An Assessment of the Opportunities to Increase the Value-add in KwaZulu-Natal's Dominant Export Industries

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Abbreviations and acronyms

AGOA	African Growth and Opportunity Act
AMTS	Advanced Manufacturing Technology Strategy
CIPI	Competitive Industry Performance Index
DED	Department of Economic Development (of KwaZulu-Natal)
DTI	Department of Trade and Industry
GDMA	Greater Durban Manufacturing Area
GVA	Gross Value Added
HS	Harmonised System (of the trade nomenclature)
HT	High-technology (products)
IDZ	Industrial Development Zone
IMS	Integrated Manufacturing Strategy
ISIC	International Standard Industrial Classification of all Economic Activities
ITC	International Trade Center
KZN	KwaZulu-Natal
LT	Low-technology (products)
MNCs	Multi-national Corporations
MT	Medium-technology (products)
MVA	Manufacturing Value-Added
NRDS	National Research and Development Strategy
NTBs	Non-tariff barriers
OFDI	Overseas Foreign direct Investment
PAMSA	Paper Manufacturers Association of South Africa
PP	Primary products
RB	Resource-based (products)
R&D	Research and Development
SA	South Africa
SADC	Southern African Development Community
SSA	Sub-Saharan Africa
SITC	Standard Industry Trade Classification
TDCA	Trade and Development Cooperation Agreement (the bilateral free trade area deal between South Africa and the European Union)
TNCs	Transnational Corporations
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organisation

Executive summary

Why are exports important?

Exports are important to regions for a number of reasons. For a small open economy increasing access to new markets can allow wealth creation that would have been limited by the size and scope of opportunity in the domestic market. But more than this, export activity is also important in that it allows the export firms to improve their competitiveness and ultimately improves their chances of survival through exposing firms to competition and new environments from which to learn. This learning is around firms improving their processes and products in line with market demand. As Lall points out, earnings are generated by exports, and these earnings allow for new investment possibilities to emerge. When these are taken up, product quality evolves in such a way that it opens up new markets and production orders, and thus a further expansion of exports and new investment opportunities. This is referred to as a virtuous cycle.

What is value added?

"Wealth created is measured as **value added which is sales less the cost of bought-in materials, components and services.** This can be calculated from the audited annual reports and accounts for European companies but not for U.S. and Japanese companies which do not publish sufficient information. Since the cost of bought in goods and services is rarely given in the annual reports, an alternative approach is [generally] used to calculate value added: exactly as defined above. This is: **Value added = Operating Profit + Employee costs + Depreciation + Amortisation."**
(http://www.innovation.gov.uk/value_added/home.asp?p=home)

Why is it important?

"The importance of value added as a concept lies in its focus on the wealth created by a company rather than on its sales (which, could in large part, reflect the resale of expensive items the company has purchased) or on employment (which could be largely low skill, low value added jobs). This focus on the wealth created by a company facilitates questions about how much wealth is created, whether the company is increasing the wealth [it] creates year by year and how efficiently it is creating wealth." (http://www.innovation.gov.uk/value_added/home.asp?p=home)

How do value added and exports interact?

According to Lall:

- As technologically-intensive goods are income elastic and substitutes for old technology, the sectors involved in such goods grow rapidly.
- As technological intensive industries allow large learning effects, they have important spillovers. They are thus important for growth prospects.
- Finally, the development of technological intensive goods and the presence of such sectors lower the vulnerability of individual countries to price changes and to the potential displacement which results from strong competitive pressures.

Investments in advanced technology and exports offer an opportunity for firms to upgrade and for knowledge spillovers. Both effects are associated with improved wealth creation – a double whammy positive effect is the expected result.

Some key findings from the data: KZN exports and value added

KZN economy:

- KZN GDP has been growing from 1996 to 2003, with a peak in performance occurring in 2002. Moreover, the province's GDP has, since 2000, grown in excess of national growth (Figure 5). Manufacturing GDP has also grown.
- The manufacturing sector is important to KZN. Though the contribution made by manufacturing to employment has been stable from 1996 to 2003, it absorbs about 20% of total KZN employment.
- KZN was, in its share of share of manufacturing GDP in second position in 2002 after Gauteng: 21% of SA manufacturing GDP was in the Province (half the contribution of Gauteng). Specifically, KZN's share of secondary industry GDP was 20% compared to 39% for Gauteng (based on data at 1995 constant prices). Having said, it is important to emphasise the key contribution made by KZN in the primary sector: the province's share of South Africa's agriculture, forestry and fishing GDP was 24%, 3 percentage points above that of the Western Cape (21%).
- At a broad sectoral level the overwhelming importance of manufacturing can be seen in the data (Figure 7). However, what is also notable is, together with a slight decline in the relative importance of manufacturing since 1996, the growing importance of transport and finance-related activities and services. This indicates some level of maturing of the KZN economic structure.

KZN trade:

- KZN's relative share of South African exports has remain relative constant over the period 1996 – 2003 at around 17%, although as total SA exports have grown so has the absolute level of KZN exports.
- The postcode trade data, which allow for an analysis of sectoral performances show that KZN has a narrow export base. This particular feature, identified for the end of the 1990s in earlier research (see Velia and Valodia, 2003a) has been altered relatively marginally. 'Ores, slag and ash', 'aluminium products' and products from the 'iron and steel' sector amount to 49.7% of the province's exports.
- The data show that KZN is a major export centre for 'ores and slag', 'aluminium' and 'pulp'. Moreover, aluminium exports are *primarily* from KZN. For this particular sector, the data show a substantial increase in export after 2001. As aluminium exports remain high after 2001, this is not an *ad-hoc* transaction. Also, the data show that some amount of fluctuations demarcates the trends for the inorganic chemical sector. In contrast exports of 'pulp of wood, waste and scrap of paper' have declined since 2000. Some of the changes might reflect changes in commodity prices.
- 88% of KZN exports of 'ores slag and ash' were in the 'iron ores segment'. With such trend already reported in earlier research on KZN trade, producers in the province do not appear to have generally turned towards the production of new products for exports in the more recent years.
- What the data show however is that there are pronounced changes over the years in terms of the dominance of some of the main products. Thus, shifts are observed in 'ores slag and ash' which suggest specialisation. The data also suggest the development of specific products. This seems to have occurred in 'paper and

paperboard' and in 'iron and steel'. For instance, kraft and writing paper have displaced other types of paper (in particular cellulose wad). Also, the composition of 'furniture' has evolved away for miscellaneous products into seats and parts of.

- The increased share of SA manufacturing taking place in KZN, in a context of relatively stable proportionate contributions to SA exports, suggests that KZN producers are meeting domestic demand at an increased level. Production for the domestic market should not be ignored.
- Sub-Saharan Africa (SSA) is a small market of destination. This is as expected given the resource based composition of the province's exports.
- KZN exports *do* secure new orders. One notable shift has been one in favour of countries in East and West Africa: though these regions absorbed 2% of the top five exports from KZN in 2002, the share increase to 4.2% in 2003 and to 5.3% in 2004.

Technological composition

- KZN displayed a distinct structure and changes in the technological content of her exports over time. Exports from the province were dominated by resource-based products other than agro-based and primary products and, from 2001, by primary products. In other words, the latter sector started to expand sharply only recently according to this distinct product classification.
- Whilst KZN has an important share of agro-based products, her exports have been progressively displaced over time. The data also points to the growing importance of 'textile, garments and footwear' in spite of recent and substantial difficulties. The province also emerges as a non negligible base for electrical and electronics exports: more than 10% of South Africa's goods exported in this sector are from KZN. As for the 'high technology items other than electronic goods' segment, it exhibited an erratic pattern over time. Yet, KZN's share is that sector is small. 70% of South Africa's exports in that sector originate from the Gauteng area.
- At the more disaggregated level, it appears that, at least, exports of medium-technology products have expanded sharply in KZN and South Africa. Though these primarily reflect the expansion of the automotive sector, KZN appears to have taken up new opportunities in the engineering segment since 2001 (products from various electrical, optical, machinery and mechanical segments). This is a feature specific to KZN. However, worryingly, KZN's exports of high technology goods have been in relative decline.

Value added and trade:

- When looking at the 10 most dynamic products in world trade (high growth and high value) KZN has a fair presence in two of the primary comities but in the remaining eight, these only comprise 0.94% of KZN total exports from 2000 to 2004. These products have strong demand characteristics and require significant value added and could present opportunities in the future. For example pharmaceuticals appear on this list but remain negligible in terms of KZN exports and where there is domestic production it is largely in generics where value added remains relatively low. Projects such as those around HIV vaccines could help create the knowledge platform to increase value-added prospects and ultimately exports.
- Contrasting the performance of South Africa with that of KZN yields some interesting findings in terms of the province's specialisation in dynamic products. Reiterating the observation that the small sectors are the ones that grow the most rapidly, KZN would appear to specialise (relatively) in some pharmaceutical (bandages) and cocoa products. Relative to the world, South Africa and KZN are specialising in fur,

essential oils and cosmetics and in nickel products. Since these are very small sectors however, exports might have occurred on an *ad-hoc* basis.

- Whereas the Gauteng province experienced the fastest growth of gross value added (for all sectors) from 1996 to 2003, that of KZN has also grown consistently over the period. It is clear from the more detailed figures that the sectors that have performed better in KZN are those that have a strong foundation in South Africa's traditional resource competitiveness. The key players here are pulp and paper, food and beverages, wood products and metal products. Whilst the metal products category is significant it should not be read to mean that associated activities such as machinery manufacturing and household appliances (which form part of the same statistical group) are of no importance. With the exception of food and beverages these sectors have actually grown in importance to KZN whilst other categories have been stable or shown some relative decline in importance.

Some key findings from the interviews: opportunities and constraints for KZN firms

Opportunities:

- SA's competitiveness in lower technology resource intensive/primary processing is well established (power, raw materials).
- SA's (and possibly SADC's) growing levels of economic activity make for a more attractive operating base for MNCs that drive global trade.
- Trade reform processes are generating new opportunities.
- The recovery of margins on some (note currency impact) commodity exports can generate a surplus to invest in new forms of capacity and new processes (e.g. Sappi-Saiccor/Borregaard).
- In spite of a large number of constraints, firms that we interviewed were fairly optimistic about the potential for growth in value-added exports in KZN. However, firms argued that it is often very difficult to 'unlock' these potential opportunities.

Constraints:

- Although the Rand has been relatively stable in the past 12-18 months firms are not sure what it might do in the following 24 months or so. Additionally, there is some concern about the risks associated with other currencies, such as that of China, and the likely impacts of the changes on commodity prices.
- The declining capacity and service capability at the DTI and other government departments.
- Access to export markets was curtailed by a lack of access into multi-national global value chains.
- Distance to market, inland transport leg costs and congestion and parastatal inefficiency hinder competitiveness.
- Entry barriers can be high when testing the market requiring preparedness to make losses initially. It is not easy to get someone to finance this.
- Exporting is not easy – the difficulties confronting the firms in this regard should not be under-estimated. Government policy seems to gloss over exports as a simple choice by firms but it takes a range of activities and a sustained commitment by firms to make exporting a viable option on a longer term basis.

Constraints with respect to beneficiation:

- Costs of new technology are very high in low margin fields and technology is often supplied through vertically integrated MNCs who do not always have an interest in the success of competitor suppliers.
- Investment decisions are frequently focused on the issue of proximity to major growth markets or customers for logistics reliability and value chain management. SA's distance to such markets is a constraint that further hinders the realisation of opportunities.
- The case of automobiles, specifically that of Toyota, shows how having proximate demanding and supportive customers can allow for technology transfer, upgrading and value adding. Such demanding customers are not always present in KZN.
- Matching the scale of competitor plants (new operators) can be a big ask (made worse by distance from market) – especially in the light of soft financing in Asia.
- High prices and strong demand in some commodities make downstream investments a relatively unattractive option, where investment risks are high and considerable margins can be secured from exporting largely unprocessed goods. In many cases as one moves downstream in investment terms investment costs rise and potential risks increase.

Conclusions

There are some changes in the composition of exports that are worth some considerable attention:

- Some new products are being exported, though the export value of these are relatively small;
- 'Old' products have remained or returned.

Shifts are observed in the data in terms of markets of destination and origin of goods:

- Exporters do adapt to changing external conditions and appear increasingly able to do so now that many have had some experience operating in export markets;
- The emergence of a small base of new products might suggest that value added is expanding in some export sectors.

When the technological dimension of trade is considered, the data suggests that KZN is following a distinct trajectory from that of South Africa:

- In the labour intensive segment, it emerges that textiles, clothing and footwear firms are experiencing important difficulties in KZN and in South Africa, but more markedly in the former;
- KZN performance in high technology good is erratic;
- Reassuringly, exports from the automotive sector are expanding in KZN and SA. Will the experience gained in the 'automotive sector' affect other sectors?

For policy making, the aggregate picture is one which broadly signals that there have been relatively limited investments in KZN for accessing foreign markets. Though imports of machinery and equipments are high (and in some cases even grown), the relative absence of new export sectors signals that it is the same larger firms which export over time. In this context, strategies designed to boost investment for foreign markets might be crucial. Also importantly with regard to the smaller firms is that these have failed to take up the opportunities associated with the preferential deals. High barriers to trade might have remained in the importing markets. These need to be carefully assessed.

In policy terms attention needs to be directed towards:

- the large scale exporters;
- new emerging fast growth export sectors.
- Of particular importance is to reinforce an environment in which firms are willing and able to invest in new technology and processes.
- Where value added has grown it appears to do more with currency and price fluctuations than with changes in the use of knowledge and technology.
- International experience has shown that processes to harvest opportunities through effectively capturing the knowledge spillovers from investment, exporting and increasing value added do not emerge organically. Government has a key role to play to build the level of social capital between key role players and work to provide new forms of public goods that enable the process of making spillovers from individual firms more accessible.
- Considerable effort could be directed to supporting processes and institutions that facilitate the acquisition of such technology – both in terms of the dominant export firms and for fast growth new entrants that have shown a consistent presence in export activity over a number of years.
- Government could seek to focus its efforts to attract investment and to work with domestic firms at the more discreet points suggested in the analysis of data. This will require a greater move to partnerships with business and an improvement in the quality and consistency of government support and programmes (something that a partnership with business could help secure).

1. Introduction

There is a considerable body of evidence in the literature on development that links the economic prospects of nations with the process of industrialisation. The bulk of the countries that have witnessed large-scale changes in terms of the reduction of people living in poverty and in the generation of sustained rises in per capita income have done so by creating a framework in which increasing levels of production have been secured in more and more complex industrial processes. Central to this evolution has been the "adding of value" to inputs (often raw materials) in production processes in order to transform them into marketable items of a higher market value. Nations that have managed to combine these types of activities with improved exports – i.e. those that have found international markets for products that they have "added value" to, have done particularly well. The rapid industrialisation of the fast growing economies of East Asia is a case in point. However, many countries have not managed to secure the momentum of industrialisation and growth experienced by China, South Korea, Taiwan and others. It is in this context that South Africa finds itself, having made significant progress as an industrialising country, but also struggling to move beyond the resource-based dominance of its production activities and in particular the resource-based character of its international trade. Changing these patterns of trade is no simple matter and is likely, should such change be sustained over a longer period, to involve incremental change to the competitive advantages that the Province offers in relation to the rest of South Africa and the world.

We provide in this document an analysis of exports and value added with respect to the Province of KwaZulu-Natal. More specifically, the analysis focuses on the development and expansion of value added that would allow a sustainable export performance by the province. As such, the study, which compliments previous research of (provincial) export opportunities, pays attention to the structure of the existing export base and to the quality and nature of exports.

This document is structured as follows. A first part outlines some conceptual issues relating to exports and value added. This is followed by a methodological overview. A brief analysis of South Africa's position in relation to export activity and value added is then set out alongside a presentation of some domestic policy responses. The document then moves on to discuss both the constraints associated with and the identification of new opportunities around value adding. Two main parts form the discussion. A first part (Section 5) presents the results from data analyses. A second part (Section 7) presents the findings from a process of interviews. An intermediary Section (Section 6) looks at some specific determinants of export – currency and commodity price changes and air transport. Section 8 concludes with some proposals on the next steps proposed to take the study to conclusion.

2. Exports and value added

The section seeks to provide some conceptual context and clarity to the key terms of export and value added that underpin this study.

2.1. Why exports and value added matter

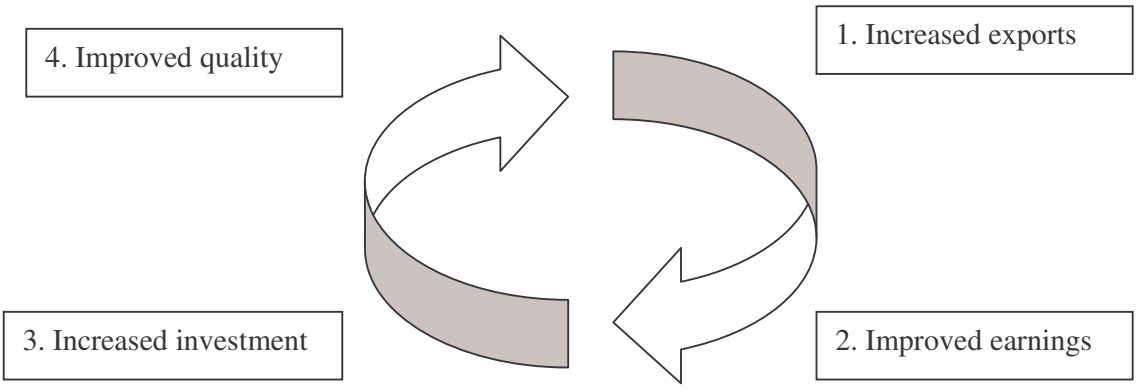
Before discussing the issue of value added at a more technical level it is worthwhile to look conceptually at the issue of exports and how these might relate to value added.

Consensus in policy frameworks for developing countries has placed considerable emphasis on opening up these economies to global economic processes. In this regard the degree to which a country is able to export various products is seen to reflect, with the supposedly distorting effects of trade barriers removed, the extent to which the nation is able to build on comparative advantages it might have. Furthermore, a growing diversity of exports and a growing proportion of world trade, in particular exports, also suggest growing productivity. In such a context it makes sense for nations to focus their energies in those activities that they are likely to be most competitive at producing, given the resources and technology at their disposal. Export activity allows nations the potential to raise levels of income by meeting the needs of markets beyond the limits imposed by the countries borders and through importing goods produced more competitively elsewhere to meet local demand. As such, an economy that is open and which has an export orientation is seen as one most likely to benefit from the processes of globalisation. Although this picture is overly simplified in that much economic activity still takes place in a context of asymmetries of power between nations, it is one which is seen to guide mainstream development thinking.

Issues of value added arise in a context where globalisation has seen the rapid integration of many economic processes into global processes. In many instances this has left developing countries with little else to focus on but the export of commodities and raw material inputs into more complex industrial processes. Global trends of declining commodity prices (in the long run) and an international division of labour in which less complex activities appear to be generally reserved for developing countries has forced attention to be paid to the issue of value added. In essence, examining value added entails looking at the degree to which investments in processing of products can secure greater proportions of the price the end user might pay in compensation for a more complex local production scenario. Hence value added related to processes such as design, research and development (R&D), product transformation, packaging and others might be seen as important to secure improved earnings for a country that might be suffering under continued weak global prices for commodities or other low technology manufactured goods.

Value added activities can take place for the domestic and export markets. Yet, limitations on the size of domestic markets and the lack of sophisticated forms of demand (or at least of a diversity of forms of demand) often lead policy makers to suggest that for a country to truly secure gains from industrialisation it must not only add value in production for the domestic market, but should also compete effectively in the global stakes for value added activities in international market places. In this regard, Lall's work at UNIDO (as reflected for instance in Lall, 2000) suggests there is some form of virtuous cycle related to exporting and improving manufacturing performance of a country. The main argument is reported schematically below.

Figure 1. Export and manufacturing: the virtuous circle



2.2. Value added and adding value

The term "value added" is used to provide some insight into the degree of transformation which occurs within industries. Thought it is associated with the notion of productivity, the concept is distinct insofar as the focus is on the product as opposed to on the factor of production and on how these are combined to yield the output. The concept of value added has traditionally been associated with process oriented industries but it has become more widespread as an analytical concept in other fields of manufacturing.

"Wealth created is measured as **value added which is sales less the cost of bought-in materials, components and services.** This can be calculated from the audited annual reports and accounts for European companies but not for U.S. and Japanese companies which do not publish sufficient information. Since the cost of bought in goods and services is rarely given in the annual reports, an alternative approach is [generally] used to calculate value added: exactly as defined above. This is: **Value added = Operating Profit + Employee costs + Depreciation + Amortisation."**
(http://www.innovation.gov.uk/value_added/home.asp?p=home)

Box 1. What is value added

In narrow technical terms value added is defined by the OECD as output value subtracted from the values of all purchased materials. Manufacturing Value-Added (MVA) is further defined as:

> "… a measure of net output (i.e. of gross output less those purchased inputs - such as cost of materials and supplies and of fuel and electricity) which have been embodied in the value of the product."

In short, manufacturing value-added consists of the value of manufacturing shipments plus net change in the inventory of goods in process and finished goods, less the costs of materials and supplies and of the fuel and electricity used.

Figure 2. How to calculate the value added for a company

Figure 1: How to calculate the Value Added for a company

Value Added is calculated from a company's accounts:

VALUE ADDED =	**OPERATING PROFIT + EMPLOYEE COSTS + DEPRECIATION + AMORTISATION**
Where the quantities on the right hand side are calculated as follows:	
Operating Profit =	Profit (or loss) before tax plus net interest paid (or minus net interest received) less gains (or plus losses) arising from sale/disposal of businesses or assets.
Employee Costs =	Total employment costs (wages & salaries, social security and pension costs). (usually given in a note on employee emoluments and numbers in the accounts).
Depreciation =	Depreciation and impairment charges on owned assets and assets held under finance leases. (usually disclosed in a note to the accounts on profit or fixed assets).
Amortisation =	Depreciation and impairment charges on acquisition goodwill and other intangible assets. (usually found in a note to the accounts on profit or intangible assets).

