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Patterns of industrial performance in South Africa in the first decade of democracy: the continued influence of minerals-based activities

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Abstract

Despite major restructuring of industry in South Africa under trade liberalisation, a review of sectoral patterns of development reveals strong elements of continuity. The article explores these patterns, and focuses on two main themes. The first is whether and what diversification has occurred within manufacturing industry in the context of trade liberalisation. The second is the continued significance of minerals-based activities. Against the record in each of these areas it is argued that industrial policy since 1994 has largely failed to come to terms with the key structural challenges of South African manufacturing industry.

Introduction

South Africa has attained moderate growth rates in recent years, but its performance has not been particularly good by comparison with similar middle-income developing countries. Above all, the growth rates have been achieved with very low investment and employment rates. In terms of simple growth accounting, GDP growth has therefore by definition been due to increased productivity. In terms of the major sectoral groupings of the economy, employment has fallen sharply in agriculture and mining, while it has increased in services. Manufacturing has maintained its share of employment in terms of numbers of employees (that is, excluding the self-employed and also domestic workers) at 17 per cent (Bannerjee et al 2006).¹ And, much of the growth in employment in finance and business services

is in the business services component which includes the booming private security sector and outsourced cleaning services.²

My review of economic performance starts from the premise, accepted in the government's Accelerated and Shared Growth Initiative for South Africa (ASGISA), that manufacturing industry is central to South Africa's development trajectory. How to encourage growth of diversified manufacturing has been the focus of several of the papers produced in 2006 for the South African Treasury by the team of economists convened by Harvard's Centre for International Development (see Rodrik 2006, Hausman and Klinger 2006a, Edwards and Lawrence 2006).

The overall performance of South African manufacturing industry in the first decade of democracy reflects the complex and far-reaching restructuring of the South African economy, during which industries have responded to trade liberalisation and increasing international integration of the South Africa economy. At the same time, the tightening of macro-economic policy to reduce the government budget deficit, and higher interest rates aimed at reducing inflation, has meant weak domestic demand and investment remaining at very low levels. I review the sectoral patterns of development to assess to what extent there has been diversification and why, critically assessing recent arguments with regard to trade liberalisation and international competitiveness.

Industrial policy in the past decade has been broadly focused on 'competitiveness', with cross-cutting measures to encourage investment, technological improvements and exports, and to support small, medium and micro enterprises. A raft of incentive programmes were developed which can be described as functional and supply-side in that they rewarded firms for certain behaviour with regard to investment, technology and skills. Together with trade liberalisation, the expectation was that these measures would counteract the apartheid government's support for large-scale capital-intensive industries which, together with protection, led to poor productivity and competitiveness (see Hanival and Hirsch 1998, Joffe et al 1995).

The focus on undoing the misdirected and interventionist policies of the apartheid government meant the democratic government shrank from targeting specific industries or from significantly altering incentives (beyond that of liberalisation) to create dynamic comparative advantages or to 'govern' the market (Amsden 1989, Wade 1990). The South African policy stance thus largely accepted the importance of 'government failure' which characterised the World Bank's interpretation of the East Asian countries'

industrialisation (World Bank 1993). The South African approach was avowedly market-friendly, ‘following’ the private sector and emphasising ‘business confidence’ as the key to increased investment and growth. The ‘Integrated Manufacturing Strategy’ (DTI 2002) represented a change in portrayal to an extent, with scope for ‘customised sector programmes’ for different industries. The first customised sector programmes were only approved in 2006, and fall outside the scope of this article.

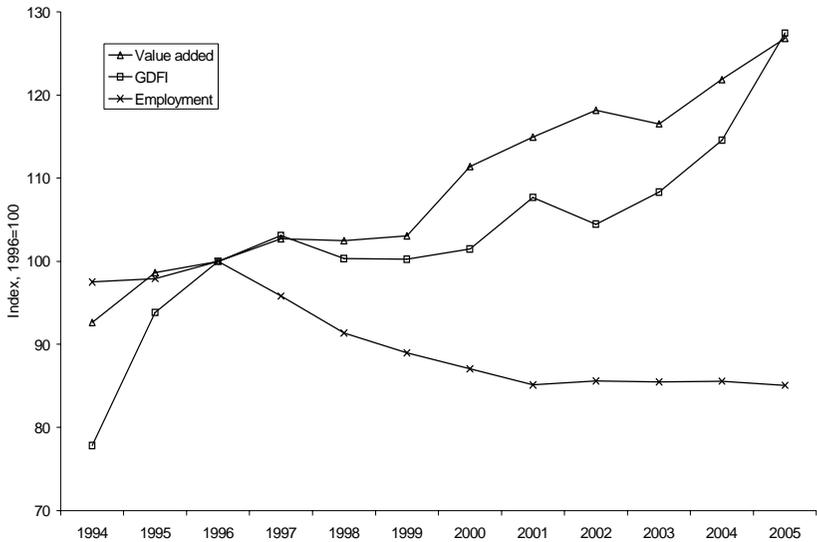
There are many reasons why opportunities in non-traditional industrial activities will not be fully exploited, especially when assessed against the social return to the economy as a whole (Rodrik 2004). Private firms naturally tend to under-invest in new ventures due to uncertainty, access to finance and problems of appropriability of the returns from their investments (see, Lall 1994 and 2004). Important inter-relationships between firms and institutions underpin the continued importance of established agglomerations (Helmsing 2001), while the realities of imperfect information and coordination failures mean that developing countries do not easily ‘catch up’ with industrialised nations, and first-mover advantages in many industries remain entrenched (Rodrik 2004). And, there is ample evidence of government intervention in many industrial success stories in both developing and developed countries, to match up with examples of government failures (Amsden 2001).

South Africa provides an interesting case study of both government intervention in the form of the lingering effects of the apartheid state’s industrial policies, and the outcomes of liberalisation and limited incentive programmes.

Overview of manufacturing performance, 1994-2005

Manufacturing investment and value-added appear to have followed a business cycle pattern, with growth from 1994 to 1997, and again from 1999 (Figure 1). Investment has been much more volatile, with very strong growth in 1995 and 1996, followed by stagnation in the second half of the 1990s, and then strong growth once more from 2003 onwards. Formal employment, however, contracted from 1996 through to 2001, and fell once again in 2005.³

