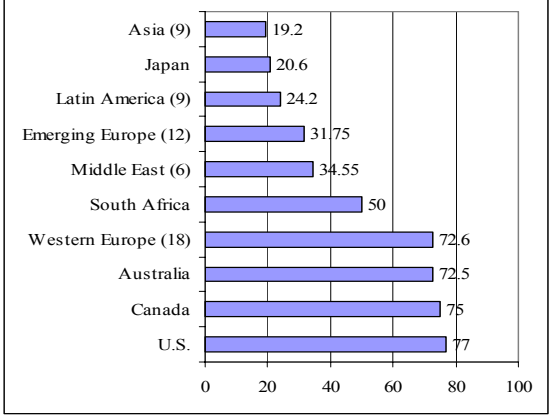
13. Due to the sharp reduction in interest rates, bank credit to the private sector is growing rapidly, mostly on the back of strong household demand for mortgages. Loans and advances grew by 16 percent in 2004 and 18 percent in the 12-month period through March 2005. Mortgage loans increased by 26 percent in 2004. Installment debt increased by 21 percent and credit cards by 25 percent. In contrast, credit to the corporate sector (about 28 percent of GDP) increased by 9 percent in the last quarter of 2004.

Financial soundness indicators

14. Financial indicators point to a broadly sound banking and insurance system. Moody's financial strength index ranks South African largest banks well in international comparisons. As of March 2005, the average capital adequacy ratio (CAR) was adequate at 12.9 percent (compared with a regulatory minimum of 10 percent). At end-2004, only one small bank did not meet the minimum CAR. Tier I capital represents about 71 percent of qualifying capital and reserves (before deduction of impairments) compared with the regulatory minimum of 50 percent.

15. Asset quality improved partly due to a favorable macroeconomic environment. In 2004, gross non-performing loans (NPLs) fell to 1.8 percent of total loans from 6.8 percent in 1999 in the aftermath of the Asian and Russian crises.[2] Non-performing mortgage loans as a percentage of total mortgage loans decreased to 1.7 percent at end-2004. NPLs on other loans and advances and on installment sales also declined to 2 percent and 1.7 percent of their respective total loans.

Figure III.2. Moody's Weighted Average Bank Financial Strength Index (December 2004)



[2] In South Africa, "NPLs" or "overdues" comprise "doubtful" and "loss" loans. In most countries, substandard loans are added to "doubtful" and "loss" loans to calculate NPLs. If substandard loans were included in the definition, then NPLs would amount to 2.6 percent of total loans as of end-2004.

Table III.4. South Africa: Financial Soundness Indicators, 2001-2005
(Credit and Depository Institutions)

	2001	2002	2003	2004	2005*
	(In percent, unless otherwise indicated)				
Capital adequacy:					
Regulatory capital to risk-weighted assets	11.4	12.6	12.2	13.3	12.9
Regulatory tier 1 capital to risk-weighted assets	7.8	7.9	7.9	9.3	9.2
Asset quality:					
Nonperforming loans to total gross loans	3.1	2.8	2.4	1.8	1.8
Nonperforming loans net of provisions to capital	16.3	11.9	8.5	6.2	6.1
Large exposures (utilized) to capital	218.8	163.8	157.1	113.0	126.5
Share of mortgage advances in private credit	38.5	40.7	39.6	43.3	44.0
Earnings and profitability:					
Return on assets (average)	0.8	0.4	0.8	1.2	1.3
Return on equity (average)	8.9	5.2	11.6	16.2	16.9
Interest margin to gross income	37.7	52.3	38.3	42.3	39.5
Non-interest expenses to gross income	50.7	60.4	74.8	68.6	66.5
Interest spread (annualized yield minus cost)	3.1	3.8	1.9	2.8	2.3
Liquidity:					
Liquid assets to total assets	4.2	4.7	4.7	4.7	4.7
Share of short-term deposits in total deposits	47.9	46.0	43.8	41.8	41.6
Exposure to FX risk:					
Maximum effective net open FX position to capital	2.5	2.6	0.9	0.9	1.0
Share of foreign currency loans in total lending	13.4	13.1	11.4	10.5	10.4
Share of foreign currency deposits in total deposits	6.2	4.4	2.7	2.7	2.5
Share of foreign liabilities in total liabilities	9.1	5.3	2.8	3.1	3.2

* March 2005 data.
Source: South African Reserve Bank, banks' returns, and staff calculations.

16. The insurance industry also appears to be well-capitalized. The free assets of the five largest long-term insurers cover their capital adequacy requirements two to five times compared to a minimum of one.[3] The long-term insurance sector is benefiting from a

[3] The capital adequacy requirement is defined to be the minimum capital required by the Financial Services Board for registration of an insurance company and is equivalent to 13 weeks' worth of operating expenses. Free assets refer to the difference between total assets on the one hand and the sum of total liabilities and required capital on the other hand. The ratio indicates the number of times the capital adequacy requirement is covered by free assets. A current ratio of two-to-five times is generally considered sufficient coverage.

decrease in lapses and surrenders, as well as an increase in the number of new policies. In 2004, the number of new policies increased by 19 percent, while individual lapses and surrenders of policies for long-term insurers fell to 24 and 20 percent.

17. Banks' asset quality is healthy and provisioning remains adequate. Non-performing loans net of provisioning are equivalent to 6.1 percent of capital at end-2004. Specific provisions covered about 64 percent of gross NPLs at end-2004. As a result, banks' reliance on collateral has decreased over time to amount to about 36 percent of overdues in contrast to 55 percent in 2001. This trend is encouraging as South African banks have relied heavily on collateral value in the past, as pointed out by the FSAP.

18. Large exposures are well below the regulatory maximum of eight times capital and reserves.[4] As of March-2005, large exposures (including to government and interbank settlements) represent 5 times net qualifying capital and reserves in contrast to the peak exposure of more than 15 times reached in 2002. The utilized portion of large exposures, which historically has always been below the granted amount, stand at about 1.3 times net qualifying capital. NPLs on large exposures decreased also.

19. Corporate sector vulnerabilities seem to be limited. Corporate exposures of banks have performed well although some companies have been affected by the strengthening of the rand[5]. In general, corporate indebtedness is relatively low with an average gearing ratio below 40 percent and profitability is healthy with an average ROE of 25 percent.

[4] Exposures granted (excluding those to government and interbank settlements) that exceed 10 percent of capital and reserves should not exceed, in total, 8 times the level of capital and reserves. In addition, any single exposure exceeding 25 percent of capital should be an impairment against the capital of the bank.

[5] Exposure has increased among some corporates which incur costs in rand but earn revenues in US dollar.

Table III.5. Financial Ratios for the Nonfinancial Corporate Sector, 1998-2004

	1998	1999	2000	2001	2002	2003	2004
Leverage and debt structure							
Debt to equity	0.39	0.44	0.43	0.54	0.53	0.44	0.38
Short-term debt to total debt	0.28	0.35	0.38	0.42	0.31	0.42	0.38
Liquidity							
Current ratio 1/	1.41	1.35	1.34	1.27	1.34	1.28	1.35
Profitability							
Gross margins 2/	0.12	0.10	0.14	0.12	0.12	0.10	0.11
Return on equity 3/	0.24	0.24	0.34	0.28	0.29	0.27	0.25

Sources: Worldscope; and IMF staff estimates.

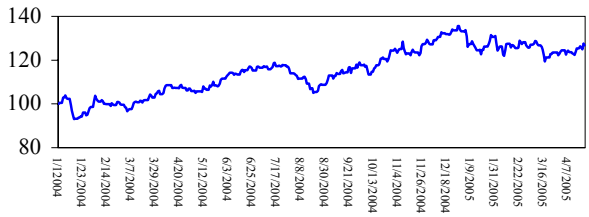
1/ Current assets to current liabilities.

2/ Earnings before interest and taxes (EBIT) as a share of sales.

3/ EBIT in percent of shareholders' equity.

20. Banks' profitability increased significantly in 2004 from already healthy levels in 2003. ROE (after-tax and 12-month moving average) reached 15 percent in 2004 from 11 percent in 2003. ROA (before tax) improved to 1.6 percent in 2004 from 1.3 percent in 2003. This higher profitability translated into higher share prices as the banking index outperformed the overall share index.

Figire III.3. Banking Sector-to-Total Stock Market Index Ratio



21. In spite of their healthy profitability, South African banks are not as efficient as in mature markets. Operating expenses are relatively high at 3.5 percent of assets and 64 percent of gross income in 2004. Operating expenses increased by 13 percent in 2004, driven by a 17 percent growth in total staff expenses, which accounted for about 55 percent of total operating expenses.

Table III.6. South Africa—Profitability of Banks

	In percent of total average assets	
	2003	2004
1. Income (a+b+c+d)	11.9	10.7
a) interest income	9.6	7.7
b) transaction-based fee income	1.7	1.9
Other income	0.6	1.1
c) investment and trading income	0.4	0.9
d) knowledge-based fee income	0.2	0.2
2. Expenditure (a+b+c)	11.1	9.1
a)interest expense	7.2	5.1
b) operational expenses	3.3	3.5
c) provisions and contingencies	0.6	0.5
3. Net income before tax	1.3	1.6
4. Taxation	0.4	0.4
5. Net income after tax	0.8	1.3
6. Interest margin (1a -2a)	2.4	2.5

Sources: SARB and Staff estimates.

Table III.7. Profitability of Major Banks, 2004
(In percentage of total average assets)

	Pre-tax profits	Provisioning expenses	Net interest margin	Operating costs
United States	2.0	0.4	3.1	3.5
Canada	1.2	0.1	1.9	2.8
Japan	0.3	0.6	1.1	1.1
Australia	1.5	0.2	2.1	2.6
United Kingdom	1.2	0.2	1.6	2.1
Switzerland	0.7	0.0	0.8	1.7
Sweden	1.0	0.0	1.4	1.2
Austria	0.7	0.3	1.8	1.8
Germany	0.1	0.2	0.7	1.4
France	0.7	0.1	0.7	1.4
Italy	1.0	0.5	2.2	2.7
Spain	1.2	0.4	2.1	1.8
South Africa (36)	**1.6**	**0.5**	**2.5**	**3.5**
Maximum	2.0	1.2	3.1	3.5
Average	1.0	0.3	1.8	2.1
Minimum	0.1	0.0	0.7	1.1

Sources: BIS, Reserve Bank of India, and Staff calculations.

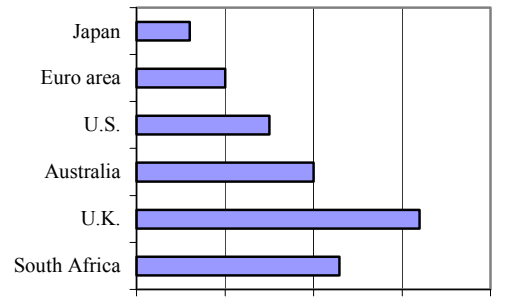
C. Potential Sources of Vulnerability

22. Liquidity risk indicators are high but manageable. As of end-2004, banks' liquid assets stood at 114 percent of their statutory liquid-asset requirement compared to 116 percent at end-2003. High loan-to-deposit ratios and banks' reliance on short-term wholesale deposits (43 percent of total funding) pose a risk which is, however, mitigated by an emerging trend toward securitization of mortgage and car loan books. In the past, a relatively small institution (then the sixth largest bank and now part of one of the top four banks) faced a deposit run from its wholesale depositors and ended up seeking liquidity assistance from the authorities, which provided a temporary government guarantee to its depositors.

23. Foreign exchange risk indicators point to little vulnerability. Banks' net effective open position (NOFP) is limited by the regulator to 10 percent of qualifying capital and reserves (or lower if deemed necessary). The net open position in foreign currency remained stable at 1 percent of capital and reserves in March 2005.

24. Banks are increasingly exposed to the property sector through residential mortgages, a trend similar to that in other mature markets. As a result, a flattening or reversal of house price growth could reduce mortgage activity and fee income, as evidenced by developments in Australia and the U.K. over the past five years. Mortgage loans in South Africa have increased rapidly in recent years and reached 37 percent of total loans and advances. NPLs on mortgage accounts decreased to 1.7 percent of these accounts in December 2004, but banks still rely somewhat heavily on mortgage collateral as provisions covered just 38 percent of NPLs on mortgage loans.

Figure III.4. Residential Mortgages (5-year cumulative growth, percent)

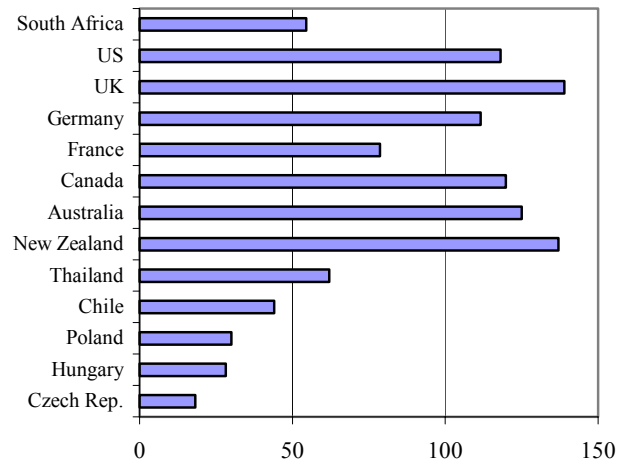


Sources: BIS, SARB, Staff estimates.

25. Residential mortgages in South Africa typically carry variable rates, which expose households to an increase in interest rates. A marked rise in interest rates could immediately affect the debt servicing capacity of households and thereby banks' asset quality.

26. Household indebtedness has increased recently reflecting the large fall in interest rates. As a result, the ratio of household debt to disposable income increased from about 49 percent at end-2002 to 57 percent at end-2004, the highest level recorded since 1999. The ratio remains, however, below the 1996-98 peak of 60 percent.

