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Balance of Payments dynamics, institutions and economic performance in South Africa: a policy-oriented study

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A policy-oriented study*

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Contents

Tables

Figures

Acronyms

Asgi-SA	Accelerated and Shared Growth Initiative for South Africa
BEE	Black Economic Empowerment programme
BoP	Balance of Payments
CPI	Corruption Perception Index
CL	Civil Liberties Indicator
D-Mark	Deutsche Mark
DTI	Department of Trade and Industry
EF	Index of Economic Freedom
EPL	Employment protection legislation
FDI	Foreign Direct Investments
GEAR	Growth, Employment and Redistribution strategy
GDP	Gross Domestic Product
HDI	Human Development Index
IDC	Industrial Development Corporation
NIPF	National Industrial Policy Framework
OECD	Organisation of Economic Cooperation and Development
PR	Political Rights indicator
RDP	Reconstruction and Development Programme
SACU	Southern African Customs Union
SAIIA	South African Institute of International Affairs
SARB	South African Reserve Bank
UNDP	United Nations Development Programme
WTO	World Trade Organisation

Symbols

A	Age
C	Consumption
C_t	Consumption at moment 't'
dR	Change of foreign reserves of central bank
e	Exchange rate
e_{real}	Real exchange rate
EDU	Education
ε_x	Supply elasticity of exports
ε_{IM}	Supply elasticity of imports
η_X	Export demand elasticity
η_{Im}	Import demand elasticity
I_{abroad}	Investments abroad
I_{home}	Domestic investments
IM	Imports
IP	Institutions and policies
π	Inflation rate
M	Volume of money
U	Utility
p	Foreign price level
p*	Domestic price level
P_T	Price of tradable
P_N	Price of non-tradables
S	Savings
X	Exports
Y	Income

1. Background

> "Some things matter whether or not they exist. The Loch Ness monster is one. National trade deficits are another" (Heyne 1983: 351).

As is evident in the above quote, policy discussions that claim that trade surpluses are beneficial to a country and caused by its own competitiveness while trade deficits are bad and determined by foreign countries' unfair practices are highly emotive. That policy representation of national trade deficit is problematic because the trade balance is only one side of the coin; the other side is the capital account. One has to analyse both accounts simultaneously to get a complete picture. Higher investment in general – be it foreign direct investment (FDI) or portfolio investment – inevitably is correlated with increasing international capital flows. These, in turn, may cause an increase in the net balances. If capital account imbalances occur, then the whole balance of payments (BoP) will be subject to change, leading to higher imbalances of the current account and/or a change in international reserves. Seen from this perspective, it is unclear whether a trade deficit is indeed a problem and an alarming sign for the future or is "… a symbol of (its) strength" (Griswold 2001). Certainly, this is the case for South Africa, which has been increasingly in the focus of global investors from different countries.

Figure 1 shows the long term development of the South African current account in US-Dollars. During the Bretton Woods era, imbalances in the current account were observed only rarely. If there were imbalances, South Africa experienced capital inflows and deficits in the current account. In the 1980s, the current account turned into a surplus, accompanied by huge capital outflows (as shown in Figure 1) and economic problems. The country was perceived as an unattractive investment target and suffered from its Apartheid regime and subsequent political sanctions. Since the turn towards democracy in 1994, South Africa has increased its reputation as the leading economic power in Africa. Consequently, foreign capital was invested increasingly in South Africa. The current account turned into a moderate deficit, a trend interrupted only briefly in the years 2001 and 2002. Since then, the deficit has reached unprecedented levels and is forecast to increase in the future (IMF 2007).

Figure 1: South African current account 1953-2007 (US$-m)
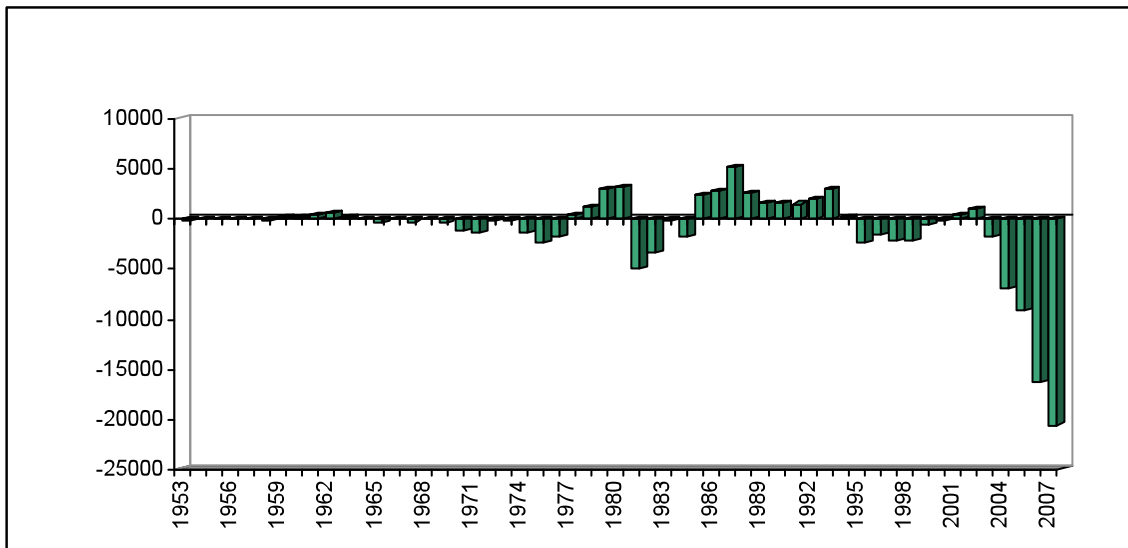
Source: IMF, International Financial Statistics (2008)

Recent macroeconomic developments in South Africa, generally, have been judged positively, but scepticism is on the rise (e.g. IMF 2007 and OECD 2008). Until 2007, the country experienced relatively high economic growth (which is assumed to continue in 2008), an increase in employment (with a similarly high increase in workforce) and more or less moderate inflation. The inflation rate had remained within the target band of 3%-6% but, since mid-2007, inflation took off and reached more than 10% for the first time since early 2003 (South African Reserve Bank 2008). From August 2006 until November 2007, the South African Rand appreciated towards the US-Dollar (US$), which has led some economists to argue that the currency is overvalued and that the South African industry has been suffering a loss in competitiveness (Frankel 2007). However, since then the Rand depreciated, hitting R8 per US$ in March 2008. This depreciation was even stronger with respect to the Euro (€). In January 2006, the Euro cost little more than R5, whereas in June 2008, it was about R12.50 (South African Reserve Bank 2008). Parallel to these developments since 2002, savings declined slightly to a below 15% of GDP and a surge in investment exceeding 20% of Gross Domestic Product (or GDP) took place. The gap between the two has been, to a great extent, financed by foreign capital. The effect on the current account was a swing into deficit.

To summarise: South Africa experienced unprecedented current account deficits after 2002. This development took place in a stable macroeconomic environment, but still raised concerns because some observers are sceptical about the sustainability of the deficit. The discussion of today's South African current account is in full swing; many contributions (e.g. Smit 2007, IMF 2007, Frankel, Smit and Sturzenegger

2006)[1] have been made about its macroeconomic aspects, particularly. A gap in the discussion exists on the role and function of the exchange rate. Some argue that it is a policy variable; others see its main function as the adjustment parameter. Exchange rate fluctuations are contributing to structural change; however, those contributions are not always beneficial, sometimes too slow, and sometimes too fast.

The institutional and microeconomic perspective of the current account has also not been explored sufficiently thoroughly. Recently, the Organisation for Economic Cooperation and Development (or OECD) initiated a discussion on these aspects, revealing a number of deficiencies within the South African microeconomic policy climate: the state is intervening deeply into the economy; competition is not fully taken advantage of; and education and schooling have serious weaknesses (OECD 2008). In addition, one has to analyse convertibility restrictions, which in South Africa only apply to residents. It is worth considering how they contributed to the current account in the past, what role they will play in the future. Another aspect is trade policy as well as industrial policy. The South African government plans a R400-billion programme for infrastructure within the Accelerated and Shared Growth Initiative for South Africa (or Asgi-SA) framework, which was announced in 2005, aimed at reducing costs. The Department of Trade and Industry (or DTI) later specified the objectives under its National Industrial Policy Framework (NIPF) (Draper and Alves 2007, DTI 2007). If these funds are used to bridge bottlenecks (in education and infrastructure), as suggested by the OECD and others, then this programme may well improve the competitiveness of South African firms in the long run, thereby reducing the current account imbalances. In the short run, it may encourage further capital inflows, leading to an increase in the current account deficit. However, if it is mainly used as a traditional industrial policy instrument (consisting of subsidies for established firms), it may – e.g. via rent-seeking – well work into the opposite direction, namely reducing the current account deficit in the short run, but causing lowering South African firms' international competitiveness in the long run.

Besides the microeconomic policy framework, assessing institutional features is necessary to understand fully the causes and consequences of the BoP-development. In this paper, institutions are defined as formal and informal rules and norms governing economic and other interactions in a country. In particular, the degree of economic freedom, i.e. the freedom of individuals to make business in South Africa, is of importance. This freedom does include convertibility; however, the concept applied here goes beyond this aspect. The definition of property rights, regulation of economic activities, bureaucratic hurdles and the like are to be analysed. An appropriate indicator is provided by the Fraser Institute, which regularly publishes cross-country comparisons of the degree of economic freedom (Gwartney et al. 2008). Alternatively, other measures of institutions are applied.

The institutional aspects also cover governance, fairness and equal opportunity. On the one hand, the improvement of prospects for many hitherto unfavoured persons are of crucial importance for education, employment, growth and social peace. Only if the peaceful developments last will the international investors

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[1] For general contributions to sustainability see e.g. Mann (1999) and Bernanke (2005).

maintain the capital inflow; hence, the danger of a sudden stop or outflow can be reduced. On the other hand, equal opportunity laws may encourage a brain drain if well-educated citizens no longer see adequate chances in the country and are willing to move to other countries, such as Australia. Thus, politics play a major role in analysing the current situation of the BoP, forecasting the future and discussing adequate policy options.

This study takes up these issues. It explains economically and assesses the development in South Africa's current account, with a special emphasis upon the dynamics of the BoP-developments and the interaction between the current account and the capital account. We take into consideration that the sustainability is determined by macroeconomic relations while also being driven by the use of capital inflows, which is determined by the quality of political governance structure and economic policy; it is something which will be addressed in some detail in the study. We do so because it is necessary to draw the appropriate policy conclusions from the imbalances in the BoP. In the past, the current account imbalances often led to premature, misguided policy conclusions, such as an increase in trade barriers, which neither theoretically nor empirically were a good response to a trade deficit.

This report has is organised as follows: in addition to this section, there are four other sections.

In the next section, two competing theoretical frameworks are presented. The first approach, the so-called competitiveness approach, emphasises the role of the exchange rate as a driver of the trade balance. A currency depreciation may help to run a trade surplus, which, according to this approach, is generally regarded as desirable. The second approach, the so-called intertemporal approach, is somewhat less emphatic in its judgement of the trade balance. It sees the current account balance as a result of accumulated individual decisions on savings and investments. The exchange rate is assigned a different role: it is an adjustment parameter which contributes to the adjustment of the current account to net capital flows.

In the third section of this report, the hypotheses about drivers and sustainability of the South African current account deficit after 2002 are derived on the basis of the theoretical section.

Those hypotheses are tested in the fourth section and that discussion includes the following considerations:

- The macroeconomic drivers of the current account deficit;

- The pattern of the development of the Rand since 2003;

- The extent to which South Africa is at the beginning of a beneficial debt cycle; and

- Institutional aspects as well as microeconomic problems and policy responses.

Finally, in section five, policy options are discussed and areas of further research are highlighted.

2. Theoretical frameworks

A discussion of theoretical frameworks is important and is the focus of this section of the report.

In general, and unless errors and omission occur, a country's BoP is zero. Imbalances can only show up in the current account (i.e. the trade balance), the capital account and/or the balance of foreign reserves. Despite a widely held view, such imbalances do not automatically reflect the presence of disequilibrium. In contrast, international capital flows are accepted generally as a means to foster the allocation of capital. Thus, a capital account balance does not necessarily raise political concern. However, the trade balance is normally viewed with much scepticism and scrutiny. Current account deficits have always been a topic of emotional debate. Since mercantilist times, politicians and the electorate as well as, to a lesser extent, economists have regarded selling abroad as superior to purchasing abroad and, hence, have judged a current account deficit as negative. A surplus in the current account is taken as an indicator of superior competitiveness while a trade deficit is rarely perceived as proof of foreign competitiveness, but rather as the result of unfair competition.

Because of its political importance, the response to a current account deficit of the size that South Africa has experienced in the last few years requires an extended and careful assessment of its causes. It is possible to distinguish between two theoretical approaches for explaining the determinants of that BoP-development and deriving policy lessons. These two approaches are identified here as the competitiveness approach and the intertemporal approach, respectively.

Firstly, we develop a simple identity within the balance of payments, as is shown in equations one through to 4b. The equation does not include any theoretical content about causal relationships. It is an identity statement and, thus, always holds. The domestic GDP consists of consumption (C), domestic investment (I^{home}) and the trade balance (X-IM). For simplicity, we do not distinguish between private and public consumption. GDP can, alternatively, be interpreted as sum of consumption and savings (S). These savings can be either spent for domestic investment, portfolio and direct investment abroad (I^{abroad}), as well as for the increase in foreign reserves of the central bank (dR).

Equation 1: $\quad GDP = C + I^{home} + X - IM$

Equation 2: $\quad GDP = C + S$

Equation 3: $\quad S = I^{home} + I^{abroad} + dR$

Equation 4a: $S - I^{home} = X - IM$ $\leftrightarrow$ **Equation 4b:** $I^{abroad} + dR = X - IM$

Equations 4a and 4b, respectively, show an identity of flows, namely, that the difference between domestic savings and domestic investments; in other words, that the capital (or the financial) account equals the trade balance. In the South African case, savings are lower than domestic investment and the trade balance has a negative sign. In addition, an increase of foreign reserves can be observed in South Africa.

Whereas the difference of national savings and investment seemed to be small until the end of the Bretton-Woods regime, the increasing worldwide capital mobility since the mid-1970s has lead to a substantial difference in both. In other words, the Feldstein-Horioka (1980) hypothesis, that there is a positive correlation between savings and investment on a cross-country basis and, thus, capital flows play a minor role, no longer seems to be valid (Blanchard and Giavazzi 2002 and Fidrmuc 2003). Therefore, it is very important to analyse all facets of the balance of payments.

Beside a pure theoretical explanation of the BoP-developments, this analysis of the balance of payments also aims at creating a normative (i.e. political) understanding of certain development in the balance of payments. As said above, mercantilist views assign economic strengths to a trade surplus. As will become clear in this section, proponents of the competitiveness approach have a similar argument. This focus leads to rather strong policy conclusions. The intertemporal perspective is more sceptical with respect to a clear-cut interpretation of certain balances. Its assessment depends on the structure and use of capital flows. Because it is based on a microeconomic calculus that causes a current account imbalance, it allows for assessment of the sustainability of current account deficits.

2.1 The competitiveness approach to the BoP

This formal and analytical approach deals with the question of whether a trade balance can be changed with the help of the exchange rate. In this view, trade is seen as the major international transaction and capital flows are not analysed, which is historically understandable. In the 1940s, and over the two subsequent decades, when the competitiveness approach was dominant, capital restrictions successfully prevented international capital flows from being substantial. Thus, trade flows were seen as driven by price competitiveness as well as quality aspects; the exchange rate was regarded as playing a major role in determining the price competitiveness.

