

**SOUTH AFRICA:
IDENTIFYING THE BINDING
CONSTRAINT ON SHARED GROWTH**

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April 16, 2007

SECTION 1. INTRODUCTION AND STYLIZED FACTS

South Africa has undergone a remarkable transition since the end of apartheid in 1994. The democratically elected government led by the African National Congress (ANC) has managed to create a stable and peaceful regime, and pursued a set of prudent economic policies while managing the transition to democracy.

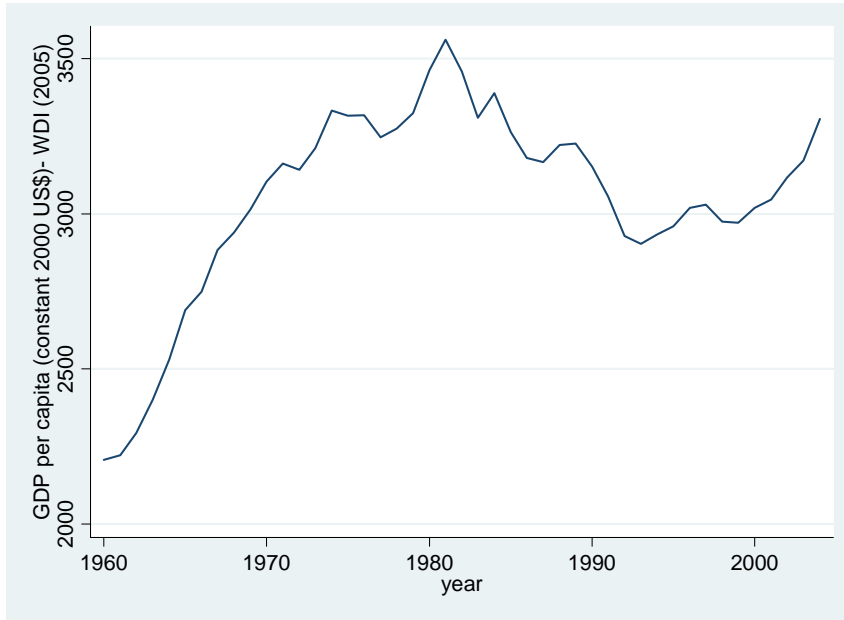
The government has outlined an ambitious but balanced economic reform program, called the Accelerated and Shared Growth Initiative for South Africa (ASGI-SA), which was born from the ANC's commitment to halve unemployment and poverty by 2014 during the 2004 election. The ASGI-SA aims to achieve a growth rate of 6 percent by the year 2010, and suggests that achieving this target will require raising investment levels from 16 percent of GDP today to 25 percent of GDP in ten years. In an effort to promote investment in the non-commodity sectors, one of the government's six targets is to reduce the volatility of the currency, which remains excessively sensitive to changes in international commodity prices. A second key objective is to promote investment in public infrastructure, as improving the transport and logistics systems promise to lower the cost of doing business in South Africa. Another reform is to reduce the regulatory burden imposed on small and medium-sized enterprises. A fourth objective is to reduce barriers to entry and limits on competition and new investment opportunities. A fifth is to improve the deficiencies in state capacity and organization. Finally, the sixth is to raise the coordination between skill needs and skills supply, through immigration reform, and improvements in training programs and in the quality of educational system.

Over the last decade, the South African government has pursued a set of cautious fiscal and monetary policies that have kept inflation and public debt at low levels. In spite of these strong fundamentals, the economy has displayed lackluster growth rates, which speaks to the challenge of sustaining the growth acceleration needed to fulfill the ASGI-SA targets. Figure 1.1 shows the nation's trajectory in per-capita GDP. In the decade since 1994, per-capita GDP has grown at an average rate of 1.2 per cent per annum. This is disappointing given the elimination of sanctions against the apartheid regime and the fact that GDP per capita had fallen by 18.5 percent between 1981 and 1993, which suggests that there was substantial scope for recovery. As of 2006, GDP per capita has yet to reach its 1981 level. In spite of what could arguably be described as a better fundamental and cyclical basis for accelerated growth, the country's performance over the past decade has been on par with the rest of Sub-Saharan Africa, and considerably below the average growth rate of 3.7 per cent in South Asia, and 6.2 percent in East Asia.

Although the growth rate has picked up since 2000, some indicators suggest that this recent acceleration is of a temporary nature. First, the acceleration has gone hand in hand with a worsening current account deficit, indicating that the growth in demand has outstripped that in supply. This trend is shown in figure 1.2. The key issue going forward is whether the current account deficit will be closed through a rise in supply or a reduction in demand. For supply to rise, a significant part of the increase in current demand would have to go toward investment, which would increase production possibilities in the future. Figure

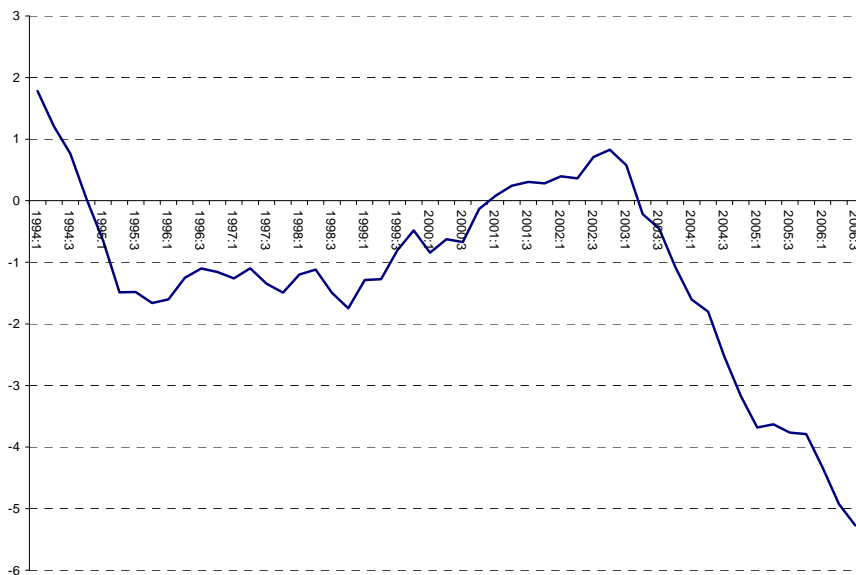
1.3 examines total investment while Figure 1.4 shows the breakdown of investment in the tradable and non-tradable sectors.

Figure 1.1: Per capita GDP, 1960-2004



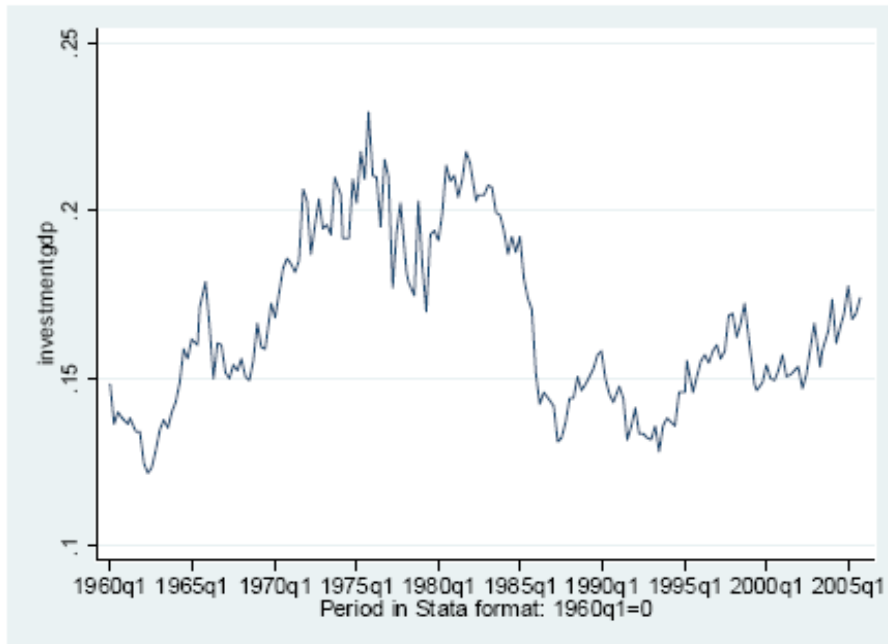
Source: Frankel et al, 2006

Figure 1.2 The current account as a share of GDP



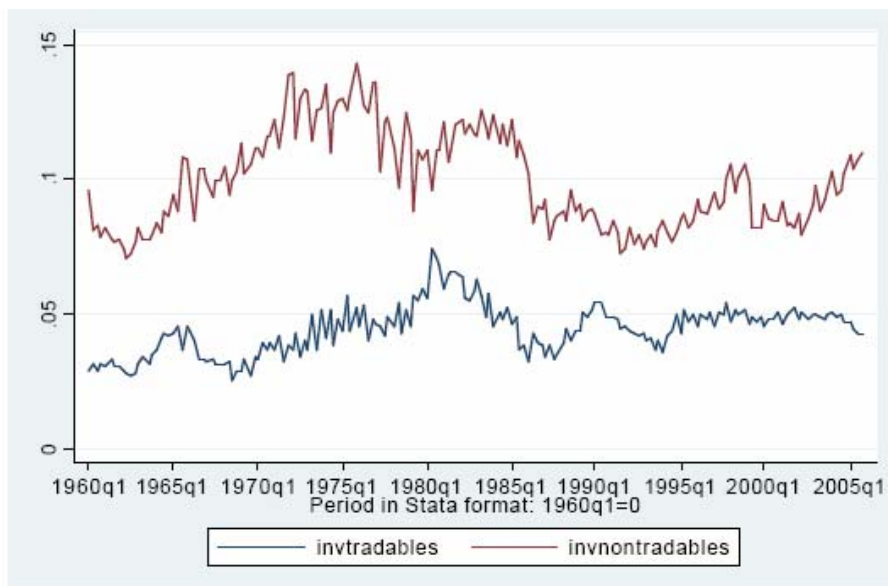
Source: Frankel et al, 2006

Figure 1.3 Total Investment as a share of GDP



Source: Frankel et al, 2006

Figure 1.4 Investment in Tradables vs. Nontradables



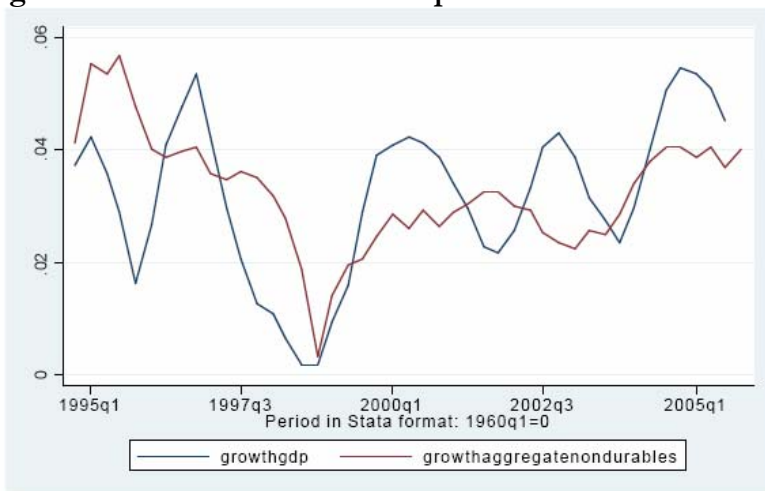
Source: Frankel et al, 2006

These figures show that although there has been a rise in the investment ratio, most of the increase has occurred in the non-tradable sector. Investment in tradables has remained at around 5 percent of GDP since 1995, while investment in non-tradables has increased by approximately 3 percentage points of GDP since 2000.

Another indication that the growth acceleration is potentially temporary arises from the composition of consumption, in terms of the share allocated to durables versus non-durables. If households believe that the acceleration in the growth rate is permanent, we should observe proportional increases in the consumption of both durable and non-durable goods. However, if growth is perceived to be temporary, consumption will be biased towards increasing the stock of durable goods.

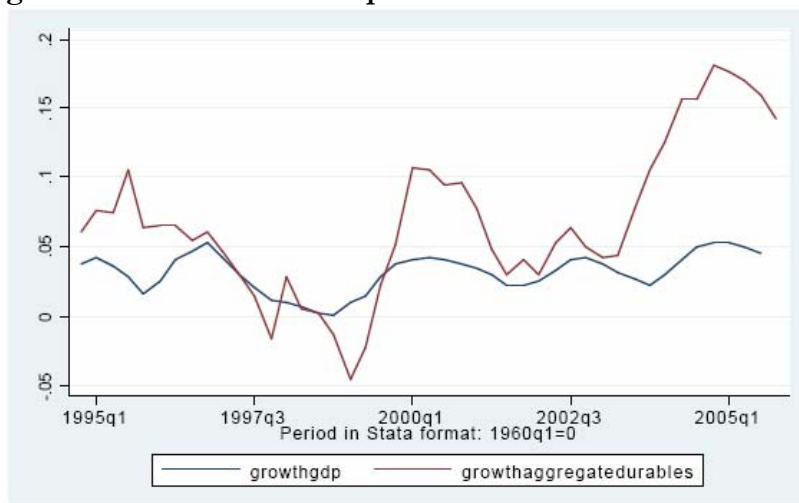
Figure 1.5 shows that non-durable consumption growth has been quite smooth and lower than the growth in GDP, and thus cannot explain the widening current account deficit. In contrast, Figure 1.6 shows that durable consumption, although low in levels, has been growing at a rate that is three times larger than the growth rate of output.