Source: http://www.innovation.gov.uk/value_added/home.asp?p=home

It should be noted that there are differing approaches to measuring value added and that, by and large, those using the concept struggle in taking into account non-industrial services such as advertising that might also potentially lead to the transformation of products in the eyes of consumers.

It is also important to understand the differences between the concept of value added and that of adding value. Parts of the differences relate to the limit of the concept of 'value added' and to its interpretation for policy-making. Value added measures the "value added" in the transformation of a series of inputs to create a specific product. Adding value suggests a process of moving from one part of the value chain to another which is closer to the end user product. In the South African policy environment a somewhat distinct though related theme has had considerable emphasis: that of "moving up the value chain" in various industrial processes. The latter approach, detailed in Kaplinsky and Morris (2001), is based on a perspective that the country would gain by having a profile of activities that is closer to end products than one of basic inputs or intermediate goods (e.g. moving from supplying sheet metal to manufacturing car doors) – see Kaplinsky *et al.* (2001). Whilst this is generally associated with increasing value added, value added can also be conceived of as adding value to the same product that might have previously been produced before by using, for instance, a more innovative process (e.g. engineering of metals that reduce corrosion problems).

The importance of value added as a concept, despite the often illusive and estimated nature of the data in developing countries, is emphasized by the UK DTI in the following statement:

> "The importance of value added as a concept lies in its focus on the wealth created by a company rather than on its sales (which, could in large part, reflect the resale of expensive items the company has purchased) or on employment (which could be largely low skill, low value added jobs). This focus on the wealth created by a company facilitates questions about how much wealth is created, whether the

company is increasing the wealth [it] creates year by year and how efficiently it is creating wealth."
(http://www.innovation.gov.uk/value_added/home.asp?p=home)

In the South African context the importance of looking at value added lies in the fact that many companies do little to transform the inputs they receive into their factories. As they are not adding significant value, their contribution to wealth creation is limited. South African policy has sought was to encourage greater levels of value added in order to improve the wealth creation and therefore the developmental impacts of economic activity. Thus a process to significantly raise the design input into the weaving of grass baskets and related branding activities for exports will raise the value added by such a process and improve the wealth generation impacts. However, as it stated elsewhere data can at times be misleading and replacing relative cheap labour with mechanised processes can also generate increased value added results. As such the development gains intended from the promotion of value added need to be carefully interrogated.

3. Data and methodology: An overview

This section briefly presents the data sources used in this paper. More specifically, we set out the information type that will form the basis of (i) the identification of the current state of 'value added' in KwaZulu-Natal and (ii) the examination of sectoral opportunities. The methodology applied to the data is basic: it consists of a presentation of summary statistics related to trends and shares. The information is obtained from primary data analyses. Whilst the analysis is severely constraint by a lack of input-output data which are crucial for an assessment of value-added, additional information has been obtained though a series of interviews with a number of key respondents. Qualitative information is thus used to complement the quantitative findings.

The analysis of value added uses data from three main sources. First, information has been compiled as already available (e.g. in various sectoral, provincial and national documentation).[2] Second, information has been directly gathered from interviews conducted towards firm, industry representatives and/or organisations as well as research centres (e.g. the Forestry Research Centre).[3] Third, data has been analysed specifically for the project.

The data analysed for this project are from a series of sources.

- Value added data for South Africa are available from the United National Industrial Development Organization (UNIDO). Though only partially available for 1992 and 2002, value added data serve to provide an overview of the position and progress made by South Africa relative to other countries (developing and otherwise). More

[2] Various reports detail the current situation of specific sectors in the Province. At a general level, the 2004 *Industrial Strategy* specifies as well as justifies the economic sectors which are to be prioritised by the Department of Economic Development KwaZulu-Natal (DED). The 2005/2006 *Economic Review* from the DED describes the situation in the Province on some key dimensions (e.g. skills) and identifies the performance of various economic sectors.

[3] Further documents are available at the sectoral level; the 2004 document from PAMSA ("A Perspective on South Africa"), for instance, contains up-to-date information on the capacity of paper mills, data on production and consumption for 2003 as well as a list of issues and opportunities in PAMSA's various investment programmes.

specifically, value added data from UNIDO enables the identification of sectors where improvements have been notable as well as sectors which are falling behind.

- Other data have been used to relate the position of KZN to that of South Africa. Gross value added data from Global Insight, available at a broad sectoral level of the Standard Industrial Classification (SIC) are examined from that perspective. These data span the period 1995/1996 to 2003. (Only projections are available for 2004.)

- Since provincial trade data are only available from Customs and Excise of South Africa (SARS), these have been used at great length in this paper. The original data, specified at a high level of disaggregation - that is at the 9-digit level of the Harmonised System (HS) nomenclature, provide information on the level of trade at the postcode level.[4] These data are considered to identify the key sectors as well as to raise more general questions about the potential factors driving the export performance.

  Using re-aggregated trade data (primarily at the 4 and 2 HS digit level), KZN exports are examined specifically to draw upon information about the sectoral composition and current concentration of exports. Here the questions asked are whether exporters in the province are involved with new products within particular segments and/or whether a shift of exports has occurred in favour of the more technologically-intensive and/or consumer goods. An analysis of changes in the direction of exports (that is in markets of destination) further inform on product changes – since exports to the developed countries are likely to have a higher value added content than exports to (neighbouring) developing markets, has such a change happened?[5]

  Attention will also be paid to imports at the provincial and national level. Though import changes are hard to comment upon as they reflect a multitude of transformations (e.g. production specialisation, changes in demand, exchange rate effects, etc.), import data will be considered to establish the extent to which there are *potentials* for new product development within South Africa. That is, have imports of particular consumer goods, say, decreased? One hypothesis here is that domestic firms have become involved with the production of goods that had to be previously imported. In contrast, an unaltered pattern of imports might suggest that bottlenecks in product change or into the production of certain products still prevail at the local level.[6]

  In a separate exercise, the trade performance (export and import data at various levels of aggregation) is set against currency changes. One main constraint to value adding is potentially unfavourable exchange rate movements. The strengthening of the Rand against the US$ in (September) 2002 might have caused firms to lose important international orders.

  The analysis focuses on the large sectors as well as on sectors which have experienced a rapid growth over the 2000-2005 period. As such, an attempt will be made to explicitly focus on the performance of the smaller fast-growing sectors.[7]

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[4] The main weakness of these data lies with the fact that they report trade as it is registered at a particular point – that is by a company headquarter, or by agents. In other words, the final destination of imports (and conversely, the origin of exports) might be elsewhere. Accordingly, the data are sensitive to the movements of companies and of agents.

[5] Data on the growth in international demand at the sectoral level, available from the International Trade Center (ITC), have also been incorporated in the analysis.

[6] Since increased imports are much harder to interpret, we do not comment on these.

[7] The fastest growing sectors are typically those that are small in level terms.

Finally, the data will be transformed to draw a typology of performance according to the technology intensity. Since technological content is specified according to the Standard Industry Trade Classification (SITC – see Lall, 2000), we will transform the HS data into this nomenclature. Products are then grouped into four types which reflect their technological 'intensity': resource-intensive, low-, medium- and high-technology. The performance of KZN in that format can then be compared with that of other South African provinces and with that of South Africa.

As should be clear, data only provide a general overview of the situation at the sectoral level. Though some amount of opportunities and constraints at the level of 'adding value' can be identified through them, sectoral specificities and details can only be captured directly from those involved with the production decisions. Interviews were thus carried out with key informants from both the manufacturing and services sectors. Interviews - in the form of face to face and telephonic discussions - shed detailed light onto opportunities and constraints. They further help to rank some of the constraints. The information obtained from the interviews is reported in Section 7.

The list of sectors considered for the interviews was drawn according to two criteria: first, whether an important firm could be identified in a large export sector in KZN (e.g. ores and minerals). Second, whether the firm has an important growth potential that will spillover onto the performance of the sector in which it is located. Additional firms have been approached from the perspective that their history would provide some insights into some important constraints to the process of adding value. Though Annex 1, p. 62 broadly reports the main themes and questions which respondents were asked to comment upon, the questions were structured so as to distinguish production-related changes and incentives from product development strategies. We re-emphasise that the interviews play an important role: besides providing explanation to the data trends, they provide a sense of both current and *future* challenges.

4. Value added in SA: context and policy response

Data from UNIDO suggest that manufacturing value added (MVA) in South Africa has grown over time at rates comparable or in excess to those observed in the developed countries (Table 1). (This is notwithstanding the fact that with low levels of value-added South Africa is a very marginal contributor to world MVA.)

Table 1. Performance in manufacturing value added: South Africa and developed markets, 2002

Indicator	Year/Period	South Africa	Developed Markets
MVA, average annual real growth rate (in %)	1993-1998	2.5	3
	1998-2003	2.9	1.7
MVA per capita, in constant 1995 US$	1993	681	4784
	1998	696	5340
	2003	749	5710
MVA as percentage of GDP at constant 1995 prices	1993	18.9	18.9
	1998	18.3	19.1
	2003	18	19

Source: UNIDO Industrial Statistics Database.

In terms of sectoral distribution, the UNIDO data reveal that value added was, for South Africa, primarily located with the transformation of raw materials: 'agricultural products', 'iron & steel', 'coke oven products' and 'processed meat, fish, fruit, vegetables and fats' amounted to about 60% of total South African MVA.

In terms of the share of value added in total output, a different picture emerges. According to this indicator, value added is high relative to output in 'motor vehicles', 'basic iron & steel' and in the furniture sector. The shares of these exceeded the average of 63% for manufacturing in 2002. The sectors with comparative low ratio of value added to output were agro-industry, glass and 'special domestic appliances' – the share was 24% for the latter.
Finally, when value added per employee is examined the best performance is found in 'basic iron and steel'; value added amounted to US$18609 per employee in the sector compared to an average of US$9317 for manufacturing. The worst sector is textiles – with a value that was 6 times lower than in 'iron and steel'. Moreover, whilst the value per employee is relatively high in furniture, it is low in wood work.

What generally comes through the UNIDO data is a strong overall performance of two sectors - 'iron & steel' and 'furniture' in South Africa. The latter is notable along two dimensions. First, furniture is a medium size sector, contributing to 9% of total MVA. Second, the sector is in fact experiencing difficulties. It has of late been suffering the effects of a diminished feedstock supply of sawlogs. In other words, performance of value added does not systematically guarantee the survival of a sector. The quality and the extent of the changes at hand are both important features contrasted against the extent to which changes are required to ensure that a sector remains competitive. It is not possible to isolate the latter effect from the data analysis.

Though the data highlight the numerous ways through which value-added can be assessed, a series of indicators are required to gauge the sectoral trends. Thus, a high share of value added in output may represent two possibilities: (i) that substantial processing has taken place or (ii) that the value of output is low so that the share of value-added is high. This indicator thus needs to be complemented by an analysis of value added per worker (or per unit of capital). The latter provides some sense of factor productivity and/or factory-floor productivity. For the two aforementioned sectors both indicators are high though 'iron and steel' is a capital-intensive sector in South Africa.[8]

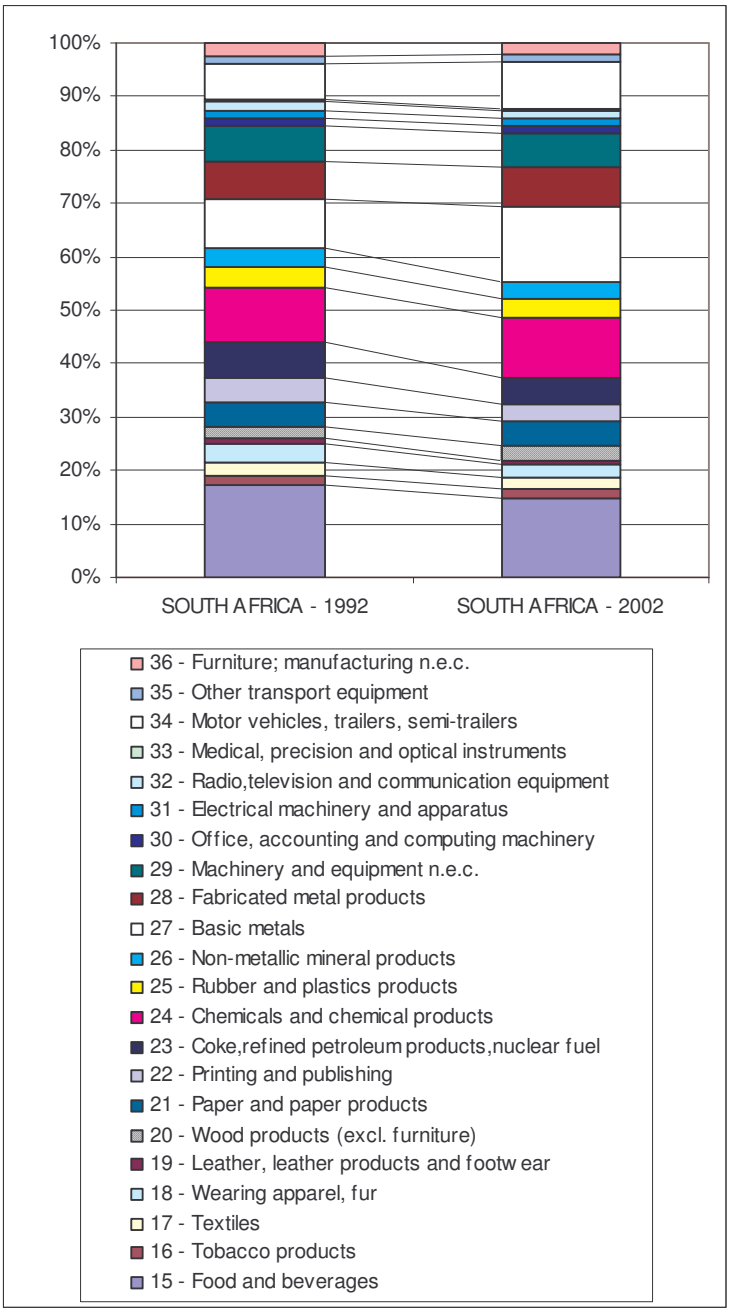
In terms of structural changes, South Africa's value added has evolved relatively little. Figure 3 reports the distribution of MVA across sectors in 1992 and 2002. It shows that though some sectors are declining in importance (e.g. 'food & beverage') between 1992 and 2002, others have improved their relative position. Wood products (excluding furniture), basic metal and 'motor vehicles' have experienced a growth of their MVA. For some products, the decline in MVA is specific to South Africa. For instance, MVA in the 'medical, precision and optical instruments' sector dropped by 1.2% per annum in South Africa from 1992 to 2002 whilst increasing by 3% per year in the developed markets. The biggest gaps between the performance of South Africa and that of the developed economies are in 'office, accounting and computing machinery' followed by 'communication equipments, radio and television'. South Africa has difficulties in generating a growth in MVA in these two sectors.

[8] Also, according to UNIDO data, the share of wages in value added was low, standing at 39% in 2002.

The sectors for which South Africa had a MVA advantage relative to the developed market economies are:

- Basic metals
- Wood products (excl. furniture)
- Motor vehicles, trailers, semi-trailers
- Furniture; manufacturing not elsewhere classified (n.e.c.)
- Paper and paper products
- Fabricated metal products
- Chemicals and chemical products
- Machinery and equipment n.e.c.
- Non-metallic mineral products
- Other transport equipment

Figure 3. Distribution of MVA across sectors – South Africa, 1992-2002 (%)



Source: *Ibid.*

At a policy level the South African authorities have taken a specific perspective on value-added. The perspective relates to a broader set of consideration in which MVA is one component of the industrial competitiveness.

An index of performance, the Competitive Industry Performance Index (CIPI), has been created to capture broader competitive issues. Besides MVA per capita, the index takes into account the level of manufactured exports per capita, the share of medium- and high-tech (MHT) activities in MVA, the share of medium- and high-technology products in manufacturing exports. The second dimension considers the technological structure of MVA

whereas the third captures the technological structure of the manufactured exports. There are several biases in the index. First, it is biased in favour of manufacturing. Therefore it is biased against African countries for whom primary commodities dominate the structure of exports and countries – like South Africa – which might have comparative advantages,[9] and countries for which the services sector is important. Second, the index focuses on the structure of output, not that of input.

Having noted a series of problems with the CIPI, South Africa's overall performance emerged as similar to that of Greece and Turkey but below that of a set of Latin American countries. The authority have responded to the challenge, shifted their attention towards supporting innovation and technological adoption. As such, South Africa's policy response to issues related to value added in manufacturing has, in recent times, begun to coalesce around a few initiatives. The Department of Trade and Industry (DTI) has framed national policy through the Micro-Economic Reform Strategy and the Integrated Manufacturing Strategy (IMS). The IMS refers explicitly to the need in South Africa to add value to raw materials (beneficiation). The IMS also moves beyond this by suggesting that

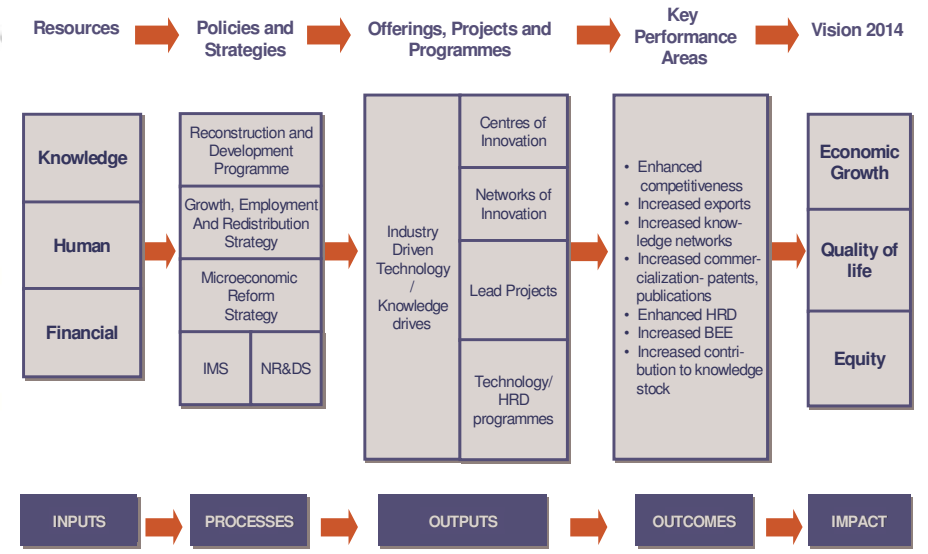
> " … the greater the capacity for economic networks that are efficient, the greater the capacity for value addition within the economy….Value can be added, and employment created, at each stage of production, and increasingly this value addition emanates from the incorporation of business services, information and communication technology, and efficient logistics into the various production cycles." (DTI, 2003:27)

In this context the DTI proposes a series of Customised Sector Programmes where value added opportunities can be explored and possible networks to support such value added examined. As of yet none of the Customised Sector Programmes are in the public domain.

However, the DTI activities are also completed by a programmed driven by the Department of Science and Technology. The Advanced Technology Manufacturing Strategy (ATMS) proposes a series of initiatives at the regional and national level to upgrade technological inputs that are essential in enabling a country to perform as a high technology or advanced technology production location. A variety of supporting programmes such as the Godisa Initiative (supporting the KZN Innovation Centre) would contribute to the effective promotion of the objectives of the ATMS. Figure 4 reports the various components of the ATMS.

[9] This is compounded by the fact that there is a strong link between technological intensity and foreign direct investments.

Figure 4. Unpacking the Advanced Manufacturing Technology Strategy



Source: Framework for the ATMS (www.atms.co.za)

5. Value added in KZN: data analyses

This section presents the main trends obtained from two data sets, the trade data of SARS and various data from Global Insight. Though some of the indicators of change have been calculated from 1993, the trends are set out for two main subsequent periods: 1998 to 2001 and 2002 to 2004. The first period considered starts at the time of the East Asian economic crisis. Though this did not fully reverse the earlier progress made by South African exporters, the resulting slow down of international trade has undoubtedly had some effects which are to be borne in mind when the indicators of performance are presented. The trends after 2001 were marked by other specific events which occurred in the policy and trade arena (international terrorism and the granting of an important preferential trade deal to South Africa). The performance is thus concerned by recent changes.

The section is structured as follows. Following a brief presentation of some aspects of manufacturing in KZN, we turn attention to detailing the recent trade performance of KZN. The focus of this section is with a presentation of the dominance of some key products and changes to the composition of KZN exports. Some points are also drawn around the markets of destinations and the origin of exports and imports. Also detailed in the second section is a sub-section which details KZN trade according to a technological classification. A third main sub-section deals specifically with value added opportunities in constraints as they can be identified from the data.

5.1. The general KZN economy

KZN GDP has been growing from 1996 to 2003, with a peak in performance occurring in 2002. Moreover, the province's GDP has, since 2000, grown in excess of national growth (Figure 5). Manufacturing GDP has also grown as can be seen in Figure 6.