This approach has an explicit view of equilibrium: in equilibrium, the value of exports equals the value of imports. Thus,

Equation 5: $X\left(y, eP*/P\right) = IM\left(y, eP*/P\right)$

Exports depend negatively on the exchange rate (defined as the number of units of domestic currency to buy a unit of FOREX or foreign exchange), whereas imports depend positively upon it. A trade surplus or a trade deficit marks disequilibrium. In the political arena, however, a trade surplus is regarded as being desirable, as it shows that a country's enterprises can sell more on the world markets than the country, in aggregate, needs to buy there.

This approach has been developed within a framework of fixed exchange rates, such as the Bretton-Woods system. In this regime, Germany was able to generate an export-led growth by undervaluing its currency, the Deutsche Mark (or D-M). Dooley et al. (2003) argue that some Asian countries, among them most prominently China, are following currently a similar strategy by undervaluing their currencies.[2] The competitiveness approach is pointing in this direction. This strategy may also be applied in a system of managed floating. Of course, in a free floating regime it could not work because the exchange rate change is completely endogenous. The South African Reserve Bank (or SARB), in principle, has the political means to influence the exchange rate.

According to the competitiveness approach, whether and to what extent a depreciation of the domestic currency is leading to a trade deficit or causing a trade surplus is dependent on the price elasticity of supply and demand, respectively. The Marshall-Learner condition states that sum of export (ηX) and import (ηM) demand price elasticities that exceed one:

Equation 6: $\quad \eta_X + \eta_{IM} > 1$

The bigger the sum of the price elasticities for demand at home and abroad, respectively, the faster and bigger the swing in the trade balance after a depreciation of the domestic currency. Thus, a depreciation of the domestic currency causes a trade surplus, at least over time. Supply elasticities are assumed to be infinite. In the short term, the so-called J-curve effect[3] may counter the efforts to create a trade surplus, as contracts are longer term and the price changes do not occur immediately.

To calculate the effects correctly, finite values of supply price elasticities for exports (εX) and imports (εM) should also be considered, as is done in the Robinson condition. The trade balance turns into a surplus, if:

Equation 7: $\quad \dfrac{\eta_X \left(1 + \varepsilon_X\right)}{\varepsilon_X + \eta_X} - \dfrac{\varepsilon_{IM}\left(1 - \eta_{IM}\right)}{\varepsilon_{IM} + \eta_{IM}} > 0$

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[2] For a recent discussion see Freytag (2008).

[3] The meaning of the J-curve effect is that the trade deficit increases directly after the depreciation and decreases later before it turns into a surplus. The development over time has the shape of a J.

Again, it is intuitively plausible that higher elasticities encourage a faster and stronger reaction to the depreciation of the domestic currency.

However, this approach has severe flaws, particularly in today's world, which is characterised by tight trade and financial links. Firstly, in theory, it demands a balanced trade in the initial situation; economic policymakers normally do not think about a currency depreciation as its cost is remarkable (increase in import prices and in money supply, leading to higher inflation).

In addition, the competitiveness approach or the trade perspective (Iley and Lewis 2007) neglects the capital account. Yet the conditions on the world markets have changed dramatically. As in the pre-WWI days, capital can move freely across (most) borders; the decision to move capital follows an own economic calculus. Therefore, the approach works only if the exchange rate change also alters the difference of S and I^{home} (4a). The decisions to save and invest have to be affected directly by exchange rate policy. If they are autonomous, the trade balance does not change.

Thirdly, and worryingly, the competitiveness approach has a conceptual weakness because it treats countries like firms: these 'firms' compete with each other on the international markets and, in an effort not to go bankrupt, sell more than they buy. In this view, a trade balance is worth striving for as trade is treated as a zero sum game (Krugman 1994). According to this view, what is sold by China cannot be sold by South Africa any more. This view may hold for competing firms in a shrinking market, but it is completely misplaced for the analysis of international trade. As the global potential for the division of labour is not fully exploited yet, more international trade implies a positive sum game, at least on the aggregate level. The second perspective interprets a country's competitiveness differently: as the ability of immobile factors (labour) to attract mobile factors (capital and human capital) to ensure full employment. This may imply a capital account surplus and a trade deficit.

Another problem is that the export-led growth strategy is not costless: during the Bretton-Woods regime, reserves increased in Germany: between September 1959 and March 1961 by 11.3-bn D-Mark or 70.7%, equivalent of 3.9% of GNP in 1960. Inflation was imported via money growth (see China today) while structural change towards a service orientation was repressed for decades. The manufacturing industry did not adjust properly and the service industry developed rather late. The costs of repressed structural change are unemployment and slower growth in the long run (Giersch, Paqué and Schmieding, 1992: 176-179).

2.2 The intertemporal approach to the BoP

The development of capital account, current account and the change in the country's foreign reserves can only be analysed commonly. Clausen and Kandil (2004) disentangle current account and financial account to show how complex the causal relations are in the balance of payments. They also show that both balances react differently to cyclical fluctuations and correlated negatively to each other. The (real) exchange rate functions as an adjustment parameter (Meyer 1938) as trade flows have to adjust accordingly to the changes

in capital flows. This mechanism holds regardless of the exchange rate regime chosen, as the real exchange rate always adjusts (Dluhosch, Freytag and Krüger 1996).

Therefore, an alternative theoretical framework is the intertemporal approach to the current account (Obstfeld and Rogoff 1994, Corden 2007a). Based upon elder approaches, such as that of Böhm-Bawerk (1914), Obstfeld and Rogoff (1994) develop different models of the current account, part of which are very complex.[4] The main result is that individual utility considerations are driving the capital account and, thereby, also the current account (see equations 1 through 4b in this paper). Obstfeld and Rogoff (1994) distinguish correctly between a deterministic and a stochastic view, arguing that it is inevitable to consider uncertainty when analysing decision on savings and investment. Within this framework, they discuss a number of macroeconomic determinants of relative prices, such as investment, the relation between tradables and non-tradables, fiscal policy (in conjunction with demographic developments), capital market developments and the like.

We deviate in two directions from the standard neoclassical approach: Firstly, in line with Böhm-Bawerk (1914) and other scholars of the Austrian school of economics, we do not search for equilibrium values for current account, foreign direct investment, portfolio investment or the exchange rate. We consider these variables as in a constant flow, reacting to new information the markets provide. Thus, equilibrium is a tautological concept. As long as the decisions of the market participants are made according to their preferences and without distortions of the state or other private agents, then we assume that an equilibrium is given. Thus, any derived policy option has to consider the degree to which market decisions are distorted by state actions or by private firms.

Secondly, we also consider microeconomic, or more precisely, institutional drivers, of savings and investment. These comprise of basic freedoms, such as civil liberties, political rights, economic freedom and the absence of corruption, as well as certain elements of economic policy (e.g. some of the elements laid down in the Washington Consensus[5]). The latest OECD (2008) report on South Africa is relevant here. Good governance and good institutions may attract investment from abroad. Thus, both this inflow and the subsequent use of capital imports depend on institutional and macroeconomic quality.

Next, we assume a utility maximising individual who has the following simple utility function with two arguments: consumption today and consumption tomorrow:

Equation 8: $$U = U\left(C_t, C_{t+1}\right).$$

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[4] By contrast, Dornbusch (1998) traces the intertemporal approach back to the simplest form with trade of a single good and a common currency. The results are similar, the model is quite robust. Iley and Lewis (2007) distinguish several models.

[5] It is now widely acknowledged that the Washington Consensus is pointless if other institutions are not in place.

This utility function is maximised under budget constraints, in particular income flows as well as saving and investment opportunities. Thus, the individual capital account is the intertemporal budget constraint of our representative agent. A national capital account is comprised of the sum of all individual actors' – including persons and firms – 'capital accounts' (Dluhosch, Freytag and Krüger 1996: 28ff).

In an individual's lifespan, the opportunities to earn income are not distributed equally. In youthful years, the individual depends on transfers from either family or society. Then, for a long time, she is able to earn income and save part of her income each period for her old age. Later, after retirement, the individual has to rely on (individual or collective) savings from the past. Therefore, crucial individual decisions have to be made about the share of current income to consume, save and invest. In certain periods, it is appropriate to consume and/or invest more than the current income; the individual is a net borrower. In other periods, an individual is a net creditor. This perspective can at best covered by an intertemporal utility calculus as in equation 8. The aggregation of the individual decisions in a country then leads to the capital account. According to equations 4a and 4b, this capital account equals the current account (with a negative sign).

Due to this view, developments in the capital account will be followed (logically) by reactions in the current account, without prejudicing a statistically significant causality (Fry et al. 1995). Nevertheless, the causal relationships are of interest for the question about what drives South Africa's trade deficit. Firstly, we have to identify the individual utility considerations leading to savings and investment decisions. This can be modelled in a mainstream manner (Dluhosch, Freytag and Krüger 1998). However, in contrast to a purely macroeconomic perspective, we discuss a wide range of determinants of individual saving and investment behaviour in countries such as South Africa.

A saver automatically takes an intertemporal perspective, as she decides what share of her income to consume immediately and what share to consume later. In theory, she follows a utility maximising calculus, which implies that economic rationality is behind the decision.[6] Consolidated over all domestic individuals, cumulative domestic saving is driven by the intertemporal calculus. First of all, age (A in equation 9) is a driver of saving. A rational individual saves for her old age period. Savings are the highest in the age group of 25-64, as this is the period of income generation; an ageing society may well discourage savings (IMF 2005: 99). Life expectancy (LE) also plays a major role. The longer the expected individual lifespan, the higher the saving should be, as the time-span in retirement will be longer. Personal income (GPD) does play a role; very low income on the subsistence level does not enable individuals to save at all. Fast growing income encourages savings (IMF 2005: 98). Of course, personal income is also dependent on the level of education (EDU), which, in turn, is helping the individual to take a long term perspective and to reflect the benefits of saving. Inflation (π), on the other hand, discourages saving, instead, it encourages individuals and the government to accumulate debt, which then will be melted (or taxed) away by inflation. Finally, the decision to save is driven strongly by institutions and policies (IP). For instance, a functioning capital market

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6 See e.g. Corden (2007a), Obstfeld and Rogoff (1994) as well as Dluhosch, Freytag and Krüger (1996).

with appropriate regulation protecting savers is a precondition for individual saving as well as for investment opportunities.[7] South Africa seems to offer both. Fiscal sustainability is related positively with savings, as individuals have trust in the government. In particular, the incentive to raise inflationary tax is low due to low public debt. On the other hand, civil war discourages both savings and investment. Poor labour market regulation creates unemployment and lowers GDP, contributing to reduced saving.

In aggregate, the decision to save is then a function of these features:

Equation 9: $$S = S\left(A, LE, EDU, GDP, \pi, IP\right)$$.

Next, the decision of how to invest the savings has to be made.[8] Three options on the national level can be distinguished: investment at home, investment abroad or the increase in reserves. Again, economic rationality and opportunity costs are the main drivers of this decision. In the South African case, investment even goes beyond savings, so that individual borrowing abroad is necessary. Investment is driven by individual characteristics of the society. An ageing society does not see the need to invest at home (and will probably invest abroad; compare Japan and Germany). The development of capital markets plays a role. If the capital market is wide and deep, investment in the economy is likely; if not, then one can expect net capital outflows or a lack of inflows. When we subsume the status of the capital market under the institutional and political setting, we can see that investment is driven by the same determinants as savings (IP). Political turmoil, bad governance or uncertainty about future governance may well discourage investment. In addition, high costs of capital also discourage investment (IMF 2005: 104). These costs reflect macroeconomic as well as institutional aspects.

Again, the aggregate function can be formed:

Equation 10: $$I = I\left(A, IP, S\right)$$

In addition to the behaviour of individuals, one has to consider the political decision to build up foreign exchange reserves. Here, we cannot model an individual decision-making process. The central bank (probably with governmental support or even if forced by the government) decides upon the amount of foreign exchange reserves and its development over time. Firstly, the monetisation of the economy (M in equation 11) is relevant. Secondly, if the domestic capital market is not fully liberalised and well-developed to absorb domestic savings completely, a government may be encouraged to 'park' its savings abroad until the capital market works better (Corden 2007b). As soon as domestic investment opportunities improve, the

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[7] On the other hand, well-working credit markets may discourage savings and encourage consumption today (IMF 2005: 99), particular in countries with high GDP per capita. We assume that this is not the case in South Africa, as the average GDP per capita is too small.

[8] Both decisions may be made simultaneously and interdependently, but for logical reason, we assume this sequencing.

capital flows will be directed into domestic investments rather than into low yield United States (or US) or European Union (EU) bonds. Thirdly, risk considerations may play a role: in a situation when the domestic banking system is fragile and full of risks, like it is in China in 2008, the foreign reserves can be interpreted as an insurance against a future banking crisis.[9] Fourthly, one can argue that emerging countries are investing into international goodwill and reputation as a stable country by building up foreign reserves (Dooley, Folkerts-Landau and Garber 2007). Such a strategy is fully compatible with the intertemporal approach as there is an intertemporal calculus behind it. Thus, the change in reserves is dependent on monetary policy and the quality of the domestic capital market, which are part of the institutional setting:

Equation 11: $$dR = dR\left(M, IP\right)$$

It seems sensible to add the government's fiscal policy as a driver of the capital account (Knight and Sacciavillani 1998). The history of the US current account since the early 1980s can serve as an example. The Reagan administration contributed to the current account deficit in two ways. Firstly, it reformed US tax policy twice, reducing the tax rates dramatically. Second;y, it increased public spending (in particular for military purposes). Both added to the so-called twin deficit (Dluhosch, Freytag and Krüger 196: 141-160). Thus, the capital account is determined by both macroeconomic performance and institutional parameters.

One can imagine what happens after the savings-investment decisions has been made. If the country imports capital, this leads to a capital account surplus and – everything else being equal – to an excess demand for domestic currency, in our case the South African Rand. The consequence is an appreciation of the Rand and a depreciation of the currency of the capital exporting country. This (real) revaluation of the domestic currency allows for the transfer from the capital account to the current account. Foreign exports are becoming cheaper and South African exports more expensive. Its trade balance will move into a deficit. The size of the real currency appreciation depends on price elasticities for demand and supply, the higher the elasticities, the lower the necessary exchange rate adjustments (see next section of this report).

Given that the preferences are symmetric in a foreign country, implying a preference for consumption or investment being lower than savings (such as in China), this country runs a trade surplus and a capital account surplus. The capital account can be interpreted as the intertemporal budget constraint. This again hints at the problem of equilibrium. If, and only if, the lender (i.e. trade surplus) country is willing to grant the credit to the borrower (i.e. trade deficit) country, then the trade deficit can be built up (Bernanke 2005).[10] The role of the (real) exchange rate is different compared to the elasticity approach. It is not a policy variable but an adjustment parameter.

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[9] See e.g. Siebert (2007: 53f) for an analysis of Chinese motives to build up huge reserves.

[10] Böhm-Bawerk (1914) has put this as follows: "Capital account orders, current account obeys." (own translation). Bernanke (2005) has coined the phrase 'savingglut'.

This brings us to the issue of sustainability. How should a current account balance, in particular, a current account deficit, be normatively interpreted? The deficit is accompanied by a surplus in the capital account. If, and only if, the capital inflows are used such that the debt and interest can be repaid in the future, then the current account deficit can be considered sustainable. The judgement of whether or not the use of the capital inflows guarantees sustainability can, of course, only be made ex-post. It is uncertain whether an investment financed by the capital inflows is profitable.

Therefore, the judgement has to be based on indicators that assess the probability of a high return on investment of foreign capital inflows. These indicators are related to the use of the capital inflows (investment or consumption), the recipient of the capital (state or private), the term structure (short or long term) and the ownership structure (FDI vs. portfolio investment).

1. Capital inflows used for (private) consumption create an unsustainable current account deficit by nature. If they are used for governmental consumption, it depends on the nature of the consumption: education spending is defined as consumption but it increases human capital and has investment character, although it cannot be collectively activated. Social spending and subsidies for uncompetitive enterprises are unsustainable.

