Note on the changing structure of the manufacturing sector

by H Smith

Introduction

Over the past two decades the South African economy experienced a fair amount of structural change. Prominent among these was the declining share of the goods-producing industries in the total economy, which is not dissimilar to trends observed in most of the industrialised economies of the world. The end to the political and economic isolation of the country in the early 1990s, together with factors such as continuous technological change, trade liberalisation and globalisation, contributed substantially to the steady transformation of the South African economy.

This note is a review of some of the key developments in South Africa's manufacturing sector. The discussion focuses on longer-term developments during the past two decades as well as on the cyclical behaviour of the manufacturing sector. In the second section the evolution over time of gross value added is reviewed. The third section deals with changes in gross fixed capital formation, followed by notes on the changes in the distribution of factor income and saving. This is followed by a discussion of employment trends, whereas the final section contains some concluding observations.

Changes in gross value added

After World War II the South African economy changed from a resources-based economy and became increasingly industrialised and services oriented. This is clear from the decline of the share of mining and agricultural production in total gross domestic product from an average of 25½ per cent in the 1950s to an average of

Components of gross value added as percentage of total gross value added
Per cent

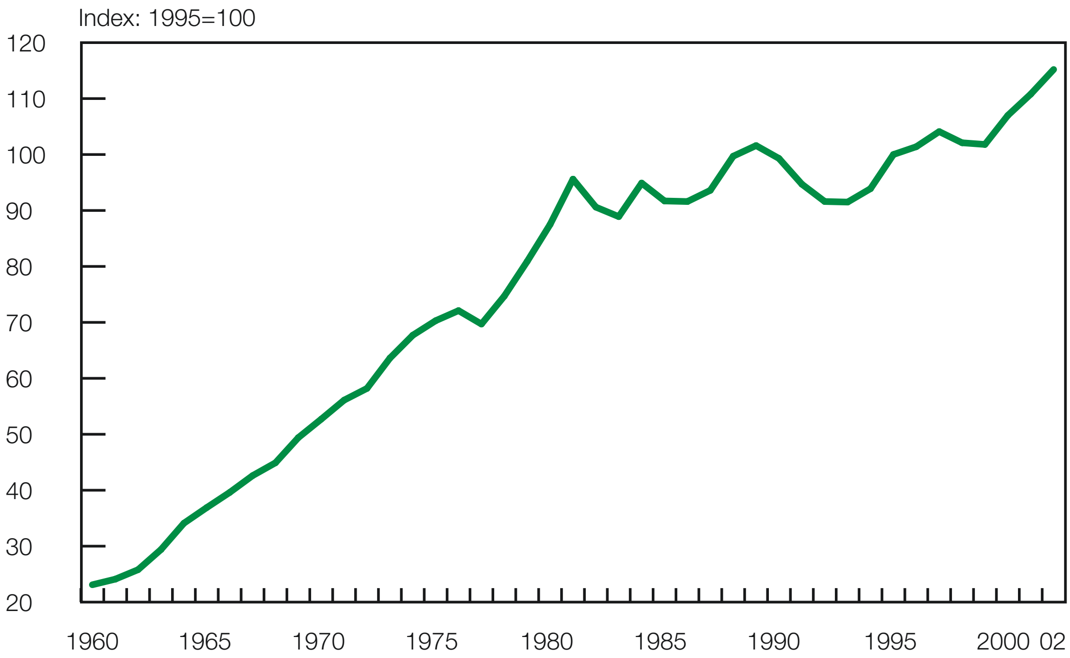
	Resources industries	Goods-producing industries	Manufacturing	Services-providing industries	Share of export-oriented industries in manufacturing value added
Decade averages					
1950s	25½	50½	20	49½	
1960s	21	48½	21½	51½	49
1970s	18½	47½	22	52½	47
1980s	19	49	23	51	46
1990s	11½	39	21	61	46
Years					
1995	11	38½	21	61½	45
1996	11	37½	20	62½	46
1997	10½	36½	20	63½	46½
1998	10	36	19	64	47
1999	10	34½	18½	65½	47
2000	10	34½	18½	65½	48½
2001	11	35	18½	65	49½
2002	12	36	19	64	50

19 per cent in the 1980s and 11½ per cent in the 1990s. By contrast, the share of manufacturing production in total gross domestic product increased from about 20 per cent in the 1950s to 23 per cent in the 1980s, before falling back from a peak of 24 per cent in 1981 to 18½ per cent in 1999 and 19 per cent in 2002.