Figure 1.5: Non-durables consumption



Source: Frankel et al, 2006

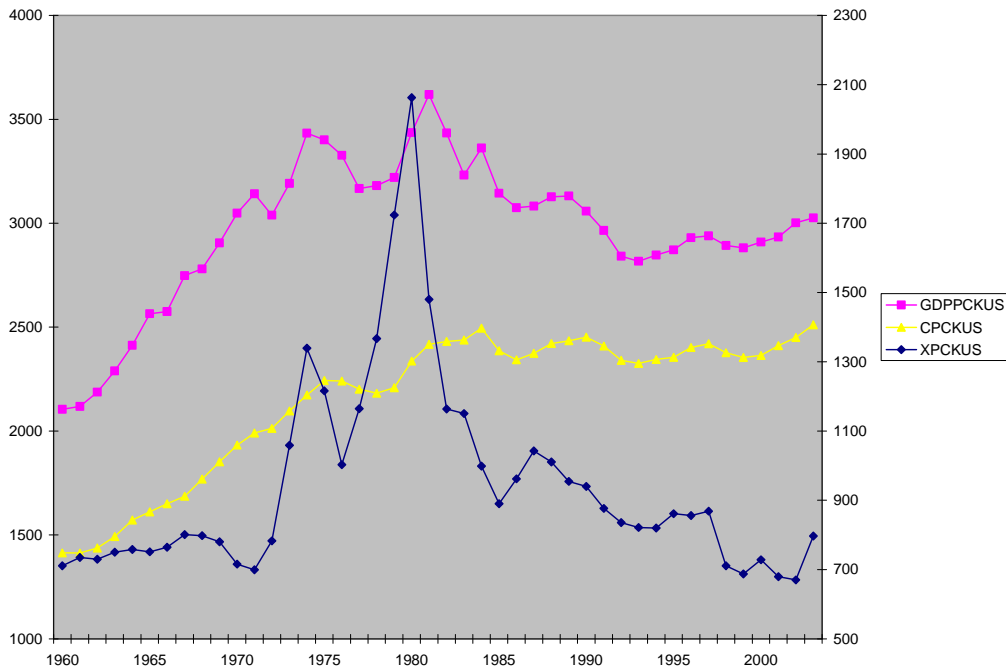
Figure 1.6: Durables consumption



Source: Frankel et al, 2006

The low investment in the tradables sector discussed above is consistent with the poor performance of real¹ exports per capita during the 1990s. As shown by the blue line below in Figure 1.7, the real purchasing power of exports per capita remains at virtually the same level today as it achieved in 1960. In fact, real exports per capita grew much less than either GDP per capita (pink line) or consumption per capita (yellow line), which supports the idea that export performance has dragged down economic growth rates.

Figure 1.7 GDP, consumption and exports per capita



Source: Author's calculations

The under-performance of the tradables sector, and manufacturing in particular, may play a role in explaining high unemployment rates. While the agricultural and mining sectors have both shed labor dramatically during the past three decades (see Figure 1.8 and 1.9), manufacturing has not generated additional employment to counter these trends, with manufacturing employment actually falling during the 1990s (see Figure 1.10)

¹ Exports deflated by the US CPI as a measure of their external purchasing power.

Figure 1.8 Employment in agriculture

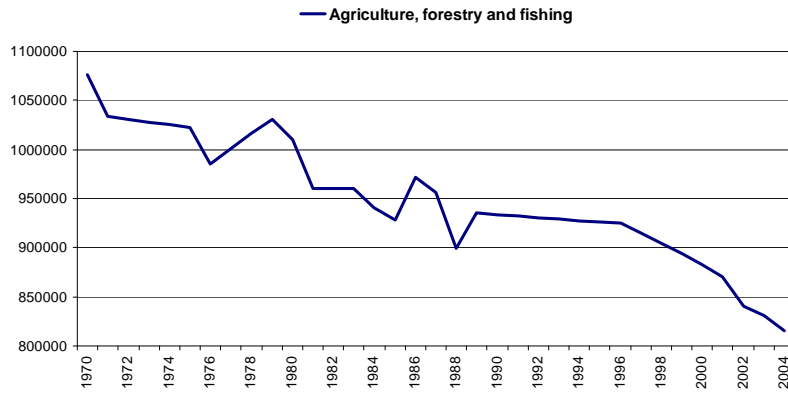
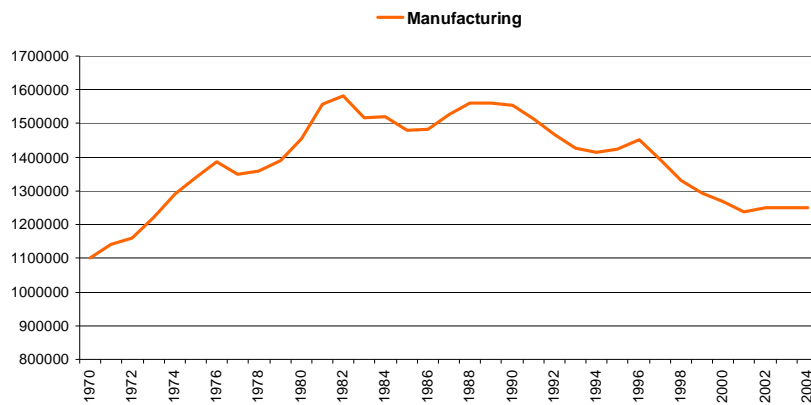


Figure 1.9 Employment in mining

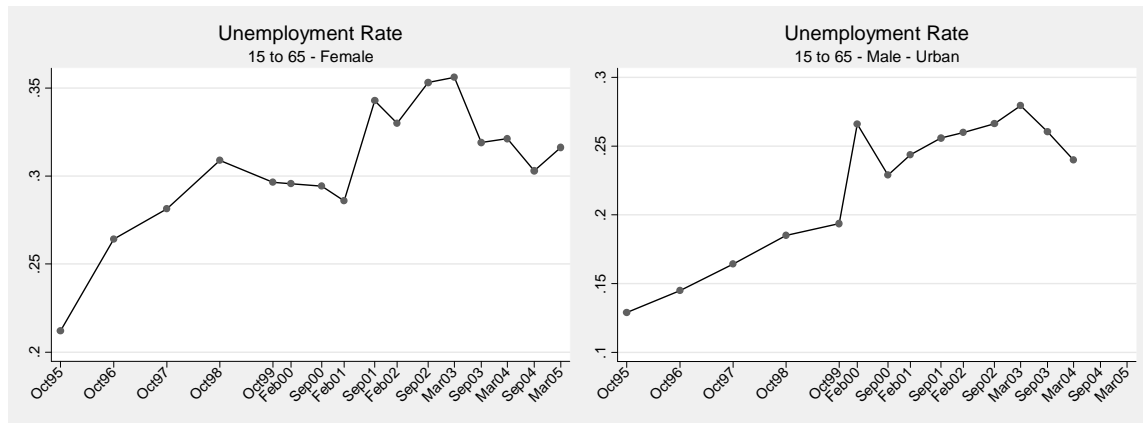


Figure 1.10 Employment in manufacturing



South Africa's unemployment rate has been the most disappointing aspect of economic performance, and stands today at 26 percent even by the narrower definition, which excludes discouraged workers (Banerjee et al, 2006). The unemployment rate including discouraged workers is 40 percent, which is one of the highest anywhere in the world. The unemployment rate has increased substantially in recent years, indicating that this is not a permanent feature of the South African economy. As shown in Figure 1.11, the rate has risen from 12 to 23 percent for men and from 21 to 32 percent for women, over 1995 to 2005.

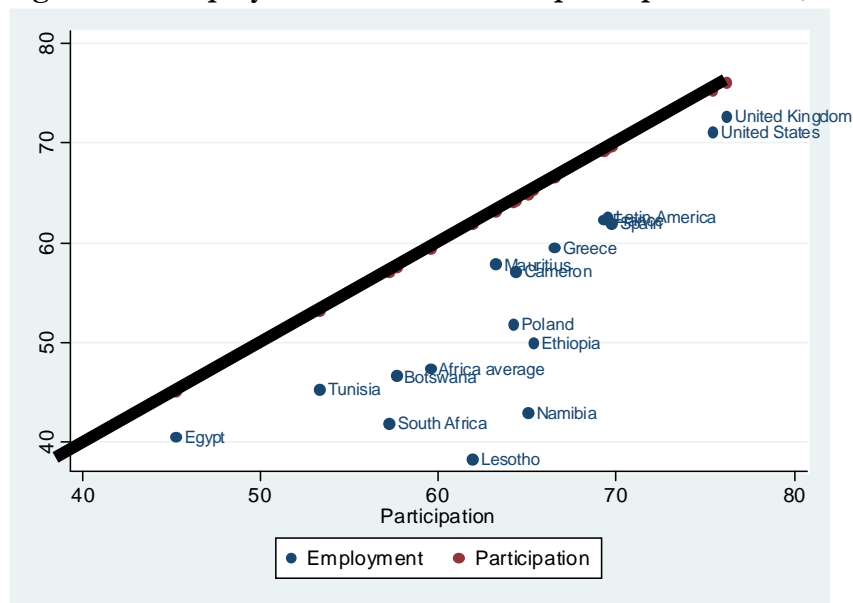
Figure 1.11 Unemployment rates, 1995 to 2005



Source: Banerjee et al (2006)

South Africa's high unemployment rate cannot be attributed to a high participation rate (defined as the proportion of people of working age that either have or want a job). As shown in Figure 1.12, South Africa's participation rate is quite low, over 12 percentage points below the average for Latin America. The black line represents points of full employment, and unemployment is proportional to the vertical distance between the relevant point and that line. According to this figure, South Africa exhibits an extremely low rate of employment, due to both high unemployment and a low participation rate.

Figure 1.12 Employment and labor force participation rates, 2003



Source: Author's calculations

Increasing employment is a key component to achieving shared or employment-enhancing growth. A back-of-the-envelope calculation suggests that at current levels of productivity per worker, increasing South Africa's employment levels to the average of other comparable countries (including Mexico, Turkey, Thailand, Poland and Venezuela), would increase the per-capita GDP by 48 percent. It is worth noting that the ASGI-SA goal is to increase per-capita growth by 38 percent by 2014.

However, Table 1.1 shows that participation in the labor market appears to be positively related to educational attainment, while unemployment is negatively related. Since those currently not working are less educated than the average worker, achieving higher levels of employment while maintaining productivity per worker at current levels may be difficult as these individuals get incorporated into employment.