2. If the government is the recipient, it seems more likely than in the case of a private recipient where the money is not invested very carefully but rather spent with a short term orientation. Experience suggests that in democracies, social spending increases. Public investment is sensible if bottlenecks are tackled; in the South African case, these bottlenecks include electricity, telecommunication lines, transport infrastructure and, most importantly, education.

3. The term structure does not allow such clear cut distinctions, as a country may be engaged in term transformation. In the 1980s, Switzerland and Japan were two interesting examples (Dluhosch, Freytag and Krüger 1996: 88) of countries borrowing short and lending long, and *vice versa*. However, short term inflows always bear the danger of sudden outflows with the immediate threat of a macroeconomic crisis (e.g. Schadler et al. 1993). In addition, if one distinguishes FDI and portfolio investments, the former are in general longer term than the latter. In this case, the judgement is different.

4. There is evidence that FDI is superior to portfolio investment for a net capital importer in the developing world, where the knowledge transfer is important for the positive effects of the capital inflows. However, in the South African case, the situation is a bit more complex. Firstly, given that the capital market is well developed and also that the country has a well developed manufacturing sector, at least when compared to other emerging and developing markets, the function of FDI as a knowledge-creating device is probably less important. Rather, one can expect that international investors purchase shares of existing firms and rely on the expertise of domestic individuals to run these firms. This makes the distinction of FDI and portfolio flows less relevant. Nevertheless, the structure of foreign investment will be analysed next.

An analysis of the current account therefore has to consider these indicators (as is discussed in section four of this report).

2.3 The role of the exchange rate in BoP theory

In the discussion of the two competing explanations for a current account deficit, the exchange rate already played a distinctive role. In the competitiveness approach, a depreciation of the domestic currency is regarded as an appropriate to reduce the deficit or even to create a surplus. In this view, the exchange rate is a policy measure used to manipulate trade flows. Of course, it can only be manipulated if the country is part of a fixed exchange rate regime, or is intervening heavily in the foreign exchange market (dirty floating). The costs of such a strategy have already been discussed; as inflation goes up, foreign reserves may be accumulated where the return is moderate, as is the case in China (Freytag 2008). In addition, as in the US example, but also as recent experience in South Africa show, a devalued currency does not necessarily lead to a decreasing current account deficit. Despite its low prospects, exchange rate manipulation is still discussed as a viable policy strategy in politics.

Proponents of a more sophisticated view of the exchange rate are rather sceptical of the simple relationship between trade and the nominal exchange rate. They acknowledge that the current exchange rate may deviate from a long run equilibrium real exchange rate. Thus, the policy implication may indeed be to bring the exchange rate closer to this equilibrium. However, this again is problematic; the discussion about the "correct" exchange rate reveals several serious problems. Firstly, it suffers from huge differences with respect to the methods as well as the exact specifications used by different authors. Because of such variations, the robustness of the estimations of equilibrium real exchange rates has been questioned.[11] Secondly, some authors tend to dismantle their approach, particularly when it comes to China and the US. It is difficult to understand fully the assumptions and conclusions. Thus, thirdly, it cannot be excluded that some of the results are biased and motivated politically.

In contrast, the Austrian branch of the intertemporal approach does not assign the exchange rate this prominent role. The long run equilibrium is not a viable concept in this view. Instead, the exchange rate is seen as an adjustment parameter to manage the transfer from a change in the capital account to the according change in the current account. In a flexible exchange rate regime, huge capital inflows can cause a nominal appreciation of the currency, as the demand for domestic currency increases, everything else being constant (or the c.p. clause). The nominal appreciation is accompanied by a real appreciation. The real exchange rate, in this context, is defined as the domestic relative price of tradables and non-tradables, which provide the advantage of calculating easily the development of the real exchange rate by calculating domestic price indices:

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[11] For a general overview see Isard (2007), for a special application to China see Dunaway, Leigh and Li (2006).

Equation 12:
$$e_{real} = \frac{P_T}{P_N}$$

The net capital inflows imply an increase in purchasing power in the capital importing country. The additional purchasing power can be spent on tradables and non-tradables. If it is spent exclusively on tradables, a real appreciation is avoided, as demand for non-tradables does not change and the prices for tradables remain constant because the international law of one price holds by and large.[12] If, however, the demand for non-tradables increases due to the inflow of purchasing power, the prices for non-tradables increase. As a consequence, e_{real} is diminishing and a real appreciation occurs.

This real appreciation reduces the international price competitiveness of the producers of tradable goods (i.e. the export and import competing industries). Assuming normal price elasticities, exports and sales at home are reduced while imports increase (Meyer 1938). The net capital inflows result in a trade deficit, the transfer mechanism being the real exchange rate in its simplest form (shown in equation 12). If the capital inflows hold for a longer time, the domestic economy adjusts in a way that the tradable sector declines relatively and the non-tradable sector increases relatively. Due to the increase of the prices for non-tradables, it becomes more attractive to invest into this sector and less attractive to invest into tradables. In the medium term, the net capital inflows will foster structural change. The appreciation stops when the economy has adjusted to the capital inflows, and can even be reverted (Ragnitz 1989).

As in the classical model developed by Dornbusch (1976), the money market is responds faster to new signals than to the goods and service markets (Knight and Scacciavillani 1998: 20-22). The capital flows take place immediately. In order to create the respective change in trade in goods and services, the exchange rate has to react strongly. After some time, which can involves years, the supply side of the goods and services markets will react. The economy of a country can deal with large capital inflows without further appreciation, even with a depreciation directed to the initial exchange rate. Consequently, this pattern is similar to the model of overshooting.

2.4 Theory of the debt cycle

Looking at the balance of payments from the intertemporal perspective, there is no normative implication of a certain current account balance. It cannot be said in advance whether a current account deficit is undesirable or whether a current account surplus is to be achieved.

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[12] The international law of on price claims that price for internationally traded goods are the same all over the world because of arbitrage. Transaction costs may cause small international differences. This has the consequence that a shift of purchasing power from one country into another does not change the prices for tradables significantly.

It may, on the one hand, be sensible for developing or emerging countries, or a country, with a relatively young population (such as the US)[13] to run a current account deficit in response to net capital inflows if these are invested. Ageing economies, such as Germany or Japan, may be better off with a current account surplus, investing their savings abroad. On the other hand, developing or emerging countries may run a current account surplus to invest into credibility for future net capital inflows or to import know-how for long run growth.[14] In any case, an imbalance in the current account is not necessarily a disequilibrium.

Figure 2: The debt cycle in theory
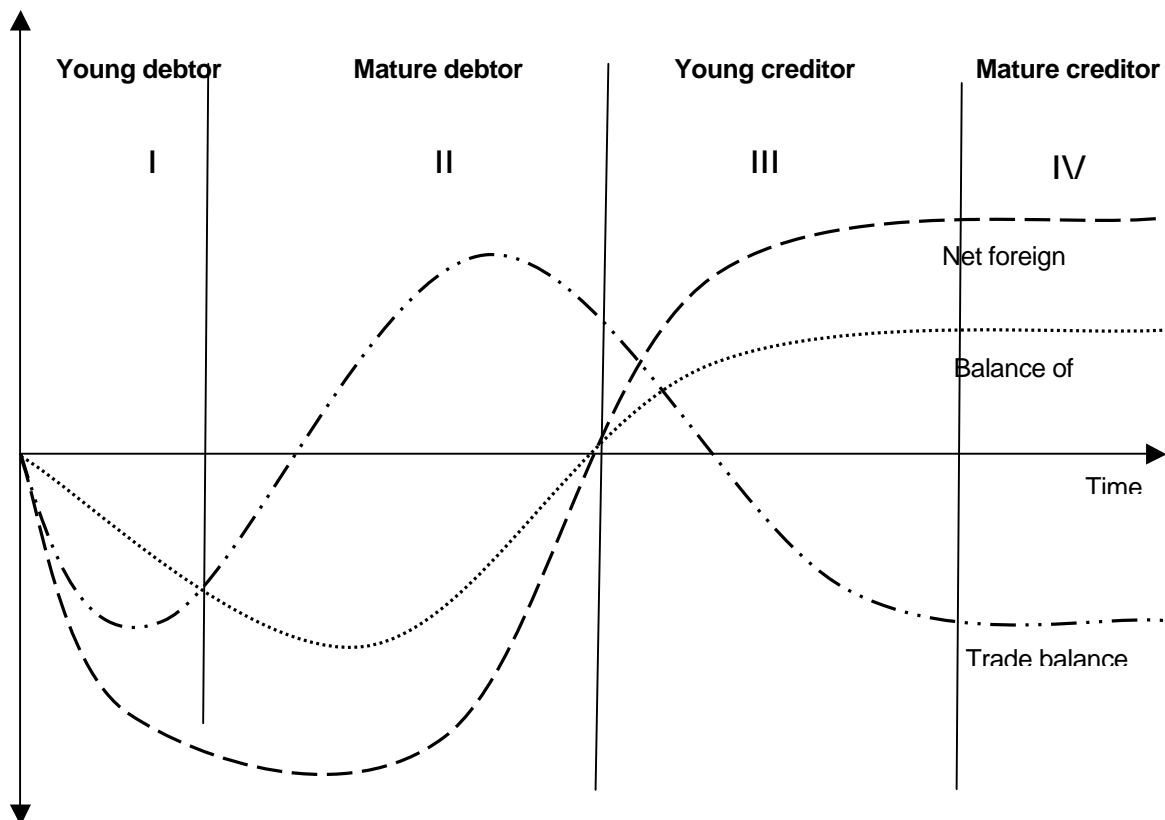
Source: Kindleberger (1963: 460), own modifications

To the contrary, the current account deficit may signal a country's economic strength. It is able to attract capital, which can be used to employ complementary factors of production. In the longer run, countries may undergo a debt cycle (Kindleberger 1963: 458-461, Siebert 1987 and 1989). The theory of the debt cycle distinguishes several stages of development on the basis of the net foreign wealth position, thereby linking development to the balance of payments. The theory is implicitly based on the intertemporal approach and explains current account deficits for young and emerging economies in need of capital from abroad. The

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[13] See Cooper (2007) who argues that viewed from this perspective, the United States is like a developing country.

[14] See Dooley, Garber and Folkerts-Landau (2007) for the first argument and Bhide and Phelps (2007) for the second.

country (in fact, its individuals and firms) borrows from abroad. These capital inflows are invested into yield-achieving entrepreneurial activities. If successful, these activities lead to future sales abroad, with which the country repays the debt.

During the debt cycle, a country goes through four stages in its net foreign position (as shown in Figure 2).[15] Firstly, the country builds up a negative foreign wealth position (phase I and II). As young debtor country (phase I), the country runs a net capital inflow, a trade deficit and a deficit in the balance of capital yields because foreigners demand a return on their net assets.[16] The capital inflows are invested, so that the country is able to increase future sales abroad and finance further investment from its own savings. South Africa seems to be in this phase. The capacity built up with this investment is used to produce internationally competitive goods and services. Then the country becomes a matured debtor country, running a trade surplus to diminish its liabilities. During this phase (II), the country already exports capital. Once, the net wealth position is positive, the country becomes a young (III) and then, later, a matured creditor (IV) country. In the last phase, the country does no export or import capital any longer, but runs a trade deficit, financed by capital income inflows.

2.5 Sustainability and the danger of a sudden stop

The theory of the debt cycle is closely related to the issue of sustainability. Only if the capital inflows are invested, rather than consumed, can future payments be made and the country becomes a creditor country. However, in order to benefit the country, the debt burden has to be moderate, particularly for low income countries (Loko et al. 2003). In addition to this condition, the investment has also to be successful, implying additional production opportunities and sales of goods and services in the future. This requirement hints at the microeconomic problems of a current account deficit. The decision about what is and isn't a successful investment is made on international markets. However, the government as well as private agents have much influence on this future decision by selecting appropriate strategies to invest. In particular, the government is of relevance because it sets incentives to invest into economic activities and, therefore, to be either successful on the markets or not. Thus, the issue of regulation and industrial policy plays an important role with respect to sustainability. If policies are volatile, then capital flows may also become volatile. The pattern of a debt cycle is only valid if the capital inflows are maintained for some time. In other words, the capital flow should not be volatile.

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[15] Kindleberger (1963: 460) distinguishes six phases by adding one phase for the debtor country and one for the creditor country respectively. The additional information of this extension, however, is limited.

[16] This holds as long as the return on the investment is equal for assets and liabilities. If there is a systematic difference between returns abroad and at home, the country may have a net liability position and still show positive net capital yields. Such a situation has been found for the US and is described as dark matter (Hausman and Sturzenegger 2006). It seems unrealistic that this scenario is also valid for South Africa.

A second – more common – perspective is the macroeconomic perspective.[17] The main problem associated with current account deficit is the danger of a sudden stop or even a reversal of a current account deficit. The problem associated with the reversal is that it can provide a negative investment shock and reduce liquidity, in particular if the net capital inflows are mainly short term. The empirical evidence does not fully support these fears, as it is mixed (Smit 2007: 6-10).

According to Smit (2007: 13f), the danger of a sudden stop depends positively on the following determinants:

■ The size of the current account deficit;

■ The size of foreign debt;

■ The share of foreign currency denominated debt in all debt;

■ High share of short term debt and of credits instead of equity;

■ Unsound fiscal policy;

■ A closed economy; and

■ A fixed exchange rate.

The topic of sustainability will be discussed and applied to South Africa extensively in section four.

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[17] For an overview see Smit (2007).

3. Methodological considerations and basic hypotheses

Before turning to a detailed discussion of the South African case (contained in section four), in this section of the report, we distinguish between macroeconomic and institutional features and identify our five hypotheses, which are:

■   One, that the cause of the initial current account deficit in 2003 is macroeconomic rather than microeconomic. We discuss briefly the macroeconomic aspects of the current account, referring to the rich literature in the field. It seems obvious that the current account is driven by the following macroeconomic factors (the direction of influence is shown in brackets, implying that high savings cause a current account surplus): savings (+), fiscal sustainability (+), investment (-), inflation (+). The role of external conditions has to be assessed.

■   Two, that the exchange rate is a transfer or adjustment variable. The development of the exchange rate will be explained with the capital inflows and subsequent adjustments on the demand and supply side of the South African economy. It will be shown that the balance of payments pattern is indeed characterised by an overshooting of the Rand.

■   Three, that the exchange rate dynamics should foster structural change. It will be shown that structural change in the South African economy has increased after 2002.

■   Four, that elements of the debt cycle are looked at to determine if South Africa is at the beginning of a beneficial debt cycle.

■   Five, that institutional factors, which are relevant for the current account against the background of sustainability, must be investigated to answer questions about how economic policy, good governance, capital market regulation and maturity, the demographic structure, including high human capital stock and problems of brain drain, affect the future development of the current account; and how likely is a sudden stop from this perspective.

4. Does the South African BoP fit into the intertemporal pattern?

4.1 Macroeconomic drivers of the South African BoP

At the end of the 1990s, the South African economy faced severe problems. Inflation was rather high, fiscal policy was mainly pro-cyclical (du Plessis, Smit and Sturzenegger 2008), growth was slow, and unemployment high. In 1999, the new government decided to stabilise the macroeconomy and succeeded in doing so. Inflation was reduced and from 2002 onwards, investment increased. Fiscal policy was stability-oriented; by the end of 2006, the fiscal deficit was the lowest in 25 years and GDP growth was the fastest since 1984 (Frankel, Smit and Sturzenegger 2006: 8). Public debt is moderate; in addition, the South African government has a rather low share of foreign currency denominated debt. To summarise, the macroeconomic performance from the late 1990s onwards until recently can be called favourable.

At the same time, savings started to decrease so that a gap emerged; that had to be financed with foreign capital (as is shown in Figure 3).

