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Foreword

The Industrial Restructuring Project (IRP) was initiated at the beginning of 1996 as the KwaZulu-Natal Industrial Restructuring Project (KZN IRP). The project initially focused exclusively on KwaZulu-Natal, but is now aimed at supporting industrial policy in South Africa at the national, provincial and local levels. It is facilitated by international experts and is based at the School of Development Studies, University of Natal Durban. The project has two important features. Firstly, it focuses on critical issues that are impacting on the competitiveness of manufacturing sectors that are under threat from increased international competition and the liberalisation of the South African trade regime. Secondly, it is action-oriented in design. The findings that have been generated have, for example, been presented to numerous industry stakeholders, including government, business associations and trade unions. The project consequently has the support of various regional and national stakeholders.

This particular report/working paper has arisen out of both new research and the cumulative knowledge that has been generated from previous studies. These cover a number of IRP reports, working papers, journal articles and conference papers. Some of the themes covered include South Africa's manufacturing competitiveness, the automotive industry, the clothing and textiles sectors, footwear, middle-management capacity, human resource development, institutional support for industrial restructuring, and business services for manufacturing competitiveness. Enquiries regarding IRP material should be addressed to: The Librarian, Centre for Social and Development Studies, University of Natal, Durban, 4041. Tel: 031 2601031; Fax: 031 2602359; email: masmith@nu.ac.za.

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At an academic level, I would like to extend a special thanks to my colleagues at the Industrial Restructuring Project, especially Mr. Sean Gannon who prepared the fieldwork portion of the study and Dr. Myriam Velia who generated the macro data used in the report. Ms. Nicci Earle also helped by reviewing an earlier draft of the report, whilst Professors Mike Morris and Raphael Kaplinsky helped me to better understand the breadth of conceptual issues covered during the course of the research.

Mr. Norman Lamprecht of Trade and Investment South Africa and Mr. Mzwakhe Shoba of the Automotive Directorate in the Department of Trade and Industry also helped with the primary research by providing secondary information and helping to identify the automotive component manufacturers in each of the sub-sectors selected for research. Mr. Clive Williams, the executive director of National Association of Automotive Component and Allied Manufacturers (NAACAM), played a similar role. This support was greatly appreciated and is hereby also acknowledged.

As with the previous IRP reports I have compiled, the views expressed herein are, however, solely mine and as a result all responsibility for its content lies with me alone.

Justin Barnes

28/05/2002

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INTRODUCTION

The global context

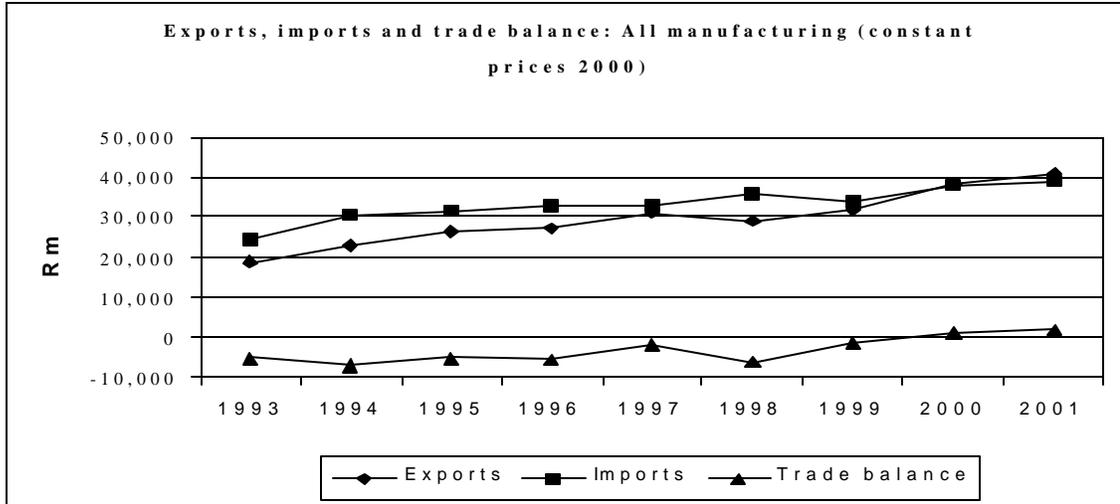
The past two decades have seen a growing homogenisation of economic policy as the Washington Consensus has swept through the global economy. South Africa has not been immune to this shift in the policy agenda, particularly in the post apartheid era, manifested primarily through a new trade regime, with the gradual reduction in import tariffs,¹ and a reduction in the exceptionally large tariff dispersion.

There have been a number of important and related consequences to this changing trade regime. The increasing exposure of domestic firms to international competition (particularly in the manufacturing sector), has forced producers to face new and more intense forms of competition. “World Class Manufacturing” has forced itself onto the agenda and sets the standards for industrial restructuring. As a consequence of this restructuring, productivity has grown, albeit with a substantial fall in employment.² But, as domestic demand remained muted and as production competence grew, so South Africa’s manufacturing trade balance moved into the black on the back of rapid growth in manufactured exports. Significantly, for the first time in decades, exports exceeded imports in 2001 (Figure 1), providing evidence of the growing exposure of South African producers to global standards of competitiveness, as well as to growing production competence. If sustained, this positive trade balance has the possibility of easing the foreign exchange gap constraining South Africa’s growth performance.

¹ Between 1994 and 1996 the weighted average of import tariffs halved from 14 to 7 percent, and then stabilised at 5 percent after 1998.

² Using the DTI data base, as a rough indicator of productivity growth, manufacturing sales per worker rose (in real terms) by 38 percent (1993 – 2001). Although an imperfect indicator (value added per worker would be better but the data is unavailable), it does suggest a significant rise in labour productivity. There is no equivalent useful data to measure either capital or total factor productivity. During the same period, employment fell by 11 percent.

Figure 1



From a policy perspective, the key challenge is to provide both a general policy framework and a range of specific inputs which consolidate this growth in competitive capabilities. This fourth phase of the Industrial Restructuring Research Project aims to assist the building of sectoral policy implementation capacity within the DTI by providing insights into those factors promoting international competitiveness (and exporting) in manufacturing. We focus on four value chains – two consumer goods products (clothing, furniture) and two intermediate goods products (automotive components and leather). Loosely, they respectively group into buyer driven value chains and producer driven value chains.

The specific focus of this research programme is to *better understand the dynamics of exporting firms*. By focusing on the most successful exporting firms in each of the four value chains, (and in nominated sub-sectors), the study hopes to determine:

- ❑ What the characteristics are of successful exporting firms and the value chains in which they participate;
- ❑ Whether successful South African exporters are locked into virtuous or vicious circles of global specialisation;
- ❑ To what extent exporting firms are able to change positions in their value chains by *upgrading* their operations through a greater input of knowledge-intensive activities.

The virtues of exporting

Based on the successful experience of both first- and second-tier newly industrialising economies, a new orthodoxy has grown on the virtue of exporting (see, for example, the World Bank's 1993 study of East Asian economic success). This posits benefits arising both for the economy as a whole, and for the corporate sector.

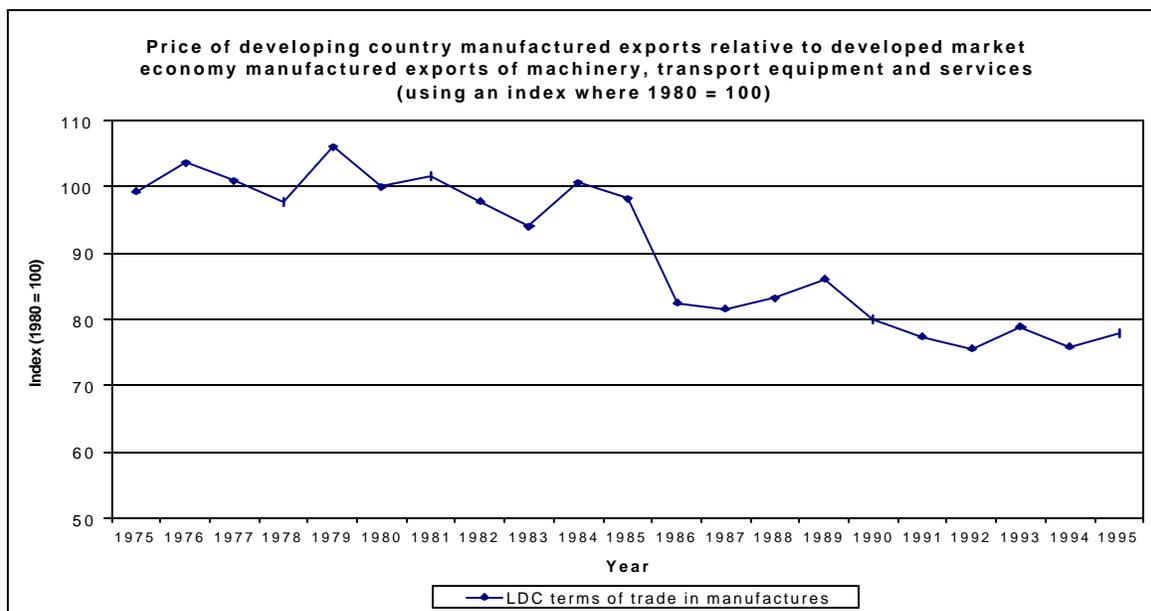
From the *economy-wide perspective*, it is argued that exporting provides the capacity to specialise in areas of comparative advantage. The previous import-substituting regime meant that economies were insufficiently focused on what they could do best with resources being put into activities which were unlikely to add to real GDP over time (or to do so at high opportunity cost). A second virtue of growing exports is a positive trade balance, which provides the resources to promote rapid overall economic growth. And, thirdly, growing foreign demand (especially for labour-intensive products that are the comparative advantage of low-income economies) creates employment. This latter point is especially attractive for South Africa where the unemployment rate is so high that no conceivable increase in domestic demand would have much impact on reducing the rate of unemployment.

From the *firm-perspective*, growing exports offer a number of advantages. First, it allows the firm to specialise in those activities where it clearly holds a comparative advantage. Allied to this, the large volumes which can be sold on global markets makes it possible for the firm to reap economies of scale, not just in production but also possibly in design, marketing and logistics. Further, when exporting is accompanied by a competitive exchange rate, it may provide greater profits than when products are sold domestically. Finally, exposure to more demanding customers forces the firm to upgrade its products and processes and is thus the principle transmission belt for enhanced learning. For these reasons there is a growing orthodoxy on the benefits to be reaped from greater exporting.

Exporting and the conferring of benefits

But does exporting always confer benefits to producers? It is widely known that primary commodity prices as a whole have been characterised by falling terms of trade; as well as extreme price volatility. For this reason economic policy in many countries has concentrated on encouraging a transition from the production and export of primary products to the production and export of manufactures. And yet, in recent decades this policy objective has become increasingly questionable. For it is no longer true that manufactured exports benefit from rising terms of trade. In particular, whilst the manufactured exports of the high income developed market economies have continued to rise, those from developing countries have begun to fall. As can be seen in Figure 2, in the decade after the mid 1980s (when China becomes an increasingly active participant in global trade), the terms of trade of developing country manufactured exports fell consistently, and by more than 20%. This arises directly as a result of the competitive pressure emanating from China's growing presence in manufacturing exports.

Figure 2



Source: Wood (1997).

Beyond this aggregate picture, the scale of price decline was not limited to a global environment unrelated to the activities of South African firms. As Box 1 shows, many of the products produced and exported by South African manufacturers have shown an alarming fall in price. In the furniture sector, the only thing which has kept South African firms solvent has been the falling exchange rate (Box 2). Exporting *per se* may not necessarily be a good thing; it all depends on the nature of what is being exported. In the worst case, when exports experience significant and sustained declining terms of trade, immiserising growth may occur. In other words, there is an increase in the scale of economic activity – more resources are used – but this results in a decline in absolute living standards. A less severe, but still troubling outcome is when the resultant growth rate is positive, but at sub-optimal levels. In other words, had the resources being utilised to increase exports been used in a different manner, then the outcome would have been more beneficial to income growth.

Box 1: Falling prices in South African manufactured export sectors

Global manufactured export prices of products traded by apparel firms

- ❑ The global price of chinos (in US\$) fell by 25 percent between 1997 and 2000
- ❑ During 2000, the price paid by importers of men's dress suits into the UK fell from £60 to £53
- ❑ Poplin shirts imported from the Far East fell in price from \$2.30 to \$2.00 in the 18 months ending in May 2001.

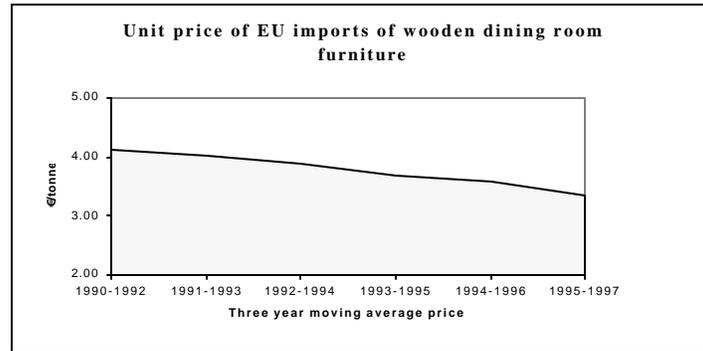
South African manufactured unit export prices

- ❑ The unit price of tanned sheep leather fell from \$32.19/kg in 1995 to \$6.58/kg in 2000
- ❑ The unit price of car leather seats fell from \$60.19/kg in 1995 to \$28.72 in 2000
- ❑ The unit price of leather shoes fell from \$11.29/pair in 1995 to \$9.56/pair in 2000 and of non-leather shoes from \$4.49/pair in 1995 to \$3.02/pair in 2000

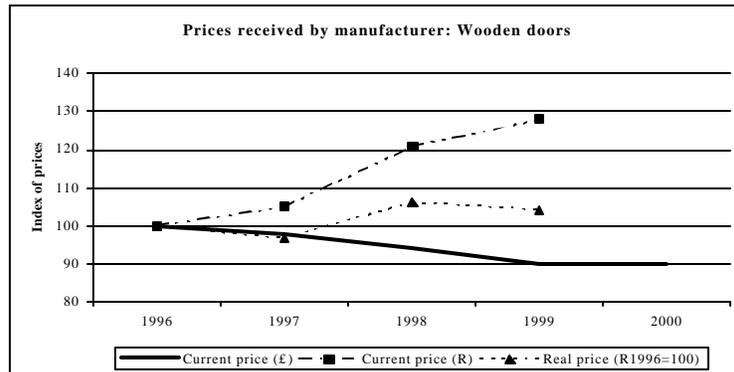
Source: Kaplinsky, Morris and Readman (2001).

Box 2: Falling global prices in the wooden furniture sector are extremely dangerous when producers are unable to upgrade

Growing competition in the wood furniture sector is having a major impact on the wood furniture industry. At an aggregate level, global prices are falling, as can be seen in the case of EU imports during the 1990s.



For some developing country producers who are locked into the commodity segments of this market the fall in prices can be very significant. For example, the Sterling prices received by a South African exporter of kitchen doors fell significantly, by more than 20% in four years. As can be seen, the only factor saving this manufacturer of doors was the falling exchange rate, which devalued by more than the rate of inflation in this sector. Although this may have saved the wooden furniture manufacturer, the upshot of devaluation for the economy as a whole is a fall in the international purchasing power of domestic value added.



Source: Kaplinsky and Morris (2001)

The blunt policy prescription arising from this is that it is not so much a matter of whether South African manufacturers should be induced to export, but what they export. If they are locked into the production and export of products exhibiting a sustained and significant decline in prices (without a concomitant decline in production costs), then the outcome will be deleterious.

So, what determines whether firms are locked into these harmful export niches? The answer is the extent of competition which exists in each of these market segments. Unless firms find some way of escaping these competitive pressures – which, as we have seen, from the perspective of developing countries have been severely heightened by China’s entry into global markets – they will not prosper. How do they avoid these competitive markets? By developing the capacity to upgrade. This is now increasingly recognised as *the* challenge facing industrial policy throughout the global economy, influencing not just national strategies, but corporate strategies as well.

A value chain perspective on upgrading

How would we know if firms had managed to upgrade their activities? Two schools of thought have addressed this issue in recent years. The first has focused on core competences (Hamel and Prahalad, 1994). The thinking here is that firms need to examine their capabilities to determine those of its attributes which:

- ❑ Provide value to the final customer
- ❑ Are relatively unique in the sense that few competitors possess them
- ❑ Are difficult to copy as that is where there are barriers to entry

The capacity to innovate therefore arises from concentration in these competences and the concomitant outsourcing of those functions which do not meet these three criteria. A useful supplement to this line of thinking is that in a dynamic world, core competences can easily become core-rigidities (Leonard-Barton, 1995), and part of the task of upgrading is to relinquish areas of past expertise that are no longer appropriate.

Closely related is a school of thought focusing on dynamic capabilities (Teece and Pisano, 1994). It argues that corporate profitability in the long run cannot be sustained by control over the market (for example, through using quasi-monopolistic practices), but through the development of dynamic capabilities which arise as a result of its:

- ❑ Internal *processes* which facilitate learning, including the capacity to reconfigure what the firm has done in the past
- ❑ *Position*, that is its access to specific competences either within its own activities, or those which are drawn from the regional or national system of innovation
- ❑ *Path*, that is its trajectory, because change is always path-dependent

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Both of these related concepts provide an important backdrop for understanding the phenomenon of upgrading. They are especially helpful in understanding the factors both driving and facilitating improvements in product and processes which arise from the activities of the firm itself. But they are also weak because they stop at the level of the firm, and fail to capture upgrading processes which are systemic in nature and which involve groups of firms linked together in value chains. This is particularly damaging for the core competences approach which explicitly neglects the chain through its normative conclusion that upgrading almost always involves outsourcing.

Consequently, we need to view the upgrading challenge in a wider perspective, capturing the central idea that it may involve changes in the nature and mix of activities, both within each link in the chain, and in the distribution of intra-chain activities. This relates both to the achievement of new product and process development, and in the functional reconfiguration of who does what in the chain as a whole. It is thus possible to identify four trajectories which firms can adopt in pursuing the objective of upgrading, namely:

- ❑ **Process upgrading:** increasing the efficiency of internal processes such that these are significantly better than those of rivals, both within individual links in the chain (for example, increased inventory turns, lower scrap), and between the links in the chain (for example, more frequent, smaller and on-time deliveries)
- ❑ **Product upgrading:** introducing new products or improving old products faster than rivals. This involves changing new product development processes both within individual links in the value chain and in the relationship between different chain links
- ❑ **Functional upgrading:** increasing value added by changing the mix of activities conducted within the firm (for example, taking responsibility for, or outsourcing accounting, logistics and quality functions) or moving the locus of activities to different links in the value chain (for example from manufacturing to design)
- ❑ **Chain upgrading:** moving to a new value chain (for example, Taiwanese firms moved from the manufacture of transistor radios to calculators, to TVs, to computer monitors, to laptops and now to WAP phones)

General methodological issues

Given the breadth of these value chain issues, the four value chain/sectoral studies have adopted a broad common methodological approach combining macro and micro data, utilising quantitative and qualitative sources. This general methodology has been adapted in each of the sectoral studies to cover the specificity of conditions in each of the separate sectors, as well as the need to disaggregate each sector into the various sub-sectors which exhibit the greatest exporting propensity. Furthermore each study differs with respect to the number of exporting sub-sectors, as well as the number of firms interviewed. The macro data covers two data sets. The first provides a birds-eye, sectoral view of production, value added, employment and factor productivities in each of the broad sectors in which the specific researched value chains operate. This provides a broad sectoral background in which to view the behaviour of the researched chains. This data is drawn from a variety of data-bases, including those held by the DTI, the IDC and TIPS.