There was a strong increase in the total real value of mining production during the 1960s, followed by a steep decline during most of the 1970s. The mining sector benefited temporarily from a spurt in base metal prices in the first half of the 1980s, but since about the middle of the 1980s the real value added by the mining sector has fallen persistently, especially in the gold-mining industry.

The real value added by the manufacturing sector expanded steadily from 1960 to 1981, except for a short period during the second half of the 1970s, recording an average annual growth rate of about 7 per cent during the entire period. However, from 1982 to 1993 real manufacturing production actually declined at an average rate of about ½ a per cent per year. This decline could be attributed to the slowdown in world economic growth, but also to the increasing effective application of economic and financial sanctions against South Africa by the international community.

Real value added by the manufacturing sector



With the repealing of most of the trade and investment sanctions in the early 1990s, activity in the manufacturing sector was boosted by South Africa's reintegration into the global economy. The average annual real manufacturing output growth rate picked up to 2½ per cent from 1994 to 2002. Viewed over the entire period since 1960, the contribution of all the goods-producing industries peaked at 54½ per cent in 1980, followed by a decline to 34½ per cent in 1999 and 36 per cent in 2002. The goods-producing industries encompass the agricultural, mining, manufacturing, construction, electricity, gas and water sectors. The declining share of the value added by the goods-producing industries in total value added is consistent with trends observed in most of the industrialised economies of the world.

The recent increase in the contribution of the goods-producing industries to the total gross domestic product between 2000 and 2002 can, in addition to stronger growth in manufacturing output, be attributed to an increase in the real value added by the mining sector. Real mining production gained from rising metal and mineral prices which, alongside the depreciation in the exchange value of the rand, lifted the contribution of the mining industry to total gross domestic product from 7 per cent in 1999 to 8 per cent in 2002. Over the same period, the contribution of the manufacturing sector increased from 18½ per cent in 1999 to about 19 per cent in 2002.

The manufacturing sector contributed materially to the faster growth in the real gross domestic product during the current recovery in the economy, which started in the fourth quarter of 1999. The real value added by the manufacturing sector grew at an average annualised rate of 4 per cent during the past 12 quarters. Stronger growth was particularly noticeable in the subsectors producing basic metals, transport equipment, chemical products and electrical equipment, which jointly have increased at an average annual rate of 7 per cent since 1999, contributing some 3½ percentage points to overall manufacturing output growth.

These sectors, known for the high export content of their output volumes, expanded output volumes faster than the other subsectors during the period 1994-2002. Consequently, the combined share in total manufacturing production of chemical products, basic metals and transport equipment increased from 44 per cent in 1993 to 47 per cent in 1999 and 50 per cent in 2002. These sectors count among the more prominent export-oriented subsectors of South Africa's manufacturing industry.

