

The exposure of the South African Economy to International Trade¹

Abstract

Following the policies implemented during the 1990s, the South African economy has become more globalised. This is particularly the case as far as international trade is concerned. The implementation of trade reforms, in some cases faster than WTO commitments, has increased the exposure of the South African economy to international trade. Trade in intermediate inputs increase the external orientation of an industry and hence increases the economy's exposure to trade. This in effect means that the economy is more open to external trade shocks than is conveyed by the traditional openness measure which considers only the trade in final products. This paper uses a measure proposed by Campa and Goldberg (1997) to estimate the exposure to trade and finds that around 79 per cent of output in 2000 was accounted for by industries that became more exposed to international trade. Further, domestic production has become more reliant on imported inputs with around 60 per cent of South Africa's GDP being accounted for by industries with a negative external orientation (i.e. industries where imported input costs exceeded export revenue). In addition, it was also found that those sectors that became more externally oriented had lower inflation rates and higher growth rates than the other sectors in the economy for the period under analysis. The extent to which the increased exposure to international trade facilitated these developments remains topical for further research.

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1 Introduction

This paper analyses South Africa's exposure to international trade, concentrating on the period after 1990. The economy's exposure to international trade is measured by considering its sales (exports) in foreign markets, its competition with foreign products (imports) in domestic markets and the use of imported inputs in domestic production. There is little doubt that the South African economy has become more exposed to international trade during the 1990s (Loots, 2001 and Fedderke & Vaze, 2001).² However, the analysis to date has generally not considered the trade in intermediate inputs and as a result the full extent of the exposure to trade at the sectoral level has not been accurately measured. In this paper trade in intermediate inputs is also taken into account in order to derive a more comprehensive measure of the exposure to international trade on a sectoral basis. The paper attempts to answer the following two questions:

- What has been the extent of the exposure to trade of the South African economy after 1990?
- What has been the nature of the trade exposure?

In the next section the concept of external orientation is highlighted. The following two sections then address the two questions directly. The penultimate section appraises the significance of the results. Some concluding remarks are made in the last section.

2 The exposure to international trade: Some theoretical considerations

The empirical literature has traditionally used the "trade openness" measure – calculated as the sum of final goods imports and exports as a ratio of production – to reflect the exposure to international trade. This is usually termed the "openness" indicator and is also often used in empirical analysis to depict the extent of globalisation of an industry. However, the term globalisation is multi-dimensional and incorporates trans-boundary flows of goods and services, capital, people, technology, ideas and cultures (Dawson, 2003). The term is thus very broad and any attempt to evaluate whether a country has become more globalised or not has to consider all these elements. While this may be the case there is consensus that the process of economic globalisation incorporates the dismantling and lowering of tariffs or non-tariff barriers, growth in international trade, increased international financial flows and the exchange of knowledge and technology across boundaries. For statistical convenience, the economic interpretation of the

² Loots (2001) analyses the extent of the globalisation of the South African economy by considering both investment and trade flows. South Africa is classified as a moderate globaliser with an economic growth rate of 2,7 per cent – one per cent below the average for all countries in the same category.

concept is usually emphasised in the empirical literature on globalisation. In addition, very often the problem of data constraints is circumvented by making the assumption that international trade flows is an appropriate proxy for economic globalisation.³ However, in this paper the emphasis is on the issue of trade openness and not globalisation per se.

Rodrik (2000) highlights the importance of distinguishing between a "policy measure" and an "outcome measure" in trade policy analysis. A policy measure refers to government regulations and policies while an outcome measure, conversely uses actual economic outcomes (e.g. international trade flows) to ascertain the degree of economic openness.⁴ There is the need to distinguish between policy intentions and actual outcomes since policy intentions may not match actual outcomes. For example, a policy of trade liberalisation may have been implemented but prevailing economic conditions (e.g. imperfect competition) may result in import volumes not increasing to the extent suggested by the liberalisation measures. On the other hand, there could be an increase in imports which is not related to the liberalisation programme. The essence of the argument is that an outcome measure (such as trade flows) may not necessarily depict the policy bias of a trade regime (Rodrik, 2000).

In the context of the above argument it is important to highlight the primary concern of this paper, namely the economy's exposure to international trade. The extent to which the exposure has been shaped by economic policy is not directly addressed in this paper. The trade openness indicator for the economy can be expressed as:

$$TO_t = \left[\frac{X_t + M_t}{P_t} \right] \quad (1)$$

Where TO_t = trade openness in time period t

X_t^b = total exports of the economy in year t

M_t^b = total imports of the economy in year t

P_t = total output in year t at basic prices

Equation 1 provides a good indication of the economy's exposure to international trade since at the macro level total exports and imports incorporate the consumption or use of both final goods and intermediate goods. However, at a sectoral level the treatment of imported inputs in the calculation of the measure of trade openness is important.⁵ Campa and Goldberg (1997) highlight the importance of incorporating both "direct"

³ This is usually the case for research on developing countries where data constraints abound.

⁴ See for example Sachs, J. and Warner, A. (1995) and Skipton, C. (2002). Bhagwati (1988) argues that outward orientation is incentive neutral, that is, it does not discriminate against exports.

⁵ Indirect imports refer to the use of inputs sourced from other domestic producers which in practice may have been imported in the first instance.

imports (final goods imports) and “indirect” imports (intermediate imports) in measuring the exposure of a sector to international trade. In a theoretical sense this seems relatively straight-forward. However, at a practical level this is more complicated since domestic inputs sourced from other sectors in the economy could also include an import content – sometimes referred to as “indirect” imports. Thus, a sector’s exposure to international trade – termed “external orientation” by Campa and Goldberg (1997) – depends on the import and export of final goods as well as the import of intermediate inputs (indirect imports). Following Campa and Goldberg (1997) a sector’s external orientation can be calculated as follows:

$$O_t^b = \left[\frac{X_t^b + M_t^b + m_t^b}{P_t^b} \right] \quad (2)$$

where, O_t^b = external orientation of sector b in year t

X_t^b = exports (final goods) of sector b in year t

M_t^b = imports (final goods) of sector b in year t

P_t^b = output of sector b for year t at basic prices

m_t^b = intermediate imports used by sector b in year t

$m_t^b = \sum_{a=1 \dots n} v_t^a m_t^{ab}$

v_t^a = share of imports in consumption of sector a in year t

m_t^{ab} = value of inputs from sector a used by industry b in year t

Equation 2 emphasises the importance of imported intermediate goods used in production. However, it is also possible to calculate a trade openness measure at the sectoral level. This can be represented as follows:

$$TO_t^b = \left[\frac{X_t^b + M_t^b}{P_t^b} \right] \quad (3)$$

where TO_t^b = traditional trade openness measure for industry b in time period t

Equation 3 provides a partial measure of an industry’s exposure to international trade since it only includes trade in final goods. Since equation 2 also includes intermediate imports it is a more comprehensive measure of exposure to international trade at the sectoral level. High ratios indicate that an industry is more exposed to international trade than others with lower ratios.