The manufacturing sector is important to KZN. Though the contribution made by manufacturing to employment has been stable from 1996 to 2003, it absorbs about 20% of total KZN employment. This is in a context of increasing unemployment in the province: according to Global Insight data, the rate of unemployment (using the expanded definition) would have increased from 40% in 1996 to about 47% in 2003. In parallel, the indicator of provincial comparative advantage (in terms of the contribution of activities to the province relative to that at the national level)[10] is the highest in manufacturing (the location quotient is 1.48).[11]

Figure 5. KZN and SA GDP growth (yearly change - %)

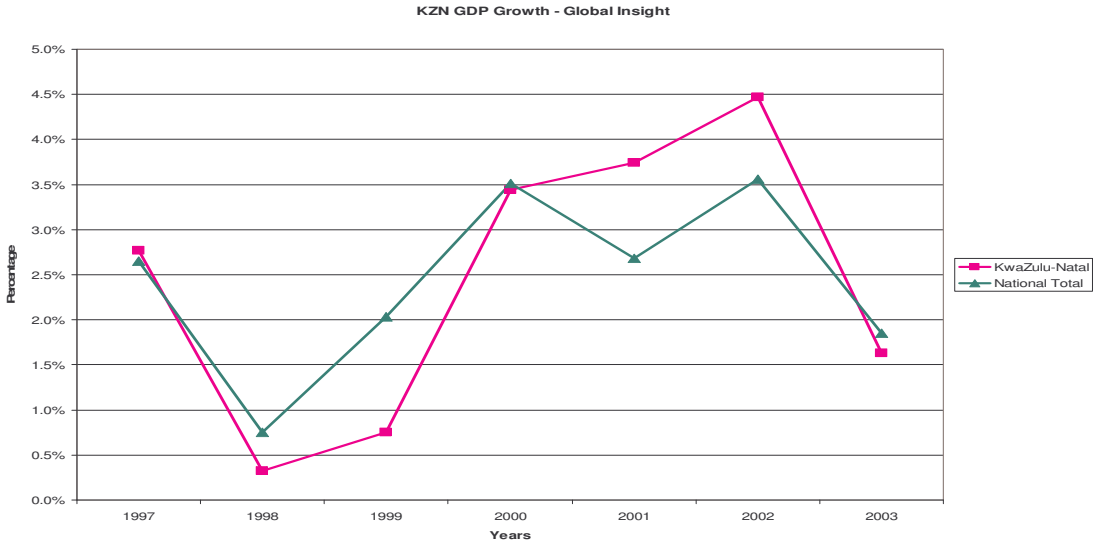
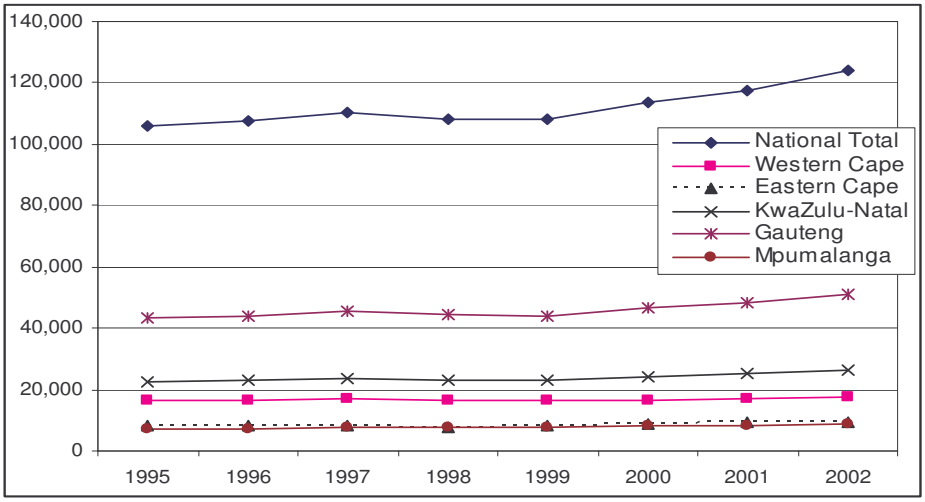


Figure 6. GDP growth in manufacturing by main provinces and total (Million Rand, constant 1995 prices)



Source: Global Insight database.

[10] This is labeled the location quotient in the Global Insight database. "The location quotient is an indication of the comparative advantage of an economy. A provincial or magisterial economy has a location quotient larger (smaller) than one, or a comparative advantage (disadvantage) in a particular sector when the share of that sector in the provincial economy is greater (less) than the share of the same sector in the national economy." (Global Insight REF)

[11] The other sectors that have an advantage in their location in the Province are construction and transport.

KZN was, in its share of share of manufacturing GDP in second position in 2002 after Gauteng: 21% of SA manufacturing GDP was in the Province (half the contribution of Gauteng). Specifically, KZN's share of secondary industry GDP was 20% compared to 39% for Gauteng (based on data at 1995 constant prices). Having said, it is important to emphasise the key contribution made by KZN in the primary sector: the province's share of South Africa's agriculture, forestry and fishing GDP was 24%, 3 percentage points above that of the Western Cape (21%).

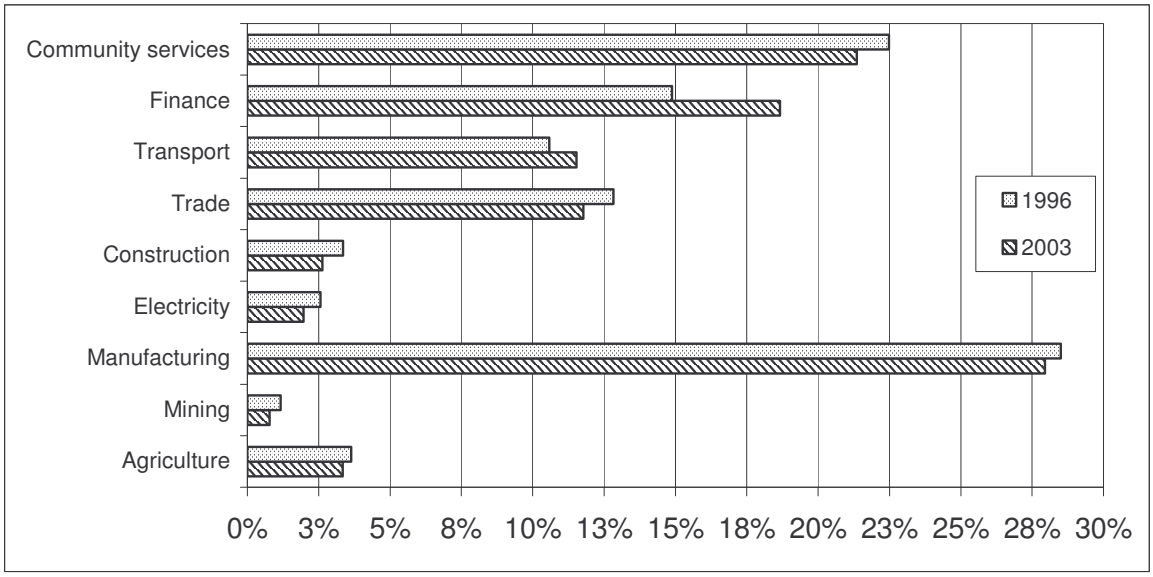
Having commented on relative positions, a different pattern of performance emerges when time series data are considered. First, there has been no change to the contribution of KZN to South Africa's manufacturing GDP. According to Global Insight data, the share was 21.4% in 1995, 21.5% in 1999, 21.5% in 2002. However, with the marginal exception of the Eastern Cape and Mpumalanga, no noticeable nor consistent change occurred in any South African provinces as can be seen from Appendix Figure 1, p. 63.

With strong fluctuations occurring across the years, a complex picture emerges around changes in gross value added. The resource industries are characterised by a relatively strong performance of 'mining and quarrying of products other than metal ores' – the sector experienced a growth of 10% between 2000 and 2004. Yet, declines in performance occurred between 2002-2003 for many other resource sectors. Only the 'wood & wood products' sector seems to have displayed some amount of resilience.

The pattern of growth for sectors which are more technology-intensive and advanced in manufacturing processes is also erratic. Again, a large number of sectors experienced a decline between 2002-2003. This follows an expansion from 2000 to 2002. Though it is difficult to explain the changes, it is likely that some sectors were affected by a currency effect (the progressive appreciation of the Rand against the US$ from 2002).

It is also worth briefly reflecting on the character of the KZN economy itself and how it changed over time. At a broad sectoral level the overwhelming importance of manufacturing can be seen in the data (Figure 7). However, what is also notable is, together with a slight decline in the relative importance of manufacturing since 1996, the growing importance of transport and finance-related activities and services. This indicates some level of maturing of the KZN economic structure. We return to take a closer look at changes in some key categories of economic activity in Section 5.3.

Figure 7. KZN's shares of gross value added (GVA) for main industry categories - 1996 and 2003



Note: The definition of GVA in Global Insight is GVA at basic prices = GVA at factor cost + Other Taxes on production – Other Subsidies on production. In turn, GVA at factor cost = Compensation of employees + Gross operating Surplus.
Source: *Ibid.*

5.2. The recent trade performance of KZN

i. Overview

Global Insight data contain some amount of information about the pattern of KZN exports. Though there has been a consistent expansion of the share of exports from the Western Cape in South Africa's exports from 1997 and of the Eastern Cape from 1998 until 2003, Gauteng appears to be the province displaced (Table 2). As for eThekwini's share, it appears to have been relatively stable: the share stood at 16% throughout the period. Moreover, the share of trade from eThekwini in South Africa's total trade relative to the share of the rest of KZN in South Africa's total trade remained at about 9.2% for the period, except in 2001 when a displacement occurred *against* areas of KZN other than eThekwini. In other words, the slow economic conditions which prevailed in 2001 (following the September 11 attack) primarily affected those exporters located outside of eThekwini. It should be noted that the bulk of exporters outside eThekwini are involved in resource-based industrial processes.

Table 2. Regional shares of export by South African provinces

Provinces	1996	1997	1998	1999	2000	2001	2002	2003
Western Cape	8.1%	7.3%	8.2%	8.8%	9.4%	10.3%	12.5%	12.9%
Eastern Cape	3.1%	2.9%	4.0%	6.6%	6.3%	7.2%	6.6%	7.8%
Gauteng	59.5%	57.0%	55.6%	55.7%	54.1%	52.4%	48.3%	52.6%
KZN Total	17.2%	16.0%	17.8%	16.6%	16.8%	14.8%	18.2%	17.7%
Rest of SA	12.2%	16.7%	14.4%	12.3%	13.4%	15.2%	14.4%	9.0%
National Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Global Insight database.

Turning attention next to the trade flows for KZN and the rest of the world using the South African Revenue Services (SARS) trade data confirms the relatively stable contribution of KZN in total exports. However, the contribution of about 18% (see Table 3) is higher than that reported above. There are, moreover, variations in the shares over the years which are more pronounced with the SARS data than those observed using the Global Insight data. Nevertheless, the 2001 displacement occurs in both datasets. Stressing discrepancies across various trade data sources, we focus on the SARS data in the following discussion.

Aggregated SARS data at 2000 constant prices[12] suggest that South Africa's experienced a declining trade deficit between 1998 and 2001 (with even a small trade surplus in 2001). The trade surplus disappeared subsequently. Though KZN displayed a trade surplus between 1998 and 2001, it generally followed the national trends in its trade balance. However, as South Africa's imports grew in 2002 and 2003 after a period of stagnation, KZN imports picked up from 2001 to grow in excess of the national average.[13] The latter trend is after a period in which imports actually somewhat declined (1998-2001). This possibly signals some 'positive' developments: either consumer goods are being purchased overseas – reflecting improved economic conditions and enhanced consumer demand - or that it is machinery and other inputs that are being imported. Whilst we turn to the changes composition of import below, a first point which emerges from the data is that the appreciation of the Rand at the end of 2003 is not seen to have sharply impacted on the imports of KZN and of South Africa.[14] 2004 however signals that a new pattern a trade is emerging.

As for exports, those from KZN grew, according to the SARS data, in excess to those from South Africa but only recently. 1999 to 2001 was a relative period of export stagnation. The pattern of KZN exports generally mirror that of Durban from which the bulk of export originates (see Appendix Table 1, p. 63).

Table 3. KZN and South Africa's trade (million R, at 2000 constant prices)

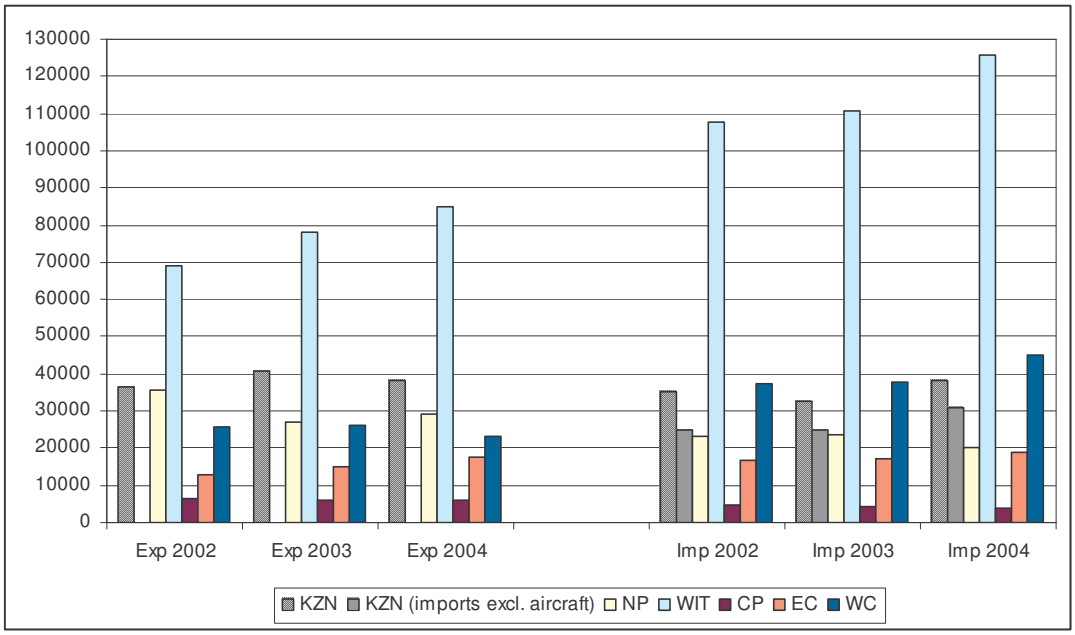
	1998	1999	2000	2001	2002	2003	2004
Total SA imports	196,692	180,491	193,732	194,991	224,641	226,132	251,805
Excl aircraft & parts	192,859	175,694	188,365	189,527	205,358	211,210	238,104
Total KZN imports	23,717	19,568	17,981	18,412	35,195	32,602	38,077
Excl aircraft & parts	23,705	19,537	17,896	18,349	24,755	24,930	30,933
KZN share of SA imports (%)	12.1	10.8	9.3	9.4	15.7	14.4	15.1
Excl aircraft & parts (%)	12.3	11.1	9.5	9.7	12.1	11.8	13.0
Total SA exports	138,818	155,296	172,019	196,546	186,073	193,414	199,527
Total KZN exports	24,852	28,222	28,043	28,650	36,368	40,957	38,380
KZN share of SA exports (%)	17.9	18.2	16.3	14.6	19.5	21.2	19.2

Notes: One product group (HS 93, that is arms and ammunitions) disappeared from the data from 2002. Also, products falling in HS 77 (that is 'unspecified metal and articles thereof') seen to have been relocated into other HS codes towards the end of the period. The above figures also exclude trade in 'unspecified products' (HS 0). The data account for the fact that HS 88, 'aircrafts and parts thereof' is an outlier in imports.
Source: Own calculations from SARS data.

[12] The trade data are deflated by import and export price series from the South African Reserve Bank. These are deflator series KBP5031J and KBP5035J with exports excluding gold.
[13] The trend holds when an outlier, HS 88 – that is aircrafts and parts thereof, is eliminated from the data.
[14] The impact varied across South African provinces however.

Figure 8 shows South Africa's exports and imports in recent years by main regions. Unlike the Global Insight data, SARS data show an expansion of the share of the Gauteng area (the Witwatersrand or Wits region on the figure) for both imports and exports.[15]

Figure 8. Recent exports and imports by South African regions (Million Rand at 2000 constant prices)

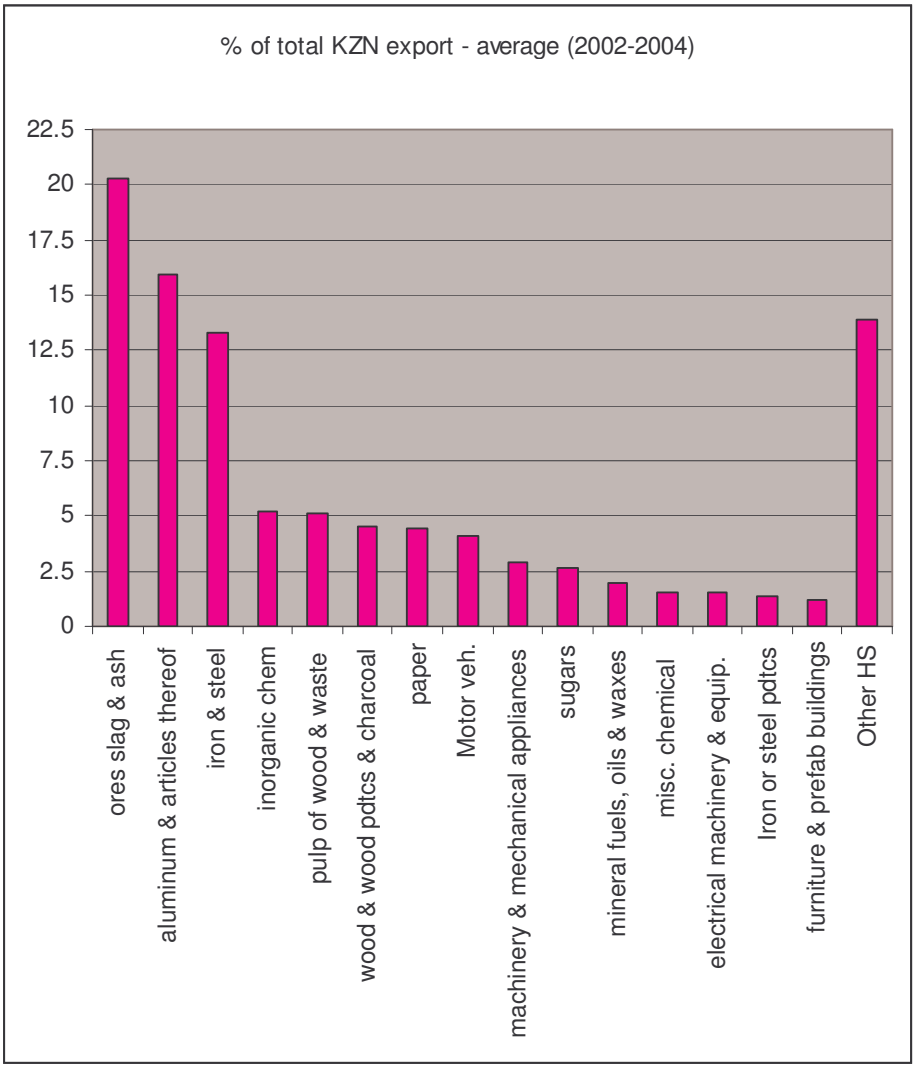


Source: *Ibid.*

The postcode trade data, which allow for an analysis of sectoral performances show that KZN has a narrow export base. This particular feature, identified for the end of the 1990s in earlier research by Velia and Valodia (2003a) has changed only marginally. 'Ores, slag and ash', 'aluminium products' and products from the 'iron and steel' sector amount to 49.7% of the province's exports (Figure 9).

[15] Global Insight also uses SARS data. It is possible that Global Insight eliminated specific outliers which they have identified for South Africa in the original data or that the regions are defined differently. We defined the areas by looking at map boundaries and attributing each individual postcode data to the relevant regions.

Figure 9. Sectoral composition of KZN exports (% – 2002 – 2004)



Notes: The sectors add up to 100. Data are from values at 2000 constant prices.
Source: *Ibid.*

The concentration of trade across a small product base does not exclude that changes occurred across broad sectors. For instance, the export shares of paper and of chemicals dropped relatively sharply in 2002-2004 compared to in 1998-2001. Whereas developments occur in paper exports between 1998 and 2001, these seem to have only caused a temporary displacement of metal products in the composition of KZN exports. In contrast, 'chemical and allied' exports have displayed a relatively progressive and continuous decline. Focusing on the structure of South Africa's exports still suggest that, in spite of changes, the shares of export in paper and chemicals are still much higher for KZN. The data also indicate that the situation for 'chemical and allied products' is specific to KZN in the sense that exports in this sector are currently originating from other South African provinces. In contrast, the share of mineral has remained high since 1998 (Table 4). – from a share of KZN export of 24.7% in the 1998-2001 period the sector accounted for about 22% of total KZN exports in the 2002-2004 period.

As for the pattern of imports, it reveals, for South Africa, a progressive displacement of 'machinery and equipment' since 1993 (part 2 of Table 4). Though KZN did not fully conform to the national trends, imports of such goods were also displaced in 2002-2004. (Though a sharp drop also appears to have occurred in minerals, there were outliers in the KZN data in that sector in the early period. As such, no definitive trends can be identified.) Finally, textiles imports have declined relatively. As will be illustrated later on in this report, the decline mirrors a drop in clothing exports and thus a lowered demand for fabrics.

Table 4. Structure of trade for core sectors: KZN and South Africa

Part 1: Exports

	(% of total KZN)				(% of total SA)			(% of total SA excl. HS 71)		
	1993-97	1998-01	2002-04	**HS codes**	1993-97	1998-01	2002-04	1993-97	1998-01	2002-04
Paper	13.9	18.3	9.5	**47 TO 49**	3.1	4.2	3.0	4.6	5.2	2.7
Chemical & allied	15.1	13.8	10.3	**28 TO 38**	5.8	7.09	7.3	8.7	8.7	8.9
Mineral	17.6	24.75	22.7	**25 TO 27**	12.5	14.5	15.6	18.8	17.9	18.9
Metal	33.9	18.6	31.4	**72 TO 83**	14.5	19.6	19.5	21.8	24.1	23.6

Part 2: Imports

	KZN (% of total KZN)			KZN (% of total KZN exl HS 88)		SA (% of total SA)		
	1993-97	1998-01	2002-2004	2002-2004	**HS codes**	1993-97	1998-01	2002-2004
Chemical & allied	13.8	16.1	13.3	17.5	**28 TO 38**	10.8	10.7	9.3
Machinery & equipment	15.5	22.3	13.6	17.9	**84 TO 85**	31.4	28.9	25.0
Mineral	31.8	7.8	4.2	5.5	**25 TO 27**	8	11.9	12.7
Textiles (excl. clothing)		8.3	4.9	6.4	**50 TO 60**		2.8	2.4

Notes: Based on data at 2000 constant prices. HS 71 consists of precious (and semi-precious) stones and metals. HS 88 is an outlier in the composition of KZN imports.
Sources: Customs and Excise and TIPS trade data for South Africa for the 1993 to 1997 period.

ii. The dominance of some key products

Table 5 details the changes of KZN's exports with a share of at least 1% of South Africa's exports for 3 consecutive years (2002-2004). Though the pattern at hand simply reiterates the point that KZN exports are still biased towards basic products, there have been little variations in the relative shares except for a shift in favour of 'ores slag & ash' and 'iron and steel' after 2002. One point to emphasise with respects to the sectoral shares is that the composition of KZN exports has been severely affected by an increase in the international price of some of the commodities. This might have impacted on certain types of product developments and thus on some value added opportunities. Though this particular aspect will be discussed at greater length in Section 6 of this report, it is of particular interest that the sectors with a higher value-added potential and component have remained, at first sight, *relatively* stable. It also appears that within the top 10 sectors, wood and paper products are experiencing specific difficulties. These are probably related to depressed global prices.