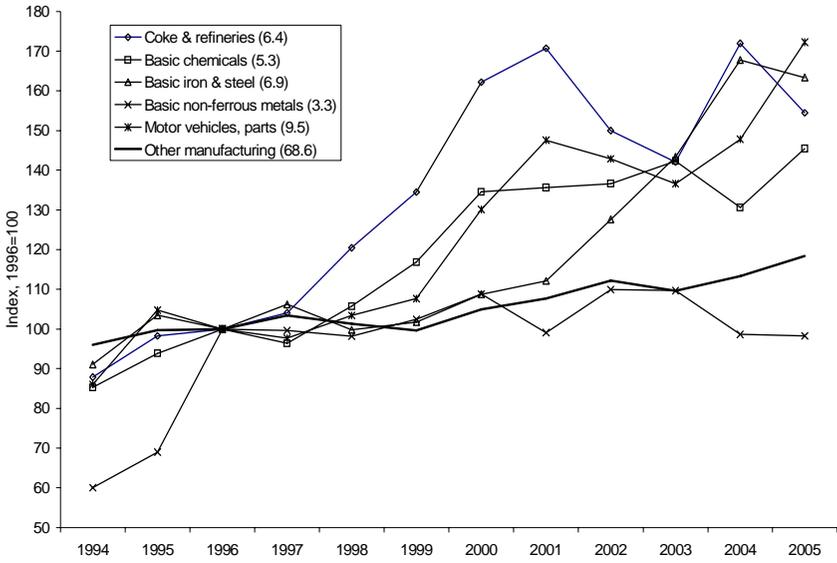
Figure 1: Performance of manufacturing



Source: calculated from Quantec data

The 1990s also saw a decline in mining and an apparent shift away from the natural resource oriented industrial development which had characterised the apartheid industrial strategy. This might have been expected to herald a new industrial development trajectory, with the growth of more broad-based manufacturing (as in fact is argued by Edwards and Lawrence 2006). But, despite trade liberalisation and sharply higher real interest rates, the main feature of developments in the 1990s has been the continued better performance of most of the very capital-intensive industries (Figure 2).⁴ Such patterns have been reinforced by Industrial Development Corporation (IDC) lending in the mid-1990s which went predominantly to large-scale, capital-intensive operations (see Mondli and Roberts 2005). There are some notable exceptions to this pattern, in particular the performance of the automotive sector, as well as the small furniture and leather products sectors. The expansion of manufacturing value-added at an average annual rate of 2.9 per cent from 1994 to 2005 thus masks very different performance of manufacturing sub-sectors.

Figure 2: Manufacturing value-added, by selected sectors

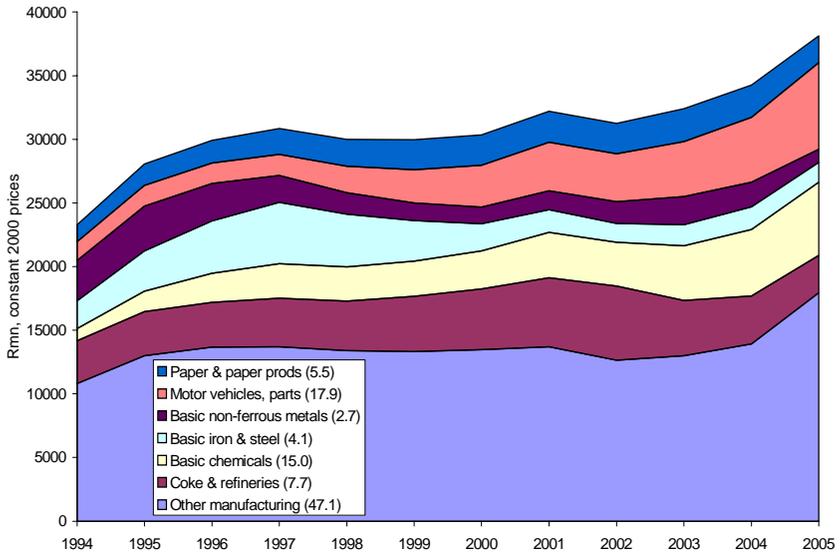


Source: calculated from Quantec data, constant 2000 prices

Note: The numbers in parentheses indicate the share of total manufacturing value-added in 2005.

The importance of a small number of very large-scale industries in the overall manufacturing trends is emphasised by the disaggregated investment record. If one excludes coke and refineries, basic chemicals, basic iron and steel, basic non-ferrous metals and motor vehicles (which together accounted for more than half of manufacturing gross domestic fixed investment in 2005) then manufacturing investment hardly changed in real terms from 1995 to 2004 (Figure 3). 2005 represents a striking change, however. Following sustained output and demand growth in 2003 and 2004, investment increased in 2005 by more than 35 per cent in real terms in the sectors of printing and publishing, machinery and equipment, food products, other chemicals and non-metallic minerals. But, only in machinery and equipment did this represent an investment rate more than marginally higher than recorded at some point in the past decade.

Figure 3: Manufacturing GDFI by selected sectors, and remainder of manufacturing



Source: calculated from Quantec data

Note: The numbers in parentheses indicate the share in manufacturing GDFI in 2004

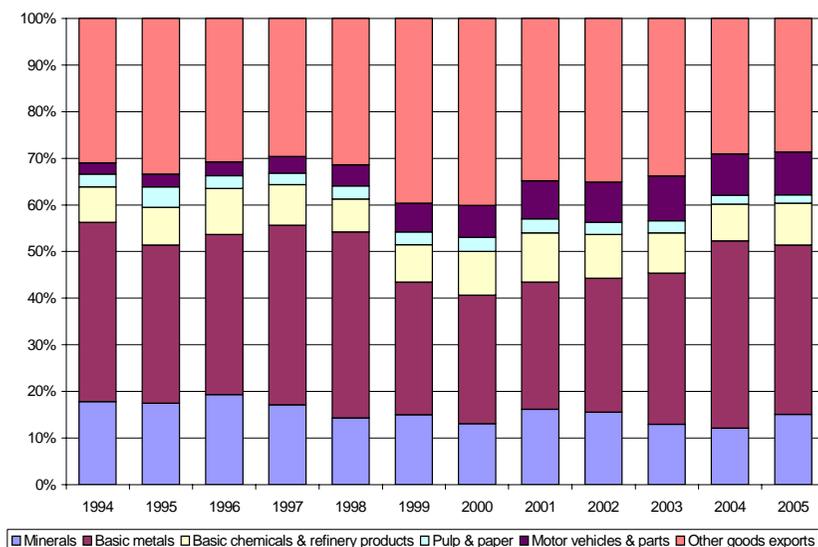
The very capital-intensive sectors are dominated by one or two firms, and have strong links with the processing of natural resources. In the case of basic chemicals and coke and refineries the major firm is Sasol, while Iscor (now Mittal Steel SA) dominates basic iron and steel, and a very small number of firms dominate non-ferrous metals production. The declines in non-ferrous metals and basic iron and steel investment levels reflect adjustment from the very high levels of investment due to the mega projects at Saldanha Steel and Alusaf in the period from 1994 to 1997.⁵

The motor vehicles and parts sector stands out as having recorded high rates of output growth and investment and yet is not particularly capital-intensive. The developments of this sector have been heavily influenced by the Motor Industry Development Programme, which is briefly discussed below.

A similar pattern is evident in the composition of South Africa's merchandise exports. Although trade liberalisation represented a major policy shift, and was followed by rapid growth of international trade in both

exports and imports, South Africa’s exports remain dominated by minerals and resource-intensive manufactured products (Figure 4). The significant reduction in gold exports, as deposits have been exhausted, has been counterbalanced by increased exports of platinum and other minerals such as iron ore and coal. Increased exports of basic metals, basic chemicals, and pulp and paper have ensured that the share of minerals and resource-based products was above 60 per cent at the end of the period, despite overall increases in export levels.