3 The extent of the trade exposure of the South African economy after 1990

The Supply and Use Tables (Statistics South Africa, 1993 and 2000) are used to calculate the extent of the trade exposure of the South African economy for the period 1993 and 2000 (Statistics South Africa, 2004).⁶ We briefly explore some methodological issues before proceeding.

The Supply and Use Tables (SU-tables) allow for the reconciliation of the national accounts estimates of gross domestic product (GDP) using the production and expenditure approach.⁷ One of the major advantages of the SU-tables is that it allows for a similar analysis at the product level. Let us consider the SU-table for the year 2000 and the case of footwear products to illustrate this point further.

(1)	domestic production of footwear	R2 859m
(2)	<i>plus</i> imports	R 1 445m
(3)	<i>less</i> exports	<u>R 114m</u>
(4)	domestic supply of footwear (at basic prices)	R4 190m
(5)	<i>plus</i> taxes less subsidies on products	R 577m
(6)	<i>plus</i> trade and transport margins	<u>R2 902m</u>
(7)	domestic availability (at purchaser prices)	<u>R 7 669m</u>
(8)	residual	<u>R 68m</u>

The SU-tables provide for the calculation of a residual item (see row 8) on a product basis. The residual is derived by subtracting the total use of the product from the total supply of the commodity (both valued at purchasers prices). For footwear, the residual is R68m implying that total supply exceeds total uses by R68m. This, in effect, could imply one of the following:

- (a) The residual is due to an error in the estimates of the components of demand (i.e. intermediate demand, private consumption demand, government consumption, changes in fixed capital formation, change in inventories and exports).
- (b) The residual is due to a mistake in the estimation of the components of domestic availability. In other words, there is an underestimate of items (1), (2), (5) and (6) by R68m.
- (c) There is an underestimation of exports to the value of R68m.

⁶ It should be noted that the Supply and Use Tables have been updated. However, the updated tables are a condensed (11 products by 11 products) depiction of the economic relationship within the economy. For example, the components of final demand are not distinguished and hence does not allow for the calculation of the exposure to international trade as specified in equations 2 and 3.

⁷ The discrepancy between the GDP calculated using the production approach and GDP using the expenditure approach is reflected as a residual in the SU-table.

- (d) The residual is a combination of all three preceding cases. In this case the residual is distributed proportionately among (1), (2), (3), (5) and (6).⁸

In this paper the residual is distributed according to the specifications listed under (d).

In order to calculate the exposure of an industry to international trade, the products are linked to the industries specified in the SU-Tables. This link is provided in Table A1 and A2 in the Annexure. The measures – external orientation (equation 2) and trade openness (equation 3) – depicting the exposure to international trade are reflected in Table 1 below. Two estimates of each measure is provided; one incorporating the adjustment for the residual and another without any adjustment for the residual. For the economy as a whole there is little difference between the estimates. For example, for the year 2000 the external orientation measure incorporating the adjustment for the residual (0,28) is slightly lower than the measure which does account for the residual (0,29). However, at an industry level the adjustment for the residual is quite significant for many industries.⁹

Columns 12 and 13 reflect the change in external orientation and trade openness during the years 1993 to 2000.¹⁰ In effect these measures depict the change in trade exposure during this period. The industries are ranked in terms of the change in external orientation from 1993 to 2000 (column 12).

[PLACE TABLE 1 ABOUT HERE]

In summary, three important points emerge from table 1:

- Firstly, as expected the measures confirm that the South African economy has become more exposed to international trade during the 1990s. This is not surprising given that many structural reforms were undertaken during the 1990s with the explicit intention of shaping South Africa's re-entry into the world economy (see Calitz, 2002 for a summary of the measures implemented). The overall orientation measures increase from around 18-20 per cent in 1993 to around 28-29 per cent in 2000. At the sectoral level, 77 of the 94 sectors increased their external orientation while 75 sectors experienced an increase in their trade openness measures from 1993 to 2000.

⁸ The proportion is determined by each components share of the total of the components.

⁹ This can be gauged from a comparison of column 3 with column 5 and column 4 with column 6. The tables incorporating all the calculations for the 2 years can be obtained from the authors upon request.

¹⁰ The residual adjusted statistics are used for the calculations.

- The external orientation measure shows that the sectors are more highly exposed to trade than is conveyed by the trade openness measures.¹¹
- While both measures show a similar number of industries increasing their exposure to trade during the 1990s, the significance of these industries in terms of their contribution to overall GDP is vastly different. In 2000 approximately 79 per cent of the total GDP of the country was accounted for by the 77 industries which had increased their external orientation during the 1990s.¹² Based on the trade openness measures, around 49 per cent of GDP is accounted for by the 75 industries that have increased their exposure to trade during the 1990s. One could also consider the trade exposure of the sectors at a particular point in time.¹³ In 2000 the tradables sectors made up approximately 50 per cent of the GDP of the country.¹⁴ In addition, the 68 sectors that had an external orientation ratio that exceeded the trade exposure for the overall economy contributed approximately 30 per cent of the GDP in 2000. This in effect shows that imported inputs have played an increasing role in the generation of output in South African production since 1990.

The fundamental point is that the South African economy is highly exposed to trade. The next section analyses the nature of the external orientation in more detail.

4 The nature of external orientation that has occurred during the 1990s

It is important to recognise that while the external orientation ratio identified in equation 2 reflects the exposure to international trade it does not reflect the nature of the trade exposure. An example illustrates this point quite succinctly. Consider equation 2 and the case where exports and imports are equal (say $X_t^b = M_t^b = 20$), output equals 60 and for simplicity assume that there are no imported intermediate inputs ($m_t^b = 0$) then the external orientation ratio (O_t^b) equals 0,67. However, if $X^b = 40$, $M^b = 0$, $m_t^b = 0$ and $P^b = 60$ then the orientation ratio (O_t^b) still equals 0,67 but the nature of the orientation is different since in this case the export market is the sole

¹¹ See columns 3 and 4, 5 and 6, 8 and 9, 10 and 11.

¹² As far as manufacturing production is concerned, those sectors that experienced an increase in their external orientation ratio accounted for approximately 91 per cent of manufacturing output.

¹³ The importance of doing the calculations at a particular point in time is highlighted by the gold mining sector. The external orientation ratio (with adjustment for the residual) for the gold mining sector is 0.83 (2000) and 0.85 (1993). This in effect means that while the sector was highly exposed to international trade in 2000, the extent of the exposure had decreased from 1993.