Figure 3: Savings and investment: 1994-2007
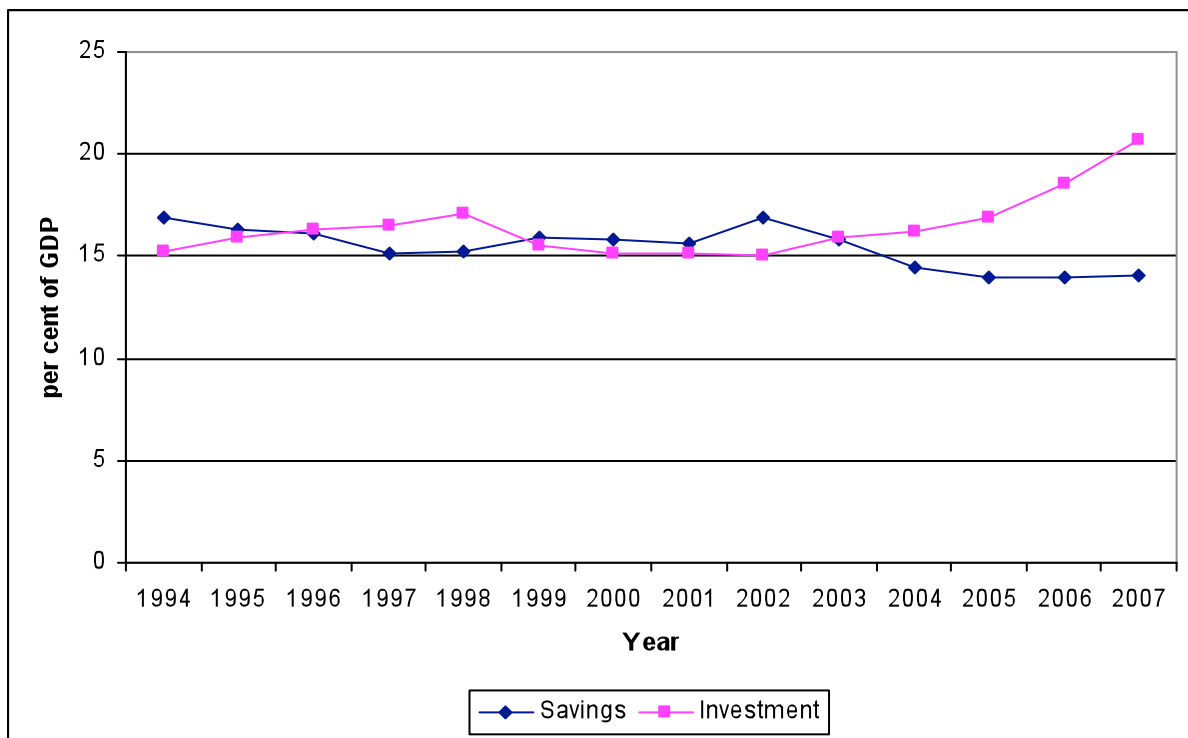
Source: South African Reserve Bank (2001, 2008)

The South African Reserve Bank reigned in inflation until 2004. This development certainly encouraged foreign investment in South Africa. After that, inflation spurred again (as shown in Figure 4). This is also in line with the intertemporal approach, as the inflow of capital leads to an increase of purchasing power, which drives up the prices for non-tradables and, thus, inflation.

Figure 4: Consumer and producer prices: 2002-2008
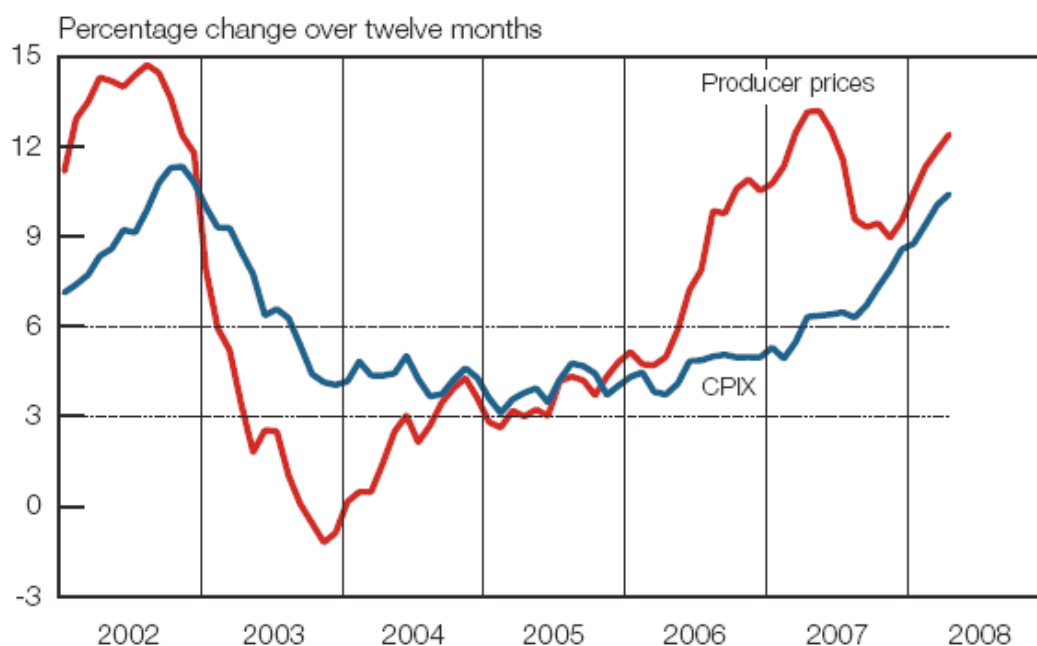
Source: South African Reserve Bank (2008: 15)

Finally, it has to be noted that the world's savings has increased from 20.5% of GDP in 2002 to 23.7% in 2007. According to Bernanke (2005), this saving glut has been encouraged by ageing industrial economies, such as Germany and Japan, and by rising oil prices leading to extraordinary profits in oil-exporting countries. As South Africa's capital market is rather well developed, it seems reasonable to assume that global investors include the country's assets in their portfolio. It is also plausible to assume that besides the saving glut, macroeconomic improvements are mainly responsible for the increase in capital inflows; that is that the first hypothesis expressed in section three of this report has merit.

4.2 The role of the exchange rate

4.2.1 What explanation for the exchange rates' development?

In nominal terms, the South African Rand appreciated against the US$ and the Euro until the fall of 2007. It also appreciated in real terms between 2003 and 2007 but depreciated since then (August 2008). This exchange rate development (as shown in Figure 5) is accompanied by the current account development (shown in Figure 1), and which was described in the first section of this report.

The competitiveness approach cannot explain the exchange rate developments.

The South African Reserve Bank (SARB) does not intervene heavily and frequently on the exchange market. Therefore, it is inadequate to claim that the exchange rate – be it bilateral or effective – is used as policy instrument. Instead, it is determined by a number of factors, which do not change over time. Both MacDonald and Ricci (2003) and Frankel (2007) explain the exchange rate development over time with economic fundamentals. The long run real effective exchange rate is determined by the real interest differential to trading partners (+, appreciation), real GDP growth relative to trading partners (+), increases in real commodity prices (+), increase in openness (-), improvement of the fiscal balance (-), and an increase in net foreign wealth (+). The actual exchange rate development is contrasted with an equilibrium exchange rate, which is calculated according to the long run relationship. If there is a gap, the authors conclude that the real exchange rate will adjust to the long run equilibrium. Policy measures do not help with that adjustment.

Whereas MacDonald and Ricci (2003) analyse the period from the mid-1990s until 2002 – before the current account turned into deficit – Frankel (2007) offers a plausible economic explanation for the real appreciation during the swing and the period thereafter. One of the driving forces is the phenomenon of Dutch Disease or the negative effects of resource abundancy on a country's development due to real appreciation and corruption.[18] Firstly, the real exchange rate is correlated highly with a real mineral price index (ibid: 4). If prices for mineral resources are increasing, the Rand appreciates; if the prices decrease, the Rand depreciates. Secondly, Frankel reports a positive correlation between the real exchange rate and the development of the real GDP gap to the USA. If this gap is increasing, the Rand depreciates in real terms; if it is decreasing, the Rand appreciates. Frankel (2007: 3) argues that this effect can be due to either higher productivity growth (Balassa-Samuelson effect)[19] or faster money growth in South Africa as compared to the USA.

By using a relatively simple model (compared to MacDonald and Ricci 2003) to explain the real exchange rate over time, which distinguishes between the long run equilibrium rates and short term deviation from this long term equilibrium, Frankel (2007: 5-7) employs the real price index for minerals, the income gap to the USA, the lagged Rand value, real interest spread to the USA and the country risk spread to estimate the drivers of real exchange rate of the Rand from 1984 to 2006. The results confirm the Dutch Disease hypothesis. However, the Balassa-Samuelson effect had to be rejected; faster productivity growth than elsewhere does not explain the real appreciation. The interest spread showed an expected negative sign, which Frankel (2007: 9) interprets as high confidence of international investors in South Africa.

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[18] Two main causes of Dutch Disease exist. First, foreign demand for commodities causes an appreciation of the domestic currency, which hampers other industries. Second, the high profits encourage corruption and fraud, which reduces the country's ability to grow.

[19] The Balassa-Samuelson effect is a real appreciation (prices for non-tradables rise faster than those for tradables), due to fast productivity growth in the international sector of the economy. If this productivity growth is faster in the emerging economy than in an industrialised economy, this real appreciation implies that price levels in both countries converge.

4.2.2 The exchange rate as adjustment parameter to the current account

Based on both explanations, we change the focus and analyse whether the exchange rate has had a function of an adjustment parameter. If this is the case, the notion of an equilibrium exchange rate is not important here. We also discuss another aspect of the intertemporal approach, namely, the thesis that the South African Rand has been overshooting. Figure 5 shows that after 2002, the Rand appreciated nominally and in real terms. It was only in mid-2006 that the effective exchange rate depreciated. Following the intertemporal reasoning, the (real and nominal) appreciation from 2003 to 2006 was economically necessary in order to allow the transfer from the capital account to the current account. In this view, the exchange rate is the adjustment parameter for the transfer.[20]

For a small, open economy, such as South Africa's, PT is more or less fixed internationally. One has to bear in mind that South Africa is geographically distant from relevant world markets, so that prices may differ because of transport costs; however, this difference will not change over time because of the law of one price. By contrast, PN is not fixed, but changes with a change in purchasing power. Therefore, it is reasonable to assess the relative prices between the two types of goods.

Figure 5: Effective exchange rates of the Rand
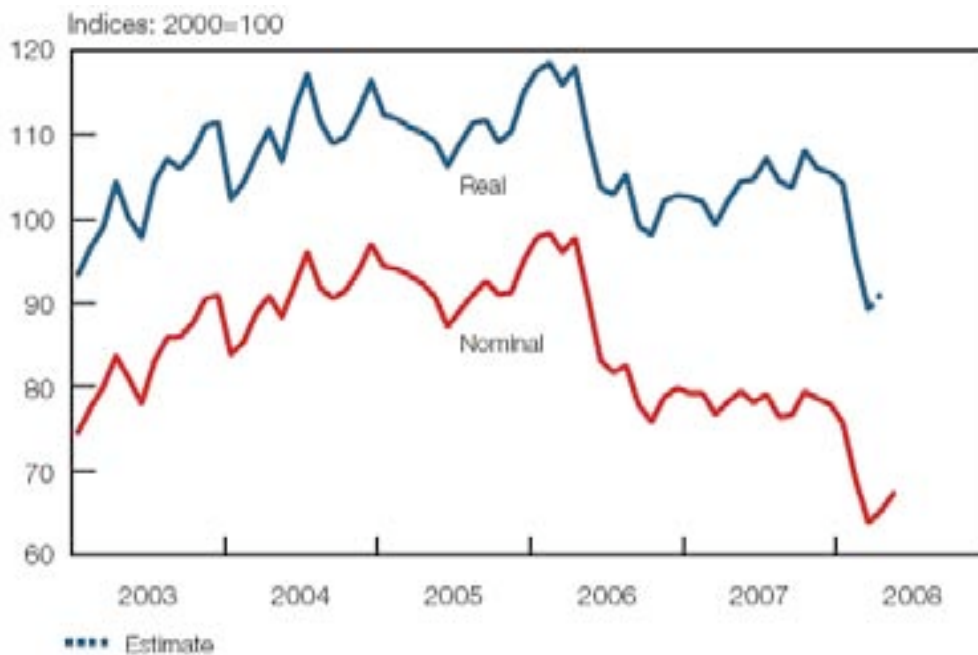
Source: South African Reserve Bank (2008: 32)

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[20] Chinn and Wei (2008) show that the current account adjusts to real exchange rate changes rather than to nominal exchange rate changes. In the South African case, we observed both quite strongly.

The challenge is to distinguish between the two. The distinction between goods and services is viable no longer, as many services have become tradables, not least due to international liberalisation and subsequent deregulation on domestic levels. Blignaut, Farrell and Rangasamy (2008) provide a guide to distinct between tradables and non-tradables. They apply this distinction to 153 (in an alternative categorisation: 95) goods and services South Africa for the years 1993, 1998, 1999 and 2002.[21] Based on the fact that some goods are export oriented or import competing, whereas others are mainly produced for the domestic market, they set a threshold for export orientation and import competition. If a certain share (10% is seen as minimal, see ibid: 9) of the output is traded internationally, the good or service is regarded as being a tradable. From those left, not all are treated as non-traded goods, as they are "…geared towards supplying tradable industries…" (ibid: 10). These are called secondary tradable products if 50% or more of the production is serving as input for the traded products. Thus, the majority of such goods and services can be regarded as tradable. In addition, the share of tradable goods has been increased in the 10 years between 1993 and 2002 (ibid: 16).

Unfortunately, for the groups distinguished in the paper, neither price data nor output data are available. Therefore, we had to rely on the series available.[22] Instead of producer prices, we use consumer price indices (Statistics South Africa 2008, series P0141). To start with, for the developments of prices for tradables and non-tradables between 2000 and June 2007 (shortly before the appreciation stopped and inflation took of), there is indeed a difference: PT as price index for the weighed basket of tradables in historic metropolitan areas increased by 40.75%, whereas PN as the respective index for non-tradables increased by 49.75%. However, the result was sensitive to the inclusion of running costs for transportation, which is treated as non-tradable. As the running cost is dependent on domestic policy (gasoline tax, insurance regulation and the like), this is justified.[23] Despite an even increasing current account deficit, from July 2007 to July 2008, the prices for tradables (+12.2%t) and non-tradables (+12.5%) developed similarly. These results support the second hypothesis's claim that the exchange rate is an adjustment parameter in principle.

4.3 Structural change

To further validate this hypothesis, we look at structural change in the South African economy. Because of the appreciation, the tradable sector typically relatively shrinks as exports and import competing domestic sales decline (or grow slower than without capital inflows), whereas imports increase. In this situation, the real appreciation is necessary to allow for the structural change. In the South African case, non-tradables grow faster indeed than do tradables during the period of appreciation. We compare the sectoral development of value-added and exports/imports for the periods 1994-2002 (i.e. before the current account

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[21] See Annex 1's Tables A1 to A4.

[22] For a distinction of goods see Annex Table A5.

[23] If we treat it as tradable, P_T increased faster than P_N. If we exclude it totally, the index for non-tradables only increases by 43%.

swung into deficit) and 2002-2007. Thereby, we start with the sectoral value-added. Again, we have to change the categorisation of the industries due to different data as compared to the price development.[24] How did the value-added of the sectors (Statistics South Africa 2008, series P0441, 2000 constant prices) change? Table 1 shows the increase between 1994 and 2002 and between 2002 and 2007.

Table 1: Structural change in South Africa (change in value-added in percent between 1994 and 2007)

	1994-2002	2002-2007
Agriculture	7	-3
Mining	-4	7
Tradables	29	21
Non-tradables (excl. government)	38	37

Source: Statistics South Africa (2008, Series P0441), own calculations

The result of this exercise is striking.