Figure III.5. Households Debt-to-Income Ratio

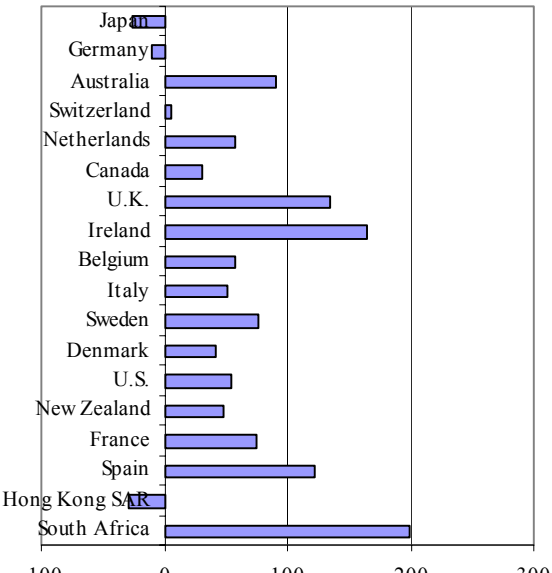


Sources: IFS and Staff estimates.

27. Household debt has, however, become more affordable. Real household disposable income increased in 2004, partly due to wage settlements above the inflation rate and lower income tax rates. This has contributed to the fall in the debt servicing cost of households as a percentage of disposable income—the income gearing ratio—to 6 percent in 2004 from 8 percent in 2003. The ratio of mortgage repayments to disposable income—the RDI index—also suggests that there has been limited deterioration in affordability in recent years. In addition, the number of household and corporate insolvencies decreased by 42.4 percent in 2004.

28. Real estate prices in South Africa have grown very rapidly in recent years**.** Since 1997, the growth rate of housing prices in South Africa has been the highest in a large sample of economies. More recently, annual growth in house prices reached their peak in September 2004 with 35.5 percent, and have eased to 21 percent in July 2005, about 17 percent in real terms.

Figure III.6. Real House Price Indices 1997-2005(Q1)



Sources: The Economist and Staff estimates

29. The rapid growth of real estate prices has been in part supported by fundamental factors. These include higher disposable income following gradual reductions in personal taxes and transfer costs. Economic growth has also increased the income of previously excluded communities while broadening their access to the housing market. In addition, the emergence of securitization of mortgage assets and the extension of the duration of mortgages are also important.

30. For a more analytical assessment of financial stability, staff has conducted a stress test designed to assess the banks' ability to absorb potential losses due to adverse ecomomic shocks to their mortgage portfolio. A worst-case scenario is assumed on the basis of past experience. In South Africa, the highest level of NPLs for mortgage loans was 7 percent of total mortgages in 1999, after interest rates increased sharply in late 1998. Also, following the house price boom in the early 1980s with its peak in 1984, house prices fell by over 40 percent in real terms within three years.

Table III.8. Stress Testing the South African Banking System's Mortgage Portfolio

Base case and assumptions	End-2004 (Rand billions)
Mortgage loans as of end-2004	406.2
NPLs 1/	9.7
NPLs in percent of mortgage loans	2.4
Collateral 2/	6.5
Collateral in percent of NPLs	67
Provisions held 3/	3.7
Provisions in percent of NPLs	38
Provisions required 4/	2.1
Over/underprovisioning (+/-)	1.6
Scenario:	
(1) New NPLs are equal to 7 percent of mortgage loans.	
(2) The collateral value of mortgages fall by 50 percent.	
New NPLs	28.4
New collateral	3.2
New provisions required 4/	21.8
New over/underprovisioning	-18.1
Old capital adequacy ratio (in percent)	13.3
New capital adequacy ratio (in percent)	11.3

Sources: SARB (Banking Supervision Department 2004 Annual Report) and Staff calculations
1/ NPLs include substandard, doubtful and loss mortgage loans. Substandard loans are assumed to be equal
to 40 percent of overdues (doubtful + loss).
2/ Specific provisions and the market value of collateral cover 105 percent of NPLs.
3/ Specific provisions are equal to 38 percent of NPLs
4/ Provisioning rates are 20, 50, 100 percent for substandard, doubtful, loss loans, respectively.

31. The stress test assumes that the banking system experiences an increase in mortgage NPLs to 7 percent and a 50 percent drop in real estate prices, which would bring real estate prices back to early 2002 levels and reduce collateral values in the same proportion. We find that under such a scenario and using the aggregate banking mortgage portfolio as of December 2004, the average CAR of the banking system would fall to about 11.3 percent from 13.3 percent. This drop is significant, but the average CAR would still remain above the

regulatory minimum of 10 percent. A limitation of this exercise (imposed by data availability) is that it is based on the aggregate banking sector's portfolio and average financial soundness indicators. This approach, therefore, cannot capture the fact that individual institutions might be much worse off and some banks could potentially become undercapitalized as a result of the shocks under consideration. Stress tests undertaken by the SARB have concluded that the banking sector is resilient to a range of plausible adverse macroeconomic events, including a deterioration of banks' mortgage portfolios.

D. Conclusions

32. Continuation of a supportive macroeconomic environment and healthy financial soundness indicators should help the South African financial system weather adverse shocks. However, as in many mature markets, banks' high level of property exposure is a source of vulnerability. In spite of the relative soundness of the South African financial sector, the balance of risks warrant a close monitoring of real estate prices and the household sector. The authorities are cognizant of these issues and have initiated since 2004 a review of the main risks to financial stability in the context of a semi-annual financial stability review. The authorities are also implementing a number of actions to further strengthen and develop the financial system, including FSAP recommendations on the supervisory framework.[6] These actions include steps to help banks prepare for the move to Basel II by January 2008 and for the planned introduction of a deposit insurance scheme.

[6] These measures are described in the staff report for the 2005 Article IV consultation, www.imf.org.

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IV. Unemployment in South Africa: The Role of Labor Market Regulations[1]

A. Introduction

1. Despite an increase in employment during 2003 and 2004, unemployment in South Africa remains stubbornly high. Brisk real GDP growth over the past few years has contributed to some decline in unemployment, to 26.5 percent in March 2005 from over 30 percent in 2002. During the past five years, the government has streamlined labor legislation and introduced active labor market policies to reduce unemployment and, in 2003, announced its goal of halving unemployment by 2014.

2. There are at least three views—not mutually exclusive—on why unemployment is so high. First, a lack of available skills, largely a legacy of apartheid, poses a key structural constraint to investment and labor demand. Second, labor legislation and employment protection policies have some unintended side effects; in this view, the labor market is not as efficient as it could be. Third, official statistics may underestimate employment, particularly in the informal sector.[2]

3. This paper seeks to shed some light on the potential role of labor regulations in explaining the high rate of unemployment in South Africa. To do so, we put developments in a broader perspective and address three questions. Why is unemployment so high in South Africa? How do labor regulations in South Africa compare with those in other countries and what is their impact? How does the authorities' strategy compare with findings in this paper?

4. The paper is organized as follows. Section B presents some stylized facts on South Africa's labor market. Section C looks more closely at the three views on why unemployment is so high. Section D presents some new empirical evidence focusing on the role of labor market inefficiencies. Section E reviews the government's major reform initiatives, including skills development, public works program, and initiatives to foster small and medium-sized enterprises. Section F presents some policy conclusions.

B. Some Stylized Facts

5. Following a period of unemployment that began to rise in the mid-1990s, labor market outcomes started to improve in 2003 (Figures IV.1 and IV.2).[3] Although the labor force grew by 4 percent annually during 1995–2002, employment increased by only about 1¼ percent annually. Changes in the composition of the economy appear to explain part of

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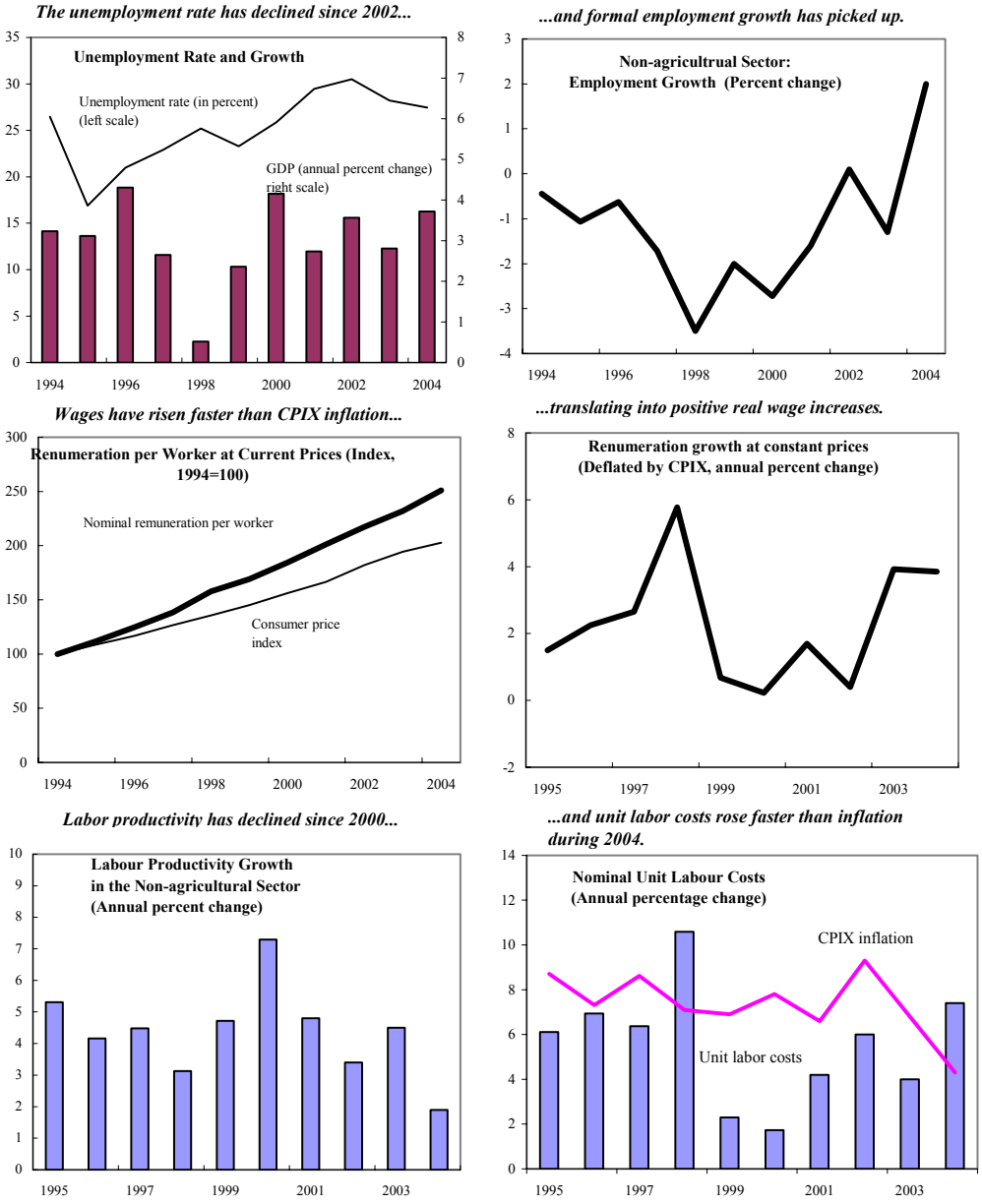
[1] Prepared by Norbert Funke and Victor Lledo (both AFR).

[2] Moreover it is widely acknowledged that structural reforms that would lead to an increase in South Africa's growth potential should also be conducive to job creation.

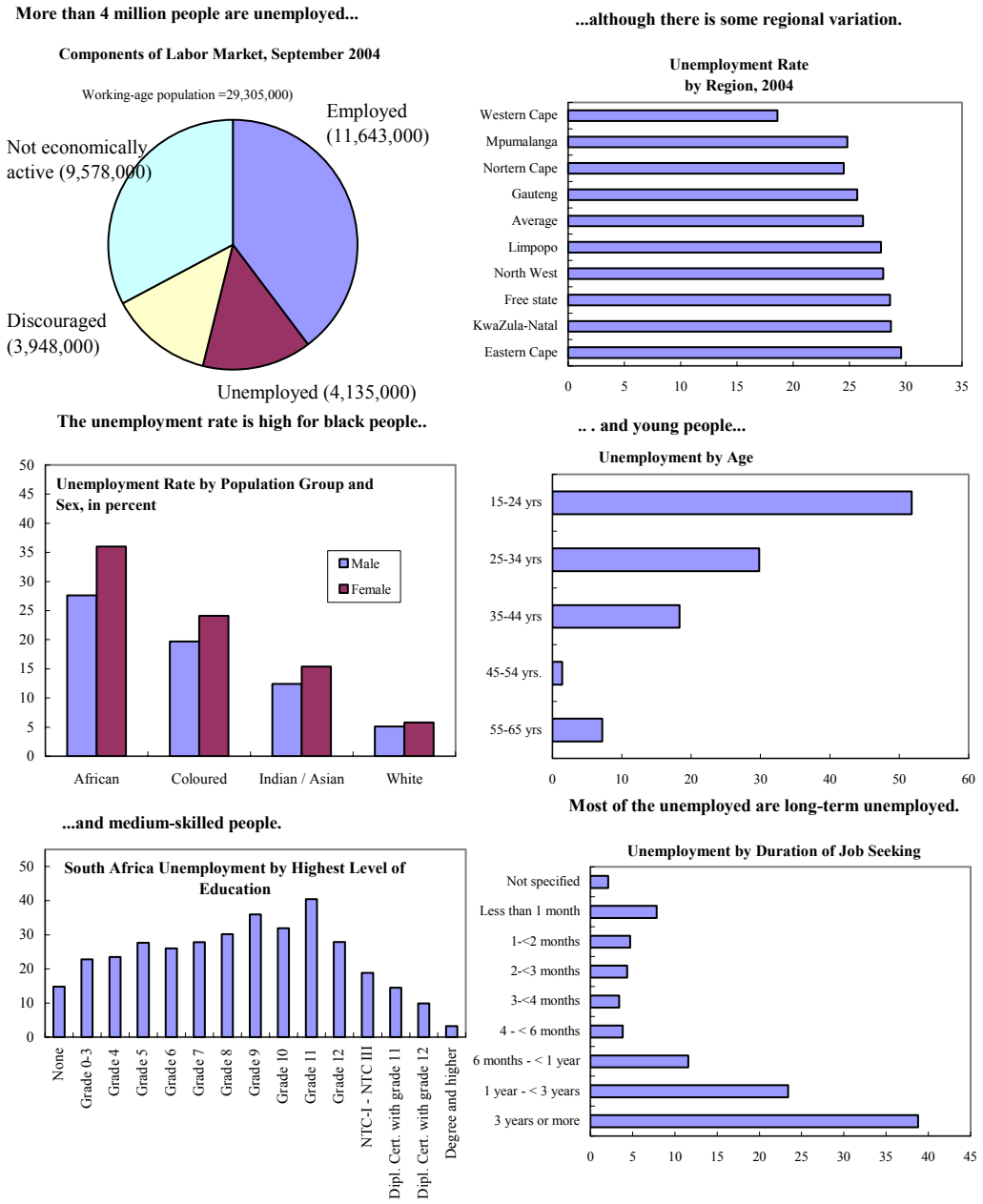
[3] Bhorat (2004) analyzes the South African Labor Market challenges since 1994 in greater depth.