¹⁴ The sectors with an external orientation measure less than 0.10 are defined as non-tradeables.

determinant of the external orientation. Campa and Goldberg (1997: 2) emphasise the importance of what they term the channels of external orientation. In essence what this means is that the impact of international trade on a sector also depends on the nature of the exposure to international trade. Some indicators that provide useful information of the nature of external orientation include the following:

- The export orientation ratio $\left[\frac{X^b}{P^b} \right]$ depicts the share of domestic producers' revenues that is generated in foreign markets. A high ratio indicates that the fortunes of the domestic industry are tied to performance in the international market.
- Imports as share of consumption $\left[\frac{M^b}{C^b} \right]$ reflects foreign penetration into the domestic industry.¹⁵ This ratio provides a useful indicator of foreign competition in the domestic industry. A high import penetration ratio would in all probability mean that foreign producers or sellers have a significant impact on the domestic market. For example, an exchange rate appreciation could have adverse effects on the revenue of domestic producer since imports would become cheaper.¹⁶
- Imported inputs as a share of domestic production $\left[\frac{m^b}{P^b} \right]$ indicates the potential sensitivity of production costs to an external shock.¹⁷ This ratio highlights the importance of imported input costs in domestic production.
- The preceding three indicators highlight the importance of international developments for domestic producers. In particular, imported input costs and export revenue have a direct impact on domestic production. Goldberg (1990) uses imported input costs and export revenues to calculate what is termed the net exposure or net external orientation. This is given by:

$$NE_t^b = \left[\frac{X_t^b - m_t^b}{P_t^b} \right] \quad (4)$$

Where $\left[\frac{X_t^b}{P_t^b} \right]$ = share of exports in production

$\left[\frac{m_t^b}{P_t^b} \right]$ = share of imported inputs in production

¹⁵ Consumption is approximated by domestic availability as specified under Section 3.

¹⁶ This would *inter alia* also depend on the pass-through effects of exchange rate fluctuations and the share of imported inputs used in domestic production.

¹⁷ Where m reflects both direct and indirect imports used in the production (P) of b .

Thus, the net external orientation in industry b in time period t (NE_t^b) is given by the difference between the export share and imported input share. A positive value shows that a domestic producer has net export exposure while a negative value depicts net import exposure. The latter occurs when the value of imported inputs exceeds export revenue. This measure provides a broad indication of an industry's net exposure to an international shock (Goldberg, 1990, and Campa and Goldberg, 1997). For example, with complete pass-through effects to import and export prices a depreciation of the exchange rate would favourably impact on export revenues while adversely affecting imported input costs. Hence, the net effect on profits would depend on the share of imported inputs in production vis-à-vis the share of exports in production (i.e. NE_t^b). In other words when NE_t^b is negative there is an adverse impact on profitability with a currency depreciation.¹⁸

[PLACE TABLE 2 ABOUT HERE]

Table 2 depicts the different ratios identified above.¹⁹ Imports and exports have increased quite significantly in the period 1993 to 2000. During this period, 68 of the 94 sectors show increases in export production; these sectors accounted for around 46 per cent of South Africa's GDP in 2000. Conversely, 74 sectors experienced an increase in their import penetration ratios during this period; these sectors accounted for 36 per cent of South Africa's GDP in 2000.

As pointed out above, the net external orientation ratio provides an indication of the vulnerability of domestic producers to external shocks. Table 2 (column 8 and column 12, respectively) reflects the net external orientation ratios for 1993 and 2000. There are two points worth noting here:

- Forty-seven industries in 1993 and forty-four industries in 2000 had negative net external orientation ratios as mentioned earlier. As also mentioned, for these industries the imported inputs costs exceeded their export revenue. While there has been a decrease in the number of industries having a negative net external orientation ratio in 2000 as compared to 1993 the contribution of these industries to South Africa's GDP had increased during the 1990s — from 52 per cent of GDP in 1993 to 60 per cent of GDP in 2000.

¹⁸ Once again this will depend on the pass-through effects of currency fluctuations to export revenue and imported input prices (costs).

¹⁹ Table 2 is ranked according to column 12 in descending order.

- In addition, as pointed out, net negative external orientation ratios show that domestic firms are more exposed on the cost side to external shocks. Given that a large share of South Africa's output is subjected to a net negative external orientation, it means that South Africa's GDP is exposed to the cost implications of external shocks. For example, currency depreciations (appreciations) will have a negative (positive) impact on the production costs of domestic producers.²⁰ The extent of the overall impact would depend on the exchange rate pass-through effects to import prices.²¹ Research shows that while pass-through effects are not complete in South Africa, it is quite high (Nell, 2002; Farrell and Rangasamy, 2002), suggesting that the overall cost implications of a depreciation of the currency cannot be ignored.

Of interest, however, is how international trade has affected domestic production. The Grubel-Lloyd index captures the extent to which intra-industry trade (IIT) has occurred within an industry. The index is given by:

$$IIT = \frac{(X_i + M_i) - |X_i - M_i|}{(X_i + M_i)} \quad (5)$$

The IIT index merely indicates the extent of two-way trade in products with the index ranging between 1 and zero, where 0 indicates trade in the particular industry to be an *inter*-industry type, and 1 represents trade to be entirely an *intra*-industry type. The Grubel-Lloyd index decreases if the net export position rises or falls and hence does not indicate the nature of trade changes that have taken place within an industry. This aspect is important since the nature of trade changes gives an indication whether there has been specialisation into or out of an industry. The index of marginal intra-industry trade (D) can be used to reflect the nature of production changes brought about as a result of changes in trade patterns.²²

Marginal intra-industry trade is denoted as:

$$D = \frac{\Delta X_i - \Delta M_i}{|\Delta X_i| + |\Delta M_i|} \quad (6)$$

when $(0 < D < 1)$, there is specialisation into an industry

when $(-1 \leq D < 0)$, there is specialisation out of an industry

when $(D = 0)$, there is intra-industry trade.

²⁰ This is due to the imported input costs exceeding export revenues.

²¹ For example, if foreign suppliers "price to market" then the full currency effects will not be passed on to prices.

²² This index was developed by Brulhart (1994).

However, it is rare to find exports equal to imports, hence it may be extremely rigid to define specialisation around $D=0$. Instead it may be useful to consider the weighted average value of intra-industry trade across all industries (Parr, 2000: 302). For 2001, the weighted average value of intra-industry trade across all industries amounted to 64 per cent, thus leaving a critical value of $\pm 0,36$. In this paper, specialisation is therefore defined according to the following criteria:

- when $(0,36 < D < 1)$, there is specialisation into an industry
- when $(-1 \leq D < 0,36)$, there is specialisation out of an industry
- when $(D = 0,36)$, there is intra-industry trade

Following Parr (2000) industries are defined on the basis of the 4-digit HS (harmonised system) classification giving a total of 1 462 industries for the period under analysis.²³ Table 3 captures the trade specialisation of South African production.

[PLACE TABLE 3 ABOUT HERE]

Table 3 indicates that the South African economy has specialised *out of* 775 industries and *into* 389 industries. The fundamental point here is that international trade has affected the nature of specialisation within the South African economy. However, while there has been specialisation out of a larger number of industries, the primary motivation for the change in specialisation needs to be ascertained. For example, the reallocation of resources away from inefficient industries to efficient ones (i.e. specialisation in industries in which the country has a comparative advantage) is a desired policy goal and should be welcomed. However, the extent to which this was the motivation for developments during the 1990s in South Africa remains relevant for future research.