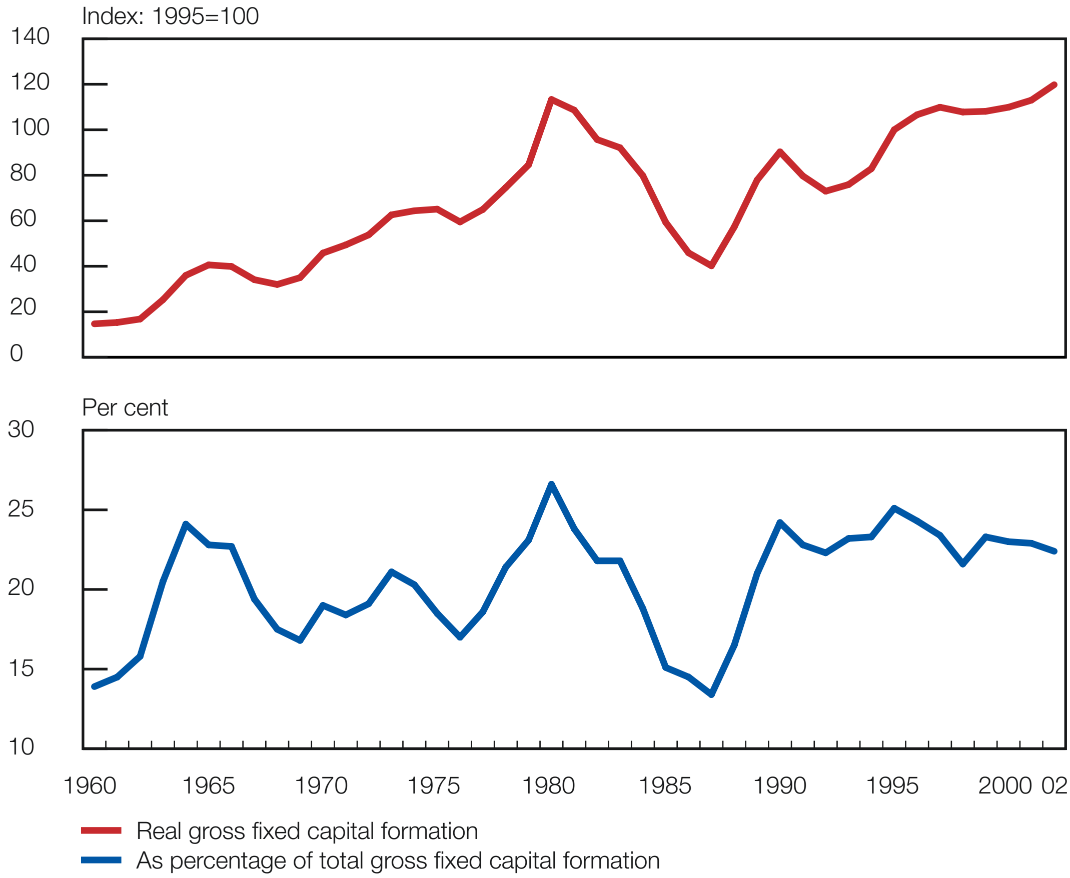
Apart from highly favourable global trading conditions during the 1990s, manufacturing exports also benefited from the conclusion of trade agreements and heightened price competitiveness brought about by the depreciation of the exchange value of the rand. The growth in the real value of exports of manufactured goods accelerated from an average annual rate of 3 per cent between 1975 and 1990, to 11 per cent from 1990 to 1998. Although the somewhat weaker global economic conditions hindered South Africa's exports from 1999 to 2002, export volumes still increased at an average annual rate of 10 per cent during the past three years.

Real manufacturing output since 1999 was boosted by a strong rise in inventory investment. Businesses needed to replenish inventories as they perceived inventory levels as too low to accommodate expected changes in demand during the upward phase of the business cycle. The level of manufacturing inventories relative to manufacturing output accordingly increased from a low turning point of 38½ per cent in the fourth quarter of 1993 to 45½ per cent in the first quarter of 1999, and an average of about 51 per cent in 2002. The long-term average of this ratio was 61½ per cent in the period 1960 to 2002.

Gross fixed capital formation

Gross fixed capital formation by the manufacturing sector increased at an average annual rate of 3½ per cent during the 1990s, compared with a decline of 1 per cent during the 1980s. As a percentage of total gross fixed capital formation, capital formation by the manufacturing sector showed an erratic pattern, ranging from 26½ per cent in 1980 to 13½ per cent in 1987. Strong rises in this ratio coincided with the expansion of Sasol towards the end of the 1970s and the development of Mossgas and expansions by Iscor in the second half of the 1980s. During the 1990s, when public corporations in the manufacturing sector were not expanding capacity on a vast scale, the ratio of manufacturing capital formation to total capital formation settled at a level of around 23 per cent.