Whereas the production of agricultural products increased in the first period after democratisation, it shrinks thereafter. Mining, obviously, was dependent on the world market prices. The declining performance of agriculture and mining is in line with development theory. The interesting part of Table 1 is at the bottom. Non-tradables output grew faster than tradables output throughout the whole period, but significantly more so, in the second sub-period, when net capital inflows increased and the current account swung into deficit. On an annual basis, the growth rate of non-tradables increased from 4.1% (1994-2002) to 6.5% (2002-2007), whereas the growth rate of tradables only slightly increased from 3.2% to 3.9%, respectively.

An alternative way to look at structural change is by analysing trade flows. How did the export and import value (SARB, current prices) of different industry groups change (increase in percent) during the same period? Of course, for this question to be answered, we cannot distinguish between tradable and non-tradable goods, as both exports and imports are, by nature, tradable goods. Nevertheless, by distinguishing between merchandise trade and services trade we can analyse structural change, as increasing trade in services indicates a decreasing importance of non-tradables. This is justified because in the process of globalisation former non-tradables, mainly services, become tradables due to reduced transaction costs. Therefore, an increase in exports of services relative to merchandise goods indicates a structural change into the same direction as an increase in value-added for non-tradables relative to tradables.

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[24] For an overview see table A6 in Annex 1.

Table 2: Export and import increase in South Africa (in percent between 1994 and 2007)

	X: 1994-2002	2002-2007	M: 1994-2002	2002-2007
Merchandise	314	83	262	104
Services	206	83	333	123
Net gold	83	-9		

Source: South African Reserve Bank (2008), own calculations

Indeed, changes in the structure of export and import values are striking. Between 1994 and 2002, exports in services increased by 206% in nominal prices, which is much slower than the increase exports in goods (314%) during this period. Between 1994 and 2002, merchandise exports grew faster than service exports, whereas exports in both sectors increased equally in the period after 2002 (83%). This structural change is even more pronounced when looking at gross imports. Despite the capital inflows, imports grew slower after 2002 than before 2002. Between 1994 and 2002, services imports increased by 333%, merchandise imports by 206%. After 2002, services import growth (123%) was still higher than merchandise imports growth (104%), but the increase of service imports declined faster than the increase in merchandise imports. This may be an indicator that the competitive position of the service industry has improved relative to the merchandise sector.

A careful and moderate conclusion is that these simple empirical tests back the theoretical considerations (hypotheses one through to three) by and large. This conclusion can be drawn from the differences in value-added of tradables and non-tradables, as well as from the development of merchandise and services trade. Obviously, structural change was fostered by the real appreciation, which was partly caused by net capital inflows.[25] After an adjustment of the supply side, the net capital inflow is ideally accompanied by a simultaneous current account deficit – it does not need an appreciation any longer. It may even be the case that the exchange rate develops in the opposite direction. As the depreciation took place only recently, and new data are not available, we can speculate only about the long term relation between structural change and the exchange rate. Nevertheless, the pattern of exchange rate development and enhanced structural changes in production and international trade after the emergence of net capital imports is familiar; it is similar to developments in other emerging and industrialised countries, in line with the empirical work on the development of the Rand (MacDonald and Ricci 2003, Frankel 2007) and theoretically plausible.

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[25] This analysis des not allow for an assessment of the welfare, in particular labour market effects of structural change; see section four.

4.4 Is South Africa at the beginning of a beneficial debt cycle?

After discussing and identifying elements of structural change in the South African economy, we take a closer look at the dynamics of the balance of payments and the development of the net foreign wealth position. Is South Africa going through a debt cycle? According to Cline (2005: 17), between 1970 and 2003, South Africa has been a debtor country, most of the time as a matured debtor country, running current account deficits, but trade surpluses. Despite these, the country had permanently net foreign liabilities in the books. As Figure 6 shows, between 1994 and 2003, a cyclical pattern cannot be identified.

The development after 2003, however, indicates a pattern which can be interpreted as a start of the debt cycle. Net foreign liabilities have increased, the trade balance has turned into deficit, and the income balance has shown an increasing deficit. In the bottom part of Figure 6, the current transfers are added, as they have increased since 2003 (due to a special agreement within the Southern African Customs Union or SACU). Together, net trade, net capital yields and current transfer almost match the increase in the negative net foreign position, which is financed by net capital inflows.

Figure 6: The debt cycle?
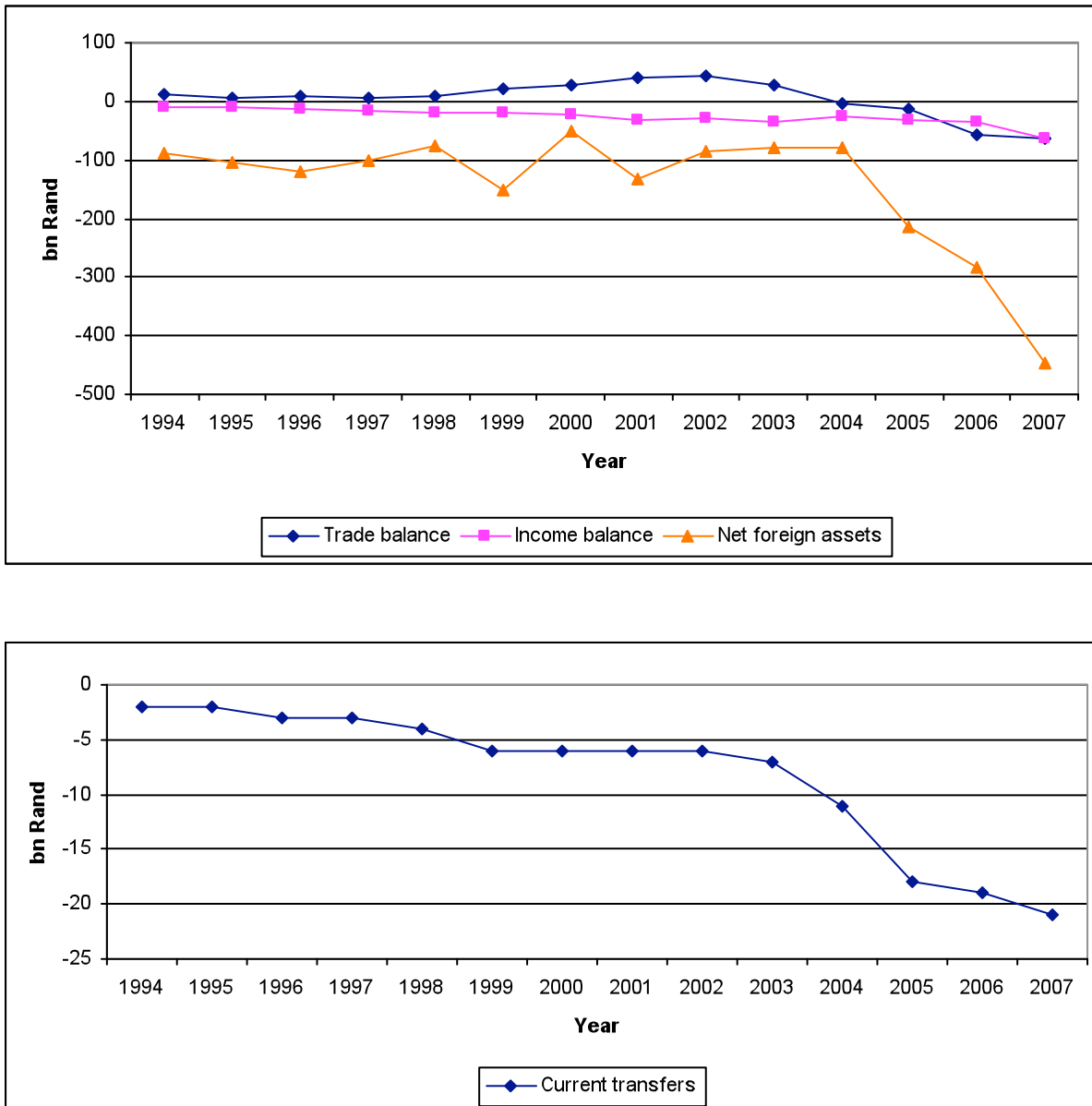
Source: South African Reserve Bank (2001, 2008)

It is too early to make an assessment of whether South Africa can start a debt cycle, enabling the country to increase employment and growth. To get an impression of its probability, in the subsequent two sections we discuss the institutional and microeconomic conditions, as well as the announced economic policy measures, which the South African government wants to implement in order to combat the urgent economic problems which the country faces. Our focus is on the effects of these conditions and the planned measures on the current account and its sustainability.

4.5 Institutions, microeconomic policies and the BoP

4.5.1 The institutional setting in South Africa

Latest research in institutional and development economics has come to the conclusion that institutions play a major role in explaining a country's economic performance. It has been shown that governance structures are relevant for economic growth and development as well as for the capability of countries to use foreign aid. The international development community, including the World Bank, has started to take governance structures into consideration when assisting governments in developing countries. Furthermore, a country's ability to attract foreign capital to a large extent depends on institutional quality (e.g. Dluhosch, Freytag and Krüger 1996).

By institutions, we understand the set of formal and informal norms and rules valid in a society. These emerge spontaneously or are created via a political decision.[26] Institutions can be interpreted as incentives and constraints for individuals in both politics and the economy. Institutions are difficult to identify and quantify. In particular, it is difficult to distinguish institutions from economic policy. For instance, is a labour market regulation an institution or a policy measure that can be easily changed?

Despite these difficulties, there are a number of indicators for institutions. Needless to say, these measures suffer from a number of shortcomings, the most important of which is its arbitrariness because both the choice of criteria and the outcome depend on the very person measuring an institution. For instance, the index of Economic Freedom, published by the Fraser Institute (Gwartney et al. 2008), draws on input from other think tanks around the world. It cannot be denied that this input is biased. Nevertheless, these indicators are published worldwide and allow for a comparison of the institutional quality of different countries. It also helps to compare different indicators over time to assess the development of the institutional and governance quality of a country. If these indicators follow a similar path, they can be regarded as consistent.

For the purpose of this study, we have chosen five indicators. The first is the Human Development Index (HDI) published by the UNDP (2008). It is normed between zero and one, with one being the highest possible score, and combines the outcome of four categories: life expectancy at birth, adult literacy rate, combined gross school enrolment rate and GDP per capita. The South African rank and score have decreased in the last decades, particularly due to a reduction of life expectancy at birth. The HDI is not quite an indicator of an institution, rather, a de facto result of governance quality.

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[26] There is an ongoing discussion of what institutions and institutional economics are. It would counter-productive for the purpose of our study to enter into this discussion. The interested reader may refer to the collection of basic articles in Hodgson (1993).

The second indicator, the Corruption Perception Index (CPI) published by Transparency International (2008), is based on several questionnaires and surveys conducted by different institutions. If a country is assessed in a minimum of three listed studies, it will get a score; in the 2007 CPI, 52 African countries are ranked. The number of surveys used ranges from nine for South Africa to three for Cape Verde. This procedure makes both an international and an intertemporal comparison difficult, as not each questionnaire or survey is conducted every year and not all countries are covered by the same questionnaires. In addition, it is based on the personal experiences of foreigners with a country and, therefore, may be biased, but probably less so than a questionnaire answered by the citizens of the target country. The CPI ranges from one to 10, the latter indicating the presence of less corruption.

Freedom House (2008) publishes two indicators annually: the indicator of Civil Liberties (CL) and Political Rights (PR), respectively. Both range from one to seven. The higher the score, the less freedom the citizens of a country have. The indicators are based on a checklist, which can be downloaded from Freedom House's website (2008). A score of two indicates that the country is almost free.

Finally, the Fraser Institute (Gwartney, Lawson et al. 2008) publishes an index of Economic Freedom, which contains 21 criteria within five groups:

1. Group one: size of government, including information about government consumption, subsidies and taxes (South African score 2005: 5.5).

2. Group two: legal system, consisting of information about property rights, judiciary independence, impartial courts, intellectual property rights, the role of military in politics and general acceptance of the law (score 2005: 7.0).

3. Group three: monetary soundness (score 2005: 8.0).

4. Group four: freedom to trade with foreigners, including information on barriers to trade and capital restrictions (score 2005: 6.6).

5. Group five: regulation, including banking regulation, labour market regulation, business regulation and corruption (score 2005: 6.8).

This indicator ranges between zero and 10, a higher score indicating higher economic freedom. A country is interpreted as free if the score is 7.5 or higher. As data for all sub-indicators are available (see the scores above in brackets), the index of Economic Freedom is either comprehensively or (only in parts) frequently used for institutional analysis because it has proven to be rather robust in its relationship with economic performance.

Table 3: Governance indicators since 1990

	African average	South Africa						
		1990	1999	2000	2002	2003	2005	2007
HDI	0.511 (2005)	0.735	0.742	0.696	0.666	0.658	0.674	n.a.
CPI	2.9	n.a.	5.0	5.0	4.8	4.4	4.5	5.1
PR	4.3	5	1	1	1	1	1	2
CL	4.0	4	2	2	2	2	2	2
EF	5.7 (2005)	5.3	6.3	6.8	6.8	6.9	6.8	n.a.

Source: UNDP (2008), Transparency Inernational (2008), Freedom House (2008), Gwartney, Lawson et al. (2008)

The governance indicators show that that there was no significant change after 2002, but after 1990, as a comparison of the shaded figures for 1990 with all subsequent scores shows. These indicators also show that the governance quality in South Africa is moderate. The country is somewhere below the worldwide average with respect to human development, economic freedom and corruption, whereas the degree of political rights and civil liberties is rather high. What is striking, however, is that Political Rights have been reduced in 2007 in comparison to the years after 1994. This is due to a reduction of the score in the sub-categories "Functioning of government" and "Rule of law" (Freedom House 2008), two aspects, which is in line with the rather low sub-score (5.5) for group one (size of government) of the index of Economic Freedom (Gwartney, Lawson et al. 2008) and has attracted increased international attention (e.g. OECD 2008, The Economist 2008).

Another aspect which is not covered by the indicators used here is rent-seeking. According to Coates, Heckelman and Wilson (2007), the degree of lobbying in South Africa seems high, as the number of lobby groups indicates. It is stable and above the simple world average. In 2002, 249 lobby groups were registered; the simple world average was 159, with a minimum of one (several countries) and a maximum of 10,526 (USA).[27] Africa had an unweighted average of 20 lobby groups. Although interest groups may perform important functions in society, in particular, providing information and other knowledge, intense rent-seeking activities may hamper economic policy and repress structural change.

This result suggests that the increase in net capital inflows after 2002 is not related to governance structure, since there were no improvements directly prior to the swing of the capital account into a surplus. It rather

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[27] The author wishes to thank Jac Heckelman for sharing this information.

reinforces our conclusion, expressed in section four, that an improved macroeconomic performance was mainly responsible for the increase in capital inflows into South Africa from 2003 onwards. This conclusion must not be confused with the statement that institutions do not matter. It has to be acknowledged that international investors do not even consider countries without good governance, safety and economic freedom.[28] In other words, the latter are prerequisites for foreign capital inflows. These inflows finally materialise if, and only if, additional conditions – micro and macro – are fulfilled. With respect to macroeconomics, these are in particular low inflation and fiscal stability.

Although institutional factors do not seem to be of utmost importance for the emergence of the net capital inflows into South Africa, their deterioration may raise the probability of a sudden stop. If the country witnesses a decline in governance quality, as has been discussed during the summer of 2008 in the context of legal proceedings against leading politicians (The Economist 2008), foreign investors may be discouraged and could search for other investment opportunities. There may be differences in the relevance of institutional factors between South Africa and big countries such as China and Russia. There cannot be any doubt that these countries perform worse with respect to institutions than does South Africa. Nevertheless, they have been able to attract foreign capital (gross flows) to a great deal. In other words, to compete with these giants, South Africa needs good governance. This holds all the more true as South Africa is a small country surrounded by states with poorer reputations and may well be grouped together with these countries by foreign investors. In particular, the degree of corruption is much higher in the rest of Africa (with the exception of Botswana) than in South Africa (as shown in Table 3). Despite the difference in both economic performance and governance quality, this scenario is not pure fantasy. The latest developments in Zimbabwe and the hesitant reaction of the South African government to the crimes committed by the Zimbabwean government may well encourage the perception that South Africa suffers from similar institutional shortcomings as do other African countries, namely, that the rule of law and access to human rights are worth less than the personal issues of politicians.