5 External orientation, inflation and economic growth

Within a perfectly competitive environment, there are strong theoretical justifications for increases in external orientation to raise competition in the domestic economy. This serves to dampen prices (inflation) and raise economic growth. Romer (1993, 1998) has shown that there exists a negative relationship between trade openness and inflation —

²³ The data used in the calculation were for the years 1992 and 2001. It should be noted here that the industry classification does not correspond with that in supply and use tables. However, since the concern here is only with the issue of specialisation of production, an identical correspondence does not matter.

a higher level of external orientation should be associated with lower rates of inflation. Using more modern estimation techniques and a broader sample of countries, Sachsidia et al (2003) also find similar results. The empirical evidence on the relationship between openness and growth is mixed.²⁴ Dollar (1992) finds that outward orientation is conducive to economic growth. Sachs and Warner (1995) find a positive relationship between the growth rate of per capita GDP and trade openness. Edwards (1998) considers nine measures of openness and finds that six of these measures are significant determinants of total factor productivity growth. However, all of these studies have been meticulously criticised by Rodriguez and Rodrik (1999, 2001)²⁵. They prove that these studies have methodological, conceptual and statistical deficiencies, which in effect means that the relationship between trade openness and growth was not subjected to robust scrutiny.²⁶ It is now widely accepted that it is not openness *per se* but also other complementary factors (e.g. policies related to education and investment, institutional development, etc) that are needed to promote economic growth. Any analysis of the growth performance should therefore consider all the pertinent factors influencing growth – this still represents a major challenge to the empirical analyst.²⁷

For the purposes of this paper the issue of causation is not dealt with but it is rather attempted to ascertain the growth and price trends associated with the external orientation of the different industries. Due to data constraints, the industries in the supply and use tables are linked to a SIC 3-digit industry classification (see table A3 in the annexure).²⁸ Table 4 depicts the change in external orientation, economic growth and inflation rates for the different industries for the period 1993 and 2000.²⁹

[PLACE TABLE 4 ABOUT HERE]

For the period 1994-2000 the average growth rate for the overall economy was 2,9 per cent while inflation (proxied by increases in the GDP deflator) was 8,3 per cent. The weighted average growth rate for those industries that became more exposed to trade

²⁴ We provide a selective review of some of the empirical analysis during the 1990s. For a more detailed review see Irwin (2003).

²⁵ See also Levine and Renelt (1992) and Edwards (1993) for a critique of some of the studies undertaken during the 1990s.

²⁶ Harrison and Hanson (1999) also review the work of Sachs and Warner (1995) and argue that the Sachs and Warner index does not establish a robust link between more open trade policies and long-run growth.

²⁷ As Rodrik (1999, 2001) has shown, it is not only the identification of the appropriate variables, but also obtaining reliable measures for the identified variables that present the major problem.

²⁸ This was done since annual data on GDP and prices are not available on the basis of the classification used in the supply and use table.

²⁹ Table 4 is ranked according to the extent of external orientation (EO) in descending order.

(i.e. more externally oriented) was 4,0 per cent as compared to an average growth rate of 2,5 per cent for the other industries in the economy for the same period. In addition, inflation was marginally lower (8,3 per cent) for those industries that increased their external orientation as compared to the other industries (9,7 per cent).³⁰ In summary, for the period under analysis, both the inflation and growth performance of those industries that became more exposed to trade (i.e. increased their external orientation) were superior to that of the other sectors of the economy or even for the overall economy. However, since correlation does not prove causation, the empirical challenge remains to ascertain the extent to which economic growth and inflation in South Africa has been influenced by the increased exposure to international trade.

6 Conclusion

Following the policies implemented during the 1990s, the South African economy has become more globalised. This is particularly the case as far as international trade is concerned. The implementation of trade reforms, in some cases faster than WTO commitments, has increased the external trade orientation of the South African economy. Once imported inputs are taken into account, it was shown that the extent of the external orientation experienced by the South African economy is understated by the traditional openness measure. This in effect means that the economy is more open to external trade shocks than is conveyed by the traditional openness measure. The significance of this point should not be underestimated, since around 79 per cent of output in 2000 was accounted for by industries that became more externally oriented. Further, domestic production has become more reliant on imported inputs – around 60 per cent of South Africa's GDP was accounted for by industries with a negative external orientation (i.e. industries where imported input costs exceeded export revenue). In addition, it was also found that those sectors that became more externally oriented had lower inflation rates and higher growth rates than the other sectors in the economy for the period under analysis. The extent to which the increased exposure to international trade facilitated these developments remains topical for further research.

³⁰ The results are similar when the simple averages are considered. The industries that become more externally orientated grew by 2,9 per cent compared to a growth rate of 2,6 per cent for the remaining industries while the inflation rate was 7,6 per cent for the more externally oriented industries and 9,1 per cent for the remaining industries.

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TABLES

Table 1: The exposure of the South African economy to trade (continued)