Figure 4: Breakdown of South Africa’s merchandise exports



Source: calculated from Quantec data

Once again, the growth of motor vehicle exports stands out. This somewhat contrasts with data on average annual growth in export volumes presented by Edwards and Lawrence (2006) which shows that in 1990-2000 non-commodity manufactures grew by 13.7 per cent while commodity manufacturing exports grew by 6.9 per cent.⁶ Auto exports is the biggest driver of non-commodity exports, with an average annual growth of 24 per cent, however, non-auto manufacturing exports still grew at 11.3 per cent. They portray this as evidence of increased export diversification due to trade liberalisation, although this export growth was not continued in the 2000 to 2005 period.

I assess the issue of trade policy and export diversification after a review of sectoral patterns of manufacturing development. I then explore issues of South Africa's minerals endowment in relation to industrial development before reviewing the evolution of industrial policy since 1994, including selected programmes and the activities of the IDC.

Patterns of industrial development

The dominant analyses of South African industry in the early 1990s emphasised the protected nature of the South African economy, the bias towards capital intensity from negative real interest rates and government support for investment, and the concentration of industry. The World Bank's evaluation (Fallon and Pereira da Silva 1994) argued that these factors, with labour-market rigidities, resulted in low productivity which in turn resulted in a deterioration of investment and the uncompetitive nature of South African manufacturing. The Bank's policy recommendations to redress this situation were essentially trade liberalisation, a reduction of distortions in factor markets (seen as mainly due to the state) and macroeconomic stabilisation including increased real interest rates.

The negative effects of protection and the potential gains from trade liberalisation were also important planks of the analysis of the Industrial Strategy Project (ISP) (Joffe et al 1995). While the ISP analysis had very different roots from that of the World Bank, it started from a similar interpretation of South Africa's economic performance in many respects. The ISP report identified South Africa as an extreme version of the 'Latin American' growth model, namely import substitution in conjunction with a highly unequal distribution of income, further limiting the size of the domestic market. This (combined with the overly capital intensive nature of much of manufacturing) accounted for the uncompetitiveness of industry, as illustrated by poor productivity and export performance. Trade liberalisation was held to be essential for improved productivity and competitiveness in manufacturing.

How do the two themes of inherited capital intensity and of the need for trade liberalisation and exports as the platform for improved performance match-up to the record of the past decade?

As has been seen, despite sharply increased real interest rates, capital-intensive sectors have continued to dominate and have underpinned the improvements in manufacturing investment. Macro-economic stability, characterised by low inflation and a budget deficit around 2 per cent of GDP,

has also been attained but has not brought increased investment outside of the very capital-intensive industries (with the exception of motor vehicles). Other factors clearly need to be taken into account. In addition, the size of a small number of resource-based manufacturing sectors in terms of Gross Domestic Fixed Investment (GDFI) should not obscure the importance of changes across manufacturing more broadly, especially when one remembers that the coke and refineries, basic chemicals, basic iron and steel and basic non-ferrous metals sectors only accounted for 7.1 per cent of manufacturing employment in 2005. The employment outcomes are due to restructuring across manufacturing under trade liberalisation.

Since the late 1980s, South Africa has undergone a far-reaching programme of trade liberalisation. Trade-policy reform involved a move towards neutrality through a mix of rationalisation and liberalisation. In addition to lowering the average tariff level by approximately one-third over five years from 1994, the National Party's programme of removing quantitative restrictions and surcharges in the early 1990s was continued after 1994.⁷ The highly differentiated tariff structure was also largely standardised. Edwards (2005) estimates that average nominal protection in manufacturing fell from 22.9 per cent in 1994 to 8.2 per cent in 2004, while effective protection in manufacturing fell significantly, from 48 per cent to 12.7 per cent.⁸

Tariff liberalisation, however, did not meet expectations in terms of stimulating diversified export-led growth. Although imports and exports increased in significance, it is evident that there is no straightforward relationship across manufacturing sectors between better trade performance and output and employment growth in the period 1994 to 2005 (Table 1). The most export-oriented sectors are professional equipment, machinery and equipment, basic iron and steel, TV, radio and communications equipment, and non-ferrous metals, all of which exported more than one-half of their output in 2005. In terms of the increase in export orientation the best performers are TV, radio and communications equipment, professional equipment, and machinery and equipment. However, in all these sectors the increased exports are part of increased trade in general and, with very high levels of imports (equivalent to over 75 per cent of local demand), these sectors run huge trade deficits.⁹

In terms of the net export ratio, which takes into account imports to indicate in which sectors the largest positive net trade balances are recorded, the best performers are basic non-ferrous metals, basic iron and steel, tobacco products and beverages.

Table 1: Summary statistics on manufacturing performance, 1994-2005

Sector	Avg ann VA gr, %	Avg ann empl gr, %	X:Q ratio 1994, %	X:Q ratio 2005 , %	M:Co ns 1994, %	M:Co ns 2005, %	% semi & unskilled labour, 2005	K:L Rth/ Empl, 2005	Net export ratio 2005
Food	1.9	-1.9	8.8	8.1	7.8	9.6	58	186	-0.05
Beverages	0.6	-4.1	8.1	17.8	3.8	5.7	58	503	0.51
Tobacco	-0.3	-3.3	3.8	13.0	1.9	2.1	64	375	0.67
Textiles	-0.4	-4.2	15.5	13.6	24.6	25.2	54	110	-0.41
Wearing apparel	1.6	-1.8	7.0	8.3	8.2	29.3	50	18	-0.66
Leather & leather prods	8.1	-2.4	41.7	36.7	37.3	28.1	50	46	-0.20
Footwear	-3.1	-7.6	4.2	3.8	17.9	50.2	46	32	-0.94
Wood & wood prods	1.8	-1.5	11.1	13.1	10.6	11.1	66	62	0.21
Paper & paper prods	2.1	-1.4	24.1	16.0	14.9	11.9	55	374	0.17
Printing, publishing	-0.9	1.0	2.0	5.5	17.9	20.8	32	87	-0.55
Coke & refineries	5.3	0.2	18.7	13.7	13.3	8.5	31	6621	0.14
Basic chemicals	5.0	-1.2	41.1	33.2	45.5	33.3	50	3231	0.03
Other chemicals	5.4	1.7	6.9	10.2	22.4	21.3	47	307	-0.52
Rubber products	1.2	-0.5	8.9	24.0	21.7	39.6	59	165	-0.37
Plastic products	5.1	1.3	3.6	5.9	9.8	12.2	65	66	-0.46
Glass & glass products	5.1	-4.0	10.5	11.5	18.3	20.1	47	402	-0.31
Non-metallic minerals	0.4	-2.5	6.5	8.2	10.2	15.9	73	277	-0.36
Basic iron & steel	5.5	-4.7	54.8	59.2	13.2	16.9	58	1016	0.76
Basic non-ferrous	4.6	-4.0	70.2	50.1	28.1	28.7	59	1291	0.85
Metal products	1.5	-0.6	9.3	18.9	10.4	17.6	36	92	-0.10
Machinery & equipment	1.5	2.1	17.0	59.4	56.1	77.6	43	66	-0.48
Electrical machinery	3.1	-4.9	8.5	12.3	32.1	29.9	56	76	-0.52
TV, radio & comm.	-0.4	-4.1	9.9	50.5	59.5	86.9	30	128	-0.81
Professional equipment	0.6	3.3	24.9	63.9	73.2	88.8	31	74	-0.73
Motor vehicles, parts	6.5	0.2	8.6	20.3	29.3	38.5	42	261	-0.38
Other transport	-0.5	0.6	17.4	30.0	44.0	68.3	38	176	-0.78
Furniture	9.0	-1.6	21.0	29.8	5.3	21.7	46	23	0.21
Other manufacturing	1.5	3.5	11.5	13.6	19.9	26.5	48	156	0.15

Source: Quantec

Notes: X:Q denotes exports as percentage of output

M:Cons denotes imports as percentage of consumption

K:L denotes the value of capital stock (current R thousands) per employee.