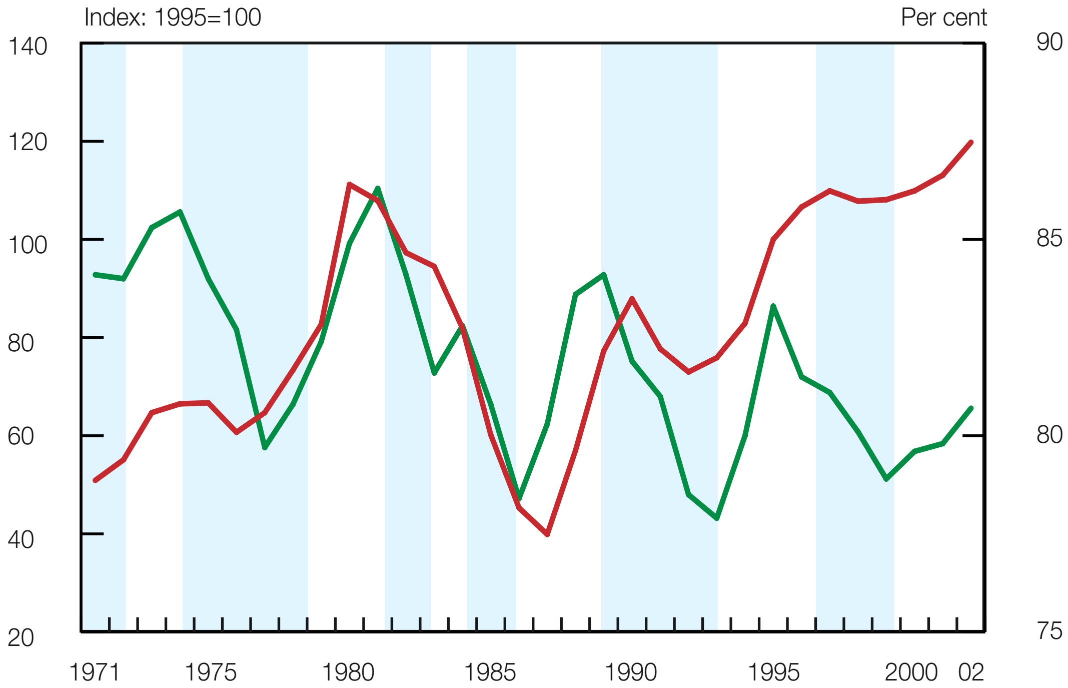
Gross fixed capital formation by the manufacturing sector



The need to be competitive in an increasingly open international economy and to compete in the domestic market prompted South African producers, particularly motor manufacturers, to expand capacity and to modernise production technology in the years after 1994. Real outlays on, especially, machinery and equipment were stepped up to meet the expected increase in demand and to implement newly developed information and computing technologies. The date change at the turn of the millennium also created demand for computing equipment.

Prior to about 1995, rising rates of capacity utilisation in the manufacturing sector usually coincided with heightened investment activity and, conversely, declining capacity utilisation rates with a slowdown in investment activity. This fairly well-established relationship broke down in the second half of the 1990s when low and falling rates of capacity utilisation in the manufacturing sector were accompanied by a fairly vigorous pick-up in investment spending. The reasons for this deviation from the established pattern are not entirely clear, but it is thought that the expenditure on new technology expanded the absolute capacity of the manufacturing sector by more than what was anticipated, resulting in an increased under-utilisation of capacity at the prevailing levels of output.

Gross fixed capital formation and capacity utilisation in the manufacturing sector



Real gross fixed capital formation
Capacity utilisation (right-hand scale)
The dark areas represent the downward phases of the business cycle

Other factors contributing to the rise in real fixed capital formation by the manufacturing sector since 1999 include:

- the ageing of transport equipment and other machinery and equipment;
- increased rates of return on invested capital; and
- the consistent decline in the cost of capital relative to labour.

