Competitiveness, International Trade and Finance in a Minerals-rich Economy: The Case of South Africa

by

Trevor Bell, Greg Farrell, and Rashad Cassim

Paper for the International Development Research Centre project on "International Trade, Competitiveness and Finance: The Developing Countries' Experience".

April 1999

Trevor Bell, Principal Researcher for this study, is Professor, Institute
for Social and Economic Research, University of Durban-Westville, Durban.
Greg Farrell is an economist at the South African Reserve Bank, Pretoria.
Rashad Cassim is Director, Trade and Industrial Policy Secretariat,
Johannesburg.

Competitiveness, International Trade and Finance in a Minerals-rich Economy:
The Case of South Africa

Trevor Bell, Greg Farrell and Rashad Cassim

1. Introduction

The aim of this paper is to consider the relationship between competitiveness, international trade and financial factors in the South African economy.

The term 'competitiveness' is used here in two closely related, but distinctly different, senses. One of these refers to a country's ability 'to realise central economic policy goals, especially growth in income and employment, without running into balance of payments difficulties' (Fagerberg, 1988:355). This may be thought of as competitiveness in the macroeconomic sense, or what we shall refer to as macro-competitiveness. Competitiveness, however, may also be defined as the ability of an economy, or sectors of it, to compete in world markets. Conventionally emphasised sources and indicators of competitiveness in this sense are movements in real exchange rates, productivity and unit labour costs, which are reflections of price-competitiveness. As distinct from these, there are various sources of the ability to compete in world markets, such as product differentiation and innovation, and (of particular interest in the context of the present study) access to finance, which may be regarded as aspects of non-price competitiveness.

Section 2 considers the competitiveness of the South African economy in the macroeconomic sense, by examining the historical relationship between GDP growth and the ratio of the current account deficit to GDP. On this basis, it finds that there has apparently been a significant deterioration in the competitiveness of the South African economy.

The rest of the paper is in effect an attempt to shed light on this problem. The rate of growth of exports is clearly one factor pertinent to South Africa's macro-competitiveness. One concern of the paper, thus, is with explaining trade performance in recent years. However, a long historical view is seen as indispensable for this purpose. The evolution of the growth and sectoral pattern of South Africa's exports in the period 1911-72 is therefore described briefly in Section 3.

Section 4, the longest in the paper, discusses variations in the growth and sectoral pattern of South Africa's trade in 1972-97, divided into two sub-periods: 1972-83, which includes the great gold-led, commodity price boom of that decade; and the period of adjustment from the onset of economic crisis in the mid-1980s, through to 1997, which is the main focus of attention. The emphasis is on changes in relative prices, in particular on real exchange rates, as the determinant of variations in the growth rate and composition of South Africa's exports, though some consideration is also given to productivity and unit labour costs. The problem of sustaining rapid growth of exports, and hence of increasing macro-competitiveness, is seen as lying in the sectoral pattern of South Africa's exports.

The effect of financial factors based on trade and competitiveness, one of the particular concerns of the studies in this volume, is the subject of Section 5. Matters considered there, in varying degrees of detail and in different sub-sections, are the effects of South Africa's relatively advanced stage of financial development; the availability of credit and economic instability as factors relevant to the level of investment; differences in the severity of financial constraints between groups of firms categorised according to trade orientation and trade performance, and hence relevant to competitiveness (in both senses stated above); and the question whether the ownership of banks by South Africa's conglomerates has skewed the allocation of credit in sub-optimal directions. Section 6 consists of concluding remarks.

2. The Relationship Between Economic Growth and the Current Account Deficit

This section considers the competitiveness of the South African economy in the sense of its ability to grow without running into balance of payments difficulties (Fagerberg, 1988:355). That is, it deals with what we shall refer to as the macro-competitiveness of the South African economy.

Essential to this issue is the statement that 'what is assumed is that countries do not wish, or are not able, to continually increase debts or claims to the rest of the world, so that the balance-of-payments, with the exception of short run fluctuations, will have to balance through its current account. This implies that, in the medium and long run, actual growth has to adjust to the balance-of-trade equilibrium growth rate, or the growth rate "warranted" by the current account, to use a Harrodian term' (Fagerberg, 1988:361).

Figure 1 shows the relationship between the two-year moving average rate of growth of South Africa's actual GDP, as conventionally measured[1], and the current account/GDP ratio, in each year from 1960 to 1997. The regression line through the points plotted in the figure is the least squares regression of the current account deficit on the two-year moving average GDP growth rate. As it indicates, and as would be expected, a higher growth rate is associated with a higher current account deficit ratio. For instance, a current account deficit ratio of zero is associated with a growth rate of 2.5 per cent, and a 6 per cent growth rate with a deficit ratio of 2.3 per cent.

It is noteworthy that, as the growth rate increased in 1992-94, the current account deficit increased gradually, close to the average for these growth rates in 1960-97. In 1995, however, when the two-year moving average reached 2.9 per cent, the current account deficit increased sharply to 2.1 per cent. As in earlier years, when the deficit ratio rose sharply above the regression line, both the growth rate and the deficit ratio were pulled back to more sustainable levels. The deficit ratio of 2.1 per cent in 1995, it should be noted, is one associated in the 1960s with a GDP growth rate close to 6 per cent. This suggests an unfavourable change in the relationship between the growth rate and the current account deficit ratio.

Figure 2 suggests even more strongly that there has been a substantial unfavourable change in the relationship between the growth rate and the current account deficit ratio. Following Ros (1995:101-102), it shows the historical relationship between the current account deficit ratio and the two-year moving average rate of growth in potential GDP, rather than of GDP as conventionally measured.[2]

As Figure 2 shows, the potential GDP growth rate increased in every year from 1994 to 1998. However, it remained negative in 1994 and 1995, and, though positive in 1996, 1997 and 1998, was still very low, at 0.26 per cent, 0.43 per cent and 0.6 per cent respectively. Despite these low growth rates of potential output, the current account deficit ratio, as noted above was 2.1 per cent in 1995, and 1.4 per cent, 1.6 per cent and 2.2 per cent in 1996, 1997 and 1998 respectively. These are clearly current account deficit ratios such as would on average have been historically associated with much higher potential GDP growth rates.

Figure 1: The relationship between the GDP growth rate and the current account deficit/GDP ratio 1960-1998
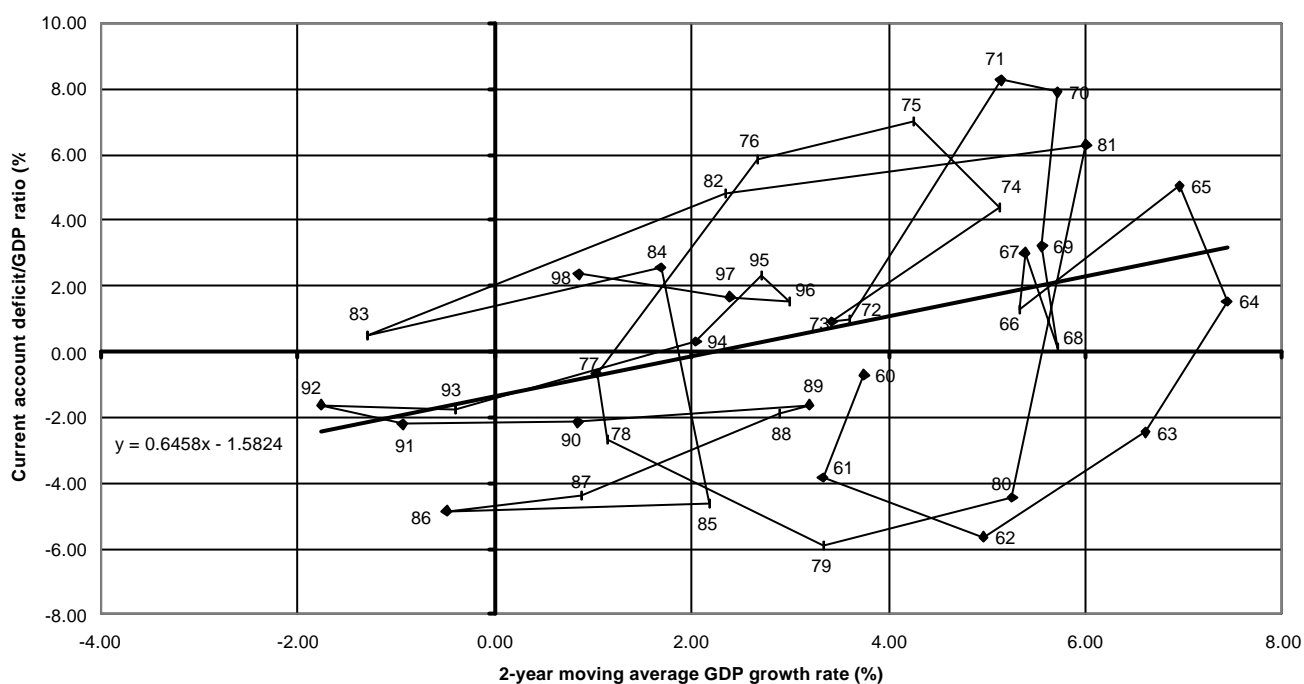

Figure 2: The relationship between the potential GDP growth rate and the current account deficit/potential GDP ratio 1960-98
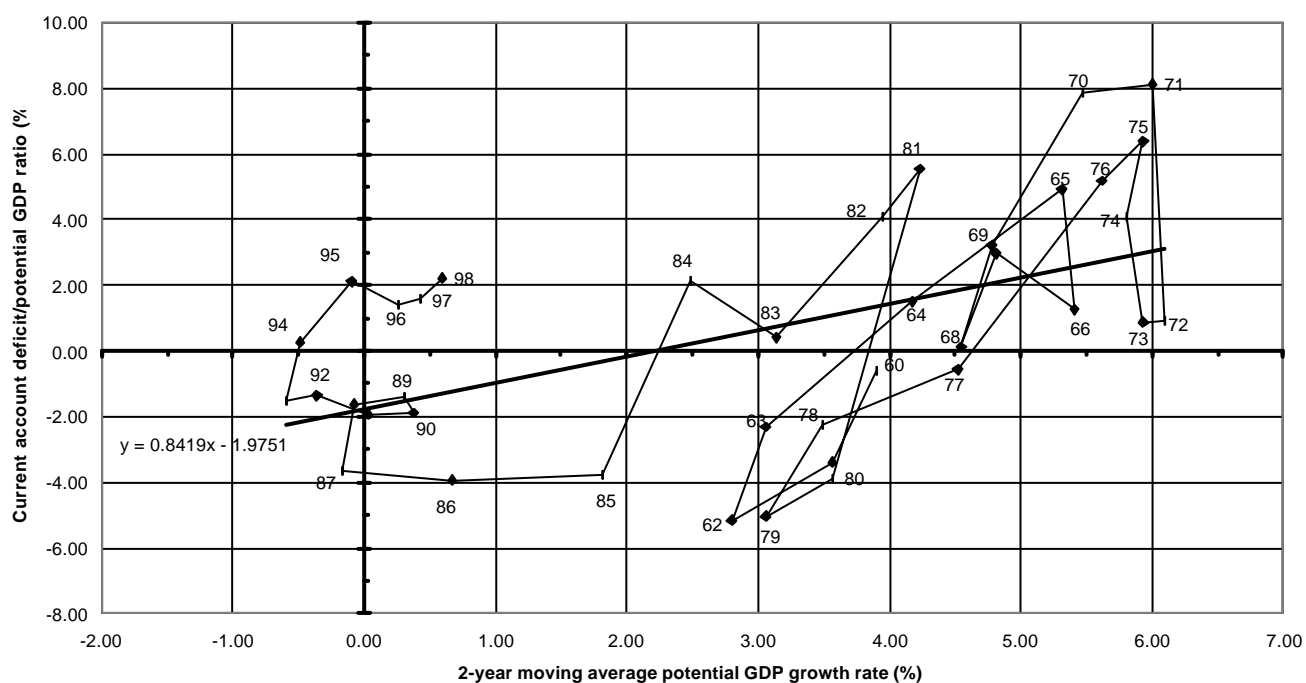
Figure 2 probably gives a better indication than Figure 1 of the implications for the current account deficit ratio of some desired, higher average annual growth rate of, say, four or five per cent, sustained over a period of, say, five years. As the differences between the actual GDP growth rates in 1994-97, shown in Figure 1, and the negative or very low potential output growth rates in those years, shown in Figure 2, suggest, a large part of the growth in actual output in recent years has been due to increases in capacity utilisation rather than to increases in the stock of productive capital, and hence in output capacity.[3] Once capacity utilisation reaches a sufficiently high level, the rate of capital accumulation required to achieve any particular GDP growth rate will tend to increase, with probably adverse consequences for the current account. Even at the low potential output growth rates of recent years, the investment to GDP ratio (I/Y) increased considerably in 1993-97 (Figure 3).

Figure 3: GDFI to GDP ratio (both in 1990 prices) (%)
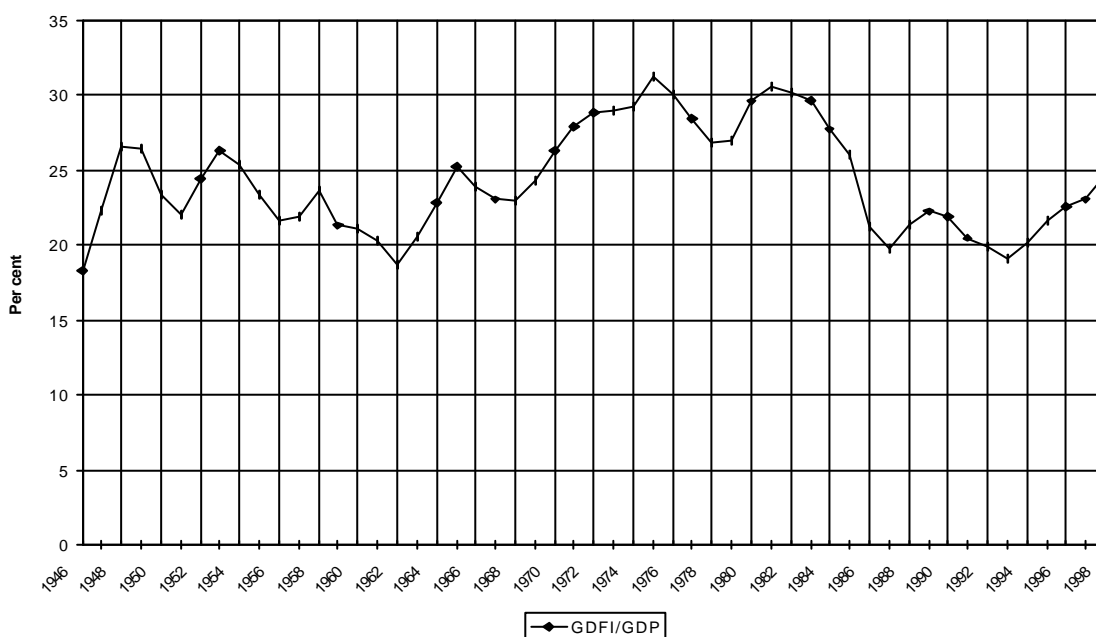
As noted earlier, much of the rest of the paper is in effect an attempt to shed light on this apparently significant deterioration in the macro-competitiveness of the South African economy. The rate of growth and sectoral pattern of South Africa's exports is clearly one factor which would be expected to be pertinent to this problem. Given our view that a long historical perspective is necessary for understanding the problems of the South African economy today, we turn now to consider briefly, in Section 3, the evolution of South Africa's export trade in earlier decades, from 1911 to 1972.