The net export ratio is calculated as (exports-imports)/(exports+imports)

By comparison, the best performing sectors in terms of value-added growth from 1994 to 2005 are furniture, leather, basic iron and steel, other chemicals and coke and refineries. And, the best employment performance has been in other manufacturing, professional equipment, machinery and equipment, other chemicals, and plastic products.

In broad terms, liberalisation and increased trade appear to have reinforced the existing patterns of comparative advantage based on natural resources, cheap energy and previous government support (Machaka and Roberts 2003). It has not altered the overall capital-intensity of South Africa's exports. In addition, while Imbs and Wacziarg (2003) have found increasing diversification associated with better performance of industrialising countries, concentration of South African manufacturing activities has in fact increased very slightly over the period.¹⁰

There are some relative success stories, whether in terms of value-added growth, employment growth, or both, such as plastic products, furniture, machinery and equipment, other chemicals, and leather products, whose performance needs to be understood through a wider understanding of competitiveness and firm capabilities. For example, the performance of leather products is intimately related to the effects of government's Motor Industry Development Programme (MIDP) on the decisions of motor-vehicle assemblers. The MIDP has also incentivised the production of catalytic converters for exhaust emissions, which is categorised under machinery, illustrating the importance of recognising linkages between sectors.¹¹

The case of furniture is striking. It is a highly labour-intensive sector that has recorded rapid growth, linked to improved exports and a sizable trade surplus. Closer examination reveals that a major incentive has been very cheap timber as a result of the apartheid state's planting programme in the 1970s.¹² The opening up of export opportunities was capitalised upon by businesses. The key dynamics are, however, linked to the growing importance of large global buyers in export markets and the very high levels of concentration in furniture retail in South Africa (Kaplinsky and Manning 1999, Kaplinsky et al 2002). This imposes high standards such as quality and delivery for exports, together with firms being subject to monopsony power in both local and international markets. As a result, the growth has been due to very large manufacturers, dominated by one multinational (Steinhoff) in particular.¹³ Smaller firms have fallen by the wayside, partly explaining the contractions in employment. In addition, in 2006 South Africa moved to

become a net importer of sawn timber, meaning a substantial increase in prices given the magnitude of transport costs, and Steinhoff has already closed four of its five door manufacturing facilities as a result.

In sectors such as other chemicals (which includes consumer goods such as soaps and detergents), and machinery and equipment, growth has been mainly driven by improved domestic demand, while very large trade deficits have persisted.

Diversification, competitiveness and production capabilities

The main policy tool employed to achieve diversified export-led growth, seen as important by successive policy frameworks, has been trade liberalisation, as discussed above, with the main rationale being that the anti-export bias from protection is responsible for the poor trade performance. Members of the Harvard Group advising National Treasury (Edwards and Lawrence 2006) support this approach, arguing that the trade liberalisation to date has been responsible for the growth of non-commodity exports, and suggest additional trade liberalisation to enhance export diversification, as well as a competitive real exchange rate.

It is important to note that South African average tariffs were not, in fact, particularly high in the early 1990s when compared with other developing countries. Rather, the lobbying by firms for protection had meant a highly dispersed structure of protection, with very high tariffs on closely specified products (Belli et al 1993). In addition, there was a complex set of quantitative restrictions and formula duties. The conversion of restrictions to *ad valorem* tariffs and the simplification element of the tariff reform are thus very important, as well as the reduction in overall tariff rates.

Edwards and Lawrence (2006) find that liberalisation has reduced the anti-export bias, and that this has been an important factor in the growth of non-commodity exports. It is necessary, however, to distinguish increased trade overall from a changing pattern of comparative advantage. The rationalisation of South Africa's confused system of protection, which had favoured industries identified as strategic by the apartheid government, undoubtedly reduced the advantages to such activities and improved opportunities in other activities. But, Edwards and Lawrence at best overstate their case. On their own data, export growth of non-commodity manufactures slowed dramatically to 4.2 per cent per annum for the period 2000-2005 while, when auto is excluded, export volumes of manufactures in fact declined by 3.3 per annum in this period (Edwards and Lawrence 2006:12). As we have illustrated

above in Figure 4, the share of resource-based exports increased substantially from 2000 to 2005, along with automotive exports.

The unusually rapid non-commodity manufactures export growth to be explained is that from 1990 to 2000. The great majority of this is due to auto exports, with 24 per cent growth per annum, and a share of 25.1 per cent of non-commodity manufactures exports in 2000. A second component to non-commodity export growth is that the increase in exports reflected increased trade in general as part of the international re-integration of the South African economy. This is particularly evident in machinery and equipment, and professional equipment, where multinationals have established distribution centres in South Africa with the transshipment of equipment to the southern African region. Because Edwards and Lawrence do not look at trade balances by product category, they confuse a step-wise adjustment to the rationalisation of protection with a diversification in manufacturing exports (and implicitly greater manufacturing competitiveness). It is also important to remember that by far the largest growth of machinery exports (which accounted for 18.5 per cent of non-commodity exports in 2000) has been of catalytic converters for the auto industry, driven by the incentives of the MIDP.

Diversification, in terms of altering patterns of comparative advantage, is not a simple outcome of trade liberalisation. Indeed, the complex relationship between trade liberalisation and economic performance, and the error in making simplistic recommendations for trade liberalisation, is widely recognised (Rodrik 2004, Roberts 2000, Akyuz 2006, Shafaeddin 2006), while the significant role that state intervention has played in rapid industrialisation has been widely noted (see Amsden 2001, Rodrik 2004).

Understanding the changing patterns of competitiveness requires understanding how firm capabilities evolve over time. There are features of finance, technology and acquisition of human capabilities which mean that countries' production sets evolve from their existing base, as illustrated in the strengths of connections between different products in Hausman and Klinger (2006a). As Hausman and Rodrik (2002) put it '[l]earning what one is good at producing is an important determinant of structural change, but it is also one that is unlikely to be adequately provided under *laissez-faire*... There is a role for government here, but it is not a simple one'. And, as Hausman and Klinger (2006b) further argue, 'producing new things is quite different from producing more of the same, as each product involves highly specific inputs such as knowledge, physical assets, intermediate inputs,

labor training requirements, infrastructure needs, property rights, regulatory requirements or other public goods’.

The far-reaching rigidities in developing new capabilities mean that there are strong path-dependency effects which keep a country on the same trajectory in the absence of concerted government action. The South African experience is consistent with this. After the apparent increase in the share of non-resource exports during the 1990s, in 2000 to 2005 resource exports re-asserted their predominant position. Previous government policies supported firms which now have developed productive strengths and are able to re-invest and continue to grow their businesses. Perhaps the best example of this is the South African chemicals giant Sasol, which leads local industry in ongoing R&D spending to continuously improve its capabilities. The exception of the auto industry reinforces this point, being the subject of a concerted policy framework since 1995, incentivising exports.