Table 5. Main KZN exports at the HS2 level: sectoral breakdown, 2002-2004

HS2 Code	Product	% of KZN Exports (real prices)			Average % (3 years)	Rank
		2002	2003	2004		
26	ores slag & ash	15	24.1	21.7	20.3	1
76	aluminium & articles thereof	17.1	13.2	17.4	15.9	2
72	iron & steel	9.7	15	15.2	13.3	3
28	inorganic chem, org/inorg compounds of precious metals, isotopes	7.5	3.6	4.5	5.2	4
47	pulp of wood, waste & scrap of paper	5.9	4.9	4.5	5.1	5
44	wood & articles of wood, wood charcoal	4.9	4.5	4.2	4.5	6
48	paper & paperboard, articles of paper pulp	5.7	3.9	3.6	4.4	7
87	vehicles other than railway or tramway rolling stock	3.6	4.4	4.3	4.1	8
84	nuclear reactors, boilers, machinery & mechanical appliances, computers	2.9	2.6	3.3	2.9	9
17	sugars & sugar confectionery	3.2	2.5	2.3	2.7	10
27	mineral fuels, oils, waxes & bituminous sub	2.1	2.2	1.7	2	11
38	miscellaneous chemical products	1.8	1.5	1.4	1.6	12
85	electrical machinery & equip. & parts, telecommunications equip., sound recorders, television recorders	1.7	1.5	1.4	1.5	13
73	articles of iron or steel	1.3	1.2	1.5	1.3	14
94	furniture, bedding, cushions, lamps & lighting fittings nesoi, illuminated signs, nameplates & the like, prefabricated buildings	1.3	1.2	1.2	1.2	15
OtherSectors		16.3	13.7	11.8		

Source: *Ibid.*

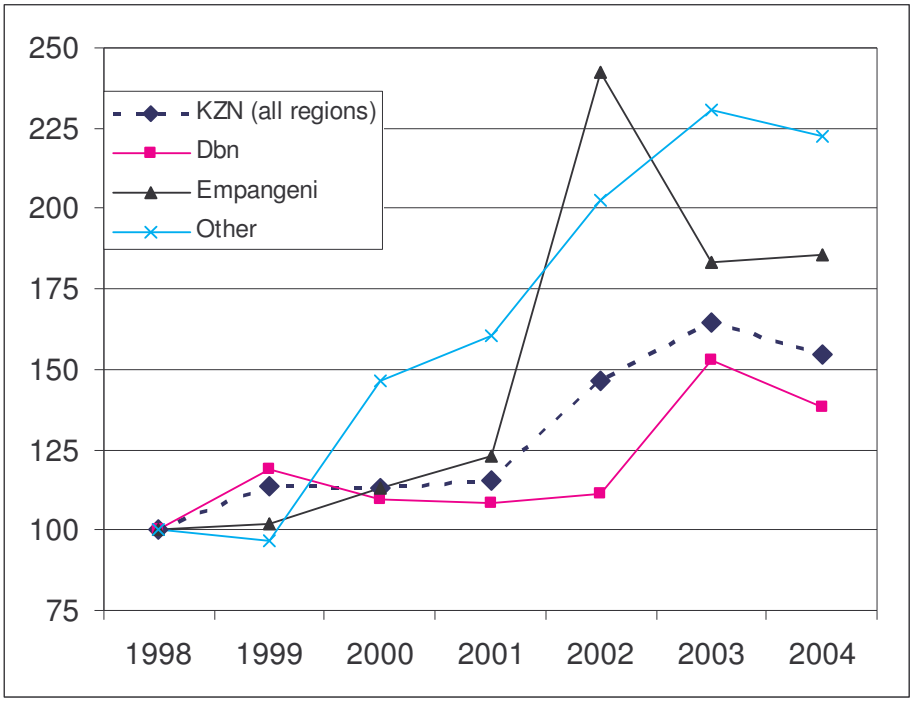
Appendix Table 2, p. 63 provides some information about the importance of exports in the province to South Africa's total export in individual sectors from 2000 to 2004. The Table reports the information for the top 5 exporting sectors in KZN over the second period. The data show that KZN is a major export centre for 'ores and slag', 'aluminium' and 'pulp'. Moreover, aluminium exports are *primarily* from KZN. For this particular sector, the data show a substantial increase in export after 2001. As aluminium exports remain high after 2001, this is not an *ad-hoc* transaction. Also, the data show that some amount of fluctuations demarcates the trends for the inorganic chemical sector. In contrast exports of 'pulp of wood, waste and scrap of paper' have declined since 2000. Some of the changes might reflect changes in commodity prices as discussed in Section 6.

The two most important trading areas of KZN are eThekwini and Richards Bay. 29% of KZN export revenues between 2000 and 2004 would have originated from the latter area. A more detailed data analysis reveals that the trade performance of some of the core sectors has impacted on the trade revenue generated from particular regions. The data suggest that exports from the top 5 main sectors originate primarily from Durban (eThekwini) and from Richards Bay (see Appendix Table 1, p. 63) with some amount of specialisation across these areas.[16] From Figure 10, which reports how export revenues have changed as indices, it appears, however, that all regions in the province have benefited from exports between 2000 and 2002. Between 2003 and 2004, KZN as a whole but Durban (eThekwini) in particular

[16] The data suggest that Durban is an important base for 'iron and steel'. Since there is, to the researchers' knowledge, no obvious large 'iron and steel' firm in Durban, agents are likely to operate on the behalf of firms located elsewhere (possibly even producing in provinces other than KZN)

has been adversely affected. This renders the theme of value added opportunities in exports somewhat more pertinent for Durban than for other parts of KZN at this point in time.

Figure 10. Export revenues: trends within KZN 1998 – 2004 (indices, 1998 = 100)



Notes: Based on value of exports at 2000 constant prices. The Empangeni region encompasses Richards Bay.
Source: *Ibid.*

Appendix Table 3, p. 65 decomposes exports at the 4 digit level for some major products for the 2002 to 2004 period.[17] The table makes the main point of a very narrow product base in KZN exports at the disaggregated level: for major export commodities like iron ores and aluminium a significant proportion is exported from few products. For instance, 88% of KZN exports of 'ores slag and ash' were in the 'iron ores segment'. With such trend already reported in earlier research on KZN trade (Velia and Valodia, 2003a), producers in the province do not appear to have generally turned towards the production of new products for exports in the more recent years.

What the data show however is that there are pronounced changes over the years in terms of the dominance of some of the main products. Thus, shifts are observed in 'ores slag and ash' which suggest specialisation. The data also suggest the development of specific products. This seems to have occurred in 'paper and paperboard' and in 'iron and steel'. For instance, kraft and writing paper have displaced other types of paper (in particular cellulose wad). Also, the composition of 'furniture' has evolved away for miscellaneous products into seats and parts of. This is possibly associated with the expansion of the automotive sector detailed below. The change is occasionally away from new products and back into 'old' products. In this regard, the data show that 'angles and shapes of iron and non-alloy steel' have been displaced by certain types of flat-roll iron goods as well as for other products (which are not detailed). According to a key informant, this effect was generated by shifts in demand (translating into growing international prices) back into the flat-roll iron segment. In the

[17] A threshold of 10% of export is used to identify the major export commodities within the 3 year period.

extreme, some amount of export disappeared when there were previously important in a sector (as in mineral). A more complex and positive pattern is observed in the data for new exports of television receivers in 2003. With the export level in 2003 in this product three times that in 2002, perhaps a regional producer has been able to break into new foreign markets.[18]

Having noted some main features around national imports previously, KZN imports follow a somewhat distinct pattern from that observed at the national level. From Table 6, which details the recent structure of KZN imports, one can see that some amount of import is with intermediate goods. Also reassuringly, imports of machinery and equipment (electrical and others) have a high rank. However, besides changes in imports of aircraft parts (an outlying sector in the data) and a growth of parts associated with the automotive sector and that of compounds, tobacco and cereals – all of which have grown recently, the import values for the large sectors have remained relatively stable between 2002 and 2004. In fact, for some of the large sectors, import level changes were specific to the 1990s.

Table 6. Composition of KZN imports – top 11 sectors (at 2000 constant prices, R billion and %)

HS		In Billion Rand				% of KZN imports		
Code	Product	1998	2002	2003	2004	2002	2003	2004
88	Aircraft, spacecraft & parts	0.0	10.4	7.7	7.1	Excluded	Excluded	Excluded
84	Reactors, boilers, machinery & mechanical appliances; parts thereof.	4.1	3.3	3.8	3.7	13.1	15.1	12.1
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes.	0.4	2.1	2.0	2.4	8.44	7.90	7.77
24	Tobacco and manufactured tobacco substitutes.	0.1	2.2	1.7	1.5	8.82	6.74	4.74
98	Original equipment components (for the automotive industry)	0.2	0.4	0.6	3.7	1.78	2.45	11.93
87	Vehicles & parts	0.8	0.9	1.1	2.5	3.61	4.32	8.16
85	Electrical machinery & equip. & parts thereof; sound & television image recorders & reproducers & parts	1.6	1.3	1.1	1.3	5.14	4.53	4.10
27	Mineral fuels, oils & related products incl. bituminous substances & mineral waxes.	3.2	1.2	1.3	1.0	4.90	5.23	3.21
15	Animal or vegetable fats & & oils	1.2	1.0	1.0	1.2	4.07	4.08	3.79
29	Organic chemicals.	1.0	0.9	0.9	1.1	3.76	3.64	3.42
10	Cereals	0.5	0.7	0.8	1.0	2.97	3.37	3.09
	Other products	10.6	10.7	10.6	11.7	43.37	42.64	37.70

Source: *Ibid.*

As for the pattern of South Africa imports, it is much more diversified and oriented towards products of the telecommunication equipment, computer, and machinery sectors than that of KZN (see Table 4, part 2 for an aggregate comparison). In terms of products which are specifically imported elsewhere in South Africa, one finds 'optical, photographic and precision equipment', plastic and pharmaceutical goods. Though there are issues related to the nature of demand for imported goods, a question which emerges is whether KZN firms are able to satisfy the demand for some goods that are required nationally.[19] Though the data cannot answer these questions, a trend notified earlier in this report is that manufacturing has, in absolute terms, grown in the province. This suggests that KZN might be a case for the produced of goods consumed by South African producers.

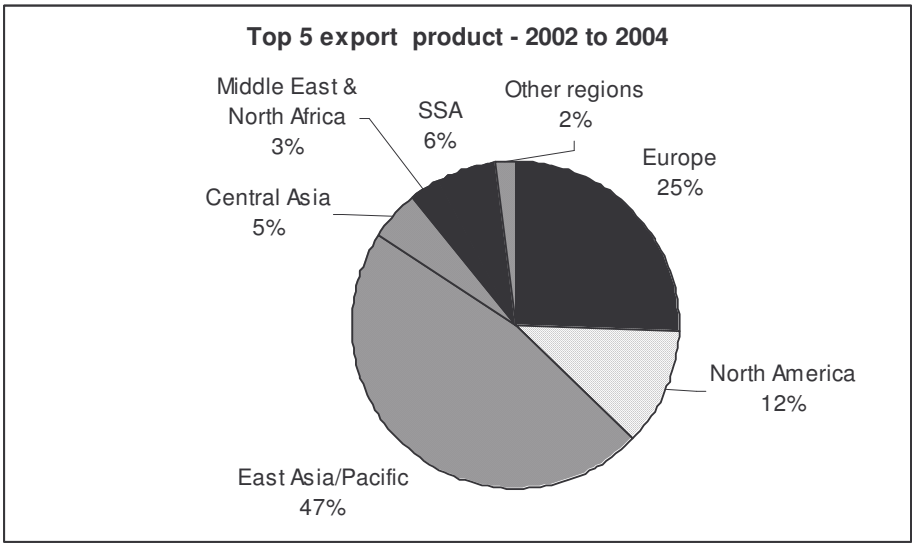
[18] It is thought that this could be associated with growth in exports from UEC – the manufacturer of Mneta and DSTV decoders which are now in demand throughout the continent.

[19] It remains possible that goods required by KZN firms originate from agents and/or companies located in Gauteng however.

iii. About the foreign markets

The main markets of destination were, for the top five products exported by KZN, Europe, North America, 'East Asia and the Pacific' and Central Asia. From Figure 11, which details the main regions of destination for the core products exported, it can be seen that Sub-Saharan Africa (SSA) is a small market of destination. This is as expected given the resource based composition of the province's exports. Having specified an overall general pattern, there have been a series of variations over the short time period under consideration. These suggest that contracts have evolved and even at times, that new (and important) contracts are being drawn by the exporters. In other words, KZN exports *do* secure new orders. One notable shift has been one in favour of countries in East and West Africa: though these regions absorbed 2% of the top five exports from KZN in 2002, the share increase to 4.2% in 2003 and to 5.3% in 2004.

Figure 11. Regions of destination of the top 5 KZN exports (%)



Source: *Ibid.*

Changes are also noted at the more disaggregated level: exports of HS 26 ('ores, slag and ash') to North America almost disappeared against an expansion of HS 47 (wood pulp) and HS 76 (aluminium products) to that market as well as to Central Asia. Though HS 76 is primarily destined to 'East Asia and the Pacific', the other top four export groups are also well represented in that region. For *all* products exported by KZN, near or over 60% of KZN exports are to 'East Asia and the Pacific' and to the European Union.[20]

Though the regional breakdown reveals that firms adapt, the different markets targeted for the key products would offer different prospects for a process of product development initiated by the buyers/importers. More worryingly however, is the fact that there has been a limited uptake of the trade opportunities associated with the various preferential trade deals of benefit

[20] 'East Asia and the Pacific' absorbed at least 32% of the Province's exports in the recent years. Partners are in Japan and in China (48.8% of KZN exports were to Asia were to these countries over the 1998-204 period) as well as to Australia, South Korea and Taiwan with no obvious changes over time. The European Union being referred to is that of 15 Member States.

to South Africa. This is even allowing for an adjustment lag.[21] Using the United Nations classification of developing and developed countries, there has only been a marginal change of exports away from the developing countries; the share of KZN exports to the developing countries dropped from 44.1% in 2002 to 42.5% in 2004. That going to the developed countries only increased in these years from 55.3% to 56.8%! In contrast, for South Africa as a whole, the share of exports to the developing countries – though lower, increased from 32.4% in 2002 to 34.7% in 2004. There are thus clear structural barriers at the provincial as well as at the international level which prevent overall export opportunities from being taken up, particularly in the developed countries.

Though the argument generally assumes that the demand for 'new' products is likely to evolve more rapidly when the trade partner is from a developed rather than a developing country, cost considerations remain generally associated with exports irrespective of the market of destination. As new contracts are drawn, these could have pushed the firms to make changes on the factory-floor level and thus enhance value added. Pressures might have also generated changes in the origin of imports. This is somewhat confirmed in the aggregate: South African importers have increasingly turned towards developing countries partners. Whereas 33.2% of the country's imports came from developing countries in 2002, this increased to 41.5% in 2004. A similar trend emerged in KZN where the shift was in fact more pronounced (from 29.8% to 41.5%) as well as in favour of economies in transition.[22] More specifically, KZN imports are from two main regions, from Europe and 'East Asia and the Pacific'. By 2005, European countries and 'East Asia and the Pacific' countries supplied 34.5% and 38.5% respectively of KZN goods from overseas. An additional 5.7% of KZN imports were sourced from various SADC countries.

The displacement, in 2003, in favour of imports from developing countries (in particular East Asia) could suggest a displacement into lower technology goods. However, the shift might also indicate that similar products to those required by the South African producers are becoming increasingly available at competitive prices from these markets. The later effect is well documented for the inputs into automotive and clothing. Generally Asian production has grown and the prices of some products exporters by some Asian countries - primarily China - have been falling sharply. In fact, some of the Asian countries have progressively become involved in the production and export of high-technology products. We turn to this theme in the next sub-section which presents the technological content of KZN trade.

iv. The technological content of KZN trade

We are concerned, in this section, about the technological composition of South Africa's and of KZN's trade. Though the technological content of trade links with value added in a series of ways (costs and improved and/or new products) which cannot be disentangled in the analysis, the point of the argument is that there are large benefits to be reaped from a process of technological uptake.

The technological content of trade (exports) was the focus of Lall at UNIDO. Though a brief presentation of the argument was provided earlier in this report, this focus was important because it re-emphasised the role played by investments in generating a continuous export growth. This dynamic is of particular interest to the developing countries who lack resources and have limited development finances available at their disposal. The endogeneity

[21] AGOA and the TDCA with the US and the European Union are the main preferential deals.
[22] It is not possible to establish whether KZN and South Africa are atypical in this regard however.

component of the argument bears on the reasoning that, as earnings are generated by exports, new investment possibilities emerge. When these are taken up, product quality involves in such a way that it opens up new markets and production orders, and thus a further expansion of exports and new investment opportunities. Given the intangible nature of 'quality' and difficulties in capturing these in the trade data, the author used technological structure as a proxy for quality. Technological structure, used to generate a mapping of exports, suggest that a distinct typology of performance is at play: countries at different levels of export earning trade products at different stage of 'quality'.

At a more detailed level, the focus on the technological structure of trade is on capabilities – that is "how firms become technically efficient" (Lall, 2000:4). More specifically, there is link between technology, trade and value added. UNCTAD (2003:4) exposes this link as follows:

> "High-tech activities are activities closely associated with strategic competitive advantage, in allowing economies to get on to the technology ladder and to improve their technological development. Specialization in high-tech activities offers opportunities of participation in higher-margin value-added activities, greater technological development and learning and entry into the fastest-growing segment of world trade."

The following benefits are generally set out as accruing to countries that invest in technology:

- As technologically-intensive goods are income elastic and substitutes for old technology, the sectors involved in such goods grow rapidly.
- As technological intensive industries allow large learning effects, they have important spillovers. They are thus important for growth prospects.
- Finally, the development of technological intensive goods and the presence of such sectors lower the vulnerability of individual countries to price changes and to the potential displacement which results from strong competitive pressures.[23]

What comments can be made about the technological composition of trade of South Africa and of KZN? The technological composition of trade has been derived by transforming the SARS data from the HS into the SITC Rev. 2 (at 3 digit) nomenclature.[24] Noting that, between 1998 and 2004, 3.5% and 5.3% of the observations for all import and export data respectively are lost in the transformation (that is between 7% and 13% of the value of trade lost accordingly), four main product groupings are considered in what follows. Sub-groupings within these generate a total of 10 sub-categories of products. Resource based (RB) consists of agriculture-based and others goods (RB1 and RB2); low technology (LT) items contain textile, garment and footwear (LT1) and other low-technology (LT2) products. Medium technology (MT) consists of automotive products (MT1) and of process (chemicals and basic metals) and engineering products (such as the production of broadcasting equipment, pumps and engines). These are labelled MT2 and MT3 respectively. Finally, the high technology (HT) group is composed of products from the electronic and electrical sectors

[23] Undoubtedly, there are also problems with the argument. Besides issues and a lack of consensus in defining and measuring technological developments, the argument assumes, for instance, that export performance is a proxy for outward orientation. Access conditions are ignored.

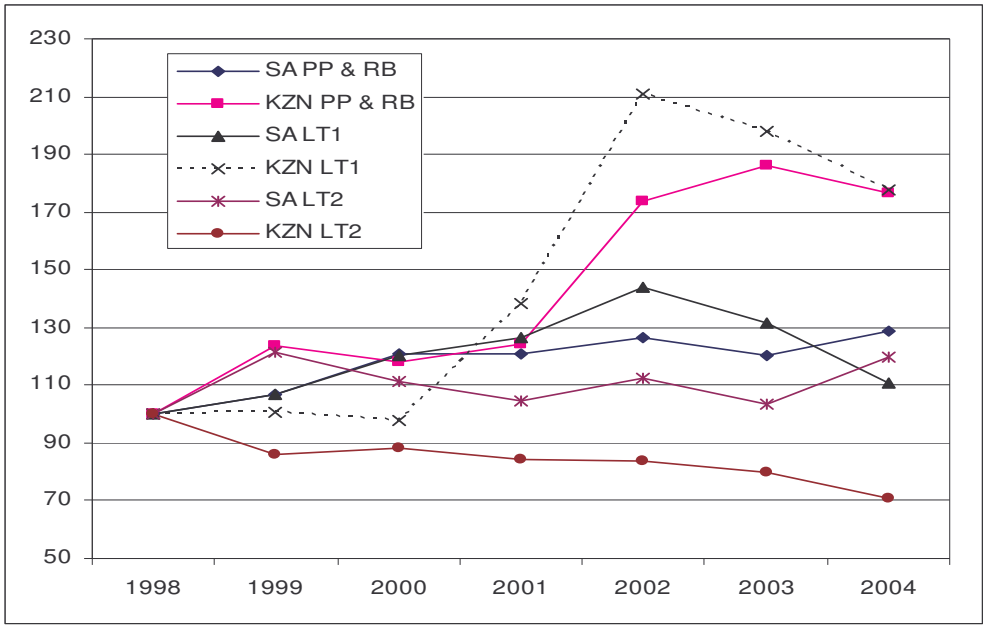
[24] Four main correspondence (or concordance) tables were used; two of these were from the Macalester College Department of Economics website (Jon Haveman's Industry Concordances) and two others from the United Nations Statistics Division. Thus Lall's (2000) product breakdown is adopted here.