3. The Evolution of South Africa's Trade Specialisation, 1911-1972

3.1   1911/12 – 1956/57: The drive to industrialisation through import substitution

In 1911/12, minerals comprised 81.8 per cent of South Africa's total exports (gold and diamonds alone contributing 63.5 per cent and 15.1 per cent respectively), with agriculture's 17.6 per cent accounting for virtually all of the rest (Frankel, 1938:108, Table 16).

Thereafter, through to the Second World War, gold output and exports grew slowly, and the drive to industrialisation began in earnest in the years between the First and Second World Wars. Manufacturing value-added grew rapidly in these inter-war years, and through to the mid-1950's, largely on the basis of substantial import substitution. The ratio of imports to domestic supply (that is, imports to gross output plus imports) for manufacturing in the aggregate fell from 57.2 per cent in 1926/7 to 28.7 per cent in 1956/7 (Bell and Farrell, 1997:596-600; and 603, Table 3).

The forty-year period from 1916/7 to 1956/7 thus saw substantial diversification of production in the economy as a whole[4], and, within manufacturing, a considerable shift away from consumer non-durables (Bell and Farrell, 1997:598, Table 2). Exports also became more diversified. The export share of primary products fell from 86.6 per cent in 1916/7 to 64.6 per cent in 1956/7, and that of manufactures increased from 8.2 per cent to 26.3 per cent.

There was also considerable diversification of manufactured exports. The share of non-durable consumer goods in manufactured exports halved from 80.2 per cent to 40.6 per cent between 1926/7 and 1956/7. Of particular interest here and throughout the rest of the paper, however, is the distinction between natural resource-based manufactured exports and the exports of more downstream manufacturing sectors; and variations in the export growth rates of each of these categories and their shares in total manufactured exports. Here, and in subsequent tables, the natural resource-based category includes the chemicals, iron and steel, non-ferrous basic metals, and pulp and paper sectors; while downstream sectors are represented by the fabricated metal products, machinery, electrical machinery, motor vehicle and parts, and other transportation equipment sectors, which together we shall refer to as the 'metal products group of sectors'.

Between 1926/7 and 1956/7, the share of the natural resource-based sectors in manufactured exports increased from 16.2 per cent to 26.2 per cent, and that of the more downstream metal products group of industries rose even more sharply from 2.0 per cent to 18.9 per cent over the same period. As this implies, during these four decades the exports of the more downstream sectors grew considerably faster than those of the natural resource-based sectors. The rate of growth of manufactured exports in the aggregate increased from each sub-period to the next, reaching a rate of 10.1 per cent per year in 1946/7 to 1956/7.

3.2   1956-72: The resurgence and decline of gold, and the spectre of a foreign exchange constraint

With the opening of the Orange Free State gold fields, gold output increased almost uninterruptedly from 358 thousand kilograms in 1951 to a peak of 1 million kilograms in 1970, but at a declining rate (Figure A1). Given the fixed gold price of US$35 per fine ounce (which prevailed from 1933 to about 1970), gold exports in current US dollars increased in a similarly uninterrupted fashion. In constant US dollars, however, gold exports reached their peak in 1965 and declined (at a rate of 0.9 per cent a year) in 1965-70, compared to an average annual increase in 1960-65 of 6.9 per cent (Table 1).

Table 1: Average annual exports growth rates in constant US dollars (%)

	1960-65	1965-70	1960-70
Agriculture, forestry and fishing	3,9	-1,4	1,2
Mining (excluding Gold)	4,6	-1,9	1,3
Manufacturing	6,1	9,9	8,0
Total Exports (excluding Gold)	5,3	4,9	5,1
Gold exports	6,9	-0,9	3,0
Total Exports (including Gold)	6,0	2,6	4,3

Source: Central Statistical Services, South African Statistics (various issues)

What is particularly noteworthy, however, is that the rate of growth of manufactured exports behaves in a contrary fashion. Having increased at 6.1 per cent per annum in 1960-65, that is, slower than gold exports, the growth of manufactured exports accelerated to 9.9 per cent in 1965-70, as gold exports declined in absolute terms (Table 1). The result was that

manufactured exports (as defined in the Standard Industrial Classification), came to exceed gold exports for the first time in 1967, and continued to do so right through to the eve of the first oil crisis and the commodity price boom of the 1970s. (Figure A2)

Despite the accelerated growth of manufactured exports, the average annual rate of growth of South Africa's total exports declined substantially, from 6.0 per cent in 1960-65 to 2.6 per cent in 1965-70 (Table 1). This problem, of sustaining export growth in the face of declining gold exports (which was to return with a vengeance in the 1980s), was a matter of increasing concern in official circles. The Reynders Commission was appointed in 1969 to inquire into South Africa's export trade. Its report, published in 1972, emphasised the need for diversification into non-gold exports, and proposed the use of direct export promotion measures.[5]

For a moment, thus, there was the possibility of South Africa making the transition to export-oriented industrialisation. The ink had hardly dried on the Reynders Commission report, however, when it was overtaken by events, and, for the time being at least, rendered largely superfluous by the natural resource boom of the 1970s.

4. The Gold-led Natural Resource Boom and its Aftermath

4.1   1972-83: The natural resource boom and its effect on South Africa's exports

Though interrupted by declines in the mid-1970s, the price of gold increased dramatically from a yearly average of about US$52 in 1972 to US$613 in 1980, before beginning its descent to US$376 in 1982 (Figure A1). Commodity prices in general, which are shown in Figure 4 against the backdrop of downward and upward phases in the South African business cycle, followed a roughly similar pattern, with a large upswing from 1972 to 1980, interrupted by declines from late 1974 through to 1976-77.

Figure 4: Monthly commodity price indices
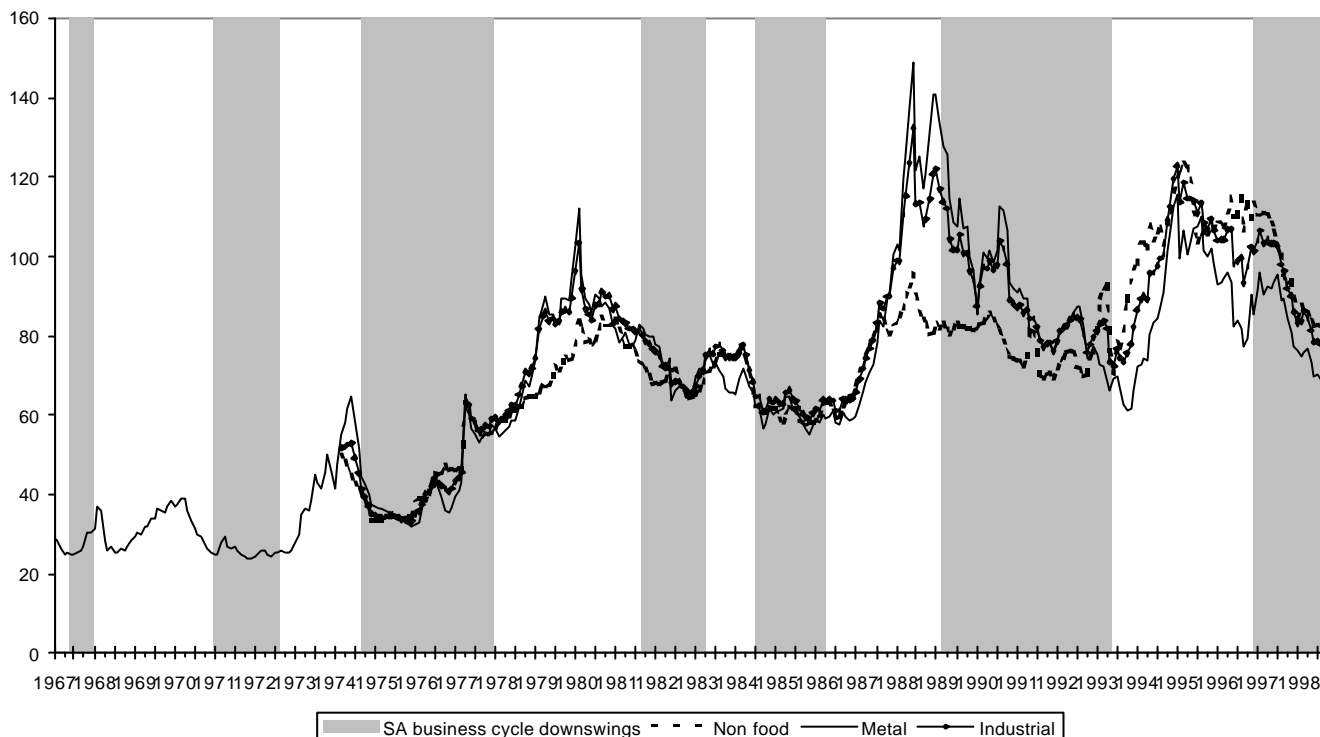
As would be expected, the effect on the sectoral composition and growth of South Africa's exports was dramatic (Tables 2 and 3). Whereas total visible exports, in constant US dollars, had increased at 2.6 per cent a year in 1965-70 (Table 1), the export growth rate in 1972-80 was 12.7 per cent per annum. Exports of gold and 'other mining' (coal, diamonds, iron ore, etc.) grew at 18.3 per cent and 12.0 per cent a year in 1972-80 (Table 3).

Table 2: Shares in Total Exports Excluding Services (%)

	1972	1975	1980	1985	1990	1993
Agriculture	9,7	8,5	5,9	2,9	2,7	3,9
Gold Mining	34,7	41,1	51,1	43,3	29,9	27,7
Other Mining (Coal, diamonds & other)	16,1	15,4	15,3	20,3	24,2	28,9
Manufacturing	39,6	35,1	27,8	33,5	43,1	39,5

Source: Calculated from IDC (1995) current price database

Table 3: Average annual export growth rates in constant US$ (%)

	1972-75	1975-80	1972-80	1980-85	1985-90	1990-93	1985-93
Agriculture	5,1	6,4	5,9	-22,7	4,1	12,3	7,1
Gold Mining	16,3	19,5	18,3	-13,9	-2,2	-2,3	-2,3
Other Mining (Coal, diamonds & other)	8,3	14,3	12,0	-5,8	9,1	6,4	8,0
Total Manufacturing	5,6	9,2	7,8	-7,7	10,8	-2,6	5,6
Total Exports excluding Services	9,9	14,4	12,7	-11,0	5,3	0,3	3,4

Source: Calculated from IDC (1995) current price database

In this context of massive growth of total exports, it is striking, and significant, that manufactured exports grew no faster, indeed slightly slower, in 1972-80 than in 1960-70. This is especially noteworthy given that exports of natural resource-based manufactures, which even in 1972, before the commodity price upswing, contributed 26.4 per cent of manufactured exports (Table 4), increased at 15.9 per cent per annum (Table 5). By 1980 these sectors accounted for no less than 46.9 per cent of manufactured exports.

Table 4: Shares in manufacturing exports (%)

ISIC	SECTOR	1972	1975	1980	1985	1990	1993
351-354	Chemical products	11.7	14.1	19.7	18.8	16.3	14.7
371	Iron & steel basic industries	9.2	11.6	17.5	21.2	24.5	23.0
372	Non-Ferrous metal basic industries	2.8	2.2	7.4	11.3	8.6	8.4
341	Paper & paper products	2.7	1.9	2.4	4.2	4.4	6.5
	Sub-total: natural resource-based	**26.4**	**29.7**	**46.9**	**55.5**	**53.7**	**52.5**
381	Fabricated metal products	3.9	3.6	2.7	2.1	3.5	4.1
382	Machinery	7.4	5.3	4.5	4.2	5.7	5.8
383	Electrical machinery	2.4	1.7	1.5	1.5	2.3	2.6
384	Motor vehicles & parts	2.0	2.0	1.7	2.2	4.3	7.3
385	Other transport equipment	2.5	2.1	1.6	1.2	1.7	2.8
	Sub-total: Metal Products Group	**18.2**	**14.7**	**12.1**	**11.1**	**17.5**	**22.7**
	Total Manufacturing	**100**	**100**	**100**	**100**	**100**	**100**

Source: Calculated from IDC (1995) current price database

Table 5: **Average annual growth rates of natural resource-based and downstream manufactured exports in constant 1990 US$ (%)**

ISIC	SECTOR	1972-75	1975-80	1972-80	1980-85	1985-90	1990-93	1985-93
351-4	Chemical products	12.2	16.8	15.0	-8.5	7.7	-6.0	2.4
371	Iron & steel basic industries	13.7	18.7	16.8	-4.0	14.0	-4.7	6.6
372	Non-Ferrous metal basic industries	-2.2	39.1	21.9	0.6	4.8	-3.4	1.6
341	Paper & paper products	-5.6	13.9	6.2	3.6	11.7	11.6	11.6
	Sub-total: natural resource-based	**9.8**	**19.6**	**15.9**	**-4.5**	**10.1**	**-3.3**	**4.8**
381	Fabricated metal products	2.7	3.1	2.9	-12.7	22.8	3.1	15.0
382	Machinery	-5.7	5.8	1.3	-9.1	17.9	-1.6	10.1
383	Electrical machinery	-6.5	6.9	1.7	-8.3	21.0	2.2	13.6
384	Motor vehicles & parts	5.0	6.6	6.0	-3.6	27.3	16.2	23.0
385	Other transport equipment	0.7	3.0	2.2	-12.1	18.4	14.2	16.8
	Sub-total: Metal Products Group	**-1.8**	**5.0**	**2.4**	**-9.2**	**21.3**	**6.3**	**15.5**
	Total Manufacturing	**5.6**	**9.2**	**7.8**	**-7.7**	**10.8**	**-2.6**	**5.6**

Source: Calculated from IDC (1995) current price database

As the above clearly implies, the exports of manufacturing sectors other than those in the natural resource-based category grew very slowly. In particular, the export growth rate of the downstream, metal products group of sectors was only 2.4 per cent a year in 1972-80 (Table 5), compared to an estimated 8.0 per cent for these sectors in 1960-70. Their share in total manufactured exports (which had been strongly on the increase before 1956 and held steady in the 1960s) fell from about 18.2 per cent in 1972 to 12.1 per cent in 1980.