The importance of understanding the production capabilities of firms and how they develop in order to understand competitiveness is highlighted by the fact that, despite international trends to liberalisation and increased international flows of goods and capital, industrial activity remains highly concentrated in local regions or districts (Helmsing 2001). Local linkages in labour markets and skills development, specialist inputs required by firms, and technology spill-overs all imply cumulative causation at work in the growth and decline of industries (Krugman 1998a and 1998b). Improved technological capabilities of firms are a very important component of industrial development, which in turn is an outcome of firms’ decisions and wider strategic orientation (Lall 2004). Amsden (2001) has particularly highlighted the importance of organisational characteristics in late industrialisers where the main challenge is to do with adopting and adapting technologies from industrialised nations. Analyses of the East Asian experience of industrialisation have highlighted the importance of co-ordination of R&D, investment, training and product development activities within selected sectors (see Lall 1994, Lall and Teubal 1998).

Findings from research on the performance of manufacturing in the East Rand region of South Africa (which falls within the Ekurhuleni Metropolitan municipality) reinforce the local drivers of production capabilities. This is the largest industrial concentration in South Africa, with firms mainly engaged in the production of intermediate and consumer goods. It does not include any of the major production sites of basic metals or basic chemicals but rather firms transforming these materials into machinery, fabricated

metal products, plastic products and consumer chemical products. Firm surveys in 2003 and 2004 found that better performing firms were those that invested in skills development and upgrading of machinery and equipment (Machaka and Roberts 2006; CSID 2005). Rather than investment being labour replacing, firms upgraded capital stock as part of a dynamic growth path. The firms were oriented to improved quality, design and delivery times rather than having a narrow price-based orientation. As a result, firms which recorded employment growth were more likely to be increasing training expenditures and to have above average increases in wages. Importantly, the main motivation for investment was demand expectations, followed by raising efficiency, and the need to improve quality through employing more up-to-date technology.

These findings are consistent with those on the development of the plastics sector (Roberts 2001, Mohamed and Roberts 2005). Local demand has an important effect on product development as low capacity utilisation prevents firms from investing on an ongoing basis in up-to-date equipment. Innovations have also been based on local demand requirements in products as diverse as swimming pool cleaners and fruit crates. International relationships enabling the sourcing of machinery and improvements in technological capabilities, rather than simply exporting, are important for firm performance.

The auto industry appears to be an outlier as the one manufacturing sector with a specific government programme designed to support restructuring and improved competitiveness – in the form of the Motor Industry Development Programme (MIDP) introduced by government in 1995. But, the linkage effects of the programme, combined with exposure to international work organisation and production technologies, are consistent with the factors identified here. The export-import complementation programme at the heart of the MIDP requires ongoing increases in exports to be able to make the same level of duty free imports. This ‘moving target’ has induced the major auto Original Equipment Manufacturers (OEMs) to collectively examine steps to improve the competitiveness of input sectors in the medium term. These linkages have underpinned the growth of the leather products sector, and significant segments in industries such as foundries (Phele et al 2005) and plastics (Dobрева et al 2005). The auto-industry record highlights the importance of leadership in taking the steps necessary to build production capabilities at the industry level through establishing strong institutions and taking policy steps to realise collective gains.

A similar development of production capabilities, which have underpinned export competitiveness, is evident in segments of machinery based on supplying mining (Altman 2007). The particularly demanding requirements of deep-level mining in South Africa has led to firms developing leading capabilities, which has then enabled them to export (Walker and Jourdan 2003). In other words, exporting follows rather than leads the development of local capabilities. An initial local demand base has also underpinned one of the most successful export cluster, that of yacht manufacturing in Cape Town.

Minerals endowment

There are two quite distinct issues related to the importance of South Africa's minerals endowment for industrial development. The first is the impact of resource earnings on the economy. The second is the linkages between natural resources and the industrial development trajectory, including through the influence exerted over the industrial policy agenda.

In terms of the first issue, the exploitation of platinum, in particular, in the past decade together with higher world prices of precious metals and other minerals such as iron ore mean that South Africa is again increasingly an exporter of natural resources and an importer of manufactured products. The implication of holding relatively low levels of foreign exchange reserves and having a freely floating exchange rate is that the cost of South African labour measured in international currency reflects the platinum windfall and not the local skills and education base of the country. Together with large portfolio capital flows, this also implies that the currency will continue to be volatile, reacting sharply to movements in international prices of metals and minerals, as well as sentiment in global capital markets.

Deindustrialisation due to natural resource exports has been identified as the 'Dutch- disease' or 'resource-curse' phenomenon (Auty 1995, Palma 2003). In these cases, countries that have, or would be expected to, run manufacturing trade surpluses as they industrialise instead run deficits due to substantial natural resource export earnings associated with their discovery and/or rapid exploitation, possibly combined with spikes in international prices of such resources. This leads to a falling share of manufacturing employment. It should be distinguished from other causes of lower manufacturing employment such as outsourcing by manufacturing firms of service activities, a reduction in the income elasticity for manufactures, or the more rapid productivity growth in manufacturing than in other sectors (Palma 2003).

South Africa has not undergone such a ‘Dutch-disease’ transition as it has been a natural resource exporter for over a century and more. However, countries undergoing industrialisation may revert to their natural static comparative advantage position of net natural resource exporters due to a policy change, such as the liberalisation Palma (2003) identified in Latin America. This matters if, in the words of Hausman et al (2006), countries ‘become what they export’. A structural development path that develops capabilities in more sophisticated tradables is important in achieving sustained higher rates of growth.

This relates to the second issue of the linkages between natural resources and the industrial-development trajectory. In South Africa, these are affected by decisions having effect in the last decade although taken prior to this time. For example, aluminium production is based on cheap power ultimately derived from South Africa’s endowments of coal, but the low energy prices are also due to Eskom’s massive over-investment in generation capacity from the 1970s, which led to very low-priced, long-term electricity supply deals for large energy-intensive projects. Such projects were supported right through the 1990s, and include the major new aluminium smelter approved for Coega in early 2007. Cheap energy has further been coupled with the provision of infrastructure, tax breaks and cheap financing.

In the case of heavy industry, especially iron and steel and basic chemicals, such support built on that provided under state ownership. The largest iron and steel company, Iscor, was state-owned until the beginning of the 1990s and the state through the IDC provided massive support for the establishment of Saldanha Steel in the mid-1990s. The support ultimately ensured a very low-cost primary steel industry, but with no meaningful attempt to ensure benefits to the local economy. The 2001 unbundling, pushed by the IDC, of Iscor’s valuable coal and iron ore mining assets and operations (into the newly formed Kumba) from the steel-making operations of Iscor also assured the steel-maker of 25 years of iron ore at cost plus a 3 per cent extraction fee.¹⁴ But, there was no strategy as to how this would benefit the local economy, including through ensuring competitively priced steel to local industries. While an IDC analysis identified Iscor’s local pricing as an obstacle to growth of downstream industries (IDC 2000), steel firms successfully sought the exclusion of steel from trade liberalisation under a proposed deal with Mercosur and attained the imposition of a number of anti-dumping duties (Hawthorne et al 2005).¹⁵

Similarly, while the largest basic chemicals producer and one of the biggest refiners, Sasol, has historically derived its inputs from coal, its competitive capabilities derive from the huge state financing of its synthetic fuels operations for strategic reasons. After more than a decade and a half as a privatised company, continuing to engage in high levels of R&D, it is a case of an infant industry which has successfully grown-up. The point is that it was the government action rather than simply the minerals link which underpinned the development of the industry. This legacy lives on in that it is one of the firms making the most of the opportunities from trade and increased international integration (including through outward acquisitions and foreign stock market listings). As with the case of steel, the practice of import parity pricing by Sasol deprives local downstream firms of advantages that might arise from the competitive production and substantial net exports of many basic chemical products (Dobrevá 2006). In addition, tariff protection of 10 per cent remains on products such as commodity polymers produced by Sasol.