Industry	1993					2000					Change in external orientation [12]=[10]-[5]	Change in trade openness [13]=[11]-[6]
	GDP Value added Rm	Without adjustment for residual		With adjustment for residual		GDP Value added Rm	Without adjustment for residual		With adjustment for residual			
		External orientation	Trade openness	External orientation	Trade openness		External orientation	Trade openness	External orientation	Trade openness		
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]		
Accommodation	6706	0.49	0.31	0.49	0.31	16051	0.46	0.44	0.45	0.43	-0.04	0.12
Other non-metallic	1118	0.16	0.12	0.13	0.09	1636	0.51	0.22	0.50	0.21	0.37	0.12
Petroleum	4990	0.16	0.16	0.16	0.16	11623	0.66	0.30	0.65	0.28	0.48	0.12
Sugar	752	0.26	0.21	0.22	0.17	1408	0.51	0.44	0.36	0.29	0.14	0.12
Wire and cable	568	0.11	0.09	0.09	0.07	1138	0.34	0.18	0.34	0.18	0.25	0.12
Textile articles	551	0.21	0.12	0.20	0.10	775	0.34	0.21	0.34	0.21	0.14	0.11
Confectionery	493	0.19	0.16	0.14	0.11	950	0.27	0.22	0.27	0.22	0.13	0.11
Motor vehicles	3203	0.36	0.36	0.30	0.30	7122	0.73	0.44	0.69	0.40	0.39	0.11
Primary plastics	1257	0.62	0.49	0.48	0.35	3180	0.66	0.49	0.62	0.45	0.14	0.10
Soap	1244	0.15	0.08	0.14	0.08	2795	0.34	0.17	0.34	0.17	0.20	0.09
Structural metal	1508	0.18	0.07	0.16	0.05	2973	0.23	0.14	0.23	0.13	0.07	0.09
Fruit	814	0.36	0.33	0.30	0.27	1255	0.49	0.44	0.40	0.34	0.09	0.07
Pumps	219	2.64	2.43	2.36	2.15	414	2.55	2.43	2.34	2.23	-0.02	0.07
Non-ferrous metals	1884	0.87	0.52	0.86	0.52	8178	0.81	0.63	0.77	0.59	-0.09	0.07
Paints	454	0.15	0.09	0.16	0.10	1173	0.38	0.18	0.37	0.16	0.20	0.05
Engines	186	1.15	0.38	1.24	0.47	300	0.80	0.50	0.81	0.52	-0.43	0.05
Other paper	628	0.28	0.10	0.30	0.12	1301	0.30	0.15	0.31	0.16	0.01	0.05
Animal feeds	455	0.10	0.02	0.10	0.02	712	0.18	0.05	0.18	0.06	0.08	0.04
Grain mills	1451	0.17	0.13	0.18	0.13	2322	0.20	0.15	0.23	0.17	0.05	0.04
Dairy	1254	0.12	0.08	0.11	0.07	1826	0.15	0.09	0.16	0.10	0.05	0.03
Beverages & tobacco	5408	0.12	0.08	0.12	0.08	11303	0.17	0.14	0.15	0.11	0.03	0.03
Business activities	9884	0.06	0.05	0.07	0.05	23409	0.14	0.09	0.12	0.07	0.06	0.02
Activities/services	14311	0.06	0.04	0.07	0.04	33169	0.11	0.07	0.11	0.06	0.04	0.02
Other construction	4307	0.10	0.00	0.10	0.00	10758	0.10	0.02	0.10	0.02	0.00	0.02
Insurance	30160	0.06	0.05	0.06	0.05	81896	0.09	0.07	0.09	0.07	0.02	0.01
Electricity	12371	0.03	0.01	0.03	0.01	19525	0.06	0.03	0.06	0.03	0.03	0.01
Meat	751	0.15	0.09	0.14	0.08	1220	0.16	0.09	0.16	0.10	0.02	0.01
Mining machinery	426	0.62	0.58	0.86	0.82	1051	1.07	0.82	1.08	0.83	0.23	0.01
Bakeries	956	0.05	0.02	0.05	0.02	1712	0.09	0.02	0.09	0.03	0.04	0.01
Cement	826	0.17	0.05	0.17	0.05	1993	0.20	0.06	0.20	0.06	0.03	0.00
Containers of paper	1120	0.13	0.02	0.13	0.02	2243	0.16	0.03	0.16	0.02	0.03	0.00
Other food	1311	0.25	0.20	0.21	0.17	2109	0.23	0.17	0.24	0.17	0.03	0.00
Health and social work	5628	0.33	0.01	0.33	0.01	15810	0.09	0.02	0.08	0.01	-0.25	0.00
Real estate	22818	0.02	0.00	0.02	0.00	55630	0.02	0.01	0.02	0.01	0.00	0.00
Buildings	8011	0.01	0.01	0.01	0.00	13085	0.08	0.01	0.08	0.01	0.07	0.00
Trade	49762	0.01	0.00	0.01	0.00	91248	0.04	0.00	0.04	0.00	0.03	0.00
Water	1559	0.08	0.00	0.08	0.00	3132	0.05	0.00	0.05	0.00	-0.03	0.00
Agriculture	16284	0.21	0.18	0.21	0.18	26060	0.26	0.18	0.25	0.18	0.04	0.00
General Government	62375	0.01	0.00	0.01	0.00	132519	0.05	0.00	0.05	0.00	0.04	0.00
Treated metals	680	0.15	0.00	0.15	0.00	1170	0.06	0.00	0.06	0.00	-0.09	0.00
Jewellery	174	0.83	0.70	0.61	0.48	521	1.20	0.53	1.13	0.47	0.52	-0.02
Communications	7762	0.26	0.13	0.26	0.14	31015	0.18	0.11	0.17	0.10	-0.08	-0.04
Publishing	3202	0.23	0.20	0.20	0.18	5653	0.23	0.12	0.24	0.13	0.04	-0.05
Coal	5140	0.62	0.56	0.55	0.50	10374	0.55	0.44	0.54	0.43	-0.01	-0.07
Fish	438	0.99	0.95	0.95	0.91	790	1.06	1.02	0.85	0.81	-0.09	-0.10
Gold	15443	0.97	0.93	0.89	0.85	17293	0.92	0.84	0.83	0.75	-0.07	-0.11
Food machinery	51	2.39	1.63	2.93	2.17	167	1.61	1.48	1.60	1.47	-1.34	-0.70
Electric motors	120	1.52	1.48	1.94	1.90	654	0.94	0.83	0.95	0.83	-0.99	-1.07
Total economy	392834	0.20	0.20	0.18	0.18	810241	0.29	0.29	0.28	0.28	0.10	0.10