## 4.2   Relative prices and the competitiveness of manufactured exports

The variations in the rate of growth and in the sectoral pattern of South Africa's trade described above, seem to be largely explicable in terms of changes in relative prices.

As is well known, the major relative price change, which normally accompanies a natural resource boom in a natural resource abundant country, is an appreciation in the real exchange

rate. This represents a deterioration in the price-competitiveness of domestic relative to foreign producers in international trade.

The most commonly used measure of such changes in price competitiveness is the trade-weighted real effective exchange rate (REER), movements in which are shown in Figure 5. In the case of South Africa, an increase in the REER represents a real appreciation of the Rand, and signifies a loss of competitiveness.[6] As is generally the case in a natural resource abundant economy experiencing a significant commodity price boom , there was a substantial increase in South Africa's REER in the 1970s. Relative to its level in 1970-72, the REER was 9.4 per cent higher in 1974-78, 24.8 per cent higher in 1979-81 and 28.2 per cent higher in 1982-83. In terms of this standard indicator thus, there was a substantial deterioration in the price competitiveness of South African producers, including producers of both exports and import-competing goods, between 1970-72 and 1982-83.

Figure 5: Real exchange rates 1972=100
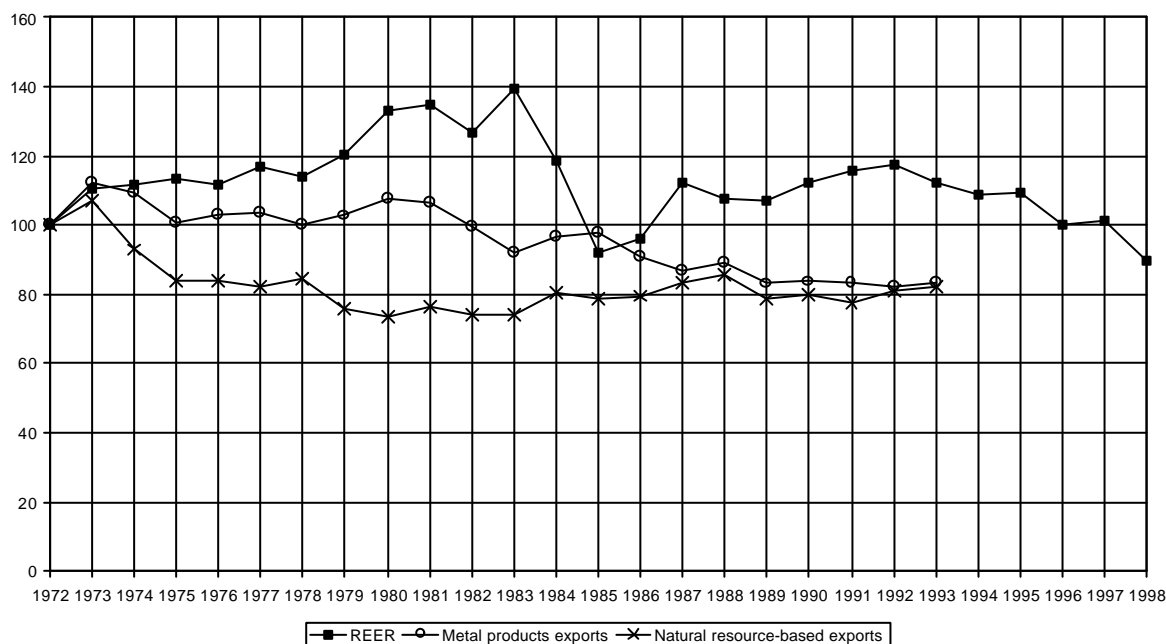
The REER, however, is an unsatisfactory indicator of competitiveness, for various reasons. In the case of exports, which are the particular focus of our attention, exporters of agricultural products and minerals were clearly insulated from any adverse effects of the increase in the REER on their competitiveness by rising world prices.[7] The REER, thus, is not a good indicator of changes in competitiveness for such primary commodity exports. Furthermore,

as we have seen, a large proportion of South Africa's manufactured exports consists of natural resource-based products like steel, non-ferrous basic metals, basic industrial chemicals, and pulp and paper, whose prices are also subject to fluctuations in the commodity price cycle. For this reason alone, the REER is a poor indicator of changes in competitiveness, even for manufactured exports, in the aggregate.

In an attempt to overcome this problem, and so to obtain a better indicator of the effect of the commodity price boom of the 1970s on the competitiveness of manufactured exports, two separate measures of the real exchange rate facing exporters of manufactures have been calculated, one for natural resource-based sectors, and another for the more downstream, non-commodity sectors in the metal products group of industries. These real exchange rates are defined as the ratio of the domestic manufacturing component of the South African PPI to the trade weighted export unit values of the sectors in the natural resource-based and metal products categories respectively.[8] They are therefore estimates of the ratio of the price of non-tradables to the price of tradables, and thus of the real exchange rate facing exporters, in each of these categories of manufacturing industries.

The real exchange rate for exporters in the metal products group of industries, after rising sharply in 1973, falls through to 1975, but thereafter shows a tendency to increase to levels higher in 1980-81 than in 1972. It is noteworthy too that, from 1975-82, there is an almost invariable tendency for the real exchange rate of this group and the REER to rise and fall in unison; but the REER suggests a much greater real appreciation than the real exchange rate applicable specifically to exporters in the metal products category. There is evidently a general tendency for the REER to overstate significantly in the short term the adverse impact of a natural resource boom on the competitiveness of the non-commodity exports of a natural resource abundant economy (Warr, 1986:293-304). The REER thus is not a good indicator of variations in competitiveness even for non-commodity exports, as is evident in Figure 5. There was nevertheless a noticeable tendency for the metal products group of sectors to lose competitiveness during the 1970s, though to a lesser extent than suggested by the increase in the REER.

By contrast, the real exchange rate of South Africa's natural resource-based manufactured exports falls sharply during the initial burst of commodity price increases, then levels off, but declines further during the next strong commodity price upswing of 1979-80. This is hardly

surprising and is only to be expected, given that rising world prices of natural resource-based manufactured products increase the denominator in the formula for calculating the real exchange rate for such products.

There was, thus, a substantial decline in the competitiveness of the more downstream industries, relative to the natural resource-based manufacturing sectors, between 1972 and 1981. What is particularly noteworthy, and perhaps significant, is the relationship of the year-on-year movements in the real exchange rates of the downstream and natural resource-based sectors to one another. From 1975 right through to 1981, movements in the respective real exchange rates of these two categories invariably bear an adverse relationship to one another. When the competitiveness of natural resource-based manufactured exports improves (worsens), the competitiveness of non-commodity manufactured exports worsens (improves).

Considered together, these observations on the most striking features of Figure 5 suggest that the variations in the real exchange rates depicted contributed significantly both to the slowdown in export growth of downstream manufactured exports in the 1970s, compared to the 1960s, and to the substantial decline in the growth rate of such exports relative to the exports of natural resource-based manufactures. In particular, the inverse relationship between movements in the respective real exchange rates of these categories of exporting sectors, noted above, seems to suggest strongly that, to some extent at least, the absolute and relative decline in the export growth rate of the downstream manufacturing sectors was caused by the effects of higher world commodity prices (including the prices of commodity-type manufactures) on the real exchange rates applicable to exporters of downstream manufactures.

As suggested earlier, the natural resource boom of the 1970s put paid to the possibility, which began to emerge in the late 1960s, of a decisive shift from import substituting to export-oriented industrialisation. The effect of the rise in commodity prices, especially the price of gold, was to render this both unnecessary and, because of its impact on the real exchange rate for exports of non-commodity manufactures, unsustainable.[9]

4.3   1983-97: The onset of economic crisis and the shift to export-oriented industrialisation

The exports of all the main sectors of the economy declined drastically in 1980-85 (Table 3). The Rand began to depreciate in late 1983, and fell precipitously from mid-1984 (Figure 5), culminating in the debt crisis of August 1985, and the rescheduling of foreign debt. As in many other countries, which had been subjected to such debt shocks in the early 1980s, the immediate effect was a sharp reduction in gross domestic expenditure, particularly investment, which declined by 20 per cent between 1984 and 1986. The most urgent requirement for recovery was accelerated growth of exports including, especially, manufactured exports, to compensate for the decline of gold. The effect of these events was an abrupt, involuntary shift to export-oriented industrialisation (EOI), in conditions of economic crisis.

A more deliberate, voluntary liberalisation had in fact begun before the debt crisis, involving a substantial reduction in quantitative restrictions (QRs) in 1983-85. The real depreciation of the Rand in this period, together with domestic recession, however, were the decisive factors in the shift towards a system of incentives more neutral as between production for the domestic market and for export. Following the debt crisis, in 1985-90, QRs were relaxed further; systems of duty free imports for exports were introduced in the motor vehicles, textiles and clothing industries in 1989; and export subsidies in the form of the General Export Incentive Scheme were introduced in April 1990. By the early 1990s only tariff reductions had been neglected. Between 1990 and 1995, import surcharges, which had been imposed earlier in response to the foreign exchange crisis, were removed. Comprehensive tariff reductions began with the commencement of the Uruguay Round implementation period in January 1995.[10]

4.4   Adjustment, export performance and price-competitiveness

During the first five years of adjustment following the debt crisis, the substantial depreciation of the real exchange rate, depressed domestic economic conditions, and an improvement in the world economy, gave a strong stimulus to manufactured exports. Whereas gold exports continued to decline in 1985-90, manufactured exports, in constant US dollars, grew at 10.8

per cent, and 'other mining' exports at 9.1 per cent, giving an overall export growth rate of 5.3 per cent (Table 3).

The sectoral pattern of the growth of manufactured exports, in 1985-90, is very different from the 1970s. Whereas the export growth rate of the natural resource-based manufacturing sectors together was 10.1 per cent per year in 1985-90, compared to 15.9 per cent in 1972-80, the exports of non-commodity manufactures, represented by the metal products group of industries, increased at 21.4 per cent a year, compared to 2.4 per cent in 1972-80 (Table 5). The much faster growth of non-commodity compared to natural resource-based manufactured exports in 1985-90, is particularly remarkable since this period included an upswing in the commodity price cycle from about mid-1986 to late 1988 (Figure 4)[11].

The effect of these differences in growth rates, was that the share in manufactured exports of the downstream, metal products sectors increased from 11.1 per cent in 1985 to 17.5 per cent in 1990, that is, close to the level of about 18 per cent which prevailed in 1972 (Table 4) (and indeed as far back as 1956/7), before the aberration from long term trends produced by the natural resource boom of the 1970s.

As shown in Figure 5, the real exchange rate applicable to exporters in the metal products group of industries declined substantially, and virtually without interruption, between 1985 and 1990, whereas the real exchange rate for exporters of natural resource-based products, having risen quite significantly in 1983-85, was at about the same level in 1990 as in 1985.[12] These trends in relative prices probably account to a significant extent for the much faster export growth of the downstream, metal products sectors relative to the natural resource-based sectors, in 1985-90.

The period from 1990 to 1993 was one of slow growth in the world economy, and a downswing in the commodity price cycle. Rather than increasing, the index of industrial country imports showed a slight decline (Tsikata, 1998:15, Table 1.2). Unsurprisingly, therefore, there was virtually zero growth in South Africa's total exports in this period, and manufactured exports fell at 2.6 per cent per annum (Table 3). However, this was due mainly to the decline in the exports of natural resource-based manufacturing sectors, excepting pulp and paper, which continued to grow strongly. Significantly, apart from pulp and paper, the only other three-digit SIC manufacturing sectors to achieve positive growth were four of the

five sectors comprising the metal products group of industries, two of which had export growth rates of 14.2 per cent and 16.2 percent respectively (Table A1). Collectively, the export growth rate of this group of industries, 6.3 per cent per annum, though much lower than in 1985-90, was outstandingly good in the context of generalised export decline (Table 5). Their share of manufactured exports, thus, increased from 17.5 per cent in 1990 to 22.7 per cent in 1993 (Table 4).[13]

In the period 1985-93 as a whole, thus, there was significant diversification of South Africa's manufactured exports, towards more downstream sectors. Data for South Africa alone, such as those used above, are not available for the years since 1993. Data on the manufactured exports of the Southern African Customs Union (SACU) as a whole (that is, for South Africa, Botswana, Lesotho, Namibia and Swaziland together), however, suggest that the trends in the sectoral pattern of manufactured exports described above continued through to 1997.[14]

As in the case of South Africa alone (Table 4), the SACU data (Table 6) show a decline in the share of the natural resource-based sectors in manufactured exports, and an increase in the share of the metal products group of industries, in 1990-93. As also indicated for South Africa alone (Table 5), SACU's natural resource-based exports in constant US dollars declined in absolute terms (at 1.3 per cent per annum), while the exports of the metal products group of industries increased strongly (at 14.2 per cent a year), giving a growth rate for manufactured exports as a whole of 2.3 per cent (Table 7).

Table 6: Shares in Manufacturing Exports of SACU (%)

Sector	1990	1991	1992	1993	1994	1995	1996	1997
Paper and paper products	6.2	5.4	5.8	5.9	7.1	8.9	5.3	4.7
Basic iron and steel products	29.3	25.3	24.8	24.2	23.8	21.0	19.6	18.2
Non-ferrous metal basic products	14.3	12.5	13.1	10.7	7.3	6.9	9.6	10.0
Chemicals	10.7	11.8	14.6	13.4	15.2	19.8	21.6	20.3
Sub-total: natural resource-based	60.4	55.0	58.2	54.2	53.4	56.6	56.2	53.1
Metal products, excluding machinery	5.0	4.6	3.5	3.8	4.8	5.7	5.8	5.4
Machinery and equipment, exc electrical	3.2	3.7	4.5	5.3	5.4	7.1	6.6	7.7
Electrical machinery	1.6	1.4	1.7	2.3	2.2	2.5	2.5	2.6
Motor vehicles, parts and accessories	2.6	3.6	5.4	5.9	4.8	4.3	4.4	5.2
Transport equipment, exc motor vehicles, parts and accessories	1.3	0.6	1.5	1.6	2.4	0.7	0.9	2.5
Sub-total: metal products group	13.6	13.9	16.6	18.9	19.5	20.4	20.1	23.5
Total manufacturing	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Calculated from Industrial Development Corporation current price data.