Figure IV.1. South Africa: Basic Labor Market Developments



Source: South African Reserve Bank.

Figure IV.2. South Africa: Unemployment—Some Stylized Facts in 2004

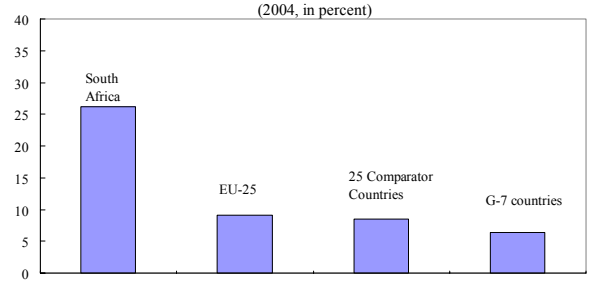


Source: Statistics South Africa.

the slow growth in employment (Arora and Ricci, 2005).[4] The unemployment rate rose to just over 30 percent in 2002, before declining to 26.2 percent in September 2004 and then slighlty edging-up to 26.5 percent in March 2005. While employment continued to grow it was not sufficient to offset the impact of a growing labor force. But the overall unemployment rate hides significant differences in terms of regions, race and gender, age group, and skills.

- The regional unemployment rate varies between 20 percent in Western Cape and close to 30 percent in Eastern Cape, Kwasulu-Natal, and Free State.
- The unemployment rate is higher for black people (exceeding 35 percent for black women) than for any other population group. It is fairly low for whites, on the order of 5 percent.
- Youth unemployment is particularly severe, with 70 percent of the unemployed under the age of 35.
- Workers with some skills (with grade 11 as highest level of education) face a high probability of being unemployed, the unemployment rate of this cohort is about 40 percent. In contrast, the unemployment rate is more moderate (15 percent) for people with no schooling and much lower for highly skilled people (below 5 percent).
- More than 50 percent of the unemployed have been seeking a job for at least one year, and more than a third of the unemployed have had no job during the last three years.

Figure IV.3. Unemployment Rate: International Comparison
(2004, in percent)



1/ Countries with per capita income between US$1,000 and US$15,000, a population > 10 million, and a sovereign foreign currency rating of B or higher.
Sources: IMF, World Economic Outlook.

6. The unemployment rate in South Africa, which is high by international standards is more than twice as high as the average of a group of 25 comparator countries. However, South Africa's informal sector appears to be much smaller than in other emerging market economies. Whereas employment in the informal sector accounts for 20 percent of total employment in South Africa, it is estimated to be above 50 percent in countries such as Brazil, Mexico, Indonesia and the Philippines.

[4] Casale, Muller, and Posel (2004) argue that some portion of the increase in employment may be the result of changes in data definitions.

7. Over the past decade, South Africa has reformed its labor legislation and the process by which wages are determined. South Africa's post-1994 labor legislation aims to strike a balance between strengthening the rights of workers and avoiding increasing firms' costs. The wage formation process centers on four different types of mechanisms: collective bargaining with extension of the agreement to parties not participating in collective bargaining, the setting of minimum wages on a sectoral level by a statutory wage-fixing body (sectoral employment standards), voluntary collective bargaining at the plant or enterprise level, and direct contracts (see Box 1).

C. Why Is Unemployment so High?

Data deficiencies

8. Data deficiencies, particularly in the data measuring informal employment, may possibly play a role in explaining the high rate of unemployment. A striking feature of the stylized facts is that informal employment is apparently much lower in South Africa than in other emerging markets (see Kingdon and Knight, 2004). Although there is no commonly agreed definition of "the informal sector" internationally, three criteria are used: (i) registration of a business; (ii) employee registration, which commits the employer to pay benefits; and (iii) size of businesses (South African Treasury, 2005, p. 42).[5] Because informal employment is inherently difficult to measure, South Africa's low recorded share of informal employment may, at least in part, reflect data deficiencies. But other reasons may also play a role in explaining low informal employment in South Africa. For example, some people may prefer to remain unemployed or inactive rather than take a job in the informal sector because of the high reservation wage. It is unclear why the reservation wage in South Africa should be higher than in other emerging markets, although, theoretically, generous transfers within households or high transportation costs from rural areas and former townships to cities, where most of the jobs are, could play a role.

9. Results of a recent IMF technical assistance mission suggest that South Africa does, indeed, suffer from data deficiencies, but it is unclear how important they are. The technical assistance mission examined the Labor Force Survey questionnaire, sampling methods, estimation methods, and adherence to International Labor Organization (ILO) recommendations for employment and unemployment statistics. Its findings suggest that improvements to the questionnaire and techniques are needed. Recommended improvements

[5] In South Africa, "the informal sector consists of those businesses that are not registered in any way. They are generally small in nature, and are seldom run from business premises. Instead, they are run from homes, street pavements or other formal arrangements" (Statistics South Africa Labor Force Survey, September 2004, p. xxv).

Box IV.1. Labor Legislation and Wage Formation in South Africa

South Africa's labor legislation rests on the following statutes:

- **The Labor Relations Act** defines the relations between employers, employees, and unions.[1] It manifests the right to participate in the formation of trade unions, promotes collective bargaining at the sectoral level, regulates the right to strike and the recourses to lockout, and outlines the procedures for the resolution of labor disputes through statutory conciliation, mediation, and arbitration (for which purpose the Commission of Conciliation, Mediation, and Arbitration has been established).

- **The Basic Conditions of Employment Act (BCEA)** sets the minimum standards for employment, including the work week, annual leave, overtime, maternity leave, and rules regarding the termination of contracts. No terms in a formal employment contract can be less favorable. The BCEA also defines the institutional framework for sector-specific minimum wages.

- **The Employment Equity Act** addresses discrimination issues and promotes fair treatment and equal opportunities for groups, that have historically experienced some disadvantages, such as blacks, women, and people with disabilities. It contains affirmative action measures for firms, exceeding a specific size.

- **The Skills Development Act** aims to encourage workers, unemployed people, and previously disadvantaged people to acquire new skills.

There are four different wage-setting mechanisms in South Africa: collective bargaining with extension of the agreement to nonparticipative parties, minimum wages set on a sectoral level by a statutory wage fixing body (sectoral employment standards), voluntary collective bargaining at the plant or enterprise level, and direct contracts.

- **Collective bargaining,** through bargaining councils, dominates in many sectors. The bargaining system is relatively centralized. Agreements on wages struck between trade unions and the largest employers are extended by law to small and medium-sized enterprises (SMEs), but exceptions can be granted.

- **Minimum wages** are applied in sectors not covered by collective bargaining agreements, namely the agricultural sector, domestic services, private security, and retail sectors. Employment standards and minimum wages are applied on the basis of recommendations of the Employment Standards Commission. There is no single national minimum wage in South Africa. Minimum wages differ across sectors for identical jobs.

- **Collective bargaining at the enterprise level** takes place over and above sectoral collective bargaining, with the terms typically being more favorable for workers and specific to the enterprise.

- **Direct contracting** plays the most important role in the upper market.

1/ The three main labor federations are: The Congress of South African Trade Unions (COSATU), The Federation of Unions of South Africa (FEDUSA), and National Council of Trade Unions (NACTU) .

would tend to increase measured employment and reduce the unemployment rate. However, it is not possible to say that the magnitude of the changes to the estimates would be significant.

Skills

10. Under the apartheid regime, the non white population had great difficulty pursuing an education. Although the low level of workers' skills is likely to contribute to the high rate of unemployment, it is difficult to determine by how much. It appears to constrain labor demand, but employers and employees have different perceptions of its importance. Survey results from South Africa's Bureau of Economic Research indicate that the shortage of skilled labor is the second most important constraint for the manufacturing sector.[6] However, other survey results suggest that less than 10 percent of the unemployed attribute their inability to find a job to a lack of skills.

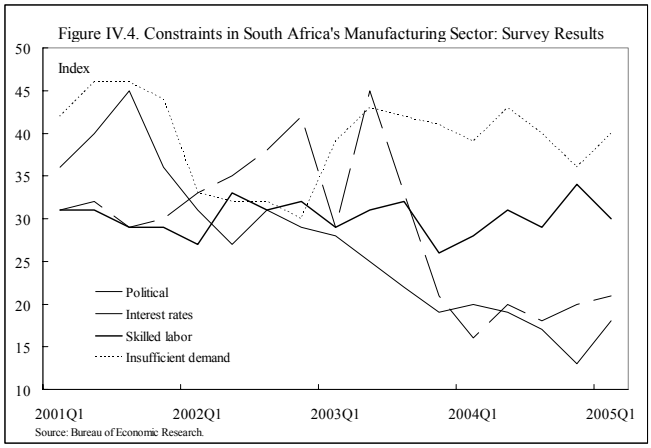


Table IV.1. South Africa: Reasons for Not Working

Reason	Unemployment thousands	In Percent total
Has found a job, but is only starting at a definite date in the	34	0.8
Seasonal	17	0.4
Lack of skills or qualifications for available jobs	357	8.6
Cannot find any work	3,345	80.9
Cannot find suitable work	152	3.7
Recently retrenched	110	2.7
Other reason / other	120	2.9
Total	4,135	100.0

Source: Statistics South

[6] "The survey results are obtained from questionnaires completed by senior executives in the trade, manufacturing and building sectors during the final month of each quarter. The constraint indices are calculated as 2/3 (gross percent of respondents reporting a certain constraint to be a serious problem) + 1/3 (gross percent reporting a slight problem"). See Bureau of Economic Research (2005), "Manufacturing," University of Stellenbosch.

The role of labor market institutions

11. Labor market institutions play an important economic role in that they rebalance bargaining power and provide insurance to workers. Unions can help balance the power between large firms and individual workers during wage and other labor negotiations. Such institutions as minimum wages, social security benefits, and unemployment insurance schemes are intended to protect individual workers. Social security benefits are important in ensuring a minimum pension and health coverage, and unemployment insurance helps reduce an individual's loss of income in the case of dismissal.

12. But poorly designed or overly generous labor market institutions may have unintended side effects and hamper employment creation. Overly generous minimum wages and generous social security benefits lead to a rise in the tax wedge, increase the cost of labor and tend to reduce employment. Widespread collective bargaining limits the ability of individual firms to negotiate wage agreements that reflect their specific circumstances.

D. Empirical Cross-Country Analysis

13. In this section we compare (i) the degree of flexibility of labor market institutions in South Africa with those in other countries, both industrial and developing; and (ii) assess the extent to which labor market inflexibility may contribute to unemployment. Based on standard indicators for industrial countries, previous staff work (Alleyne, 2000) suggests that South Africa's labor market flexibility is roughly in line with that of countries in the Organization for Economic Cooperation and Development (OECD).

Panel analysis

14. We compare labor market institutions in South Africa with those in up to 75 industrial and developing countries over the period 1970-2000. We use five-year period averages and the following indicators for labor market institutions: (i) minimum wages, (ii) trade union density, (iii) employment protection and benefits, and (iv) size of the government sector.[7]

[7] Other variables, such as the tax wedge, are also expected to play an important role. However, comparable time-series data are not available for this large sample. Data are from Rama and Artecona (2002). Scarpetta (1996), IMF (2003) and Nickell (2003) review the empirical literature for OECD countries, and IDB (2004) covers Latin American countries. For a microeconomic analysis based on enterprise survey data for South Africa, see Chandra and others, (2000, 2002).

15. Labor market institutions in South Africa are similar to the average of a large group of countries. In principle higher values for each of the institutional indicators signal less flexible labor markets. For the 1995 to 2000 period, South Africa's institutional indicators were somewhat below the world averages. However, it is noteworthy that whereas South Africa has no single national minimum wage, it does have sector-specific minimum wages, which are not captured here. The sector-specific minimum wage structure is fairly complex. Minimum wages differ significantly for similar types of jobs across sectors and this is likely to limit mobility across sectors. Minimum wages also vary for urban and rural areas.[8]

Table IV. 2. Labor Market Outcomes and Labor Market Institutions

Unweighted averages across groups of countries : 1995-2000

Variable	All	Industrial	Developing	ZAF
Labor market outcomes				
Unemployment				
Total	9.1	8.7	9.4	29.3
Female	11.0	9.8	11.8	38.0
Youth	18.1	15.9	19.1	45.6
Labor force participation				
Total	70.0	71.0	69.8	66.0
Female	54.7	60.3	53.5	49.4
Labor market rigidity indicators				
National minimum wage (Percent of GNI per capita)	55.6	47.0	60.5	n.a 1/
Union membership (Percent of Labor Force)	18.8	24.8	16.2	16.9
General government employment (Percent of total employment)	10.2	20.9	9.6	9.4
Social security contribution (Percent of GDP)	4.7	10.4	2.2	0.5
Monthly unemployment benefit (Percent of monthly job earnings)	49.9	55.0	47.3	45.0

Data source : Rama and Artecona (2002).
1/ There is no national minimum wage in South Africa

16. In the following panel estimation, the total unemployment rate is used as dependent variable. The rigidity of labor market institutions is measured by an index that combines the variables from each of the categories described above.[9] The index is a simple average of the normalized values of the variables.[10] It ranges between 0 and 1 for each period, with higher

[8] For example, minimum wages in the domestic sector for workers who work more than 27 hours in rural areas are about US$115 (R754.65) per month and in urban areas US$140 (R930.15) per month.