Table 1.1 Participation, Employment and Unemployment Rates

	Participation Rate	Employment Rate	Unemployment Rate
Less than Matric	49.2	34.2	30.4
Matric	69.2	49.7	28.2
Post-Matric	86.2	76.1	11.7
Completed College	88.5	85.6	3.3

Source: Banerjee et al (2006)

Note: The Matric education level is equivalent to a high school degree

Given these features of the economy, the remaining sections of this paper presents several interpretations of what constitutes the binding constraint to South Africa's growth, and explores why growth and employment have been relatively low since the end of apartheid in 1994. Each section begins with a hypothesis and presents additional theoretical arguments and empirical evidence to support this hypothesis. Section 2 explores the extent to which poor export performance has been a leading culprit of low growth rates, and whether improvements in the export sector can generate employment-enhancing growth. Section 3 discusses how South Africa's historic specialization in mining and location in the global product space has hindered its potential export opportunities. Section 4 examines whether inducing greater competition can deliver greater productivity and growth in per-capita GDP. Section 5 examines the role of labor market regulations and skills shortage in limiting employment generation. Finally, Section 6 addresses how changes in labor demand and labor supply have contributed to unemployment in the post-apartheid era

SECTION 2: MANUFACTURING PROFITABILITY, THE EXCHANGE RATE AND GENERATING EMPLOYMENT-ENHANCING GROWTH

Hypothesis

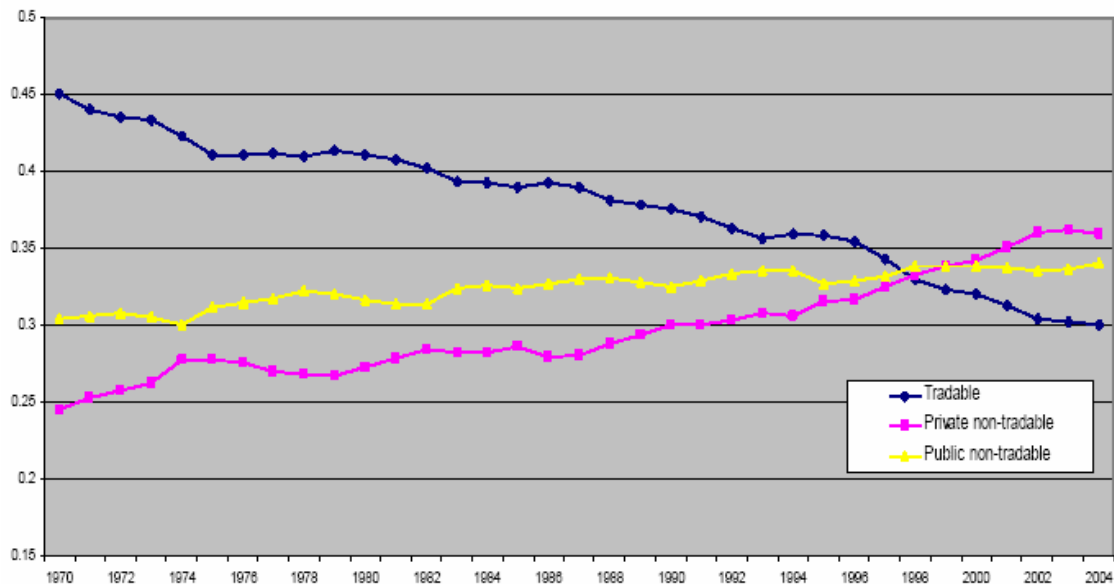
The relative contraction of the manufacturing sector is a key explanation of low growth rates, low employment rates, and the differential rise in low-skill unemployment relative to high-skill unemployment in South Africa. Declining profitability in the manufacturing sector due to rising import penetration and an appreciated exchange rate have been key drivers of this structural change.

Overview of Structural Change

The South African economy has undergone tremendous structural change over the last two decades. The non-mineral tradables sector has declined dramatically relative to other sectors of the economy, starting in the early 1990s. The decline of the export-oriented manufacturing sector, in particular, may help explain low growth rates and the rise of unemployment among low-skill workers.

As shown in Figure 2.1, the employment share of the tradable sector has fallen from 40 percent during the 1970s to around 30 percent currently, reflecting large declines in the agriculture and mining sectors. In contrast, the employment share of non-tradables, especially private non-tradables, have increased dramatically over this period.

Figure 2.1 Employment share by sector

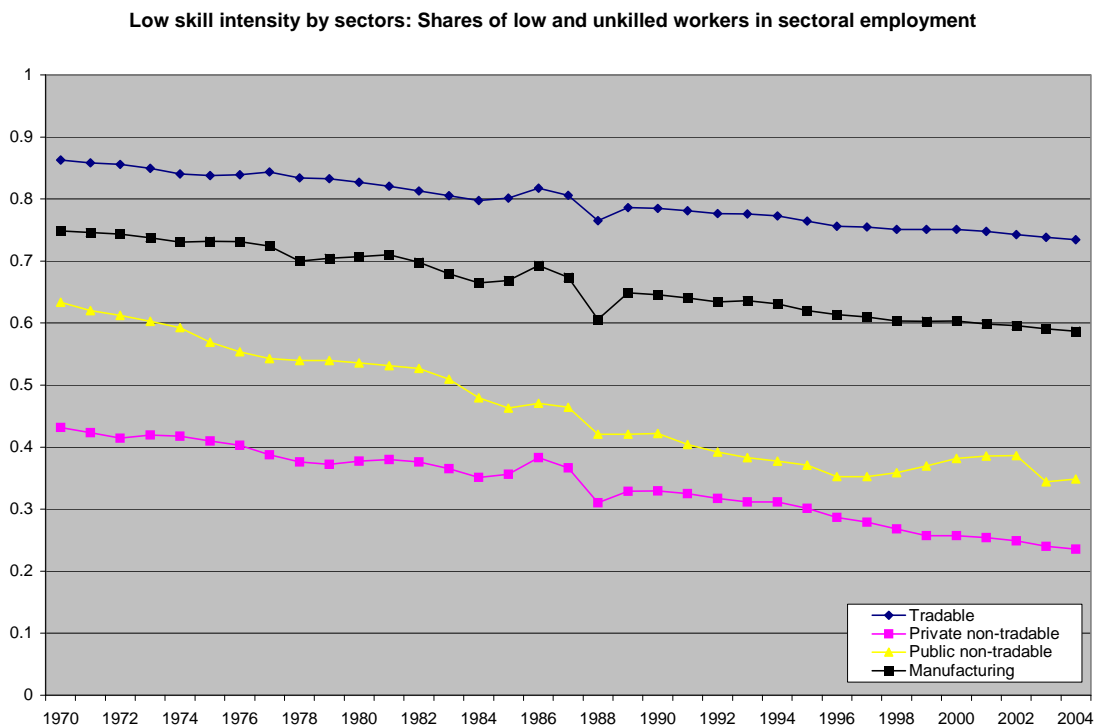


Source: Rodrik, 2006

The growth of private non-tradables has been led by growth in the financial, intermediation, insurance, real estate and business services (F.I.R.E) sector, which today employs as many workers as all of manufacturing taken together.

In South Africa, non-mineral tradables sectors (including manufacturing) are relatively intensive in the use of unskilled labor in comparison to other sectors of the economy (see Figure 2.2). For example, the share of low-skill workers in manufacturing employment is three times the share in private non-tradables. Since the manufacturing sector has declined relative to the services sector, this has contributed to the collapse in demand for unskilled labor, resulting in high unemployment rates for these workers. Although there is a general trend toward more skill intensity in all sectors, the level differences between sectors are much larger than the within-sector changes in skill intensity over time.

Figure 2.2 Total employment, by skill category



Source: Rodrik, 2006 based on TIPS data

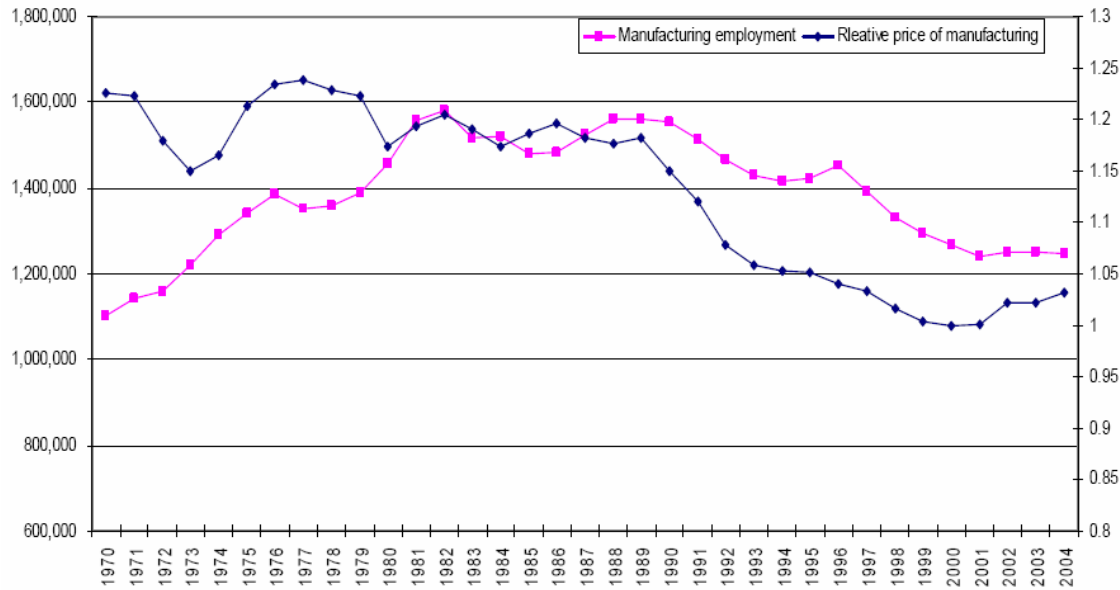
This pattern of structural change also helps explain the persistent concern amongst some policy circles that a “skills shortage” acts as an important constraint on economic growth in South Africa. In recent years, sectors that have been growing have been the more skill intensive. However, higher levels of growth will require the expansion of the low-skill intensive manufactures relative to the skill-intensive non-tradables, and manufactures-led growth would on balance, reduce the relative demand for skilled workers (Rodrik, 2006).

The Decline in Manufacturing Profitability

To what extent can the relative decline in manufacturing be attributed to a decline in the profitability of this sector? Since 1990, the decline in the manufacturing employment share

has tracked the decline in the relative price of manufacturing. When measured as the value added price index relative to the GDP deflator, the relative price has fallen by 15 percent. These trends are shown in Figure 2.3.

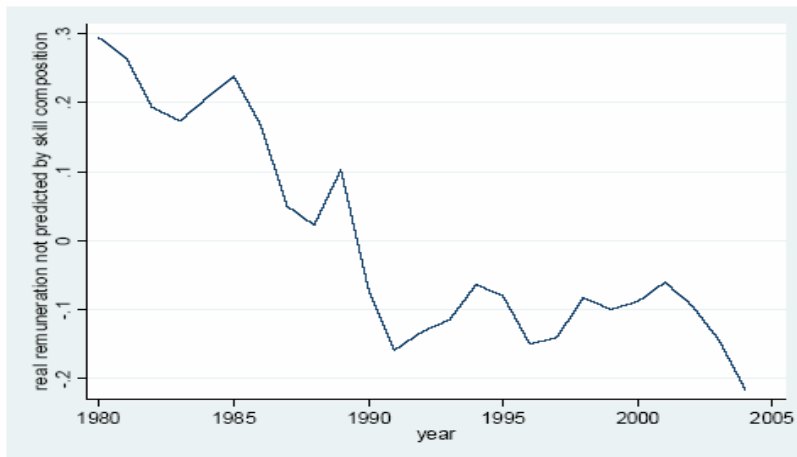
Figure 2.3 Manufacturing Employment and Relative Manufacturing Price



Source: Rodrik, 2006

Some analysts have suggested that the profitability in manufacturing has declined because labor costs have become more onerous during the 1990s. However, when real remuneration in manufacturing is decomposed into two components, one that is due to skill upgrading, and a second which is the residual component, it can be seen that the residual skill-adjusted remuneration actually falls during the 1990s (Rodrik, 2006). This trend is shown in Figure 2.4.

Figure 2.4: Residual Real Remuneration in Manufacturing

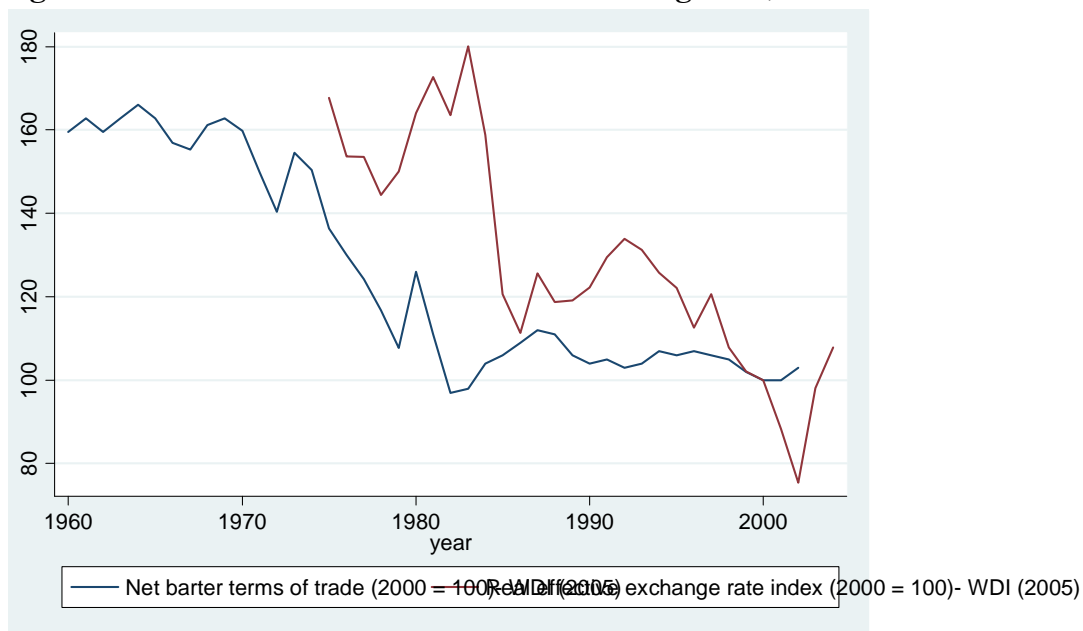


Source: Rodrik, 2006

The trend shown in Figure 2.4 suggests that once we account for changes in skill composition, labor costs in manufacturing have become less prohibitive during this period, which makes it unlikely that a “wage-push” or increase in wages can account for the recent relative fall in manufacturing employment.