Table 7: **Average annual growth rates of manufactured exports of SACU, constant 1990 US dollars (%)**

Sector	1990-93	1993-95	1993-97	1990-97
Paper and paper products	0.3	49.4	6.5	3.8
Basic iron and steel products	-3.9	12.9	4.6	0.9
Non-ferrous metal basic products	-7.1	-2.8	10.5	2.6
Chemicals	10.4	46.8	24.5	18.3
Sub-total: natural resource-based	**-1.3**	**23.8**	**11.8**	**6.0**
Metal products, excluding machinery	-6.6	47.2	22.8	9.2
Machinery and equipment, excluding electrical	21.7	40.4	23.5	22.7
Electrical machinery	16.8	25.9	16.0	16.3
Motor vehicles, parts and accessories	34.4	3.8	9.2	19.3
Transport equipment, excluding motor vehicles, parts and accessories	10.0	-17.4	25.6	18.6
Sub-total: metal products group	**14.2**	**25.6**	**18.7**	**16.7**
Total manufacturing	**2.3**	**21.1**	**12.4**	**8.0**

Source: Calculated from Industrial Development Corporation current price data.

After several years of stagnation, however, the industrial countries and their demands for imports grew rapidly in 1993-95, in the context of a commodity price upswing.[15] The average annual rate of growth of SACU's total manufactured exports increased sharply to 21.1 per cent in 1993-95, with a particularly marked increase in the case of natural resource-based manufactures to 23.8 per cent. Nevertheless, despite the commodity price upswing, and a return to positive GDP growth in South Africa, the export growth rate of the downstream, metal product sectors (25.6 per cent per year) continued to exceed that of the natural resource-based sectors (Table 7). Even in 1995-97, as the commodity price upswing petered out, and the average annual rates of growth of total manufactured exports, and of the natural resource-based sectors, fell sharply (to 4.3 per cent and 1.1 per cent respectively), the exports of the downstream sectors grew at a lower, but still respectable, rate of 12.2 per cent per annum.

In the adjustment period, 1985-97 thus, there was a return to the tendency evident in earlier decades, but interrupted by the natural resource boom of the 1970s, for manufactured exports to diversify increasingly towards more downstream manufacturing sectors. Exports of the downstream manufacturing sectors grew faster than natural resource-based manufactured exports in every sub-period throughout 1985-97, irrespective of the phase of the commodity price cycle. As this and trends in real exchange rates since 1985, shown in Figure 5, suggest, there has since 1985 been a substantial, persistent increase in the competitiveness of downstream manufactured exports. Diversification towards more downstream exports, is now apparently beginning to include exports of high technology products (Hodge, 1997). Despite some claims to the contrary (Tsikata, 1998:17), it is questionable whether import liberalisation through tariff cuts has been a significant cause of the increased competitiveness of manufactured exports.

4.5   Productivity, unit labour costs and trade performance

It has been suggested above that variations in the rate of growth, and in the sectoral pattern of South Africa's manufactured exports are largely explicable in terms of two variables conventionally regarded as key determinants of trade performance: real exchange rates, as indicators of price competitiveness, and world demand. Other possibly relevant determinants of price competitiveness, and hence trade performance, which must be considered, however, are productivity growth and movements in unit labour costs.

Figure 6 shows real average earnings per worker, labour productivity (defined as value-added per worker), and, from these two measures, unit labour costs, for manufacturing industry in the aggregate. Unit labour costs decline in the 1970s, particularly from 1976 to 1980, and, as we have seen, manufactured exports in the aggregate grew strongly in the 1970s, especially in 1975-80. Similarly, in the 1980s, the levelling off and then decline of unit labour costs, from 1983 to 1989, was also accompanied by rapid growth of manufactured exports. In neither case, however, does it seem plausible to attribute the rapid growth of manufactured exports to declining unit labour costs.

Figure 6: Labour productivity, real wages and unit labour costs (1972=100)
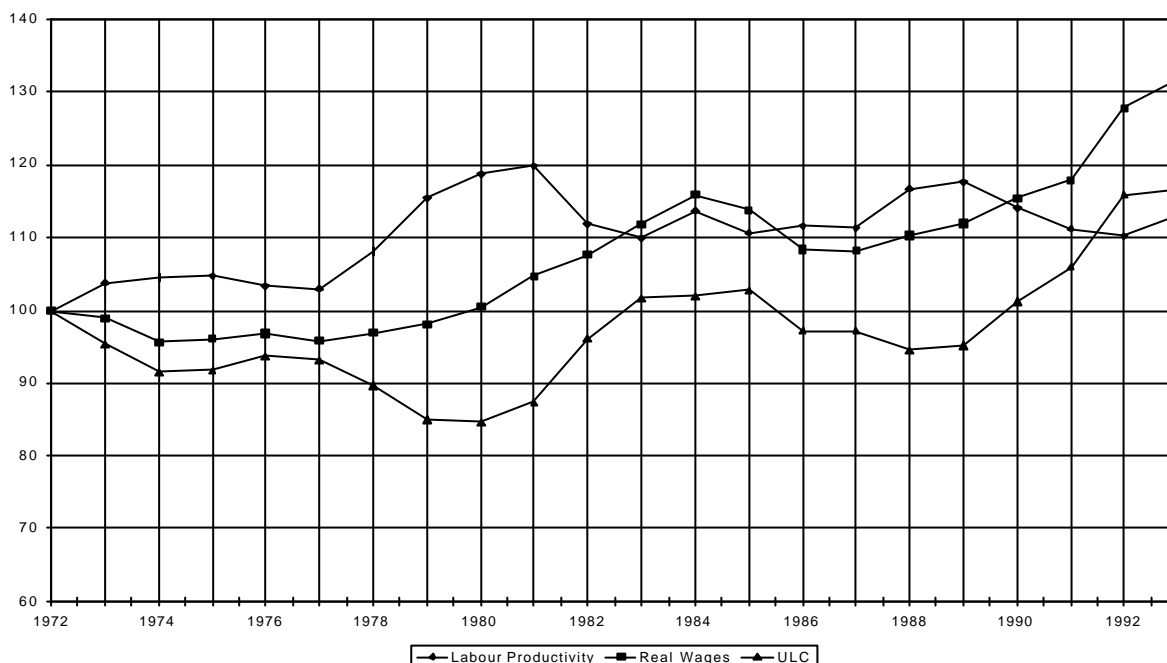
In the 1970s it was the rapid export growth of natural resource-based manufactures, which produced the rapid growth of manufactured exports in the aggregate. This clearly was due predominantly to the commodity price boom, besides which the effect of any decrease in unit labour costs would have been completely insignificant. Non-commodity manufactures might perhaps be expected to have been more sensitive to the apparent tendency for unit labour costs to decline, but as we have seen, exports of non-commodity manufacturers grew very slowly in this period, both relative to the 1960s, and to natural resource based products. It seems more likely that the increase in productivity, which produced the decline in unit labour costs, was due to the increase in capacity utilisation, which was a feature of the latter half of the 1970s, and so was a consequence rather than a cause of the export boom.

The movement in unit labour costs in the 1980s, described above, resulted from the combination of zero productivity growth and a tendency for real wage rates to fall. These in turn were probably mainly due to the decline in capacity utilisation and in the price of non-tradable goods and services (of which labour services are an important case), which characterised the period.[16] Thus, rather than the decline in unit labour costs and export growth being causally related directly, both were probably caused by a third set of forces (namely, the external shocks described earlier), which reduced the level of capacity utilisation and the real exchange rate.

Furthermore, for the period 1985-93, regressions were run across the twenty five three-digit SIC sectors, of labour productivity growth and the rate of increase in unit labour costs respectively, on export growth rates and changes in sectoral contributions to the trade balance (CTBs). In each case it was found that the productivity and unit labour cost variables were statistically insignificant, so that there was no apparent explanatory relationship between them and either export growth or change in CTB.[17]

In the case of South Africa, there are a number of reasons why productivity growth and unit labour costs are not likely to be significant determinants of trade performance across manufacturing sub-sectors. The bulk of manufactured exports are natural resource-based, capital-intensive products, which are relatively insensitive to variations in productivity and unit labour costs, and depend mainly on fluctuations in world commodity prices.[18] Non-commodity manufactured exports are mainly of only intermediate capital-intensity, and relatively high-tech. They probably depend to a relatively large extent on product differentiation and innovation. Unlike more labour abundant developing countries, South Africa has never had a comparative advantage in very labour intensive sectors such as textiles, clothing and footwear, in which labour productivity and unit labour costs are more likely to be important determinants of trade performance.

4.6   Conclusion

The discussion above, in this section, suggests various ways in which the sectoral mix of South Africa's trade specialisation has affected the country's macroeconomic performance. These macroeconomic effects, in turn, have had significant sectoral, or micro-level, consequences. Indeed, there is a constant interaction between micro-level and macroeconomic forces, which to a large extent occur concurrently.

As the discussion suggests, one way in which South Africa's trade pattern affects its macroeconomic performance is through the Dutch Disease effects of a natural resource boom. The natural resource boom of 1972-81 produced a massive foreign exchange and fiscal windfall and high levels of investment. As is well known, however, the essence of the Dutch Disease effects is that 'there are some adversely affected sectors and some relative price changes which accompany the boom' (Corden, 1975:324). One of the expected sectoral

effects of a temporary natural resource boom, in the case of a minerals-rich economy like South Africa's, is a reduction in the rate of growth of non-mining GDP (Gelb, 1986:79-80).

Whether strictly attributable to such expected Dutch Disease effects or not, it is noteworthy that, despite the massive foreign exchange and fiscal windfalls, South Africa's non-mining GDP growth rate fell from 5.9 per cent in 1967-72 to 4.4 per cent in 1972-81; and the growth rate of GDP as a whole fell from 4.8 per cent to 3.7 per cent. This was significantly larger than the proportionate decline in the GDP growth rate of middle income, oil-importing countries in general, from 5.8 to 5.1 per cent (Gelb, 1986: 78-80). Though the connection is not conclusively established, this is consistent with the expected effects of the Dutch Disease.[19] The other, closely related, feature of the period at a sectoral level, the slow growth of non-commodity manufactured exports, noted above, was clearly due to the change in relative prices, produced by the natural resource boom.

As we have seen, the collapse of the boom brought a substantial absolute decline in exports, and a precipitous real depreciation of the rand, which culminated in the debt crisis of August 1985, and the rescheduling of foreign debt. Though many other developing countries experienced similar foreign exchange and debt crises in the first half of the 1980s, in the case of South Africa, these crises, and the consequent fall of the rand, were intimately related to the sectoral pattern of its trade, and the sharp decline in commodity prices, including especially the price of gold.[20] As noted above, these external shocks plunged the economy into deep recession, and created an urgent need for accelerated export growth.

South Africa, however, has evidently had great difficulty sustaining rapid export growth. As the discussion above indicates, this has largely been due to the preponderance of primary commodities and natural resource-based manufactures in South Africa's exports, which have either been declining (as in the case of gold) or growing slowly.

As Table 8 shows, since 1950-70 there has been a progressive tendency for the rate of growth of total exports to decline. With the exception of 1980-85, when exports collapsed, the export growth rate of 1.3 per cent per annum in 1990-98 was lower than in any other sub-period before 1990 shown in Table 8, including 1965-70, when gold exports first began to fall. A major, but not the only part of the problem in 1990-98, was the decline in gold exports at 5.7 per cent per annum.

Table 8: **Average annual growth rates of South Africa's exports and imports in constant 1990 US dollars, 1950-98 (%)**

	Merchandise exports	Net gold exports	Total exports	Merchandise imports
1950-55	9.4	2.9	6.9	8.1
1955-60	2.9	6.2	4.0	1.5
1960-65	2.8	7.5	4.6	9.5
1965-70	3.8	-1.1	1.8	4.7
1970-75	9.6	13.1	11.0	9.6
1975-80	9.9	19.8	14.3	5.4
1980-85	-8.9	-14.2	-11.5	-13.1
1985-90	10.6	-2.1	5.7	7.4
1990-95	5.0	-3.8	2.7	8.6
1990-93	0.8	-1.5	0.1	2.2
1993-95	11.7	-7.2	6.7	18.8
1995-98	1.1	-8.9	-0.9	-0.1
1950-70	4.7	3.8	4.3	5.9
1970-98	4.5	0.6	3.5	2.8
1985-98	6.2	-4.4	3.0	6.0
1990-98	3.5	-5.7	1.3	5.2

Note: Excluding non-factor services

Source: SARB Quarterly Bulletin (various).

The rate of growth of manufactured exports in particular, has also been impeded by a preponderance of natural resource-based products and their relatively poor export performance. Despite the high average annual export growth rate of the downstream metal products sectors (15.5 per cent), because of the slow export growth of natural resource-based sectors (4.8 per cent), manufactured exports in the aggregate grew at only 5.6 per cent a year in 1985-93 (Table 5).[21] Similarly, in 1990-97, as noted earlier, the average annual percentage export growth rates of the metal products and natural resource-based sectors, and of manufactures in the aggregate, were 16.7, 6.0, and 8.0 respectively.[22]

Contrary to widely held views, thus, the growth of South Africa's exports has not been limited primarily by the lack of an 'export culture', or the 'anti-export bias' created by protection, or by an inherently uncompetitive manufacturing sector. Since the mid-1980s the price-competitiveness of non-commodity manufactures, as indicated by real exchange rates, has increased, and the export growth rate of such products has been high both relative to the past and, especially, relative to natural resource-based manufactures. This may augur well

for the future, but at present natural resource-based products still account for over 50 per cent of South Africa's manufactured exports, and these are exercising a significant braking effect on the growth of manufactured exports in the aggregate.

The case of South Africa thus, provides a striking illustration of the fact that the sectoral mix of trade specialisation, through its effects on export expansion, can have a significant impact on a country's current account deficit at any particular growth rate, and hence on its macro-competitiveness.

It also seems to exemplify Chenery and Syrquin's (1995:90) finding that primary orientation of exports makes for slow export growth and impedes the transformation of production; and to suggest one possible reason for Sachs and Warner's (1995:1) finding that natural resource abundant economies, reflected in a 'high ratio of natural resource exports to GDP in 1971, tended to have low growth rates…in 1971-89.' Orientation to natural resource exports clearly does not necessarily make for slow export growth. Numerous countries with such an orientation, including South Africa, have achieved relatively rapid export and GDP growth over extended periods of time. Eventually, however, in world market conditions such as those in the early 1980s, it will give rise to difficulty in sustaining rapid export growth, and hence in avoiding a deterioration in macro-competitiveness.