Source: Authors' own calculations with data sourced from Statistics South Africa

Table 2: Nature of external orientation

	1993							2000			
	Value added 1993	Value added 2000	Extent of external orientation 1993-2000	X/P	M/C	m/P	NE	X/P	M/C	m/P	NE
	[2]	[3]	[4]	[5]	[6]	[7]	[8]=[5]-[7]	[9]	[10]	[11]	[12]=[9]-[11]
Office machinery	135.35	53.45	43.41	0.20	0.94	0.46	-0.27	5.14	1.09	0.05	5.09
Recorded media products	49.43	106.03	0.40	0.30	0.71	4.66	-4.36	2.30	1.38	0.10	2.20
General machinery	1052.65	1363.76	1.75	0.11	0.30	0.04	0.07	1.20	1.30	0.20	1.00
Other mining products	9468.80	27284.14	0.58	0.68	0.54	0.05	0.63	1.01	1.02	0.10	0.91
Gold and uranium ore products	15442.71	17292.90	-0.07	0.85	0.00	0.04	0.81	0.75	0.00	0.08	0.67
Basic chemical products	1668.78	2978.08	0.14	0.43	0.48	0.54	-0.11	0.70	0.71	0.21	0.49
Other manufacturing	4772.48	975.35	1.19	0.10	0.11	0.08	0.01	0.56	0.64	0.12	0.44
Fish products	438.19	789.77	-0.09	0.35	0.46	0.04	0.31	0.47	0.39	0.04	0.43
Leather products	150.38	391.30	0.36	0.28	0.20	0.05	0.23	0.51	0.35	0.10	0.41
Other transport products	1410.69	1165.69	1.92	0.13	0.44	0.12	0.00	0.67	0.85	0.28	0.39
Food machinery	50.83	166.62	-1.34	0.14	0.70	0.76	-0.62	0.48	0.65	0.13	0.35
Machine-tools	239.42	326.70	1.67	0.11	0.58	0.08	0.03	0.41	0.82	0.08	0.33
Optical instruments	445.76	574.70	2.61	0.07	0.63	0.26	-0.18	0.49	0.88	0.16	0.33
Gears	159.65	274.01	1.48	0.10	0.53	0.06	0.04	0.43	0.79	0.11	0.31
Paper products	1626.22	3744.28	0.19	0.27	0.24	0.05	0.22	0.42	0.27	0.11	0.31
Coal and lignite products	5140.20	10374.17	-0.01	0.49	0.02	0.06	0.43	0.41	0.05	0.11	0.30
Pumps	218.93	414.43	-0.02	0.27	0.72	0.21	0.06	0.37	0.75	0.11	0.26
Furniture	1491.64	2219.12	0.39	0.07	0.03	0.08	-0.01	0.36	0.14	0.11	0.25
General hardware products	473.85	846.51	0.75	0.09	0.24	0.09	0.01	0.32	0.54	0.09	0.23
Accommodation	6705.74	16050.89	-0.04	0.13	0.17	0.18	-0.05	0.25	0.20	0.02	0.23
Non-ferrous metals	1884.34	8177.86	-0.09	0.41	0.16	0.35	0.06	0.39	0.24	0.18	0.21
Fruit and vegetables products	813.65	1255.21	0.09	0.23	0.05	0.04	0.20	0.26	0.10	0.06	0.20
Other special machinery	1797.56	1696.69	1.49	0.03	0.35	0.00	0.03	0.38	0.70	0.18	0.20
Sugar products	752.08	1407.97	0.14	0.14	0.04	0.05	0.09	0.26	0.04	0.07	0.19
Iron and steel products	4822.33	9656.55	0.52	0.23	0.09	0.02	0.21	0.47	0.10	0.31	0.16
Electric motors	119.79	654.02	-0.99	0.36	0.71	0.04	0.32	0.25	0.44	0.12	0.13
Knitting mill products	497.87	687.00	0.42	0.06	0.08	0.09	-0.03	0.25	0.27	0.12	0.13
Wood products	1763.75	3750.03	0.26	0.05	0.07	0.00	0.05	0.19	0.13	0.07	0.12
Other textile products	168.76	324.80	0.44	0.15	0.37	0.10	0.05	0.25	0.52	0.14	0.11
Pesticides	197.94	459.74	-0.16	0.19	0.24	0.56	-0.37	0.28	0.35	0.19	0.09
Other electrical products	1055.96	1342.74	0.56	0.03	0.11	0.01	0.02	0.22	0.32	0.13	0.09
Agricultural machinery	150.53	341.24	0.36	0.09	0.50	0.43	-0.33	0.20	0.65	0.12	0.08
Electricity apparatus	281.65	734.07	0.38	0.12	0.47	0.03	0.09	0.20	0.55	0.12	0.07
Transport services	26210.29	49784.71	0.27	0.08	0.08	0.00	0.07	0.14	0.21	0.07	0.06
Other rubber products	286.42	466.30	0.66	0.02	0.11	0.22	-0.20	0.18	0.46	0.13	0.05
Handbags	76.19	121.66	0.65	0.10	0.25	0.08	0.01	0.18	0.50	0.13	0.05
Rubber tyres	819.23	1177.90	0.23	0.04	0.14	0.18	-0.14	0.17	0.27	0.13	0.04
Beverages and tobacco products	5408.12	11303.29	0.03	0.03	0.05	0.03	0.00	0.07	0.04	0.04	0.03
Other chemical products	1148.12	1921.06	0.63	0.04	0.20	0.11	-0.08	0.23	0.43	0.20	0.03
Agricultural products	16283.51	26059.74	0.04	0.10	0.08	0.04	0.06	0.11	0.07	0.08	0.03
Confectionary products	493.49	949.90	0.13	0.05	0.06	0.03	0.02	0.07	0.13	0.05	0.03
Insurance services	30159.81	81895.96	0.02	0.03	0.02	0.01	0.02	0.04	0.02	0.02	0.02
Radio and television products	803.45	1708.37	2.19	0.06	0.41	0.05	0.01	0.31	0.77	0.28	0.02
Structural metal products	1507.71	2972.93	0.07	0.04	0.01	0.11	-0.07	0.11	0.02	0.09	0.02
Wearing apparel	2348.75	3564.26	0.17	0.08	0.07	0.08	0.00	0.14	0.15	0.12	0.02
Accumulators	372.23	454.99	0.21	0.03	0.10	0.17	-0.14	0.12	0.27	0.10	0.02
Textile products	1366.88	1738.11	0.19	0.13	0.21	0.11	0.03	0.16	0.30	0.15	0.02

Table 2: Nature of external orientation (continued)