These dynamics are consistent with Fine and Rustomjee's (1996) characterisation of the MEC as being at the heart of South Africa's industrial development – both in descriptive terms and, more importantly, as a system of accumulation. An analysis simply in terms of diversification (or the lack thereof) fails to take account of the structural nature of South Africa's industrial development trajectory and the importance of the interests of large resource-based firms in this. It also fails to recognise the ways in which the behaviour of dominant firms in resources and intermediate products to maximise their short-term returns in the absence of competitive discipline in a liberalised economy negatively impacts on the growth of firms requiring these intermediate inputs (see Hawthorne et al 2005). The poor performance of diversified manufacturing in recent years is the result of the influence of resource related activities over policy and the failure to develop downstream linkages with activities using the intermediate resource-based inputs.

It may be argued that there have been substantial changes in the composition and nature of big business in South Africa. More specifically, services have become more important while there has been a reduction in the number of resources firms in the 50 largest businesses (which form the core membership of Business Leadership South Africa, formerly the South Africa Foundation, and the President's Big Business Working Group). There has also been ongoing internationalisation in terms of ownership and sales, as well as (limited) changes in ownership linked to black economic empowerment

(see Chabane et al. 2006). However, to the extent that changes in ownership to meet black economic empowerment prerogatives are occurring more rapidly in mining, the interests of mining and resource-related activities will be strengthened not weakened (Ponte et al 2006).

A closer look at the increased significance of services reveals firms in telecommunications, healthcare, banking and retail. The advent of mobile telecommunications, the privatisation of Telkom, and the demutualisation of insurance companies are all undoubtedly noteworthy, as is the growth of large firms in healthcare and retail. But, it is not at all clear that this represents a sea change. The growth in the significance of services in terms of employment has largely been limited to wholesale and retail trade (with the biggest jump in the self-employed) and other business services where growth has been in private security and outsourced cleaning services (Mohamed and Roberts 2006). The business services category is sometimes misleadingly included as a sub-set of financial services, with employment creation in this area then portrayed as a structural shift (see Banerjee et al. 2006). However, it is difficult to understand how low- wage security-guard jobs and contract cleaning and similar services represents a structural shift; the falling real wages and less secure employment position appears instead to be a logical outcome of the very high levels of unemployment.

Looking beyond the apparent services boom, development of diversified manufacturing capabilities is crucial for a different, more broad-based industrial development trajectory. Undertaking the actual industrial development experience of the last decade, however, requires recognition of the significance of resource-based activities, the lack of linkages with downstream manufacturing, and of the historical and ongoing influence of the large resource-oriented firms over policy.

The evolution of industrial policy

Under apartheid, industrial and technology policies focused on the strategic concerns of the government such as defence and liquid fuels, and the needs of resource extraction and processing industries. Since 1994, industrial policy in South Africa has consisted of three main dimensions. One is the programme of trade liberalisation, discussed above. The second is a range of 'supply-side' incentive programmes, support for skills development and technology, and programmes aimed at the development of small, medium and micro enterprises (SMMEs), in line with the focus of the ISP on improving productivity and competitiveness across manufacturing. The Motor Industry

Development Programme, however, stands out as an exception to this approach. A third dimension to industrial policy is the orientation of the Industrial Development Corporation as a major source of finance for industrial investment. Since 2002, there have also been two new policy initiatives, the Integrated Manufacturing Strategy (IMS) of the Department of Trade and Industry and the Advanced Manufacturing Technology Strategy (AMTS) of the Department of Science and Technology (DTI 2002, NACI/DST 2003).¹⁶

The assumption of tax breaks and tax holidays (as the main forms of investment incentive) is that by changing the proportion of the profit that firms can keep, a large number of investors who would have judged the returns to be too low will now invest. This is subject to a number of problems. First, it is based on the assumption that short-run profit is the determining factor for investors rather than longer-term growth potential. Second, if the firm locates its operation in South Africa because of the incentive then once the incentive is terminated it may move. Third, if incentives really make the difference then there is a danger that countries in the region enter a bidding war against each other, each offering potential investors better and better incentives. Fourth, the incentives apply to all qualifying firms, including those who would have made the investment in any case. Fifth, the likelihood of firms applying for incentives is not necessarily associated with their need. It may instead be associated with their size and lobbying abilities.

The evidence on the use of government incentives suggest that they have had only marginal effects, and most firms have used the incentives for decisions they would have made in any case.¹⁷ The Small and Medium Enterprise Development Programme (SMEDP) is perhaps the exception. This programme effectively subsidised investment in expanded capital stock where this investment will mean increased employment. Unsurprisingly, firms using the SMEDP do appear to be better performing (Machaka and Roberts 2006) but it is still not clear if the SMEDP significantly altered firms' decisions and/or overcame a market failure related to investment. It is the greater obstacles to potentially dynamic small enterprises, rather than size as such, which must justify the incentive and other support programmes targeted at small firms.

The Strategic Industrial Projects programme

One of the largest incentive programmes, the Strategic Industrial Projects (SIP), has provided tax relief equivalent to R7.7bn since 2002.¹⁸ It is targeted at large investments over R50mn which the government considers to be

important for future competitiveness in South Africa. Of the 33 projects approved up to the end of 2004, 13 are in chemicals and eight are in metal production (mainly upstream basic metals). Sasol alone accounts for four projects, and 24 per cent of the total tax allowances granted, by value. Other firms to be awarded an incentive include Iscor, BHP Billiton, Anglo-American's subsidiary Hulett Aluminium, Nampak (two), Trident Steel, Kimberley-Clark, and Nestle. The proposed Pechiney Aluminium smelter at Coega, not included in the numbers reported here as it was put on hold following the takeover by Alcan, did have four SIP project approvals. SIP therefore clearly appears to be reinforcing the heavy industry orientation of the South African economy and demonstrating the ability of very large companies to take advantage of industrial policies. Based on DTI estimates of direct job creation, the SIP incentive projects approved have an average capital:labour ratio of R3.7mn per employee, making them amongst the most capital-intensive activities in manufacturing.

The most recent major incentive programme has therefore reinforced the minerals and energy orientation.