It is arguable that what has happened, in essence, is that the weighted average income elasticity of demand for South Africa's exports has declined,[23] and that, in accordance with the thesis of Thirlwall (1979), this has contributed to a deterioration in the ability of the South African economy to grow without running into balance of payments difficulties. Furthermore, for reasons also related to differences in income elasticities of demand, Spraos (1991) argues that success in the expansion of visible exports, in adjusting to the external shocks of the early 1980s, depended crucially on the division between commodities and manufactures. Individual countries and regions heavily dependent on natural resource exports tended to experience greater difficulty in adjusting. The sectoral pattern of South Africa's exports, thus, was probably a significant obstacle to an improvement in macro-competitiveness.

So far as trade performance is concerned, the discussion above emphasises the inability to sustain export growth as a reason for the evident deterioration in the macro-competitiveness

of the South African economy. However, developments affecting the import side of the trade account, which can only be touched on briefly here, may also have contributed to this.

One striking difference between earlier and more recent decades is a significant decline in the rate of import substitution (Bell and Farrell, 1997:595-599).[24] In earlier decades, the effect of GDP growth on import growth was contained in some measure by rapid import replacement.[25] Since the early 1980s, it seems that there has rather been a tendency towards import de-substitution, as indicated by increases in import penetration ratios.[26] Trade liberalisation may well have contributed to this in recent years.[27]

Another factor which might have increased the income elasticity of demand for imports, and so impacted adversely on the macro-competitiveness of the South African economy, is that the output/capital (Y/K) ratio for the economy as a whole was more than one third higher in 1960-65 than in 1995-97. Given the complementarity between domestic resources and imported capital goods in gross domestic fixed investment (GDFI),[28] this seems to imply that the increase in capital goods imports as a proportion of GDP required to support a one percentage point increase in potential output, was about one third smaller in the 1960s than it is today. In terms of the ability to increase capacity output, it appears that a GDFI/GDP ratio of about 30 per cent today would be equivalent to the ratio of 22.8 per cent which prevailed in 1964 (Figure 3). A GDFI/GDF ratio of 30 per cent however, would involve a substantial increase in imports, which would impact adversely on the current account and render unattainable potential output growth rates such as those of the mid-1960s.

5.   Finance, Trade and Competitiveness

5.1   Introduction

This section considers whether financial factors have had an effect on the competitiveness of the South African economy, in the sense of its ability to grow without running into balance of payments difficulties.

In terms of some of the standard macroeconomic measures, South Africa evidently has a well-developed financial system, compared to other middle-income countries, and indeed even compared to a number of advanced industrial countries. (Rajan and Zingales, 1998:570-

571, Table 2). One reason for this may be South Africa's historical connection with Great Britain and its effect on the country's financial and legal system, which may have made, *inter alia,* for a sophisticated accounting system. (See La Porta et al., 1996, as reported by Rajan and Zingales 1998:576). Whether due to this or not, it seems that South Africa's legal system does facilitate the extension of bank credit to private borrowers. For instance, a World Bank study (Levy 1996:12) notes: 'Relative to other developing countries, South Africa's banking system is unusually flexible as to what it accepts as collateral', and states that this 'reflects the high level of development of South Africa's legal institutions'.

South Africa's relatively well-developed financial system may also be related to the importance of mining. By contrast with countries which have developed initially mainly on the basis of agriculture, investment in mining, especially deep-level gold mining, necessitated the raising of capital for large-scale private sector projects. It is clear, for instance, that major developments in South Africa's money and capital markets in the 1950s, particularly the development of merchant banking, were directly related to investment in the newly opened Orange Free State goldfields (Fine and Rustomjee, 1996:154-156). It is noteworthy that in their comparison of Australia and Argentina, Duncan and Fogarty (1984:10) say of Australia: 'Gold --- provided the foundations for a sophisticated banking and financial system with close connections in London'.

As is well known, a number of studies, of which Levine and Zervos (1998) is a notable recent example, find a significant positive link between financial development and economic growth.   There are a number of arguments against attributing causality to financial development in such studies. However, such studies as well as Rajan and Zingales (1998), which makes use of an entirely different methodology, suggest that the relatively advanced stage of South Africa's financial development would have tended to be conducive to economic growth, and, at least, not to have impeded it. It would be surprising, therefore, to find that South Africa's financial system, as such, accounted for the evident deterioration in the competitiveness of the South African economy, as defined and described in Section 2 above.

We must nevertheless consider the effect that financial factors may have had on the competitiveness of the South African economy. Section 5.2 touches on the problem of isolating the effects of variations in the availability of credit in the economy as a whole, on

the aggregate level of investment. It considers, in particular, changes in the stability of the South African economy as one possibly significant influence on investment. Section 5.3, the main part of the discussion, tests for differences in the severity of financial constraints among firms and sectors categorised on various trade-related bases seemingly relevant to the competitiveness of the South African economy, through the estimation of an investment function, along the lines of Fazzari et al. (1998). Sub-section 5.4 considers, more briefly, the argument that the oligopolistic position of South Africa's conglomerates in the financial system has skewed the allocation of financial resources in an economically sub-optimal direction.

5.2   Investment, finance and economic instability

Investment is clearly an important source of economic growth, [29] and the sharp decline in the investment rate since the early 1980s may well be a significant cause of the deterioration in South Africa's growth performance, as it apparently has been in Latin America (Agosin, 1995:173). However, this raises the question of the determinants of the level of investment and of its allocation amongst sectors.

The availability of finance is one factor which might be expected to play a significant role in explaining variations in the level and sectoral pattern of investment, as is implied for instance, by the credit-rationing literature. By contrast with factors such as real exchange rates and unit labour costs, discussed in Section 4 above, access to credit may perhaps be seen as a non-price determinant of competitiveness.

However, isolating the effect of the availability of credit, as such, on investment at the aggregate level is no easy matter. Though we shall not present any data here to show this, the period 1972-81 was one of low (indeed negative) interest rates, and a general increase in the availability of credit, whereas the period from about 1983 was characterised by severely restrictive monetary and credit conditions. It would clearly be misleading, however, to regard the decline in investment levels in the 1980s, compared to the 1970s, as due to the change in the cost or availability of credit as such. The fundamental causes were real forces: the natural resource boom of the 1970s; and the ensuing external shocks of the early to mid-1980s. Investment in the 1980s, thus, declined basically because of foreign exchange scarcity, which reduced South Africa's capacity to import capital goods essential for domestic investment.

Similarly, the more recent positive shocks of renewed capital inflows from 1993-94, and the upswing in the commodity cycle which coincided with these, probably contributed to the noticeable increase in the investment rate in 1993-98 (Figure 3), largely by alleviating the foreign exchange constraint.[30] Other real forces at work in the 1990s in South Africa are import liberalisation and the dismantling of export incentives, which, as in Latin America (Agosin, 1995: 159), may have discouraged investment in tradable goods, and in this way, and through their direct effects on the balance of trade, contributed to the evident deterioration in the macro-competitiveness of the South African economy.

As the above indicates, separating financial factors, in particular the availability of credit as such, from other possible determinants of the aggregate level of investment is exceedingly difficult.[31] However, one macroeconomic factor, which does seem to be separable, which is generally regarded as having a significant negative effect on the level of investment, and which in some respects may be seen as a financial factor, is economic instability.

On the grounds that macroeconomic instability is associated with instability in relative prices, the volatility of the real exchange rate is sometimes taken as a proxy for economic instability in general (see, for instance, Agosin, 1995: 168). In addition to its effect on investment in its role as a proxy for economic instability in general, exchange rate volatility may also have a direct effect on a country's foreign trade. Though the general empirical literature on the connection between exchange rate volatility and the volume of trade is apparently inconclusive, it may well be, as some contend, that there is a link between the volatility of the REER and trade.

Recently, the family of autoregressive conditional heteroschedastic (ARCH) models have been used to estimate the conditional variance as a proxy for exchange rate volatility. Based on this approach,[32] Figure 7 shows that 1980-86 was a period of relatively significant economic instability, whereas the 1970s and the nine years from early 1987 through to early 1996 were periods of relatively little instability.

Figure 7: Monthly conditional variance of the REER
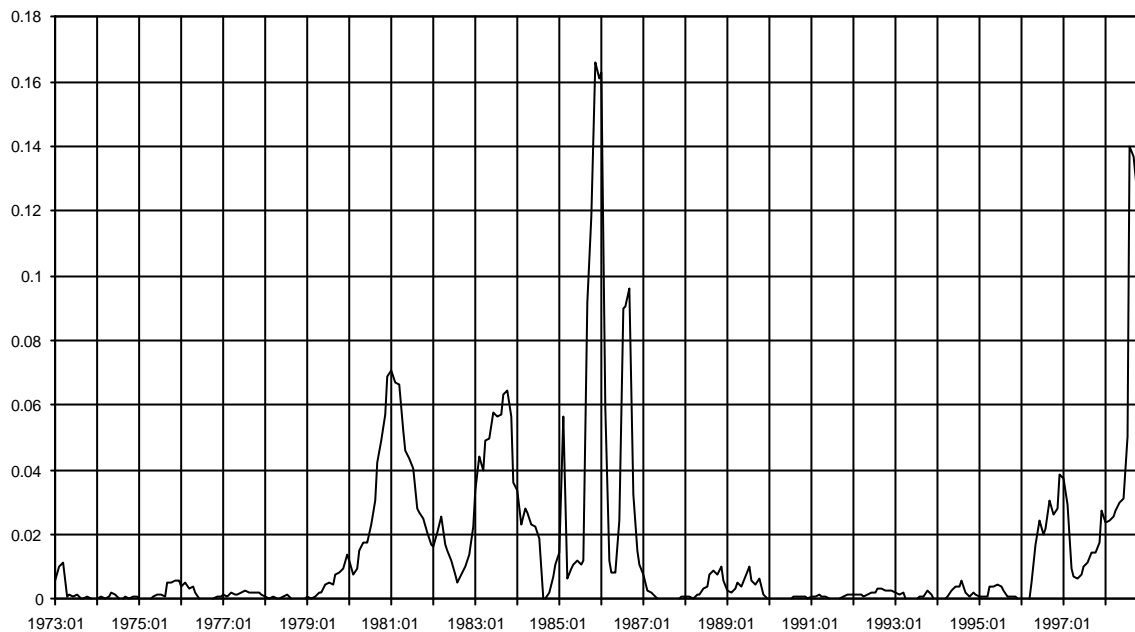
These variations in the volatility of the REER from one sub-period to another may well be found in a thorough econometric analysis to have affected the investment rate and trade in each sub-period. However, given the other powerful real forces mentioned above, the effect of economic instability on the investment rate is likely to have been relatively insignificant; and in the case of trade it is the level of the real exchange rates emphasised in section 4, rather than their short-term volatility which has doubtless been the predominant influence.

Nevertheless, one question which does arise, and which is of particular interest in the context of our consideration of the effect of financial factors, is whether South Africa's liberalisation of the capital account in March 1995 has contributed to the significant increase in the volatility of the exchange rate in recent years, evident in Figure 7.[33]

Clearly there has been an increase in the volatility of real exchange rates in emerging markets in general since the Mexican crisis of 1994/95, and the increase in the volatility of South Africa's REER therefore cannot be attributed simply to the liberalisation of its capital account. Though a link has not been established econometrically, it is quite possible that the liberalisation of the capital account, by increasing the mobility of capital, and the effect of capital flows on the balance of payments, has contributed to the increased exchange rate

volatility in recent years. This particular financial factor thus, may well have impacted in some measure on South Africa's economic performance since 1985.

5.3 Financial constraints and competitiveness

For the reasons stated above, isolation of the effects of availability of credit on the aggregate level of investment is problematical. It may nevertheless be possible to establish differences in the severity of financial constraints, which are applicable to different categories of firms or sectors, resulting from capital market imperfections. In keeping with the approach adopted by other studies in this volume, this involves the estimation of investment functions, along the lines set out in Fazzari et al. (1998).

The investment model of choice is rooted in the sales accelerator theory, where the firm's investment decision is determined primarily by changes in sales. In addition, cash flow and the level of debt are included in the model as variables, which capture financing constraints of the firm. The specification to be tested (Harris et al., 1994:38) is as follows:

$$I_{i,t}/K_{i,t-1} = \alpha_1 + \alpha_2(\Delta S_{i,t}/K_{i,t-1}) + \alpha_3(CF_{i,t}/K_{i,t-1}) + \alpha_4(D_{i,t}/K_{i,t-1}) + \varepsilon_{i,t} \qquad (1)$$

where I is investment, K is capital stock, S is sales, CF is cash flow, D is debt, ε is the error term, i is the firm subscript and t is the time subscript. The coefficient α_2 is expected to be positive. The coefficient α_3 captures the firm's ability to raise finance internally and, if significant and positive, indicates that the firm is credit constrained. The α_4 coefficient reflects the premium above the safe rate that must be paid as the debt-to-capital ratio increases and is expected to differ across firms and between periods.

The capital stock variable was estimated using the perpetual inventory method as described by Hall, Mairesse and Mulkay (1998):

$$K_t = (1-\delta)/K_{t-1} + I_t/P_t$$

where δ is the rate of depreciation ($\delta = 8\%$), P_t is the equipment goods price deflator, and the base year capital stock is proxied by net fixed assets of the firm. All the variables have been

deflated into constant 1995 rand. S, CF and D were deflated by sectoral production price indices, while P_t , the equipment goods deflator, is common to all sectors.

Financial data was provided by the Bureau for Financial Analysis (BFA), University of Pretoria, for companies listed on the Johannesburg Stock Exchange. Yearly data were obtained from this source for companies whose main business was apparently in manufacturing, for the period 1985-98, but was incomplete for a large number of firms. Therefore, in order to increase the number of observations and include a greater number of firms the sample period chosen was 1990-1997. Twenty-eight manufacturing firms were included in the sample.

A crucial step in the analysis is the categorisation of firms on an *a priori* basis, according to whether they would be expected to be subject to high or low information costs in the raising of external funds in the capital market. In the general literature, criteria commonly used in this process have been size of dividend payout, firm size, and the age of firms. In the context of the present study, however, we are concerned with categories relevant to the competitiveness of the South African economy as defined above. Clearly categories related to trade performance are crucial for this purpose. Furthermore, if the various parts of the paper are to be properly integrated, the discussion of finance must be related to the other major aspects of the study, trade and competitiveness.

Each firm in our sample has been categorised on each of three trade-related bases as follows:

(i) Trade orientation: export oriented and domestically oriented firms. Export oriented sectors were those whose percentage of production sold in world markets was above the sample median.[34]

(ii) The rate of growth of exports. This was based on export data for the Southern African Customs Union (SACU) for the period 1990-97. High export growth firms were those belonging to sectors with export growth rates above the median growth rate for sectors in the sample.