				1993				2000			
	Value added 1993	Value added 2000	Extent of external orientation 1993-2000	X/P	M/C	m/P	NE	X/P	M/C	m/P	NE
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]=[5]-[7]	[9]	[10]	[11]	[12]=[9]-[11]
Carpets	136.23	190.44	0.27	0.06	0.06	0.14	-0.08	0.16	0.20	0.15	0.01
Electricity	12370.57	19524.73	0.03	0.01	0.00	0.01	0.00	0.03	0.00	0.03	0.00
Glass products	671.85	1016.46	-0.13	0.11	0.18	0.41	-0.30	0.15	0.25	0.15	0.00
Motor vehicles parts	1977.95	4130.37	0.72	0.17	0.33	0.38	-0.21	0.20	0.61	0.21	-0.01
Real estate services	22817.91	55630.28	0.00	0.00	0.00	0.02	-0.02	0.00	0.00	0.01	-0.01
Other food products	1311.30	2108.69	0.03	0.06	0.10	0.04	0.02	0.05	0.12	0.07	-0.02
Other services / activities	14311.44	33169.18	0.04	0.01	0.03	0.02	-0.01	0.02	0.04	0.04	-0.02
Other business services	9883.56	23409.42	0.06	0.02	0.03	0.02	0.00	0.03	0.04	0.05	-0.02
Mining machinery	425.68	1050.89	0.23	0.30	0.42	0.04	0.26	0.23	0.44	0.26	-0.03
Grain mill products	1450.87	2322.50	0.05	0.03	0.09	0.05	-0.01	0.02	0.13	0.05	-0.03
Other fabricated metal products	2873.09	4274.36	0.21	0.03	0.05	0.01	0.02	0.06	0.13	0.09	-0.03
Trade services	49761.94	91247.87	0.03	0.00	0.00	0.01	-0.01	0.00	0.00	0.04	-0.03
Meat products	750.67	1220.38	0.02	0.05	0.04	0.06	-0.01	0.03	0.06	0.06	-0.03
Lighting equipment	134.04	296.44	0.18	0.07	0.36	0.10	-0.04	0.09	0.41	0.13	-0.03
Dairy products	1253.95	1826.07	0.05	0.05	0.03	0.04	0.01	0.02	0.08	0.06	-0.04
Communications	7762.18	31014.71	-0.08	0.05	0.08	0.12	-0.07	0.04	0.06	0.08	-0.04
Household appliances	393.92	582.90	0.02	0.02	0.34	0.26	-0.24	0.09	0.39	0.13	-0.04
Primary plastic products	1257.34	3179.69	0.14	0.08	0.22	0.13	-0.05	0.13	0.27	0.17	-0.04
Water	1559.00	3132.28	-0.03	0.00	0.00	0.08	-0.08	0.00	0.00	0.05	-0.05
Pharmaceutical products	1461.32	2992.02	0.40	0.04	0.23	0.05	-0.02	0.08	0.38	0.13	-0.05
General Government services	62374.94	132518.99	0.04	0.00	0.00	0.01	-0.01	0.00	0.00	0.05	-0.05
Made-up textile products	550.85	774.72	0.14	0.04	0.06	0.10	-0.06	0.08	0.12	0.13	-0.06
Treated metal products	679.93	1170.36	-0.09	0.00	0.00	0.15	-0.15	0.00	0.00	0.06	-0.06
Bakery products	956.13	1712.12	0.04	0.01	0.01	0.04	-0.03	0.01	0.02	0.06	-0.06
Health and social work	5628.33	15809.80	-0.25	0.01	0.00	0.32	-0.31	0.01	0.01	0.07	-0.06
Lifting equipment	274.67	542.22	0.46	0.17	0.24	0.02	0.15	0.17	0.38	0.23	-0.07
Buildings	8011.35	13084.72	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.07	-0.07
Plastic products	2174.53	4479.27	0.27	0.02	0.07	0.02	0.01	0.07	0.16	0.14	-0.08
Other constructions	4306.68	10758.43	0.00	0.00	0.00	0.09	-0.09	0.00	0.02	0.08	-0.08
Published and printed products	3202.06	5653.45	0.04	0.02	0.14	0.02	-0.01	0.02	0.10	0.11	-0.09
Oils and fats products	449.87	751.40	0.24	0.05	0.27	0.08	-0.03	0.04	0.36	0.13	-0.09
Wire and cable products	567.80	1138.33	0.25	0.02	0.04	0.02	0.00	0.06	0.11	0.16	-0.09
Ceramicware	113.28	168.57	0.91	0.08	0.33	0.50	-0.42	0.12	0.65	0.22	-0.09
Motor vehicles	3203.12	7122.15	0.39	0.06	0.20	0.01	0.05	0.19	0.21	0.29	-0.10
Other paper products	628.12	1301.03	0.01	0.01	0.09	0.19	-0.17	0.05	0.11	0.15	-0.10
Soap products	1244.35	2795.49	0.20	0.04	0.04	0.07	-0.03	0.07	0.09	0.17	-0.10
Cement	826.48	1993.43	0.03	0.04	0.01	0.11	-0.08	0.04	0.02	0.14	-0.10
Containers of paper	1120.34	2243.09	0.03	0.02	0.00	0.11	-0.10	0.02	0.00	0.13	-0.12
Animal feeds	454.81	712.48	0.08	0.01	0.01	0.08	-0.08	0.01	0.05	0.12	-0.12
Footwear	735.83	985.23	0.42	0.03	0.15	0.09	-0.05	0.04	0.35	0.16	-0.12
Paints	453.80	1172.56	0.20	0.02	0.08	0.06	-0.04	0.06	0.10	0.21	-0.15
Petroleum products	4989.72	11622.55	0.48	0.06	0.10	0.00	0.06	0.21	0.08	0.37	-0.16
Other non-metallic products	1117.56	1636.03	0.37	0.05	0.04	0.04	0.01	0.11	0.10	0.29	-0.18
Engines	185.83	300.21	-0.43	0.02	0.31	0.77	-0.76	0.08	0.32	0.30	-0.21
Ceramic products	741.13	1167.55	0.41	0.03	0.14	0.01	0.02	0.04	0.23	0.28	-0.24
Fertilizers	378.42	1786.74	0.31	0.08	0.05	0.22	-0.15	0.13	0.14	0.38	-0.25
Jewellery	173.95	521.27	0.52	0.46	0.04	0.12	0.33	0.40	0.11	0.66	-0.27
Total of economy	390840.74	808240.68									

Table 3: Marginal intra-industry trade 1992-2001

In	Out	IIT
389	775	298

Source: Own calculations with data from SARS

Table 4: Change in external orientation, GDP growth and inflation

Industries (SIC)	1993 EO	2000 EO	Extent of EO	1994 ^a -2000 GDP growth rate (ave % change) 2000=100	1994 ^a -2000 GDP deflator (ave % change 2000=100)	Weight (GDP average 1993-2000)	Weighted growth	Weighted inflation rate
[1]	[2]	[3]	[4]=[3]-[2]	[5]	[6]	[7]	[8]	[9]
Radio, TV, instruments, watches and clocks	1.14	3.36	2.21	-1.90	10.65	0.003	-0.005	0.030
Furniture; other manufacturing	0.30	0.92	0.63	1.50	5.33	0.020	0.032	0.115
Other mining ¹	1.10	1.68	0.58	1.57	19.36	0.031	0.051	0.633
Electrical machinery and apparatus	0.16	0.72	0.56	5.82	5.48	0.006	0.038	0.036
Transport equipment	0.52	1.04	0.52	5.76	6.57	0.016	0.100	0.114
Metals, metal products, machinery and equipment	0.50	0.96	0.45	3.00	5.85	0.043	0.135	0.264
Petroleum products, chemicals, rubber and plastic	0.39	0.78	0.39	7.60	5.97	0.042	0.334	0.262
Transport and storage	0.16	0.44	0.27	3.63	5.85	0.064	0.246	0.396
Other non-metallic mineral products	0.29	0.51	0.22	-0.83	6.64	0.008	-0.007	0.053
Wood and paper; publishing and printing	0.29	0.42	0.13	1.85	9.20	0.021	0.041	0.202
Textiles, clothing and leather goods	0.52	0.59	0.07	-0.14	4.46	0.012	-0.002	0.057
Business services	0.07	0.12	0.06	5.99	7.49	0.041	0.259	0.324
Food, beverages and tobacco products	0.17	0.22	0.05	0.39	8.14	0.033	0.014	0.286
Construction	0.04	0.09	0.04	1.47	6.58	0.030	0.047	0.210
Agriculture, forestry and fishing ²	0.21	0.25	0.04	2.62	6.07	0.040	0.110	0.253
General government services	0.01	0.05	0.04	3.98	11.17	0.251	1.056	2.959
Electricity and gas	0.03	0.06	0.03	2.73	4.02	0.028	0.082	0.120
Wholesale trade & retail trade ³	0.01	0.04	0.03	5.06	7.17	0.232	0.414	0.587
Finance and insurance	0.06	0.09	0.02	5.48	8.07	0.078	1.045	1.539
Real estate	0.02	0.02	0.00	1.85	12.22	0.298	0.151	0.994
Coal mining	0.55	0.54	-0.01	2.83	10.07	0.068	0.253	0.900
Water	0.08	0.05	-0.03	2.66	9.22	0.019	0.067	0.233
Catering and accommodation	0.49	0.45	-0.04	0.64	8.95	0.054	0.045	0.628
Personal services ⁴	0.16	0.10	-0.06	0.29	10.15	0.281	0.107	3.726
Gold mining	0.89	0.83	-0.07	-4.70	6.89	0.132	-0.812	1.191
Communication	0.26	0.17	-0.08	14.72	6.40	0.148	2.849	1.239
More externally oriented sectors				2.93	7.58		4.00	8.28
Other sectors				2.61	9.13		2.47	9.69
Overall economy	0.23	0.37	0.14	2.90	8.33		2.90	8.33

Source: Authors' own calculations with data sourced from Statistics South Africa

^a 1993 Growth rate not available

¹ Other mining includes platinum group metals, other metal ores and other mining and quarrying

² Agriculture, forestry and fishing includes all industries

³ Wholesale trade includes retail trade and motor trade

⁴ Personal services include medical, dental and veterinary services and other producers

Note: "More externally oriented sectors" include rows 1 to 19, while "other sectors" include rows 20 to 26.