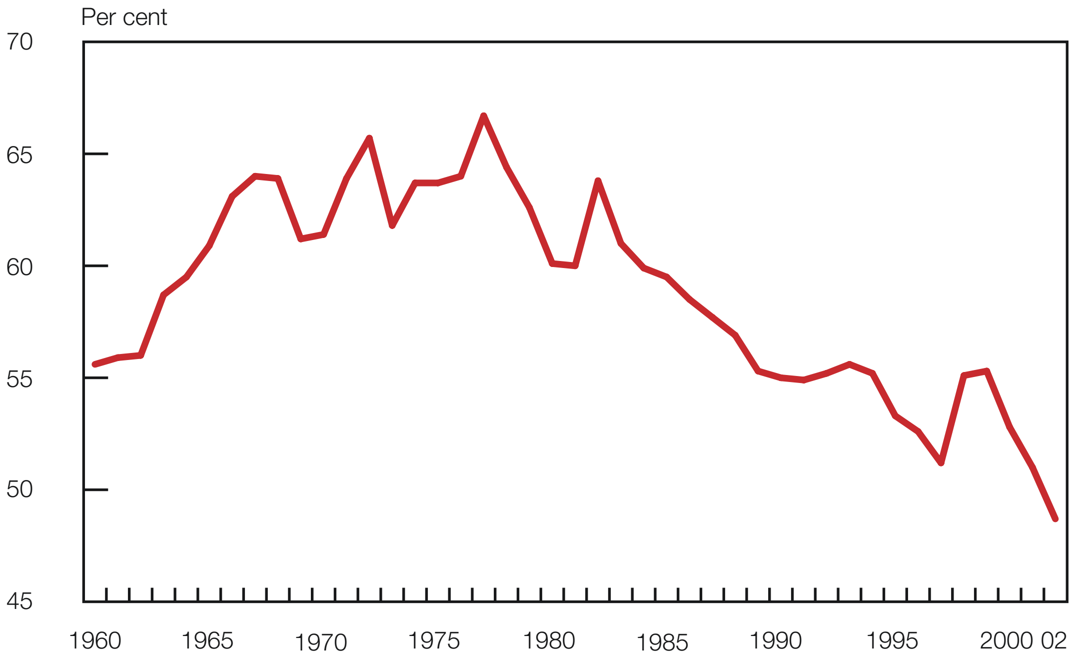
Factor income

An analysis of the distribution of factor income in the manufacturing sector shows the growing importance of operating surpluses from the second half of the 1970s and the associated decline in the share of salaries and wages.

The continued paring of labour resources, together with some moderation in nominal wage growth, helped to lift the share of operating surpluses in the overall value of output – a shift which is common in periods of economic expansion. In addition, the growth in operating surpluses generally benefited from the depreciation of the exchange value of the rand during the 1990s, especially in the export-oriented subsectors of the manufacturing industry.

The share of compensation of employees as a percentage of total factor income in the manufacturing sector declined from an average of about 61½ per cent in the period 1960 to 1985, to about 55 per cent in 1990 and remained more or less at this level until 1999, but then declined further to its lowest level ever of 49 per cent in 2002.