A decision to withdraw capital may be of long term consequence, as it normally takes time to regain the reputation lost in the process of declining governance quality. Despite this warning, it is unjustified to draw such a gloomy picture. As shown, the 'institutional quality' of South Africa is moderate in an international context and acceptable, if not exceptional, in Africa. The country has managed the transition period after the end or Apartheid rather well and has all chances of further improving the governance structure. With such a development, the better the economy is likely to perform. Besides macroeconomic policy and institutions, microeconomic policies, such as competition policy, labour market regulation, regulation in general, as well as trade policy play a role.

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[28] For an illustrative analysis see Stone (2006).

4.5.2 The microeconomic and anti-competition problems in South Africa

Apart from much potential when it comes to the general institutional setting in South Africa, recent research has identified a number of economic – mainly microeconomic – policy problems. The most urgent problem is unemployment (Rodrik 2006: 2f), which is coupled with weaknesses in the educational system and the low productivity of the South African economy. The structural change in the country, from manufacture to services, has not been accompanied by new jobs for the unskilled labour force (Rodrik 2006). Unemployment is as high as 25%. The immediate cause of this problem seems to lie in a surge in the supply of unskilled labour, which has not been absorbed by the labour market. The reasons for this inability are discussed extensively by the OECD (2008: 110-120). According to that report, the main reasons are a lack of entrepreneurship, poor infrastructure (which does not allow commuting between the townships and the potential working places), missing incentives to migrate internally and the poor education system despite high financial efforts.

Directly after the end of Apartheid, South Africa begun to enhance the chances of hitherto disadvantaged groups through the Black Economic Empowerment programme (BEE). With this programme, firms as well as the public sector are encouraged (with a system of strong economic incentives and punishments) to promote black individuals. While it is widely acknowledged that black economic empowerment is the key to peaceful development, there are flaws in its practical application. According to Andrews (2008), the programme encourages firms to aim at the low-skilled section of the labour market. Thus, the BEE programme is not addressing the most urgent education problems. Rather, by focusing at the top level of firms, it may drive well-educated white individuals out of the country, which is counterproductive and growth-reducing. With respect to employment protection legislation (EPL), South Africa does perform above the OECD average; all EPL-indicators used by the OECD show this (2008: 120-126).

Apart from labour market problems, the OECD points to a very important impediment for further development, namely, barriers to market entry. Concentration on markets for goods and services is high, but has been declining since 1996. According to indicators of product market regulation used by the OECD (2008: 64, 89-97), the regulatory barriers to run a business are considerable and much higher than OECD average. These barriers deter foreign investors and domestic entrepreneurs to asset up a business. In combination with the already mentioned weaknesses of public administration or the functioning of the government, they form jointly a sort of growth ceiling (Gouws 2008).

This growth ceiling is even reduced by a third major problem: monopolistic or oligopolistic structures in network sectors, which form bottlenecks for the further development of the South African economy. These sectors are electricity, transport and telecommunication. As they produce important inputs for the tradable sector in South Africa (both goods and services), low quality and high prices keep productivity in South Africa low and hamper the price competitiveness of downstream industries as well as the ability of South Africa to attract foreign capital.

As a matter of fact, productivity growth between 2000 and 2005 in South Africa has been rather mediocre and slower than in some other emerging markets, such as China and India (OECD 2008: 57). A neglect of these bottlenecks will probably reduce further the productivity growth. Low productivity growth does not contribute to the high-tech potential of the country, which already has a low share in high-tech exports.

Although the net effect of low productivity and high input prices on the current account cannot be forecast, it seems clear that the problems in the network industries diminish gross flows and reduce the welfare enhancing international division of labour. The net effect on the trade balance depends on the response of international investors: if they maintain their net portfolio investment in the country (see section four below), the current account does not change. Nevertheless, the poor performance of the network industries certainly reduces international trade to the disadvantage of the South African economy.

4.5.3 The structure of trade flows over time and sustainability

The next test is dedicated to the question of whether the increase in the trade deficit has coincided with a change of the trade structure. This is necessary to allow for an assessment of the sustainability and a subsequent policy conclusion. Table 4 shows that the export structure has changed more significantly.[29] The share of capital goods in total exports has remained constant, but the share of consumption goods has increased. This development is compatible with the observation that productivity growth has been slower than in other emerging markets. Consequently, Chinese firms have replaced South African competitors in international trade, e.g. with the European Union (Freytag 2008: 4f).

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[29] We use data provided by the WTO, see Annex 2 Ttable A7, for an overview about the industries. Table 4 is not very precise as the sectors addressed can produce all sorts of goods. Therefore, the categories Manufactures and Automotive products have not been included in the table, which explains that the sum of the share is not 100.

Table 4: Capital and consumption goods as share of exports and imports in percent

Exports	Capital goods	Consumption goods	Imports	Capital goods	Consumption goods
1994	26	25	1994	42	10
1995	26	26	1995	38	18
1996	26	27	1996	38	19
1997	22	26	1997	38	22
1998	23	25	1998	42	17
1999	23	25	1999	40	18
2000	22	30	2000	39	22
2001	22	31	2001	39	22
2002	22	30	2002	39	20
2003	23	34	2003	38	19
2004	24	34	2004	38	21
2005	24	35	2005	38	20
2006	24	37	2006	36	24

Source: WTO (2008), own calculations

How did the import structure change after 2002? It would be disadvantageous for the South African economy if the increase in gross imports was mainly or even exclusively made up of consumption goods, because then the additional capital inflows would have been used for consumption purposes, unless the domestic purchases change from consumption to capital or intermediate goods. As Figure 7 and Table 4 make clear, this was not the case.

There was no significant change in the composition of South African imports. The shares of capital goods and consumer goods remained more or less constant. After 2003, a small decrease in the share of capital goods imports can be observed, which was partly compensated by an increase in intermediate goods. Lately, the share of raw materials increased, which can be used as consumption as well as intermediate

goods. In general, the structure of imports does not allow the conclusion that the trade deficit is adverse to increased investment and a beneficial debt cycle.

Figure 7: The composition of South African imports: 1988-2007
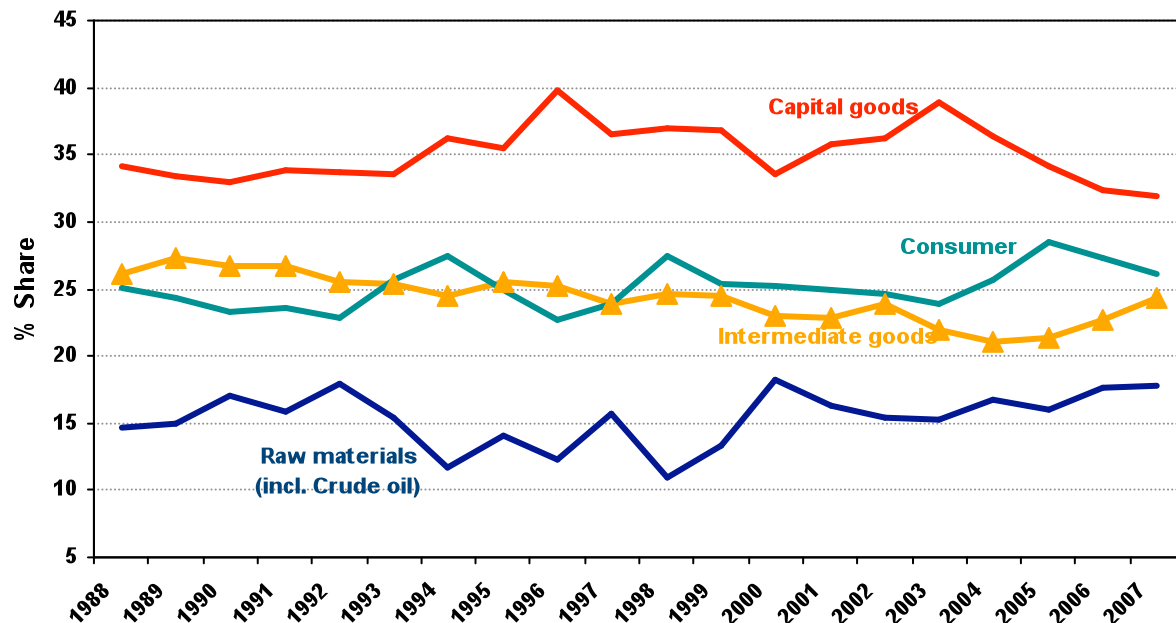
Source: South African Reserve Bank, IDC (2008)[30]

4.5.4 The structure of capital inflows, capital market regulation and the BoP

The final sub-section in section four deals with the composition of net capital inflows.

As figure 8 indicates, portfolio investments have formed the biggest share of the net capital inflows since 2003. Foreign direct investments do not play a major role and have been very volatile in the last six years. In addition, they also moved exactly opposite to other investment, which may be an indicator that an increase in FDI was financed deposits foreigners had built up earlier or that a decrease in FDI was not exported again, but kept on a deposit. A similar development can be observed in the first two quarters of 2008. Net portfolio investment outflows were compensated by net inflows of other investment, presumably deposits.

As the capital market in South Africa is rather matured and the financial industry is strong, it seems sensible for foreign investors to concentrate on portfolio investments. If these are mainly consisting of equity, portfolio

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[30] The author wishes to thank Gerhard Kuhn for sharing this figure.

investments are highly acceptable. To the contrary, it would be astonishing if the foreign investors did not use the expertise of the local industry to run the business. In addition, as FDI is a statistical artefact, the distinction is less clear.

One problem may be that South Africa is still maintaining capital controls against its citizens. These may have prevented individuals or banks from exporting capital, which has three implications. Firstly, the current account deficit is higher than necessary. Secondly, the income balance is in deficit higher than necessary. Thirdly, investment projects in South Africa are selected, which would not be chosen without the distortion. Thus, the long run GDP per capita is lower than possible.

Some further features are of interest. Firstly, it has to be acknowledged that only a small share of the liabilities is denominated in foreign currency. At the end of 2006, the gross liabilities were approximately US$252bn, of which US$43.6bn was foreign currency denominated (South African Reserve Bank 2008). This is a share of less than 18%. Secondly, of these US$43.6bn, only US$16.6bn are short term; this being a ratio of 38%. Finally, the state has a limited debt, which is less than 30% of GDP. Viewed from a different perspective, namely analysing the gross liabilities, the picture looks similarly: In 2006, almost 40% of the gross liabilities were FDI. Another 45% was portfolio investment of which 80% was equity and 20% was debt. The rest of the R250bn was loans and deposit, most of it long term. In sum, the sustainability of the current account seems to be quite high.

Figure 8: Structure of net capital flows: 2003-2007
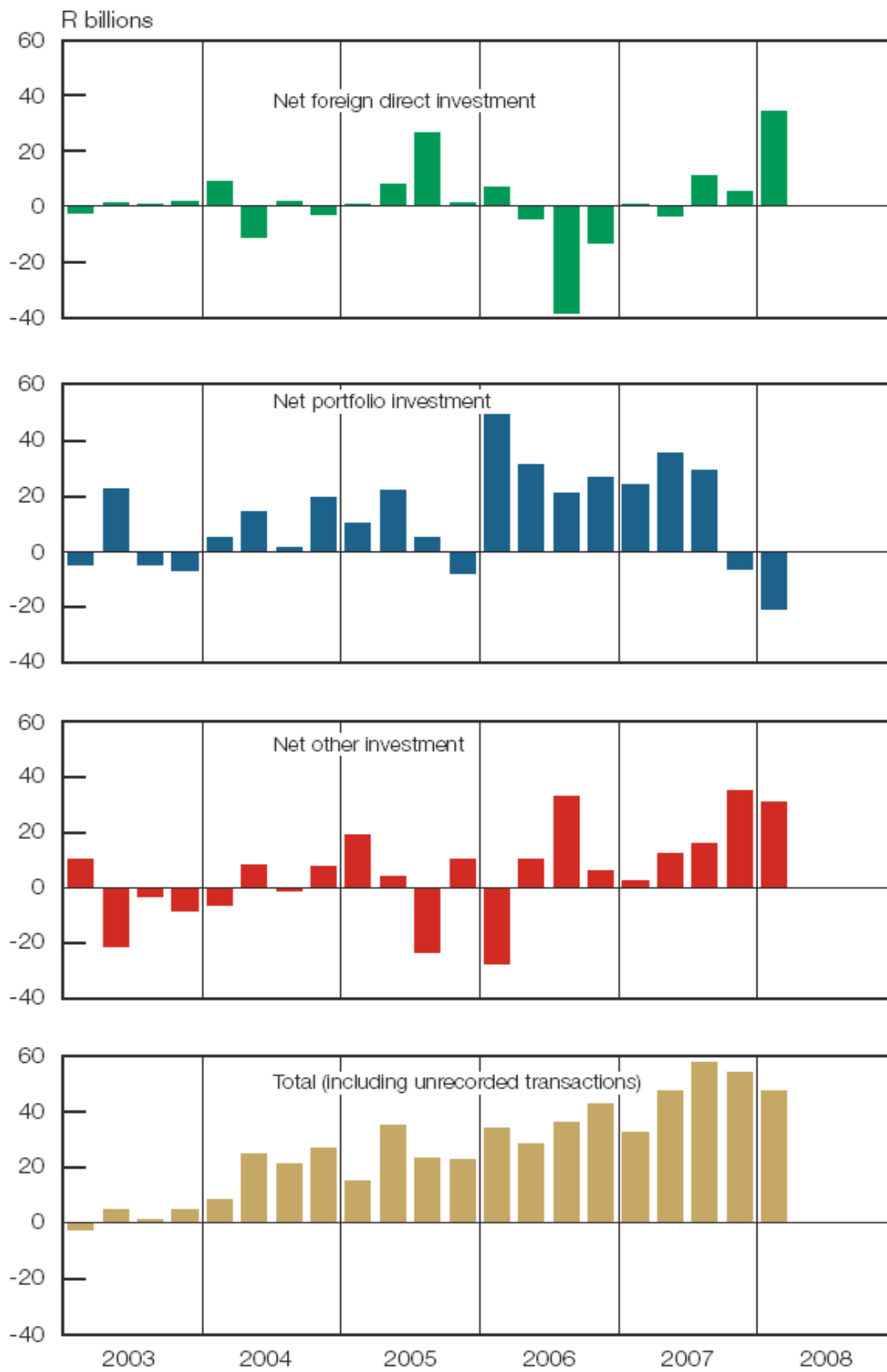
Source: South African Reserve Bank (2008: 28)

4.6. Policy responses

4.6.1 National Industrial Policy Framework

After discussing the institutional and microeconomic problems in the South African economy, it seems plausible to look at central policy programmes intended to foster structural change and to increase employment in the country. Since 1994, South Africa has introduced four policy programmes to increase employment, foster structural change and growth. After 1994, the Reconstruction and Development Programme (RDP) was introduced. As its success was moderate, and from 1996 onwards, it was replaced by the Growth, Employment and Redistribution strategy (GEAR), which was successful in increasing macroeconomic stabilisation. In 2006, the Accelerated and Shared Growth Initiative for South Africa (AsgiSA) was introduced to tackle the growth constraints, as discussed above. Whereas the diagnosis about the problems in South Africa is widely shared among observers, there are doubts about the effectiveness of the strategies (OECD 2008).[31] Based on AsgiSA, the government introduced a recent programme, called the National Industrial Policy Framework (NIPF).