[9] Ideally, one would like to include in the regression all institutional indicators simultaneously so as to identify their individual effects without incurring an omitted variable bias. However, the observed high colinearity among some of the institutional indicators (for instance, the correlation between trade unions and public employment is above 0.5) would produce estimates with high variance, thus compromising their accuracy.

[10] The choice of indicators was motivated by data availability. The normalization procedure consists in transforming each of the indicators in a variable between 0 and 1 that ranks countries for each period in this continuum. Let x_i, x^{max}, x^{min} be, respectively, the variable x for country i along with the maximum and minimum across all countries in any given period. Its normalized value x_{0i} therefore equals $\frac{x_i - x^{min}}{x^{max} - x^{min}}$. The index takes the simple average of the existing variables whenever there are missing values.

values indicating less flexible labor markets. As additional control variables, we include indicators for macroeconomic performance, trade openness (which can be interpreted as an indicator of competitiveness), and demographic characteristics of the labor force.

17. Our results suggest that labor market rigidities are associated with a higher rate of unemployment. The index of labor market rigidity has the expected positive sign and is statistically significant in the presence of a number of controls. Values for its estimated regression coefficient are relatively stable throughout various specifications.

Table IV.3. Unemployment and Labor Market Institutions: Panel Regression Results 1/

Variable	(i)	(ii)	(iii)	(iv)	(v)
Constant	2.758 ***	3.059 *	24.959 ***	15.738 ***	17.57 ***
	(3.37)	(1.83)	(3.42)	(3.64)	(3.91)
Index of labor market rigidity	5.311 ***	12.988 ***	10.184 **	10.587 **	
	(2.77)	(3.27)	(2.56)	(2.71)	
Index of labor market rigidity modified 2/					8.692 *
					(1.80)
Productivity growth		-0.019 *	-0.025 **	-0.027 **	-0.030 **
		(-1.67)	(-2.17)	(-2.38)	(-2.63)
Change in CPI inflation rate		-0.001 ***	-0.001	-0.001 **	-0.0004 **
		(-3.27)	(-2.37)	(-2.15)	(-1.97)
Real interest rate		0.010	0.040	0.042	0.043
		(0.14)	(0.54)	(0.58)	(0.56)
Trade openness			-0.145 ***	-0.18 ***	-0.19 ***
			(-2.85)	(-3.54)	(-3.60)
Growth, ages population 15-64				0.102	0.12
				(1.24)	(1.36)
R^2 adjusted	0.21	0.25	0.33	0.40	0.37
Number of cross-sections (countries)	75	49	48	45	45
Number of observations	313	123	120	114	114

* denotes ignificant at the 10 percent level;
**denotes significant at the 5 percent level;
*** denotes significant at the 1 percent level.
1/ Dependent variable is total unemployment. t-statistics in parentheses. Regressions include time-effects.
2/ Excludes government employment.

18. The following additional findings emerge from our analysis.

- Several macroeconomic shocks have a statistically significant impact on unemployment (column ii, see also Blanchard and Wolfers, 2000). Lower labor productivity growth can result in higher unemployment to the extent that real wages keep rising relatively fast. Disinflation can also cause an increase in unemployment, particularly if it is not fully anticipated and if the wage formation process is backward-looking. Higher real interest rates tend to restrain economic activity and may therefore contribute to higher unemployment. However, the coefficient on real interest rates is not significant at conventional significance levels.

- Trade openness contributes to a decline in the unemployment rate (columns iii and iv).[11] Our results indicate that additional trade liberalization should be conducive to a reduction in unemployment. Openness may stimulate competition, which, in turn, may lead to the use of more efficient production methods, with positive effects on growth and employment. Moreover, Ahmed, Arezki and Funke (2005) show that additional trade liberalization could help increase South Africa's attractiveness as a destination for foreign direct investment, which could also stimulate employment and growth.

- Although demographic changes may also have an impact on unemployment, the coefficient for the growth in the working-age population, presented in column iv is statistically insignificant, though with a positive sign.

19. Results are also relatively robust with respect to changes in the calculation of the labor market rigidity index. Theoretically, the size of the government sector may have an ambiguous effect on unemployment, although there is some empirical evidence that a larger government sector is associated with higher rates of unemployment.[12] Column v presents estimation results for a modified labor rigidity index that excludes the government employment component. The results are similar to those in column iv.

20. Overall, these results suggest that a reduction in labor market inflexibilities can be expected to lower the unemployment rate. But, as measured by these indicators, South Africa's labor market institutions are similar to those in many other countries. The indicators used so far are fairly broad and may not capture some important constraints. Anecdotal evidence suggests that the costs of dismissing workers are relatively high in South Africa (see also Levy, 2003); and these are not captured in the above indicator.

The role of the cost of hiring and dismissing workers

21. In this section, we compare labor market inflexibilities, using a new data set that focuses more specifically on the cost of hiring and dismissing workers. The World Bank's 2004 Cost of Doing Business Database measures the flexibility of labor laws on the basis of alternative indicators: (i) the difficulty of hiring a new worker[13], (ii) restrictions on expanding or contracting the number of working hours, (iii) procedural difficulties of dismissing a redundant worker, (iv) an average of the three indices (rigidity of employment index), and (v) the pecuniary cost of dismissal ("firing costs").

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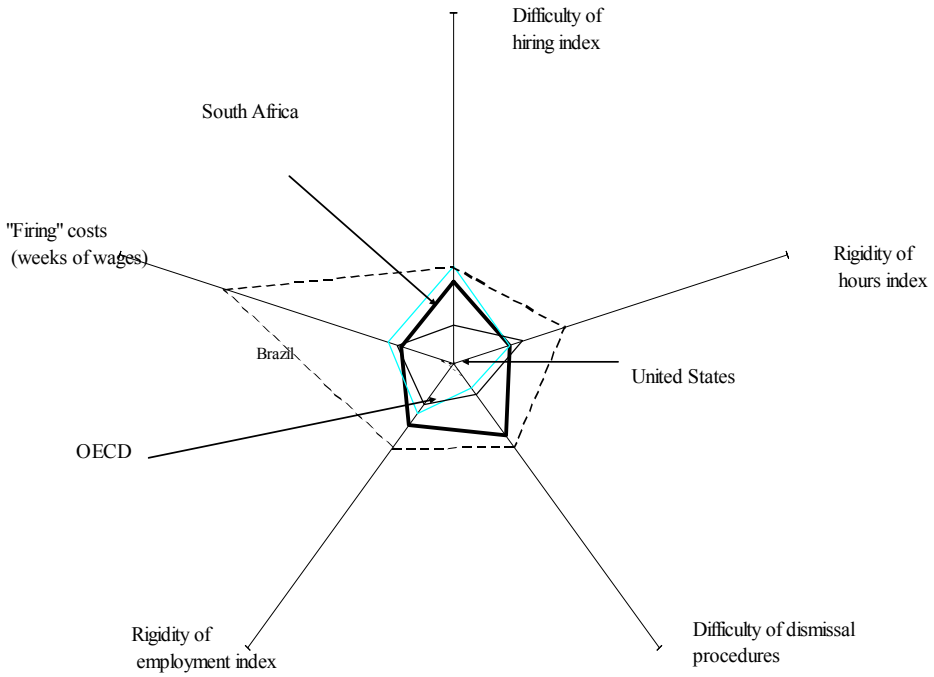
[11] Trade openness is defined as the sum of total exports and imports as a share of GDP.

[12] See, for example, Rama and Artecona, 2002.

[13] This index comprises information on the availability and flexibility of part-time contracts and fixed-term contracts as well as information on minimum wages.

22. On the basis of these new indicators, South Africa's labor laws are somewhat more inflexible than those in other regions but less inflexible than, for example, Brazil's (Figure IV.5, Table IV.4) [14] This is true in particular, of the difficulty of hiring and dismissal. The costs of dismissing and retrenching workers represent a significant proportion of the total labor costs facing businesses and, therefore, act as a deterrent to the recruitment of new workers. Legislative amendments passed in 2002 have helped streamline reconciliation and arbitration procedures, but some bottlenecks remain.

Figure IV.5. Labor Market Inflexibilities



[14] The labor indices were substantially revised between 2003 and 2004 following comments in various presentations and the publication of the background paper (Botero and others 2004). So while there was no reform of labor legislation in South Africa during that period, the 2004 indicators made it look worse than in 2003.

Table IV.4. Labor Market Rigidity1/

	Difficulty of Hiring Index	Rigidity of Hours	Difficulty of Dismissal Procedures	Rigidity of Employmen Index
East Asia and	20	30	22	24
Europe and Central	31	51	42	41
Latin America and Caribbean	44	53	34	44
Middle East and North Africa	22	52	40	38
OECD: High	26	50	26	34
South Asia	37	36	53	42
Sub-Saharan	53	64	50	56
South Africa	56	40	60	52

Source: World Bank, Cost of Doing Business,

1/ A larger value of the indicator implies more cumbersome or costly hiring and dismissal procedures. The index in the last column is an average of the other three indices.

23. The lack of time-series data makes it difficult to estimate properly the effect of these rigidities on unemployment. Results from a simple cross-section analysis suggest that a 10 percentage point reduction in the labor market rigidity index may, on average, be associated with a reduction in the unemployment rate of about ½ of 1 percentage point. At first glance, this effect may appear small. However, the results refer to an average country in the sample, with an unemployment rate of below 10 percent. Moreover, this index focuses on hiring and dismissal procedures and does not capture the effects of other labor market institutions.

E. Ongoing Initiatives to Reduce Unemployment

24. The authorities are using several instruments to reduce unemployment. For example, they are implementing a National Skills Development Strategy, and in the 2005 budget, they introduced measures to support small business development. Other initiatives focus on young people.

25. In March 2005, the government launched the Nationals Skills Development Strategy (NSDS) for the period 2005 to 2010. Similar to its predecessor (NSDS 2001-05), the new NSDS aims to enhance people's skills through training initiatives and learnership programs. The strategy also has equity targets, and all social partners have agreed to aim at accelerating Broad-Based Black Economic Empowerment and Employment Equity. More than three million workers have received training since 2001. By October 2004, the government has already met its March 2005 target of having 80,000 people under the age of 35 in learnerships. The NSDS is funded through the skills development levy, a 1 percent payroll tax. Employers offering training receive a partial refund of the levy. Moreover, the 2005 budget proposes widening the relief for small businesses from this tax.

26. An expanded public works program, launched in 2004, is designed to create one million temporary jobs within the next five years. This labor-intensive program seeks to promote economic growth and development by offering people temporary jobs while they acquire skills. Employment opportunities are created in government-funded infrastructure projects, environmental and cultural programs, and social programs involving home-based care and early childhood development.

27. Among other measures in the 2005 budget are several designed to foster small businesses: tax relief, streamlined filing obligations, and administrative assistance. More specifically, the 2005 budget proposes to put in place (i) community tax helpers to educate and help small businesses with tax administration; (ii) a small business help desk in the form of a call center; (iii) accounting and payroll packages for small businesses in the form of software and web-based systems; (iv) a small retailers value-added tax (VAT) package, which provides small businesses for a simplified method of accounting for the VAT; and (v) VAT education. The promotion of small businesses may be expected to generate additional employment.

28. The government has set up other initiatives with a view, in particular, to tackling youth unemployment. In 2001, it established the Umsobomvu Youth Fund to address the challenges facing the youth in the country. Its mandate is to promote job creation and skills development among young people between the ages of 18 and 35 by making strategic investments to contact, inform, and counsel youth groups; and by creating opportunities for young people to acquire skills and pursue meaningful self-employment opportunities. In a broader perspective, the National Youth Service is a program that engages young people in providing services to the community. It helps participants obtain on-the-job learning while providing a service to the community.

F. Policy Conclusions

29. The evidence presented in this paper suggests that low skills and labor market inflexibilities contribute to South Africa's high rate of unemployment. It is apparent that a multifaceted strategy is needed to tackle the problem. Because of possible statistical deficiencies, employment in the informal sector may not be measured accurately. Yet it is difficult to gauge the contribution of each of these factors to unemployment. The relatively small size of the informal sector remains somewhat of a puzzle and requires further investigation. Although improvements to the Labor Force Survey—to the questionnaire and techniques—may shed further light on this issue, it is not possible to say that the magnitude of the changes to the unemployment estimates would be significant.

30. The authorities' strategy for reducing unemployment—a top official priority—comprises a number of useful initiatives: the programs to enhance workers' skills and provide temporary jobs in infrastructure and other projects, as well as measures to foster small business development.

31. The empirical evidence presented in this paper suggests that an easing of labor market inflexibilities tends to lower unemployment. Ongoing initiatives need to be reinforced with labor market reforms that reduce the cost of labor.

- Although South Africa's labor market institutions are, in some ways similar to the OECD average, South Africa scores lower than comparator countries in some areas, such as how difficult is to dismiss workers. The government could stimulate job creation by further streamlining dismissal procedures, as well as by educating stakeholders on the legal requirements for dismissal; reportedly some of the costs arise from misinterpretations of the law.

- Reforms should include reducing the scope of centralized collective bargaining. Although reducing the administrative and regulatory burden for small businesses, as announced in the 2005 budget, is a step in the right direction, job creation is most likely constrained by collective wage bargaining. The extension principle, by which agreements on minimum wages struck between unions and employers are extended to small and medium–sized companies (SMEs), reduces wage flexibility. Although labor laws allow for exemptions, which have often been granted, the process of applying for an exemption can be expected to increase costs. International experience confirms that, in a number of countries with a relatively low rate of unemployment, the wage formation process for SMEs is characterized by considerable flexibility, for example in the form of bargaining at the enterprise level.