(iii) The change in the contribution to trade balance (CTB). Sectors with high rates of change in CTB were those with changes in CTB above the median for sectors in the sample, based on SACU export and import data for the period 1990-97.

The assumption made is that firms successful in international trade, in terms of one or another of these measures, will be in the low information cost category, and thus less subject to financial constraints. We leave aside the question whether a convincing case can be made for this assumption on *a priori* grounds.

We test for the significance of financial constraints in one category relative to the other, in each of the three cases listed above, in two different ways. Table 9 presents the results of the full sample regressions, which include dummy variables for export-orientation, high export growth, and change in CTB. The investment equation is estimated using dummy variables for both intercept and slope coefficients, which are attached to the cash flow and debt variables, in order to account for the differences in trade-related characteristics.

Table 9. Empirical Results of Investment Function, 1990-1997
All Firms with Dummy Variables

	Exporters	Export Growth	DCTB
Constant	-0.666	-0.157	-0.360
	(-10.138)	(-4.546)	(-29.439)
$\Delta S/K_{t-1}$	0.0272	0.071	0.017
	(2.642)	(5.834)	(2.010)
CF/K_{t-1}	0.560	0.185	0.233
	(8.926)	(3.846)	(15.727)
D/K_{t-1}	0.371	0.184	0.413
	(8.322)	(4.684)	(25.314)
AR(1)	0.527	0.372	0.618
	(14.322)	(9.909)	(30.162)
Dummy	0.356	-0.444	-0.125
	(5.198)	(-6.570)	(-0.757)
(CF/K_{t-1})*Dummy	-0.419	0.247	0.008
	(-5.998)	(3.629)	(0.375)
(D/K_{t-1})*Dummy	0.060	0.234	0.120
	(1.121)	(4.652)	(2.662)
Method	GLS	GLS	GLS
R^2	0.780	0.798	0.697
No. of obs.	196	196	196

Note: t-statistics in parenthesis. Dummy variables differ in each of the three regressions which include dummies for sectors that are export oriented, sectors with high growth in exports, sectors with high change in CTB. Classifications of the export growth and change in CTB dummies are based on SACU trade data for the period of 1990-97, while the export orientation dummy was based on data from the IDC from the period of 1985-93.

The first column in Table 9 shows that the dummy is positive, indicating that investment is affected positively by export-orientation. The cash flow slope dummy is negative and significant, indicating that export-oriented sectors are less financially constrained than domestically oriented sectors, as would perhaps be expected.

The second column shows that the export growth dummy is negative and significant, indicating that the level of investment is negatively impacted by high export growth. The cash flow dummy is positive and significant indicating that high export growth firms are more financially constrained than low export growth firms, contrary to our assumption.

The final column shows that the change in CTB dummy is negative but insignificant, suggesting that CTB performance has no significant effect on investment. The cash flow dummy is positive but is insignificant, indicating, in accordance with our assumption, that high CTB-change firms are less financially constrained than low CTB-change firms.

Equation (1) was also estimated using divided samples. The divided samples are based on the same classifications used for the dummy variables, that is, on export orientation, growth of exports and change in CTB. The results of these regressions, presented in Table 10, offer support for those found in the previous regressions presented above.

Table 10. Empirical Results of Investment Function, 1990-1997 Using Sectoral Classifications						
	Domestic	Exporting	High Export Growth	Low Export Growth	High CTB-Change	Low CTB-Change
Constant	-0.656	-0.381	-0.574	-0.160	-0.149	-0.401
	(7.764)	(-9.460)	(-8.216)	(-3.968)	(-2.028)	(-13.634)
$\Delta S/K_{t-1}$	0.029	0.021	0.043	0.112	0.189	-0.009
	(1.807)	(1.432)	(2.714)	(6.609)	(24.022)	(-0.420)
CF/K_{t-1}	0.545	0.146	0.393	0.200	0.154	0.258
	(7.020)	(3.123)	(7.032)	(3.989)	(2.462)	(6.016)
D/K_{t-1}	0.368	0.533	0.427	0.167	0.167	0.466
	(6.902)	(13.318)	(9.837)	(4.113)	(7.678)	(9.837)
AR(1)	0.509	0.665	0.371	0.418	0.052	0.695
	(7.837)	(15.555	(7.270)	(7.130)	(0.964)	(17.749)
Method	GLS	GLS	GLS	GLS	GLS	GLS
R^2	0.881	0.687	0.781	0.799	0.831	0.693
No. of obs.	49	147	77	119	98	98

As the first two columns in Table 10 show, for both the export-oriented and domestically oriented samples, the cash flow variable is positive and statistically significant. However, the

cash flow coefficient is larger for the domestic sectors, indicating that they are more financially constrained.

The third and fourth columns show that for both the high and low export growth samples, all the variables are positive and statistically significant. Therefore, both categories are financially constrained, but the cash flow coefficient is larger for the high export growth sectors, indicating that they are more financially constrained.

The fifth and sixth columns show that for the high CTB-change sample, all the explanatory variables are positive and statistically significant. For the low CTB-change sample, the sales variable is negative and insignificant while the cash flow and debt variables are positive and statistically significant. The results suggest that while both high and low CTB-change sectors are financially constrained, low CTB-change sectors are more financially constrained, as indicated by the larger cash flow coefficient.

What are the implications of these findings for the competitiveness of South African manufacturing? The finding on the effect of trade-orientation suggests that the financial system is at least not unfavourable to export-oriented firms, in accordance with what might be expected, and may thus have been conducive to export and GDP growth. In fact, however, as we have seen, high export growth firms were found to be more financially constrained than low export growth firms.

The difference between the results based on trade orientation, and those based on export growth rates, suggests that firms which exhibited rapid export growth in 1990-97 tended to be those which in 1985-93 were more oriented to production for the domestic market. There was in fact a negative correlation across sectors between the export/gross output ratio and the export growth rate of 0.4 in 1990-97. (The presence of such a tendency in 1985-90, and the reasons for it, are discussed in Bell, 1993:108-110). Thus, while rapid export growth in 1990-97 may on its own have been favourable for access to credit, this may have been outweighed by the relatively severe financial constraints associated with an initially low degree of export orientation.

The fact that the results on trade performance are mixed (with high export growth firms more financially constrained than low export growth firms; but high CTB-change firms less

financially constrained than low CTB-change firms), seems to limit our ability to draw inferences on the effects of capital market imperfections on trade performance, and hence on competitiveness, in general. Nevertheless, the question remains whether the findings on export growth mean that financial constraints have been an obstacle to yet faster export growth in the high export growth sectors, and hence to competitiveness, in both senses described above.

Despite the evident financial constraints, the high export growth sectors were, by definition, those that exhibited superior export performance. One reason for this is the obvious fact that the availability of finance is not the only, or, indeed, may not even be the most important, determinant of investment. Furthermore, in conditions of significant excess productive capacity, such as have prevailed for much of the period since 1985, significant investment is not necessary for sustained, rapid export expansion over an extended period of time.[35] The very fact that low export growth firms were less financially constrained than high export growth firms seems to suggest that financial constraints, due to capital market imperfections were a relatively unimportant determinant of export growth, and hence via this channel, of the competitiveness of the South African economy.

Furthermore, the performance of high export growth firms in terms of certain other indicators also creates uncertainty about the significance of the finding above that high export growth firms were relatively more severely financially constrained than low export growth firms. In general, it is not unusual for firms subject to more severe financial constraints, as indicated by the sensitivity of investment to the cash-flow variable, to out-perform in some respect or other, less severely financially constrained firms. For instance, Fazzari et al (1988:159) find that though their 'class 1' (low dividend payout) firms were the most financially constrained, they 'experienced much more rapid growth in fixed capital stock than the mature firms in class 3'. Similarly, we find for South Africa that though domestically-oriented and high export growth firms were more financially constrained, they exhibited faster growth of both fixed assets and net assets in 1990-97 than export-oriented and low export growth firms. An apparently more severe financial constraint thus did not prevent high export growth firms out-performing low export growth firms in these terms too.

Also contributing to uncertainty about the significance of the result on the export growth variable reported above, is the finding of Fazzari et al. (1988:161) that their financially

constrained 'class 1 and 2' (low and medium dividend payout) firms have higher debt-to-capital ratios than their 'class 3' firms. This finding they say is 'consistent with a financing hierarchy' and supports 'the idea that constrained firms borrow up to their debt capacity'. Apparently thus, Fazzari et al. expect that relatively more financially constrained firms would have higher debt-capacity ratios. This seems to hold for our financially constrained domestically-oriented and low CTB-change firms, but not for our financially constrained high export growth firms. Assuming that the reasoning of Fazzari et al. is sound, and that a relatively low debt-to-capital ratio is indicative of a relatively less severe financial constraint, our finding that high export growth firms had a smaller debt-to-capital ratio than low export growth firms, seems to suggest that it is not clear after all that high export growth firms were relatively more constrained financially.

A further implication of the above, it might be noted, is that none of the variables discussed in the preceding two paragraphs seems to provide a reliable indicator for deciding *a priori* which category of firms, classified on the basis of trade orientation, export growth or change in CTB, will be more financially constrained.

The argument of Rajan and Zingales (1988) referred to earlier, may perhaps be interpreted as implying that sectors with higher dependence on external finance, would be subject to more severe financial constraints.[36] However, using Rajan and Zingales' (1998:566-7, Table 1) estimated external dependence ratios (EDRs) for the sectors included in our sample, and once again using equation (1), we find for both our full and split samples that high EDR sectors are less credit constrained than high EDR sectors.

As noted earlier, though, Rajan and Zingales' argument implies that high EDR sectors will tend to grow faster <u>relative to</u> low EDR sectors, the more developed a country's financial system. This clearly does not necessarily mean that high EDR sectors will grow faster than low EDR sectors within a relatively financially developed economy, even controlling for other determinants of sectoral growth. It is nevertheless noteworthy that, of Rajan and Zingales' (1998: 566-7, Table 1) thirty-six sectors, there are nine which fall in what we have called the metal products group of industries. These nine sectors are all amongst the seventeen sectors most dependent on external finance in Rajan and Zingales' table, and as we saw earlier, they were consistently the sectors with high export growth rates in 1985-97. It seems thus that South Africa's relatively advanced financial system may well have tended to

reinforce the effects of real exchange rates in making for relatively rapid export growth in the downstream metal products group of industries.[37]

5.4   South Africa's conglomerates and the financial system

The evidence considered above seems to give no reason to think that the financial system as such has had a detrimental effect on the competitiveness of the South African economy. If anything, South Africa's relatively advanced financial system might be expected to have had a favourable effect. Despite this, some argue that the ownership of commercial banks by the conglomerates has had a negative impact on the allocation of financial resources (Fine 1996:26-39). By comparison with this, it is held, capital market imperfections related to problems of asymmetric information, which underlie much of the discussion above, are 'marginal'. What is really damaging according to this view is the oligopolistic power of the conglomerates in South Africa's financial markets.

This argument clearly cannot be dismissed out of hand, and it calls for serious attention. To date, however, no proper evidence has been adduced in support of the contention that the ownership by conglomerates of commercial banks, as such, has made for a sub-optimal allocation of credit. Apparently as evidence for this view, Fine (1997: 33) states that the 'core businesses [of the conglomerates] remain in and around mining and energy', and that they have failed to diversify to the extent warranted by opportunities for 'vertical and horizontal integration'.

There has been a tendency to understate significantly the extent to which the South African economy has been diversified, and this probably applies to the conglomerates in particular.[38] Furthermore, in so far as natural resource-based activities have been, and remain important, it obviously does not follow that this is due to the financial system. Indeed, as the present study suggests, it seems to be largely explicable in terms of South Africa's natural resource endowment. In any event, there is no evidence that the ownership by conglomerates of commercial banks has been a significant determinant of the growth and structure of South Africa's production and trade.

Such evidence as there is suggests that it has had little effect. A World Bank study (Levy 1996: 11) of small and medium enterprises (SMEs) states: 'Lack of access to finance scores

strikingly low --- as a constraint on enterprise expansion. This result is surprising in light of the common view that, since South Africa's dominant banks [are] owned by the country's major business groups, they skew their activities to large enterprises within their own business stable and neglect small firms ... Banks (appropriately) evaluate loan requests in relation to their riskiness and transaction costs'. It is found that the results on access to finance according to the size and age of firms simply 'the expected pattern for a well-functioning banking system'.

For instance, the relative importance of financial constraints declines with firm age and size; and both collateral required as a proportion of loan value, and immovable assets required as a proportion of total collateral, fall with firm size. Perhaps contrary to expectations, younger firms, Levy (1996:12) finds, 'were at least as likely to be able to use moveables as collateral as were their other counterparts'. Only 'once ethnic variables are incorporated' do they find that the performance of the financial system 'seems more problematic'. The study finds (p.13) that collateral requirements were more of an obstacle to borrowing by Africans, but there 'was no evidence of discriminatory ethnic variations in the type of collateral required, with moveables widely accepted regardless of their ethnic origin'.

The investment levels of the conglomerates themselves may well be found to be relatively unconstrained by access to finance. This would be hardly surprising, given their size and maturity. It would not signify that their relationship with the commercial banks is not one at arms-length. Our clear impression from extensive discussions with South African financial institutions is that it is an arms-length relationship. The relationship is quite unlike that in Japan, as described, for instance, by Hubbard (1998:205).

6. Conclusion

The principal aim of the paper has been to shed some light on the apparently significant deterioration in the ability of the South African economy to grow without running into balance-of-payments difficulties.

One obviously relevant, and significant, factor is the rate of growth of South Africa's exports. It is argued that, given South Africa's natural resource endowment, which largely accounts for the sectoral mix of its trade specialisation, variations in the pattern and rate of growth of

South Africa's exports have been determined to a major extent by cyclical and longer term trends in the world prices of the country's primary commodity and natural resource-based manufactured exports, and the variations in real exchange rates which they have produced.

The natural resource boom of the 1970s, which resulted in a substantial real appreciation of the rand, had major adverse effects on the price-competitiveness, and hence on the export growth rate of non-commodity manufactures. It produced an aberration from longer term manufacturing export growth trends, and put paid temporarily to the possibility, which was emerging in the latter half of the 1960s, of a shift to export-oriented industrialisation.

In the period since the collapse of the natural resource boom, and other ensuing external shocks, which resulted in the real depreciation of the rand in the mid-1980s, the price competitiveness of non-commodity manufactures, especially of the downstream metal products group of industries, has increased significantly. Exports of these downstream manufacturing sectors have grown rapidly, indeed considerably faster than natural resource-based manufactured exports throughout the period 1985-97.