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The second set of macro data focuses on South African export performance in each of the researched chains, but at a high level of disaggregation. Specifically, it focuses on the nature of export performance in the three major buying markets, Europe, the USA and Japan. Three sets of detailed analysis have been undertaken:

- The growth of South African exports in each of these markets over the past decade
- The share of South African producers in each of these markets
- The performance of South African exports in relation to unit prices

Unlike the sectoral data, where we have drawn on established data bases, we have undertaken detailed original analysis to produce this data, involving extensive analysis of import trends in each of these three major consuming markets.

In this respect the macro analysis is particularly useful for gaining a comparative perspective on export performance in regard to efficiency and upgrading trends in each of the sectors. The link as to whether exporting may be leading these sectors into an upgrading path or to immiserising growth is investigated through broad unit price and market share movements. The following table provides a framework for understanding these relationships.

Table 1: A framework for understanding the analysis of South Africa’s export performance

Unit Price	Market Share	Possible Interpretation
-	-	Good indication that sector is moving into more quality products for which customers are willing to pay more, and they are successfully managing to increase their shares in this higher value market
-	-	Unlikely that upgrading is occurring. More likely explanation is that our sector is unable to produce the product competitively and is thus likely to be on a downward path in terms of market share
-	-	Possibility that process upgrading may have occurred which has resulted in production costs reducing so that the product is able to be sold at a lower unit price while still reaping a profit, and this price reduction has lead to an increase in the market share
-	-	The sector is likely to be on a ‘race to the bottom’ where unit prices are being bidded down by strong competition, profit is negligible and despite this market share is still being lost because other firms are offering even lower prices

However, useful as this macro analysis is, its primary function is to provide the framework for asking more detailed questions of process and trajectory, and this is the subject matter of the micro-level studies. They raise a number of issues and potential hypotheses, which are able to be investigated more fully through the firm level micro analysis.

The micro data analysis was based on firm level interviews with the most significant exporters in the most important exporting sub-sectors. In each case we aimed to interview the five leading exporters in each chain within each of the main exporting sub-sectors. The actual number of firms interviewed differs in each study depending on the characteristics of the disaggregation into various sub-sectors. Our rationale for this sampling procedure is that we are aiming to understand

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the upgrading benefits (if any) accruing to major exporting firms as a consequence of their export activity.

The micro level data collected from the firms was both quantitative and qualitative. Each firm was visited and key personnel were interviewed using a structured qualitative interview schedule. In addition a quantitative questionnaire was left behind for the firm to fill in and fax back to the researchers. Numerous follow up calls were made to attempt to elicit a reasonable response rate.

The firm level interviews and questionnaire were designed to allow the researchers to investigate some of the issues thrown up by the macro data analysis. The intention was to elicit responses in regard to exporting trends, whether learning from exporting was taking place, what the efficiency and skill levels were, how they were changing in response to export demands, how firms were responding to raised technical demands from foreign customers, and finally whether process, product and functional upgrading was occurring.

The micro data collection was also designed to lay the basis for understanding the various value chains operating in these sectors, and identify the driving forces governing these value chains. From the perspective of exporting firms it is important to identify the provision of access within these chains, how standards are set, how conformance to standards occur, what room for manoeuvre exists with respect to changing roles and function, and finally whether exporting firms are locked into value chains with immiserising trajectories. In addition the firm level interviews were intended to yield rich qualitative information a host of issues acting as 'enablers' and 'blockers' for exporting firms, and hence feed into any policy recommendations for the DTI in its role of export facilitation.

Introduction to the automotive components study

The South African automotive components industry has become a major exporter of manufactured products over the course of the last few years and is widely regarded as a key success story in South Africa's transition from an inward oriented to export focused economy. The macro performance figures of the industry clearly support this contention with exports exceeding R20 billion in 2000, representing a multifold improvement on 1995 export figures. In fact, the industry generated significantly more manufactured exports for the South African economy than the clothing, furniture and leather sectors combined. The major portion (over 60%) of this exporting success has, moreover, occurred on the back of the automotive components industry with the most prominent sub-sectors in this regard being catalytic converters, leather seat components, road wheels and parts thereof, tyres, silencers and exhaust components, automotive tooling and harnesses.

The reasons underpinning the automotive component industry's substantial exporting growth are numerous, although the principal catalyst is the government's Motor Industry Development Programme (MIDP), which was launched in September 1995 as a replacement for Phase Six of the government's local content programme. The MIDP forces the outward orientation of the

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industry by subsidising exports through a duty complementation programme based on the provision of Import Rebate Credit Certificates (IRCCs) for exporting firms. These certificates are then used to offset import duties and are tradable.

Given the lucrative export incentives incorporated into the architecture of the MIDP, queries have been raised as to the actual competitiveness of South African automotive component manufacturer exporters and whether the firms would be able to sustain their exporting success without the significant MIDP benefits being accrued. How competitive are the South African automotive component manufacturers? Where do their competitiveness strengths and weaknesses lie? Critically, and linked to the broader conceptual cornerstones of this study, the Department of Trade and Industry, which is the custodian of the MIDP, needs to understand the value chain issues impacting on the competitiveness of South African based automotive component exporters so as to help inform policy decisions regarding future government support to the industry. Irrespective of their actual competitiveness standing are exporting firms *improving* their operational and value chain competitiveness? Are they becoming major players in the markets in which they compete? Furthermore, are the value chains in which the South African based automotive component manufacturers operate conducive to competence upgrading or downgrading over the medium to long term? These are just some of the key policy related questions that need to be better understood.

In addition to the particular policy related concerns of the Department of Trade and Industry, an additional development focus was also included in the research study so as to better understand the exporting trajectory of the South African automotive components industry. This relates to the issue of value chain upgrading or downgrading in the sector as explored earlier in this introduction. As highlighted, an extensive literature focusing upon the types of exporting that are good or bad for an economy has developed and a number of questions pertaining specifically to the South African automotive components industry emanate out of this.

The first pertains to the process upgrading opportunities embedded within the value chains exporting manufacturers find themselves. Are South African based automotive component manufacturers enhancing their operational capabilities as a result of exporting or are they whittling away their capabilities so as to compete purely on the basis of price and labour costs? The second focuses not on process capabilities, but rather product capabilities, thus interrogating whether firms are making more or less technologically demanding products as a result of their exporting. The third considers the issue of functional upgrading and focuses on whether firms are enhancing or losing their functional capabilities as a result of entry into the export market. For example, are firms losing or enhancing their marketing, design and after sales service capabilities as a result of their exporting focus? Lastly, are firms experiencing value chain upgrading opportunities as a result of exporting, i.e. are they moving from one value chain (catalytic converter manufacture) to another (manufacture of more complex full exhaust systems) as a result of their exporting success?

These are key development issues for any export focused economy as they indicate whether firms are likely to gain or lose from exporting in the medium to long term. This is a key point, as international evidence reveals that exporting can downgrade firm-level capabilities at a process, product and functional level, leading to immiserising benefits and ultimately the closure of companies as a result of intensive price based competition from lower cost competing nations

(Kaplinsky and Morris 2001). To benefit from exporting and to align these benefits with the broader development goals of an economy it is clear then that exporting out of the South African automotive components industry must be linked to upgrading rather than downgrading opportunities. This is another reason why a value chain study of successful automotive component manufacturer exporters is critically important.

Research methodology

In line with the combined methodology used across the four sector studies, to comprehensively cover the multifaceted dimensions of the key questions posed a three-pronged research methodology was adopted. First, secondary research into the South African automotive components industry was undertaken. This grounded the research by locating the export performance of the sector within the general trajectory of the South African manufacturing industry, whilst also enabling the identification of the major automotive component exporting sub-sectors, as well as the major exporting firms within each of the sub-sectors.

Second, South African trade data was analysed, with this taking place through two lenses: South African export data; and European Union, United States of America and Japanese import data. Dr. Myriam Velia of the Industrial Restructuring Project generated the South African trade data, whilst the trade bloc import data was put together by Ms. Jane Kiernan of the Institute of Development Studies at the University of Sussex in the United Kingdom. The macro data had a number of focal points. For the South African data, three key areas were explored. These encompassed:

1. The growth in exports of the individual sub-sectors (although this is obviously complicated by the disparity between HS codes and the actual composition of the sub-sectors)
2. The increased contribution of the South African automotive components industry to the manufacturing sector more generally and
3. Macro indicators of industry health

The international import data focused on the comparative position of South Africa as an exporter into the EU for each of the categories of exports considered (relative to that of major competing nations), as well as its recent growth trajectory and price per unit movements relative to competing nations. Whilst the same set of data was also generated for the USA and Japan, the dominance of the EU as an export destination for South African automotive products and the resultant small contribution of sales to these markets made a longitudinal analysis of sales into these markets largely redundant.

The first two stages of the research were largely completed during the latter part of 2001 and were instrumental in shaping the most important part of the research process, namely the fieldwork component, which was undertaken in the key exporting sub-sectors of the South African automotive components industry. On the basis of the intensive work carried out in 2001,

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qualitative interviews were organised at firms in the five³ most important automotive component exporting sub-sectors. The importance of each of these sub-sectors, their contribution to automotive component exports, the number of interviews carried out in each of the sub-sectors, as well as the refusals to participate on the part of the firms involved is presented in Table 2 below. As revealed, with the exception of the tyre industry, generally high levels of co-operation were received from the 25 identified exporting firms, thus ensuring the validity of the findings generated. The questions posed in the firm-level interviews were strongly informed by the Department of Trade and Industry/Trade and Investment South Africa, with Mr. Norman Lamprecht's value chain interview template informing the basic architecture for the firm level interviews.

In addition to the qualitatively based interviews, firms were also requested to complete a quantitatively based questionnaire⁴. Unfortunately the number of returned questionnaires from the firms interviewed was small. A total of 19 interviews were completed with eight questionnaires returned for the compilation of this report.

Table 2: Overview of surveyed sub-sectors and firms

Sub-sector	Value of exports: 2000 (millions)	% of automotive exports	No. of major exporting firms	No. of firms interviewed	No. of returned questionnaires	No. of refusals
Catalytic converter	R4,683	37.0	8	7	4	1
Tyres	R682	5.4	4	2	1	2
Road wheels & parts thereof	R551	4.4	5	4	3	1
Silencers & exhausts	R377	3.0	4	3	0	1
Harnesses	R319	2.5	4	3	0	1
Total	R6,612	52.3	25	19	8	6

Three major automotive component exporting categories are excluded from the report. The first is "engine parts", which contributed R409 million in exports in 2000, but that is simply a trade classification rather than a sub-sector. This category was originally included in the study, but it was soon discovered that its heterogeneous nature precluded any opportunity to gauge findings that would be relevant at a sub-sector level⁵. The second, "automotive tooling", is another critical exporting category, contributing R362 million in exports in 2000. However, it represents a non-batch manufacturing set of activities and as such its competitiveness characteristics are very different from the other major exporting sub-sectors, hence its exclusion. The third exclusion is the most striking – namely "automotive stitched leather", which is the second most important automotive component export with R1,926 million worth of exports in 2000. In this case its exclusion is not underpinned by methodology concerns, but rather because it constitutes an

³ The automotive leather sub-sector was included in the leather sector research undertaken by Dr. Richard Ballard.

⁴ The questionnaire used for the study is attached as Appendix A.

⁵ Special thanks need to be extended to Mr. Clive Williams of the National Association of Automotive Component Manufacturers and Allied Manufacturers, who helped in the formulation of this decision.

instrumental part of the leather sector research undertaken by Dr. Richard Ballard of the IRP and is reported on in his leather report.

Significantly, as revealed earlier in this introduction the research methodology employed for this study is consistent with the methodologies used for the clothing, wood furniture and leather value chain studies, thus providing the Industrial Restructuring Project research team with a common platform to engage with cross-sector exporting upgrading and downgrading questions.

Structure of the report

This report consists of four sections:

1. Contextualising the growth of the South African automotive industry
2. Macro-level research findings: The exporting performance of leading automotive component sub-sectors
3. Micro-level research findings: Value chain competitiveness issues confronting the leading exporting automotive component sub-sectors
4. Policy considerations

Section 1 contextualises the trajectory of the South African automotive industry through the 1990s. The focus of this section is on the automotive industry's financial and trade performance in relation to the South African manufacturing average. As will be highlighted, the South African automotive industry is clearly a lead sector. The industry's comparative exporting, sales and value added performance over the period 1993 to 2001 is exceptional. Capital investment figures are, however, less impressive, whilst the industry's import performance is extremely weak. In fact only footwear exhibits a similarly poor import performance over the 1990s.

This section illustrates, then, that whilst the automotive industry as a whole has made a number of significant relative gains through the 1990s, import penetration levels are increasing at a level that more or less balances its exporting success. This suggests that the competitiveness challenges confronting the industry are still enormous. This is not an industry that has undergone some competitiveness miracle recently as export figures suggest, but rather one where the import rebate mechanisms of the MIDP have forced an outward orientation, whilst exposing the local market to massively increased imports. As will be highlighted, the success of the industry consequently needs to be viewed in a nuanced light.

Using export data from the Department of Trade and Industry, as well as import data into the EU, **Section 2** reveals that, despite the need for a nuanced interpretation of its recent performance, the major exporting sub-sectors of the automotive components industry have achieved remarkable success. This is reflected in their recent export growth and their comparative import performance into the EU. However, despite very significant exporting growth rates, the findings presented in this section reveal that, with the exception of the catalytic converter sub-sector, South Africa

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remains a marginal exporting economy, ranking behind other global competitors manufacturing products for this market. Japanese and USA import figures are largely ignored in this report, as a result of South Africa's extremely low sales value into these two markets. Euro/unit values of South African imports into the European Union reveal that the price per unit trajectory of the South African exporters is moreover more or less consistent with those of competing nations. This is an important finding, revealing as it does that the South African exporting sub-sectors are not falling behind the competitiveness of their competitors and hence not having to reduce their prices at a more substantial rate to maintain a market presence.

Section 3 represents a significant shift in the focus of the report. Whilst **Section 2** considers the performance of the exporting firms from a macro perspective, **Section 3** takes the analysis of sub-sector performance much further by considering the performance of the sub-sectors in relation to the firm-level findings generated from the extensive fieldwork undertaken. This is done in three ways. First, the value chains extending back from the exporting firms in each sub-sector are described so as to generate a clear picture of the key value adding elements and value chain linkages prior to exporting. Second, the findings from the firm-level interviews are analysed. This represents the most important part of the research highlighting as it does firm-level perspectives on their exporting success and major inter and intra-firm competitiveness strengths and weaknesses. The value chain issues impacting on performance are given special prominence in this regard as per the Department of Trade and Industry's research brief. Third, and linked to the first two focus areas, the four forms of value chain upgrading/downgrading are analysed in relation to the experiences of the firms over the period 1997 to 2002 and their forecasts for the period 2002 to 2007. All firm responses are aggregated at a sub-sector level prior to broader analysis in this section, with the exception of the tyre industry findings, which are not always analysed separately as a result of only two firms participating in the research.

The first three sections of the report lay the groundwork for the policy considerations presented in **Section 4**. This section therefore represents the culmination of the report focusing as it does on the major policy related issues to emerge from the macro and micro level findings. Four policy related issues are given prominence: The importance of the MIDP to the industry's exporting success, the key impediments to the firms' continued exporting success, the pre-eminence of political economy issues for buyer/seller matching; and finally, an identification of upgrading opportunities within each of the sub-sector value chains.

1. CONTEXTUALISING THE AUTOMOTIVE INDUSTRY'S TRAJECTORY THROUGH THE 1990S AND INTO THE NEW MILLENNIUM

Whilst the focus of this research report is on the key exporting sub-sectors within the South African automotive components industry and the firm-level and value chain issues impacting on their success, it is important to contextualise the recent overall performance of the South African automotive industry. Major exporting value chains within weak and declining manufacturing sectors clearly hold less potential than those located in dynamic, high growth sectors and as such it is important to note that the automotive industry has become increasingly important to the South African manufacturing sector. The evidence is striking: With the singular exception of its import penetration, macro data reveals that throughout the 1990s, and especially since the mid 1990s, the automotive industry⁶ has been on a healthier trajectory than the South African manufacturing sector generally.

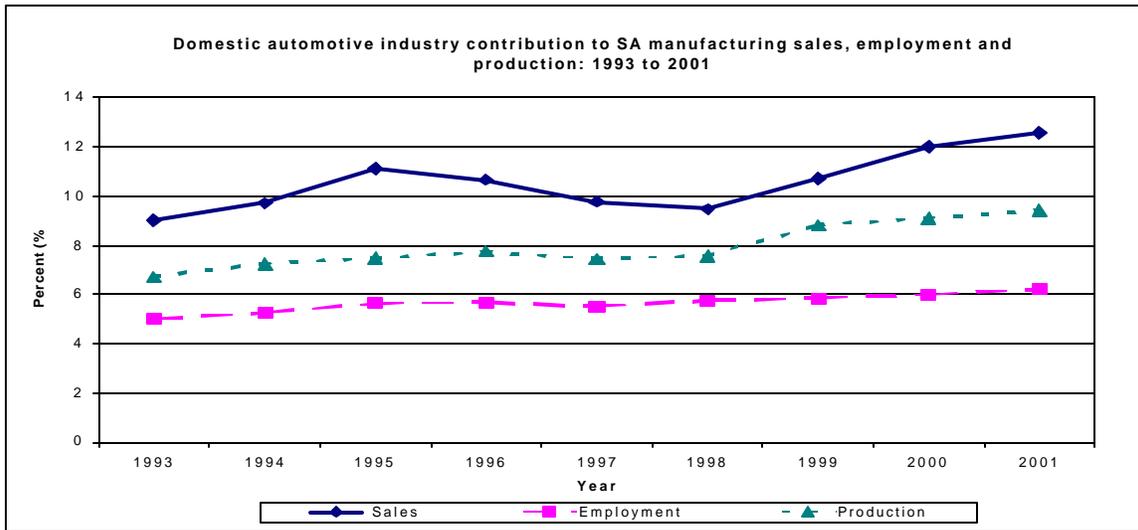
To adequately contextualise the recent growth of the automotive industry and its strong performance relative to the South African manufacturing sector aggregate, this section is divided into four sub-sections. The first considers the contribution of the South African automotive industry to manufacturing sales, employment, production and value added output over the period 1993 to 2001. The second considers its contribution to capital investments and gross salaries over the same period, whilst the third outlines the industry's comparative export and import penetration ratios, as well as its trade balance. The final section considers macro level labour and capital productivity indicators. These are important as they highlight the competitiveness challenges confronting the industry specifically, as well as the South African manufacturing sector in general.

1.1. Sales, employment, production and value added

Figure 3, which focuses on the automotive industry's contribution to the South African manufacturing total in terms of sales, employment and production, illustrates the magnitude of the industry's shift in importance. In 1993 the automotive industry provided only 5.01% of the South African manufacturing sector's formal employment, 9.02% of sales and 6.74% of production and yet by 2001 the same figures were 6.21%, 12.56% and 9.43% respectively. For the three indicators under consideration this represents significantly increased contributions of 24.0%, 39.2% and 39.9%. Moreover, much of this improvement has occurred more recently (since 1998). If one focuses on the most recent three-year period then the rapidly increasing contribution of the automotive industry to the manufacturing sector is even more impressive. Its contribution to employment, sales and production over this period increased by 7.8%, 32.5% and 24.6% respectively.