- The minimum-wage structure should be reviewed and simplified. Although there is no single national minimum wage in South Africa, the sector-specific minimum wage structure is fairly complex and likely to limit mobility between regions and sectors. Simplifying the minimum wage structure and moderating periodic minimum-wage adjustments to reduce labor costs would stimulate job creation and facilitate mobility across sectors and industries.

32. Given South Africa's recent strong economic performance and generally favorable outlook, it is an opportune time to move ahead quickly with critical reforms of the labor market.

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V. TRADE POLICY ISSUES IN SOUTH AFRICA[1]

A. Introduction

1. South Africa's trade regime has undergone significant transformation since the end of the apartheid era. Over the second half of the 1990s, the trade regime was substantially liberalized, both unilaterally and in response to multilateral commitments entered into through the WTO. The more recent past has been characterized by the negotiation of a series of regional and bilateral trading arrangements. This paper provides an overview of these developments and considers some of their potential implications.

B. The Evolution of South Africa's Trade Policy Framework

Trade liberalization in the post-apartheid era

2. South Africa had a highly distorted system of protection in the early 1990s. About one sixth of tariff lines were subject to import controls, with great sectoral variation; while most sectors were relatively free of controls, some sectors were highly restricted, including agriculture (about 74 percent of tariff lines), food, beverages, rubber, tobacco (about 90 percent), and clothing (59 percent). The trade regime was highly complex, with a large number of tariff lines and tariff rates, a wide range of tariffs, and a very high level of dispersion (as measured by the coefficient of variation). A generalized subsidy program was available to exporters, with the value of the subsidies related to local content, the level of the exchange rate, and other factors.

3. The impetus for liberalization gained momentum following the end of apartheid. Trade policy was one element of a broad national development strategy that encompassed macroeconomic stabilization, and policies to promote industrialization, strengthen domestic regulatory frameworks, promote education, and establish social safety nets. South Africa adopted a two-pronged approach to trade liberalization, focusing on: (i) multilateral trade liberalization in the context of the Uruguay Round of trade negotiations; and (ii) unilateral trade liberalization.

4. Multilateral liberalization was initiated through the offer made to the WTO in 1994, involving comprehensive trade policy reform with a commitment to, among other things:

- reduce industrial tariffs by one third during 1995-2000, with the exception of sensitive industries (textiles, clothing, and motor vehicles) which were to be liberalized by 2003;

[1] Prepared by Robert Burgess (PDR).

- increase the share of bound industrial tariff lines from 55 to 98 percent; and reduce the number of tariff rates to six
- lower bound agricultural tariffs by 21 percent on average
- convert quantitative restrictions and formula duties to bound ad valorem tariff rates
- terminate export subsidies by 1997.

At the same time, South Africa cut some tariffs unilaterally such that, on average, applied tariffs fell well below rates bound in the WTO.

5. South Africa's trade regime was thus substantially liberalized by 2002. Export subsidies under the Generalized Export Incentive Scheme were scrapped in 1997. Virtually all quantitative restrictions were eliminated; the tariff regime was rationalized, with the number of lines and tariff bands significantly reduced. And the simple unweighted average Most-Favored-Nation tariff rate declined over 20 percent in the early 1990s to 11.4 percent in 2002. Tariff reductions were front-loaded during this period. The reduction in average tariff rates since 1997 has been more measured and is broadly in line with the pace of tariff reductions in a number of other emerging markets (Table V.1).

6. Trade liberalization contributed to a rapid expansion of trade flows. The economy has become much more open, with the share of trade in GDP increasing from its low point of about 33 percent of GDP in 1992 to over 50 percent of GDP since 2000. The structure of trade has also become more diversified, with South Africa gradually becoming less reliant on exports of primary commodities.

7. Trade liberalization is, moreover, thought to have had a substantial positive impact on South Africa's growth rate. In a cross-section analysis based on 24 manufacturing industries, Jonsson and Subramanian (2000) show that as much as 3 percent of the annual growth rate of manufacturing industry can be ascribed to trade liberalization during 1990-97. They also find evidence to suggest that employment fell by less in those sectors where tariffs were reduced more aggressively. More recent work by Edwards and van de Winkel (2005) tends to confirm that trade liberalization has enhanced competition in the manufacturing sector. They find that the reduction in tariff protection in the manufacturing sector from 1995 to 2002 reduced price mark-ups by about 15 percent.

Outstanding issues in the current trade policy regime

8. Despite the impressive progress in the mid-to-late 1990s, the trade regime remains relatively complex. About one quarter of tariff lines continue to carry non ad valorem tariffs,

including formula duties.[2] The number of tariff bands remains high, with ad valorem duties applied at 39 different rates, ranging between 0 and 55 percent. Certain sectors also remain quite heavily protected, especially fisheries (for which import permits are still required and tariffs are largely unbound) and textiles and clothing where average tariffs are 30 percent or higher). The authorities are therefore developing proposals to further simplify the tariff structure that will involve significant reductions in the number of tariff bands and the application of ad valorem duties for most items.

Table V.1. Cross-Country Comparison of Average Tariff Rates 1/

	1997	2001	2004 2/
South Africa	**15.1**	**12.0**	**11.4**
SADC 3/ 4/	22.8	20.0	15.5
Argentina	14.0	13.6	12.6
Brazil	12.0	13.0	10.4
Chile	11.0	8.0	5.9
Mexico	14.0	17.3	17.3
Uruguay	9.9	12.0	12.9
China, Peoples Republic of	17.6	15.9	10.5
Indonesia	13.0	6.8	6.9
Korea	9.0	12.5	12.8
Malaysia	8.1	9.2	8.4
Philippines	13.4	7.7	7.5
Thailand	17.0	15.4	14.7
Czech Republic	7.0	6.0	6.5
Hungary	14.3	11.7	6.5
Poland	18.7	13.9	6.5
Russian Federation	12.6	11.3	11.1
Turkey	13.4	12.6	12.7
Egypt	35.5	30.2	9.1
Tunisia	30.0	35.9	31.6
Australia	5.7	4.3	4.2
New Zealand	5.3	3.8	3.1
Canada	5.8	7.2	6.8
EU	10.0	6.9	6.5
Japan	5.6	6.9	6.3
United States	6.6	5.4	5.1
Memorandum item:			
Average selected emerging markets 3/	*15.0*	*14.1*	*11.3*

Source: WTO and IMF Staff Estimates
1/ Unweighted mean of all tariff lines and includes other duties and charges.
2/ Figures for 2004 are latest available year (2002 for South Africa).
3/ Unweighted average.
4/ SADC countries excluding members of South African Customs Union.

[2] Formula duties are typically based on domestic reference prices for a particular product, with tariffs applied or increased if the international price of that product falls below the domestic reference price. Maize (South Africa's most important field crop) and wheat, for example, carry formula based duties.

9. Comparisons of tariff protection are always difficult but are further complicated in South Africa by the presence of non ad valorem tariffs. Nevertheless, they tend to confirm that average tariff rates in South Africa are similar to the average in other emerging markets but above the average in advanced economies (Figure V.1.).[3] The complexity of the regime is also evident, with the number of tariff peaks (i.e., tariff lines carrying tariff rates in excess of 15 percent) and the share of non ad valorem duties in South Africa tending to be somewhat higher than the average for a sample of comparator countries.[4]

10. South Africa continues to encourage exports through a range of incentive schemes, the costs of which are unclear. Some are quite general and can be found the world over. For example, various forms of marketing assistance are available through the Export Marketing and Investment Assistance Scheme. Export processing zone type facilities, offering exporters duty-exempt imports of production-related raw materials and inputs, are also available through recently established Industrial Development Zones. Other sector-specific incentives, however, are designed more specifically to develop new export markets, broaden the export base, and provide assistance to disadvantaged industries. The success of such schemes is debatable and their costs are unclear.[5] The most prominent relates to the automotive industry through the Motor Industry Development Program (MIDP) (Box V.1).

C. Regional Trading Agreements

11. One notable feature of the recent evolution of South Africa's trade policy regime has been the increase, either actual or prospective, in the number of bilateral and regional trading arrangements. South Africa is a very active participant in the current Doha Development Round of trade negotiations. It has provided leadership and support to other developing countries, and played a central role in the emergence of the G-20 group of developing countries, which adopted a common negotiating position on agriculture at the fifth WTO Ministerial in Cancun in September 2003. But motivated in part by a lack of progress with multilateral trade negotiations, South Africa in concert with its SACU partners has embarked on a fairly aggressive strategy to conclude a range of new bilateral and regional free trade arrangements. South Africa is of course not alone in this regard. These and other key existing arrangements are discussed in turn below.

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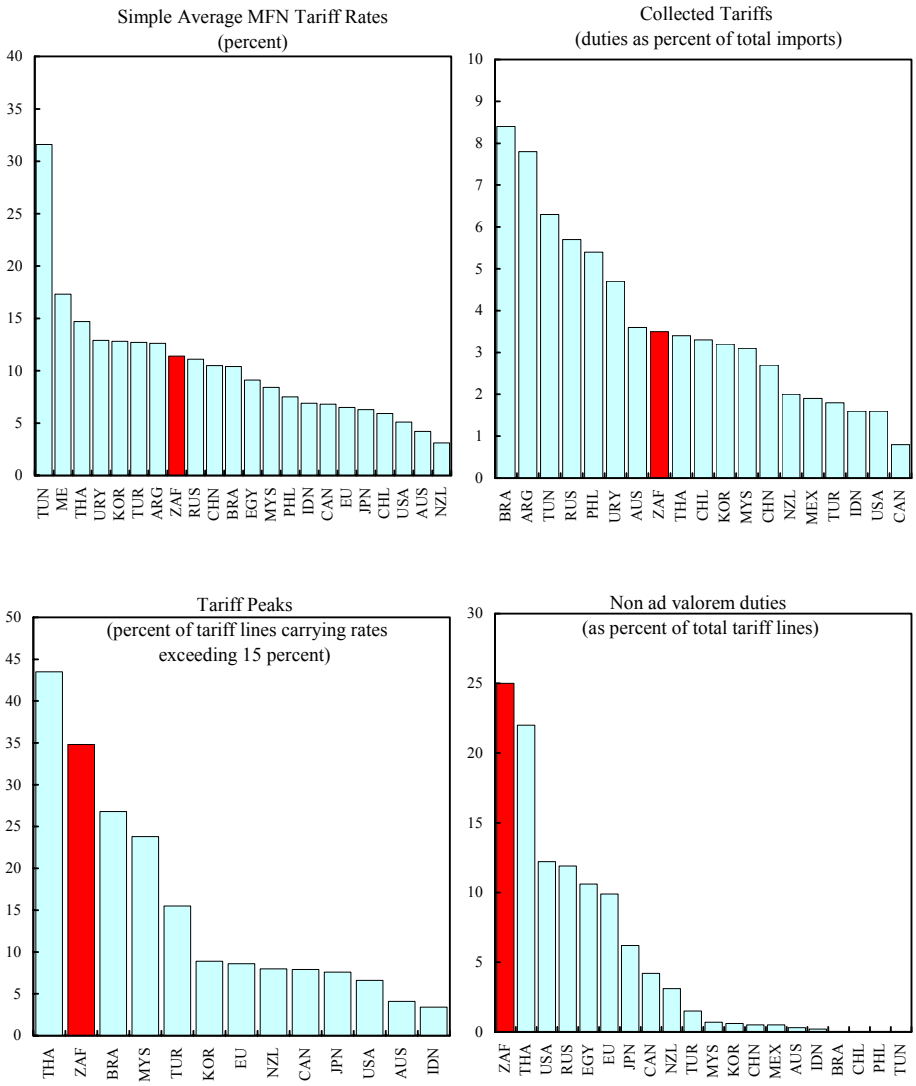
[3] Recent work by the World Bank (2005), which attempts to estimate the distortionary effect of trade barriers, suggests that trade restrictiveness may be lower than average in South Africa, given its stage of economic development.

[4] The sample of countries shown in Figure V.1. reflects selected industrial countries and larger emerging markets and is based on the availability of data in recent WTO Trade Policy Reviews.

[5] The WTO, for example, has argued that special programs for manufacturing industries in South Africa have not had the desired impact on growth, employment, or income distribution. See WTO (2003).

Figure V.1. South Africa: Cross Country Comparison of Tariff Indicators



Source: WTO and IMF staff estimates

Box V.1. The Motor Industry Development Program

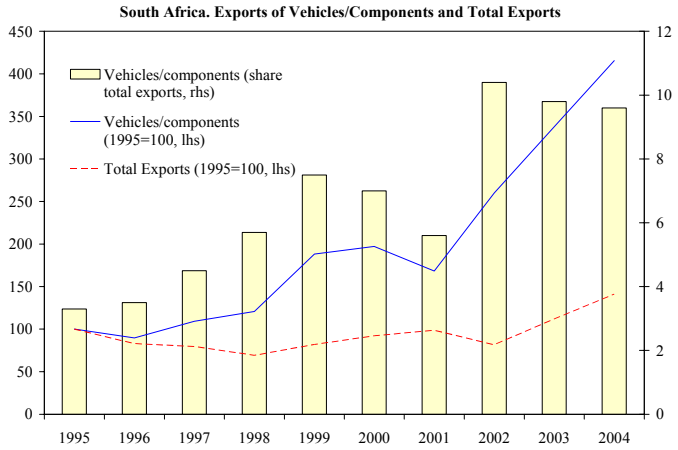
As in many other countries, there is a long history of government support for the auto industry in South Africa. The establishment of the Motor Industry Development Program (MIDP) in 1995 marked a major shift in the nature of this support. Traditional local content requirements were abolished, consistent with the WTO agreement on Trade Related Investment Measures (TRIMS), and replaced by: an immediate reduction in tariff rates and establishment of a tariff phase-down schedule; a duty free allowance of 27 percent of the value of vehicles produced for the local market; and import rebate credit certificates (IRCCs), which enable exporters to earn tradable duty rebate credits in proportion to the local content of their exports.