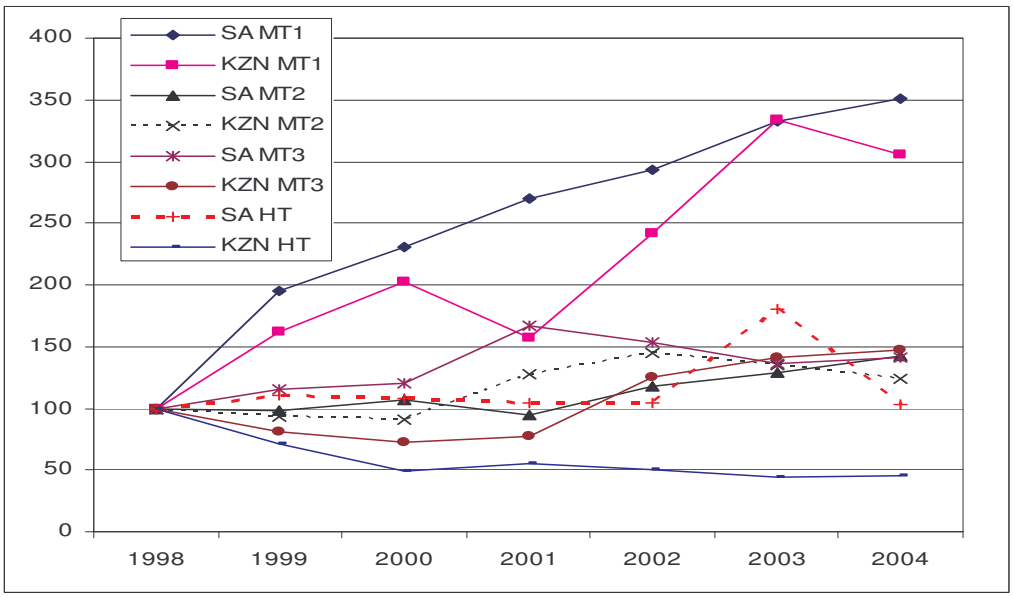
(HT1) and other high-tech items (HT2). Appendix Table 5, p. 66 provides some examples of products across broad technological categories.

As expected, South Africa's trade is dominated by primary and RB2 products. Exports of agro-based products, which only amount to 8.9% of the country's exports between 1998 and 2004, have been relatively stable over time. Having said that, the two main-sub groups for which South Africa has seen a consistent export growth were in the medium technology segment, particularly MT2 - that is process goods (e.g. the manufacturing of fertilisers, pesticides, plastics, etc.). In contrast, with the exception of an expansion in 2003, little change occurred in exports of the high technology segment (part 2 of Figure 12). KZN displayed a distinct structure and changes in the technological content of her exports over time. Exports from the province were dominated by resource-based products other than agro-based and primary products (RB2) and, from 2001, by primary products (PP). In other words, the latter sector started to expand sharply only recently according to this distinct product classification. As for the growth of textiles, garment and footwear (LT1), it occurred against a decline in exports of other low-technology products (LT2). A substantial decline of LT1 moreover started in 2002. Finally, though Gauteng is also dominated by primary (PP) and RB2 products – with exports of such products increasing over time, the performance of low- and medium-technology products appeared in the data to be relatively stable from 1998 to 2003. At the more disaggregated level, it emerged that a decline in MT2 products from 1998 to 2001 was reversed subsequently.

The second part of Appendix Table 6, p. 67, which reports the share of KZN's exports in total exports by technological classification illustrates that whilst KZN has an important share of agro-based products, her exports have been progressively displaced over time. The data also points to the growing importance of LT1 in spite of recent and substantial difficulties. The province also emerges as a non negligible base for electrical and electronics exports: more than 10% of South Africa's goods exported in this sector are from KZN. As for HT2, it exhibited an erratic pattern over time. Yet, KZN's share is that sector is small. 70% of South Africa's exports in that sector originate from the Gauteng area.

Figure 12. Export performance of South Africa and KZN according to a technological classification (indices, 1998=100).

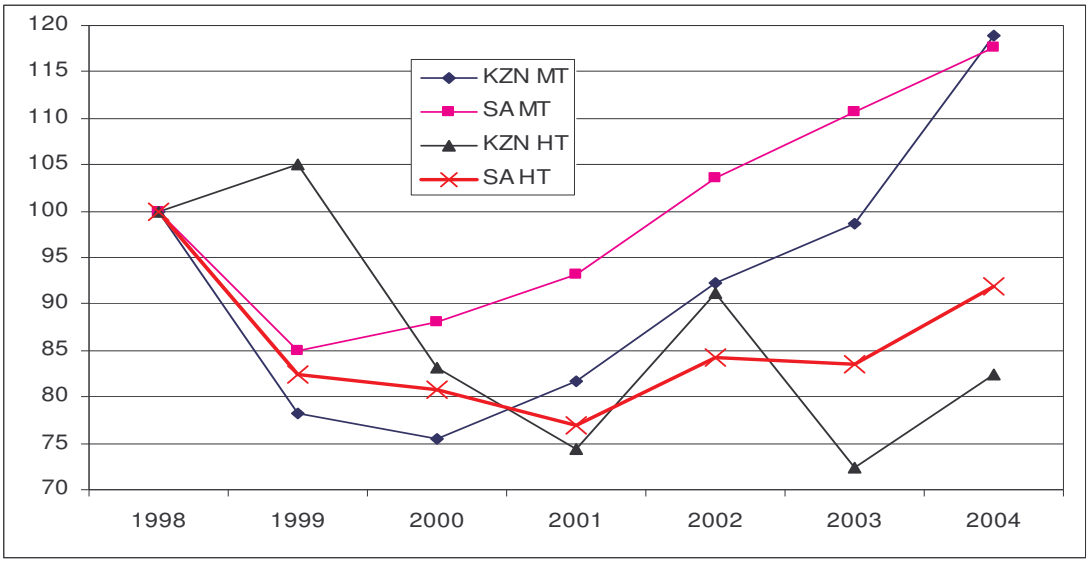




Note: based on data at 2000 constant prices.
Source: Own calculations from SARS data.

Excluding aircrafts and aircrafts parts, imports of high-technology products by SA dropped between 1998 and 2001 (Figure 13). Though growing again subsequently, imports of such products were still, by 2004, below the 1988 level. In contrast, import of medium-technology products (particularly MT1, that is automotive, and MT3) grew consistently from 1999. A similar pattern was observed for Gauteng, noting, however, fluctuations in imports of HT2 products over the years. Again, the situation was somewhat similar in KZN though imports fluctuated sharply across the years for various products groups.

Figure 13. Technological content of selected imports from South Africa and KZN (indices, 1998=100).



Notes: based on data at 2000 constant prices. The data exclude aircraft
Source: Own calculations, SARS data.

Whereas a series of nuances emerge in the technological content of trade across South African provinces, a few key points come through from the data:

- Exports from South Africa suggest that limited technological investment has been made that would translate into new value added opportunities becoming available for exports. There is some confirmation of this in the structure of import. Worryingly, KZN's performance in high-technology exports suggests a progressive decline of exports in that sector.
- Though imports of medium-technology products have grown, the growth was, until 2004 for KZN, insufficient to compensate for the decline in high-technology imports. Only by 2004, were imports of these products in excess of their 1998 levels.

At the more disaggregated level, it appears that, at least, exports of medium-technology products have expanded sharply in KZN and South Africa. Though these primarily reflect the expansion of the automotive sector, KZN appears to have taken up new opportunities in the engineering segment since 2001 (products from various electrical, optical, machinery and mechanical segments). This is a feature specific to KZN.

5.3. Value-added and trade in KZN

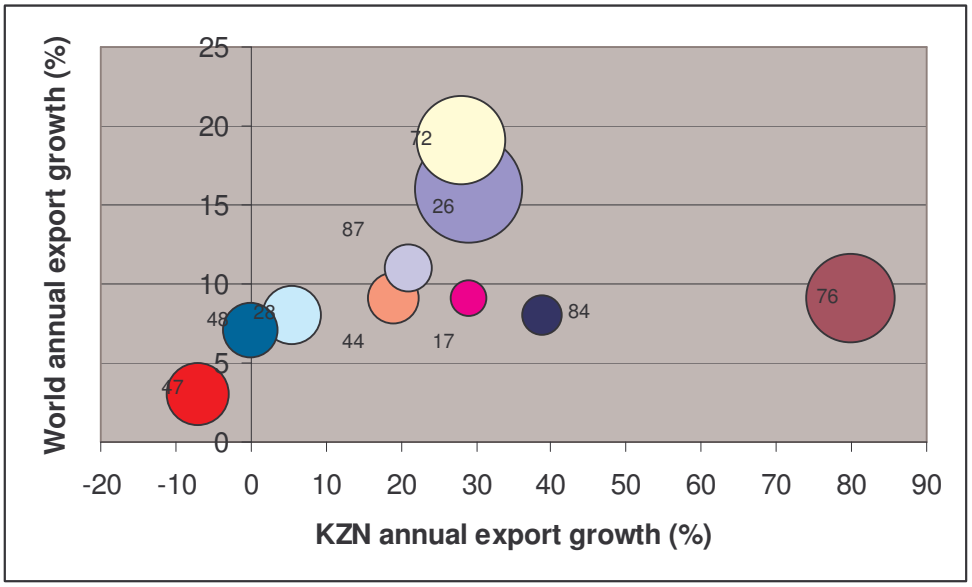
Though KZN export growth is not correlated with South Africa's export growth between 2000 and 2004,[25] the growth of exports from South Africa and from KZN is disconnected from the growth in world demand (as proxied by the annual growth of world export).[26]

Figure 14, which depicts world demand for the top 10 products exported by KZN shows that world demand is strong for HS 72 – 'iron and steel' products.[27] Focusing on the products for

[25] The export growth data for KZN and SA do not relate with the export structure either.
[26] Using nominal trade data from ITC and from SARS, r=0.02 and r=-0.07 respectively. The ITC data suggest that world demand was growing for all but one product over the period under consideration. No ITC data for the world is available for HS98 and HS77 and HS93 data were eliminated in what follows. This is because they were only reported for a few years.

which world demand is the most buoyant, long term prospects would be with these products as well as with 'ores, slag and ash'. In other words, important revenues can currently be generated from exporting primary commodities. However, opportunities are clearly being missed with the remaining eight most dynamic products in the world accounting for 0.94% of KZN total exports from 2000 to 2004.

Figure 14. World and KZN export growth for the top 10 KZN exports – 2000 to 2004.



Notes: The area of a bubble represents the share of the sector in total KZN exports for a particular product. The numbers located near the bubbles are the HS codes at the 2-digit level.
Source: ITC and SARS trade data.

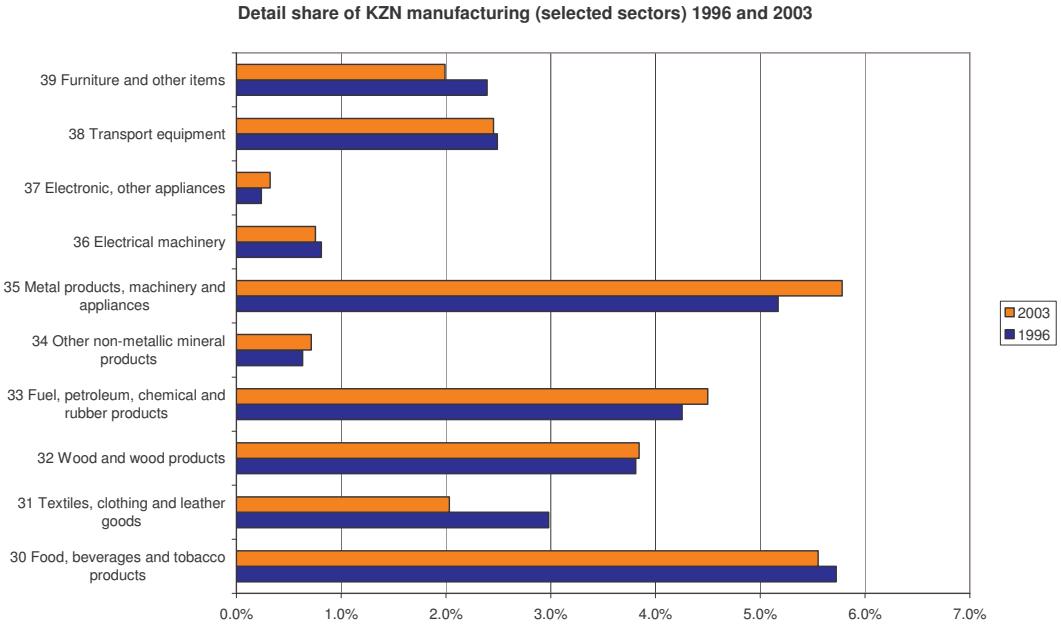
Contrasting the performance of South Africa with that of KZN yields some interesting findings in terms of the province's specialisation in dynamic products. Reiterating the observation that the small sectors are the ones that grow the most rapidly, KZN would appear to specialise (relatively) in some pharmaceutical (bandages) and cocoa products. Relative to the world, South Africa and KZN are specialising in fur, essential oils and cosmetics and in nickel products (see Appendix Table 4, p. 66). Since these are very small sectors however, exports might have occurred on an *ad-hoc* basis. Having said that, it is difficult to distinguish occasional from more consistent orders. Thus, though only contributing relatively small proportions to total KZN exports, there are a number of industrial categories that have been showing some signs of growth. Those that have been growing rapidly and have been elevated to a position of some significance (a 1% or greater contribution to KZN exports) could potentially be activities to watch in the future. These combined matter for the export revenues that are at stake. A detailed list is provided in Appendix Table 7, p. 68. Are these also important in terms of what they can reveal in terms of value adding trend? We shift next to an overlap between export trends and value adding trends.

Whereas the Gauteng province experienced the fastest growth of gross value added (for all sectors) from 1996 to 2003, that of KZN has also grown consistently over the period.[28] Yet, focusing on the changes in manufacturing between 1996 and 2003, these provinces were, as noted earlier, displaced over time. This point aside, it is clear from the more detailed figures

[27] On average world export (unweighted) increased by about 9%.
[28] Gauteng's GVA grew by 3.7% per annum and KZN's GVA grew by 2.5% per annum from 1996 to 2003.

that the sectors that have performed better in KZN are those that have a strong foundation in South Africa's traditional resource competitiveness. The key players here are pulp and paper, food and beverages, wood products and metal products (Figure 15). Whilst the metal products category is significant it should not be read to mean that associated activities such as machinery manufacturing and household appliances (which form part of the same statistical group) are of no importance. With the exception of food and beverages these sectors have actually grown in importance to KZN whilst other categories have been stable or shown some relative decline in importance.

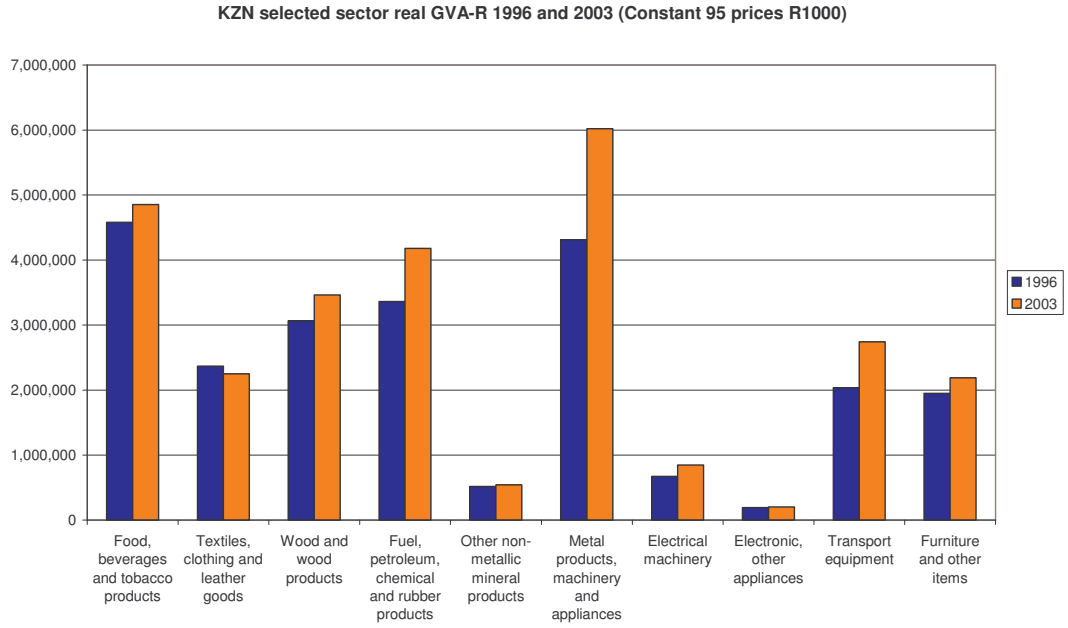
Figure 15. Share of KZN manufacturing for selected sectors (%, 1996 and 2003)



Source: Global Insight.

In order to get a better perspective of what has been happening to these sectors it is also useful to understand their growth performance over the same period. Figure 16 below reflects significant absolute growth in metal products and machinery (40% against an average of 18% over the period under consideration!) which has enable it to increase its proportionate contribution to KZN manufacturing. Transport equipment has also grown significantly (35%) followed by electrical machinery and apparatus (26%) and fuel, chemicals and rubber products (24%).

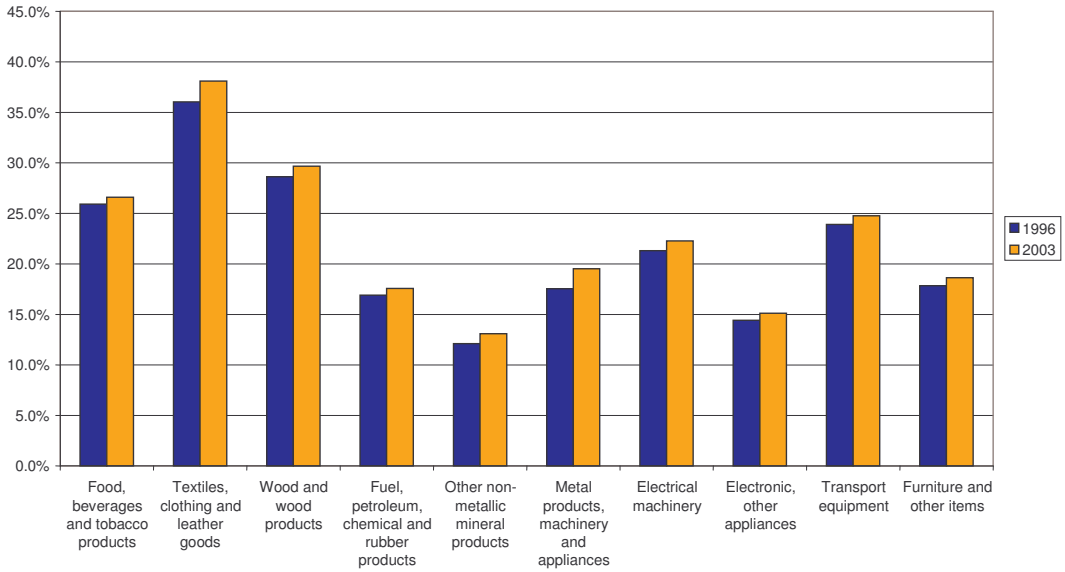
Figure 16. KZN GVA of selected sectors (at 1995 constant prices, R1000, 1996 and 2003)



Note: Based on data at 1995 constant prices.
Source: *Ibid.*

To understand whether or not this growth suggests something in terms of a shift in KZN's competitiveness (at least in domestic terms) in producing for these sectors it is pertinent to look into what long term changes there have been in KZN's share of national gross value added in these categories. The pattern at hand, reported in Figure 17, is significant in that it shows that across all the selected manufacturing categories KZN's share of national activity has grown.