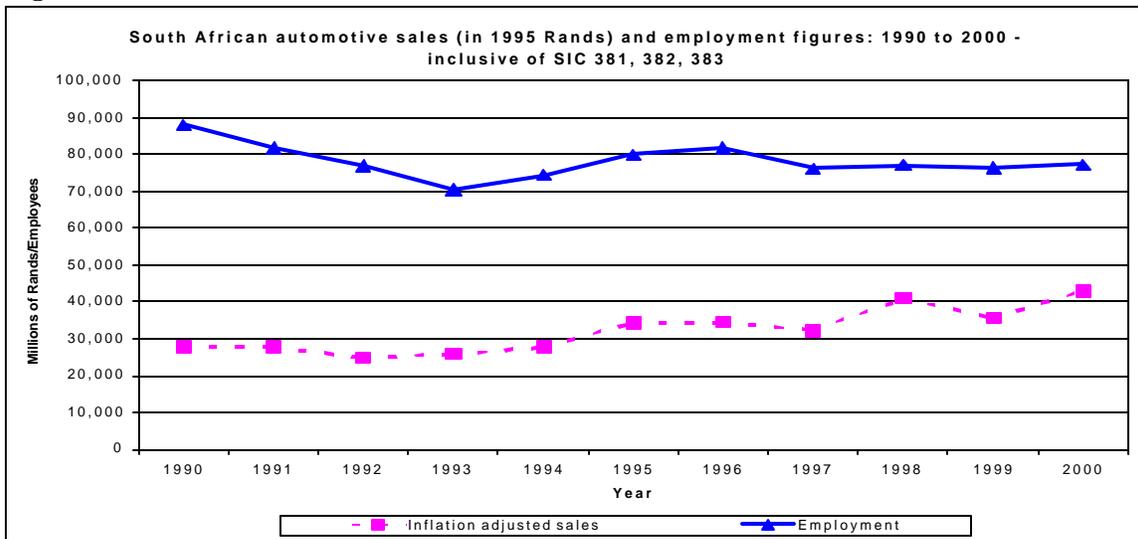
⁶ Except where indicated, the automotive industry statistics presented in this section encompass the Standard Industrial Classification codes 381 (motor vehicles), 382 (bodies for motor vehicles) and 383 (parts for motor vehicles). Previous IRP research has revealed that these classifications under-represent the automotive industry as a large number of component manufacturers are not classified under SIC code 381 or 382, but rather through their principle conversion process, e.g. plastics or metal fabrication. The figures are, however, generally representative of the trajectory of the sector hence their inclusion. The data was taken from the DTI database, except where indicated.

Figure 3



The movements evident in Figure 3 are significant, particularly given the manner in which they have occurred over such a short period of time. Despite these positive findings, it must be noted however that the South African manufacturing sector has performed weakly since 1993 and that some of the encouraging contribution findings evident are distorted. For example, whilst automotive industry sales have grown significantly in real inflation adjusted terms, employment has been steadily declining. This is highlighted in Figure 4, which reveals the actual sales and employment trajectory of the South African automotive industry over the period 1990 to 2000. As revealed employment decreased from 88,088 to 77,248 over the 10-year period, whilst sales in inflation adjusted 1995 Rand terms increased from R27.8 billion in 1990 to R43.1 billion in 2000. These figures represent a sales improvement of 54.9% and an employment decline of 12.3%.

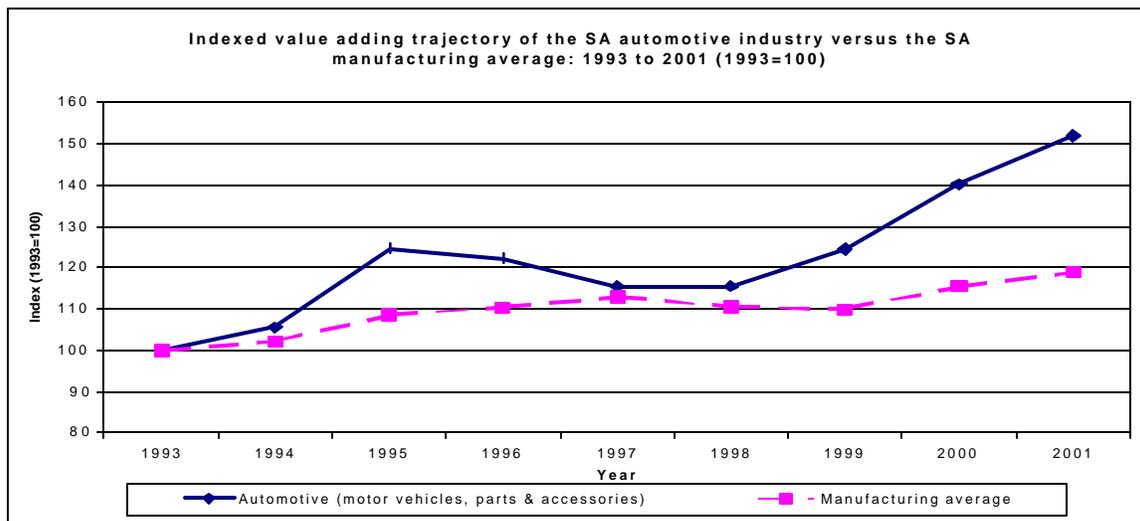
Figure 4



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As revealed in Figure 5, the value adding (i.e. production output minus material input) trajectory of the automotive industry has been vastly superior to the South African manufacturing average through the latter part of the 1990s. Whereas the total improvement in manufacturing value added between 1993 and 2001 is only 18.9%, the performance of the automotive industry has been almost three times this at 52.1%. The differential since 1998 is particularly striking. Over this short period value adding in the automotive industry increased 31.6%. Over the same period average manufacturing value added increased by less than a quarter this – a comparatively unimpressive 7.5%.

Figure 5



1.2. Capital investment and gross salaries

The automotive industry's capital expenditure contribution to the manufacturing sector has been highly uneven since 1993. This is clearly highlighted in

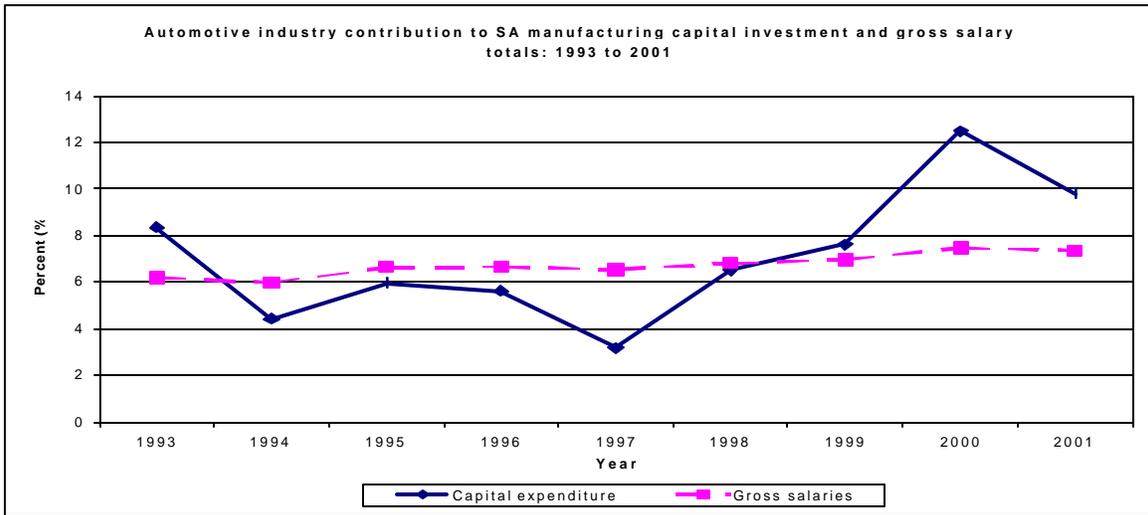
Figure 6. Whilst capital expenditure troughs and spikes are fairly typical of any capital intensive sector dependent on cyclical investment the trajectory of the automotive industry over the period 1994 to 1999 is not particularly encouraging with its contribution to total capital expenditure levels in the manufacturing sector consistently below 1993 levels. It was only in 2000 and 2001 that this changed, with the automotive industry contributing a far greater proportion of total manufacturing capital expenditure.

The importance of the automotive industry to gross salaries in the manufacturing sector has, on the other hand, consistently increased through the 1990s, from levels of only 6.18% in 1993 to 7.48% in 2000. Whilst this figure declined marginally through 2001 to 7.34% the automotive industry has clearly performed exceptionally well in this regard relative to the manufacturing sector more generally. The importance of the automotive industry from a development perspective is further revealed when consideration is given to the fact that its contribution to gross

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salaries in the manufacturing sector (7.34%) is much higher than its contribution to employment levels (6.21%). This suggests that the automotive industry remunerates its employees at levels well ahead of the manufacturing average and as such has a stronger income multiplier than the manufacturing sector more generally.

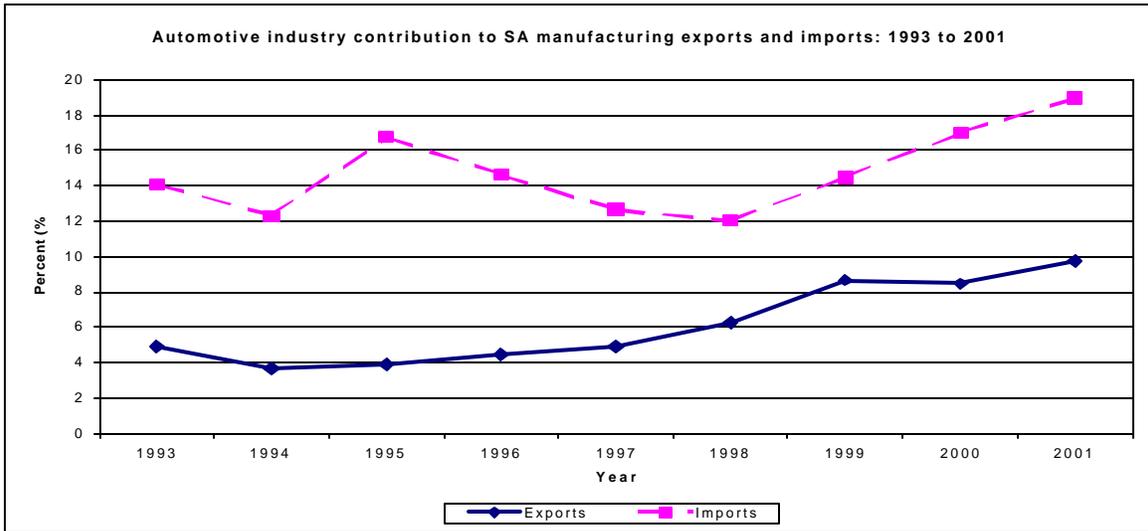
Figure 6



1.3. Export and import ratios

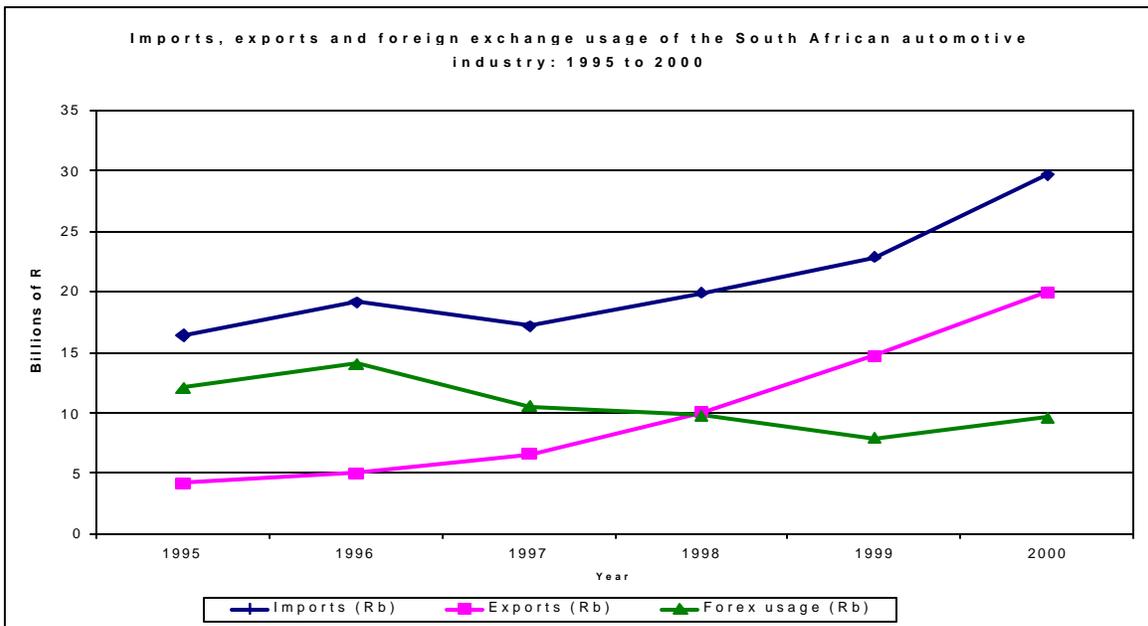
The South African automotive industry has become a significant exporter within the manufacturing sector since 1998. This is revealed in Figure 7, which highlights that between 1993 and 1997 the automotive industry's contribution to total manufactured exports was only in the region of 5% and yet between 1997 and 2001 this almost doubled to 9.75%. Imports have, however, shown a similar trajectory since 1997. Whereas the automotive industry contributed 12.66% of all manufactured imports in 1997 this had climbed to 18.98% in 2001 – its highest contribution over the period reviewed. Unsurprisingly, then, both the import and export intensity of the sector has been fundamentally altered over the period 1993 to 2001. Exports as a proportion of sales have increased from 15.6% in 1993 to 25.2% in 1998 and 36.2% in 2001, whilst imports as a proportion of sales increased from 40.6% in 1993 to 44.0% in 1998 and 51.4% in 2001.

Figure 7



Whilst the automotive industry is a leader industry within the South African manufacturing sector and hence to a national economy where manufacturing generates nearly 20% of GDP, the industry’s export-import ratios highlight that it is still largely a burden to the national economy in terms of its foreign exchange usage. The magnitude of this burden is clearly illustrated in Figure 8 below, which plots export sales from the industry against automotive imports over the period 1995 to 2000. Despite a very significant growth in exports, imports into the industry have also grown sizably, resulting in a trade deficit in 2000 of R9.7 billion, up from the 1999 figure of R8.0 billion. Whilst this represents an improvement in the industry’s trade deficit in comparison to 1995 and 1996 levels, exports continue to trail imports by a wide margin.

Figure 8⁷



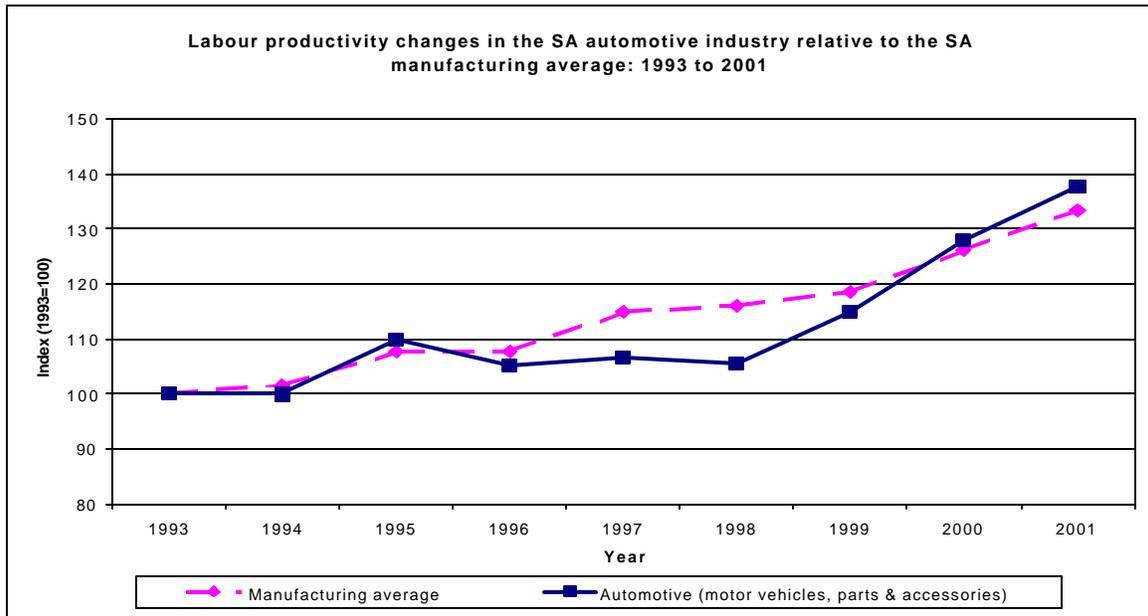
Given the scenario outlined above and despite the significant relative gains made by the South African automotive industry through the 1990s the importance of further exporting success out of the industry cannot be underestimated. If the South African automotive industry is to reach a level of foreign exchange usage parity it will need to further bolster its levels of exporting (or conversely reduce its levels of imports). The possibility of this occurring rests with the ability of firms to enhance their levels of competitiveness to the point where exports are no longer solely being driven by the import export complementation model of the MIDP, but by the comparative and competitive advantages of the domestic industry. The link between the automotive industry's exporting and importing trajectories will be more fully explored in the following sections of this report.

1.4. Competitiveness advances in the automotive industry

Apart from the automotive industry's increasing importance to the South African manufacturing sector, it is also encouraging to note that it appears to be bolstering its competitiveness at a faster rate than the South African manufacturing sector generally. This is especially evident for indicators of labour productivity, which is represented by the total value added output of the industry divided by its total number of employees. As revealed in Figure 9, labour productivity within the industry increased by 37,8% over the period 1993 to 2001. This is well above the manufacturing sector average of 33,4%. Automotive industry labour productivity improvements are, however, only pronounced for the period 1998 to 2001. Prior to this, the automotive sector's labour productivity improvements lagged the manufacturing average by a considerable margin with 1995 to 1998 representing a period of *declining* labour productivity.

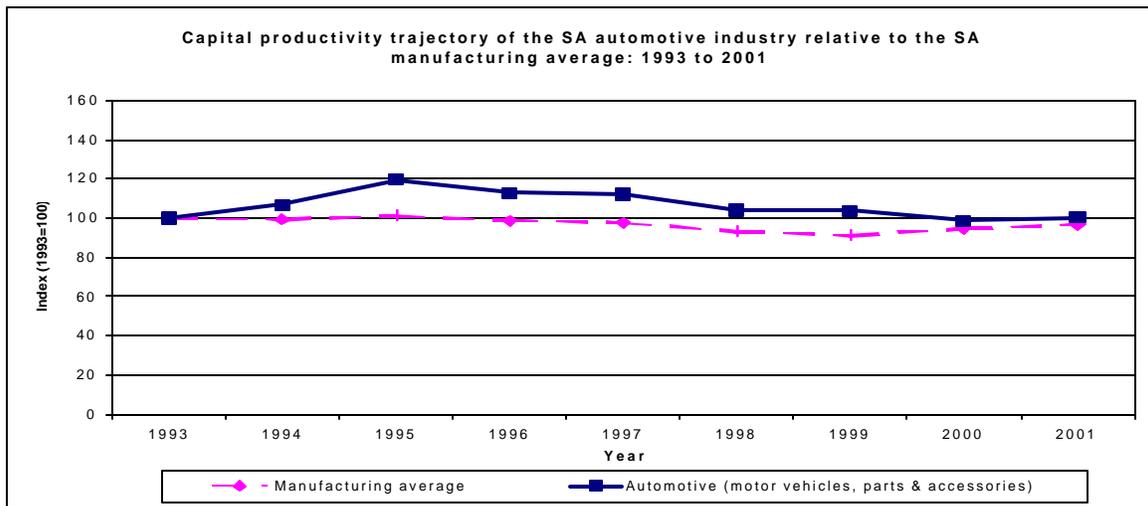
⁷ Note that the data used in this figure is taken from the DTI's (2001) "Current Developments in the Automotive Industry" booklet and that the data is therefore not consistent with the remainder of the data used in this section.

Figure 9



Whilst labour productivity indicators suggest very significant recent performance improvements in the automotive industry relative to its previous performance, as well as the South African manufacturing sector average, the industry's capital productivity findings are less suggestive. As revealed in Figure 10, the automotive industry's capital productivity improvements are more or less consistent with the South African manufacturing sector average, which itself is not showing much dynamism. For example, between 1993 and 2001 the South African automotive industry's capital productivity (value added divided by the value of capital stock) improved by a marginal 0.2%. Moreover, capital productivity in the automotive industry, whilst tracking fractionally ahead of the manufacturing average, has been declining since 1995.