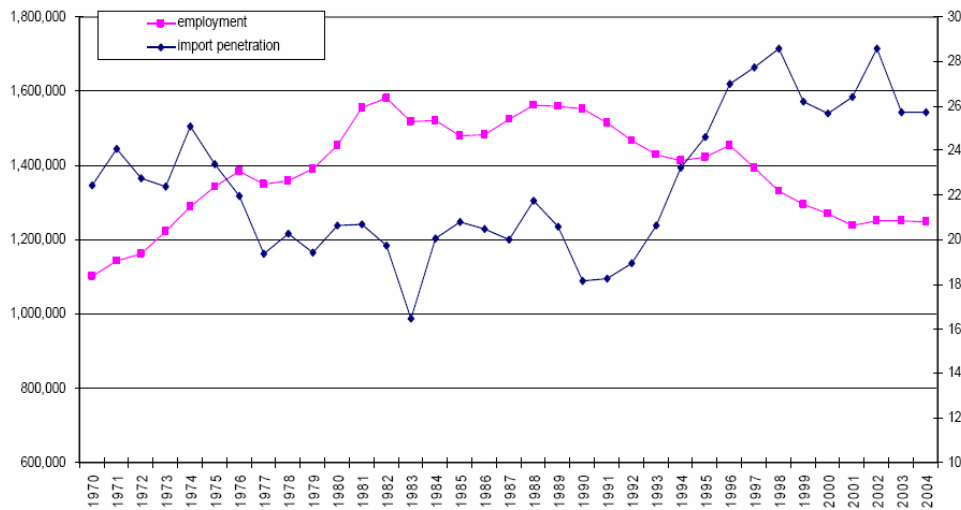
Other candidate explanations for the decline in the relative profitability of exports include an appreciation of the real exchange rate, as well as increased competitive pressure arising from trade liberalization. The evolution of the real exchange rate (shown in Figure 2.5) has the following characteristics. First, it exhibits a large step depreciation in the early 1980s followed by high volatility. This depreciation seems to be related to the preceding large deterioration in the terms of trade, which required a large adjustment of the real exchange rate when international finance dried up. Second, the period after 1994 does not show an appreciation of the real exchange rate, but a mild depreciation punctuated by a relatively short-lived currency crisis around 2000. However, the historical evolution of the real exchange rate is not a good measure of its equilibrium level, which is discussed further below.

Figure 2.5. The terms of trade and the real exchange rate, 1975-2005



Besides the real exchange rate, other aspects of the trade regime also affect the balance between tradables and non-tradables. The South African economy faces considerably greater trade openness today relative to the 1980s. The import-weighted effective rate of protection has dropped from 35.6 percent in 1989 to 14 percent in 2000 (Edwards and Lawrence, 2006). Import penetration in manufacturing averaged 20 percent before 1990 and stands around 28 percent currently (see Figure 2.6).

Figure 2.6: Manufacturing Employment and Import Penetration



Source: Rodrik, 2006

To systematically examine the role of the exchange rate and trade liberalization on manufacturing profitability, Table 2.1 presents the results from a regression of the log of value-added manufacturing price (divided by the GDP deflator) in nine 1-digit sectors, on the terms of trade, real exchange rate, import penetration and a time trend.

Table 2.1 Real exchange rate, import penetration and manufacturing profitability
Dependent variable: *lnp_pgdp*

	ln TOT	ln RER	import penetration	time
estimated coefficient	0.09	-0.1	-0.006	-0.009
t-stat	1.03	-2.5	-2.72	-5.73
R-sq	0.92			
N	25			

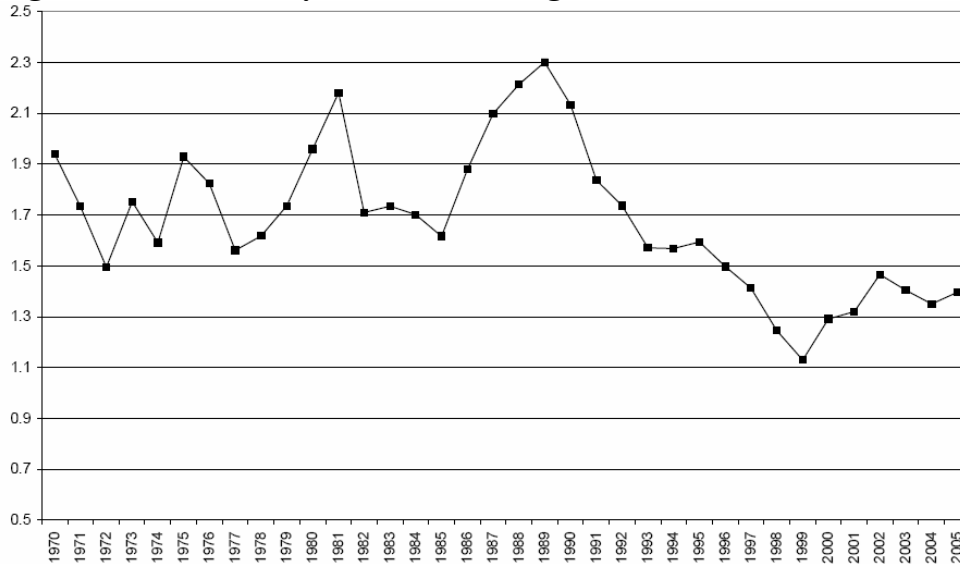
Source: Rodrik, 2006

The results show that the real exchange rate and import penetration both lower manufacturing profitability, but that a strong downward time trend persists even after controlling for these factors directly. This large unexplained time trend is likely to arise because a simple regression model using import penetration as an explanatory variable is unlikely to capture the full effect of trade openness and globalization on manufacturing profitability (Rodrik, 2006).

Given the extent of trade liberalization, and the results summarized in Table 2.1, it is likely that import penetration has resulted in greater competitive pressure in South African

industry. However, one contrasting piece of evidence comes from Aghion et al (2006), who find that mark-ups in South African manufacturing are high by international standards and have remained high during the 1990s. However, from an investor's perspective, what matters is the relative profitability of these sectors. Mark-ups are even higher in the F.I.R.E sector, and as shown in Figure 2.7, the ratio of manufacturing to F.I.R.E mark-ups follow the same pattern as value-added prices. Thus in comparison to the 1980s, a post-1994 investor, domestic or foreign, would be far less likely to commit resources in the manufacturing relative to banking, insurance or other services (Rodrik, 2006).

Figure 2.7: Profitability in Manufacturing Relative to F.I.R.E



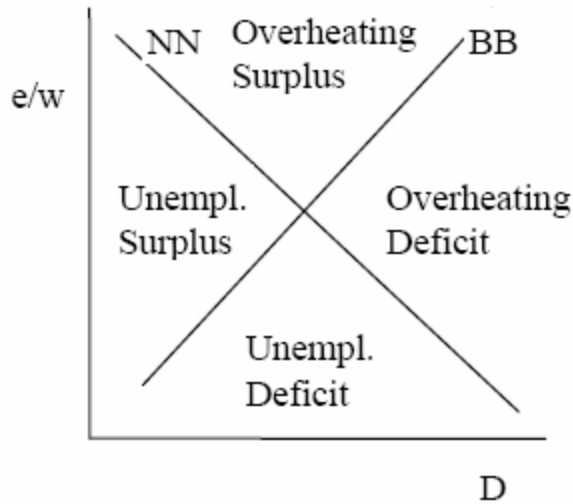
Note: profitability is measured as gross operating surplus per unit of capital
 Source: Rodrik, 2006

Re-alignment of the Exchange Rate

Figure 2.5 above shows that the current level of the real exchange rate is not without precedent: the exchange rate was at a similar level during the early 1980s. Does this imply that the exchange rate is close to its equilibrium level? In answering this question, it is useful to consider the Salter-Swan small open economy model. This model is characterized by two curves, BB and NN, which specify the points in which the economy is respectively in external and internal (full employment) balance. In Figure 2.8, the horizontal axis is given by total domestic demand, D , while the vertical axis is given by the real exchange rate, defined as the relative price of tradables to non tradables. Note that a higher value means a more depreciated exchange rate. The BB curve is upward-sloping because, starting from external balance, an increase in domestic demand would generate an external deficit. To return to balance the real exchange rate would have to depreciate. Points above (below) the BB curve are points of external surplus (deficit). Internal balance in the labor market is given by the NN line. The curve is downward-sloping because starting from internal balance, a real appreciation would cause employment to fall as tradables become less competitive and demand shifts away from the now relatively more expensive non-tradables. To return to

balance, internal demand would have to rise. Points to the right (left) of the NN curve reflect over-heating or excess labor demand (unemployment).

Figure 2.8 The Salter-Swan Open Economy Model



This framework characterizes four types of potential disequilibria in an economy, pointing to different roles to be played by domestic demand vs. the real exchange rate in returning an economy to balance.

Lets apply this framework to South Africa. The unemployment rate stands at an exorbitant 26 percent, while the current account deficit is above 6 % of GDP. If we assume that part of this unemployment is not structural, this means that the economy is located in the lower central region of Figure 2.8. This implication is that unless something causes the curves to shift in the future, the return to both external and internal balance would require a real exchange rate depreciation. In this region, demand management policies create a trade-off between external and internal balance: an expansionary (contractionary) policy would reduce (increase) unemployment and widen (narrow) the external balance. Only a real depreciation could return the economy to full balance. This suggests that the real exchange rate is overvalued, independent of whether it is above or below any level reached in the past. The curves may have shifted relative to the past, perhaps because a rise in labor supply after the end of Apartheid (which shifts the NN curve out), or because of a deterioration in the terms of trade or the resource endowment per capita (which would shift the BB curve to the left).

Why has the economy shifted away from the equilibrium? Frankel et al (2006) suggest that the global commodity boom combined with the emerging market boom have resulted in a boom in capital inflows that have financed consumer durables and real estate and have allowed the current account deficit to widen. This would imply that, even if the recent rise in mineral prices is permanent, the resultant borrowing is temporary.

Some camps have suggested that the South African labor market is marked by real wage rigidity, and proposed that pursuing a devaluation in this context will lead to inflation and offsetting wage increases, followed by further devaluation and a continuing upward spiral of wages and prices. However, theory tells us that there is a wedge between the real wage measured in terms of a consumer price basket that includes tradables and non-tradables ($w/P_t^{\alpha}P_n^{1-\alpha}$), versus the real wage measured in terms of the price of tradables (w/P), which is what matters for the profitability of exportables. Given this wedge, it is possible to have a real depreciation in terms of the price of tradables which benefit exports, along with some inflation in the price basket inclusive of non-tradables. This wedge prevents inflation from offsetting the effects of the devaluation, even under the strong assumption of complete real wage rigidity, where all inflation is countered fully by changes in nominal wages.

Recent research has provided some evidence that fighting exchange rate appreciation can help generate growth. For example, Levy-Yeyati and Struzenegger (2006) use cross-country data to show that intervention designed to sustain a more competitive real exchange rates is correlated with a higher subsequent growth rate during the three years after the intervention. Moreover, export growth appears to be stimulated by intervention during the previous four years.

SECTION 3. MARKET FAILURES IN THE PROCESS OF STRUCTURAL TRANSFORMATION

Hypothesis

South Africa has faced difficulties overcoming externalities that affect the process of structural transformation. South Africa has historically been located in a sparse part of the global product space due to its reliance on mining. As the income earning capacity of the mining sector declines, the externalities surrounding structural transformation become a binding constraint on growth.

The externalities surrounding structural transformation

The process of structural transformation is rife with externalities. When an economy attempts to change what it produces and exports, it encounters coordination and information externalities. Information externalities arise because the search for new production possibilities involves private costs that generate information that is publicly available. Hence, the market leads to under-provision of the search for new products because the social benefits of these efforts are not appropriable by those who bear the costs (Hausmann and Rodrik, 2003, Hausmann, Rodrik and Hwang, 2006).

Coordination failures arise because the production of any good requires relatively specific factors and inputs, such as skills, infrastructure, non-tradable intermediate inputs, and institutional requirements such as property rights, standards and regulations. In particular, the requirements of the mining industry in terms of property rights, infrastructure and skills are quite specific and have little use outside of this industry. When an economy tries to change what it produces, it needs new skills, infrastructure, property rights and regulations. But since these are also relatively specific, a chicken and egg problem emerges. Nobody has an incentive to accumulate or create these assets unless there is a sector that will demand them, but nobody will be willing to invest in that sector since the requisite factors are non-existent. Economies deal with this issue by moving towards nearby goods, i.e. goods that use factors that are similar to those used by existing goods. Whether such ‘nearby’ goods exist depends on the nature of the product space and the position of a country in it. Hausmann and Klinger (2006a) show that the product space is highly heterogeneous, with dense areas surrounded by a sparse periphery. If a country is located in a sparse part of the product space it will have difficulty developing new products.