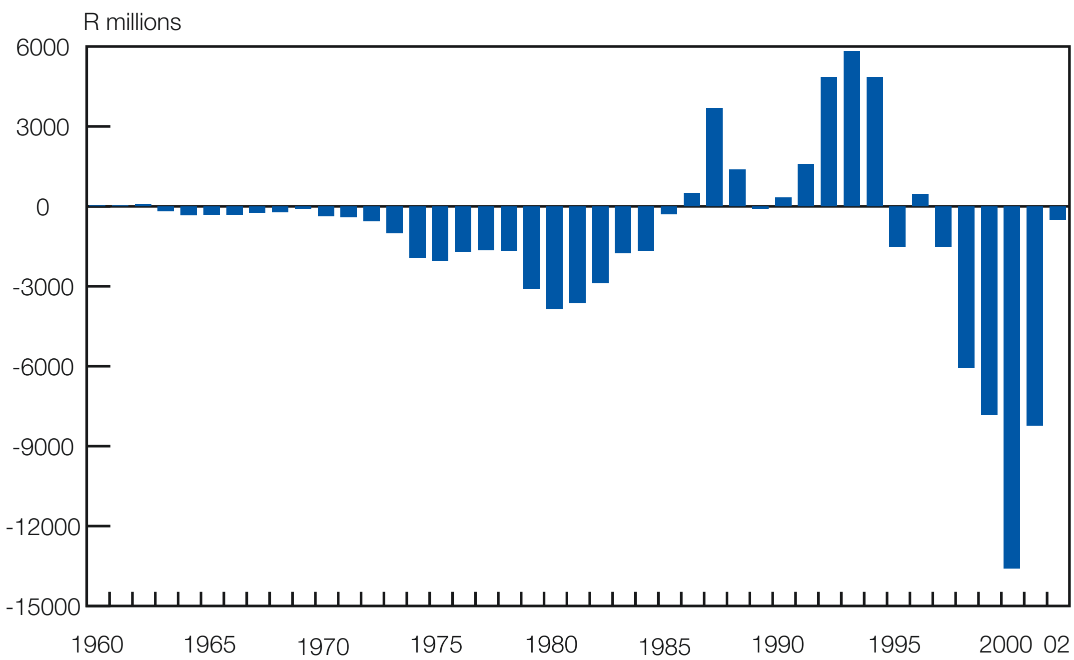
Compensation of employees as percentage of total factor income



Saving and net lending

The sharp rise in operating surpluses bolstered aggregate gross saving by the manufacturing sector during the 1990s. However, gross saving has fallen short, by a growing margin, of gross capital formation since 1995. Even with a stronger saving effort the manufacturing sector remains dependent on external sources for meeting its investment requirements.

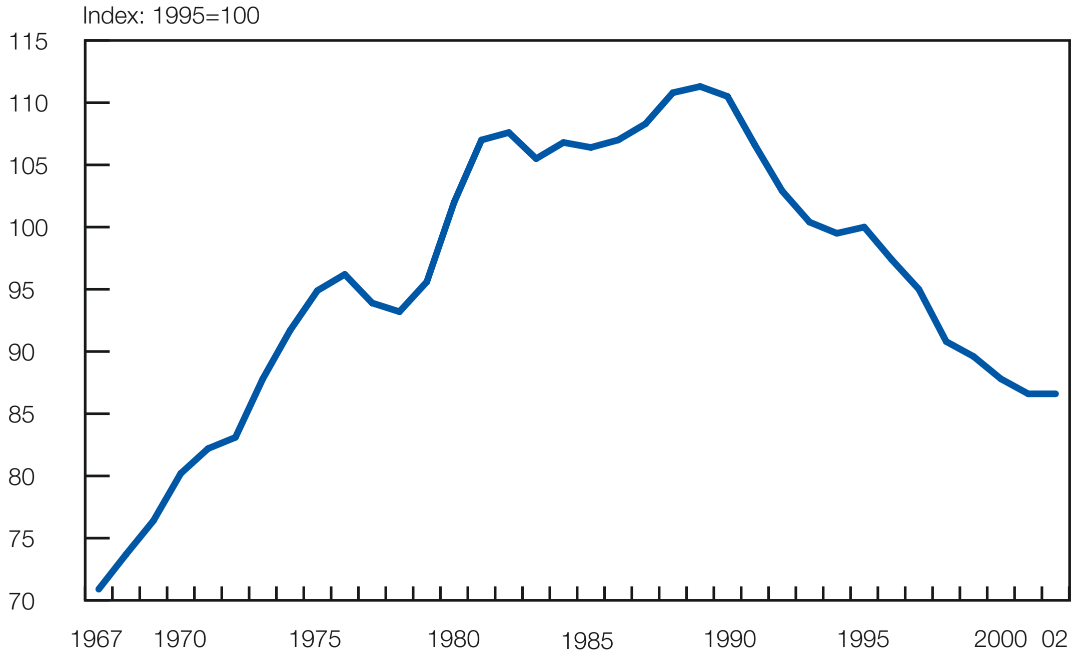
Excess of gross capital formation over gross saving in the manufacturing sector