Figure 10



1.5. Summary

If one were to compile an overall macro-performance report card for the South African automotive industry, the findings would be largely positive, particularly when comparing performance against the South African manufacturing average. However, as revealed in a number of the figures, this is perhaps not the best performance benchmark with the South African manufacturing sector performing dismally in many respects. This is especially true for key development indicators such as production output, employment creation, capital expenditure levels and capital productivity.

Specifically, the South African automotive industry also appears to be performing weakly in terms of its aggregate foreign exchange usage, contribution to manufactured imports into the South African economy and its capital productivity levels. With this in mind it is critical that the industry's exporting success be nuanced by a more critical understanding of the MIDP's impact on the sector. Whilst the findings are more positive than negative with the sector's value added growing rapidly and its contribution to manufacturing employment and gross salaries increasing, much of the exporting that is occurring in the sector exists as a result of the import-export complementation component of the MIDP. This is the reason for the apparent contradiction of booming export sales being matched by import growth levels that are only matched in the domestic manufacturing sector by the struggling footwear industry.

The key exporting sub-sectors (and their value chains) within the South African automotive industry consequently need to be mapped and the major challenges confronting them analysed. Linked to the value chain literature, as outlined in the introduction to this report, it is also essential that the upgrading potential of each of the sub-sectors be analysed in relation to their process, product and functional upgrading capabilities. Through this analysis an enhanced understanding of the key issues impacting on each of the sub-sectors can be gauged and hence their development potential better understood. Before considering the firm-level findings in this regard, however, a macro overview of each of the major exporting sub-sectors is presented in Section 2.

2. RECENT TRAJECTORY OF THE MAJOR EXPORTING SUB-SECTORS

2.1. Introduction

The eight most important categories of automotive component exports, including the five major exporting sub-sectors included in the study, their exporting growth since 1995 and their actual value of export sales is outlined in Table 3 below. There are a number of reasons for focusing on *catalytic converters, tyres, road wheels and parts thereof, silencers and exhaust components and wiring harnesses* and excluding stitched leather components, engine parts and automotive tooling. An interrogation of the stitched leather components sub-sector was included in the IRP's leather sector value chain research given its dominant position in that value chain⁸, whilst the engine parts sub-sector was excluded on the basis of its lack of homogeneity. It is important to note that the export category of "engine parts" is not a consolidated manufacturing sector, but rather a disparate set of manufacturing activities that are categorised as engine parts for trade classification purposes. Lastly, automotive tooling was excluded because it is not a batch manufacturing type sub-sector and thus needs to be analysed using a different methodology from that used for this particular study.

Irrespective of the exclusion of these other sub-sectors, as highlighted in Table 3, the five selected sub-sectors together contributed 52.3% of all exports in 2000 and experienced an average growth rate of 521% over the period 1995 to 2002. This increase is significantly higher than the industry average of 281%, thus highlighting their increasing importance to the sector's growth in exports. Their average improvement of 521% is, however, skewed by the massive growth of 1,107% experienced by the catalytic converter sub-sector. If one excludes catalytic converters from the equation then the average improvement recorded amongst the selected sub-sectors is 375%.

Table 3: Growth in automotive component exports by major sub-sector and in total (R millions)

Component Category	1995	1998	2000	Growth: 95-00 (%)
<i>Catalytic converters</i>	388	1,520	4,683	1,107
Stitched leather components	1,019	1,854	1,926	89
<i>Tyres</i>	219	498	682	211
<i>Road wheels and parts</i>	175	446	551	215
Engine parts	112	390	409	265
<i>Silencers and exhausts</i>	76	493	377	396
Automotive tooling	259	256	362	40
<i>Wiring harnesses</i>	41	207	319	678
Other	1,029	2,231	3,331	224
TOTAL	3,318	7,895	12,640	281

Given their substantial recent growth, understanding the recent trajectory of these exporting sub-sectors is critical, particularly insofar as value chain and competitiveness issues are concerned. In

⁸ See Ballard (2002) for a detailed exploration of this exporting sub-sector.

order to contextualise their recent performance, this section focuses on two broad areas. The first relates to the exporting growth of the sub-sectors, as well as their broader trade performance in relation to imports, whilst the second focuses on their sales performance into their major export market, the European Union. This section is structured in line with these two focus areas.

In the first part the export versus import growth dynamic within each sub-sector is explored, whilst in the second part their growing import presence in the European Union is unpacked. The analysis of the EU data is done in three ways. First the ranking position and market share of South Africa as an exporter into the European Union is analysed for each sub-sector. Second, the change in South African performance relative to the five most important exporting nations into the European Union is outlined per sub-sector. This reveals the extent to which South Africa is gaining ground on its major competitors in each of the sub-sectors. Third, an analysis of unit price changes is undertaken so as to gauge whether the South African exports are moving into or out of higher value adding segments of the European market in which they compete. This was intended as a critical part of the study, as the value chain literature indicates the importance of competing on the basis of value creation rather than simply costs (Kaplinsky and Morris 2001), hence the focus on unit price movements amongst exporting firms. However, as the firm level findings and macro data generated reveals, this is in fact a flawed approach to interpreting value creation in the automotive industry, whether in the European Union or elsewhere.

As will be discussed in Section 3, the automotive industry is an Original Equipment Manufacturer (OEM) controlled and co-ordinated industry. As such, prices are largely determined by lead source arrangements at a global level (i.e. between OEM MNCs and their lead source MNC suppliers) with limited opportunity for South African based firms to independently exploit opportunities (and thus drive unit prices either up or down). Whilst the unit price movements for each of the sub-sectors are analysed in this section it is therefore critical that this be kept in mind.

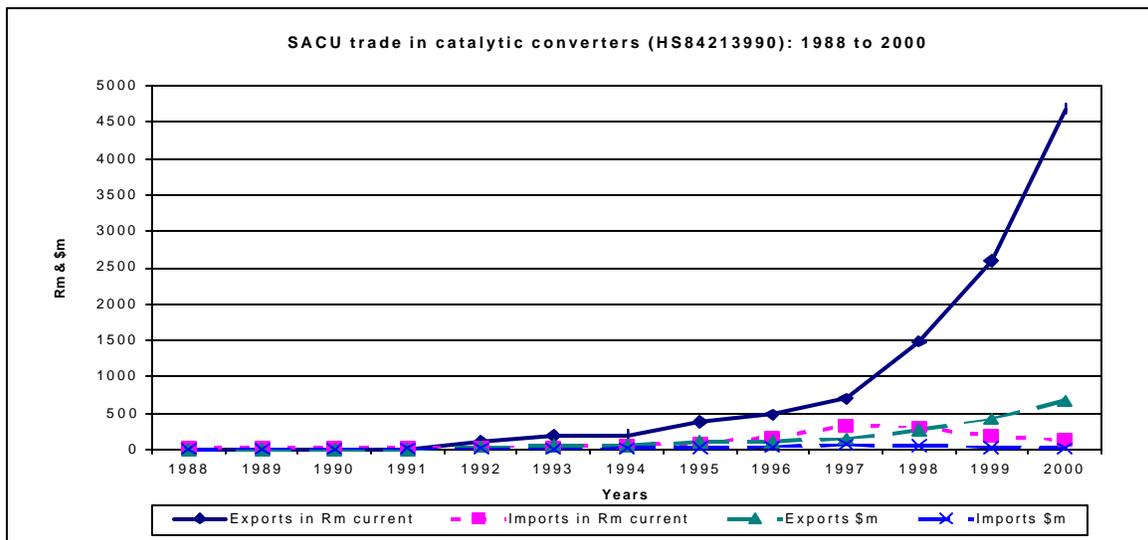
2.2. Trade performance of each of the sub-sectors

Two important caveats regarding this sub-section need to be made upfront. The first relates to the exclusion of tyre data. Due to the reticence of the South African based tyre manufacturers to participate in the study no trade data was generated and analysed for the sector. Secondly, due to the misalignment between industrial and trade classifications, it proved extremely difficult to explore the individual export performance of each of the sub-sectors. As a result, road wheels/parts thereof and silencers/exhaust components are scrutinized in terms of the trade performance of HS8708, a trade classification that includes both sub-sectors, as well as other product categories. We were, however, fortunate to obtain detailed disaggregated trade information on the catalytic converter (HS84213990) and harnesses (HS854430) sub-sectors.

2.2.1. Catalytic converters

The catalytic converter sub-sector has experienced the most significant exporting growth of any of the sub-sectors analysed. This has moreover occurred on the back of substantive sales values and as such represents meaningful change over time. With exports of over R4.5 billion in 2000, the catalytic converter industry contributed a significant 37% of total automotive component exports. The very substantial growth of exports from this sub-sector over the period 1988 to 2000 is captured in Figure 11. As revealed, this sub-sector only emerged as an exporting concern in 1992. In addition, massive levels of growth in Rand terms really only occurred from 1997. As also revealed Figure 11, however, when analysed in US\$ terms the sub-sector's sales figures are less impressive⁹. Irrespective of this, it is interesting to note that a limited and reducing value of catalytic converter imports are being brought into the South African economy, i.e. this is a sub-sector with a rapidly growing trade surplus¹⁰.

Figure 11



An overview of the primary destination of catalytic converter exports is presented in Table 4. As highlighted the vast majority of exports are directed to the European Union with this representing an overwhelming 83% of all catalytic converter export sales in 2000. The importance of Western Europe as an export destination, whilst significantly increasing in value has, however, reduced as a proportion of total catalytic converter export sales. In 1992, for example, the European Union purchased 98.2% of all South African catalytic converters exported.

⁹ This is a comment that pertains to the export growth trajectories of each of the sub-sectors explored. The Rand's depreciation against the US\$ artificially increases the sales value of South African exports when analysed in Rand terms.

¹⁰ As highlighted in the firm-level findings (Section 3), this growing surplus exists because of the MIDP and the manner in which OEMs use the catalytic converter industry to generate duty rebates which are then used to offset imports in other sub-sectors. Whilst the sub-sector may be generating a substantial trade surplus under its own account, it is clearly helping to increase trade deficits in other non or lesser exporting sub-sectors of the automotive industry.

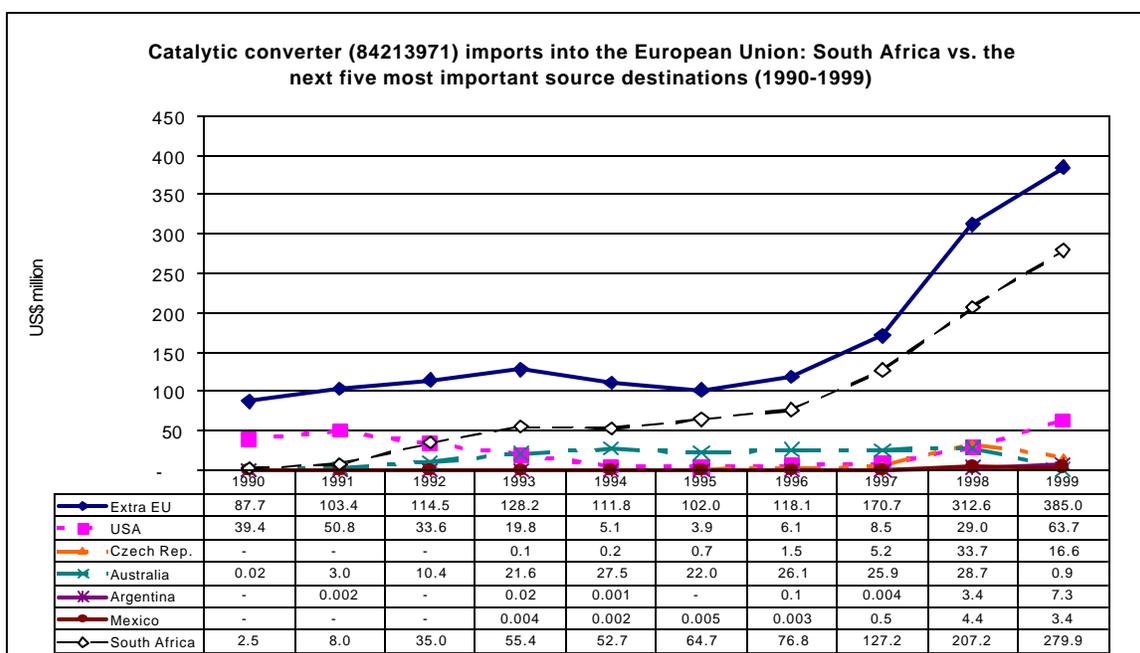
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Table 4: Catalytic converters - Value and share of exports to the European Union (1988 to 2000)

HS84213990		1988	1990	1992	1994	1996	1998	2000
Exports to the European Union	Value in R m current	0.09	0.16	102.23	190.51	451.69	1294.21	3885.27
	% Total exports	11.61	23.54	98.18	96.37	93.17	87.17	82.97

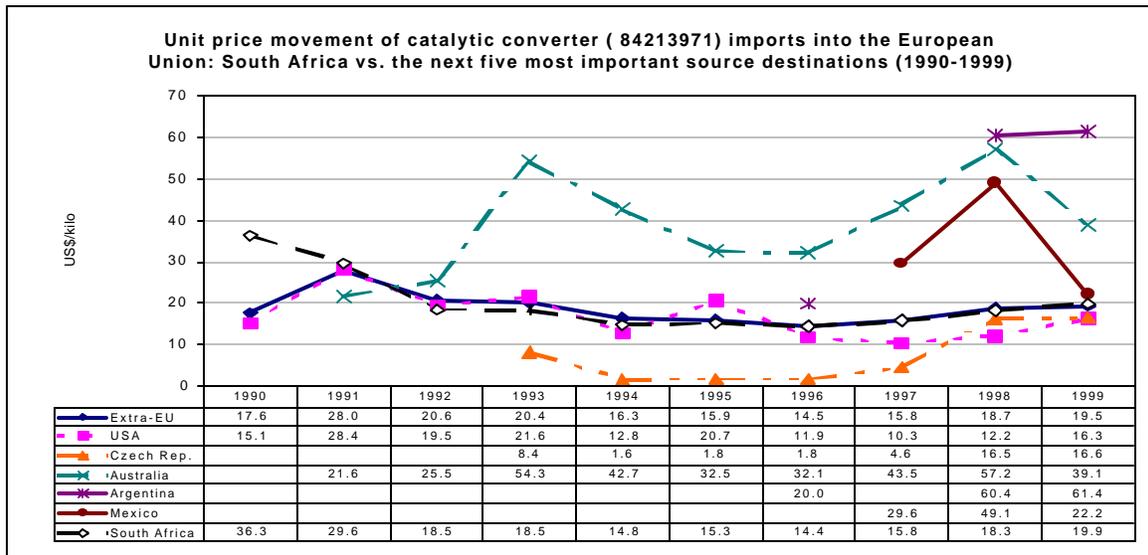
Given the importance of the European Union (EU) for catalytic converter exports, understanding the exporting position of South Africa relative to competing nations in this particular market is critical. It is therefore encouraging to note that South Africa is the most important source destination for catalytic converters into the European Union. As highlighted in Figure 12, 72.7% of all EU catalytic converter imports are from South Africa, with the next most important source destination being the USA with less than one-sixth the South African sales value. Importantly, this ranking position represents a major change from 1990, when South Africa was the fifth most source destination of imported catalytic converters. It is therefore unsurprising to note that South Africa has had the most impressive growth trajectory of the six most important exporters of catalytic converters into the EU through the 1990s.

Figure 12



Whilst catalytic converter exports into the EU have grown appreciably over the last few years, it is also interesting to note that the unit price movement of South African sourced catalytic converters has largely tracked the extra-EU average of US\$19.5 per kilogram. In fact, US\$ prices are slightly higher for South African sourced catalytic converters (US\$19.9 per kilogram). It is, however, difficult to gauge too much from unit price movements in this sub-sector as a significant percentage of a catalytic converter's value lies in its PGM content (over 50%) and this is both volatile and sourced at globally set prices.

Figure 13



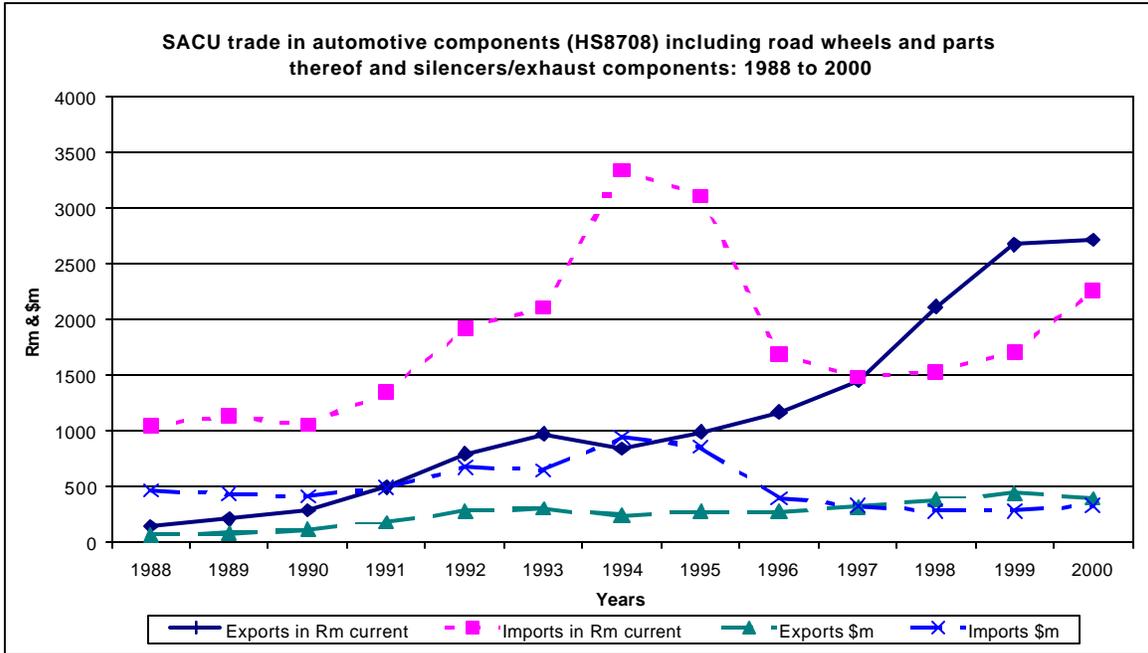
2.2.3. Road wheels/parts thereof and silencers/exhaust components

The total value of the two exporting categories analysed here was R928 million in 2000 (R551 million for road wheels and parts thereof and R377 million for silencer and exhaust components). As revealed in Figure 14, the total figure for trade classification HS8708 is considerably higher than this due to the fact that other automotive components are also captured under this classification. With this in mind, the figures presented here need to be viewed in a nuanced manner. Nevertheless it is still appropriate to consider the findings as *reflective* of trends in the two sub-sectors under consideration. For example, the considerable growth of exports from the two sub-sectors in Table 3 is corroborated by the findings presented in Figure 14.

As revealed, exports have grown very significantly since the early 1990s and especially since 1997. For example, from 1997 to 2000 exports grew by a staggering R1 billion with especially large increases occurring in 1998 and 1999. However, major imports can also be attributed to this trade classification. Whilst exports exceed imports, thus revealing a small trade surplus, the significant decline in imports recorded from 1994 to 1997/1998 appears to have been arrested with sizeable import growth evident in 1999 and 2000.

Notwithstanding this concern, the overall position of the sub-sectors falling within this trade classification is far better than in the early 1990s when a large trade deficit of up to R2 billion existed. Consistent with the catalytic converter findings, whilst major import and export growth has been recorded in Rand terms over the course of the last three years, the changes appear less substantial when considered in US\$ terms.

Figure 14



The road wheels/parts thereof and silencer/exhaust component sub-sectors are not as reliant on the EU market as the catalytic converter sub-sector. As revealed in Table 5, the EU is still, however, the principal market for South African products falling under this trade classification. For example, over 60% of all export sales (or R1.6 billion) were directed to the EU in 2000. Whilst this is down from the 83.9% of 1992, it represents major growth on export sales of only R216 million in 1990. The importance of the EU has therefore only dissipated because of impressive exporting growth into other markets. This includes NAFTA, where exports grew from R17.2 million in 1990 to R361.4 million in 2000.