In fact, Hausmann, Rodriguez and Wagner (2006) find that growth collapses tend to occur when the export sector takes a downturn, and the duration of a growth collapse depends on the density of the product space where the country is located.

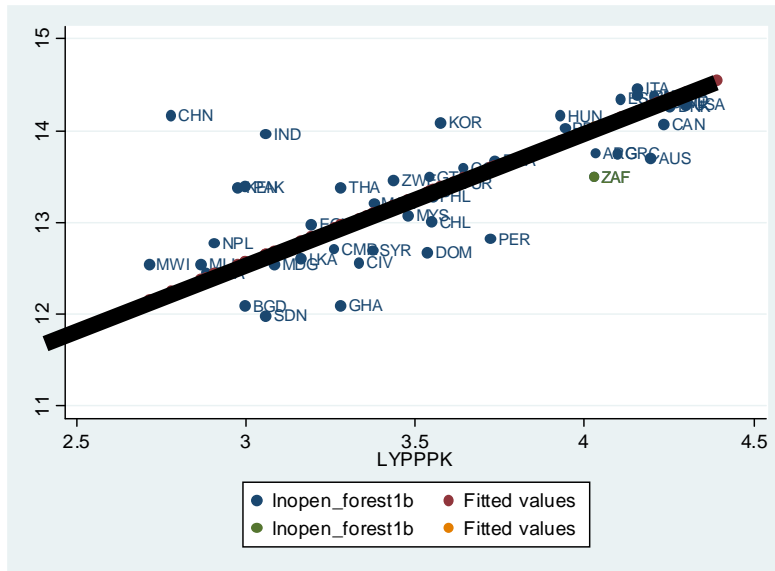
The challenge embodied in structural transformation seems particularly applicable to South Africa. As discussed in the introduction, the performance of the country in terms of exports is dismal, with real exports per capita remaining at the same level as in 1960. This places South Africa below the 90th percentile in terms of the growth of real exports per capita for the 1960-2004 period, in the set of all countries with a population over 4 million and a GDP per capita at least 25% of South Africa’s in 2004 (Hausmann and Klinger, 2006b). A central explanation for this performance has to do with changes in the mining of gold. Between 1960 and 2004, gold production declined by more than half, while the

population increased from 17 million to 46 million inhabitants. In other words, gold exports per capita decreased by a factor of 6, approximately. The only way the economy could have maintained its dynamism is if it had been able to move quickly into new sectors. In actuality, the new sectors that emerged have barely compensated for the decline in gold mining activities.

The explanation of why is illuminated by describing South Africa’s position in the product space in 1975, right before the terms of trade moved against it. One way to characterize the position of a country in the product space is through the concept of “open forest (Hausmann and Klinger, 2006a).” This variable is the distance-adjusted level of income associated with all potential new export goods, where the distance is measured between each new potential good and the economy’s present export basket. The calculation of distance in the product space is based on the conditional probability with which particular good-pairs are exported by the same country, while the measure of the level of income associated with a product (or its sophistication) is given by the weighted average income of the countries that have a comparative advantage in exporting that good. Open forest can therefore be thought as a measure of the option value of jumping to other products.

Figure 3.1 shows the relationship between the log of open forest and the log of income per capita at PPP in 1975. We have excluded all oil exporting countries and countries with a population less than 4 million. It is clear that South Africa had a particularly barren neighborhood, given its income level in 1975.

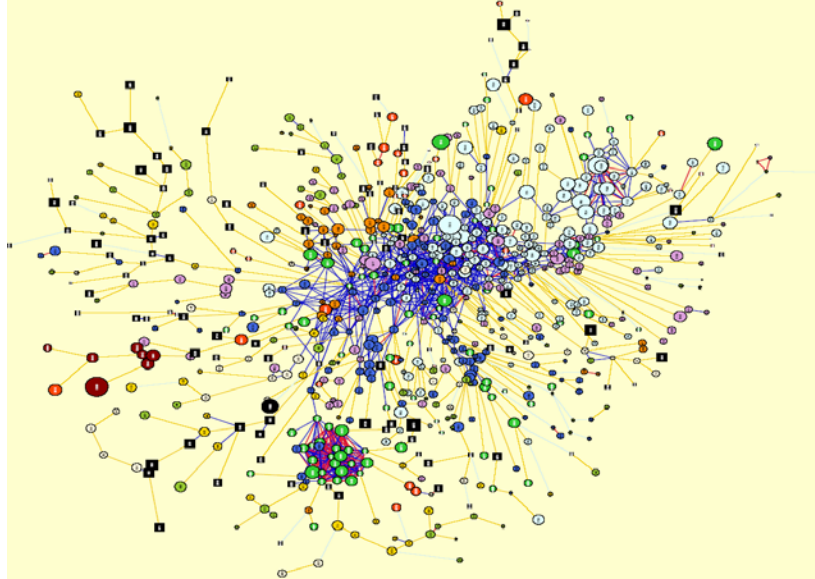
Figure 3.1 Log of open forest and GDP per capita in 1975



We can also show South Africa’s relatively poor positioning this by using the product space representation developed by Hidalgo et al (2007). Here, each product is linked to its nearest neighbor and to other neighbors that are closer than a cutoff level (red meaning extremely close, dark blue is very close, brown is close and light blue is not very close but still the nearest neighbor). The size of the circle is proportional to global trade in the

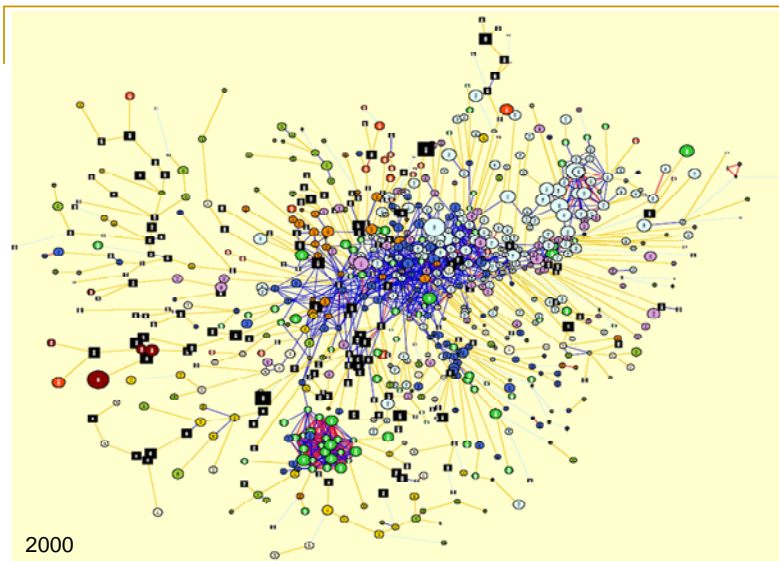
product, while its color reflects the Leamer (1984) category to which the product belongs. In Figure 3.2, we draw South Africa's position in the product space by covering with a black square the underlying product in which the country had revealed comparative advantage. It can be seen that the country occupied very peripheral positions in the product space in 1975. Comparing Figure 3.2 to 3.3 shows that South Africa did improve its position in this product space during the intervening period, but did so at a relatively moderate pace.

Figure 3.2 South Africa's position in the product space in 1975



Source: Hausmann and Klinger, 2006b

Figure 3.3 South Africa's position in the product space in 2000



Source: Hausmann and Kliner, 2006b

Does poor positioning in the product space explain a country’s slow structural transformation, or is there some other explanation unique to South Africa? One way to evaluate this proposition is to consider the estimated coefficients on the country dummy variables from the Hausmann & Klinger (2006) regressions. Specifically, in a probit model of all observations of non-exported goods from every country between 1985 and 2000 (including the country’s revealed comparative advantage in the Leamer commodity cluster to which the product belongs in order to capture factor endowments), the estimated coefficient on the country dummies capture the country characteristics that affect the probability of moving to new exports, controlling for level of development, sophistication of the export package, and open forest. As Table 3.1 shows, this estimated coefficient is statistically significant in some cases: the coefficients are positive for cases of unexpectedly rapid structural transformation and negative for cases of unexpectedly slow structural transformation. Thus while some factors other than location in the product space are particularly important in the cases of Spain, Romania, El Salvador, and Zimbabwe, in the case of South Africa, there is no statistically significant tendency towards rapid or slow structural transformation, *controlling for open forest*. In other words, much of South Africa’s structural transformation predicament can be attributed to its placement in the product space.

Table 3.1

Estimated Coefficients on Country Dummies

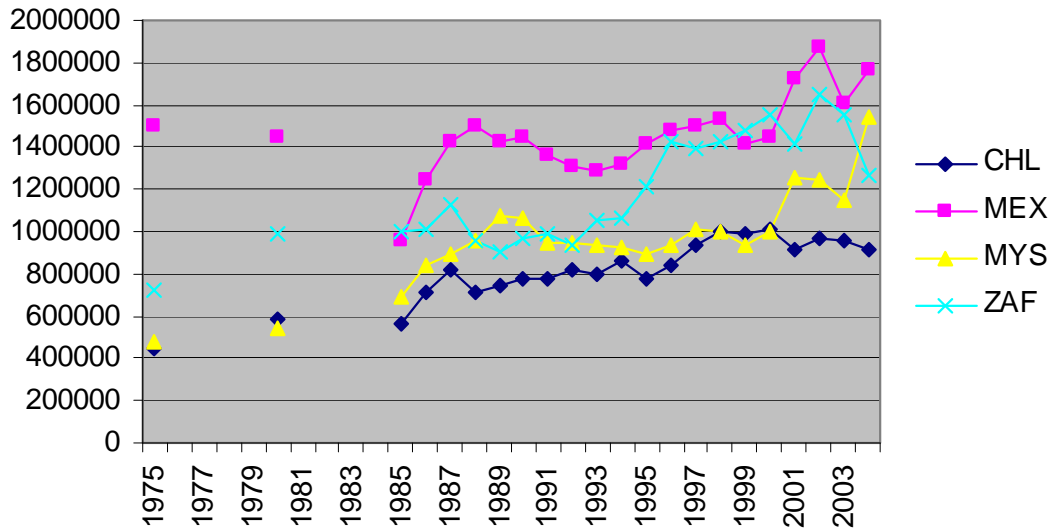
El Salvador	-0.010 (3.91)**
Romania	0.016 (3.08)**
Spain	0.032 (6.83)**
South Africa	0.003 (0.44)
Zimbabwe	-0.003 (5.04)**

Notes: A positive value indicates movements to new products occurred with greater frequency than predicted by the Hausmann & Klinger (2006) model. T-statistics in parenthesis. **: significant at 1% level. Source: Author’s calculations.

In their empirical investigation of all absolute declines in per-worker GDP since 1975, Hausmann, Rodríguez, and Wagner (forthcoming) have found that while growth collapses are associated with a set of identifiable events – export collapses, episodes of macroeconomic mismanagement, wars, sudden stops in capital flows, and political transitions – the recoveries from these collapses are much more difficult to predict. Surprisingly, the variables that are significantly associated with the probability of a crisis do not appear to be related to crisis duration. The main variable that is robustly associated with crisis duration is the degree of open forest, or the distance-weighted value of the country’s alternative export basket. The economic significance of this variable is very strong: a one-standard deviation increase in open forest implies an increase of 86.6% in the probability of

exiting the crisis. From this perspective, South Africa has suffered a collapse in the income-earning capacity of its traditional mining activities. In spite of a massive real depreciation in the early 1980s, the country has had difficulty developing new areas of comparative advantage. This is shown explicitly in Figure 3.4, which comparatively shows the evolution of the open forest variable for several countries. South Africa developed moved into exporting new products to the extent that was feasible given its poor initial placement in the product space. The rate at which this economy was able to undertake structural transformation therefore became the binding constraint on growth.

Figure 3.4 Evolution of open forest: an international comparison



SECTION 4. THE ROLE OF COMPETITION IN FOSTERING PRODUCTIVITY AND GROWTH

Hypothesis

High price-cost margins indicate that South African industry has low levels of competition by international standards. Firm and industry level evidence from Aghion et al (2006) suggests that creating conditions that reduce these markups will promote productivity. This suggests that lack of competition poses a serious constraint on growth in the South African context.