Figure 17. Change in KZN's share of national GVA - 1996 and 2003



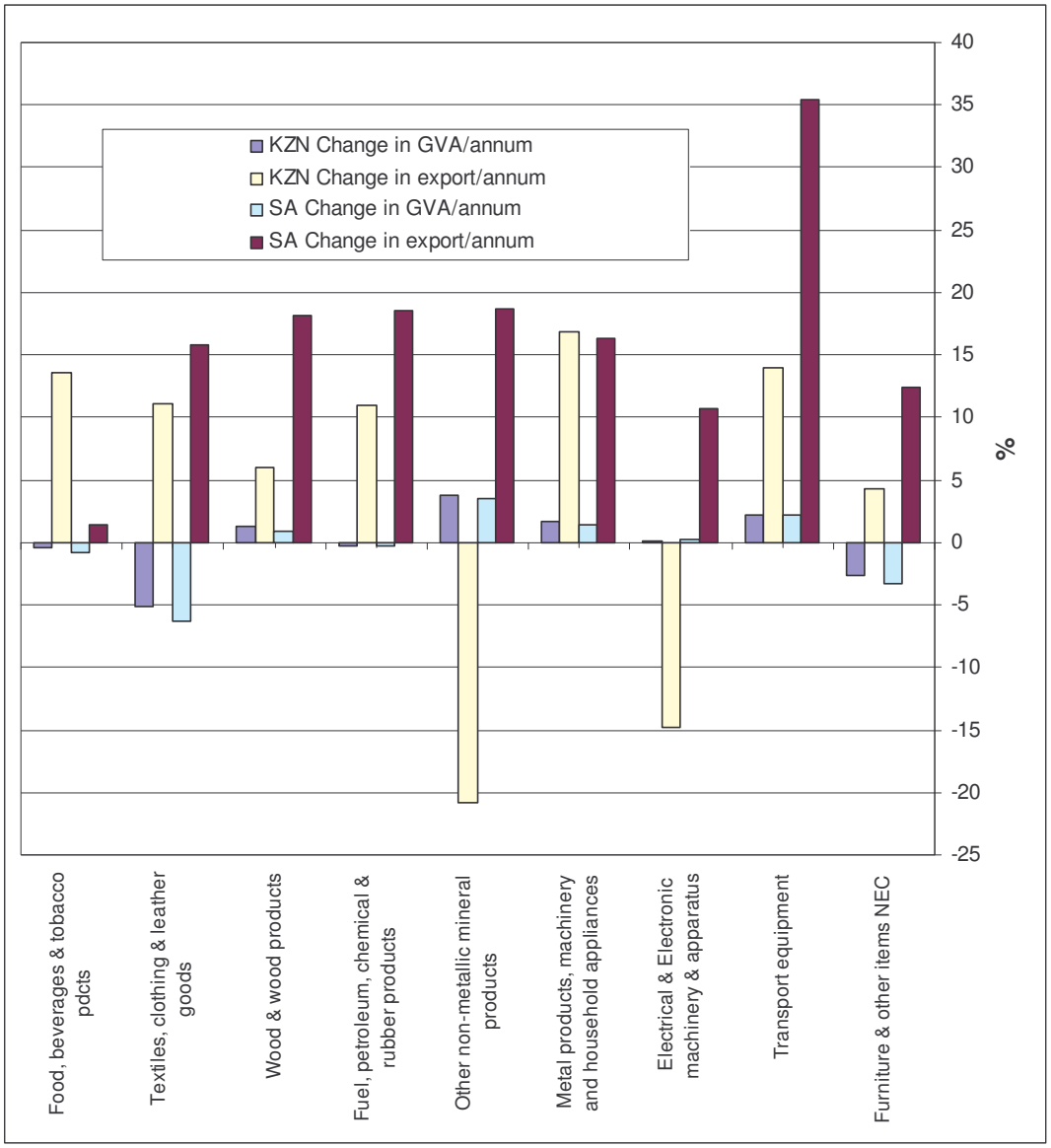
Note: Based on data at 1995 constant prices.
Source: *Ibid.*

Before briefly addressing the question of whether exports are significant in driving this growth or whether domestic market factors are more important, a preliminary comment on the above observation can be made; in light of the fact that KZN's share of national exports has remained relatively stable in 1996 and 2003, it is possible that the growth in the national share of manufacturing GVA has been related to domestic growth. However, this should be viewed in a cautious light as growing absolute levels of exports witnessed in some sectors would have enabled greater economy of scale effects and hence more efficient production for the domestic market. It is also true that demand at a domestic level in recent years has grown faster than export demand (in part related to currency issues).

Linking the changes in gross value added with the changes in exports reveals a complex pattern between exports and value added.[29] Figure 18, which reports changes in values of export and of GVA in real terms, suggests that though changes were generated, the value added was occasionally eroded by inflation. Furthermore, in sectors where there are large sunk investment costs, responding to changes in exchange rates through changing the scale of production or product ranges can be very difficult. There are here four exceptions, in 'wood and wood products', in 'non-metallic mineral products', in 'metal products, machinery and household appliances' and in 'transport equipment'. KZN outperformed South Africa in the first three. Also, whilst export difficulties specific to KZN emerged in the 'non-metallic minerals' – possibly indicating that the process of adding value might be defensive rather than offensive, a link might exist between export performance and value-added changes for the other sectors. (With may be a closer fit in 'metal products, machinery and household appliances').

[29] Given the broad categories associated with Global Insight data, the points raised here need to be researched further.

Figure 18. Changes in GVA and in exports – KZN and SA, 1998 and 2003 (at 2000 constant prices)



Source: Own calculations using original data from Global Insight, the export deflator and data from SARS.

5.4. Conclusion

Several points emerge from the foregoing data analysis. The trade data suggest that a narrow trading base has remained in KZN. Few sectors and sub-sectors drive exports. The strong position of resource (including commodity) products span two areas of KZN, eThekwini and Richards Bay. Developments in the latter area will become important as commodity prices have increased sharply as will be discussed in the next section. In value added terms, there are no evident marked changes that are associated with the presence of new products.

Against this static picture two main trends appear in the data. First, there are some changes in the composition of exports: some new products are being exported, though the export value of these are relatively small. In parallel, 'old' products have remained or returned. Second,

shifts are observed in the data in terms of markets of destination and origin of goods. As such, exporters do adapt to external conditions. This adaptation is likely to be associated with changes taking place at the plant level. Producers react to evolving demand conditions by altering the ways in which they use their machinery and equipment or employ their workers. In other words, exporters display some flexibility. In parallel, the emergence of a small base of new products might suggest that value added is expanding in some export sectors. Yet, the former effect dominates. Therefore, generally, value added would expand, not through the production of more sophisticated - and thus more expensive – products, but rather through controlling the costs associated with the factors of production. Though this is positive, the spillovers from such strategy are likely to be limited in the long run. In contrast, and reassuringly, as new contracts are being drawn with new buyers, there are likely to be learning spillovers.

When the technological dimension of trade is considered instead, the data suggest that KZN is following a distinct trajectory from that of South Africa. In the labour intensive segment, it emerges that textiles, clothing and footwear firms are experiencing important difficulties in KZN and in South Africa, but more markedly in the former. KZN performance in high technology goods is erratic. The fact that the more technology-intensive exports are *ad hoc* reveals that there is regional capacity and capabilities but that these do not translate into a demand for KZN high-tech goods being formed overseas. Also, the overall pattern of exports in the process and engineering segments is disappointing in KZN. This matters as chemicals and basic metals are an important component of KZN exports. Internal and international barriers are likely to shape the current export performance. In the long run difficulties might arise from the fact that a recent recovery in imports of high-technology goods observed for South Africa has not taken place in KZN.

Reassuringly, exports from the automotive sector are expanding in KZN and SA. Will the experience gained in the 'automotive sector' affect other sectors? Though the answer to this question is unclear, KZN is a non negligible base for the export of electrical and electronics goods.

For policy making, the aggregate picture is one which broadly signals that there have been relatively limited investments in KZN for the foreign markets. Though imports of machinery and equipments are high (and in some cases even grown), the relative absence of new export sectors signals that it is the same larger firms which export over time. In this context, strategies designed to boost investment for foreign markets might be crucial. Also importantly with regard to the smaller firms is that these have failed to take up the opportunities associated with the preferential deals. High barriers to trade might have remained in the importing markets. These need to be carefully assessed.

What is revealed around the analysis of value added somewhat contrasts with the above. KZN has made important progress relative to South Africa as well as over time. The expansion of value added is notable in some sectors and there might, moreover, be a link between the current changes and the export performance, particularly in the 'metal and machinery and household appliances' sector. Yet, there are also clear signs that the expansion of value added in KZN, which is outpacing that of South Africa, is for the domestic market.

Though UNIDO value added data are limited to a few sectors, these identify a mixture of performances. The strongest sectors are 'iron and steel' and furniture. But, in terms of progress, these were notable in 'wood products', 'basic metals' and 'motor vehicles'. In

contrast, some of the large sectors in South Africa – such as chemicals - have evolved only marginally and the value added expansion in 'food', has not kept pace with that observed for other sectors. Though the changes are interesting, they do not guarantee that these sectors are competitive internationally. The focus on serving the domestic market might be, in the long run, insufficient to ensure that the KZN firms remain or become internationally competitive. It is in this context that the analysis of the constraints to value added is critical.

6. Some factors of performance

This section briefly serves as a background to the second part of this paper which deals with the opportunities and constraints identified through the interviews. Two main issues are dealt with in this section. A first part focuses on the effects associated with the currency changes and the recent changes in commodity prices. A second main section turns attention to issues related to air transport. Given that limited data are available in the public domain, the analysis uses some of the information provided by respondents to the World Bank survey carried out in 2002 and 2003 towards firms with at least 50 employees. Though the data is limited to some points about the Greater Durban Manufacturing Area (GDMA), they nevertheless provide some insights into the motives associated with air transport.

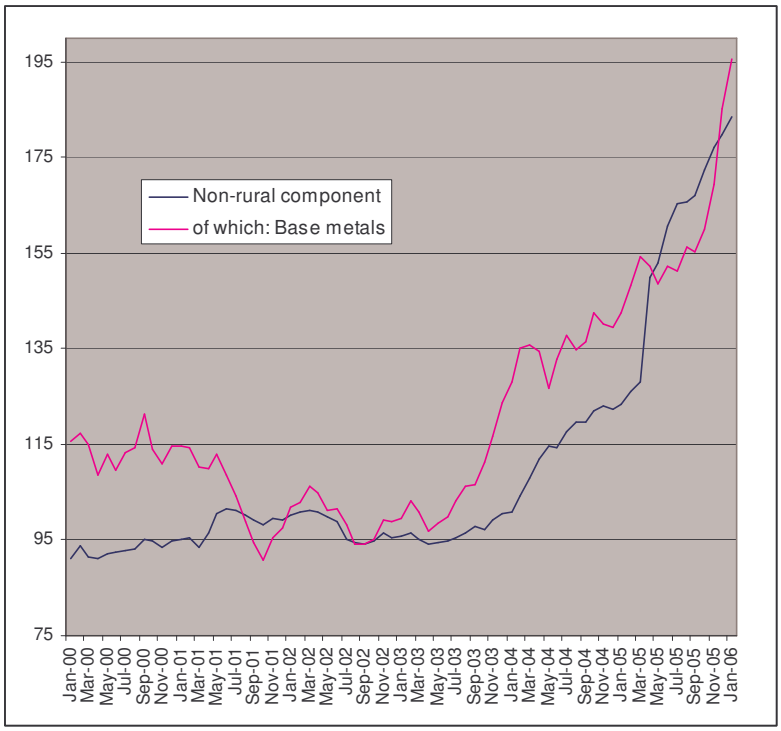
6.1. Currency effects and the recent changes in commodity prices

Basic commodities are increasingly important to KZN. Particularly in the recent years, exports in the metal sector have expanded noticeably. The change, surprising in the context of a sharp currency appreciation is associated with a parallel commodity price boom. Though the appreciation became the focus of attention from some industries (such as clothing) because these affected exports, they have also important effects on the investment decisions. In particular, firms generally comment that they hold onto investment decisions when the currency appreciated. However, investment decisions tie in with broader economic conditions.

The Rand appreciated strongly against the US$ at the end of 2002. The shift follows an increase in commodity prices which started in January 2002 (and even earlier, in October 2001 for platinium and coal). More generally, the continuous commodity index (CCI) and the Reserve Bank of Australia (RBA) indices though encompassing different products have shown sharp increases. Figure 19, which reports the RBA index for commodity spot prices, suggests that the increases started in the middle of 2003. Various CCI series show that the increase started in 2002 for some commodities however.[30] A link was then assumed, which is that the expansion of commodity prices (particularly gold), was causing the appreciation of the Rand. The problem is scrutinised by Hawthorne *et al.* (2005). The authors, who look into the returns from investments in a price boom context, identify a few trends which are relevant to the theme of value added and exports.

[30] The CCI relates to grains, livestock, etc. whereas the RBA relates to the spot prices of base metals and other resources.

Figure 19. Commodity spot prices – RBA series (indices, Feb. 2001=100)



Note: Based on Special Drawing Rights (SDR)
Source: http://www.rba.gov.au/Statistics/Bulletin/G05hist.xls

Taking a broad definition of commodities so as to include manufacturing products that are at the bottom of the value chain – such as man made fibres, the authors emphasise that, since, the South African Reserve Bank follows a monetary policy, there is no correlation between the two trends. Moreover they find that indeed, for South Africa, the commodities exported have continued to increase where net exports have declined. What is important in the pattern which they identify is that: (i) the effect has been one of price, not one of output. In other words, commodity producing firms have not generally developed new production capacity around the price boom. They have instead increased their (current) production capacity; (ii) the commodity price boom seems to have had limited impact around manufacturing output. In other words, the South African firms only process commodities to a limited extent (for either the international or national markets). That is, the lack of forward linkages buffers the price increased to be passed onto other firms. This dimension and other related points emerge in the discussion of opportunities and constraints carried out in the next section. However, an alternative view, and one espoused by the DTI, is that forward linkages are limited by the process industries charging "import-parity pricing" for outputs supplied into the domestic market thus not enabling local firms to gain from proximity to raw or semi-processed materials supplies. The interviews suggest that this might be a factor but not as important in terms of its effects as the DTI suggests.

6.2. Air transport

As set out in Velia and Valodia (2003b), recent and important research has been devoted to alternative ways of conceptualising the impact of 'distance'. The change has been in the direction of incorporating time and the impact different modes of transportation (i.e. air *vs.*

ocean) and trade facilitation measures have on trade. The new focus originated from the observation that growing volumes of trade were by air.

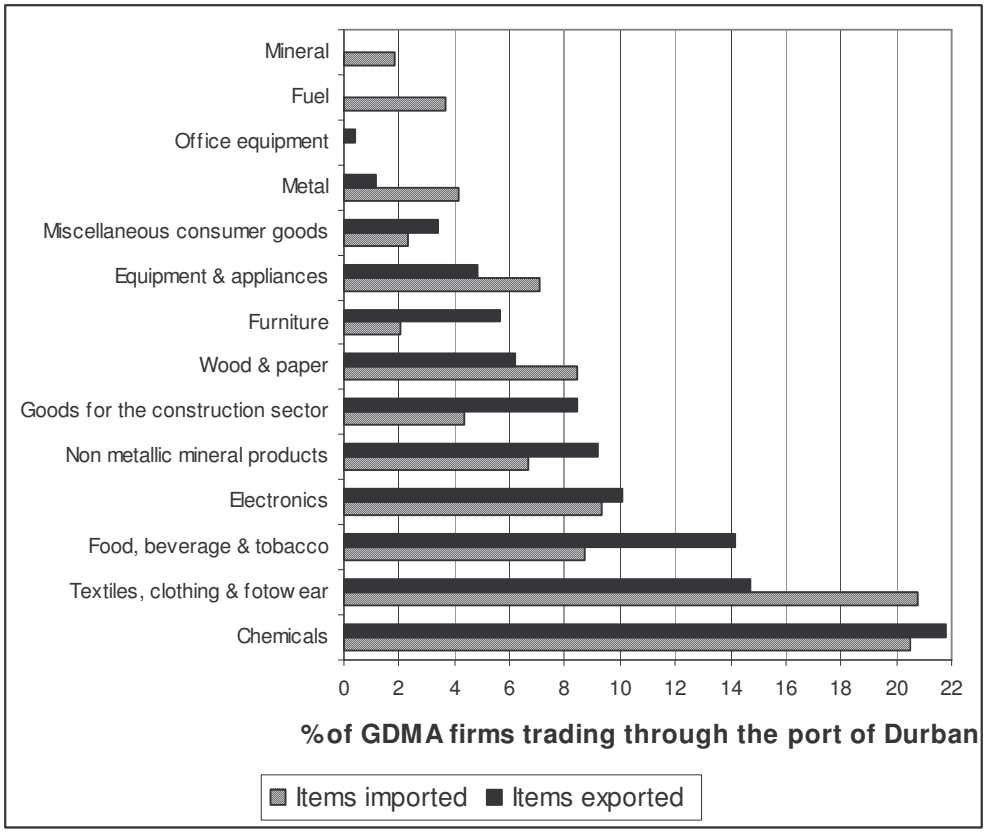
For South Africa, the theme is relevant for high value products with comparatively low weights. Thus, though managers regularly emphasise the additional costs of sending the goods by air compared to sending these by sea, the aforementioned report emphasised that there was a wide range of goods exported by air, even though these were across a small set of economic sectors; in the early 2000s, air shipments were concentrated in textiles and clothing, 'metal products and machinery', 'textiles and made-up' and 'chemical, plastic and rubber' goods. The choice of air transport overlaps with a demand for timely deliveries by some overseas buyers, particularly those located in the UK.

As shown in the first main part of this report, the export structure of KZN has somewhat evolved since the 2000/2001. Has the demand for air transport relative to sea transport also evolved? We focus next on data obtained from firms located in Durban in 2002-2003. The data considered are limited in a series of ways: (i) as the interviews were carried out only in the GDMA, they do not inform on the demand for specific modes of transportation from producers located elsewhere in KZN; (ii) the interviews were only carried out with firms that trade through the port of Durban. As such the focus is on firms that trade directly, not indirectly; (iii) the Durban firms interviewed appear atypical of the greater population of firms in the area in terms of their markets of destination. Those interviewed were primarily involved with SADC.
In spite of these issues, the data provide some important insights in terms of the sectors and types of firms that chose to send their products by air as opposed to by sea.

With sectoral weights applied, a greater proportion of firms imported as opposed to exported through the port of Durban (57.6% and 46.4% respectively of n=600). Over a third of firms (38.2%) were involved in exporting and importing activities through the port. From Figure 20, which reports the top three products traded through the port of Durban, it can be seen that chemicals figure amongst the top three products which are directly imported and exported by the firms. Of interest is the fact, within this sector, a great number of firms export medical and pharmaceutical goods. About 27% of the firms mentioning exporting chemical products specified that such products were sent by ship. Since these are products which have been identified as being shipped by air in Johannesburg by the Dube Trade port team, there is possible room for a substitution away from sea towards air transport. Also, as expected, textiles and clothing items and products in the 'food, beverages and tobacco' sector form the bulk of the products traded.[31] In contrast, few firms are involved with the trade of miscellaneous consumer goods.

[31] Though volumes traded are reported, these are given in a series of measurements units.

Figure 20. Main products traded in the GDMA



Note: firms were allowed to mention up to 3 products.
Source: Own calculations, GDMA Word Bank Survey.

In terms of the modes of transports chosen by the establishments, air is used by a relatively large proportion of firms. Amongst the 279 GDMA firms who reported exporting through the harbour, 51 also use air transport. That is 18% of the GDMA firms who export used air transport to send their goods overseas. Air transport is also used for import. In fact a higher proportion – 26.7% of the importing firms – chose that mode of transport. The individual volumes imported are however smaller than those exported: though the data contain some outlying cases, 26.6% and 18.9% of the volume exported and imported are by air. The data from Table 7 further show that multiple modes are used and that sea transport is dominant together with transport of the goods via roads, particularly for exports.

Table 7. Modes of transport (by volumes for the GDMA trading firms)

	% of total volume exported				% of total volume imported			
	by sea	by air	via roads	via rails	by sea	By air	via roads	via rails
Number of firms	253	51	136	26	332	92	23	3
Mean (%)	74.4	26.6	37.3	26.1	93.0	18.9	43.3	100.0
Median (%)	85	20	30	10	100	10	34	100
Mode (%)	100	20	10	5	100	10	10	100

Source: *Ibid.*

Are specific factors associated with the choice of a particular mode of transportation? The choice of air transport is influenced by a large number of variables:

- Size matters. Air transport is favoured by firms with at least 100 employees. 33.3% of the volumes exported are exported by air for firms with 100-1999 employees. The figure is also high for firms that have more than 200 employees, 29%. In contrast only 10% of volumes exported are by air for the 50-99 employees firms. Though the firms do not markedly favour one mode of transport over another, but chose instead to complement their transport, the smaller firms primarily select sea transport.[32] This is possibly because of cost constraints.

- The sectors in which the firms operate are also relevant when considering air transport. Large volumes are traded by air in the 'electrical and electronic machinery' sector. The data confirms that value per weight does influence the choice of the mode of transport. As such one aspect of value added is speedy delivery of some products. Having said that, large volumes of textiles and clothing goods were also forwarded by air. Timely deliveries had remained a problem area of this sector by 2002-2003. As for exports of 'vehicles and automotive components', these emerged as primarily forwarded by sea. Though a sectoral distinction between 'vehicles' and 'automotive components' ought to be made in further studies, the results somewhat concur with the pattern of export highlighted in Figure 20. Also of interest is the fact that relatively large volumes in food, in 'footwear and leather' and in 'electrical and electronic machinery' are imported by air. This aspect for the latter sector suggests that time might be a key factor of production.

Table 8. Volume exported and imported by air - sectoral breakdown for the GDMA (%)

	% of total volume exported by air (average)	% of total volume imported by air (average)
Food processing and beverages (n=6,3)	7.4	25.0
Textiles and Clothing (n=8,21)	37.5	6.5
Paper and furniture (n=2,8)	10.0	23.7
Chemical products (n=4,14)	10.0	7.6
Metal products (n=12,10)	25.3	14.3
Electrical and electronic machinery (n=5,14)	79.3	42.3
Vehicles and automotive components (n=13,11)	17.1	12.5
Non-metallic mineral products (n=2,8)	12.5	25.6
Leather & footwear (n=,3)		50.0
All cases (n=51,92)	26.6	18.9

Note: the figures in bracket represent the number of firms reported using air transport for export and for import.

- An additional interesting feature relates to the fact that firm age also influences the choice of the mode of transport. Older firms, that is firms set up before 1995 (in fact between the late 1980s and 1995) have a high demand for air transport. On average, a firm set up before 1995 would exports 30.9% of its goods by air. This compares to 12.3% for firms set up after 1995. Though the date of set up of textiles and clothing

[32] Some of the differences between firm size and the selection of the mode of transport are significant in post-Hoc Tamhane tests.

firms partially influence the proportions, the figure remains high even when this sector is excluded. This can be interpreted in two ways. Either the older firm have difficulties in meeting the deadlines associated with the orders, or that they produce different types of goods. If the former was true then penetration into foreign markets takes place at a high cost – that is, the cost of shipping by air might be born primarily by the producers, not the buyers. In fact, a closer examination of the data reveals a size class effect. Firms with 100-199 employees and set-up before 1995 forward 41.2% of their export by air. The figure for firms in this size class but set up after 1995 is 11%.

- Finally, an important aspect of air transport is location. Firms in Mobeni, Phoenix and Pinetown are more prone to combining air and sea transport than firms located elsewhere in the GDMA. In particular, as much as 60% of the volumes exported by firms in Phoenix are by air. When firms are allocated to broader areas within Durban, then firms in the 'western' side of Durban and in the 'centre to the south' of Durban are those which use air transport. The latter is an area dominated by chemical firms. Firms in Pinetown and Verulam also stand out in terms of the transport selected for imports. This suggests that some high value – low weight input goods are required which might not be able locally – Pinetown, in particular, is dominated by firms involved with metal products.