Table 5: Road wheels/parts thereof and silencers/exhaust components - Value and share of total exports to the European Union and NAFTA (1988 to 2000)

HS8708		1988	1990	1992	1994	1996	1998	2000
Exports to the European Union	Value in Rm current	84.62	216.08	666.03	654.70	709.42	1319.70	1638.17
	% of Total exports	60.45	75.92	83.89	77.95	60.78	62.40	60.35
Exports to NAFTA	Value in Rm current	16.06	17.24	45.99	55.36	132.47	236.65	361.36
	% of Total exports	11.48	6.06	5.79	6.59	11.35	11.19	13.31

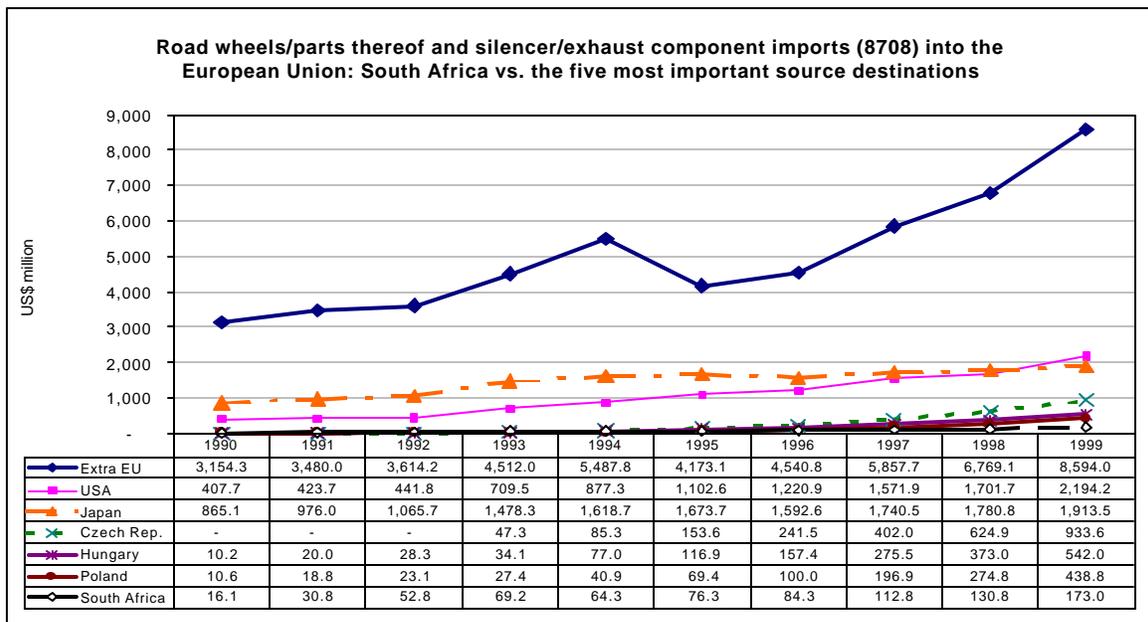
Despite the significant exporting growth of sub-sectors within this trade classification, as revealed in Figure 15, South Africa is still a marginal player in comparison to the major exporters of these component types into the EU. Whilst South Africa has improved its ranking position of exporters into the EU for this trade classification from 15th position to 9th, there is a quantum difference between the sales figures of the leading exporting countries and the rest. For example, despite its

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ninth ranked position South Africa comprises only 2.01% of total EU imports. In comparison, countries such as the USA (\$2.19 billion) and Japan (\$1.91 billion) are significantly ahead. These developed economies are then followed by three East European economies exporting \$933 million (Czech Republic), \$542 million (Hungary) and \$439 million (Poland) respectively. South Africa at \$173 million of exports in 1999 is therefore a marginal player.

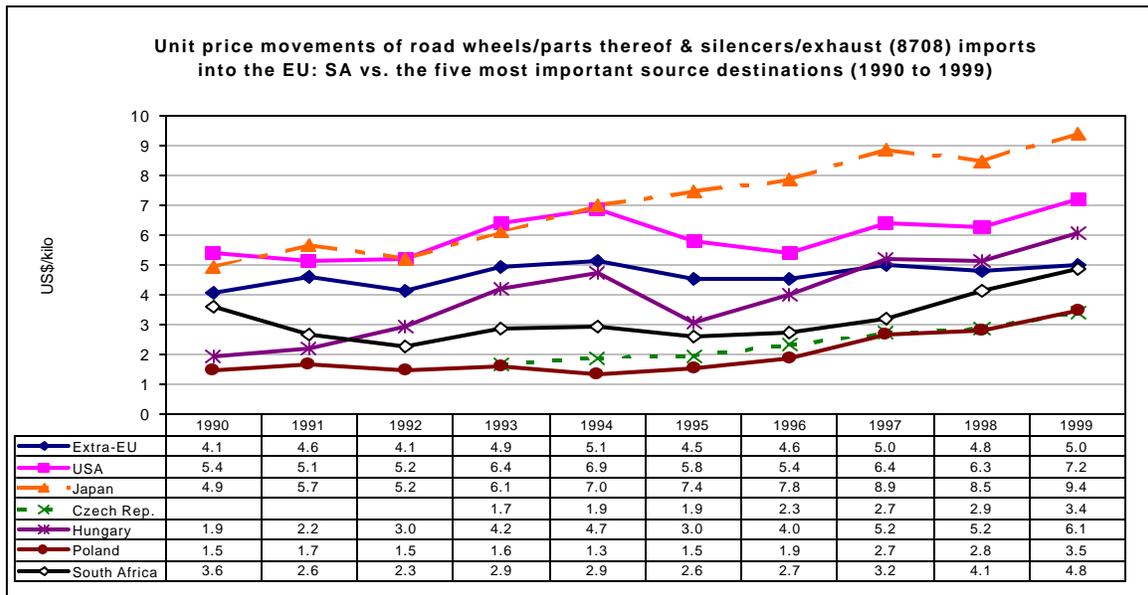
Apart from its relative export values and change in ranking position, it is also important to note that despite significantly increasing its export sales into the EU over the period 1990 to 1999, South Africa's export growth has not kept pace with any of the above mentioned East European countries. South Africa, for example, ranked ahead of all three of the countries until 1994. The reasons for this growth are made explicit in Figure 15 - The manufacturing activities captured under this trade classification are shifting out of the EU, as evidenced by the very significant increase in extra-EU purchases. While South African exports are growing on the back of this, the sub-sector is not necessarily gaining a more prominent supplier position into the EU, as is the case for the catalytic converter industry.

Figure 15



The unit value of South African exports into the EU under this trade classification has increased significantly through the latter part of the 1990s and in 1999 sat at just below the average EU level of \$5 per kilogram. Whilst the average South African level of \$4.8 per kilogram marks a steady improvement from 1996 levels of \$2.7 per kilogram, this upward price movement is probably indicative of the changing composition of the raw material make up of exports rather than the manufacture of higher value added products. For example, in the road wheels sub-sector, higher cost aluminium wheels have replaced steel wheel exports, whilst stainless steel has replaced mild steel in the silencer/exhaust component sub-sector. Given the broad composition of firms in this sub-sector, little else can be stated about unit price movements.

Figure 16



2.2.3. Harnesses

The harnesses sub-sector represents an interesting anomaly within the major exporting sub-sectors of the automotive components industry. All of the other major exporting sub-sectors have substantial domestic raw material bases, which gives them a significant MIDP induced benefit as a result of the raw materials being included as local value added and hence duty rebate qualifiable. The harnesses sub-sector, in stark contrast, derives no MIDP induced raw material benefits and yet exports have grown from a negligible R41 million in 1995 to R319 million in 2000. The sub-sector's significant recent export growth is captured in Figure 17¹¹. As revealed, this is a sub-sector, which experienced limited exporting and importing levels until 1994, when exports suddenly grew rapidly off a low base. Whilst the sub-sector's impressive export growth has continued through to 2000, imports have remained consistently low – at levels similar to those evident in the early 1990s.

Almost all of the exports emanating from this sub-sector are directed to the European Union. This has, moreover, been the case since the growth in exports from 1994. An overwhelming 97.2% of exports in 1994 were, for example, directed towards the EU, with the figure increasing to 99% in 2000. This is therefore an entirely EU dependent exporting sub-sector.

¹¹ The exports presented in Figure 17 are higher than the South African industry total because they include a major harness exporter located in Botswana. This is the only sub-sector where South African Customs Union (SACU) export data is significantly different from that for South Africa. The firm level research undertaken as part of this study revealed, for example, no meaningful catalytic converter, tyre, road wheel or silencer/exhaust component manufacture in other SACU countries (i.e. Botswana, Lesotho, Namibia, Swaziland).

Figure 17

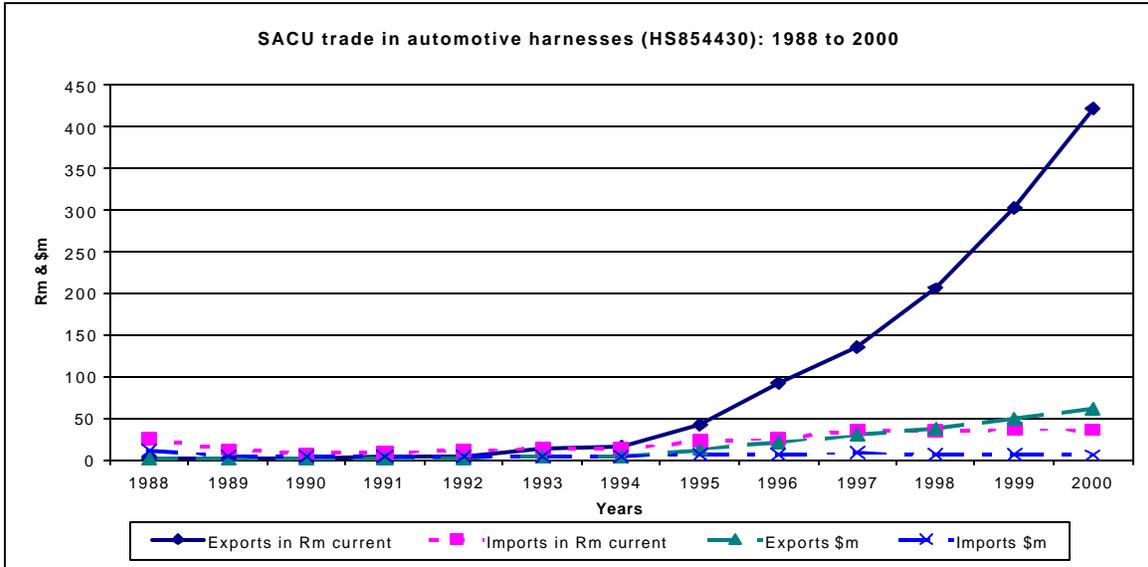


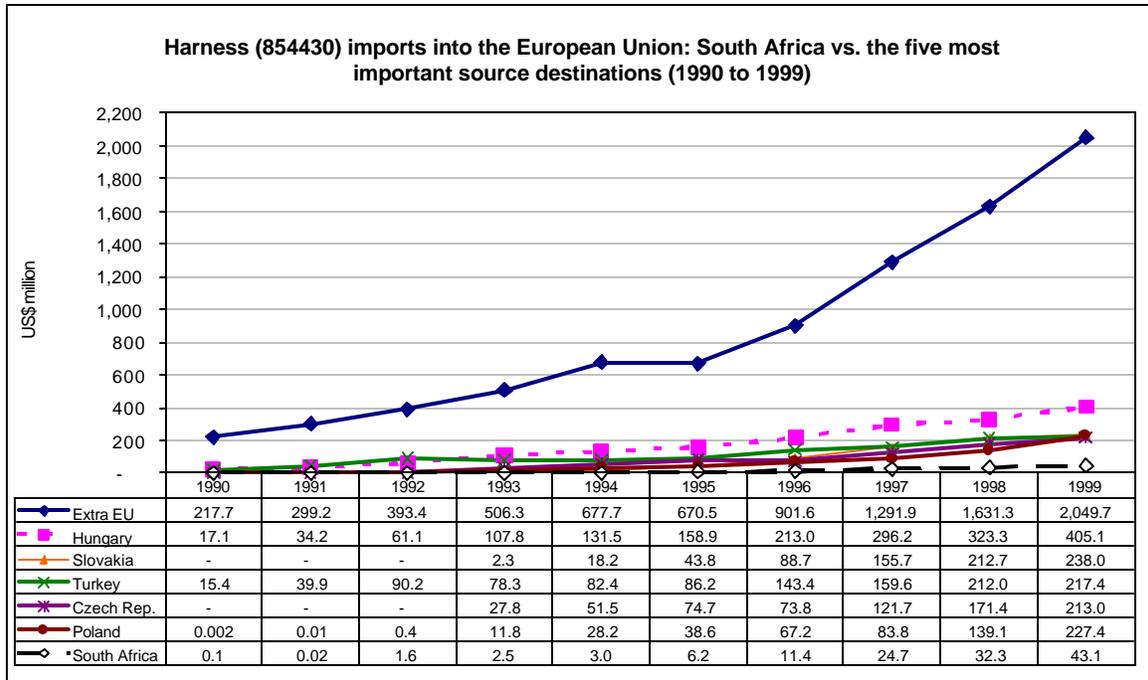
Table 6: Harnesses - Value and share of total exports to the European Union (1988 to 2000)

HS854430		1988	1990	1992	1994	1996	1998	2000
Exports to the European Union	Value in Rm current	1.42	1.95	4.19	15.14	91.58	205.40	417.78
	% of Total exports	98.15	91.65	88.13	97.21	99.38	99.69	98.96

Given its total dependence on the EU market for its recent exporting success it is interesting to note that the harnesses sub-sector ranked as only the 9th most important extra-EU source destination for harnesses in 1999. Whilst this represents a significant improvement on its 1990 ranking position of 20th, it is clear that South Africa is still an insignificant supplier of harnesses into the EU. This is because the centre of harness manufacture for Western Europe has shifted Eastwards. In 1990 EU imports of harnesses totaled only \$217.7 million and yet by 1999 the figure was \$2.05 billion with Hungary (\$405m), Slovakia (\$238m), Turkey (\$217m), the Czech Republic (\$213m) and Poland (\$227m) accounting for \$1.3 billion of this total. In stark contrast, South Africa accounted for only 2.1% of extra-EU purchases with total EU sales of \$43.1 million in 1999.

Moreover, and following a very similar trajectory to that evidenced for road wheels/parts thereof and road wheels/exhaust components, whilst South African exporting growth has been impressive against its own previous exporting performance, the growth rates recorded amongst the East European countries has been far more rapid. In 1992, for example, Poland, Slovakia and the Czech Republic exported only \$0.4 million worth of harnesses to the EU, a fraction of their 1999 figure of \$678.4 million. These very impressive growth rates are captured in Figure 18.

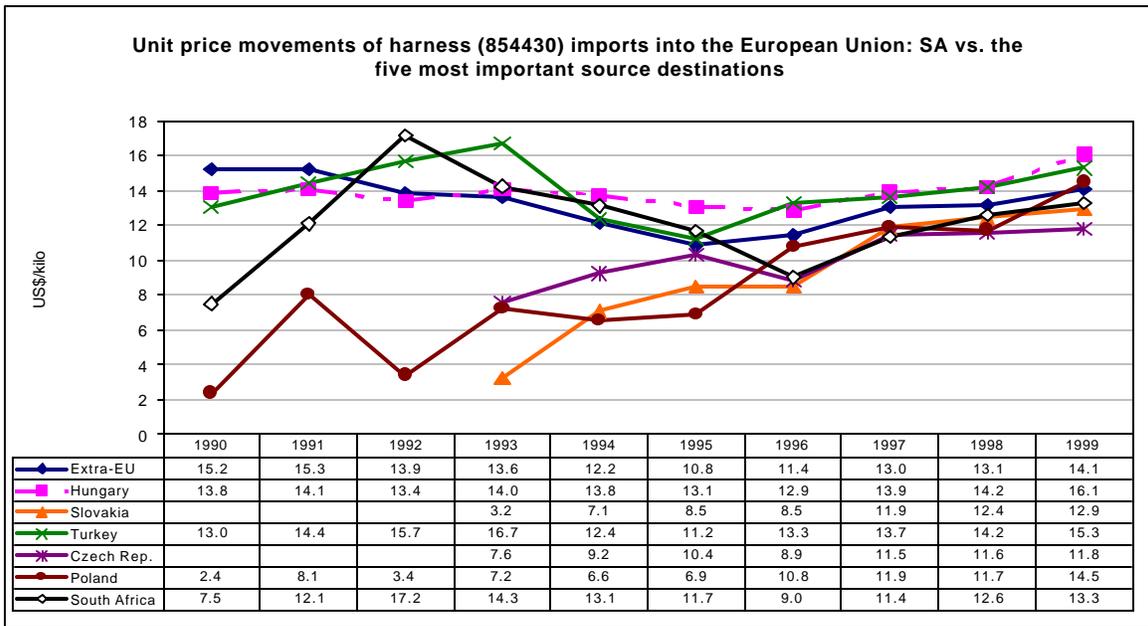
Figure 18



As per the unit price movement figures presented for catalytic converters and road wheels/exhaust components, little can be gleaned from the unit price figures presented in Figure 19. South African exporters appear to be grouped with the rest of the firms in terms of sales value per kilogram. Whilst the South African average of \$13.3 per kilogram is slightly below the extra-EU average of \$14.1 it is above both the Slovakian and Czech Republic figures of \$12.9 and \$11.8 per kilogram respectively. Firm-level interviews at the major harness exporters in South Africa indicated, moreover, that the harnesses exported to the EU from South Africa were generally different from those exported into the EU from their Eastern Europe sister plants. This is because each assembled vehicle at an OEM generally requires a different harness configuration based on its exact specification levels. As such there is significant advantage to be had from purchasing harnesses on a JIT basis from manufacturers located in close proximity to vehicle assembly plants.

As a result of South Africa's distance from the EU, locally based harness exporters generally make standard harnesses that are then incorporated into more complex and vehicle-specific harnesses by 1st tier suppliers in the EU. These are then supplied to the OEMs on a JIT basis. The East European harness assemblers are, on the other hand, responsible for assembling both standard and the more complex vehicle specific harnesses on a JIT basis from their operations.

Figure 19



2.3. Summary of overall trade performance

Whilst the overall trade performance of each of the exporting sub-sectors is impressive, with the sole exception of the catalytic converter industry, the sub-sectors are still unimportant in even their most important export market, the European Union. Despite the fact that growth rates have been significant, it is also evident that exports have occurred in those sectors where the EU has been rapidly displacing its own production to lower cost, developing economies. This is borne out by the significant growth in extra-EU imports for each of the sub-sectors explored and the massive expansion in exports from Eastern Europe. For road wheels/parts thereof and silencers/exhaust components and harnesses, South African growth rates are in fact unimpressive in comparison to the Eastern European countries.

Positively, though, each of the exporting sub-sectors have improved their EU import ranking position since the early 1990s. Whilst three of the four sub-sectors are not amongst the five most important source destinations and have a very small share of total imports into the EU, it is encouraging to note that their presence has been bolstered over the last few years. None of the sub-sectors appear to be wavering. Similarly, whilst the unit price indicators presented in this section are difficult to decipher given lead source dynamics it is clear that South African unit sales prices into the EU are similar to those of competing nations and hence suggestive of our comparable competitiveness.