This section is not intended to enter deeply into the discussion about the virtues and risks of traditional industrial policy. Nevertheless, it is justified to discuss the approach with respect to its effects on the sustainability of the South African current account deficit. How will NIPF contribute to future BoP developments? This question can only be answered with regard to the incentives and constraints within the local economy in a speculative but informed manner.

NIPF is directed at supporting certain, clearly identified industries; it thereby takes it for granted that the government has the knowledge to identify these key industries. These are the usual suspects: the automotive industry, metal processing, tourism, textile and clothing, agriculture and mining. Direct measures are suggested (albeit on a high degree of abstracting and without details). Beside direct measures to support single industries, cross-cutting priorities are identified. It remains unclear what exactly the DTI is planning, as details are lacking (Draper and Alves 2007). The Harvard Group suggested picking industries or activities that promise "…new products, new processes, new geographical zones or new forms of organisation…" Hausmann 2008, recommendation 12).

Such a policy framework is politically tempting but economically risky. Firstly, the main difficulty for the government or its agencies is to identify those industries that create jobs and growth in the future. Much information is needed. The problem is that this information is generated during the process itself and best so on markets. Admittedly, private agents face the same lack of knowledge, but markets normally generate and process information and knowledge faster than governments. The general phrase for any governmental effort to mimic the market as information generic instrument is governmental "pretence of knowledge" (v.

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[31] See also Rodrik (2006) as well as Frankel, Smit and Sturzenegger (2006) for extensive analyses.

Hayek 1975). This holds as governments and their agencies spend other people's money, whereas private agents are disciplined by markets. In addition, given the special weaknesses of the South African government to make the administration work properly (OECD 2008), it seems an unrealistic approach to pick certain industries. Given that, under the conditions of globalisation, especially the value-chain splicing and complex specialisation as well as the high speed at which knowledge is ageing, it is even more difficult to forecast future economic structures. In other words, the world has changed greatly since the 1950s and 19/60s and traditionally "picking winners" is much more complex (assuming it worked in the first place).

Secondly, industrial policy programmes are prone to rent-seeking activities and corruption. The decision about whom to support cannot be made without uncertainties, arbitrariness and personal contacts. This opens discretionary leeway for politicians and rent seeking scope for lobbies. Thus, the decision will probably be biased either because of political consideration, e.g. directed at the next general election, or at personal benefits for the members of the agencies (corruption). However, political considerations directed at elections may be less relevant in a country where the incumbent party can rely on an overwhelming majority. Nevertheless, lobbying efforts may create a bias even under these circumstances. Thus, it must not be ruled out that an industrial policy programme leads to biased outcome, as this discourages further foreign investment.

Thirdly, the supported industries may become dependent on the support and, thus, diminish their efforts to catch up with world market leaders, innovate and improve their performance. Subsidised industries in industrialised countries, such as Germany, provide massive evidence for this argument. The government should be aware of this and make payments contingent on co-funding by the industry. Otherwise, the increase in productivity remains wishful thinking.

Because of these general shortcomings and with respect to the South African current account position, it has to be acknowledged that NIPF contains a distinct risk with two facets. Firstly, experience in Asia in the second half of the 1990s suggests that one major cause of the Asian crisis was the governments' interventions in the credit markets channelling funds into strategic industries, thereby forcing banks to take high risks. Many of the selected industries did not succeed on the world markets. The subsequent crisis cascaded and ended in a macroeconomic disaster in several countries (Corsetti, Pesenti and Roubini 1999). Based on this disastrous experience, one wonders why some observers suggest the very same policy for South Africa (e.g. Rodrik 2006). As the Asian experience was also driven by contagion effects, this danger becomes even more relevant when considering the increasing role of tradables in the economy, making the economy vulnerable to external shocks. Secondly, and related to this issue, there are parallels in the world economy. The Chinese position today bears that sort of risk. The Chinese government is also channelling money into certain industries it regards as highly important for employment and growth. The risk is considerable that parts of these activities may fail. However, in contrast to South Africa, the Chinese government and central bank have built up enormous foreign reserves in the last years. This has been interpreted as an insurance against risk associated with industrial policy.

The South African situation is, of course, different. It is unclear how funds can be channelled into the targeted sectors; it seems highly unlikely that private banks can be forced to take considerable risks. However, the government can give credit guarantees to back up banks' engagement.[32] Also, the South African reserve position is growing slightly, but to a far lesser (relative) extent than that of the Chinese. Therefore, the risk insurance in South Africa today would be lower.

To summarise, it can be questioned whether an industrial policy programme directed at identifying future winners on the world markets and, hence, subject to a high risk to fail is likely to increase the sustainability of a current account deficit of 6% of GDP or more. Bad economic performance of the supported industries may lead to an overall economic crisis in the country, during which international investors may be tempted to withdraw their capital, and not only from the selected industry. In addition, policies directed to support certain industries and firms do not increase competition, but rather the barriers to entry, thereby discouraging foreign and domestic investment.

The scenario is completely different if NIPF is more concentrated on the cross-cutting priorities: If bottlenecks, in general, are widened with the means of industrial policy and by a more adequate competition policy, the investment target South Africa can become even more attractive for foreign investors (see section five).

4.6.2 Is there any role for trade policy?

Trade policy is a sibling of industrial policy. Both are directed at improving the competitiveness of domestic enterprises on world markets. Theoretical reasoning and overwhelming empirical evidence show that in the medium term, and even more in the long run, free trade and open markets for goods and services serve this purpose best.[33] It is theoretically clear and empirically proven that the road to free trade is bumpy, as structural change will destroy jobs faster than new ones will be created.

Nevertheless, trade policy cannot "improve"[34] the current account. Assume that South Africa increases trade barriers in certain industries to restrict trade and grants subsidies to other sectors to raise exports. Assume further that savings and investment decisions are not influenced by this policy package. The increase of trade barriers will bring about two results: firstly, demand for foreign currency is decreasing, implying an appreciation of the Rand; and secondly, prices of imported goods increase (due to tariffs). Imports are indeed reduced. This hurts the consumers (mostly the poorest) and – more important with respect to BoP-

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[32] So far, figures about the funding of NIPF have not been published.

[33] For a very good theoretical account see the textbook by Feenstra and Taylor (2008). A recent empirical analysis is provided by Sally (2008). For South Africa see Hausmann and Klinger (2006), Edwards and Lawrence (2006) as well as Sandrey et al. (2007).

[34] The phrase "improve" is misleading, as proper positive bop-theory does not have normative implications (see section two).

issues – increases the input prices for the tradables sector. Thus, exports are hurt; as a standard phrase has it: import protection is export taxation.

The subsidies for selected export industries add to the picture, as prices of these export goods decrease, demand for them increases, the currency appreciates again. Other (not subsidised) industries suffer export losses. Moreover, the subsidies have to be financed with taxpayer's money. Hitherto successful exporters earn good profits and pay high taxes. If their taxes are used to promote exports of other firms, which leads to shrinking exports of the former, the tax basis is also shrinking. Taxes have to be increased; a vicious cycle may be the consequence. Thus, it is the rent-seeking activities that partly determine success and failure on export markets. Again, there is wide empirical evidence that protection to support certain industries is repressing structural change, for instance in OECD countries such as France, Germany or Italy. On the other hand, those emerging and transition economies that reformed their trade policy have been successful in creating new jobs (Sally 2008). Indeed, as SAIIA's research project on the political economy of trade reform shows, failure to consistently reform in this direction means that during macroeconomic crises reform becomes more painful.[35]

With respect to the trade balance, the protection does not change the deficit. The only consequence is that gross flows, both imports and export diminish. The reduced division of labour costs employment and growth world-wide, but particularly so in South Africa. The trade deficit remains high, as it is not a matter of trade policy, but of saving and investment decisions.

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[35] Details are available at http://www.saiia.org.za/index.php?option=com_content&view=article&id=103&Itemid=202.

5. Policy lessons

5.1 Currency depreciation and its problems

The competitiveness approach suggests a depreciation of the Rand in required to stop the trade deficit. The first question to be answered is whether or not South Africa will devalue its currency. To approach an answer to this question, consider the case for an undervalued currency. Several problems occur simultaneously.

■ The depreciation of the Rand can only be accompanied by an increase in money supply in South Africa. Therefore, inflation spurs even further and causes a real appreciation of the Rand because of faster rising prices of non-tradables. This can drive capital out of the country because real interest rates diminish. Thus, the gap between saving and investment is reduced. Indeed, a trade surplus is the result but at the expense of welfare losses due to inflation.

■ Due to the artificial undervaluation of the Rand, South African exports are becoming relatively cheap (in terms of Euro or US-dollar) leading to an increase in exports and foreign exchange. As a consequence, South Africa experiences a rise in international reserves, which causes money growth to occur even faster than it does today. Domestic inflation would accelerate again. However, the South African government could try to sterilise the increase in reserves to stop money growth. The sterilisation would lead to an increase in the interest rate, followed by an inflow of capital which either causes even higher inflation or has to be sterilised again. The additional capital inflow would counter the efforts to drive down the trade deficit.

■ Higher inflation is impeding price competitiveness in the export industry. Exports are reduced and imports are stimulated, other things equal. The trade deficit would even be increased.

Thus, the net effect of the undervaluation remains unclear. Notwithstanding, it cannot be in South African interest to increase inflation even further. As long the saving investment ratio and reserves do not change, there would be no change in the trade balance. Thus, the expectations to use monetary policy with respect to the trade balance should be moderate.

5.2 Sustainability of the current account deficit at question?

After we have shown how pointless and economically dear a devaluation of the Rand would be, let us turn again to intertemporal thinking and its implication for the sustainability of the current account deficit. The intertemporal logic is intellectually robust. The microeconomic foundation of the BoP analysis is sensible and helps to understand the South African experience, as preferences and individual responses to incentives can be taken into account. Obviously, the savings-investment decisions are made according to the set of

incentives given and the constraints set by economic policymakers and incorporated into monetary and fiscal policy, trade policy and other policy areas.

The macroeconomic stability in the country, the degree of capital market maturity as well as governance structures in the economy and the government play a major role in the calculus of foreign investors. These factors lead us to a positive judgement with respect to the sustainability. The problem of a sudden stop seems to be small and manageable.

But even if the net capital flows will be reduced in the future, South Africa is not likely to face a crisis immediately. In general, the overall macroeconomic picture is favourable:

- Foreign debt is relatively low;

- The share of foreign currency denominated debt is rather low;

- The share of short term debt is also rather low;

- Fiscal policy is sound;

- The economy is rather open;

- The exchange rate is flexible; and

- Monetary policy is stability oriented and builds up foreign reserves.

In addition, the institutional aspects are favourable:

- Political rights and civil liberties are reasonable;

- Economic freedom has slightly increased;

- Corruption is high, but not in comparison to other emerging markets, and is even slightly declining.

If the government manages to solve the current political problems related to charges facing its leading politicians and the unrest in certain parts of society, the institutional setting can further be enhanced, increasing the reputation the country has as an investment location and trade partner.

The final questions deal with the microeconomic conditions and policy responses such as NIPF. If it aims at promoting special domestic industries, the impact on the balance of payments may be small in the short run. However, the effectiveness and efficiency of the programme may be reduced with such an industrial policy approach, leading to a decrease in international competitiveness of the South African industry in the longer run.

5.3   Policies to foster competition

South Africa can benefit greatly from the net capital inflows. If they are maintained, they can be used for further investment. Creating new jobs and lifting the living standard of the poorest will increase savings in the country. This would automatically reduce the net capital inflows in the future. Therefore, the country should not attempt to reduce the net capital inflows artificially with policy measures.

This implies that the government should not target certain industries with the means of traditional industrial policy. Picking the 'winners' may not be an appropriate strategy as the risk of failure is extremely high – it is fair to talk of a certainty of failure. This certainty is neither due to moral failure nor to a lack of effort. The uncertainty of future conditions in the world economy is too huge to make good predictions about the world economy and its structure. A second related question deals with trade policy. It has been shown theoretically as well as empirically that trade barriers are inappropriate responses to a deficit in the current account.

Thus, a sector oriented strategy is not adequate. Having said this, the government should not be inactive. Rather, there is plenty of room to manoeuvre for the government. In NIPF, this has been addressed as cross-cutting policy measures. We strongly support the view that the government should address the problem of low productivity by, for example, fostering technological and structural change and enhancing education policy on all levels of education. In particular, primary and secondary education, not only tertiary educational, systems should be improved.

Next, the government should tackle the bottlenecks in infrastructure, especially in electricity, transport and communication. The lack of productivity and the high costs are not mainly a problem of capacity, but rather of organisation and competition. The government should take efforts to liberalise, de-monopolise and, finally, regulate these – and other – sectors (OECD 2008) according to experiences in other countries. To give an example, efforts to enhance the quality and reduce the prices of telecommunications will be very beneficial for other sectors, such as the financial industry. Here, a shift towards opening up the service sector to foreign competition, such as by signing the Fourth Protocol of the WTO, would be of essential importance. If it is possible to attract foreign investors in the telecommunication industries, a boost in productivity throughout the economy could be the consequence. It would be a contribution to a beneficial debt cycle. Then, the current account deficit would be a sign of South Africa's economic strength.

5.4 The way forward

This study has attempted to answer questions related to the surging current account deficit which, according to many observers, will remain in issue for a few years. Thus, there is also scope for further and future research.

First, it is necessary to analyse the development of the balance of payment as well as the net foreign position further. If South Africa is really experiencing a debt cycle, one would expect that after a few years the net foreign liabilities will decrease and the country will move into phase II, becoming a mature debtor country, eventually becoming a creditor country.

Second, there is need to know more about the relationships which have been discussed in this study:

- Why have savings been declining since 2002? What can be done to increase these again?

- How do capital controls for domestic individuals affect the current account? Is it justified to claim that they increase the current account deficit? Or would more capital export of South African citizens encourage more capital imports by foreigners? How would be the welfare effects of a removal of the controls?

- Can we calculate more accurate price indices for tradables and non-tradables?

- Can one measure the effects of institutional variables on the current account? Is it possible to find thresholds for certain institutions?

Third, it would be interesting to compare South Africa with other deficit countries. For this purpose, it is sensible to distinguish at least two groups, namely, the Central and Eastern European transition economies that run high current account deficits based on foreign direct inflows and the developed countries that run current account deficits based on portfolio inflows, namely Australia and New Zealand. Once one knows more about South Africa, such a comparison would be supportive in the policy formulation process.