Nevertheless, the rate of growth of South Africa's total exports, which has shown a long-term tendency to decline, was lower in 1990-98 than in any other sub-period before 1990 shown in Figure 8, excepting only 1980-85 at the end of the commodity boom, when exports collapsed. This evident decline in the export growth rate has probably contributed significantly to the deterioration in the macro-competitiveness of the South African economy. It has been largely due to the preponderance of primary commodities and natural resource-based manufactures in South Africa's exports, which have either been declining (as in the case of gold) or growing slowly, rather than to any inherent lack of competitiveness. The case of South Africa thus provides a striking illustration of the fact that the sectoral mix of trade specialisation can have significant effects on a country's macroeconomic performance, including in particular on its ability to grow without running into balance-of-payments difficulties.

Other, trade-related factors, relevant to the decline in macro-competitiveness, concern developments on the import side of the trade account, including the decline in the rate of import substitution and in the output/capital ratio.

The other main focus of the paper is on the effects of financial factors on the macro-competitiveness of the South African economy. By contrast with its negative effect on the export growth rate in recent years, the country's natural resource endowment, in particular its specialisation in gold mining, probably accounts to a significant extent for South Africa's relatively advanced stage of financial development. This would be expected to have had a positive effect on the macro-competitiveness of the South African economy.

By estimating the coefficient on the cash-flow variable in an investment function it is found that in the period 1990-97 export-oriented firms were subject to a less severe financial constraint than domestically-oriented firms. This suggests that the financial system is at least not unfavourable to exporters, and may thus have been conducive to macro-competitiveness. However, it is in fact found that the results on trade performance are mixed (with high export growth firms more financially constrained than low export growth firms, but high CTB-change firms less financially constrained than low CTB-change firms). This seems to prevent clearcut conclusions on the effect of the financial system on trade performance; but it is argued that in any event the interpretation of the findings on the export growth variable is subject to considerable uncertainty.

This uncertainty arises from doubts about the significance of differences in access to finance as a determinant of investment, and about the necessity of investment for rapid export growth. Also pertinent to this is that, though high export growth firms were relatively more financially constrained, they exhibited faster growth of both fixed assets and net assets, and had lower debt-to-capital ratios (associated by Fazzari et al., 1998 with a less severe financial constraint), than low export growth firms. Furthermore, the analysis of Rajan and Zingales (1998) seems to suggest that South Africa's financial system may have reinforced the effects of real exchange rates in making for relatively rapid export growth in the downstream metal products industries, and so enhanced the competitiveness of the South African economy.

Altogether thus, it is doubtful whether the finding that high export growth firms are relatively more severely constrained financially, has any negative implications for the effect of financial factors on the economy. Finally, on the question of the impact of the financial system, it is argued that such evidence as there is does not support the widely held view that the ownership of banks by South Africa's conglomerates, makes for an economically sub-optimal allocation of credit.

In attempting above to shed light on the apparent deterioration in the macro-competitiveness of the South African economy, only the effects of certain trade-related and financial factors have been considered, in keeping with the subject of this volume. A more comprehensive analysis of the problem would need to take into account various other possibilities as well. Some of these, including indeed inadequate levels of educational and skills attainment in South Africa's population at large, may also be related to some extent to the country's natural resource abundance.[39] South Africa's natural resource endowment has clearly had a major determining influence on the country's path of development. Without its mineral wealth, South Africa would probably have remained a relatively poor industrially backward country. However, in the past few decades South Africa's natural resource abundance has apparently not been an unmixed blessing.

Notes

[1] In Figure 1, the growth rate for 1975, for instance, is the average GDP growth rate for 1974 and 1975.

[2] The method used there in estimating potential or capacity output is an adaptation of Panic (1978), as described by Christiano (1981: 151-54). Capacity output is obtained by multiplying the estimated output/capital ratio (Y/K) (derived from a shifted regression of Y/K), for each year, by the actual capital stock in that year. The capital stock data used in the estimation of capacity GDP are from the South African Reserve Bank. The two-year moving average is calculated in the same way as for Figure 1 described above.

[3] The index of capacity utilisation (the ratio of actual to potential GDP, calculated as described above, with 1969=100) increased substantially from 86.5 in 1993 to 95.1 in 1997, that is, at a rate of 2.4 per cent a year. Capacity output grew at an average annual rate of only 0.17 per cent. The greater part of the 2.55 per cent per annum increase in actual output in 1993-97 thus, was apparently accounted for by increased capacity utilisation. In 1998, however, the increase in actual GDP was lower than the increase in potential output, due to a decline in capacity utilisation as the economy went into recession.

[4] Measured in constant (1956/7) rands, the GDP share of mining declined from 24.0 per cent in 1916/7 to 11.1 per cent in 1956/7, while that of manufacturing increased from 6.2 per cent to 19.4 per cent. These figures, as well as export shares and growth rates in the period 1916/17 to 1956/57 have been calculated from data, in constant (1956/57) rands, from T.A. du Plessis (1965).

[5] See also the prescient study by J.C. du Plessis (1965), at the time an economist at the South African Reserve Bank.

[6] South Africa's REER is defined as equal to e.P/P*, where e is the trade-weighted nominal exchange rate, expressed as the number of units of foreign currency per rand, P is the South African producer price index (PPI), and P* is a trade-weighted measure of the PPIs of South Africa's trading partners.

[7] That is, the increase in e was offset, indeed more than offset, by the increase in p*, defined now as the foreign currency price of such products, so that the real exchange rate applicable to them fell.

[8] The export unit values are calculated from the IDCs (1995) Sectoral Data series. The weights in these cases are the shares of the constituent sub-sectors of each category in the total exports of the category. Data availability does not allow calculation of these real exchange rates for years after 1993.

[9] In keeping with the views of the Reynders Commission (1972), a new export incentive scheme was introduced in 1972. Also, under pressure from GATT and the IMF, quantitative restrictions were gradually relaxed in the period 1972-76. This was accompanied by some compensating increases in tariffs but the net effect was a reduction in levels of protection in this period. Though there was a nominal depreciation of the rand in 1975, the increase in the real exchange rate effectively ended this attempt at trade liberalisation in about 1976.

[10] For more detail on South Africa's trade policy reforms see Bell (1993; 1997).

[11] Even in 1985-88, before the downswing in the commodity price cycle, the exports of the metal products group of industries grew at an average annual rate of 27.7 per cent, and natural resource-based manufactures at 17.8 per cent. In 1988-90, natural resource-based manufactured exports grew at only 0.5 per cent a year, whereas the export growth rate of the metal products group, 12.4 per cent, remained relatively high.

[12] It is indeed noteworthy too that, by contrast with 1975-82, there was no tendency in 1985-90 for the REER and the real exchange rate for the metal products group of industries to rise and fall in unison. They had apparently become de-linked, and there was a persistent tendency for the competitiveness of the metal products sectors to improve, whether the REER was rising or falling.

[13] The description above of variations in the growth rates of manufactured exports is based on exports valued in constant (1990) US dollars. In estimating export demand functions, including the effect of variations in real exchange rates, however, the dependent variable is generally the physical volume of exports. It is noteworthy, therefore, as comparison of Tables 5 and A2 shows, that the growth rates of exports measured in constant rands (which gives a better indication of changes in export volumes) and in constant US dollars, respectively, move up and down in unison. The constant rand growth rate also varies significantly, so that the variations in export growth rates are not due simply to changes in world prices. The discussion above, thus, would not have been significantly different had the export growth rates reported been based on constant rand, rather than constant US dollar values.

[14] Though the sectoral shares of the manufactured exports of South Africa and SACU differ, as comparison of Tables 4 and 6 show, the data on SACUs manufactured exports, which are dominated by South Africa, may reasonably be taken to reflect trends in the sectoral composition and growth rates of the manufactured exports of South Africa alone in the period 1990-97.

[15] The index of industrial country imports increased at 15.6 per cent per year in 1993-95, but by only 3.3 per cent in 1996 (Tsikata, 1998:15, Table 1.2).

[16] See Wright (1993: 58-60) on the significance of capacity utilisation as a determinant of total factor productivity growth in the 1980s.

[17] However, a simple bivariate analysis such as this is clearly in this case both statistically and theoretically unsatisfactory and there is no apparent reason to expect significant results. To establish whether productivity growth or changes in unit labour costs are significant influences on trade performance, a much more sophisticated analysis is required.

[18] According to Wright (1993: 17, Table 1.3), in 1981-90, industrial chemicals, iron and steel, and non-ferrous basic metals, the three natural resource-based manufacturing sectors, with relatively low export growth rates, had higher TFP growth rates than any other manufacturing sectors, and were three of only eight sectors (out of 26) with positive TFP growth rates in this period. Despite this, as we have seen, these sectors had relatively slow export growth.

[19] It should be noted, however, that South Africa's GDP growth rate was declining even before 1972.

[20] See Bell (1993a: 2-5) for a fuller discussion of the causes of South Africa's debt crisis and the role played in it by the price of gold.

[21] This was despite the fact that 1985-90 was a special period, of export recovery, following several years of absolute decline.

[22] This included an exceptional discontinuous increase in 1993-95.

[23] The combined export share of 'agriculture, forestry and fishing', 'other mining' and the four natural resource-based manufacturing sectors, for which world demand would be expected to be relatively income inelastic, increased from 31.7 per cent in 1970-71, before the commodity price boom, to 53.5 per cent in 1993. Furthermore, gold whose export share in 1993 was 27.7 per cent, no longer faces a perfectly elastic export demand at a fixed price.

[24] The exceptions in the 1970s, in the context of the natural resource boom, were import substitution in the natural resource-based iron and steel and chemical industries, and the motor vehicle industry.

[25] See Krugman (1995:47) on the possible beneficial effects of growth which is biased towards import-competing production.

[26] See Bell (1993:97-8) and Bell and Cattaneo (1997:14, Table 11).

[27] Simulations by the IDC in 1994 of the effects of the reforms scheduled for 1995-99 imply a larger percentage increase in imports than exports, and that the largest increases in imports occur in consumer goods industries (Bell and Cattaneo, 1997:21-23). Also the S.A. Reserve Bank (1996:21-23) argues that the increase in the ratio of imports to gross domestic expenditure has partly been due to 'the reform initiated --- to open up the economy more to international competition'.

[28] It is estimated that the ratio of imported capital goods to gross domstic fixed investment in South Africa in 1975-90 averaged about 20 per cent.

[29] As Rodrik (1995: 94) states, 'the causal relationship between investment and growth should be one of the least controversial in economics'; and Rodrik (1997: 13), in arguing for the importance of capital accumulation, as distinct from productivity growth, states that the best single predictor of the growth of any economy remains its investment rate: hence 'capital accumulation is the proximate source of growth'.

[30] Indeed, as in Latin America (Agosin, 1995:159), credit conditions have remained relatively tight, partly because of the ever- present danger of the capital flows going into reverse.

[31] It does not seem to us that Agosin's (1995:166) use of bank credit to the private sector as a proportion of GDP, as a proxy for the availability of finance, overcomes these difficulties.

[32] Initially, various ARCH-type specifications of the return-generating process were estimated over this sample period. Of the valid models, an ARCH(2) specification was selected on the basis of information criteria (the restriction that the sum of the coefficients of the lagged values in the conditional variance equation not exceed unity was not met in the case of the benchmark generalised ARCH or GARCH(1,1) model).

[33] The abolition of South Africa's dual exchange rate (financial rand) system in March 1995 effectively removed exchange controls on non-residents. There has also been considerable relaxation of exchange controls on permanent residents of South Africa.

[34] As no data were available for this purpose for years since 1993, trade orientation was based on IDC data for 1985-93.

[35] See Bell (1993:108-109) on South African export expansion in 1985-90; and Rodrik (1995:66-7), with reference to the case of Turkey from the early 1980s.

[36] Whether this is an implication of their argument, however, is questionable. In their model, dependence on external finance is technologically determined, rather than being related to constraints on access to credit due to capital market imperfections and associated high information costs. Financial development, it seems, has its beneficial effect on sectors with high external dependence, not by alleviating capital market imperfections, but by increasing the supply of external finance.

[37] In general however, we do not find a significant relationship between export growth rates and EDRs, in a regression involving all thirty six of Rajan and Zingales' sectors. Also, Rajan and Zingales' (1998:568-9) base their findings on MVA growth rates rather than export growth rates.

[38] See Bell and Farrell (1997:600-609). Also, Fine's (1996:33) remark that the conglomerates 'are responsible for the ownership of the vast majority of South African manufacturing' seems to conflict with the notion that the conglomerates are inadequately diversified.

[39] See, for instance, Crafts and Thomas (1986:643) on 'a favourable endowment of natural resources' as the source of Britain's industrial leadership in the nineteenth century, and Britain's consequent difficulty because of

a scarcity of human capital 'in adjusting to the technologically progressive product cycle industries that dominated the Second Industrial Revolution'.

References

Ariovich G (1979) 'The Comparative Advantage of South Africa as Revealed by Export Shares', *South African Journal of Economics*, 47 (2).

Agosin M R (1995) 'Savings and Investment in Latin America' *UNCTAD Review 1995*, UNCTAD, Geneva.

Bell T (1983) 'The Growth and Structure of Manufacturing Employment in Natal', Institute for Social and Economic Research, University of Durban-Westville, Occasional Paper number 7.

Bell T (1993) 'Should South Africa Further Liberalise its Foreign Trade?', in M Lipton and C Simkins (eds), *State and Market in Post Apartheid South Africa*, Witwatersrand University Press: Johannesburg and Westview Press: Boulder, San Francisco and Oxford.

Bell T (1993a) 'The Impact of Sanctions on South Africa', *Journal of Contemporary African Studies*, 12 (1), 1-28.

Bell T (1997) 'Trade Policy', in J Michie and V Padayachee (eds), *The Political Economy of South Africa's Transition*, The Dryden Press, London.

Bell T and N Cattaneo (1997) 'Foreign Trade and Employment in South African Manufacturing Industry', Occasional Report 4, International Labour Office, Geneva.

Bell T and G Farrell (1997) 'The Minerals-Energy Complex and South African Industrialisation', *Development Southern Africa*, 14 (4).

Central Statistical Services (CSS), *South African Statistics*, (various issues), Pretoria.

Chenery H and M Syrquin (1975) *Patterns of Development*, 1950-1970, Oxford University Press for the World Bank: London.

Christiano L J (1981) 'A Survey of Measures of Capacity Utilization', *IMF Staff Papers* 144-98.

Corden W M (1986) 'Round-table Discussion' in J P Neary and S Van Wijnbergen. *Natural Resources and the Macroeconomy*, The MIT Press, Cambridge, MA.