A number of cautionary findings also emerge from the data presented, however. First, whilst each of the sub-sectors are generating sizable trade surpluses (with the catalytic converter industry

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particularly important in this regard), when analysing the findings against those presented in Section 1 and Section 3 of the report, it is clear that these surpluses are being generated as a mechanism to increase deficits in other sub-sectors as a part of the import/export complementation component of the MIDP. Whilst this in itself is not a negative finding, as revealed in Section 1, the overall trade deficit for the South African automotive industry increased between 1999 and 2000 and as such exports appear to be occurring at a pace insufficient to reduce the industry's foreign exchange losses. The reasons for this are explored further in Section 3, which outlines the firm-level research findings. Moreover, apart from the catalytic converter sub-sector, it would appear as if South Africa is being allocated EU business on the back of production movements out of the EU. This is occurring at a level sufficient to secure duty credits but there is no indication that South Africa is emerging as a source destination leader amongst developing economies. Eastern European countries are clearly occupying this leading position.

Given the artificial inducement to export, little can be gauged from the macro findings presented from a value chain upgrading/downgrading perspective. The value chain literature indicates that three variables are key to understanding the comparative competitive position of a particular national sub-sector in an export market. These are growth in sales, growth in market share and finally unit price movements. If all three shifts are evident then it is clear that a country is increasing its relative competitive position in a market segment that is itself showing a level of dynamism, and hence worth competing in. As revealed in Table 7 *primaefacia* evidence suggests that this has occurred for each of the exporting sub-sectors explored over the period 1995 to 1999 with the only negative finding being the declining relative selling price of harnesses into the EU. Once the impact of the MIDP is taken cognisance of and particularly the manner in which export contracts are facilitated by OEMs to earn duty credits for their South African based operations, it becomes extremely difficult to gauge the extent to which these findings are reflective of the actual competitiveness of these exporting sub-sectors, hence the importance of the firm level findings.

Table 7: Evidence of value chain upgrading into the EU amongst the exporting sub-sectors: 1995 to 1999

Sub-sectors	Growth in sales	Growth in market share	Relative improvements in selling price vs. extra-EU average
Catalytic converters			
Road wheels and silencers/exhausts			
Harnesses			X

= Improved performance, **X** = Deteriorated performance

3. FIRM-LEVEL FINDINGS

The firm-level findings presented in this section of the report are analysed by exporting sub-sector, as well as in aggregate. The only exception to this is the tyre sub-sector, which is represented by only two firms in the study and hence not always considered at a disaggregated level. This is to protect the identity of the two tyre firms that participated. Given the fact that so few firms completed the quantitative questionnaires left behind for completion after each firm-level interview, the findings generated from this part of the study are only analysed at an aggregated level.

Given the multifaceted focus of the firm-level interviews, this section has three parts. The first part graphically outlines each of the exporting sub-sector value chains, thus revealing their key raw material inputs, as well as the extent to which they are embedded within South Africa. This part, whilst descriptive, is therefore important. The second part of the section is far more analytical, focusing as it does on the firm-level competitiveness findings and analysing them in relation to the macro findings presented in Section 2. The major competitiveness strengths and weaknesses of the firms are outlined, as are the key value chain issues impacting on their present and future success. The final part focuses exclusively on the issue of value chain upgrading/downgrading within each of the sub-sectors. Based on the newly emergent value chain literature that focuses on the link between exporting and firm-level success, this final part unpacks the extent to which process, product and functional upgrading is occurring in each of the sub-sectors. These are, of course, key questions, revealing as they do the extent to which the sub-sectors are benefiting from their immersion in global value chains.

3.1. Exporting value chains

The four sub-sectors analysed in this section of the report have distinct value chains emanating back from their exporting links (i.e. the final exporting firms). The final level of value adding within each of the final links is especially important to note, as this reveals the extent to which an analysis of the final exporting firms allows one to gauge overall competitiveness issues. For example, if an exporting firm's raw material purchases make up 80% of its cost of sales then the importance of its value chain to its final competitiveness is clearly critical. On the other hand, if raw material purchases make up only 30% of an exporting firm's cost of sales then the importance of its value chain to its final competitiveness is considerably less. For all four of the sub-sector value chains analysed the first example – to a greater or lesser extent - holds true: Raw materials as a percentage of cost of sales is high. For the catalytic converter exporters, as an example, materials as a percentage of cost of sales range from 85% to 95%, whilst the figures for road wheels/exhaust components and harnesses fall within the 45% to 70% range.

One fundamental difference however pertains to the extent to which the value chains are embedded within or outside of South Africa. As revealed in Figure 20 (catalytic converters),

Figure 21 (road wheels and parts thereof), Figure 22 (silencers and exhaust components) and Figure 23 (harnesses), with the exception of harnesses, all the exporting sub-sectors appear to have value chains that are largely embedded within South Africa. If one analyses Figure 20, for example, it is clear that with the exception of the ceramic monolith link the entire value chain back from the exporting catalytic converter manufacturers is embedded within South Africa – most notably back to the mining of Platinum Group Metals (PGM) and steel. For this key exporting sub-sector imported materials as a proportion of total materials purchased is, therefore, extremely low – ranging from 1.2% to 10%. The figure for harnesses stands in stark contrast to this, with over 70% of all material purchases taking place outside of South Africa. For the wheels manufacturers the figure is approximately 15% for the aluminium sub-sector and 10% for steel. Tyres are significantly higher than this with one tyre manufacturer importing 31% of its materials requirements.

Figure 20

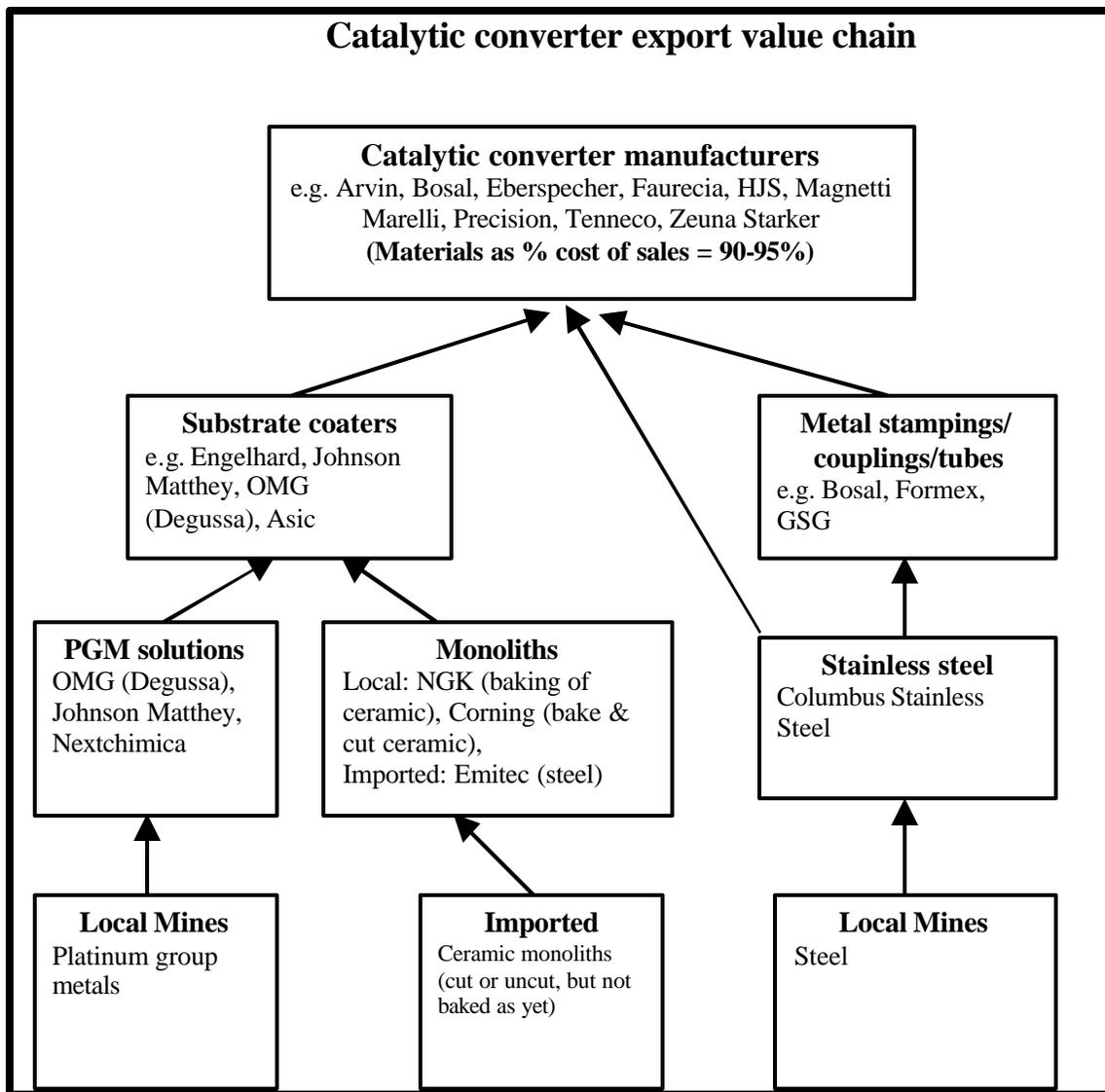


Figure 21

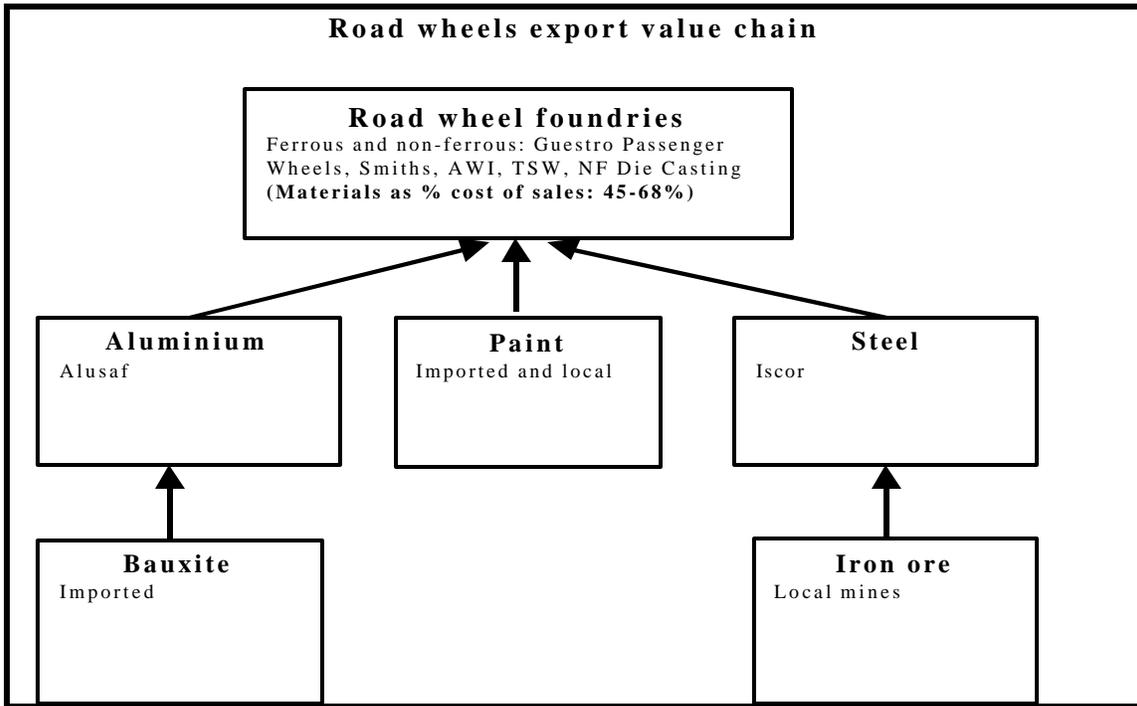


Figure 22

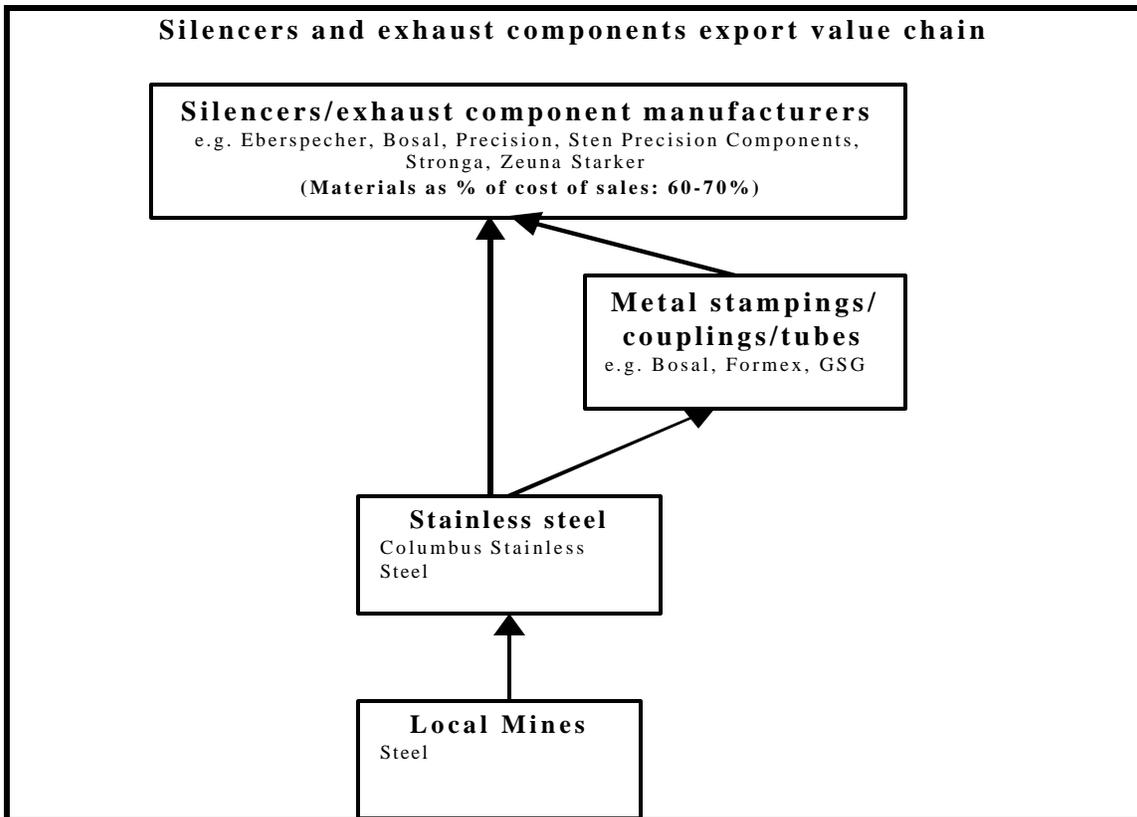
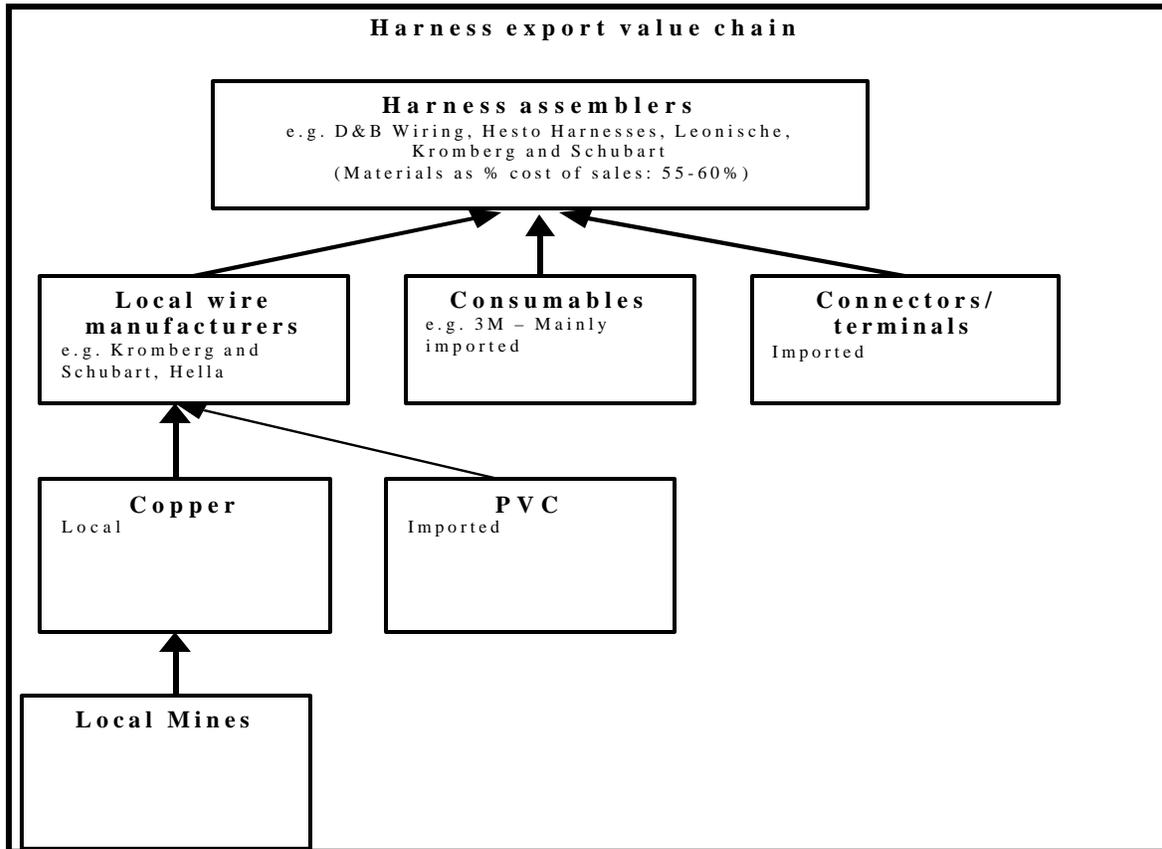


Figure 23



The four value chain figures presented above illustrate the extent to which both macro and micro level data needs to be interrogated in relation to value chain issues. Whilst the competitiveness findings presented in the next part of this section emanate out of firm-level research it is important to recognise that both firm-specific and value chain issues were extensively interrogated.

3.2. Firm-level competitiveness and value chain linkage findings

The firm-level interviews undertaken generated extremely rich information that supported the positive findings presented in Section 2, as well as the mix of positive and cautionary findings from Section 1. This is moreover generally evident for all of the sub-sectors researched. An engagement with seven of the eight areas focused upon during the course of the firm-level interviews reveals this, as will be highlighted in the summary to this sub-section. The eight areas focused upon during the course of the firm level interviews were:

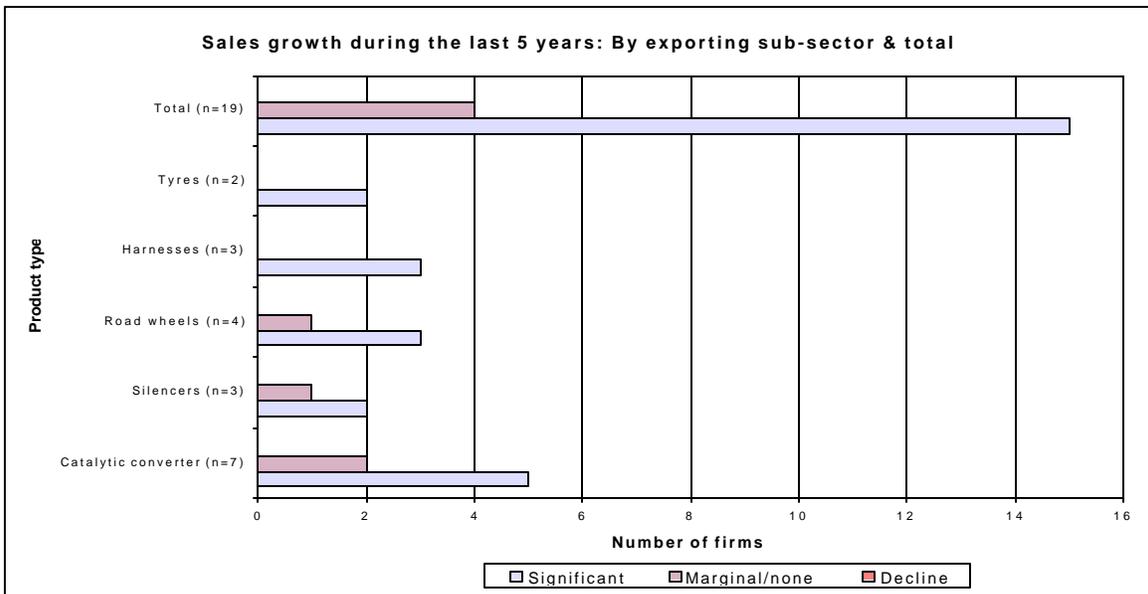
1. Recent and future financial performance
2. Firm ownership and source of product technology
3. Exporting linkages and major export markets
4. Major operational strengths and weaknesses

5. Improvements in quality, inventory and absenteeism performance
6. Supplier strengths and weaknesses
7. Dependency on the MIDP for exporting
8. Value chain process, product and functional upgrading/downgrading (discussed in next sub-section)

3.2.1. Recent and future financial performance

As highlighted in Figure 24 and in support of the sub-sector export growth findings presented in Section 2, the majority of surveyed firms have significantly expanded their sales over the course of the last five years. Only four of the 19 firms indicated that their growth had been only marginal or stagnant with two of these firms in the catalytic converter sub-sector, one in road wheels and one in silencers and exhaust components.