(Ranked according to the extent of external orientation, column 4).

Annexure

Table A1: Link of products and industry - 1993

Products	Industries	Products	Industries	Products	Industries
1. Agricultural products	Agriculture	17. Textile products	Textiles	33. Basic chemical products	Basic chemicals
2. Coal and lignite products	Coal	18. Made-up textile products	Textile articles	34. Fertilisers	Fertilisers
3. Gold and uranium ore products	Gold	19. Carpets	Carpets	35. Primary plastic products	Primary plastics
4. Other mining products	Other mining	20. Other textile products	Other textiles	36. Pesticides	Pesticides
5. Meat products	Meat	21. Knitting mill products	Knitting mills	37. Paints	Paints
6. Fish products	Fish	22. Wearing apparel	Wearing apparel	38. Pharmaceutical products	Pharmaceuticals
7. Fruit and vegetable products	Fruit	23. Leather products	Leather	39. Soap products	Soap
8. Oil and fat products	Oils	24. Handbags	Handbags	40. Other chemical products	Other chemicals
9. Dairy products	Dairy	25. Footwear	Footwear	41. Rubber tyres	Tyres
10. Grain mill products	Grain mills	26. Wood products	Wood	42. Other rubber products	Other rubber
11. Animal feeds	Animal feeds	27. Paper products	Paper	43. Plastic products	Plastic
12. Bakery products	Bakeries	28. Containers of paper	Containers of paper	44. Glass products	Glass
13. Sugar products	Sugar	29. Other paper products	Other paper	45. Ceramicware	Non-structural ceramics
14. Confectionary products	Confectionery	30. Published and printed products	Publishing	46. Ceramic products	Structural ceramics
15. Other food products	Other food	31. Recorded media products	Recorded media	47. Cement	Cement
16. Beverages and tobacco products	Beverages and tobacco	32. Petroleum products	Petroleum		

Table A1: Link of products and industries – 1993 (continued)

Products	Industries	Products	Industries	Products	Industries
48. Other non-metallic products	Other non-metallic	63. Food machinery	Food machinery	79. Jewellery	Jewellery
49. Iron and steel products	Iron and steel	64. Other special machinery	Special machinery	80. Other manufacturing	Other manufacturing
50. Non-ferrous metals	Non-ferrous metals	65. Household appliances	Household appliances	81. Electricity	Electricity
51. Structural metal products	Structural metal	66. Office machinery	Office machinery	82. Water	Water
52. Treated metal products	Treated metals	67. Electric motors	Electric motors	83. Buildings	Buildings
53. General hardware products	General hardware	68. Electricity apparatus	Electricity apparatus	84. Other constructions	Other construction
54. Other fabricated metal products	Fabricated metal	69. Wire and cable products	Wire and cable	85. Trade services	Trade
55. Engines	Engines	70. Accumulators	Accumulators	86. Accommodation	Accommodation
56. Pumps	Pumps	71. Lighting equipment	Lighting equipment	87. Transport services	Transport services
57. Gears	Gears	72. Other electrical products	Electrical equipment	88. Communications	Communications
58. Lifting equipment	Lifting equipment	73. Radio and television products	Radio and television	89. Insurance services	Insurance
59. General machinery	General machinery	74. Optical instruments	Optical instruments	90. Real estate services	Real estate
60. Agricultural machinery	Agricultural machinery	75. Motor vehicles	Motor vehicles	91. Other business services	Business activities
61. Machine tools	Machine tools	76. Motor vehicle parts	Motor vehicle parts	92. General Government services	General Government
62. Mining machinery	Mining machinery	77. Other transport products	Other transport	93. Health and social work	Health and social work
		78. Furniture	Furniture	94. Other services/activities	Activities/services

Source: Supply and Use Table 1993, Statistics South Africa

Table A2: Link of products and industries – 2000

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

Source: Supply and Use Tables, Statistics South Africa

Table A3: Industry classification

SIC-level	SU-Table
Agriculture, forestry and fishing	Agricultural products
Coal mining	Coal and lignite products
Gold and uranium ore mining	Gold and uranium ore products
Other mining	Other mining products
Food	Meat products
	Fish products
	Fruit and vegetable products
	Oils and fats products
	Dairy products
	Grain mill products
	Animal feeds
	Bakery products
	Sugar products
	Confectionary products
	Other food products
Beverages and tobacco	Beverages and tobacco products
Textiles	Textile products
	Other textile products
	Carpets
	Made-up textile products
Wearing apparel	Knitting mill products
	Wearing apparel
Leather and leather products	Leather products
	Handbags
Footwear	Footwear
Wood and wood products	Wood products
Paper and paper products	Paper products
	Containers of paper
	Other paper products
Printing, publishing and recorded media	Published and printed products
	Recorded media products
Coke and refined petroleum products	Petroleum products
Basic chemicals	Basic chemical products
	Fertilisers
	Primary plastic products
Other chemicals and man-made fibers	Pesticides
	Paints
	Pharmaceutical products
	Soap products
	Other chemical products
Rubber products	Rubber tyres
	Other rubber products
Plastic products	Plastic products
Glass and glass products	Glass products
Non-metallic minerals	Non-structural ceramics
	Structural ceramics
	Cement
	Other non-metallic products

Table A3: Industry classification (*continued*)

SIC-level	SU-Table
Basic iron and steel	Iron and steel products
Basic non-ferrous metals	Non-ferrous metals
Metal products excluding machinery	Structural metal products
	Treated metal products
	General hardware products
	Other fabricated metal products
Machinery and equipment	Engines
	Pumps
	Gears
	Lifting equipment
	General machinery
	Agricultural machinery
	Machine tools
	Mining machinery
	Food machinery
	Other special machinery
	Household appliances
	Office machinery
Electrical machinery and apparatus	Electric motors
	Electricity apparatus
	Wire and cable products
	Accumulators
	Lighting equipment
	Other electrical products
Television, radio and communication equipment	Radio and television products
Professional and scientific equipment	Optical instruments
Motor vehicles, parts and accessories	Motor vehicles
	Motor vehicle parts
Other transport equipment	Other transport products
Furniture	Furniture
Other manufacturing	Jewellery
	Other manufacturing
Electricity, gas and steam	Electricity
Water supply	Water
Buildings	Buildings
Civil engineering and other construction	Other constructions
Wholesale and retail trade	Trade services
Catering and accommodation services	Accommodation
Transport and storage	Transport services
Communication	Communication
Finance and insurance	Insurance services
Business services	Real-estate services
	Other business services
General government services	General Government services
Medical, dental and veterinary services	Health and social work
Other producers	Other services / activities