Since its inception, the MIDP has been reviewed twice. Following the first review in 1999/2000, the program was extended from 2002 to 2007. The value of IRCCs was reduced through a further gradual reduction of import tariffs (see table). The "qualifying" value of exports was also slated to fall from 100 percent to 70 percent of the local content value of exported cars (and from 65 to 60 percent for exported components) by 2007. Offsetting this, however, was a new Productive Asset Allowance (PAA), under which investments aimed at increasing production for the export market earned duty credits worth 20 percent (phased over 5 years) of the investment. The MIDP was further extended to 2012 following the most recent review in 2002. Import tariffs are set to fall further, although the phase down in the qualifying value of exported cars to 70 percent was postponed from 2007 until 2009.[1/]

Import Tariff Rates

	Vehicles	Components
1995	65	49
2005	34	27
2007	30	25
2012	25	20

The MIDP has had a major impact on the South African auto industry, most noticeably in terms of export performance: exports have more than threefold in US dollar terms since 1996 and now account for almost 10 percent of total exports.[2/] The degree of specialization has also increased, with fewer product lines (for both vehicles and components) and larger production volumes. Also, the share of domestic sales accounted for by imports has increased. The impact on employment has been less striking, with most estimates suggesting that employment levels have at best increased only modestly in recent years (although this has been in the context of declining employment in the rest of the manufacturing sector).



[1/] By 2012, therefore, the maximum rebate or credit available through IRCCs for each Rand of local content exported will be Rand 0.175 (i.e., the 25 percent tariff multiplied by the 70 percent qualifying value of exports) compared with Rand 0.65 in 1995.

[2/] Exports may also have been helped by the preferences enjoyed by South African vehicle exporters, although these preferences relative to MFN rates are quite modest. Vehicle exports to the EU face tariffs of 6.5 percent compared to MFN rates of 10 percent, and can be exported free of duty to the US under the Africa Growth and Opportunity Act (AGOA) compared to MFN rates of 2.5 percent.

The MIDP has been criticized because: (i) it is complex and raises compliance costs; (ii) once established, such programs tend to become difficult to remove[2/]; and (iii) incentives available under the MIDP effectively act as subsidies, the ultimate costs of which are borne by consumers. The desire to create a level playing field for exporters has led many countries to establish export processing zones or duty drawback schemes, and these have been recognized as consistent with TRIMS. Under IRCCs, however, the duty credit is based on the local content value of exports (i.e., the opposite of more typical duty drawback schemes). Black and Mitchell (2002) and Flatters (2002) argue that as such it constitutes an export subsidy.[3/] If the domestic price of vehicles is above duty free world prices, IRCCs provide scope for duty free imports which can then be sold at a mark-up. The resulting rents, it is argued, can then be used to boost profits on the sale of domestic vehicles or subsidize otherwise less profitable exports.[4/]

The future of the MIDP is uncertain. A further review of the program is scheduled to take place this year. Tariff rates are already relatively low compared with other Asian and Latin American emerging markets. Under existing plans, however, the value of incentives under the MIDP will decline as tariff rates on vehicles/components are gradually reduced and as the qualifying value of exports is lowered. Incentives could be further eroded by the inclusion of the auto sector in future trade agreements. The preferential tariff rate relative to MFN rates for imports from the EU under the Trade Development and Cooperation Agreement (TDCA), for example, is subject to negotiation.

[2/] See, for example, Pursell (2001) on lessons from Australia's experience with local content programs. It suggests that such programs raise costs and prices and reduce competition and employment.

[3/] Flatters (2002), for example, notes that more traditional duty drawback schemes (under which rebates are based on the value of imported inputs) are available to all manufacturers. The fact that vehicle and component manufacturers register under the MIDP suggests that the resulting credits are worth more.

[4/] Positive duty collection rates on vehicles would indicate the domestic prices are not yet fully determined by duty free world prices. More direct evidence on price differentials is subject to interpretation. Barnes and others (2003), for example, argue that retail prices in South Africa are lower than in the EU. Flatters (2004) and Kaplan (2003) dispute these findings on a number of grounds, arguing, for example, that comparisons of retail prices a not-necessarily meaningful and that the results are skewed by, among other things, temporary exchange rate movements.

Southern African Customs Union

12. The Southern African Customs Union, comprising South Africa, Botswana, Lesotho, Namibia, and Swaziland, is the oldest customs union in the world. Until 2002, trade policy was effectively determined unilaterally by South Africa. South Africa is the dominant economic force within SACU, accounting for 86 percent of the population and more than 90 percent of GDP. South Africa accounts for about three quarters of trade flows for Botswana, Namibia, Lesotho and Swaziland (BLNS), whereas BLNS countries represent a relatively minor trade partner for South Africa.

13. The impetus to "democratize" SACU's trade policy accelerated with the end of apartheid and, following eight years of negotiations, a new SACU agreement was signed in 2002. The main provisions of the new SACU agreement are as follows:

- a common external tariff, zero tariffs on intra-SACU trade, and a common excise tax structure.

- future bilateral and regional trading arrangements must be negotiated with SACU rather than individual member governments (although existing arrangements are allowed to remain in place—tariff preferences therefore continue to differ from one SACU country to another).

- a new institutional structure consistent with shared responsibilities and decision making, with, for example, the discretion to set tariffs moving from the South African Board on Tariffs and Trade to a new SACU Tariff Board. A dispute settlement mechanism was also introduced.

- new arrangements for sharing the revenues from customs and excise duties, which introduce more predictability into revenue flows. The South African share is no longer calculated by residual; the lag between trade and revenue distribution was shortened; and a development component was introduced under which a portion of (excise) revenues are determined according to per capital incomes.[6]

- to foster deeper economic integration, a provision was made for common policies regarding industrial development, agriculture, competition, and unfair trade practices.

- trade facilitation through the further harmonization of customs procedures, standards, and technical regulations, which would reduce costs for traders.

14. Progress towards deeper economic integration within SACU has been slow. While applied customs tariffs, excise duties, customs valuation, rules of origin, and contingency trade remedies have been harmonized, there has been little progress on, for example, customs procedures, standards, tax harmonization, industrial policy, and competition policy (countries retain the right to protect infant industries from other members).[7] In the absence of harmonization, separate border posts have been retained. And no attempt was made to incorporate some of the "second generation" trade issues, such as trade in services and the movement of labor, within the SACU agreement.

[6] For more details on the new revenue sharing arrangements see WTO (2003).

[7] There is, for example, no common policy on standards. South African product standards are generally used in Lesotho and Namibia, whereas Botswana and Swaziland have their own product standards. In a similar vein, SACU members continue to retain separate VAT or sales taxes at somewhat different rates. This can increase transaction costs for traders, encourage smuggling and tax evasion, and distort trade flows.

Southern African Development Community

15. The Southern African Development Community was established in 1992 with the aim of achieving greater economic integration within Southern Africa.[8] South Africa became a member in 1994. The trade protocol, which came into effect in 2000, aims at establishing a free trade area covering 98 percent of merchandise trade by 2012. The schedule of liberalization is asymmetric, with tariff reductions for South African products mid-to-back loaded. In March 2004, SADC announced ambitious plans to deepen regional integration, through the establishment of a customs union by 2010, a common market by 2012, and preparation for a single SADC currency by 2016.

European Union

16. Europe has historically been South Africa's largest trading partner and also accounts for 90 percent of foreign direct investment. The desire to secure long-term preferential access to the EU motivated the Trade Development and Cooperation Agreement (TDCA), which came into force in July 2000. It provides for trade liberalization between South Africa and the EU to form a free trade area by 2012. The agreement covers 95 percent of total EU imports and 86 percent of South African imports, with exclusions covering mainly agricultural products but also aluminum (EU) and petroleum products, some chemicals, textiles, and automotive products (South Africa). Tariffs will also be reduced faster, on average, in the EU than in South Africa, although the asymmetry is not all in the same direction in the sense that South Africa will liberalize a larger share of its agricultural trade (81 percent) than will the EU (61 percent).

17. The implications for other SACU and SADC members were to some extent taken into account in negotiating the TDCA.[9] Some of the exclusions on the South African side reflected sensitive products in Botswana, Lesotho, Namibia and Swaziland, which also benefit from more generous rules of origin.[10] SADC preferences are also built into the TDCA. Under the SADC trade protocol, countries cannot offer trade benefits to a third country without first extending them to all SADC members. South Africa has therefore offered to open its market first to SADC members before extending similar preferences to the EU. As a result, SADC preferences are currently lower than EU preferences.

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[8] Membership comprises the five SACU countries and Angola, Democratic Republic of Congo, Malawi, Mauritius, Mozambique, Seychelles, Tanzania, Zambia, and Zimbabwe.

[9] Unlike South Africa, other SACU and SADC members have preferential access to the EU market under the Cotonou Agreement (the successor to the Lomé Convention) which established EU trade preferences for African-Caribbean-Pacific (ACP) states.

[10] Provided the final stage of processing takes place in South Africa, products made with inputs from BLNS countries are regarded as made in South Africa regardless of the amount of value added in South Africa.

Prospective SACU-wide preferential trading arrangements

18. In concert with its SACU partners, South Africa has recently launched negotiations for a number of preferential trade arrangements, with a number of future negotiations still under discussion:

- The first such agreement, with **Mercosur**, was signed in December 2004.[11] SACU exporters will now face lower tariffs on about 1,000 product lines, with the aim being to eventually establish a free trade area through the further expansion of product coverage.

- Discussions with **EFTA** began in mid-2003 and are expected to be concluded by mid-2005.[12] The aim has been to negotiate a trade agreement that was as close as possible to the TDCA, which would simplify matters for exporters and importers by harmonizing trade relations between South Africa and western Europe generally.

- Negotiations towards a free trade agreement with the **U.S.** were launched in June 2003. The proposed agreement would extend and make permanent the unilateral provisions of the U.S. Africa Growth and Opportunity Act, which is scheduled to expire in 2015. The agreement would extend beyond traditional market access issues to encompass "second generation", including services, investment, intellectual property rights, government procurement, labor and environmental standards (none of which are currently covered in the new SACU agreement). Negotiations were supposed to have concluded by end-2004 but have stalled.

19. Bilateral agreements with Nigeria, China, India, Egypt and Singapore have also been proposed. Substantive negotiations have yet to begin, although a framework agreement for a SACU-India free trade agreement was signed in November 2004.

Policy issues associated with bilateral and regional trade arrangements

20. As has been widely discussed, bilateral and regional trading arrangements can have positive or negative effects on trade depending on their design and implementation. The most important ingredient for success is low trade barriers with all global partners. Nondiscriminatory liberalization (i.e., on a most-favored nation basis), which creates more trade, is thought to be the most efficient way to increase trade among signatories to a preferential trading arrangement. Agreements that minimize the number of excluded products also help to expand the scope for positive net benefits through competition and trade creation. Recent research suggests that non-restrictive rules of origin are also crucial for

[11] Mercosur comprises Argentina, Brazil, Paraguay, and Uruguay.

[12] EFTA comprises Switzerland, Norway, Iceland, and Liechtenstein.

success. Together with MFN liberalization, these ensure that firms can source materials at the lowest cost.

21. One particular problem associated with the proliferation of bilateral and regional trading arrangements has been the number of overlapping arrangements, or the development of the so-called "spaghetti bowl" of agreements. South Africa's position within the African nexus of trade arrangements is shown in Figure V.2. Membership of overlapping regional and bilateral arrangements with different geographical coverage, trade liberalization agenda, and trading rules (e.g., non-tariff measures, phase in periods, and rules of origin) complicates the trade regime. Countries face different access conditions to the South African market depending on which agreement(s) they belong to, and their stage of implementation. The same applies to South African exports. In cases where trade flows are potentially covered by more than one agreement, it is not always clear which one takes precedence.[13] This may distort trade and incentive patterns in an unpredictable manner as well as raising the administrative costs for both enterprises and the government.

22. There are also specific problems associated with overlap. The intention to establish a customs union in SADC, for example, creates an obvious problem in the sense that a country cannot be a member of two different customs unions. The Common Market for Eastern and Southern Africa (COMESA), which includes Swaziland, is also seeking to establish a customs union. Kenya, Uganda, and Tanzania—the first two of which belong to COMESA and the latter to SADC—have already established a customs union (the East African Community). Moreover, MFN tariff schedules are quite different across the membership of potential customs (Table V.2). The adoption of a common external tariff would require

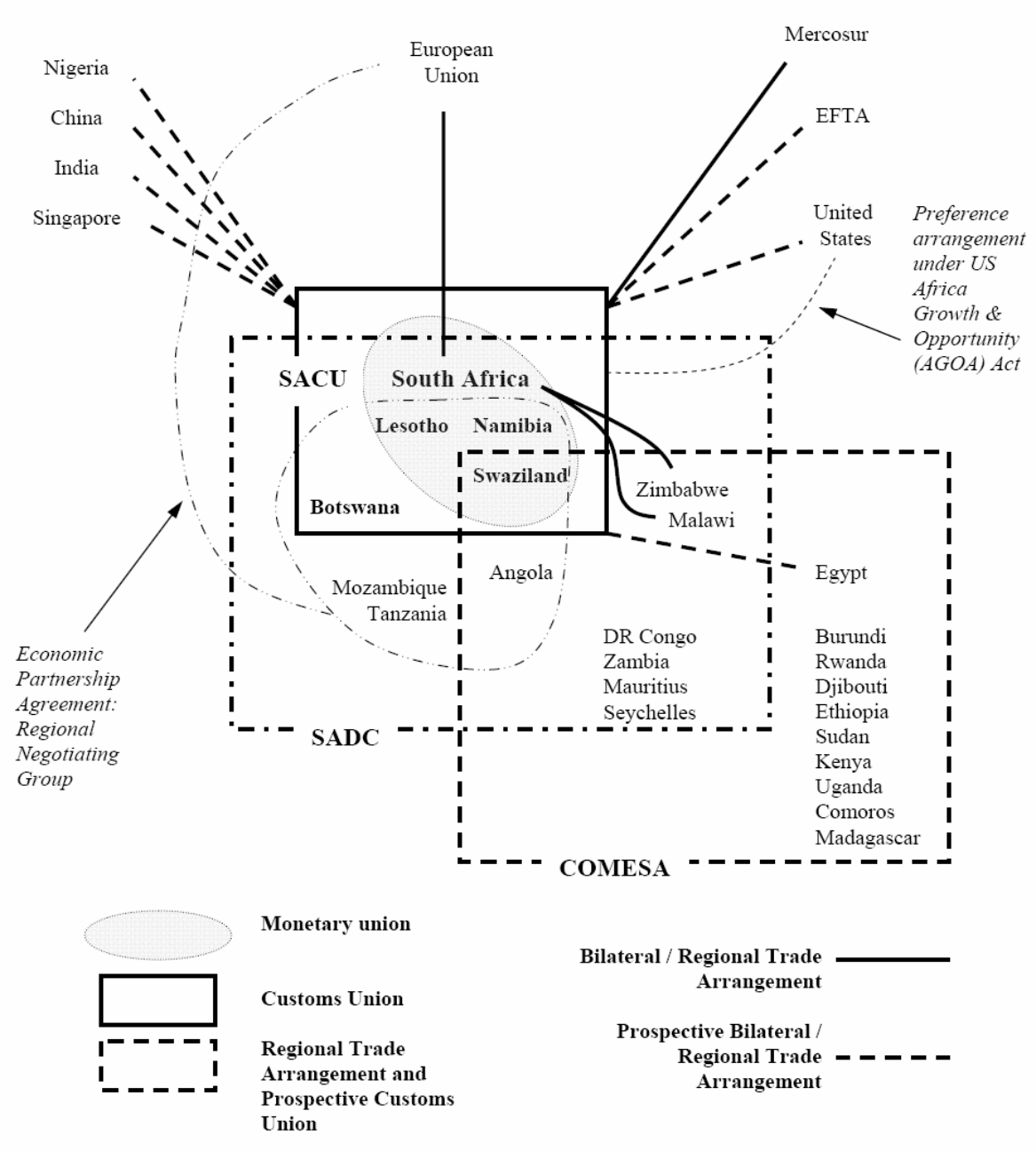
Table V.2. MFN Tariff Schedules - Selected SADC Members