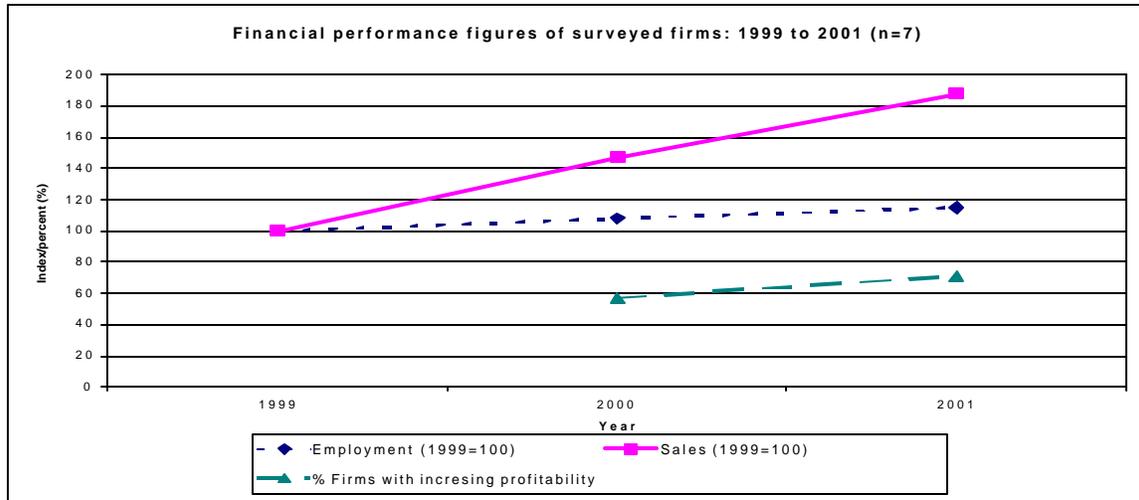
Figure 24



Some of the growth rates experienced by the firms are in fact staggering, as revealed in Figure 25, which presents quantitative findings from the seven firms that provided their detailed financial performance indicators in the eight firm-level questionnaires completed. For these firms, turnover grew by 88% over the period 1999 to 2001. Whilst the seven firms generated R2.6 billion in turnover in 1999, their combined sales figures totaled R4.9 billion in 2001. The sales growth amongst the surveyed firms has also enabled them to increase their employment levels, albeit at a much slower pace. Total employment grew by 15% over the period 1999 to 2001, with average employment levels at the firms consequently reaching 320.2 employees in 2001. Unsurprisingly strong growth at the exporting firms has also fuelled their profitability levels. Five of the seven firms (or 71.4%) indicated that their year on year profitability levels increased from 2000 to 2001, up from the four firms (57.1%) that indicated this for 2000.

These figures are significantly ahead of the average output figures recorded for the automotive industry as revealed in Section 1, as well as ahead of the automotive component manufacturers that belong to the KwaZulu-Natal, Eastern Cape and Gauteng Benchmarking Clubs. Turnover growth amongst these South African based firms was only 30.1% over the same period, whilst employment grew by 9.7% (KwaZulu-Natal Benchmarking Club Newsletter, Vol. 4, No. 10).

Figure 25



Whilst the recent sales trajectories of the exporting firms are extremely positive, there was, however, an expectation on the part of some that this was unlikely to continue. Two reasons were given for this. Firstly, some of the exporting firms are operating at 100% of their installed capacity and such new capital investments need to be made to provide further plant capacity. This appears to be something many of the firms are reticent to do as the OEMs refuse to give them extended volume guarantees on new export orders and also because their parent companies are concerned about South Africa's socio-economic stability. This is reflected in the firms' limited recent capital expenditure levels. Average capital expenditure as a proportion of sales at the six firms who provided their data in this regard stood at only of 2.95% and 2.65% in 2000 and 2001 respectively.

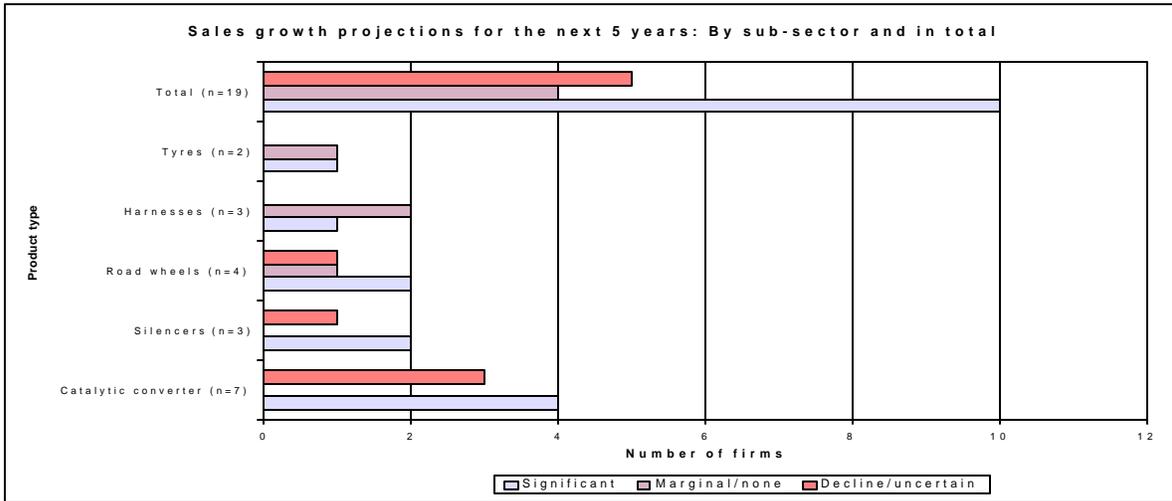
This is extremely low, even lower than the 3.31% and 5.78% averages recorded over the same period for 18 South African based automotive component manufacturers that belong to the KwaZulu-Natal, Eastern Cape and Gauteng Benchmarking Clubs (KwaZulu-Natal Benchmarking Club Newsletter, Vol. 4, No. 10). The findings in this regard are suggestive and support the macro capital investment figures presented in Section 1. Despite very significant sales growth from the firms and clear labour efficiency enhancements (hence the growing disparity between employment and turnover growth rates) capital investment remains limited. This will limit the growth potential of the exporting firms as they run out of capacity.

Secondly, sufficient MIDP export rebates are already being earned by the OEMs facilitating the export contracts for many of the firms, thus demotivating them from facilitating further contracts.

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As a result the sales growth projections of the exporting firms for the next five years are not as positive as for the previous five years. Only ten of the 19 firms indicated that they would definitely increase their sales by a significant margin over the next five years. Four of the remaining nine firms expected marginal or no growth, whilst five were either uncertain of their future or expected a sales decline (see Figure 26).

Figure 26

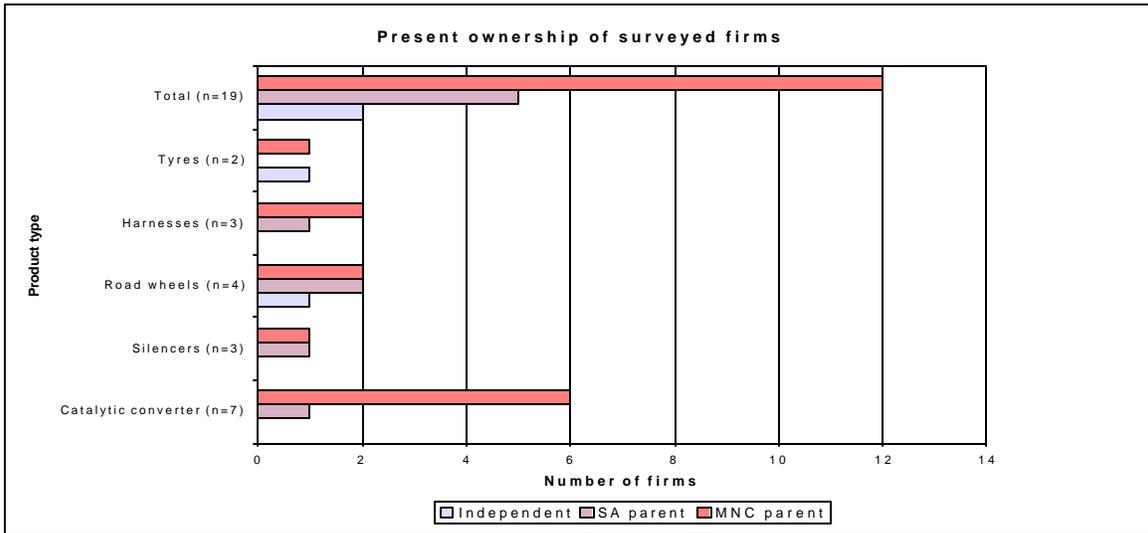


3.2.2. Firm ownership and source of product technology

Given the importance of political economy issues in the automotive components industry, i.e. the dominant role played by MNCs in controlling and coordinating the industry¹², it is unsurprising to note that the majority of exporting firms surveyed (12 out of 19) are partly or wholly MNC owned. As further revealed in Figure 27, five of the remaining six firms are subsidiaries of domestic holding companies, whilst two operate independently. In line with global consolidation trends outlined in previous IRP research reports this marks a significant shift in the ownership of the firms from 1997. Of the 16 firms in operation then (two are more recent Greenfield investments), only eight were owned by MNCs with six owned by domestic holding companies and two operating independently.

¹² See Barnes (2001) and Barnes and Morris (forthcoming) for further explorations of the changing political economy of the South African automotive industry.

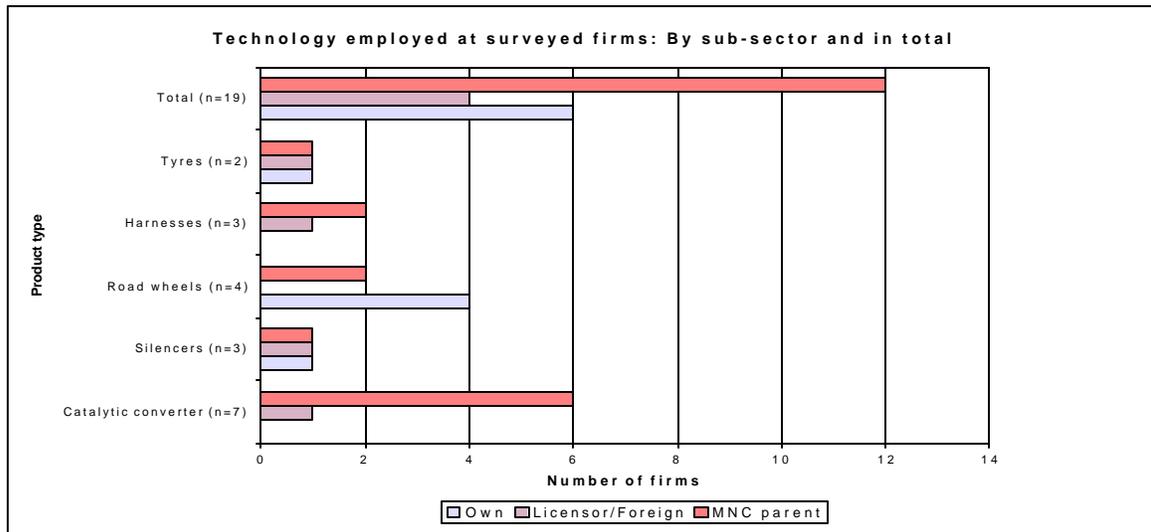
Figure 27



It was noted during the course of the firm-level research that one of the principal reasons for this shift in ownership relates to the manner in which exporting contracts are secured (see below), as well as the need to access global design capabilities. Apart from the road wheels sub-sector where South Africa appears to have significant technical expertise and independent design capabilities, lead sourcing clearly prevails. This means that the products made in South Africa need to be manufactured according to a global design developed by a leading multinational automotive component manufacturer, usually the parent company. The challenge for the South African subsidiary operation from a technology point of view is therefore to manufacture the product exactly as it is in other parts of the world, i.e. to the same specification and quality levels.

As revealed in Figure 28, lead sourcing is most evident in the catalytic converter and harness sub-sectors with only the road wheels manufacturers following a fundamentally different path. All four of the road wheel manufacturers indicated that they manufactured products according to their own designs, although two indicated that they also utilised designs developed by their parent/sister companies globally. One South African road wheels manufacturer has in fact followed a global growth strategy that has led to it becoming its own MNC. By acquiring a competitor in Western Europe it has complemented its existing design/technology base, thus giving it the ability to maintain its independence in a rapidly consolidating sub-sector. This is, however, an isolated example amongst the surveyed firms.

Figure 28



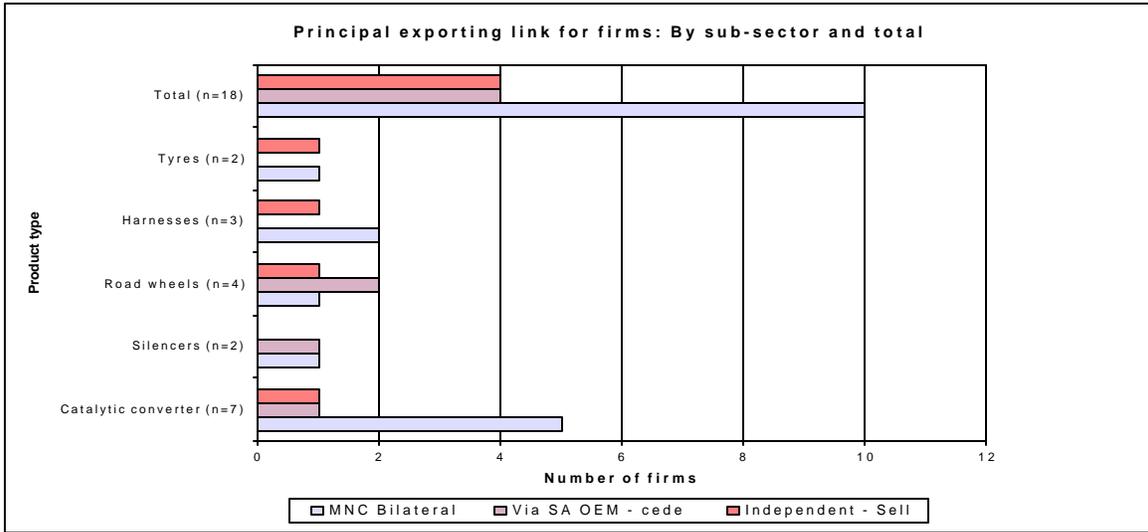
3.2.3. Exporting linkage and major export markets

In support of the findings presented in Section 1, it is clear that the majority of exports from the surveyed firms are taking place as a mechanism to earn the South African based OEMs duty rebates (i.e. IRCCs). An interrogation of the manner in which firms secure exporting contracts for their products revealed that this most often occurs through bilateral MNC negotiations. As highlighted in

Figure 29, this is most evident in the catalytic converter and harness manufacturing sub-sectors and generally takes one of two forms (see Box 3). Alternatively, exporting linkages are forged through negotiations with South African OEMs who operate as intermediaries with their parent companies to secure exports for the component manufacturers. Once the link has been made the relationship takes the same form as that of the MNC bilaterally negotiated contracts. This means that exporting either occurs through the OEMs and they keep the IRCCs or the component manufacturers export their products and then cede their IRCCs to the OEMs.

In only four of the 18 cases is the principal exporting link controlled by the automotive component manufacturer directly and in each case the firm involved is the least significant exporter in their sub-sector. This reveals that the principal exporting link for the major exporting automotive component manufacturers are the South African based OEMs and their parent companies in relationship with their first tier MNC suppliers. Independent South African exporting in the four sub-sectors focused upon is almost non-existent.

Figure 29



Given the importance of political linkages to exporting success it is important to note that none of the firms surveyed indicated participation in trade shows or delegations as an opportunity to forge buyer/selling matches as is prevalent in many other sectors. Whilst trade shows and delegations were highlighted as an important opportunity to expose South African management and professional staff to the latest global technologies, the point was repeatedly made by interviewees that only independent aftermarket firms used trade shows or trade delegations as an opportunity to find new market segments. None of the surveyed firms fall into this category. For the bulk of exports, the principal buyer/seller link is via MNCs, as outlined above. The South African based firms do not therefore compete with their international competitors (usually sister plants) on the basis of impressive trade exhibitions, but rather (a) hard competitiveness data captured by parent companies and (b) the need for IRCCs to offset duties on the part of locally based OEMs.

Box 3 – Forging MNC bilateral export deals

The following steps capture the typical export deal secured by the most successful South African based automotive component manufacturing exporters. Whilst there may be deviations from the scenario outlined below, the steps outlined cover in excess of 80% of the contracts secured by the major exporting firms surveyed.

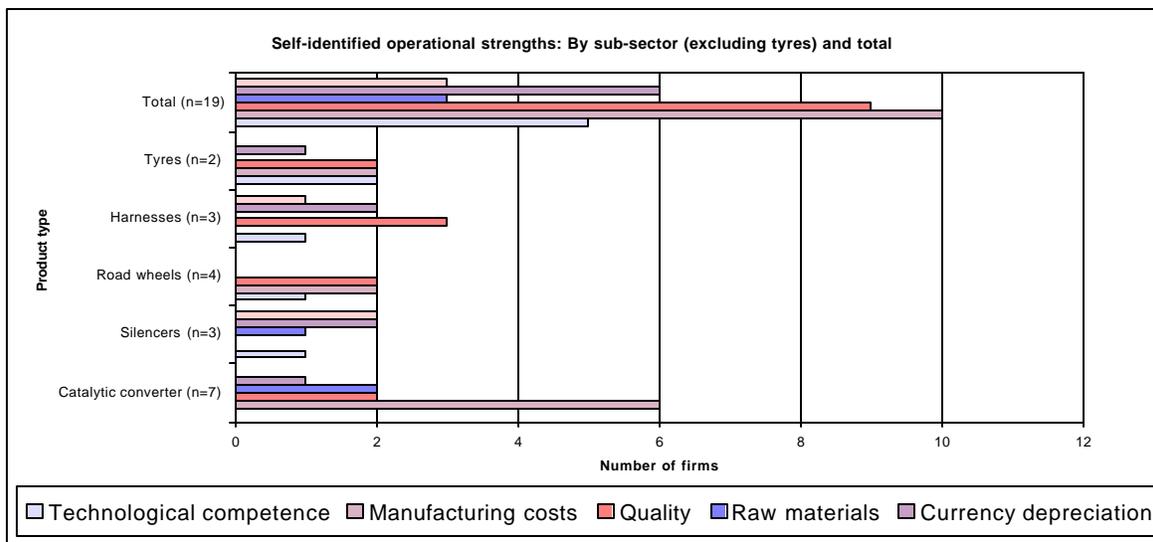
1. The OEM in Europe agrees to a global supply contract with an MNC supplier. This, as an example, involves the manufacture of 1,000,000 units.
2. The OEM then indicates that as part of the global deal, 300,000 units (or 30%) of its demand must be supplied by the MNC supplier's South African subsidiary (or joint venture/technology partner) and that the IRCCs earned must be ceded to the OEM's South African operation at no cost as part of the deal.
3. The MNC automotive component manufacturer agrees to the global deal under one of the two following terms:
 - The South African subsidiary operation sells its exported product ex-works in Rands to the South African OEM who then exports the product to the MNC automotive component manufacturer in Europe who then supplies to the parent OEM. The South African OEM covers all logistics costs pertaining to the transfer of product from South Africa to Europe. The IRCCs earned by the OEM for facilitating the export more than compensates for the logistics costs incurred, whilst the OEM also benefits from any foreign currency movements against the value of the Rand.
 - The South African subsidiary operation exports its product directly to Europe in Euros to its parent company/sister operation. The South African component manufacturer is then responsible for all logistics costs pertaining to the transfer of product from South Africa to Europe, but benefits from any foreign currency movements against the value of the Rand. Either the full value of the IRCCs earned as a result of the export transactions are ceded to the OEM who has facilitated the export contract or a small amount is transferred back to the exporting firm by the OEM (usually less than 20%) to cover logistics costs incurred.