Theoretical framework

The theoretical framework of Aghion-Howitt (2004) gives insight into two countervailing ways in which competition can affect productivity. In this model, each sector has an incumbent firm which can invest in R&D and increase its productivity if it innovates successfully. The incumbent faces competition from a competitive fringe where firms have a higher unit cost of production. In a sector that is behind the technological frontier, firms in the competitive fringe can achieve higher productivity through imitation. Because these firms are able to emulate the incumbent, a rise in product market competition (measured as a lower production cost for the competitive fringe) reduces the rents available to incumbent firms from innovating. This gives rise to the *Schumpeterian effect*: competition reduces incentives for innovation and therefore reduces productivity growth.

In contrast, for a sector that is at the technology frontier, an incumbent firm is able to escape competition by investing in R&D and introducing a new product of higher quality that cannot be emulated by other firms in the competitive fringe. In this case, an increase in product market competition raises the incumbent's incentive to innovate. This *Escape competition effect* implies that competition is related positively to innovation and productivity.

These two effects give rise to an inverted U-shaped relationship between competition and productivity, which is observed in most countries (Aghion et al, 2006). However, looking at the linear relationship between competition and productivity can tell us about the relative strength of these two effects. For example, if the linear relationship is positive, it suggests that the Escape competition effect dominates.

Pricing Power in South African Industry

Empirical analysis appears suggests that there is a positive relationship between competitiveness and productivity in the South African context. Aghion, Braun and Fedderke (2006) measure the extent of competitiveness in an industry on the basis of pricing power – specifically, two proxies of the Lerner index. The first proxy measures the differential between value added and the total wage bill as a proportion of gross output. The second proxy is the difference between output and both the wage and capital costs.

Using these two measures, the authors find that pricing power in South Africa is greater than in other countries and has not declined over time. This finding is confirmed using cross-national data at both the firm and industry levels. The firm level analysis uses data from listed firms in 60 countries over 1980-2004, and suggests that South African firms

exhibit profitability levels that are approximately 50 percent higher, when profitability is measured using the Net Income/Sales ratio or the Price/Earnings Ratio. The industry level analysis is based on the TIPS dataset, and suggests that the aggregate mark-up for the manufacturing sector is 54 percent (when mark-ups are estimated on the basis of the approach of Hall (1990) and Roeger (1995)). The evidence also suggests that mark-ups have increased over this period. As shown in Table 4.1, markups have increased for 16 of the 3-digit manufacturing sectors.

Table 4.1 Summary of recent mark-up behavior in manufacturing

Level of mark-up in 1991-2000	Change in mark-up from 1991-2000 to 1995-2004		
	Increase	Decrease	Less than 10% change
High (above 80%)	Beverages Textiles Paper Glass Pro and sci eq Furniture	Tobacco Printing** Coke* Basic chemicals** Plastic* Other manufacturing**	
Medium	Food Basic non-ferrous metals** Motor		Television, & comm eq
Low (below 40%)	Wearing apparel Footwear Wood* Non-metallic minerals Basic iron and steel Metal Other transport eq	Leather	Chemicals** Rubber** Machinery

Note:

* change is off singular low or high

** change does not reflect trend - entire series should be looked at

Source: Aghion, Braun and Fedderke, 2006

Pricing Power and Productivity Growth

Empirical evidence also suggests that a reduction in pricing power would boost productivity growth in South Africa. For example, when growth in labor productivity is regressed on the lagged average mark-up, the estimated coefficients are negative and statistically significant, for data at the firm and industry level, and for specifications using cross-country data, as well as South African alone.

Table 4.2 presents estimates using firm-level data. The coefficients imply that a 10 percent increase in the margin above the mean mark-up of .12 for South Africa would raise productivity by 2.4 percent. This is fairly substantial given that the median productivity growth rate for South African firms is 1.8 percent.

Table 4.2 Margins and Growth: Firm-Level Evidence

Dependent Variable: Real Labor Productivity Growth													
	Sample of 56 countries						South Africa						
Price-Cost Margin t-1	-2.542 *** 0.145		-5.211 *** 0.313	-0.662 *** 0.029			-1.676 *** 0.080	-1.860 *** 0.377			-3.575 *** 0.707	-0.758 *** 0.185	-1.843 *** 0.517
Price-Cost Margin t-1 with Financial Costs		-1.740 *** 0.186			-0.677 *** 0.060				-1.906 *** 0.356				-0.914 *** 0.245
(Price-Cost Margin t-1) ²			7.335 *** 0.650			2.805 *** 0.194				4.095 ** 1.606			2.703 * 1.526
Country Fixed Effects	-	-	-	Yes	Yes	Yes	-	-	-	-	-	-	-
Industry Fixed Effects	-	-	-	Yes	Yes	Yes	-	-	-	-	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	No	No	No
# Observations	68735	66436	68735	68735	66436	68735	760	729	760	760	729	760	760
# Firms	10502	10347	10502	10502	10347	10502	96	92	96	96	92	96	96
R2	0.25	0.23	0.26	0.04	0.04	0.05	0.28	0.28	0.29	0.14	0.15	0.14	0.14

Note: Significance level: * 10%, ** 5%, *** 1%.

Errors are clustered at the country level and at the year level for the Sample of 56 countries and South Africa regressions, respectively.

Source: Aghion, Braun and Fedderke, 2006

The positive coefficients on the squared terms above confirm that the relationship between the price-cost margin and productivity is U-shaped, which is consistent with the theoretical framework outlined above. However, the linear relationship is negative, which is consistent with the idea that the escape competition effect predominates.

Analysis using the Solow residual as the measure of total factor productivity and the industry level data from TIPS also produce similar results. Using this specification, Aghion et al (2006) find that a .1 unit increase in the price-cost margin is associated with a 1 percent reduction in the real growth rate of productivity. Using employment as the outcome variable in this analysis suggests that this increase in pricing power reduces employment by 3400 workers per sector. This suggests that an increase in competitive pressure would have important consequences for boosting employment in South African industry.

One way of assessing competitiveness in South African industry is to examine labor market flexibility. Aghion et al (2006) estimate labor market flexibility as the ratio of labor employed to the proportion of total labor employed which is variable. (A value of 1 implies perfect flexibility, while a value of infinity implies inflexibility.) Using industry level data for manufacturing over 1972 to 2004 they find that of total labor employed in South African manufacturing, about two-thirds are effectively allocated to fixed costs while one third is attributable to variable cost.

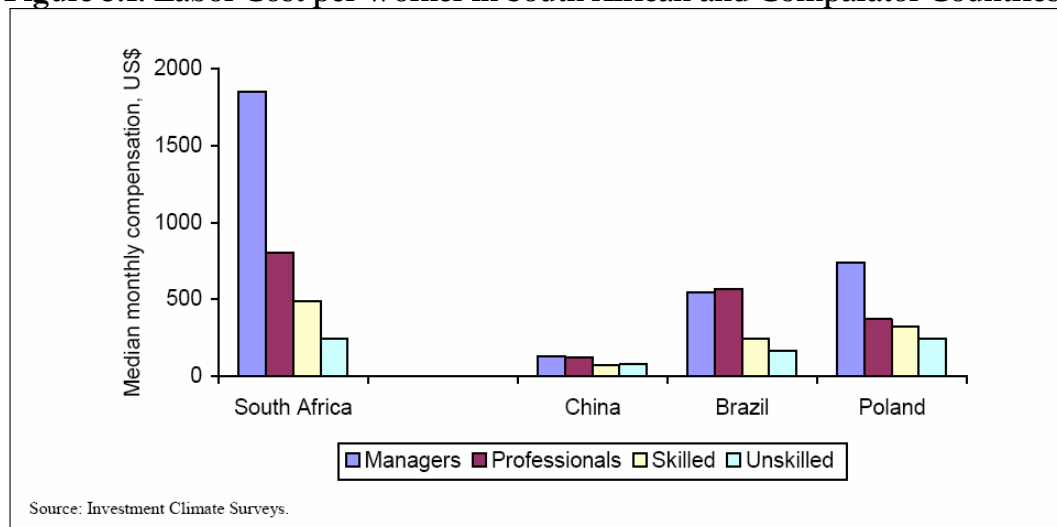
By dividing the analysis into sub-periods, the authors find that there was an increase in the flexibility of adjustment during the first half of this period, and that this flexibility was substantially reversed during the 1990s. This is consistent with the perspective that erosion in labor market flexibility has lowered the competitiveness of South African industry over this period.

SECTION 5. LABOR MARKET REGULATIONS, SKILLS SHORTAGE AND UNEMPLOYMENT IN SOUTH AFRICA

Hypothesis: An analysis of South Africa’s investment climate suggests that firms face a high cost of labor, especially for skilled workers, as well as onerous labor market regulations that raise the cost of hiring and firing workers. These factors play a role in discouraging investment and job creation, and contribute to high unemployment rates in South Africa.

Average wages in South Africa are high by international standards. The high cost of labor, especially skilled labor, may play a role in explaining why private investment and job creation has been modest over the past two decades. The World Bank Investment Climate Assessment (ICA) surveyed firms in the formal sector in several countries to collect data on firm productivity and the cost of doing business. According to this source, labor costs per worker were \$7300 in South Africa in 2002, compared to \$4000 in Malaysia and Poland, \$2700 in Brazil and \$2000 per worker in the most productive areas of China (see Figure 5.1).

Figure 5.1: Labor Cost per Worker in South African and Comparator Countries



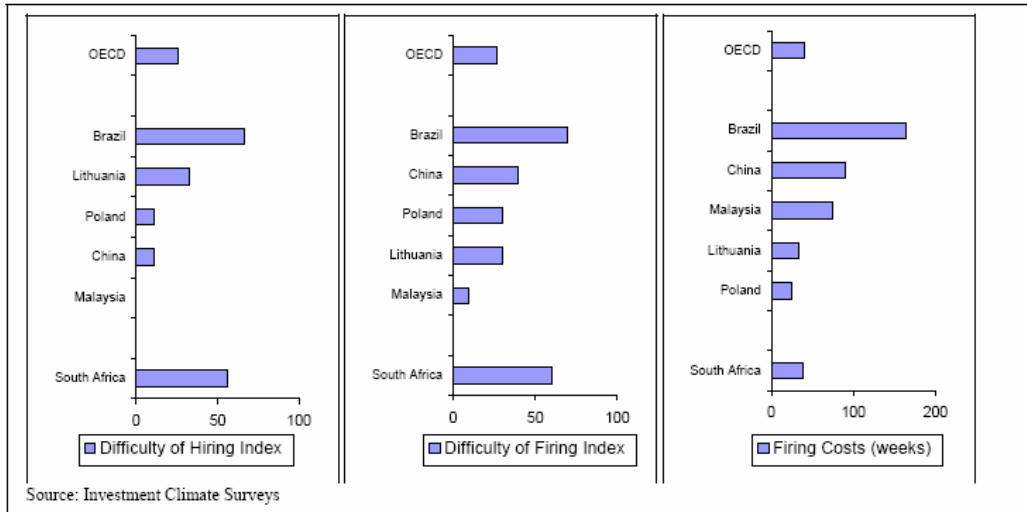
When managers were asked to rate the extent to which various areas of the investment climate imposed a serious constraint on enterprise growth, worker skills ranked first on the list, with 35 percent of firms viewing this as a serious impediment. Firms in South Africa appear to pay a very large premium for skilled workers in South Africa. In fact, the high average cost of labor appears to be driven by higher salaries for management and skilled workers, rather than higher wages for workers at the bottom of the wage distribution. For example, managers earn wages earn nine as much as unskilled production workers in South Africa, compared to three times as much for Brazil and two times as much as China (Clarke et al, 2006). The idea that skills act as a binding constraint to economic growth is also consistent with the estimated high returns to education in the labor market: an additional year of education appears to increase wages by 12 percent without controlling for occupational status, and increases wages by 6.5 – 7 percent controlling for occupation (Clarke et al, 2006).

The wages of skilled workers are high in part because apartheid reduced the available supply of skilled workers, as the majority of the African population had limited access to basic education of a decent quality. It is also possible that an out-migration of skilled workers during the transition to democracy in 1994 made skilled labor even more scarce during the post-apartheid era (Brown et al, 2002). Variation in the unemployment rate by skill level clearly indicates that the unemployment rate is very low for those with skills: it is 3.3 percent for individuals with a college education, 11.7 percent for those with a post-matric education, 28.2 percent for those with matric, and 30.2 percent for those who have less than matric (Banerjee et al, 2006).