The Motor Industry Development Programme

The MIDP introduced in 1995 stands out as an industrial policy strategy developed on the basis of understanding the dynamics of a specific industry and the levers that would change the decisions of large firms. The MIDP, however, largely came into being because government had committed to a tariff liberalisation programme which saw tariffs on completely built-up cars being reduced from over 100 per cent at the beginning of the 1990s to 34 per cent in 2005. The industry was faced with a significant threat which motivated the development of a concrete industrial policy framework, and engagement with government for its adoption.

The MIDP is essentially an import-export complementation programme which works because the tariff protection on built-up vehicles, while being reduced, is still significant. To encourage local manufacturers to reduce the number of models produced locally and to increase the scale of production to reap economies, the programme allows for the duty free importation of built-up vehicles for the equivalent export of locally manufactured vehicles and components. There is a sliding scale in operation where in order to import a built-up vehicle a progressively larger amount of exports are required.¹⁹

As a result, most assemblers focus on one model, and import the others. In addition, effort went into identifying components which could be

competitively manufactured in South Africa. Indeed, some firms only focused on components exports in order to earn credits for import of built-up models.

The second notable element of the MIDP is that it has been adapted to evaluations of its impact. The components exported have been dominated by three product groupings – catalytic converters, seat leather and aluminium wheels (although engine parts overtook wheels in 2003). Aside from seat leather, these are capital-intensive products, and the catalytic converters value largely derives from their platinum content. It thus amounted to an additional reward to exporters of platinum. The MIDP was revised to reduce the value of platinum, for import credit purposes earned, in the export of catalytic converters.²⁰

An additional step was the introduction of a Productive Asset Allowance. This allowance provides duty-free import credits against major investments made in local capacity. It recognises the major upfront investments often required in establishing production facilities for a new motor vehicle model, especially with large local content, and directly provides an incentive for such investment.

The effects of changing the behaviour of large buyers have been seen on both the foundry and plastic products industries. As the motor vehicle assemblers examine opportunities for increased local sourcing of inputs they have provided both a local demand stimulus to these industries and placed considerable pressure on firms to improve capabilities. For example, the foundry industry as a whole has undergone major restructuring and contraction due to liberalisation and weak domestic demand but the foundries supplying auto have recorded growth in output and employment, and ongoing improvements in skills and technological capabilities (Phele et al 2005). Demand from the motor industry also explains the performance of leather products, with demand for high quality seat leather enabling the industry to grow despite the collapse of the local footwear sector. The auto industry is also taking the lead role in the South African Tooling Industry Support Initiative due to its needs for better input capabilities of plastics manufacturers (Dobrevia et al 2005). One of the main competitive weaknesses of local manufacturers is the poor quality of tooling.

The MIDP has been strongly criticised in South Africa from two positions. Trade unions have criticised the fact that the motor industry has not created employment. However, given the tariff liberalisation planned, the broad maintenance of employment levels should be seen as a success. Pointing to the weaknesses in supporting, for example, capital-intensive catalytic

converters, is important in order to motivate for its adaptation, such as to improve on its impacts on employment.

The second set of critics has highlighted the price differences between cars in South Africa and other countries.²¹ This is essentially a criticism of the tariffs still being levied. The MIDP works because of protection levels which are still significant. It then builds in incentives to change firms' decisions in ways viewed as in line with government's objectives. In other words, it is an example of getting prices strategically 'wrong' (to paraphrase Amsden 1989). The issue is whether the protection is justified by the various linkages encouraged by building capabilities in auto production. As outlined above, there do appear to have been significant positive effects for input industries such as foundries and plastic products, but the benefits of the programme have not been weighed against the costs.

Lastly, it is important to note that the MIDP was largely developed by industry and trade-union researchers supported by the South African motor vehicle assemblers themselves, together with government.²² While it may be argued that government played a leadership role, this is belied by the lack of sector specific interventions for other industries.

The Industrial Development Corporation and the financing of investment

Most economists would agree that financing of investment is an area where the assumption of efficient markets is least warranted (Stiglitz 1998, Rodrik 1999). The nature of finance, and in particular the importance of information, mean that so-called market failures are intrinsic to the financial sector rather than being rare and temporary aberrations. The far-reaching interventions in the financial system by East Asian governments such as in South Korea and Taiwan were a very important part of their being able to support large-scale investments in developing new industrial capabilities (Rodrik 1999, Wade 1990, Amsden 1989). In South Africa, the main financing mechanism to support industry growth has been the state-owned Industrial Development Corporation (IDC).

The IDC provides both loan and equity finance, mainly for new projects, at low interest rates. Its advances directly accounted for more than 10 per cent of gross domestic fixed investment in manufacturing in many years in the past decade. Its impact is much greater than this as it invests alongside private-sector agents meaning that projects with significant IDC participation account for a very large proportion of manufacturing investment. The

projects in the non-ferrous metals and basic iron and steel sectors with major IDC participation alone accounted for approximately 25 per cent of total manufacturing investment from 1992 to 1997 (IDC 1997).²³

This means that the IDC's decision making is certainly one of the largest determinants of manufacturing investment. It has historically been oriented to the development of extremely large-scale minerals beneficiation projects, with close links to previously state-owned industrial enterprises such as Iscor and Sasol, as well as the major conglomerates. In 1998, the IDC owned 11.3 per cent of Gencor, 14.4 per cent of Iscor, 9.1 per cent of Billiton and 8.2 per cent of Sasol. This has changed to some extent in recent years with the sale of some of its equity holdings, but the IDC is still a major player in heavy industry.

The IDC's orientation perpetuated the bias to capital-intensive manufacturing linked to its heavy industry orientation. From June 1994 to June 1999 over half of the IDC's investments by value were classified as being in basic metals (IDC 1999). Based on data for 1993 to 1998, the IDC invested an average of R8.2mn to create an additional job in the basic iron and steel sector and R5.5mn in non-ferrous metals. A greater focus on tourism and agriculture projects since 2004 has shifted the project mix to some extent in favour of employment creation. And, lending to small and medium enterprises accounted for around 75 per cent of the number of projects authorised in 2004, although only a very small proportion of the total finance extended.²⁴

Overall, the record indicates that over the past decade the IDC has reinforced the heavy industry and minerals-oriented industrial development path, but that its re-direction in recent years, with a vision of 'leadership in development', could be an important component of a broad-based manufacturing growth path (Mondi and Roberts 2005). In addition, as a shareholder in, and creditor to, many of the largest industrial enterprises it is in a position to influence their decisions to pay greater heed to longer-term goals. However, the IDC's industrial development role has been missing from industrial policies such as the Integrated Manufacturing Strategy.

Conclusions

Industrial performance in South Africa has not been good in the first decade of democracy, with continued low growth of output, weak investment, and contraction in employment. This has provided a very poor foundation for responding to the rapid demand growth seen in the last two years. Moreover,

despite trade liberalisation, widespread restructuring of manufacturing, and increasing international integration, the industrial development trajectory has strong elements of continuity. In particular, large capital and resource intensive industries have continued to perform better. Partly this is due to the effect of decisions taken before 1994 and partly it is due to the continued lending patterns of the IDC for much of the decade. It also reflects the importance of path dependency – the strength of industries such as basic metals and basic chemicals due to state support and previous protection means that they are well positioned to take advantage of export opportunities and new investment opportunities. As such, they are also able to take advantage of non-targeted incentive programmes and have benefited disproportionately from government's tax breaks.