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Annexure 1: Tradables and non-tradables

Table A1: Tradable and non-tradable products (95 product case)

NR	1993	1998	1999	2000	2002	NR	1993	1998	1999	2000	2002
UP1	NT	T	T	T	T	UP50	T	T	T	T	T
UP2	T	T	T	T	T	UP51	NT	T	T	T	T
UP3	T	T	T	T	T	UP52	T	T	T	NT	NT
UP4	T	T	T	T	T	UP53	T	T	T	T	T
UP5	NT	T	T	NT	NT	UP54	T	T	T	T	T
UP6	T	T	T	T	T	UP55	T	T	T	T	T
UP7	T	T	T	T	T	UP56	T	T	T	T	T
UP8	T	T	T	T	T	UP57	T	T	T	T	T
UP9	NT	T	T	NT	T	UP58	T	T	T	T	T
UP10	NT	NT	NT	NT	NT	UP59	T	T	T	T	T
UP11	NT	NT	T	T	T	UP60	T	T	T	T	T
UP12	NT	NT	NT	NT	NT	UP61	T	T	T	T	T
UP13	T	T	T	T	T	UP62	T	T	T	T	T
UP14	NT	T	T	NT	T	UP63	T	T	T	T	T
UP15	T	T	T	NT	NT	UP64	T	T	T	T	T
UP16	NT	NT	NT	T	T	UP65	T	T	T	T	T
UP17	T	T	T	T	T	UP66	T	T	T	T	T
UP18	NT	T	T	T	T	UP67	T	T	T	T	T
UP19	NT	T	T	T	T	UP68	T	T	T	T	T
UP20	T	T	T	T	T	UP69	NT	T	NT	NT	T
UP21	NT	T	T	T	T	UP70	T	T	T	T	T
UP22	NT	NT	NT	T	T	UP71	T	T	T	T	T
UP23	T	T	T	T	T	UP72	NT	T	T	T	T
UP24	T	T	T	T	T	UP73	T	T	T	T	T
UP25	T	T	T	T	T	UP74	T	T	T	T	T
UP26	NT	T	T	T	T	UP75	T	T	T	T	T
UP27	T	T	T	T	T	UP76	T	T	T	T	T
UP28	NT	NT	NT	NT	NT	UP77	T	T	T	T	T
UP29	NT	NT	NT	NT	NT	UP78	NT	T	T	T	T
UP30	T	T	T	NT	NT	UP79	T	T	T	T	T
UP31	T	T	T	T	T	UP80	T	T	T	T	T
UP32	T	T	T	T	T	UP81	NT	NT	NT	NT	NT
UP33	T	T	T	T	T	UP82	NT	NT	NT	NT	NT
UP34	T	T	T	T	T	UP83	NT	NT	NT	NT	NT
UP35	T	T	T	T	T	UP84	NT	NT	NT	NT	NT
UP36	T	T	T	T	T	UP85	NT	NT	NT	NT	NT
UP37	NT	NT	NT	T	T	UP86	T	T	T	T	T
UP38	T	T	T	T	T	UP87	T	T	T	T	T
UP39	NT	NT	NT	NT	NT	UP88	NT	NT	NT	NT	NT
UP40	T	T	T	T	T	UP89	NT	NT	NT	NT	NT
UP41	NT	T	T	T	T	UP90	NT	NT	NT	NT	NT
UP42	T	T	T	T	T	UP91	NT	NT	NT	NT	NT
UP43	T	T	T	T	T	UP92	NT	NT	NT	NT	NT
UP44	T	T	T	T	T	UP93	NT	NT	NT	NT	NT
UP45	T	T	T	T	T	UP94	NT	NT	NT	NT	NT
UP46	T	T	T	T	T	UP95	NT	NT	NT	NT	NT
UP47	NT	NT	NT	T	T						
UP48	NT	T	T	T	T	T:	58	72	72	70	73
UP49	T	T	T	T	T	NT:	37	23	23	25	22

Notes: *For product description see Table A4.*

Source: Blignaut, Farrell and Rangasamy (2008: 16)

Table A2: Tradable and non-tradable products (153 product case)

NR	1999	2000	2002	NR	1999	2000	2002	NR	1999	2000	2002	NR	1999	2000	2002
SP1	T	T	T	SP40	NT	T	T	SP79	T	T	T	SP118	T	T	T
SP2	T	T	T	SP41	NT	T	T	SP80	T	T	T	SP119	T	T	T
SP3	T	T	T	SP42	NT	NT	NT	SP81	NT	T	T	SP120	T	T	T
SP4	T	T	T	SP43	T	T	T	SP82	T	T	T	SP121	T	T	T
SP5	T	NT	T	SP44	T	T	T	SP83	T	T	T	SP122	T	T	T
SP6	T	NT	T	SP45	T	T	T	SP84	T	T	T	SP123	T	T	T
SP7	T	T	T	SP46	T	T	T	SP85	T	T	T	SP124	T	T	T
SP8	T	T	T	SP47	T	T	T	SP86	T	T	T	SP125	T	T	T
SP9	T	T	T	SP48	T	T	T	SP87	T	T	T	SP126	T	T	T
SP10	T	T	T	SP49	T	T	T	SP88	T	T	T	SP127	T	T	T
SP11	NT	NT	NT	SP50	T	T	T	SP89	T	T	T	SP128	T	T	T
SP12	T	T	T	SP51	T	T	T	SP90	T	NT	T	SP129	T	T	T
SP13	T	T	T	SP52	T	T	T	SP91	T	T	T	SP130	T	T	T
SP14	T	T	T	SP53	T	T	T	SP92	T	T	T	SP131	T	T	T
SP15	T	T	T	SP54	T	T	T	SP93	T	T	T	SP132	T	T	T
SP16	NT	NT	NT	SP55	T	T	T	SP94	T	T	T	SP133	T	T	T
SP17	NT	NT	NT	SP56	NT	NT	T	SP95	T	T	T	SP134	T	T	T
SP18	T	T	NT	SP57	NT	NT	T	SP96	T	T	T	SP135	T	T	T
SP19	T	T	T	SP58	NT	NT	NT	SP97	T	T	T	SP136	T	T	T
SP20	NT	NT	NT	SP59	T	T	T	SP98	T	T	T	SP137	T	T	T
SP21	T	T	T	SP60	T	NT	NT	SP99	T	T	T	SP138	T	T	T
SP22	T	T	T	SP61	T	T	T	SP100	T	T	T	SP139	NT	NT	NT
SP23	T	T	T	SP62	T	T	T	SP101	T	T	T	SP140	NT	NT	NT
SP24	T	NT	NT	SP63	T	T	T	SP102	T	T	T	SP141	NT	NT	NT
SP25	T	NT	NT	SP64	T	T	T	SP103	T	T	T	SP142	NT	NT	NT
SP26	NT	T	T	SP65	T	T	T	SP104	T	T	T	SP143	NT	NT	NT
SP27	T	T	T	SP66	T	T	T	SP105	T	T	T	SP144	T	T	T
SP28	T	T	T	SP67	NT	T	T	SP106	T	T	T	SP145	T	T	T
SP29	T	T	T	SP68	T	T	T	SP107	T	T	T	SP146	NT	NT	NT
SP30	T	T	T	SP69	NT	NT	NT	SP108	T	T	T	SP147	NT	NT	NT
SP31	T	T	T	SP70	NT	NT	NT	SP109	T	T	T	SP148	NT	NT	NT
SP32	T	T	T	SP71	NT	T	T	SP110	T	T	T	SP149	NT	NT	NT
SP33	T	T	T	SP72	T	T	T	SP111	T	T	T	SP150	NT	NT	NT
SP34	T	T	T	SP73	T	T	T	SP112	T	T	T	SP151	NT	NT	NT
SP35	T	T	T	SP74	T	T	T	SP113	NT	NT	T	SP152	NT	NT	NT
SP36	T	T	T	SP75	T	T	T	SP114	T	T	T	SP153	NT	NT	NT
SP37	NT	T	T	SP76	T	T	T	SP115	T	T	T				
SP38	T	T	T	SP77	T	T	T	SP116	T	T	T	T:	121	123	128
SP39	NT	T	T	SP78	T	T	T	SP117	T	T	T	NT:	32	30	25

Notes: For product description see Table A3.

Source: Blignaut, Farrell and Rangasamy (2008: 17)

Table A3: Description of commodities in "supply" table

Nr	Products	Nr	Products	Nr	Products
SP1	Agricultural products	SP52	Coffins	SP103	Machinery for metallurgy
SP2	Coal and lignite products	SP53	Picture frames	SP104	Mining machinery
SP3	Gold and uranium ore	SP54	Other articles of wood	SP105	Food machinery
SP4	Other mining products	SP55	Paper products	SP106	Textile machinery
SP5	Slaughtering of livestock	SP56	Corrugated paper	SP107	Weapons and ammunition
SP6	Prepared and preserved	SP57	Containers of paper	SP108	Other special machinery
SP7	Lard and other edible fats	SP58	Stationary	SP109	Household appliances
SP8	Fish products	SP59	Other paper products	SP110	Office machinery
SP9	Fruit and vegetables	SP60	Published and printed	SP111	Electric motors
SP10	Crude oil and oilseed	SP61	Recorded media	SP112	Electricity apparatus
SP11	Margarine and edible oils	SP62	Fuel products	SP113	Insulated wire and cable
SP12	Fresh milk	SP63	Basic chemical products	SP114	Accumulators
SP13	Butter and cheese	SP64	Fertilizers	SP115	Lighting equipment
SP14	Ice cream and other	SP65	Primary plastic products	SP116	Other electrical products
SP15	Other edible milk	SP66	Pesticides	SP117	Radio and television products
SP16	Flour and grain mill	SP67	Paints	SP118	Medical and surgical equipment
SP17	Breakfast foods	SP68	Pharmaceutical	SP119	Instruments
SP18	Starches and starch	SP69	Cleaning compounds	SP120	Control equipment
SP19	Animal feeds	SP70	Perfumes and	SP121	Photographic equipment
SP20	Bakery products	SP71	Polishes, waxes and	SP122	Watches and clocks
SP21	Sugar products	SP72	Other chemical products	SP123	Motor vehicles
SP22	Confectionary products	SP73	Man-made fibres	SP124	Motor vehicles parts
SP23	Farinaceous products	SP74	Rubber tyres	SP125	Building and repairing of ships
SP24	Coffee and tea	SP75	Other rubber products	SP126	Building and repairing of boats
SP25	Other food products	SP76	Plastic products	SP127	Railway
SP26	Beverages and tobacco	SP77	Sheet and plate glass	SP128	Other transport equipment
SP27	Preparatory activities of	SP78	Other glass products	SP129	Furniture
SP28	Spinning of animal fibres	SP79	Non-structural Ceramics	SP130	Jewellery
SP29	Spinning of vegetables	SP80	Structural ceramic	SP131	Musical instruments
SP30	Blankets and stuffed	SP81	Cement	SP132	Sports goods
SP31	Tents and other canvas	SP82	Other non-metallic	SP133	Games and toys
SP32	Automotive textile goods	SP83	Basic iron and steel	SP134	Brushes and brooms
SP33	Other textile articles	SP84	Steel pipe and tube	SP135	Crayons, chalk, pens and
SP34	Carpets and rugs	SP85	Non-ferrous metals	SP136	Buttons and buckles
SP35	Cordage, rope, twine and	SP86	Metal structures	SP137	Number plates and signs
SP36	Other textile products	SP87	Metal doors, windows	SP138	Other manufacturing
SP37	Garment, hosiery knitting	SP88	Containers of metal	SP139	Electricity
SP38	Other knitting products	SP89	Steam generators	SP140	Water
SP39	Men's and boys' clothing	SP90	Treated metal products	SP141	Buildings construction
SP40	Women's and girls'	SP91	General hardware	SP142	Other constructions
SP41	Other wearing apparel	SP92	Cans and tins	SP143	Trade services
SP42	Articles of fur	SP93	Cables and wire	SP144	Hotel and restaurant services
SP43	Leather products	SP94	Metal fasteners	SP145	Transport services
SP44	Handbags	SP95	Other metal products	SP146	Communications
SP45	Other leather products	SP96	Engines	SP147	FSIM
SP46	Footwear	SP97	Pumps	SP148	Insurance services
SP47	Saw and preserving of	SP98	Gears	SP149	Real estate services
SP48	Other mill products	SP99	Lifting equipment	SP150	Other business services
SP49	Panels and boards	SP100	General machinery	SP151	General Government services
SP50	Builders' carpentry and	SP101	Agricultural machinery	SP152	Health and social work
SP51	Wooden containers	SP102	Machine-tools	SP153	Other services / activities

Source: Final supply and use tables, 2000: an input-output framework. Statistics South Africa, 2003

Source: Blignaut, Farrell and Rangasamy (2008: 19)

Table A4: Description of commodities in "use" table

Nr	Products	Nr	Products
UP1	Agriculture	UP49	Iron and steel
UP2	Coal	UP50	Non-ferrous metals
UP3	Gold	UP51	Structural metal
UP4	Other mining	UP52	Treatment metals
UP5	Meat	UP53	General hardware
UP6	Fish	UP54	Fabricated metal
UP7	Fruit	UP55	Engines
UP8	Oils	UP56	Pumps
UP9	Dairy	UP57	Gears
UP10	Grain mills	UP58	Lifting equipment
UP11	Animal feeds	UP59	General machinery
UP12	Bakeries	UP60	Agricultural machinery
UP13	Sugar	UP61	Machine-tools
UP14	Confectionery	UP62	Mining machinery
UP15	Other food	UP63	Food machinery
UP16	Beverage and tobacco	UP64	Special machinery
UP17	Textiles	UP65	Household appliances
UP18	Textile articles	UP66	Office machinery
UP19	Carpets	UP67	Electric motors
UP20	Other textiles	UP68	Electricity apparatus
UP21	Knitting mills	UP69	Wire and cable
UP22	Wearing apparel	UP70	Accumulators
UP23	Leather	UP71	Lighting equipment
UP24	Handbags	UP72	Electrical equipment
UP25	Footwear	UP73	Radio and television
UP26	Wood	UP74	Optical instruments
UP27	Paper	UP75	Motor vehicles
UP28	Containers of paper	UP76	Motor vehicle parts
UP29	Other paper	UP77	Other transport
UP30	Publishing	UP78	Furniture
UP31	Recorded media	UP79	Jewellery
UP32	Petroleum	UP80	Other manufacturing
UP33	Basic chemicals	UP81	Electricity
UP34	Fertilizers	UP82	Water
UP35	Primary plastics	UP83	Buildings
UP36	Pesticides	UP84	Other construction
UP37	Paints	UP85	Trade
UP38	Pharmaceuticals	UP86	Hotels
UP39	Soap	UP87	Transport services
UP40	Other chemicals	UP88	Communications
UP41	Tyres	UP89	FSIM
UP42	Other rubber	UP90	Insurance
UP43	Plastic	UP91	Real estate
UP44	Glass	UP92	Business activities
UP45	Non-structural ceramics	UP93	General government
UP46	Structural ceramics	UP94	Health and social work
UP47	Cement	UP95	Activities/services
UP48	Other non-metallic		

Source: Final supply and use tables, 2000: an input-output framework
Statistics South Africa, 2003

Source: Blignaut, Farrell and Rangasamy (2008: 19)

Table A5: Tradables vs. non-tradables (historical metropolitan areas), for the calculation of relative prices

Products	of which	weight (%)	T or NT
Food		20.99	T
Non-alcoholic beverages		1.10	T
Alcoholic beverages		1.40	T
Cigarettes, cigars, tobacco		1.14	T
Clothing and footwear		3.25	T
Housing		22.14	NT
Fuel and Power		3.49	T
Furniture and equipment		2.53	T
Household operation			
	household consumables	1.25	T
	domestic workers	3.48	NT
	other household services	0.09	NT
Medical care and health exp.		7.15	NT
Transport			
	vehicles	5.95	T
	cunning cost	7.05	NT
	public and hired transport	1.84	NT
Communication		2.98	T
Recreation and entertainment		3.31	NT
Reading matter		0.39	NT
Education		3.48	NT
Personal care		3.67	NT
Other		3.32	T

Structure after weights: 47.4%tradables and 52.6. non-tradables

Source: Statistics South Africa, Series P0141, own assessment, based on Blignaut, Farrell and Rangasamy (2007).

Table A6: Tradables vs. non-tradables, for the calculation of value-added

Sector	T or NT
Agriculture, forestry and fishing	T
Mining and Quarrying	T
Manufacturing	T
Electricity, gas and water	NT
Construction	NT
Wholesale and retail trade, hotels and restaurants	T
Transport, storage and communication	T
Finance, real estate and communication	NT
General government	not included
Personal services	NT

Annexure 2: Capital and consumption goods

Table A7: Capital and consumption goods according to WTO statistics

Agricultural products	consumption goods
Food	consumption goods
Fuels and mining products	consumption goods
Fuels	consumption goods
Manufactures	Undecided
Iron and steel	capital goods
Chemicals	capital goods
Pharmaceuticals	capital goods
Machinery and transport equipment	capital goods
Office and telecom equipment	capital goods
Electronic data processing and office equipment	capital goods
Telecommunications equipment	capital goods
Integrated circuits and electronic components	capital goods
Automotive products	undecided
Clothing	consumption goods
Textiles	consumption goods

Source WTO (2008), own assessment.