Labor market regulations are also reported to impose substantial costs on firms. 33 percent of the firms in the ICA reported that labor market regulations were a major obstacle. Only two other issues, workers skills and macroeconomic instability, were cited as an obstacle with greater frequency. The costs of hiring and firing workers are reported to be particularly burdensome. There are four major pieces of legislation that govern labor market regulations and affect hiring and firing costs: the Labor Relations Act (LRA), the Basic Conditions Employment Act (BCEA), the Equity Employment Act (EEA), and the Skills Development Act (SDA). The LRA stipulates the conditions under which a dismissal is considered unfair. Analysts suggest that the burden of proving a fair dismissal (such as arbitration) may be substantially costly for the employer (Clarke et al, 2006). The BCEA covers many areas including working time, leave, remuneration and termination, as well as monitoring and enforcement. In terms of termination, the act indicates that employees have to be notified prior to dismissal (up to four weeks in advance if tenure on the job exceeds one year). The EEA of 1998 covers unfair discrimination and affirmative action policies. As with the dismissal legislation, the burden of proving that discrimination did not occur rests with the employer. When there is evidence of income differentials among individuals with similar qualifications, the employer is required to reduce these differentials. Some analysts suggest that the reduction of these differentials may lead to wage inflation (Clarke et al, p. 68). Finally, the SDA has actually is focused on training to build skills through a levy-grant scheme and does not discuss regulations directly. However, the alleged difficulty of claiming back the levy has actually led some small businesses to view this as a tax.

Statistics from the World Bank's Doing Business database support the idea regulations around hiring and firing are more onerous in South Africa relative to other countries. As shown in Figure 5.2, the difficulty of hiring index was 56 for South Africa, which is second only to Brazil and also higher than the average for the OECD countries. The difficulty of firing index is also relatively high in South Africa, though the firing costs index (measured as the cost of firing an individual in weeks of wages), is lower in comparison to other countries.

Figure 5.2: Hiring and Firing Regulations in South African and Comparator Countries

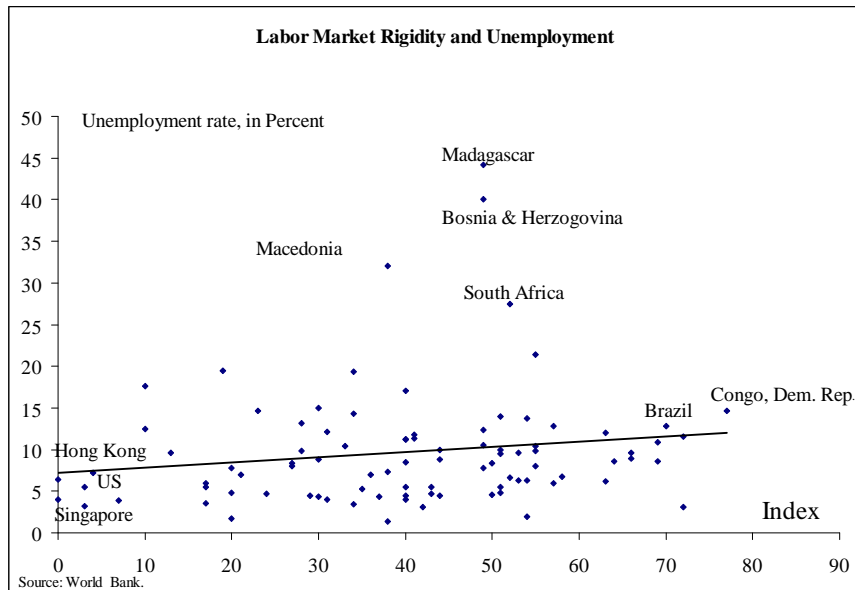


To what extent have these regulations affected job creation and unemployment? A World Bank study on small and medium enterprises finds that 10 to 15 percent of firms in the sample reduced employment as a result of the four major labor market regulations (Chandra et al, 2001). Further evidence comes from a study of enterprises by Hudson (2003). Firms in this sample reported that retrenching an entry-level employee took 2.7 months on average, and hiring a least skilled worker cost 9,000 Rand, while firing the individual cost 2,160-2,900 Rand. Partly in response to these costs, 40 percent of the firms in the sample reported hiring fewer workers, using more machinery, hiring temporary workers or sub-contracting.

Job shedding among firms in the ICA sample also appear to be related to the regulatory burden: 40 percent of the firms that shed jobs between 2000 and 2002 reported labor regulations as a major constraint, in comparison to 30 percent of firms that showed positive growth in employment over this period (Clarke et al, 2006).

Finally, international evidence also suggests that labor market rigidities may play an important role in growth and employment generation. For example, Figure 5.3 shows that there is a positive correlation a country's unemployment rate and the rigidity of employment index calculated from the World Bank's Cost of Doing Business Database.

Figure 5.3 Correlation of labor market rigidity and unemployment



Source: based on World Bank's Cost of Doing Business Database

Moreover, Rama and Artecona (2002) analyze the effect of labor market flexibility on employment in a regression framework, for a sample of 121 countries over 1945-2000. Their measure of flexibility includes flexibility of wages and labor costs, employment security provisions, flexible working time arrangements, tax and benefits system, and active labor market policies. The results (summarized in Table 5.1) indicate that labor market rigidity has a significant positive effect on unemployment, controlling for country fixed effects, macroeconomic shocks, openness and the demographic composition of the labor force.

Table 5.1

Unemployment and Labor Market Institutions: Panel Regression Results 1/

Variable	(I)	(II)	(III)	(IV)
Index of Labor Market Rigidity	5.311 *** (2.77)	12.988 *** (3.27)	10.184 ** (2.56)	10.587 *** (2.71)
Productivity Growth		-0.019 * (-1.67)	-0.025 ** (-2.17)	-0.027 ** (-2.38)
Change in CPI Inflation Rate		-0.001 *** (-3.27)	-0.001 (-2.37)	-0.001 ** (-2.15)
Real Interest Rate		0.010 (0.14)	0.040 (0.54)	0.042 (0.58)
Trade Openness			-0.145 *** (-2.85)	-0.18 *** (-3.54)
Growth Population 15-64				0.102 (1.24)
Dummy 1975-80	1.989 *** (2.85)			
Dummy 1980-85	3.154 *** (4.73)		-10.648 ** (-2.48)	
Dummy 1985-90	3.317 *** (4.99)	0.413 (0.67)	-10.646 ** (-2.45)	0.009 (0.01)
Dummy 1990-95	3.759 *** (5.68)	0.577 (0.91)	-10.136 ** (-2.38)	0.492 (0.76)
Dummy 1995-2000	4.629 *** (6.73)	3.960 (1.06)		12.424 *** (2.94)
Constant	2.758 *** (3.37)	3.059 * (1.83)	24.959 *** (3.42)	15.738 *** (3.64)
R ² within	0.21	0.25	0.33	0.40
Number of cross-sections (countries)	75	49	48	45
Number of observations	313	123	120	114

1/ Dependent variable is total unemployment. t-statistics in parentheses

* significant at the 10 percent level

**significant at the 5 percent level

*** significant at the 1 percent level

Source: Rama and Artecona, 2006

SECTION 6. SUPPLY SHOCK, STRUCTURAL CHANGE AND UNEMPLOYMENT IN SOUTH AFRICA

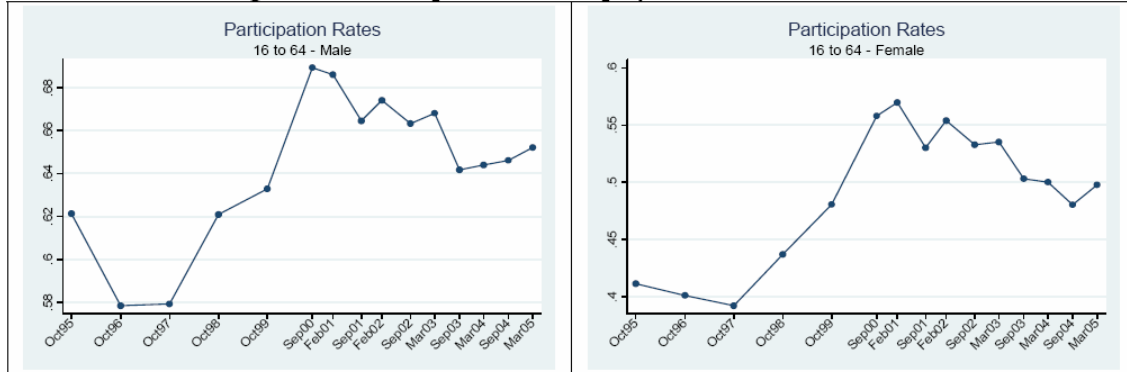
Hypothesis

The South African labor market experienced a huge influx of low-skill labor in the post-1994 era. Skill-biased technical change and the shrinkage of the mining and agricultural sectors simultaneously reduced the relative demand for low-skill workers. Given these structural changes, wages would have had to fall dramatically to clear the labor market, to levels that would have been socially and politically unacceptable. However, a rising union wage premium kept the wages of low-skill workers, especially African workers, from falling as fast as they would have otherwise. While this has benefited union members, it has also created additional challenges for reducing unemployment. In addition, it is possible that a dramatic rise in government transfers including old-age pensions raised the reservation wages of labor market participants, but there is mixed evidence on the extent to which this has contributed to unemployment.

The Composition of the Labor Force

There was a large increase in labor force participation rates during the post-apartheid period. Participation rates increased for both men and women, but, as shown in Figure 6.1, the rise was more dramatic for women.

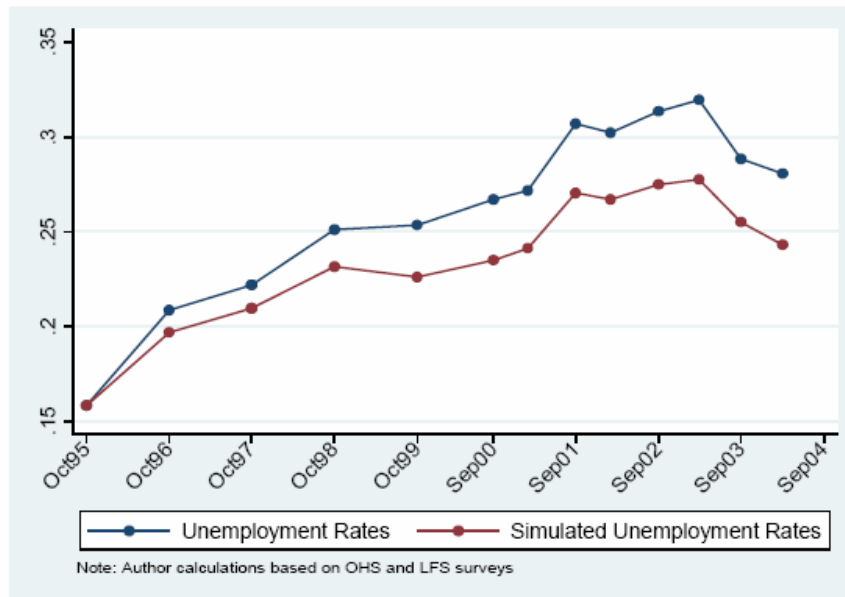
Figure 6.1 Participation Rates, by Gender



Source: Banerjee et al, 2006

Beyond the rise in female participation, the demographic composition of the labor force changed in other important ways: the share of Africans increased, as did the share of younger people, and those with lower skill levels. Banerjee et al construct counterfactual employment series by dividing the population into cells based on age, sex, race, education and region, and hold the group shares constant at the 1995 values. Comparing this counterfactual series with the actual unemployment series (as in Figure 6.2) shows that a substantial share of the increase in unemployment is due to these demographic changes. The authors estimate that that these demographic changes in the labor force alone can account for 31 percent of the increase in unemployment over 1995 to 2005.

Figure 6.2 Counterfactual and actual unemployment rates



Source: Banerjee et al (2006)

Employment Trends by Sector

Changes in the sectoral composition of the South African economy have lowered the relative demand for unskilled labor. As shown in Table 6.1, agriculture went from 33 percent of employment in 1970 to 11 percent in 2005, while mining declined from 9 to 4 percent over this period. This structural shift has favored skilled workers, who are used more intensively in the tertiary sector, relative to the primary sector.

Table 6.1 Total employment, by sector

Total Employment

Industry	1970	1995	2000	2005
Agriculture	33	14	17	11
Mining	9	5	5	4
Manufacturing	14	16	15	15
Utilities	1	1	1	1
Construction	6	5	6	7
Wholesale & Retail	9	19	23	25
Transport	4	6	5	5
Finance	3	7	9	11
Community	21	26	19	21

Note: Domestic workers are excluded.

Source: Banerjee et al (2006)

Moreover, within sector shifts have also favored the relative employment share of skilled workers, due to factors such as skill-biased technical change. A decomposition of the between-industry and within-industry changes in Table 6.2 shows that within industry shifts have been especially important for workers with little or no education.