Employment trends

Retrenchments in the manufacturing sector have continued almost unabatedly for more than a decade. Employment in the manufacturing sector declined by 21 per cent from 1990 to 2002. The decline in manufacturing employment and the associated declining share of employee compensation in the value of manufacturing output can be attributed to the continued rationalisation of labour resources, including the outsourcing of core activities by manufacturers in order to raise the efficiency of labour in a competitive environment, as well as to the implementation of technologically advanced and skills-intensive production methods.

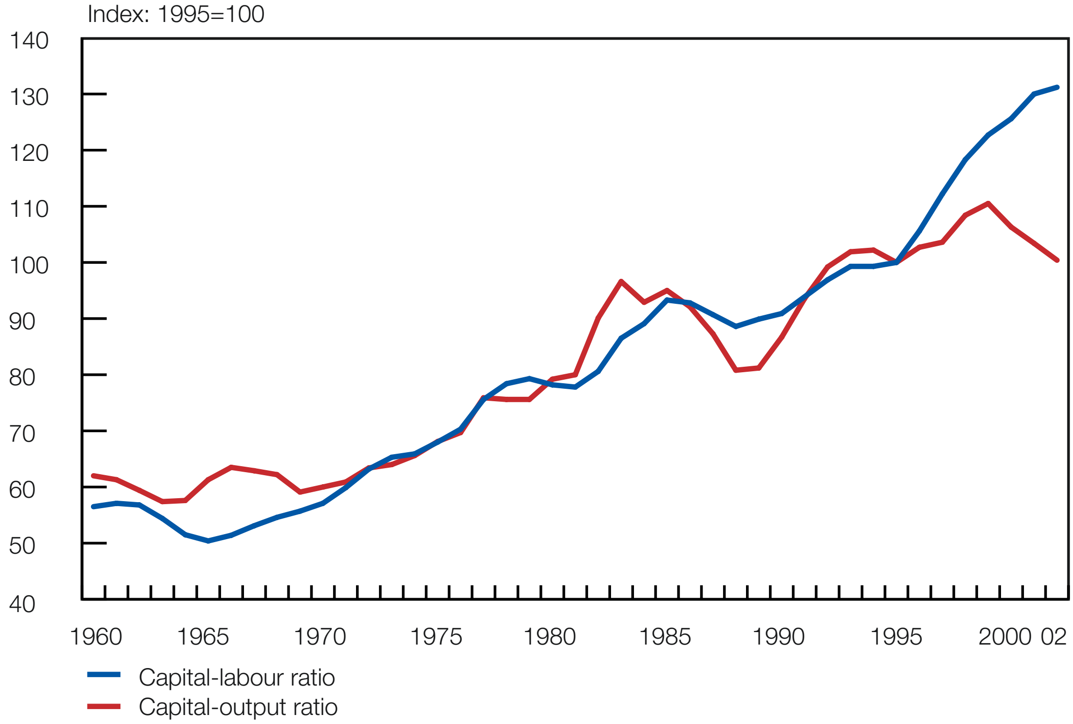
Employment in the manufacturing sector



There is a strong positive relationship between changes in manufacturing production and employment levels during the upward and downward phases of the business cycle. Rising output levels are usually associated with upward phases of the business cycle, whereas employment levels tend to fall back with shrinking output volumes during periods of subdued economic activity. However, during the current upward phase of the business cycle, higher rates of output growth were not accompanied by increases in employment numbers to the same extent as in previous recovery phases. This indicates that the growth in manufacturing production during the current economic recovery was essentially driven by increasing labour productivity.