As for sea transport, the majority of GDMA firms interviewed – particularly those turned towards exporting rather than importing – envisaged, at the time of the interview, an increase in their volumes of cargo handled by their establishment by at least 10% between 2003 and 2008. The firms were generally optimistic (between 58% and 63% of the cases) in terms of the capacity of the port of Durban to handle future cargo needs. However, discussions with firms that are much more dependent on logistics processes (i.e. those that source a range of inputs and have complex distribution arrangements) suggest that problems could escalate as more and more firms rely on already stretched services. Growth of container handling activities in Durban of almost 12% in the last year and the increased pressure on infrastructure and related services does suggest that these matters are in need or urgent attention – especially in the light of uncertainty over the nature of expansion plans to accommodate extra cargo in the port and in surrounding municipal infrastructure.

The above has important implications for the development of the multi-modal multimodal gateway, the Dube Trade Port (DTP). Focusing on sea transport, improvements of port activities by SAPO will impact widely and across sectors. That is because the main container terminal (SAPO) is important to the GDMA firms. It is used as the sole cargo handling facility by 71.2% and by 76.2% of exporting and importing firms (respectively) which have answered the question.[33] Focusing on air transport, it is relatively widely utilised. As the data suggest that a series of modes of transport are used concomitantly by the firms, there is a demand for a multi-modal platform. Furthermore, whereas demand is small from some sectors, the approach towards the combination of air and sea transport should be one that focuses on servicing the needs of a variety of firms rather than that from individual sectors. Nevertheless, efforts could, perhaps, be first, directed towards firms in the 'electrical and electronic machinery' and pharmaceutical and medical segments.

[33] Few exporting firms use private facilities (less than 20 out of 219 firms) for either leasehold container handling or for general cargo handling.

Having emphasised a few points about the modes of transport, transport costs matter. At the macro level, poor export performance in sub-Saharan Africa (SSA) has been linked to high transport costs and the related high cost of importing. Noting that South Africa fares relatively well in this regard (see Velia and Valodia, 2003b), at the firm level, 22.5% of the 279 firms who reported exporting via the port of Durban emphasised that sea freight rate levels for containers were poor. Another 52.9% described it as fair.[34] The remainder said it was excellent. Somewhat in contrast and specifically commenting on the effects of worsening congestion at the port of Durban, firms did not feel that this was a sufficiently critical dimension to induce a shift from sea to other modes of transport. In other words, though 75.9% of exporting firms commented that it would threaten their export sales and competitiveness, only 7.8% mentioned a switch. The preferred option was towards diverting cargo to Richards Bay. Also, firms were not keen to move location. The responses emphasised the limited interest by firm management in the possibility of shifting location as well as the fact that the Durban firms consider sea transport their prime mode of transport.

The above does not preclude that air transport is of importance for the firms, but instead that improvements are along a series of transport dimensions. The improvements matter for value added. First, as argued in Velia and Valodia (2003b), there are many costs associated with a poor transport network - these include a diversion of scarce resources, lower returns to (capital) investments, high inventory costs and mismatches between the good supplied and that which is required (perishability). Studies suggest that broad transport costs (that is including the time spent on travel) are higher than conventional import tariffs. Second, the multi-modal platform has trade facilitating equivalent effects and thus is likely to open up new export-oriented investments. Since air transport is inherently biased towards high value per weight goods, these are the ones that are the most likely to benefit. However, such investments might only become realised when the project is nearer completion. As South Africa is already some distance from major markets it is is always of benefit for firms to be able to utilise air cargo for emergency deliveries – whether it be of components for machinery that might have failed or for product that might have been delayed too long on the production line to be sent by sea.

7. Value adding - constraints and opportunities identified through interviews

As already specified interviews with a diverse set of interest groups have been conducted to get more qualitative information of export trends, and to get perspectives and analysis on a range of interesting and insightful sector dynamics. In particular, information was sought on the constraints and opportunities related to value add and export activities. Some of the more generic factors being referred to included, around opportunities for growth in value-added exports:

- Ongoing relevance of the domestic market
- Increasing importance of service type activities
- Some selected or niche improvements in trade access (e.g. in autos to Europe)
- FDI in manufacturing
- Environmental issues

[34] The frequency of liner shipping services was, in contrast, reported as being excellent by 52.5% of exporting firms and by 51.7% of importing firms.

Around the constraints, the following were considered:

- Currency expectations
- Rising factor and transaction costs
- Non tariff barriers to trade
- Domestic prices (import parity) and global demand factors for input crowding out local (smaller) buyers
- Logistics and supply chain gaps and hassles
- Skills (in part related to HIV/AIDS)
- The efficacy of government support measures

This section provides a synthesis of the main findings from a process of conducting interviews with selected industry stakeholders and key informants identified by the report authors and the KZN DED. The intention behind the interview process was to provide some qualitative input into the report which carries a strong quantitative focus. Not only do the interviews provide an opportunity to test some of the conclusions from statistical work but critically they also provide a dynamic element to the report in terms of identification of firm and/or sector constraints and opportunities with respect to exporting and value added.

Informants were identified after a preliminary analysis of the data on exports in KZN in an effort to gain insights from firms at the cutting edge of export activity in KZN. Attempts were made to speak to exporters from the sectors that dominate exports in value terms and also to exporters that, whilst not being major contributors to exports, have shown fast export growth in recent years. These interviews were supplemented with discussions and interviews with a selected group of other informants in government and other bodies that have an interest in the matters covered in this report.

Interviews and discussions used an open format guided by a number of questions to gain insights into factors affecting firm operations and strategy or perspectives by other roles players of strategy and operational issues. The questions sought to identify the approach of firms to exports and its relationship to value added and further to reflect on sector-wide factors that were deemed relevant.[35]

Interviews, or in some cases discussions, were undertaken with one or more representatives of the following firms and organizations[36]:

- PAMSA – Paper Manufacturers Association of South Africa (major pulp and paper producers referred questions to PAMSA)
- Forest Products Research Centre
- Richards Bay IDZ

- Tongaat-Hulett Group
- Willowton Oils
- Durban Auto Cluster and associated firms

[35] It should be noted that delays in commissioning the study resulted in the focus of interview activity occurring taking place during the business shut down period in December and January. This limited access to some priority firms. Whilst in the bulk of cases a fully fledged interview was conducted, in some cases the interview took the form of a more limited discussion with key informants where time constraints were a limiting factor.

[36] Attempts were made to interview representatives from other firms and organizations including: TIK (Interview postponed indefinitely); Tiger Brands (including Beacon Sweets – unwilling to be interviewed); Fry Group (a brief discussion that did not yield significant information); Robertson's (not available in the revelevant time frame) and Duys Engineering (not available in the relevant time frame).

- Kumba-Ticor
- Two KZN DED sector experts (furniture and agribusiness)
- Integrated Management, Analysis and Geographic Information Systems (PMB environmental services business using wood chips)
- SEIFSA KZN

This section of the report provides an overview of material gathered from the interviews and concludes with some more specific sector issues raised.

The approach to exports

Understanding the factors that influence firms choices around exporting is a key element in getting to grips with issues such as the extent to which exporting is a key aspect of firm long term strategy of accessing new markets and or simply a response to prevailing circumstances (for example a slow domestic market). These motivating factors are also important because the literature on achieving competitiveness and on improving value added makes a case for firms that export to learn and upgrade their processes to meet the demands in more competitive environments. This has two dimensions. First, firms may be able to use experiences in one international market to achieve success in another export market. Second, with increasing competition in South Africa's domestic markets from international players firms may be able to use the potential upgrading benefits from being active in export markets to maintain and even improve their domestic position. Ideally, we would want to see evidence of both these effects operating among KZN exporters.

The following factors were raised during the interview and discussion processes:

- Strong domestic consumer demand has seen some capacity previously oriented to exports re-directed to meet local consumption growth (although this is not reported by intermediate goods manufacturers as a big factor). It is worth noting that previous research has suggested many smaller-scale exporters use exports as a diversification strategy when domestic market conditions are weak and not as a core business expansion platform. It it possible that, in the current context, the combination of strong domestic demand and an appreciation in the value of the Rand significantly improved margins in the domestic market. In this context it is important to note that most firms that we interviewed still se exports as an integral component of their current and future plans.

- Consumer product exporters' entry in Africa comes on the tails of entry by SA retailers to reduce risk. Steadily growing overseas foreign direct investment (OFDI) by SA firms in the region presents new opportunities on firms supplying to these companies. This suggests that some South African consumer good retailers are effectively 'exporting' their entire supply networks. For policy purposes, this highlights the need to consider inter-sectoral linkages.

- Primary/resource based exporters that have seen strong global demand (especially from China) and in some cases rising prices have focused on increasing output (in many cases optimising existing capacity) rather than seeking to move into higher value product categories. "Sweating" the capital equipment is seen as very important as costs of new technology and capital equipment are high and concerns remain about

market instability internationally. In this context delaying purchase choices for as long as possible can make sense for firms.

- Primary/resource based exporters operating in weaker demand environments have sought to improve margins, secure new markets and restructure operations towards greater mechanisation ("It is often easier to restructure in lower demand times than when plant is operating at 120% capacity").

The opportunities

Discussions yielded a combination of both specific opportunities that are being explored by firms as well as opinions on possible opportunities in sectors more generally. A number of those interviewed suggested that government could assist by seeking to more explicitly support firms realising opportunities (i.e. picking winners) rather than merely focusing on constraints. Key points raised in these discussions on the opportunities included the following:

- SA's competitiveness in lower technology resource intensive/primary processing is well established (power, raw materials).

- SA's (and SADC's?) growing levels of economic activity make for a more attractive operating base for MNCs that drive global trade.

- Trade reform processes are generating new opportunities.

- The recovery of margins on some (note currency impact) commodity exports can generate a surplus to invest in new forms of capacity and new processes (eg Sappi-Saiccor/Borregaard).

- In spite of a large number of constraints, the firms interviewed were fairly optimistic about the potential for growth in value-added exports in KZN. However, firms argued that it is often very difficult to 'unlock' these potential opportunities.

The constraints – generally

As is often the case in such government initiated research processes firms are only too willing to identify constraints which have been of concern to them. However, it is worth noting that many of these were reinforced by comments of officials of other institutions including some from government. This means that there is at least a shared sense of constraints and this common understanding could be used to initiate some collective action. Issues highlighted in the discussion focused on the following:

- There was no clear view of currency behaviour in the medium term. Although the Rand has been relatively stable in the past 12-18 months firms we uncertain about the changes over the forthcoming 24 months. Additional concern was further expressed towards the risks associated with other currencies, such as that of China, and the likely impacts on commodity prices should currency adjustments be made. Given the long lead times in some commodity-related production facilities this uncertainty explains some of the firms lack of investment in expansion of plant. Whereas a strong rand has

allowed for some capital investments. It has also curtailed access to price sensitive markets.

- The declining capacity and service capability at the DTI and other government departments:
  - In particular, respondents said that levels of industrial and production expertise were very low amongst officials. Thus, industry-specific considerations tended to inform DTI policy in a fairly random manner (e.g. on trade negotiations, contesting non-tariff barriers (NTBs) or investment support). Furthermore, there was a serious lack of institutional memory in the DTI and related government departments which meant that policy issues which had been debated and agreed upon were constantly being revisited by new officials who had little understanding of technical issues.
  - Many important processes at central government level get stuck – e.g. telecommunications reform, energy sector restructuring.
  - Local and provincial authorities are struggling to provide adequate levels of service for business in key areas such as land administration and environmental processes.
  - Support and facilitation bodies (e.g. TIK) have unclear mandates and weak delivery systems. Too much time, respondents argued, is spent seeking new investors and not enough time ensuring value added services can be offered to existing firms. The operations of these bodies lacked focus.

- Access to export markets was curtailed by a lack of access into multi-national global value chains. It is estimated that 1/3 of trade internationally is intra-TNC (transnational corporations) trade and that a further 1/3 is governed by TNCs in that they are the originators or the markets of he trade. Access to the global value chains where these TNCs predominate is essential for firms seeking to undertake sustained export activity.

- Distance to market, inland transport leg costs and congestion and parastatal inefficiency hinder competitiveness. Supply chain management is difficult under circumstances where there is little attention paid to the more effective operation of key logistics platforms. The high cost of road transport, increasing problems of congestion and delivery uncertainty and the underperformance of rail were specified. Where SA is already at some distance from major markets such problems can undermine competitiveness. It was also mentioned that a more effective air-cargo service might allow for greater diversity in logistics strategy, but in volume and value terms existing dominant exporters and importers placed improving port handling before air cargo needs.

- Entry barriers can be high when testing the market requiring preparedness to make losses initially. It is not easy to get someone to finance this.

- Exporting is not easy – it should not be under-estimated. Government policy seems to gloss over exports as a simple choice by firms but it takes a range of activities and a sustained commitment by firms to make exporting a viable option on a longer term basis.

The constraints – with respect to beneficiation

- Costs of new technology are very high in low margin fields and technology is often supplied through vertically integrated MNCs who do not always have an interest in the success of competitor suppliers – e.g. in paper making business.

- In many cases investment decisions are focused on being close to major growth markets or customers for logistics reliability and value chain management. SA's distance to such markets is a constraint that further hinders the realisation of opportunities.

- The case of automobiles, specifically that of Toyota, shows how having proximate demanding and supportive customers can allow for technology transfer, upgrading and value adding – such demanding customers are scarce in KZN.

- Matching the scale of competitor plants (new operators) can be a big task (made worse by distance from market) – especially in the light of soft financing in Asia.

- High prices and strong demand in some commodities makes downstream investments a relatively unattractive option. Prices for semi-processed commodities such as wood chips make export of wood chips attractive while downstream business such as saw mills and pulp mills loose access to this feedstock.

- Fewer variables and more certainty on cost factors makes basic processing a more attractive business. Adding value can often leave firms with excess capacity in a market area where demand is saturated or in decline despite ongoing demand for raw materials.

Sector specifics

- Paper, pulp
  - SA has hit a feedstock barrier in plantation terms. No new plantations have been approved, growth in wood chip exports is resulting in timber suppliers by-passing pulp mills as their traditional main markets, blockages in Safcol restructuring have seen erratic supply from these major sources. Without new feedstock no expansion/new pulp mills will take place as value-added activity in such plants is closely linked to scale operations.
  - SA recycling regulations are not encouraging growth of the use of recycled materials for paper and for other wood-type products.

- Furniture
  - Timber plantations are being harvested earlier and earlier for pulp/wood chips as farmers are seeking an earlier return on their investment. The incentives to grow trees for a longer period are quiet limited. Furniture producers need timber from mills that has been growing for around 25 years. Privatised Safcol product is being sold into wood chips and pulp mills and this used to be main saw log supplier. Saw log prices are very high and saw mills are shutting down.

- Autos
  - The Toyota plan to shift the local plant to 250 000 units is already changing the environment and generating FDI and orders – with Toyota seeking to source 70% locally!

- Sugar
  - Sugar producers are looking to new product forms to deal with the perspective that domestic sugar production is not globally competitive.
  - Government policy on ethanol a major obstacle – this needs to be enabled. Almost 1/3 of sugar production in Brazil goes to ethanol production at present.
  - Power generation reform stalled impacting on millions of Rand investment to generate power for the grid from sugar mills.
  - There is innovation in process terms and proprietary technology being developed with little or no help from government.

- Consumer products
  - Brands are growing and access to new markets is occurring on an incremental basis – investment by SA retail chains has opened important channels and lowers risks

- Aluminium
  - There remains scope to increase take up for extruded products but capital investment is high and margins are low with competition from scale operations. Rolled products require even greater technology investments and in SA with low per capital aluminium consumption – niche partnerships are an option and there is slow progress on developing downstream opportunities.

- Titanium and other mineral slags
  - SA has good raw material supply (RBM, Kumba, Ticor) – initial processing to export product is very capital intensive, must operate at scale, but has low margins. Next stage in production is generally in proximity to final goods producers that work on high specs in terms of technical quality and lead time – SA would need to have large scale production of end goods to justify investment in intermediate processes.

- Iron and steel
  - KZN has strong engineering sector with sound export profile and presence of related metals producers to allow for value-added product cross-overs (e.g. Duys engineering anode manufacture, Kumba-Ticor alloys). Investment in new capacity (Tata) and recovery of old capacity (Mittal in Newcastle) does offer opportunities.

- Services
  - Many firms appear to sell services and physical product. This has in some cases been growing and is often exported.

8. Conclusions and options for the next steps

The study raises a range of interesting and relevant conclusions. It also emphasises some key points of departure for future strategic interventions by government and its partners. The

interventions vary from very specific aspects to a range of more generic activities. From the statistical work and from the interviews and discussions a number of points are worth highlighting. These are presented in the material which follows.

There are some changes in the composition of exports that are worth some considerable attention:

- Some new products are being exported, though the export value of these are relatively small;
- 'Old' products have remained or returned.

Shifts are observed in the data in terms of markets of destination and origin of goods:

- Exporters do adapt to changing external conditions and appear increasingly able to do so now that many have had some experience operating in export markets. This adaptation is likely to be associated with changes taking place at the plant level. Producers react to evolving demand conditions by altering the ways in which they use their machinery and equipment or employ their workers. In other words, exporters display some flexibility;
- The emergence of a small base of new products might suggest that value added is expanding in some export sectors. Yet, the effect associated with the adaptation of producers dominates. Therefore, generally, value added would expand, not through the production of more sophisticated - and thus more expensive – products, but rather through controlling the costs associated with the factors of production. Though this is positive, the spillovers from such strategy are likely to be limited in the long run.

When the technological dimension of trade is considered, the data suggests that KZN is following a distinct trajectory from that of South Africa:

- In the labour intensive segment, it emerges that textiles, clothing and footwear firms are experiencing important difficulties in KZN and in South Africa, but more markedly in the former;
- KZN performance in high technology good is erratic. The fact that the more technology-intensive exports are *ad hoc* reveals that there is regional capacity and capabilities but that these do not translate into a demand for KZN high-tech goods being formed overseas;
- Reassuringly, exports from the automotive sector are expanding in KZN and SA. Will the experience gained in the 'automotive sector' affect other sectors?

For policy making, the aggregate picture is one which broadly signals that there have been relatively limited investments in KZN for the foreign markets. Though imports of machinery and equipments are high (and in some cases even grown), the relative absence of new export sectors signals that it is the same larger firms which export over time. In this context, strategies designed to boost investment for foreign markets might be crucial. Also importantly with regard to the smaller firms is that these have failed to take up the opportunities associated with the preferential deals. High barriers to trade might have remained in the importing markets. These need to be carefully assessed.

What is revealed around the analysis of value added somewhat contrasts with the above. KZN has made important progress relative to South Africa as well as over time. The expansion of value added is notable in some sectors and there might, moreover, be a link between the current changes and the export performance, particularly in the 'metal and

machinery and household appliances' sector. Yet, there are also clear signs that the expansion of value added in KZN, which is outpacing that of South Africa is for the domestic market.

From a thematic perspective the following points need attention in ongoing policy efforts and dialogue with the private sector and other role players:

- KZN should be growing its share of total exports
  - Advantages which pertain to KZN might not have been as significant or might have been over-shadowed by disadvantages.

- Big is very big
  - The scale of export activity by the handful of dominant exporting firms is very significant. Small changes in their activity have very large impacts and they should be worked with by government as a specific category deserving attention.
  - Whilst the products produced for export might not have further value added the processing activities are very capital intensive, have strong local linkages and are driven by enormous investments.

- Small is also quite big and important
  - Some of the fastest growers of exports, whilst small in relative terms, are showing considerable dynamism as firms are exporting at levels that deserve attention (R30 million in export revenue is not to be sneezed at).

- Exporting is becoming more rather than less complex
  - Despite the removal of trade barriers etc., issues of standards (around delivery, quality, phyto-sanitary, environmental etc), growing competition, technological adaptation and adoption, growing market fragmentation, power shifts in value chains and other dimensions all impact on performance and contribute to the firms' evolution.

- Serving local markets is not a strategy to dismiss

  As domestic demand and as levels of competition grow, consumer demand become more sophisticated. In this context, serving local markets is a worthwhile strategy that can also yield value added investments.

  It appears that KZN value added is strongly focused on the domestic market, although this might spill over into exports and could also reflect the rising value of the Rand combined with strong domestic demand diverting production.

- Opportunities and constraints do not necessarily present themselves in obvious places
  - E.g. allowing for a policy environment for ethanol production from sugar cane could have important linkages into the automotive sector and could stimulate innovation. This suggests that support for innovations needs to be sensitive to market dynamics and shifts and not be overly determined in rigid government frameworks.

On the basis of insights gained from the project and material available on the theme of adding value, there is plenty of scope to reflect on existing policies and programmes in support of firms in KZN. While the current sectoral focus for KZN can be justified in terms of sectors' dominance in employment and output, both the large scale and new emerging exporters

deserve some attention. Of particular importance is the need to reinforce an environment in which firms are willing and able to invest in new technology and processes. This is something that seems to be either absent or constrained in many sectors. South Africa underperforms in investment. As such, while export performance has been growing, this has not always yielded the developmental wealth creation effects that are associated with rises in value added. Value added growth frequently seems to have more to do with currency and price fluctuations than with changes in the use of knowledge and technology. Furthermore, research and development, marketing and brand-building are not sufficiently used to reinforce the scope for value adding.

International experience has shown that processes to harvest opportunities through effectively capturing the knowledge spillovers from investment, exporting and increasing value added do not emerge organically. Government has two main roles to play in this regard. First, it should help build the level of social capital between key role players. Second, it ought to provide new forms of public goods that would allow the learning and technology spillovers from individual firms to become more accessible to other firms and sectors. In an environment where investment in technology acquisition does appear to be patchy if not generally low, considerable effort could be directed to supporting processes and institutions that facilitate the acquisition of such technology. This support would be towards both the dominant export firms and sustainable new entrants. These interventions have to take place at a much more discreet level than at the broad sector level as is currently the case for many activities. Government could seek to focus its efforts to attract investment and to work with domestic firms at the more discreet points suggested in the analysis of the data. This will require a greater move to partnerships with business and an improvement in the quality and consistency of government support and programmes (something that a partnership with business could help secure).