Crafts N F R and M Thomas (1986) 'Comparative Advantage in UK Manufacturing Trade, 1910-1935', *The Economic Journal*, 96.

Duncan T and J Fogarty (1984) *Australia and Argentina: On Parallel Paths*, Melbourne University Press.

Du Plessis J C (1965) 'Investment and the Balance of Payments in South Africa', *South African Journal of Economics*, 33.

Du Plessis T A (1965) *The Industrial Growth Pattern and the Real Forces of Economic Expansion in South Africa, 1916/17-1956/57*, unpublished D.Com thesis, University of South Africa, Pretoria.

Fagerberg J (1988) 'International Competitiveness', *The Economic Journal*, 98.

Fazzari S, G Hubbard and B Petersen (1988), 'Financing Constraints and Corporate Investment', *Brookings Papers on Economic Activity*, Number 1.

Fine B (1996) 'Industrial Policy and South Africa: A Strategic View', National Institute for Economic Policy, Johannesburg (mimeo).

Fine B and Z Rustomjee (1996) *The Political Economy of South Africa: From minerals-energy complex to industrialisation*, Witwatersrand University Press, Johannesburg.

Frankel S H (1938) *Capital Investment in Africa: Its Course and Effects*, Oxford University Press: London.

Gelb A H (1986) 'Adjustment to Windfall Gains: A Comparative analysis of oil-exporting countries', in J P Neary and S Van Wijnbergen (eds), *Natural Resources and the Macroeconomy*, The MIT Press, Cambridge, MA.

Hall B, J Mairesse and B Mulkay (1998) 'Firm Level Investment in France and the United States: An Exploitation of What We Have Learned in Twenty Years' (mimeo).

Harris J R, F Schiantarelli and M G Siregar 'The Effect of Financial Liberalisation on the Capital Structure and Investment Decisions of Indonesian Manufacturing Establishments' *The World Bank Economic Review*, 8 (1).

Hodge J (1997) 'South African Trade in High Technology Products' *Trade and Industry Monitor*, 3, September.

Hubbard R G (1998) 'Capital Market Imperfections and Investment' *Journal of Economic Literature*, 36 (1).

Industrial Development Corporation (IDC) (1995) *Sectoral Data Series for Manufacturing*, IDC: Johannesburg.

Krugman P R (1995) *Currencies and Crises* The MIT Press: Cambridge, MA and London (chapter 3 'Differences in Income Elasticities and Trends in Real Exchange Rates', originally published in *European Economic Review,* 1989, 33, 1031-54).

La Porta R, F Lopez de Silanes, A Shleifer and R Vishny (1996) 'Law and Finance', National Bureau of Economic Research (Cambridge, MA) Working Paper No. 5661.

Levine R and S Zervos (1998) 'Stock Markets, Banks and Economic Growth', *American Economic Review*, 88 (3).

Levy B (1996) *South Africa: The Business Environment for Industrial Small and Medium Enterprises*, The World Bank Southern Africa Department, Informal Discussion Papers on Aspects of the Economy of South Africa, Discussion Paper 11.

Rajan R G and L Zingales (1998) 'Financial Dependence and Growth', *American Economic Review*, 88 (3).

Reynders Commission (1972). *Report of the Commission of Inquiry into the Export Trade of the Republic of South Africa*, RP.69/1972, Government Printer, Pretoria.

Rodrik D (1995) 'Getting Interventions Right: How Taiwan and Korea Grew Rich', *Economic Policy*, 20.

Rodrik D (1997) 'TFPG Controversies, Institutions and Economic Performance in East Asia', NBER Working Paper 5914, NBER: Cambridge, MA, February.

Ros J (1995) 'Trade Liberalization with Real Appreciation and Slow Growth: Sustainability Issues in Mexico's Trade Policy Reform', in G K Helleiner (ed) *Manufacturing for Export in the Developing World: Problems and Possibilities* Routledge: London and New York.

Sachs J D and A Warner (1995) 'Natural Resource Abundance and Economic Growth, NBER Working Paper Series, Working Paper 5398, National Bureau of Economic Research: Cambridge, MA.

South African Reserve Bank *Quarterly Bulletin*, SARB, Pretoria.

South African Reserve Bank (1996) *Annual Economic Report 1996, SARB*, Pretoria.

Spraos J (1981) 'Sub-optimal Market-led Adjustment to External Shock in Developing Countries', *South African Journal of Economics*, 59 (3), 352-364.

Thirlwall A P (1979) 'The Balance of Payments Constraint as an Explanation of International Growth Rate Differences' *Banca Nazionale del Lavoro*, 32 (128).

Tsikata Y (1998) 'Liberalization and Trade Performance in South Africa', Informal Draft, Macroeconomics Division, Southern Africa Department, World Bank.

Warr P G (1986) 'Indonesia's other Dutch Disease: Economic Effects of the Petroleum Boom', in J P Neary and S Van Wijnbergen (eds), *Natural Resources and the Macroeconomy*, The MIT Press, Cambridge, MA.

Wright A J (1993) 'Productivity Growth in the South African Manufacturing Sector: Deriving and Assessing Neoclassical TFP Measures' in K Kruger (ed), *Papers Submitted for the Competition to Promote Academic Research into Industrial Policy and Development in South Africa*, Industrial Development Corporation, Sandton.

Appendix A

Figures and Tables

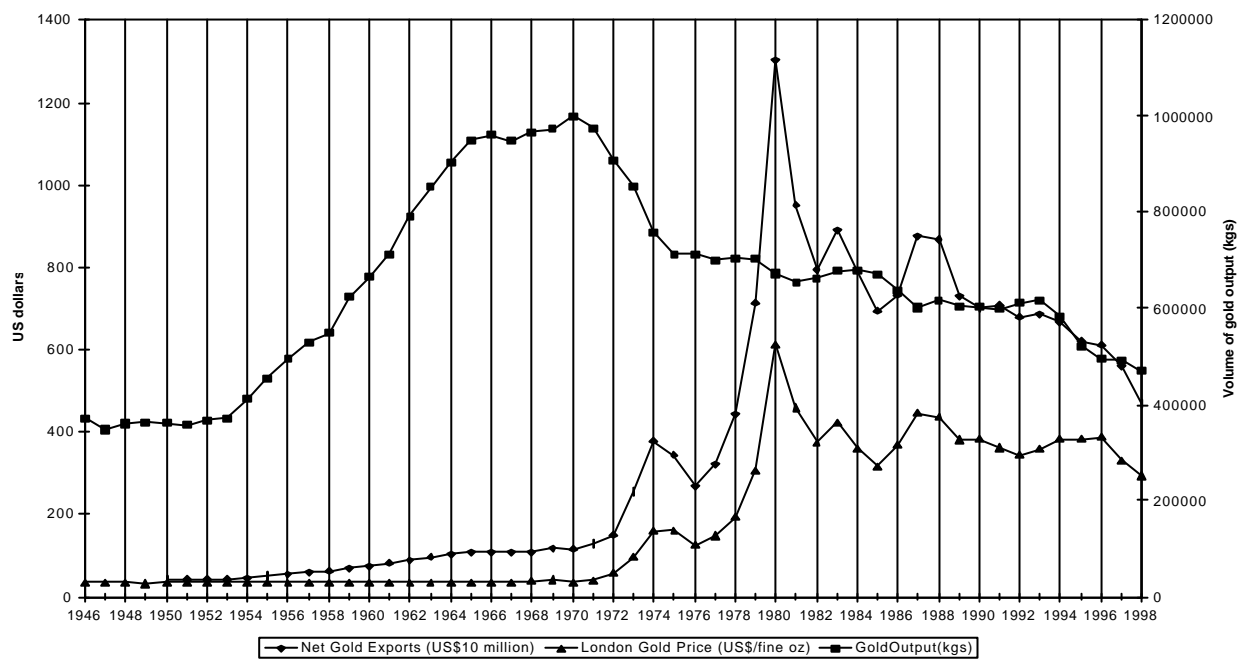Figure A1: Gold output, exports and price

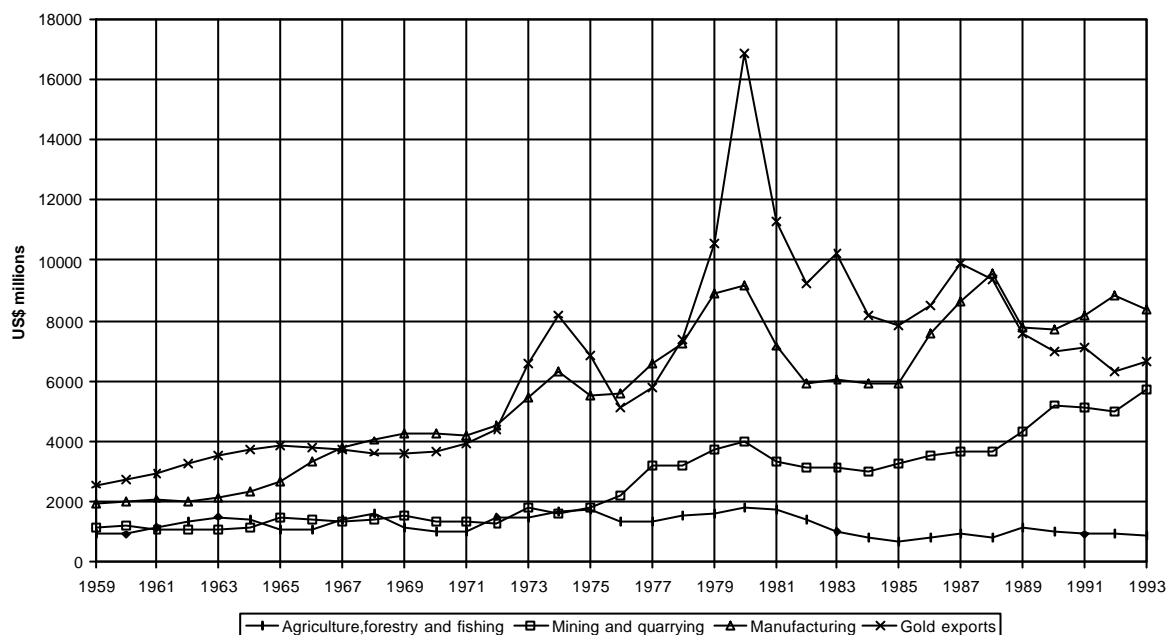**Figure A2: Exports by main economic sector (constant 1990 US$), 1959-83**

Table A1: **Average annual growth of South African manufacturing exports in constant 1990 US dollars (%)**

SIC		1972-75	1975-80	1980-85	1985-90	1990-93	1972-80	1985-93
311-2	Food	5,9	-0,7	-12,8	3,6	-6,6	1.7	-0,3
313	Beverages	-0,2	9,5	-6,5	19,3	-4,4	5.7	9,8
314	Tobacco Products	66,1	-2,8	5,9	11,7	-18,1	18.8	-0,5
321	Textiles	-3,3	5,1	-9,2	14,4	-10,2	1.9	4,5
322	Clothing	10,5	11,4	-7,6	-3,5	-4,9	11.1	-4,1
323	Leather Products	-8,8	14,6	2,7	3,0	-6,6	5.2	-0,7
324	Footwear	6,9	20,1	-7,0	3,9	-26,7	15.0	-8,8
331	Wood and wood products	16,8	34,8	-9,4	13,1	-3,5	27.7	6,6
332	Furniture	8,2	28,4	-5,5	22,9	-6,5	20.4	10,9
341	Pulp and paper products	-5,6	13,9	3,6	11,7	11,6	6.2	11,6
342	Printing and publishing	25,7	-14,2	-8,7	6,3	-15,0	-1.0	-2,2
351-4	Chemical products	13,8	16,9	-11,8	2,0	-1,1	15.0	0,8
355	Rubber products	-7,8	10,4	-8,1	22,3	-5,1	3.2	11,2
356	Plastic products	-19,3	11,8	-1,4	30,5	2,3	-1.1	19,1
361	Pottery, china and earthenware	26,2	-48,6	33,2	29,8	19,6	-28.0	25,9
362	Glass and glass products	-7,2	26,5	-9,3	21,8	-10,5	12.7	8,5
369	Non-metallic mineral products	21,2	1,8	-27,0	30,4	0,8	8.7	18,4
371	Iron and steel basic industries	13,7	18,7	-4,0	14,0	-4,7	16.8	6,6
372	Non-ferrous metal basic industries	-2,2	39,1	0,6	4,8	-3,4	21.9	1,6
381	Metal products	2,7	3,1	-12,7	22,8	3,1	2.9	15,0
382	Machinery	-5,7	5,8	-9,1	17,9	-1,6	1.3	10,1
383	Electrical machinery	-6,5	6,9	-8,3	21,0	2,2	1.7	13,6
384	Motor vehicles and parts	5,0	6,6	-3,6	27,3	16,2	6.0	23,0
385	Other transport equipment	0,7	3,0	-12,1	18,4	14,2	2.2	16,8
386-90	Other manufacturing industries	8,8	4,0	-13,0	1,0	-12,6	5.8	-4,4
	Total Manufacturing	**5,6**	**9,2**	**-7,7**	**10,8**	**-2,6**	**7.8**	**5,6**

Source: IDC (1995)

Table A2: **Average annual export growth rates in constant 1993 Rands (%)**

ISIC	Sector	1972-75	1975-80	1972-80	1980-85	1985-90	1990-93	1985-93
341	Pulp and paper products	-6.36	13.71	5.72	9.96	-1.22	13.74	4.14
351-4	Chemical products	4.79	4.41	4.55	-1.07	12.05	-3.52	5.94
371	Iron and steel basic industries	-0.16	20.55	12.32	4.35	10.46	-1.49	5.82
372	Non-ferrous metal basic industries	-4.26	34.79	18.56	6.32	-1.94	4.41	0.39
	Sub-total: Natural resource-based	**1.18**	**14.52**	**9.32**	**3.69**	**7.40**	**0.11**	**4.61**
381	Metal products	-0.15	4.88	2.96	-11.22	10.53	-0.63	6.20
382	Machinery	-7.62	0.71	-2.49	-7.67	10.42	3.86	7.91
383	Electrical machinery	-7.72	9.32	2.59	-2.17	18.58	5.86	13.64
384	Motor vehicles and parts	-0.16	11.26	6.83	-2.54	21.15	19.45	20.51
385	Other transport equipment	3.19	2.98	3.06	-7.14	17.65	16.00	17.03
	Sub-total: Metal products group	**-3.83**	**4.22**	**1.13**	**-7.18**	**14.60**	**9.20**	**12.54**
	Total Manufacturing	**3.50**	**7.23**	**5.81**	**-1.20**	**6.64**	**1.80**	**4.80**

Source: IDC (1995)

.