Table 6.2 Between and within industry shifts (% Total Employment)

1970-2005	Between	Within	Total	Within%
None	-13.43	-19.72	-33.14	59.48
Some Primary	-1.41	-11.21	-12.62	88.82
Some Secondary	9.25	-3.38	5.87	26.77
Complete Secondary	5.00	17.82	22.81	78.10
Tertiary	0.59	16.49	17.08	96.56

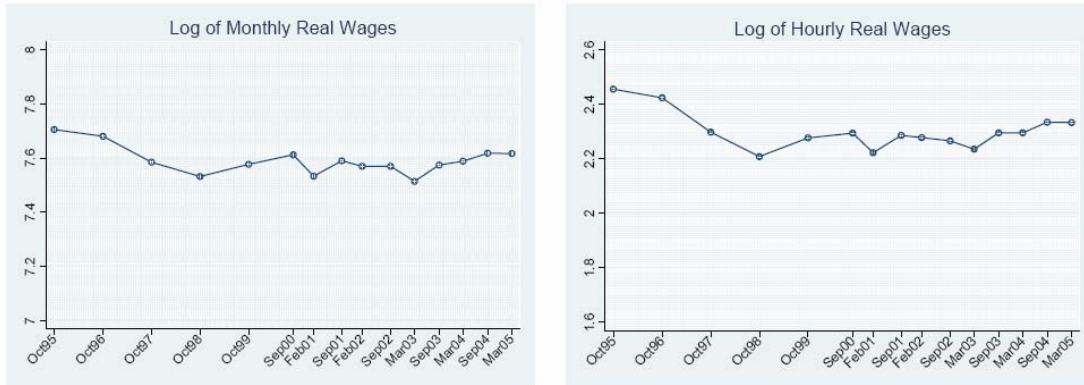
Source: Banerjee et al (2006)

Trends in Wages

Given the structural changes that have affected labor demand and the changes in labor supply resulting from the dismantling of apartheid, wages would have had to fall significantly to clear the labor market. However, estimates suggest that this did not occur. Average real wages did decline, but only by a moderate amount during the 1995-2005 period.

Banerjee et al (2006) estimate that the real wage fell by 10 percent, and the evolution of their wage estimates is shown in Figure 6.3.

Figure 6.3 Real Wages



Source: Banerjee et al (2006)

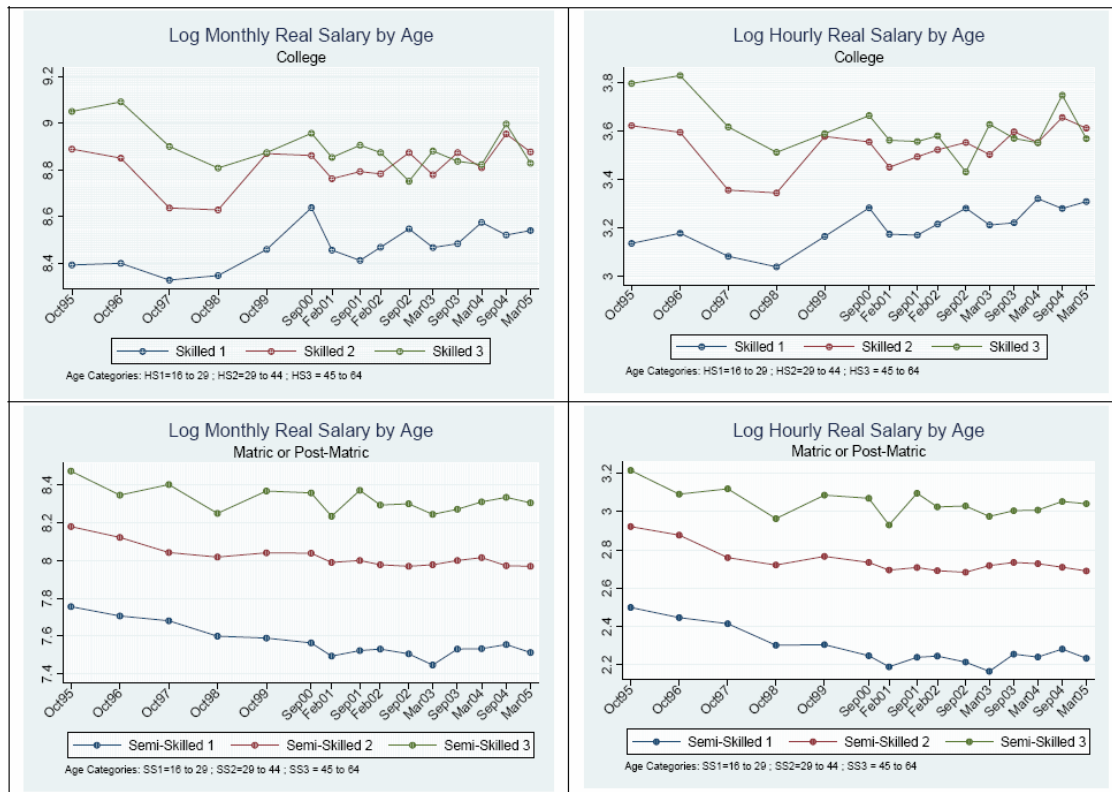
The real wage did in fact decline for most groups of workers. However, the share of high-income workers also increased over this period, and this compositional change kept the average real wage high (Banerjee et al, 2006). Figure 6.4 shows that the real wage of those with a college education increased, while the real wage of those with matric (or high school diploma) actually fell during this same period.

One factor that has curbed the extent to which wages have fallen is the influence of labor unions. The trade union movement plays a prominent role in wage determination as it has a sizable membership and is a considerable political force in South Africa. For example, the Congress of South African Trade Unions (COSATU) is a partner in the governing coalition dominated by the ANC.

The union movement has expanded rapidly since the 1970s. The percent of urban African workers who were unionized was 2.5 percent in 1975, 5.5 percent in 1980 and 19 percent in 1985 (Moll, 1993). The unionization rate for COSATU is estimated to have reached 37 percent by 1993 (Schultz and Mwabu, 1997). However, the influence of unions may be even more pervasive since agreements reached by bargaining councils can be extended to all firms in an industry, even if they did not participate directly in the negotiations (Bendix, 2003).

As shown in Table 6.3, union premia are large and have increased substantially since 1995, rising to 35 percent in 2004 (according to the baseline model of Banerjee et al 2006).

Figure 6.4 Trends in real wages, by education



Source: Banerjee et al (2006)

Table 6.3 Estimated coefficients of the union wage premium

Year	(1)		(2)		(3)		(4)		(5)		
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t	Coef.	t	
Africans	1995	0.21	14.92	0.11	2.15	-	-	0.18	12.87	0.14	7.61
	1998	0.29	12.38	0.35	3.89	-	-	0.25	10.38	0.20	6.97
	2000	0.42	23.11	0.37	4.86	0.39	20.92	0.33	17.63	0.27	11.38
	2004	0.41	21.95	0.47	5.40	0.37	19.28	0.33	17.13	0.23	6.92
All	1995	0.19	17.65	0.19	5.09	-	-	0.16	14.56	0.13	8.46
	1998	0.27	13.75	0.33	4.71	-	-	0.23	11.42	0.18	6.81
	2000	0.38	25.03	0.43	7.19	0.34	22.00	0.29	18.96	0.25	11.00
	2004	0.35	22.88	0.52	8.11	0.31	19.96	0.27	17.41	0.17	5.73

Note: The public sector dummy is not available for 1995 and 1998.

Source: Banerjee et al (2006)

It is also the case that the union premia for unskilled and semi-skilled workers have increased over time but decreased for skilled workers. Thus, evidence suggests that the rising union wage premium did keep the wages of unionized unskilled workers from falling faster than they otherwise would have.

In some policy circles, it has been suggested that unemployment has increased due to a wage push in the South African context. The wage push idea is most relevant for the formal sector, where unions are powerful, minimum wages are binding, and enforcement of labor market regulations give rise to greater labor market rigidities more generally. Although there is no national minimum wage, South Africa does have sector-specific minimum wages in the agricultural, domestic services, private security and retail sectors, which cover an estimated 50 percent of the formal employment (IMF, 2006). Moreover, some argue that the employment protection policies impose onerous costs to hiring and firing workers. Because South Africa has a small informal sector that cannot effectively absorb labor shed by the formal sector, labor market rigidities in the formal sector may result in greater unemployment.

However, although the union premium has increased, Banerjee et al (2006) find no evidence that wages have risen faster than productivity, even when wages are deflated by the PPI. In addition, average real wages have fallen more for those in lower skill categories, who face the highest unemployment rate.

Others have suggested that massive transfers extended in the form of the Social Old Age Pension (SOAP) may have increased the reservation wages of workers. If elders receiving transfers are willing to support youth, then these transfers may increase the reservation wages of young workers, who are more selective about the wage rates they are willing to accept for employment. However, there is mixed evidence on this point. Bertrand et al and Ranchod (2006) find that employment increases for women over 35 when they belong to a household that loses a pensioner. On the other hand, other studies indicate that pension receipts enable prime-age women to migrate in search of work, so the net effect of pensions on employment is not clear (Posel, Fairburn and Lund, 2004; Edmonds, Mammen and Miller, 2003).

Equilibrium Employment Levels

Using an individual-level panel dataset of South Africa's Labor Force Surveys, Banerjee et al (2006) are able to calculate the transition of individuals from one labor market state to another, including retirement, not economically active (NEA), unemployed but discouraged (unemployed_d), unemployed but searching (unemployed_s), employed in the informal sector (informal) and employed in the formal sector (formal). The transition matrices for men, women and all adults are summarized in Table 6.4:

Table 6.4 Transition matrices

All adults (16-64)		<u>State wave 7</u>						
<u>State wave 6</u>	N	Retired	NEA	Unemp_d	Unemp_s	Informal	Formal	Total
Retired	1,065	68.45	16.32	3.09	1.96	7.32	2.85	100
NEA	7,057	2.87	68.01	9.26	12.11	4.29	3.45	100
Unemp_d	2,264	1.91	19.09	36.11	28.78	9.89	4.22	100
Unemp_s	3,630	0.83	14.15	16.41	49.82	9.27	9.53	100
Informal	2,496	3.16	12.04	8.13	12.96	51.86	11.86	100
Formal	6,677	0.92	3.36	1.63	5.04	4.79	84.26	100
Total	23,189	4.68	26.87	10.82	17.94	11.28	28.4	100

Male adults (16-64)		<u>State wave 7</u>						
<u>State wave 6</u>	N	Retired	NEA	Unemp_d	Unemp_s	Informal	Formal	Total
Retired	311	64.4	13.02	5.02	3.5	7.56	6.5	100
NEA	2,926	1.8	74.37	6.81	11.24	2.66	3.12	100
Unemp_d	792	2.74	15.99	30.81	33.46	10.56	6.43	100
Unemp_s	1,573	1.25	12.33	13.81	51.05	10.31	11.25	100
Informal	919	2.42	8.89	6.83	16.75	48.65	16.46	100
Formal	3,929	0.77	1.92	1.62	6.14	4.92	84.63	100
Total	10,450	3.21	24.44	7.97	17.92	10.1	36.36	100

Female adults (16-64)		<u>State wave 7</u>						
<u>State wave 6</u>	N	Retired	NEA	Unemp_d	Unemp_s	Informal	Formal	Total
Retired	754	70.23	17.78	2.25	1.29	7.21	1.24	100
NEA	4,131	3.65	63.42	11.03	12.74	5.46	3.69	100
Unemp_d	1,472	1.45	20.81	39.06	26.17	9.52	2.98	100
Unemp_s	2,057	0.49	15.59	18.46	48.85	8.45	8.17	100
Informal	1,577	3.69	14.29	9.06	10.24	54.15	8.57	100
Formal	2,748	1.16	5.59	1.64	3.33	4.59	83.69	100
Total	12,739	5.96	28.99	13.31	17.96	12.31	21.48	100

Source: Banerjee et al (2006)

The matrix tells us that of unemployed adults (discouraged or searching), 9.6 percent find employment (formal or informal) after a six month period. It also indicates that discouraged workers are twice as likely to transition into the informal sector rather than the formal sector, while the unemployed who search actively are equally likely to transition into formal and informal employment.

The transition matrices enable Banerjee et al (2006) to calculate the implied steady-state rates for each of these labor market categories, and gauge how far current shares are from these equilibrium shares. Table 6.5 presents this comparison, and reveals that the labor market is more or less already in steady-state. The close values of the actual and steady-state values that the transition is effectively over, which implies that the observed high unemployment rate is fairly close to the equilibrium rate.

Table 6.5 Steady-state and actual labor market shares

	<i>Steady State</i>	<i>Actual</i>
Retired	5.4	4.7
NEA	24.7	26.9
Unemployed_d	10.8	10.8
Unemployed_s	18.3	17.9
Informal	11.7	11.3
Formal	29.1	28.4

Source: based on Banerjee et al (2006)

Part of the recent rise in unemployment rate may still reflect temporary shocks, such as the increase in labor supply from the dismantling of apartheid, which have moved employment away from its equilibrium level. However, the evidence above indicates that most of the unemployment is in fact structural, rather than transitional. The implication is that the equilibrium rate of unemployment has itself increased in South Africa.

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