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Useful resources for further information:

www.unctad.org
www.unido.org
UK DTI web site: http://www.innovation.gov.uk/value_added/home.asp?p=home
http://en.wikipedia.org/wiki/Value_added

10. Appendix

Annex 1. Interview themes and questions

- **On the theme of understanding the decisions related to output:**
    - Are opportunities available? What are the products which are exported and into what market? Why does the 'sector' export?
    - What are the factors influencing exports?

      What factors influence: (i) the proportion of output exported, (ii) the volumes exported and (iii) the value of the goods that are exported?

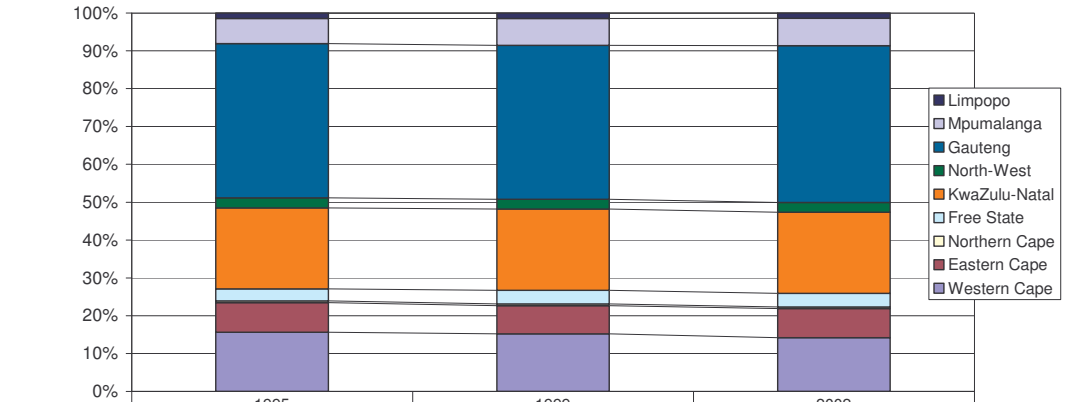
      What trends are evident in the recent export capacity?

- **On the specific theme of adding value:**
    - What is happening in terms of product development in your sector internationally? Have these developments reached South Africa?
    - How has the unit price charged for your product changed over time?
    - About the decisions around adding value
        - What is the nature of value added in the sector? How does this look like in terms of exports?
        - When were important investments last made in the firm/sector?

- **Understanding the situation on the input side:**
    - What are the key imports and what is the situation on these goods in SA?
    - What sectors complement your activities – on the input side, on the output side? What is the situation around the service infrastructure?
    - What are the investment trends – are the investments related to production for export or to production for the domestic market?

Annex 2. Additional tables and figures

Appendix Figure 1. Provincial share of South Africa manufacturing GDP (constant 1995 prices)



	1995	1999	2002
Limpopo	1,534,000	1,568,000	1,757,000
Mpumalanga	7,028,000	7,669,000	8,967,000
Gauteng	43,332,000	43,964,000	51,276,000
North-West	2,830,000	2,766,000	3,190,000
KwaZulu-Natal	22,669,000	23,221,000	26,569,000
Free State	3,399,000	3,911,000	4,475,000
Northern Cape	514,000	483,000	532,000
Eastern Cape	8,243,000	8,071,000	9,512,000
Western Cape	16,632,000	16,433,000	17,595,000

Note: Data are in R000.
Source: *Ibid.*

Appendix Table 1. Regional origin of the top 5 KZN exports by value (% - 2002 to 2004)

		KZN Region				
HS2	Product	Ladysmith	Pmb	Dbn	Empangeni	Other
26	Ores slag & ash			75.2	24.7	
76	aluminum & articles thereof		21.8	1.1	77.1	
72	iron & steel	0.8	0.8	88.8	9.6	
28	inorganic chem, org/inorg compounds of precious metals, isotopes	5	4.4	7.4	83.2	
47	pulp of wood, waste & scrap of paper			80.4	19.6	
Other products		3.0	10.7	53.2	32.8	0.3

Note: based on data at 2000 constant prices.

Appendix Table 2. The importance of the main export sectors in KZN (in Million of Rand & %)

TOP 5 KZN EXPORTS (2002-2004)

Product	2000	2001	2002	2003	2004
Ores slag and ash	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)
	7329.5	7535.3	7901.1	11967.8	11544.2
	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)
	4079.7	4605.6	5470.1	9868.5	8311.1
	% SA exports	% SA exports	% SA exports	% SA exports	% SA exports
	55.7	61.1	69.2	82.5	72.0
	% KZN exports	% KZN exports	% KZN exports	% KZN exports	% KZN exports
	14.5	16.1	15.0	24.1	21.7
aluminum & articles thereof	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)
	6289.6	6208.0	6689.9	5914.5	7278.4
	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)
	873.3	1078.7	6228.5	5398.8	6695.3
	% SA exports	% SA exports	% SA exports	% SA exports	% SA exports
	13.9	17.4	93.1	91.3	92.0
	% KZN exports	% KZN exports	% KZN exports	% KZN exports	% KZN exports
	3.1	3.8	17.1	13.2	17.4
iron & steel	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)
	18321.2	34429.6	18034.3	22514.8	26314.7
	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)
	2951.5	3317.5	3530.2	6143.0	5840.0
	% SA exports	% SA exports	% SA exports	% SA exports	% SA exports
	16.1	9.6	19.6	27.3	22.2
	% KZN exports	% KZN exports	% KZN exports	% KZN exports	% KZN exports
	10.5	11.6	9.7	15.0	15.2
inorganic chem, org/inorg	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)
compounds of precious	4295.7	4158.9	4524.8	3173.9	4040.9
metals, isotopes	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)
	1901.1	1905.7	2709.8	1460.1	1724.4
	% SA exports	% SA exports	% SA exports	% SA exports	% SA exports
	44.3	45.8	59.9	46.0	42.7
	% KZN exports	% KZN exports	% KZN exports	% KZN exports	% KZN exports
	6.8	6.7	7.5	3.6	4.5
pulp of wood, waste & scrap	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)	SA (Rm)
of paper	3589.3	2788.4	2542.3	2508.1	2133.3
	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)	KZN (Rm)
	3121.1	2581.4	2138.0	2008.5	1705.1
	% SA exports	% SA exports	% SA exports	% SA exports	% SA exports
	87.0	92.6	84.1	80.1	79.9
	% KZN exports	% KZN exports	% KZN exports	% KZN exports	% KZN exports
	11.1	9.0	5.9	4.9	4.4

Appendix Table 3. The structure of KZN exports for core products at the HS4 level

HS2 Code	Product	HS4 code	Product	% of sector 2002	% of sector 2003	% of sector 2004
17	sugars & sugar confectionery	1701	cane or beet sugar & chem pure sucrose, solid form	93.0	94.5	96.4
26	ores slag & ash	2601	iron ores & concentrates, including roast pyrites	56.3	80.6	88.0
		2614	titanium ores and concentrates	27.4	12.9	5.6
		2615	niobium, tantalum, vanadium & zirconium ore & conc	15.8	6.3	6.1
27	mineral fuels, oils, waxes & bituminous sub	2710	oil (not crude) from petrol & bitum mineral etc.	75.1	94.8	86.3
		2714	bitumen & asphalt, natural, shale & tar sands etc.	13.4	0.0	0.2
28	inorganic chem, org/inorg compounds of precious metals, isotopes	2809	diphosphorus pentaoxide, phosphoric acid etc	22.6	37.0	21.0
		2823	titanium oxides	61.9	39.2	63.6
38	miscellaneous chemical products	3804	residual lyes from wood pulp mfr (except tall oil)	16.4	18.2	20.1
		3808	insecticides, rodenticides, fungicides etc, retail	61.5	62.1	61.3
44	wood & articles of wood, wood charcoal	4401	fuel wood in logs etc, wood in chips, etc.	66.3	73.2	74.7
		4418	builders' joinery and carpentry of wood	16.1	13.3	13.3
47	pulp of wood, waste & scrap of paper	4702	chemical woodpulp, dissolving grades	72.0	81.7	84.6
		4703	chemical woodpulp, soda or sulfate, not dissoly gr	26.9	18.1	14.7
48	paper & paperboard, articles of paper pulp	4801	newsprint, in rolls or sheets	16.5	14.7	10.5
		4802	paper, uncoat, for writing etc, rolls, handmade paper	10.4	15.0	38.5
		4804	kraft paper & paperboard, uncoat nesoi, rolls etc	5.3	28.9	34.5
		4805	paper & paperboard, uncoat, nesoi, rolls or sheets	41.1	7.7	2.8
		4810	paper & paperboard, coated with kaolin etc, roll etc	5.9	10.0	3.1
		4823	paper, paperboard, cellulose wad to size & arts nesoi	9.2	11.6	0.3
72	iron & steel	7201	pig iron & spiegeleisen in pigs, blocks etc.	12.2	6.1	6.7
		7207	Semi-finished products of iron or nonalloy steel	17.1	16.1	15.7
		7208	flat-roll iron & na steel n/un600mm wd hot-rl, not clad	23.1	39.5	36.9
		7213	bars & rods, iron & na steel, h-r irreg coils	15.0	10.4	11.8
		7216	angles, shapes & sections of iron & non-alloy steel	10.2	9.1	5.7
73	articles of iron or steel	7304	tubes, pipes etc, seamless, iron nesoi & steel	30.7	32.7	35.7
		7308	structures nesoi & parts thereof, of iron or steel	23.4	27.2	27.6
		7312	stranded wire, ropes etc, no elec ins, iron or steel	15.0	14.5	14.4
76	aluminium & articles thereof	7601	aluminum, unwrought	77.7	70.3	75.2
		7606	aluminum plates, sheets & strip over 2mm thick	15.7	23.8	20.0
84	nuclear reactors, boilers, machinery & mechanical appliances, computers	8421	centrifuges, filter etc mach for liquid or gases, pts	42.2	38.6	50.8
85	electrical machinery & equip. & parts, telecommunications equip., sound recorders, television recorders	8525	trans apparatus for radiotelephony etc, tv cameras cordless telephones	34.9	31.5	34.1
		8528	television receivers (incl monitors & proj receivers	2.6	3.3	12.7
		8536	Electrical machinery & equipment & parts thereof; sound recorders & reproducers,	3.2	17.6	3.7
87	vehicles other than railway or tramway rolling stock	8703	motor cars & vehicles for transporting persons	6.8	23.7	24.8
		8704	motor vehicles for transport of goods	56.0	47.8	31.5
		8708	parts & access for motor vehicles (head 8701-8705	26.1	17.2	31.6
94	furniture, bedding, cushions, lamps & lighting fittings nesoi, illuminated signs, nameplates & the like, prefabricated buildings	9401	seats (except barber, dental, etc), and parts	7.2	31.0	37.2
		9403	furniture nesoi and parts thereof	84.3	61.1	52.3

Appendix Table 4. Performance of South Africa and KZN in the 10 most dynamic products

	2000 to 2004	KZN growth / annum (%)	SA growth / annum (%)	World growth / annum (%)	Share of product in KZN export (%)	Share of product in SA export (%)
30	Pharmaceutical products	37	3	25	0.3	0.3
15	Edible oils & fats & animal or vegetable waxes	7	-2	19	0.2	0.1
72	Iron & steel	28	18	19	12.7	12.6
86	Railway or tramway parts & signalling equip.	9	1	17	0.0	0.4
18	Cocoa preparations	26	2	16	0.0	0.1
26	Ores, slag and ash	29	21	16	19.0	4.9
43	Furskins & artificial fur; manufactures thereof	33	20	16	0.0	0.0
75	Nickel & articles thereof	49	63	16	0.1	0.6
33	Essential oils & resinoids; perfumery, cosmetic or toilet preparations	44	99	15	0.3	1.0
19	Preparations of cereals, flour, starch, or milk; pastrycooks products	5	8	14	0.1	0.1

Note: based on nominal trade data.
Sources: ITC and SARS data.

Appendix Table 5. Technological classification of exports

Classification	Examples
Primary products	Fresh fruit, meat, rice, cocoa, tea, coffee, wood, coal, crude petroleum, gas
Manufactured products	
Resource based manufactures	
Agro/forest based products	Prepared meats/fruits, beverages, wood products, vegetable oils
Other resource based products	Ore concentrates, petroleum/rubber products, cement, cut gems, glass
Low technology manufactures	
Textile/fashion cluster	Textile fabrics, clothing, headgear, footwear, leather manufactures, travel goods
Other low technology	Pottery, simple metal parts/structures, furniture, jewellery, toys, plastic products
Medium technology manufactures	
Automotive products	Passenger vehicles and parts, commercial vehicles, motorcycles and parts
Medium technology process industries	Synthetic fibres, chemicals and paints, fertilisers, plastics, iron, pipes/tubes
Medium technology engineering industries	Engines, motors, industrial machinery, pumps, switchgear, ships, watches
High technology manufactures	
Electronics and electrical products	Office/data processing/telecommunications equip, TVs, transistors, turbines, power generating equipment
Other high technology	Pharmaceuticals, aerospace, optical/measuring instruments, cameras
Other transactions	Electricity, cinema film, printed matter, 'special' transactions, gold, art, coins, pets

Source: Lall (2000:7, Table 1)

Appendix Table 6. South Africa and KZN exports according to a technological classification

Part 1. Export values (in Rand billion at 2000 constant prices)

	Product type	1998	1999	2000	2001	2002	2003	2004
SA	PP	43.4	44.1	51.8	53.9	56.0	50.5	56.0
KZN	PP	1.6	1.7	2.4	3.0	8.3	8.2	8.9
SA	RB1	12.4	16.0	14.0	14.2	16.3	15.6	14.1
KZN	RB1	5.0	8.0	6.0	5.8	6.4	5.7	4.7
SA	RB2	26.4	27.7	33.8	31.4	31.8	32.7	35.9
KZN	RB2	7.4	7.6	8.1	8.6	9.5	12.1	11.0
SA	LT1	3.2	3.4	3.9	4.1	4.6	4.2	3.6
KZN	LT1	0.6	0.6	0.6	0.8	1.2	1.1	1.0
SA	LT2	9.2	11.2	10.3	9.6	10.3	9.5	11.0
KZN	LT2	2.5	2.2	2.2	2.1	2.1	2.0	1.8
SA	MT1	4.9	9.6	11.4	13.3	14.5	16.4	17.4
KZN	MT1	0.5	0.8	1.0	0.8	1.2	1.7	1.5
SA	MT2	18.0	17.6	19.2	17.0	21.2	23.3	25.6
KZN	MT2	2.5	2.4	2.3	3.3	3.7	3.4	3.2
SA	MT3	9.8	11.3	11.8	16.3	15.0	13.3	13.8
KZN	MT3	1.1	0.9	0.8	0.8	1.3	1.5	1.6
SA	HT1	3.8	4.5	3.9	4.0	4.1	3.8	4.2
KZN	HT1	1.3	0.9	0.6	0.7	0.5	0.4	0.5
SA	HT2	2.3	2.3	2.7	2.4	2.2	7.2	2.1
KZN	HT2	0.1	0.1	0.1	0.1	0.2	0.2	0.2
SA	Total	133.5	147.8	162.6	166.1	176.1	176.5	183.7
KZN	Total	22.5	25.0	24.0	25.9	34.4	36.3	34.3

Part 2. KZN's share of total export by South Africa by technological classification (%)

	1998	1999	2000	2001	2002	2003	2004
PP	3.7	3.9	4.6	5.5	14.9	16.3	15.9
RB1	40.3	49.8	42.9	40.8	39.3	36.4	33.7
RB2	28.0	27.4	23.9	27.4	29.8	37.0	30.6
LT1	17.6	16.6	14.3	19.3	25.8	26.5	28.2
LT2	27.1	19.3	21.5	21.9	20.2	20.9	16.0
MT1	10.0	8.3	8.8	5.8	8.3	10.1	8.7
MT2	14.2	13.5	12.1	19.2	17.4	14.7	12.4
MT3	10.9	7.6	6.5	5.1	8.9	11.2	11.3
HT1	34.1	20.2	15.1	16.2	11.5	10.4	11.2
HT2	3.6	3.5	3.5	5.1	10.2	3.0	8.1

Appendix Table 7. Small export sectors – products with export values in excess of 1 Million Rand but less than 1 Billion Rand

HS	Product	Export KZN growth / annum	Export SA growth / annum	Export % share - hs2 - SA	Export % share - hs2 KZN	Export Annual world growth/annum	Average Export/year (Rm - nominal) KZN
37	Photographic or cinematographic goods.	181.5	23.7	0.0	0.0	4	25
05	Products of animal origin, not elsewhere specified or included	151.4	-20.7	0.1	0.0	8	4
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn.	73.2	310.1	0.0	0.0	6	1
10	Cereals	70.8	8.9	0.4	0.3	7	174
02	Meat and edible meat offal	60.7	17.0	0.2	0.0	9	22
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof.	57.4	33.0	0.1	0.2	9	105
81	Other base metals; cermets: articles thereof.	57.1	3.2	0.1	0.0	10	11
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	56.0	6.5	0.0	0.0	1	1
75	Nickel and articles thereof	48.8	62.8	0.6	0.1	16	30
25	Salt, sulphur, earths and stone, plastering materials, lime and cement.	44.9	1.1	0.4	0.2	8	128
89	Ships, boats and floating structures.	44.5	-4.7	0.2	0.1	10	36
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations.	43.9	98.6	1.0	0.3	15	182
54	Man-made filaments	43.8	8.0	0.3	0.2	3	85
41	Raw hides and skins (excluding furskins) and leather	42.9	-2.5	0.6	0.0	5	26
61	Articles of apparel and clothing accessories, knitted or crocheted	42.6	1.4	0.4	0.7	8	379
30	Pharmaceutical products.	36.9	3.5	0.3	0.3	25	155
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings.	36.6	6.4	1.5	1.1	10	602
78	Lead and articles thereof.	36.4	40.5	0.0	0.0	10	16
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans	34.5	45.1	0.2	0.1	8	29
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus: parts and accessories thereof.	33.5	12.1	0.5	0.3	10	180
64	Footwear, gaiters and the like; parts of such articles	29.3	3.6	0.0	0.1	7	57
38	Miscellaneous chemical products.	28.9	20.4	1.1	1.5	10	816
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, dental waxes and dental preparais of plaster.	26.8	7.6	0.2	0.4	13	201
18	Cocoa and cocoa preparations	25.6	2.0	0.1	0.0	16	5
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use.	25.3	18.6	0.1	0.1	5	32

HS	Product	Export KZN growth / annum	Export SA growth / annum	Export % share - hs2 - SA	Export % share - hs2 KZN	Export Annual world growth/annum	Average Export/year (Rm - nominal) KZN
95	Toys, games and sports requisites; parts and accessories thereof.	24.1	9.7	0.0	0.1	5	45
40	Rubber and articles thereof.	24.0	14.9	0.7	0.8	12	457
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, n.e.s	23.2	3.9	0.1	0.0	10	22
58	Special woven fabrics; tufted textile fabrics; lace tapestries; trimmings; embroidery.	23.2	-2.2	0.1	0.0	9	25
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	17.8	25.5	0.0	0.0	12	2
39	Plastics and articles thereof.	16.7	17.2	1.2	0.8	11	453
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	15.9	4.4	0.6	0.2	2	92
83	Miscellaneous articles of base metal.	15.8	2.2	0.1	0.1	11	34
62	Articles of apparel and clothing accessories, not knitted or crocheted	15.1	17.1	0.4	0.9	6	493
52	Cotton	14.8	20.2	0.2	0.2	8	114
73	Articles of iron or steel.	14.3	17.4	1.3	1.4	12	781
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	14.0	8.0	0.1	0.2	12	90
35	Albuminoidal substances; modified starches; glues; enzymes.	13.4	-29.0	0.1	0.0	10	10
20	Preparations of vegetables, fruit, nuts or other parts of plants.	11.8	7.4	0.9	0.1	10	39
97	Works of art, collectors' pieces and antiques.	11.5	5.2	0.1	0.0	4	7
08	Edible fruit and nuts; peel of citrus fruit or melons	10.5	17.4	2.3	0.2	11	94
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	10.1	7.6	0.0	0.0	3	3
57	Carpets and other textile floor coverings.	10.1	11.9	0.1	0.3	6	151
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds.	9.4	1.0	0.4	0.0	17	8
09	Coffee, tea, mate and spices	7.4	-3.7	0.1	0.1	1	57
15	Animal or vegetable fatsand oils and their cleavage products; edible fats; animal or vegetable waxes	7.2	-1.6	0.1	0.2	19	106
21	Miscellaneous edible preparations.	6.3	9.6	0.2	0.1	14	55
65	Headgear and parts thereof	5.3	17.2	0.0	0.0	8	8
66	Umbrellas, sun umbrellas, walking-sticks, seat sticks, whips, riding-crops and parts thereof	4.8	16.7	0.0	0.0	1	3
19	Preparations of cereals, flour, starch, or milk; pastrycooks products	4.7	7.7	0.1	0.1	14	33
07	Edible vegetables and certain roots and tubers	4.3	-2.8	0.1	0.1	11	28
42	Articles of leather; saddlery and harness; travel goods,handbags and similar containers; articles of animal gut (excluding silk-worm gut)	4.2	9.7	0.0	0.0	7	11
85	Electrical machinery & equipment and parts thereof; sound recorders and reproducers, television image & sound recorders and reproducers, and parts & accessories of such articles	2.2	11.2	2.3	1.8	7	984
36	Explosives; pyrotechnic products; matches; pyrophoric alloys: certain combustible preparations.	1.7	-6.3	0.1	0.1	11	33
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal.	1.4	2.5	0.3	0.3	8	164
88	Aircraft, spacecraft and parts thereof.	1.1	-6.7	1.0	0.1	-1	31