	SACU	Malawi	Mozambique	Tanzania	Zambia
Number of ad valorem tariff bands	39	7	5	4	4
Tariff lines subject to non ad valorem duties (percent)	25	0	0	0	0
Maximum ad valorem tariff rate (percent)	55	30	25	25	25

Source: WTO and IMF Staff Estimates

[13] South African imports of sugar from Malawi, for example, are covered by both a bilateral trade agreement and the SADC trade protocol. Import permits are required under the former but not under the latter.

Figure V.2. The "Spaghetti Bowl" of Africa's Overlapping Trade Arrangements



substantial changes in the MFN regimes of some or all members. This raises the question of the direction in which any harmonization should take place. The MFN schedule of SACU is notably more complex than that of some of its potential SADC customs union partners. The MFN schedules of Malawi, Mozambique, Tanzania, and Zambia by contrast have a much lower number of tariff bands, no specific duties, and more modest tariff peaks.

23. South Africa's trading relationship with the EU also has important implications for some of its neighbors. The current preferential access to the EU which South Africa's SACU and SADC partners enjoy under the Cotonou Agreement will eventually be replaced by Economic Partnership Agreements (EPAs). These are expected to be concluded by 2008. Unlike the Cotonou Agreement, trade liberalization under the EPA will be on a reciprocal basis (i.e., tariffs on imports from the EU will need to be reduced). For BLNS countries, this schedule of liberalization has effectively already been pre-empted under the South Africa-EU TDCA. EPA negotiations have now begun at the regional level, with the BLNS countries and three neighboring SADC countries (Angola, Mozambique, and Tanzania) forming a negotiating group. It seems unlikely that the latter would also accept the TDCA schedule (doing so would imply substantial and rapid liberalization toward the EU without exclusions for sensitive product unless already covered by the TDCA). Another option would be for BLNS countries to retain membership of two distinct reciprocal trade arrangements with the EU. In practice, this would require the retention of robust rules of origin and customs controls between the BLNS countries and the rest of the EPA negotiating group. This would undermine regional integration—one of the purposes of EPAs. A more radical alternative be for SACU to form the core of a new regional customs union that could gradually expand to include other members of SADC, starting perhaps with Angola, Tanzania, and Mozambique.[65]

D. Policy Conclusions

24. South Africa has made significant progress since the end of apartheid in simplifying and liberalizing its trade regime. Nevertheless, there are further gains to be made. Lowering the overall level of protection, harmonizing protection across sectors, reducing the number of tariff bands, and applying ad valorem duties for most items, would enhance competition, increase productivity, and support growth. The future of the MIDP should also be carefully considered in the light of evidence elsewhere that such programs entail significant costs. At a regional level, the potential benefits of the Southern African Customs Union could be more fully exploited through further harmonization of policies in a range of areas. Further opening up through the negotiation of preferential trading arrangements beyond SACU may help to

[65] Some streamlining has already taken place. Tanzania and Namibia, for example, have already left the COMESA agreement. For a more detailed discussion of the problems caused by the proliferation of overlapping preferential trading arrangements in Africa, see Khandelwal (2004) and Yang and Gupta (2005). Specific problems associated with the TDCA and EPAs are discussed in Stevens and Kennan (2004).

promote trade and investment. Experience suggests that the gains from such arrangements are higher where external barriers to trade are low and rule of origin are simple and nonrestrictive. Streamlining existing preferential trading arrangements would also help to reduce trading costs.

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South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
1. Taxes on income, profits, and capital gains			
1.1. Individual income tax Income Tax Act No. 58 of 1962, as amended	A central government tax is charged on taxable income, assessed as gross income less exemptions and deductions, received by South African residents on their worldwide income, with relief for the avoidance of double taxation.[67] Non-residents working in South Africa for short periods are liable for tax in South Africa, in respect of their South African source income, with relief for the avoidance of double taxation. As of February 2005, comprehensive agreements for avoidance of double taxation on the same income were in force with (or applied to) 58 countries, with agreements under (re)negotiation or in the process of signing or ratification with 33 other countries. Cash allowances and non-cash fringe benefits are subject to taxation according to formulas, including employer-owned vehicles, interest free or low interest loans, and residential accommodation. Wage and salary earners are subject to	Exemptions are the first R 15,000 of taxable interest and dividends for taxpayers under 65 years of age and R 22,000 of taxable interest for taxpayers age 65 and over. Dividends from resident companies received by residents and non-residents are generally exempt from tax. Foreign interest and foreign dividends are only exempt up to R 2,000 out of the total exemption. Interest is exempt where earned by non-residents who are absent from South Africa for 183 days or more per annum and who are not carrying on business in South Africa. Other exemptions include: (i) benefits payable under the Unemployment Insurance Act, and (ii) leave gratuities on retirement/retrenchment up to R 30,000. Deductions are allowed for (i) Annual contributions to pension and retirement funds (the greater of R 1,750 or 7½ percent of remuneration from retirement funding employment); (ii) Arrear pension fund contributions (up to a maximum of R 1,800 per annum; any excess over R 1,800 may be carried	For the year of assessment ending February 28, 2005, the following applies: Tax thresholds: Below age 65: R 35,000 Age 65 and over: R 60,000 Rebates (deductible from normal tax determined on taxable income): Primary rebate: R 6,300 Additional rebate: R 4,500 (persons 65 years and older). Tax is calculated on the taxable income of any person under 65 years of age in accordance with the table below: Taxable Annual Income (In Rand) / Marginal Tax Rates (In percent) / Average Tax Rates (In percent) 0 to 35,000 — 0 — 0 35,001 to 80,000 — 18 — 10.1 80,001 to 130,000 — 25 — 15.8 130,001 to 180,000 — 30 — 19.8 180,001 to 230,000 — 35 — 23.1 230,001 to 300,000 — 38 — 26.6 300,001 + — 40

[66] Updated by X. Debrun, Fiscal Affairs Department, July 2005. For further information, see http://www.sars.gov.za or http://www.treasury.gov.za.

[67] The worldwide basis for income taxation was introduced from January 1, 2001.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	withholding at the source (pay-as-you-earn, PAYE). Income tax returns must be submitted at the end of the tax year for salaried persons whose net remuneration is in excess of R 60,000. From March 1, 2002, directors of private companies were made subject to PAYE, according to a formula for withholding. Standard Income Tax on Employees (SITE) falls under the PAYE system; SITE is applicable to net remuneration up to R 60,000 for taxpayers who do not receive travel allowances or any other income. SITE taxpayers are not required to submit income tax returns. In the case of other individuals, provisional payments are required in two half yearly instalments. Provisional taxpayers with a taxable income exceeding R 50,000 may make a third voluntary payment. Individuals below the age of 65 who earn taxable non-employment income of less than R 10,000 a year are not required to register for provisional tax purposes. Individuals age 65 and older are not required to register for provisional tax purposes, if their annual taxable income consists exclusively of remuneration, interest, dividends or rent from the lease of fixed property and is R 80,000 or less. Pensions from South African sources are subject to income tax, with the exception of pensions of war veterans and certain	forward to the following year of assessment); (iii) Retirement annuity fund contributions (up to the greater of 15 percent of non-retirement funding income or R 3,500 less current deductions to a pension fund, or R 1,750. Deductions for arrear retirement annuity contributions are permitted as in (ii)), (iv) Medical expenses (with deduction ceilings depending on age and physical status as handicapped. Deductions are unlimited for taxpayers over 65 years of age); and (v) Donations to approved non-profit organizations (up to 5 percent of taxable income before deducting medical expenses). Allowances are made in respect of subsistence and traveling allowances and advances.	A separate rate of 40 percent applies to trusts, other than special trusts. A special trust is a trust created solely for the benefit of a person who suffers from any mental illness or a serious physical disability.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	disability payments. Pension fund administrators are required to withhold tax at the source (PAYE). Annuities, rental income, and royalties are taxable. The tax year runs from the first day of March to the last day of February.		
1.2. Capital gains tax Income Tax Act No. 58 of 1962, as amended	Capital gains on the disposal of assets are subject to income tax (Schedule 8 of the Income Tax Act).[68] Events that trigger a disposal of assets include a sale, donation, exchange, loss, death and emigration. Non-residents are subject to capital gains tax on South African real estate and shares in companies holding South African real estate.	Exclusions include: a gain of up to R 1 million from the sale of a primary residence; most personal use assets, such as motor vehicles, furniture and collectibles; proceeds from an endowment policy or life insurance policy; compensation for personal injury or illness; and prize winnings from a South African competition (e.g., the national lottery).	For the taxation of capital gains of individuals and special trusts, 25 percent of the net capital gain is included when calculating the tax payable (after deducting the annual exclusion). For companies, close corporations and trusts, 50 percent of the net capital gain is included. The taxable gain is included in taxable income. With these provisions, the maximum effective rate of the tax is: Individuals 10 percent (i.e., 40 percent maximum income tax rate, applied to 25 percent of net capital gains) Companies 15 percent Trusts 20 percent
1.3. Corporate income tax Income Tax Act No. 58 of 1962, as amended	A central government tax levied on the worldwide taxable income derived by South African resident companies, with appropriate relief to avoid double taxation. Taxable income is defined as gross income, other than capital receipts and exempt income, less allowable	Deductions include normal operating costs, Government's cash grants, interest, and depreciation allowances but exclude dividends and capital expenditure. Small businesses are exempted from tax on the first R 35,000 of income.	a. Non-gold mining companies: 29 percent of taxable income. Non-resident companies, carrying out trade through a branch or agency within South Africa, are taxed at a rate of 34 percent. These companies are not subject to the Secondary Tax on Companies (see 1.4), in respect of dividends.

[68] The capital gains tax became effective on October 1, 2001.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	deductions and set off of losses. The tax year of assessment is the accounting year. Companies with taxable income in excess of R 20,000 are required to make two provisional tax payments in respect of each year of assessment. The first payment is made within six months after the commencement of the year of assessment, the second at the end of such year, and an optional third payment within a period of seven months from the close of such year for companies with a February year end. In all other cases the third payment will be due within six months after the close of the tax year. As of February 2005, comprehensive agreements for avoidance of double taxation on the same income were in force with 56 countries, with agreements under negotiation or in the process of signing or ratification with 33 other countries. Limited agreements for the avoidance of double taxation on profits derived from sea or air transport are also in force with four countries. Gold mining companies are subject to special tax provisions.	Depreciation allowances of non-mining companies vary according to type of asset, life expectancy, and intensity of use of assets. Generally, the straight-line method is used. Plant and machinery used in a process of manufacture, including aircraft and ships used by a taxpayer in the carrying on of his trade, may be written off on a straight line basis over five years. Farming machinery may be written off at 50 percent 30 percent, and 20 percent over three years. An accelerated allowance for new machinery and manufacturing assets acquired after March 1, 2002 is provided for, according to a 40:20:20:20 schedule. A simplified 50:30:20 schedule is place for non-manufacturing assets of small businesses, as well as for investment in environmentally friendly sources. An initial investment allowance of 50 percent or 100 percent may be granted to companies undertaking qualified strategic industrial projects (e.g., investment of R 50 million or more). The programme will lapse at the end of July 2005. Qualifying small companies are eligible for immediate write-off of all plant and machinery in the year in which it is brought into use. Depreciation allowances are allowed for certain permanent structures: industrial buildings and hotels – 5 percent a year; airport service facilities — 5 percent a year;	b. Employment companies: 34 percent c. Qualifying small businesses: 0 percent of taxable income up to R35,000; 10 percent of taxable income between 35,001 and R 250,000 and 29% of taxable income in excess of R250,000. d. Gold mining companies: Formula-based tax rate determined in accordance with one of the following: (a) Where the company is not exempt from the secondary tax on companies (STC): $y = 35 - (175 \div x)$ or (b) where the company is exempt from the STC: $y = 45 - (225 \div x)$ In the formula y is the tax rate and x is the profit-to-revenue ratio. e. Oil extraction companies: 58 percent f. Long-term insurance companies: 29 percent tax is levied on income derived from company policies as well as on income derived from policies held by individuals. g. Income derived from pension and retirement funds: The net rental and gross interest of pension, provident, and retirement annuity funds are taxed at a rate of 18 percent