Essentially, liberalisation in South Africa has meant trade performance that reflects existing capabilities and, as such, the previous patterns of intervention. There is little to suggest that liberalisation realises the development of diversified industrial capabilities. The record over the past decade suggests that only concerted government action will change the trajectory.

South African industry is dominated by large and internationalised firms. These firms are able to make the large and lumpy investments required in many manufacturing sectors to realise economies of scale and scope, and to adopt and exploit new technologies. The key question is what influences the behaviour of such firms? The experience of East Asian economies suggests that conditions on government support, and the creation of rivalry between firms by government in line with specified objectives, can have an important impact. However, resource-based manufacturing interests have continued to set an agenda largely around privileged access to energy and infrastructure, together with tax breaks.

Aside from the resource-related industries, cross-sectoral performance and recent research suggests the potential for competitive capabilities to be developed in diversified manufacturing. The findings highlight the importance of linkages with domestic demand for local production capabilities. The South African experience also confirms the trends to increasing local agglomeration due to inter-firm linkages and local externalities, at the same time as liberalisation means greater international openness. However, firms are not realising the possible collective gains from local actions to develop skills and technological capabilities. This is partly due to generally weak industry organisations and a lack of co-ordination by government.

Manufacturing sectors characterised by many small and medium firms can be expected not to be as effective in organising themselves and lobbying government than those dominated by a few major players. This places a greater onus on government if it is to redress the bias towards resource and capital intensive heavy industry. An industrial policy to develop relatively labour-intensive manufacturing must therefore be one which seeks to alter the industrial development trajectory, to build on and change the pattern of capabilities.

Such a policy needs to address the behaviour of dominant resource-based firms to ensure competitively priced intermediate inputs to downstream manufacturing. In addition, the reorientation of incentives and support needs to take into account funding for technology development and commercialisation, which is widely used as an industrial policy instrument (such as linked with defence and space expenditure in the USA). Defence spending has also been used in South Africa in the past; now it is important to specify alternative objectives. A second area is spending by government in depressed economic regions, with the caution that there is a sound basis for economic development of the identified regions. A third important, demand-side, stimulus for manufacturing capabilities is the major spending on infrastructure announced by government.

The recent policy frameworks have as their objectives a co-ordinated approach to improve the 'knowledge-intensity' of production and to develop technological capabilities in selected industries. The implementation of these programmes is currently underway with 'customised sector programmes' being developed by the Department of Trade and Industry, and technical centres and innovation networks envisaged under the AMTS. These policies have the potential to significantly influence the path of South Africa's industrial development but they require co-ordinated implementation and attention to how they influence the behaviour of large firms. In addition, an effective industrial policy requires information, analysis and co-ordinated action. The IMS conspicuously failed to identify the role of the IDC, for example. And, the links between the manufacturing strategy and the technology strategy are not clearly spelt out.

In the absence of government addressing information and coordination weaknesses, policies are likely to reflect industry strengths. It is not coincidental that the auto industry has a sector specific strategy given its size and lobbying power. The danger is that the other industries with similar characteristics to be able to lobby government are those such as basic

chemicals and basic metals which built their strength under far-reaching support from the apartheid state. Much of the growth in employment in services is in the wholesale, retail trade, catering and accommodation sector, of part-time and/or self-employed persons, including those in the informal sector. These industries will ensure that they have well worked out development plans continuing to promote their own growth, but without necessarily building linkages to labour-intensive sectors or disciplining the behaviour of large firms.

Notes

1. Much of the growth in employment in services is in the wholesale, retail trade, catering and accommodation sector, of part-time and/or self-employed persons, including those in the informal sector.
2. According to Quantec data, business services employment increased by over 600,000 from 1994 to 2004. Over the period real remuneration fell, and averaged under R22,000 per annum (in constant 2000 Rands). Given that this category includes lawyers, accountants and architects it is evident that the increased employment was in low-waged activities. Based on data of active registered private security guards with the industry regulatory body, this activity alone accounted for approximately one-third of the employment increase in Business services.
3. Falls in manufacturing employment also reflect outsourcing of services such as catering, cleaning, security and logistics, meaning some changes in manufacturing employment are due to reclassification (see Mohamed and Roberts 2006)
4. See also Machaka and Roberts (2006)
5. Large investments in basic metals are now planned or underway in aluminium, ferrochrome and steel, led by Alcan, Tata Steel and Mittal Steel.
6. Edwards and Lawrence define commodity manufactures as coke and refined petroleum, food, tobacco, iron and steel, other manufacturing, non-metallic minerals, wood and wood products, basic chemicals, and basic non-ferrous metals.
7. For example, the reduction of import surcharges from 1990 implied significant liberalisation, especially in view of the differential rates being charged.
8. This corrects a very misleading picture portrayed by Fedderke and Vaze (2001) who argued that protection had not been reduced. This was based on collection rates which clearly exclude the liberalisation of quantitative restrictions and the effect of lowering such high tariffs that there were no imports (and hence no revenue collected).
9. A significant share of the exports in these sectors are also likely to be due to on-selling of imported products by South African distributors to southern African

markets.

10. The Hirschman-Herfindahl Index of concentration (measured as the sum of the squared shares in value added) was 553 in 2005, marginally above the 531 recorded in 1994.
11. Hausman and Klinger (2006a:12) identify catalytic converters (filtering and purify machines for liquids and gases) as one of the five main products responsible for the increase in the sophistication of South Africa's exports in the 1990s, along with motor vehicles, motor vehicle parts and chassis, pharmaceuticals, and ferro-alloys.
12. As recently as 2004 South Africa exported approximately 32 per cent of pulp, almost 30 per cent of paper, significant volumes of woodchips. The country was also a net exporter of sawn timber, timber furniture and, at least until very recently, of sawlogs (despite high transport costs) (Genesis 2005).
13. Steinhoff identifies its employment in South Africa as being 20,000, more than half the employment of the whole furniture sector (Steinhoff, Annual Report 2004).
14. See Competition Tribunal ruling 67/LM/Dec01.
15. DTI, however, did remove the 5 per cent tariff on basic steel products and some anti-dumping duties in 2006.
16. As of the end of 2006 a new National Industrial Policy Framework was being drafted, but had not yet been approved.
17. See for example, FRIDGE (2003) Study of metals and engineering industries.
18. Details of the projects given in *Engineering News*, 21-27 January 2005. The proposed Pechiney (now Alcan) projects (four in total related to the proposed aluminium smelter) have been omitted following the review of this project, although it now appears to be going ahead under new owners Alcan.
19. See Barnes (2000), Barnes et al (2004), Black (2001, 2002).
20. By 2003 only 40 per cent of the platinum group metal content earned duty free credits.
21. See, for example, Flatters (2005). The Competition Commission recently found that car prices in South Africa were on average 14 per cent higher than in the UK, after taking into account differences in tax, vehicle specifications and motor plans (see Commission press release, 7 December 2005).
22. The IDC also provided research capacity and fieldworkers as it was viewed as a neutral organisation.
23. The IDC provided R14.1bn out of the R25.4bn of investment in these projects which, given the sub-market interest rates, implies a very significant level of support.
24. SMEs are defined by the IDC as those with total assets of less than R30mn.

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