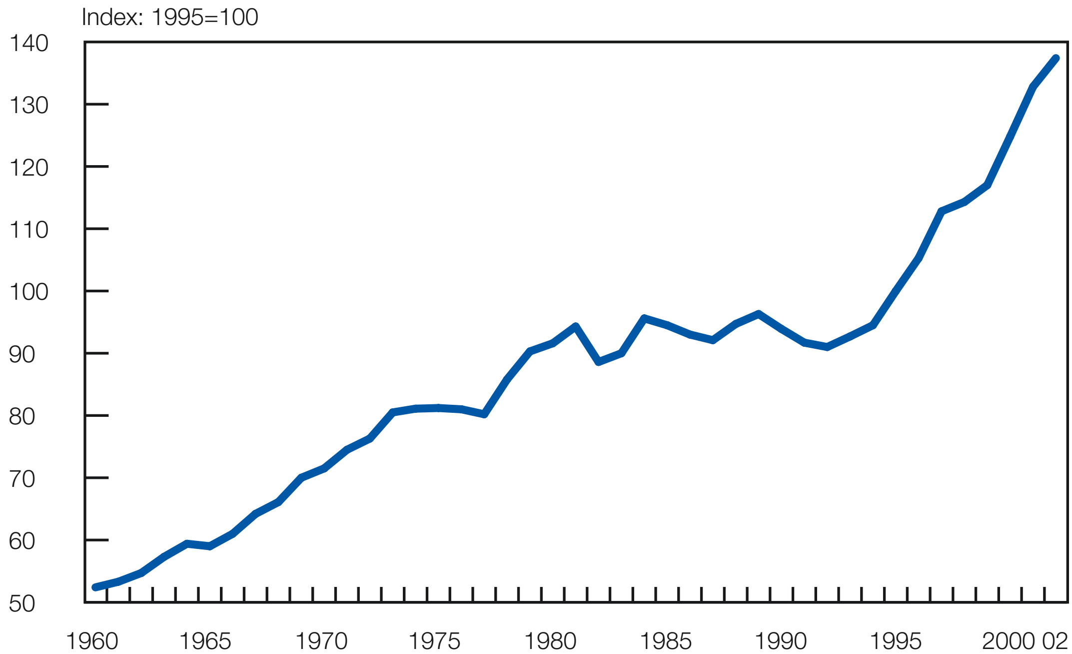
The introduction of more capital-intensive production processes is also evident in the increase in the capital-labour ratio and the capital-output ratio of the manufacturing sector. Against the background of rising real wages during the 1990s, employment numbers were continuously cut back. As a result, the productivity of labour – reflected in a strongly rising output-labour ratio – increased quite impressively from the middle of the 1990s. This strong growth in productivity compressed the growth in nominal unit labour cost to modest levels and contributed significantly to the overall containment of inflation in the South African economy during most of the 1990s.

Capital intensity in the manufacturing sector



The persistent decline in manufacturing employment since 1990 has apparently bottomed out in 2002. This may portend that the restructuring in the manufacturing sector might be drawing to a close and that this sector may be resuming its traditional role as a major employment creator in the South African economy.

Labour productivity in the manufacturing sector



Summary

The most significant development in South Africa's manufacturing industry during the 1990s was the resuscitation of output growth at around the middle of that decade. The institution of an all-inclusive democratic system of government, and the repeal of trade and financial sanctions against the country, undeniably played a major role in the revival of the manufacturing sector.

The opening up of export markets and the ferocity of competition in these markets compelled South African producers to become more cost conscious. This awareness brought
- an urgency to contain growth in labour cost;
- declining levels of employment in the industry;
- continuously strong growth in labour productivity;
- increased capital intensity in production processes;
- growing export-orientation of the sector; and
- a shift in the distribution of factor rewards in favour of operating surpluses.

There were signs during 2002 that the prolonged period of labour shedding might have run its course and that the manufacturing sector could once more become a major provider of new job opportunities in the South African economy.