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
		electricity transmission lines, telephone transmission lines and railway lines – 5 percent a year; pipelines for transporting oil and gas – 10 percent a year. Taxpayers investing in designated depressed urban areas receive special accelerated depreciation allowances for construction (20 percent in the first year, 5 percent per year for the subsequent 16 years) or refurbishment of buildings (20 percent straight line over five years). Capital expenditure is allowable as a deduction from income of all types of mines in the year of assessment during which it is incurred (immediate expensing), limited, however, to the annual mining working profit. Any unutilized capital expenditure may be carried forward to the next year as unredeemed capital expenditure. Cost of land, mineral rights, mining rights, servitude, etc., are not deductible. An assessed loss can be carried forward indefinitely but cannot be carried back.	("Retirement Fund Tax"). Foreign dividend payments received by the funds from property unit trust schemes are also subject to the 18% tax.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.4. Secondary tax on companies (STC) Income Tax Act No. 58 of 1962, as amended	A central government tax payable on the net amount of dividends, i.e., the excess of dividends declared by the company over dividends accrued to the company during a dividend cycle.	Exemptions include: 1. Dividend payments of fixed property companies as defined in section 1 of the Unit Trust Control Act portfolios. These dividends are taxed in the hands of the recipient. 2. Dividends in specie in relation to approved unbundling transactions. 3. Dividends paid out by subsidiary companies to their holding company.	12½ percent
2. Social security contributions			
2.1. Unemployment insurance contributions Unemployment Insurance Contribution Act No. 4 of 2002.	A contribution collected for the Unemployment Insurance Fund, administered by the South African Revenue Service.	The maximum earnings amount subject to the tax is R 106,032 per year. Excluded from unemployment insurance are temporary workers who are employed for less than 24 hours per month.	Employee and employer contributions of 1.0 percent each of the insured earnings, payable monthly by employers.
2.2. Work injury insurance contributions	A compulsory insurance scheme.	The maximum earnings amount subject to the tax is R 123,396 per year.	Insurance premiums vary with risk, according to 23 different classes of employers (i.e., sectors).[69]

[69] The average rate for 2002/03 was R 1.40 per R 100 of earnings.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
2.3 Skills Development Levy Skills Development Levy Act No. 9 of 1999, as amended	A compulsory charge on total remuneration paid by employers, earmarked to fund skills development. The levy is payable for PAYE-registered employers with an annual payroll in excess of R 500,000.	Exclusions include: amounts paid to independent contractors; reimbursive amounts; amounts paid for services rendered by directors of private companies. Partial rebates are available for training provided by employers from Sector Training and Education Authorities, which administer the skills development funds. The levy is a deductible expense for income tax purposes.	1 percent of payroll.
3. Taxes on payroll and workforce			
3.1. Payroll tax Regional Service Councils Act No.109 of 1985 KwaZulu and Natal Joint Services Act No. 84 of 1990	A tax levied by local authorities (district and joint services councils).	A tax levied by the Councils on remuneration paid by employer. Some Councils grant discounts of 15 percent 20 percent or 25 percent to farming enterprises.	Ranges from 0.2 percent to 0.38 percent of the payroll, depending on the local council.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
4. Taxes on property[70]			
4.1. Property tax Municipal Property Rates Act No. 6 of 2004.	A municipal tax payable on the capital value of land and improvements to finance the cost of municipal services. The tax may be levied on residential, industrial, commercial, farm, state, and public service property and land owned by public benefit organizations. New property rate system based on market values to be phased in over 3 years. Old system currently still in place.	The rate is levied on the basis of market valuation in rand. Property valuation may be valid for a maximum of five financial years. The valuation of public infrastructure is discounted by 30 percent. Municipalities may exempt or provide reduced valuation to other specific categories of owners by use, location, or ownership, but not to specific property owners. Specific exemptions include: a. Mining rights. b. Property belonging to a land reform beneficiary (for 10 years after registry of deed). c. The first R 15,000 of the market value of a residential property. d. Property registered and used as a place of public worship. e. National parks.	Rates are set by municipal councils and differ across local governments. Annual increases in property rates may be capped by the national Minister of Provincial and Local Government, in consultation with the national Minister of Finance.
4.2. Estate duty Estate Duty Act No. 45 of 1955, as amended	A central government tax payable on the estate of an individual. Property includes life insurance proceeds and lump-sum benefits received from pension or provident fund benefits. The estate of a deceased non-resident consists of only his or her South African assets. Agreements to avoid double estate taxes are in place with Lesotho, Sweden,	Deductions include funeral and estate administration expenses; debts of deceased as at the date of death; donations to qualified non-profit organizations; and property accruing to the surviving spouse. A single deduction of R 1,500,000 is applicable.	20 percent

[70] A tax of 0.25 percent of the purchase value of marketable securities (Act No. 32 of 1948) was repealed on December 22, 2003.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	the U.K., the U.S., and Zimbabwe.		
4.3. Donations tax Income Tax Act No. 58 of 1962, as amended	A central government tax payable by the donor on the cumulative value of property donated by residents.	Donations to spouses and to qualifying non-profit organizations are exempt. Annual exemption limits of R 10,000 and R 30,000 apply for legal and natural persons, respectively.	20 percent
4.4. Transfer duty Transfer Duty Act No. 40 of 1949, as amended	A tax payable on the purchase consideration or fair value (whichever is the greater) of transfers of real estate.	Exemption on the first R 190,000.	For natural persons, 5 percent on the value in excess of R 150,000 but under R 330,000, plus 8 percent on the amount in excess of R 330,000. For legal entities, 10 percent of total value of property.
5. Domestic taxes on goods and services			
5.1. Value-added tax (VAT) Value-Added Tax Act No. 89 of 1991, as amended	A central government tax levied on the supply of goods and services. VAT is collected at a single, positive rate, is consumption-type and allows full and immediate tax credit on capital and intermediate goods. VAT is based on a destination principle with exports zero-rated and imports taxed). An invoice-based credit method is used, with VAT calculated on sales and tax paid on the difference between VAT on sales and VAT on purchases, adequately supported by invoices. The registration threshold for the VAT is R 300,000 per year of turnover. Voluntary registration is available for vendors with turnover of more than R 20,000, but less than R 300,000 per year.	Main zero-ratings include (i) exports; (ii) several food items including brown bread, cooking oil, maize meal, milk, eggs, fruit, and vegetables; (iii) illuminating paraffin; (iv) petrol and diesel; (v) several agricultural inputs including seeds, feed, and fertilizers sold to VAT registered farmers; and (vi) international transport services. Main exemptions include: (i) financial services (mainly interest); (ii) residential rents; (iii) passenger transport; (iv) educational services; (v) medical schemes and pension and life insurance benefits; (vi) medical services and medicines supplied by the state; and (vii) child care services.	0 percent, 14 percent.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
5.2. Turnover tax Regional Service Councils Act No. 109 of 1985 KwaZulu and Natal Joint Services Act No. 84 of 1990	A tax on turnover levied by local authorities (District and Joint Service Councils).	Exemptions: (i) religious, charitable and educational institutions; (ii) non-profit organizations engaged in nature conservation or animal protection; (iii) amateur sport clubs; and (iv) letting of accommodation to employees.	Range from 0.1 percent to 0.2 percent.
5.3. Gambling taxes	A provincial government tax levied on gambling, casinos and betting.		The schedule of fees and levies differ across provinces. - Casino license fees range from a flat rate of R 50,000 to R 114,000 for the basic license renewal. Additional amounts of about R 1,000 are charged per table, machine or employee. Levies on casino gambling revenue range from 5-12 percent and are levied on gross revenue. - Gambling machine operators tend to have lower flat-rate licenses but higher charges per machine and higher levies on income, ranging from 10-20 percent. - Bingo halls are charged per seat, and in some cases per employee. The revenue levies range from 2.5-15 percent of income, net of amounts paid out to punters.
5.4. Excise duties Customs and Excise Act No. 91 of 1964, as amended	Central government taxes payable by the manufacturer or importer of certain commodities. Most are specific, though some ad valorem rates exist.	A rebate is granted on excisable goods that are exported or used by diplomatic representatives and on taxable goods used by producers in farming, forestry and the manufacture of taxable goods for industrial or commercial purposes.	Alcoholic beverages: Beer (excluding sorghum beer): 3,364.98 cents per liter absolute alcohol. Sorghum beer: 7.82 cents per liter. Sorghum powder: 34.7 cents per kilogram. Unfortified wine: 140.52cents per liter. Fortified wine: 263.14 cents per liter. Sparkling wine: 387.99 cents per liter.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
			Spirits: 5042.01 cents per liter absolute alcohol. Other fermented drinks: 168.24 to 333.65 cents per liter depending on the type. Tobacco products: Cigarettes: 252.22 cents per 10 cigarettes. Cigarette tobacco: 14,946.05 cents per 50 grams. Pipe tobacco: 7624.01 cents per kilogram. Cigars: 141,676.55 cents per kilogram. Fuels: Petrol: 3.909 cents per liter. Diesel: 3.817 cents per liter. 5 percent ad valorem excise duty: -- Vending and office machines (excluding computers, photocopiers and printers, but including fax machines and modems) and TV sets; -- Motorcycles (200-800 cc engines). 7 percent ad valorem excise duty: -- Firearms; -- Perfumes and toiletries, except sun protection products; -- Video equipment, hi-fi equipment, optical lenses, photographic and cinematographic equipment (excluding film), except professional digital cameras.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
5.5. Fuel levy Customs and Excise Act No. 91 of 1964, as amended	A central government levy on the sale of petrol, diesel, and kerosene mixtures.	A concession is made for diesel fuel sales to primary producers (agriculture, forestry and mining) of 40 percent (40 cents per liter) of the general fuel levy. Fishing, coastal shipping, and offshore mining qualify for a 100 percent concession of the general fuel levy. Primary producers (agriculture, forestry and mining) also qualify for a full rebate of the Road Accident Fund levy.	Petrol: R 1.16 per liter[71] Diesel: R 1.00 per liter Distillate fuels and mixture of kerosene: R 1.11 per liter Road Accident Fund levy: An additional fuel levy of 31.5 cents per liter is collected on petrol and diesel for the Road Accident Fund.
5.6. Motor vehicle taxes Customs and Excise Act No. 91 of 1964, as amended	A tax levied on the value of imported components used in the manufacture of duty payable motor cars, station wagons and similar dual purpose motor vehicles, excluding heavy duty motor vehicles and motorcycles. A customs driven program in terms of which the customs value of components imported for the manufacture of motor vehicles are liable to customs duty.	Provision is made that the value of the imported components can be reduced by a duty free allowance as well as the value of imported rebate credit certificates. Customs duty is only payable on the remaining customs value.	36 percent as of January 1, 2004, with an annual reduction of 2 percent until it reaches 20 percent

[71] Fuel excise rates are from April 7, 2004.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	Ad valorem customs and excise duty which is applicable to imported as well as locally produced motor vehicles. Items (1) and (2) are applicable to motor cars, motor vehicles for the transport of ten or more persons of a vehicle mass not exceeding 1,600 kg., motor vehicles for the transport of goods of a vehicle mass not exceed 2,000 kg., or a GVM not exceeding 3,500 kg. or a mass not exceeding 1,600 kg. or a GVM not exceeding 3,500 kg. per chassis fitted with a cab and chassis fitted with engine of Heading No. 87.06 of a mass not exceeding 3,500 kg.		0.00003 times the value for ad valorem duty purposes, less 0.75 percent, with a maximum of 20 percent
	Heavy duty vehicles: certain components are liable to customs duty and the balance allowed under full rebate of customs duty.		Compression ignition engine: 20 percent Driving axles: 20 percent Gear boxes: 20 percent Cabs/bodies: 5 percent Pneumatic tires: 20 percent
5.7 Air passenger tax Customs and Excise Act No. 91 of 1964, as amended	Central government levy on international air travel	Exemptions include: children under 2 years of age; passengers carried 'not for reward'.	R 120 on international travel to all destinations, except Botswana, Lesotho, Namibia and Swaziland where the charge is R 60.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
6. Taxes on international trade transactions			
6.1. Customs duties Customs and Excise Act No. 91 of 1964, as amended	A one-column tariff schedule based on the Brussels nomenclature with general, most favored nation, and preferential rates of duty. There is a customs union (SACU) with Botswana, Lesotho, Namibia and Swaziland. There is a trade agreement with the European Union, which provides for progressive reduction and elimination of duties over 5-12 years from 1999, depending on the type of good. There is a trade agreement with other members of the South African Development Community (2000), which provides for a phased reduction and eventual elimination of duties over eight years.	Rebates are allowed for certain goods used in manufacture by approved industries (e.g., textiles, motor vehicle production) or by particular institutions and bodies. Duty free import is allowed once per person during 30 days for new and used goods up to R 3,000 per person with separate provisions for alcoholic beverages, tobacco and perfumes.	Import duties vary widely. There are nearly 50 tariff bands, and specific duties apply to certain meat products, fish, tea and textile products). Tariff rates generally fall within eight levels ranging from 0 to 30 percent, with a few exceptions, including clothing and textiles and motor vehicles. The import-weighted average tariff rate has been reduced from more than 20 percent to under 7 percent.

South Africa: Tax Summary as of June 2005[66]

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
7. Other taxes			
7.1. Stamp duties Stamp Duties Act No. 77 of 1968, as amended	Ad valorem or specific taxes payable on legal documents such as bills of exchange, bonds, leases, marketable securities, etc.	Most securities issued by certain public corporations and public authorities are exempt from stamp duty on issue and transfers. Where marketable securities tax is chargeable, brokers' notes do not attract stamp duty.	Rates of stamp duty vary for different instruments and also for a particular instrument. Examples are: 5 cents per R 100 for bills of exchange; and 0.25 cents per R 100 on registration of the transfer of share certificates.
7.2 Uncertificated Securities Tax Uncertificated Securities Tax Act No 31 of 1998.	Ad valorem tax of 0.25 percent on the issue of, and change in beneficial ownership in securities.	Government Departments and public benefit organizations that are exempt from income tax in terms of section 10 (1) (cN) of the Income Tax Act of 1962.	0.25 percent of the value of such securities.