3.2.4. Major operational strengths and weaknesses

Given the political nature of much of the exporting occurring in the industry and the associated importance of IRCCs to securing export contracts amongst the surveyed firms, it is critical that one not conflate exporting from the industry as a sign of its global competitiveness. This point is further verified when analysing the exporting firms' self-perception of their major operational strengths and weaknesses. These are presented in Figure 30 (operational strengths) and Figure 31 (operational weaknesses).

The major operational strengths identified by the exporting firms are their manufacturing costs (with this especially evident amongst the catalytic converter and road wheels manufacturers), their ability to manufacture to the highest quality specifications (harnesses, road wheels and catalytic converters) and the depreciation of the Rand (silencers and exhaust components). Manufacturing costs was highlighted most frequently as a competitive advantage with one of the catalytic converter manufacturers arguing that they were up to 25% cheaper ex-works than their German sister plant, whilst another indicated that they “...murdered the Germans on ex-works price.” The situation has moreover improved recently with one harness manufacturer indicating that it was more expensive than its sister plants in Eastern Europe six months ago, but that it is now at a very similar level as a result of the currency’s depreciation. Importantly, not all of the operational strengths highlighted by the companies are cost related. The ability to manufacture products according to global quality specifications was highlighted by nine of the 19 firms as an operational strength, whilst one harness manufacture has secured business from a sister plant in another developing economy because of its superior technological competence. Four additional firms indicated technological competence as a major operational strength.

Figure 30



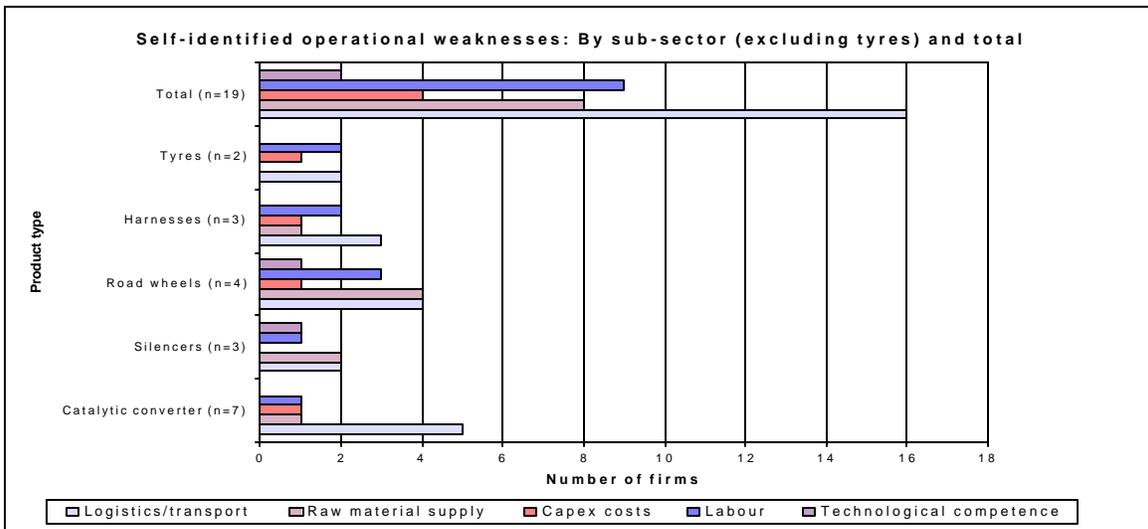
Unfortunately, as revealed in Figure 31, the exporting firms also reported major operational weaknesses. The most notable of these pertain to logistics/transportation costs with 16 of the 19 firms indicating that this was a major operational weakness. Some of the figures provided in this regard illustrate the impact this has on the competitiveness of companies. For catalytic converter manufacturers logistics costs appear to add between 3% and 9% to their sales prices, with figures of 8% to 10% indicated for aluminium wheels, up to 20% for steel wheels and around 12% for silencers and exhaust components. The next most frequently cited operational weakness amongst the surveyed firms was their labour force, with this pertaining to either low levels of labour productivity relative to sister plants using the same technology elsewhere in the developing world or a lack of labour stability.

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The third most cited operational weakness is that of raw material costs. Whilst this will be analysed in 3.2.6, it is important to note that eight of the firms (including all four of the wheels manufacturers) indicated that their operational competitiveness was being undermined by the high cost and/or erratic supply and/or poor quality of domestic raw material inputs. Given the dynamics of the MIDP and the manner in which the IRCC value is calculated on their domestic local content only, exporting firms have little alternative but to continue using these raw material sources.

The cost of capital was also highlighted as a major operational weakness by four firms. One firm representative argued that their recent experience revealed that capital costs are up to 20% higher in South Africa than in Europe. This stems from two additional costs: (1) transporting the capital equipment from Europe to South Africa and (2) flying technical experts over to South Africa to train local technical staff and ensure that the capital equipment becomes operational.

Figure 31



3.2.5. Improved quality, inventory and absenteeism performance

To gauge the extent towards which firms were learning from competing in a global operating environment, three key indicators of the transition to world class manufacturing were explored. These are quality performance, inventory holding and absenteeism levels¹³. Irrespective of their operational strengths and weaknesses an important finding to emerge from the firm-level research is that quality performance to customers amongst the 19 exporting firms has improved considerably over the last five years. This is reflected in Figure 32, which reveals that 17 of the 19 firms have recorded improved quality performance since 1997¹⁴. Moreover, the two exceptions to this overwhelmingly positive trend are recently established firms that have

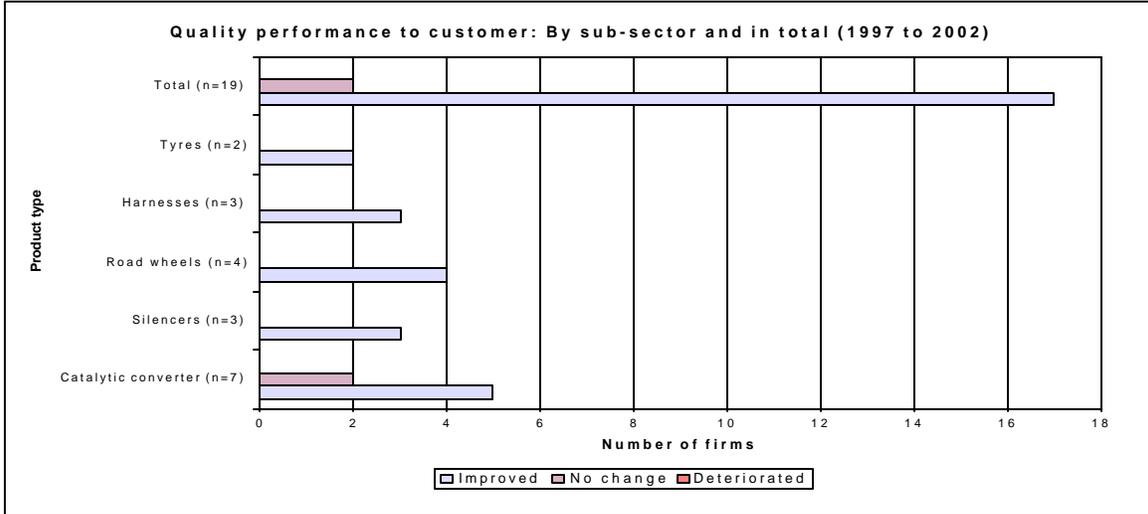
¹³ International benchmarking exercises undertaken by the IRP over the last six years have revealed these as key indicators of the transition to world class manufacturing standards at firms (see Barnes 1998, 2001).

¹⁴ For those two firms that started their operations post 1997, quality progress is tracked from their inception dates: 1998 and 2000 respectively. The same applies for their inventory and absenteeism performance.

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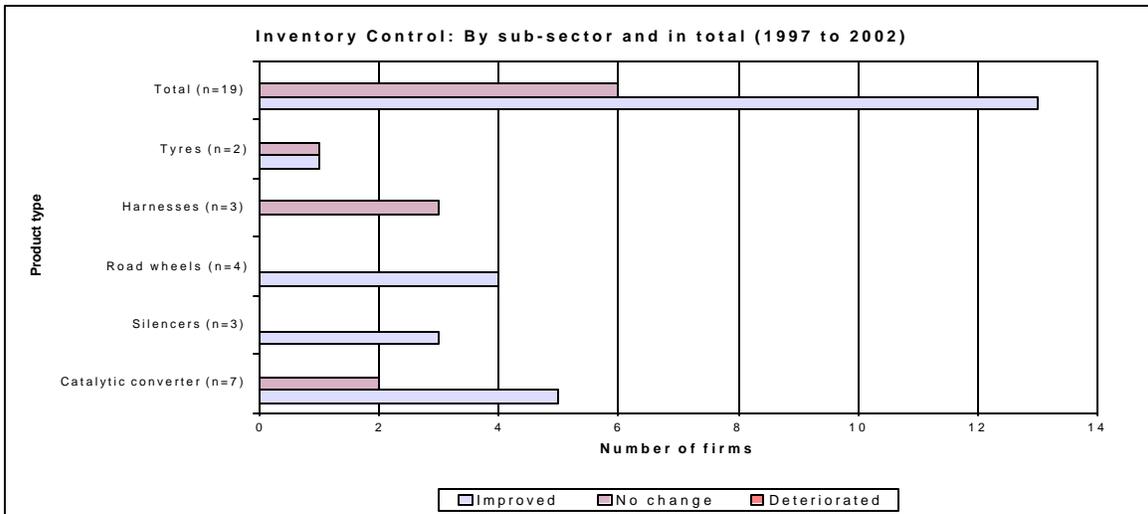
maintained extremely strong quality performance since their inception. Examples of improved quality performance include a catalytic converter manufacturer that has reduced its customer return rate from 140 parts per million (ppm) to 24 ppm over the period 2000 to 2001 and a road wheels manufacturer that improved its performance from 1,444 ppm in 1998 to 597 ppm in 2001.

Figure 32



Inventory control performance amongst the exporting firms, whilst still positive, is not as impressive as the quality performance findings. As revealed in Figure 33, a total of 13 firms indicated that their total inventory holding had improved with stock turns increasing, whilst six indicated that there had been no change in their overall performance. This was particularly true for the harness manufacturers who import the vast majority of their raw material inputs and argued that there was consequently only limited scope for improving their overall inventory performance. All four of the road wheels manufacturers, as well as the three exhaust component manufacturers indicated improved performance. Five of the seven catalytic converter manufacturers also indicated improved performance, although two indicated that they had experienced no recent changes. Encouragingly none of the firms indicated deterioration in their overall inventory holding performance.

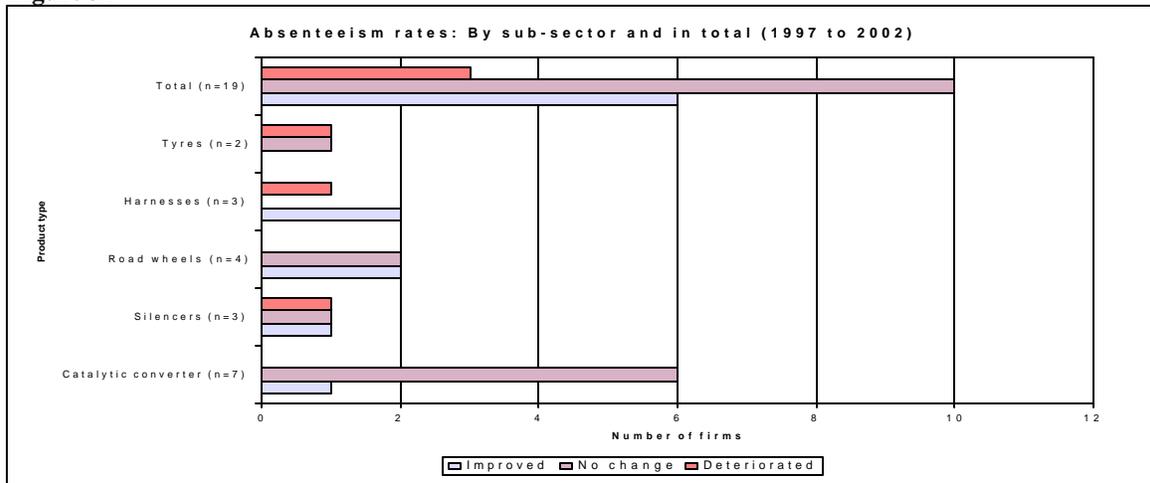
Figure 33



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The positive competitiveness trajectory outlined in Figure 32 and Figure 33 is unfortunately not replicated in Figure 34 for absenteeism rates. This key indicator of employee commitment to companies improved at only six of the 19 firms with the vast majority claiming that no discernable change had been experienced in the last five years. The standard response from firms was that absenteeism hovered within a band of 3% to 5% and that no clear performance trend was evident within the band. Three firms, moreover, indicated that their absenteeism rates had deteriorated with one firm indicating a sizeable deterioration - to over 7%. This is extremely high by South African standards, with benchmarking data revealing that the South African average is 4.32% (KwaZulu-Natal Benchmarking Club Newsletter, Vol. 5, No. 2).

Figure 34



The quantitative questionnaires completed by 8 of the 19 firms supported the positive qualitative findings that emerged. The average 2001 customer return rate, total inventory holding and absenteeism performance of the exporting firms was 358 ppm, 27.8 days and 4.8% respectively. With the exception of absenteeism levels, these average figures are significantly ahead of the averages for South African based automotive component manufacturers. These averages are derived from the members of KwaZulu-Natal, Eastern Cape and Gauteng Benchmarking Clubs. The average figures are 941 ppm for customer return rates, 49.5 days for total inventory holding and 4.3% for absenteeism respectively (KwaZulu-Natal Benchmarking Club Newsletters, Vol. 4, No.'s 11 and 12, Vol. 5, No. 2).

3.2.6. Supplier strengths and weaknesses

Given the fact that raw materials as a proportion of the firms' cost of sales in each of the sub-sectors exceeds 45%, reaching 95% at one of the catalytic converter manufacturers, it is disconcerting to note that domestic suppliers were highlighted as major competitiveness impediments. The only two exceptions to this are the stainless steel value chain emanating back from the catalytic converter and silencer/exhaust component manufacturers and the platinum group metal value chain, which is the bedrock of the catalytic converter industry. One catalytic converter manufacturer indicated that it had recently benchmarked its stainless steel prices with its German sister plant and had calculated that it was acquiring its stainless steel at a price 10% below its sister plant.

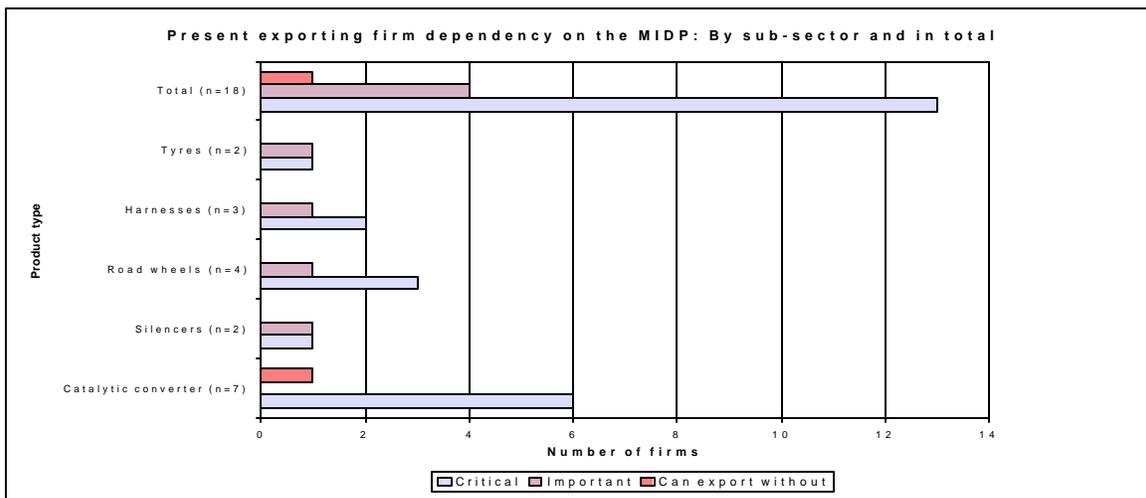
The road wheels sub-sector, on the other hand, appears to be the victim of negative pricing policies on the part of Alusaf (for aluminium) and Iscor (for steel). Both Alusaf and Iscor were accused of “MIDP pricing”. This is a rate that factors in the need to source raw material locally in order secure a high IRCC value on exports. At the minimum this is equal to the import parity price, but as highlighted by one firm respondent “...it is invariably even higher than this”. The supplier disadvantages associated with the harnesses sub-sector emanate from the fact that the bulk of raw materials are imported, thus requiring long lead times and payment in hard currency that mitigates against the benefits of the depreciating Rand.

3.2.7. Dependency on the MIDP for exporting

To further analyse the competitiveness of the exporting firms and to gauge whether their operational strengths outweighed weaknesses, firms were requested to indicate their dependency on the MIDP for their exporting success. Perhaps unsurprisingly given the macro data presented in Section 1 and in spite of the encouraging findings presented in Section 2, none of the exporting sub-sectors appear capable of maintaining their success without the MIDP. Firm respondents highlighted this time and time again. As revealed in Figure 35, only one of the 18 exporting firms indicated it was capable of continued exporting success without the MIDP, whilst four indicated that whilst the MIDP was important they could potentially still succeed. In total, then, 13 of the 18 firms indicated that the MIDP was central to their exporting success. The following four quotes illustrate the extent of this dependence:

- *Catalytic converter firm 1: “We only exist to secure duty rebates for [OEM name]”*
- *Catalytic converter firm 2: “Without it [the MIDP] we would relocate our entire plant in one week”*
- *Harnesses firm: “Our OEM customer would not allocate us business if the MIDP did not exist”*
- *Road wheels firm: “It is central to our survival”*

Figure 35



3.2.8. Summary

The firm-specific and value chain issues explored during the course of the firm-level fieldwork revealed a number of critical findings, many of which leave significant scope for government policy consideration (see Section 4). Perhaps the most striking finding pertains to the firms' lack of competitiveness in the final markets they supply. With a few isolated exceptions (Figure 35), the majority of firms do not appear capable of growing or even maintaining their export market presence without MIDP support. Whilst the firms claim to have sizeable cost of manufacture advantages, the distance to market factors add logistics/transport costs, as well as working capital costs that undermine competitiveness. Broader socio-economic issues also pose considerable challenges to the firms. A number of firms indicated that the MIDP was critical because of their parent company's lack of faith in the future of the South African economy.

These findings reveal, quite clearly, why the South African automotive industry has been successful on the one hand and unsuccessful on the other. Exports largely exist to fuel imports as per the import-export complementation model of the MIDP, hence the importance of the OEMs in linking the sub-sectors to their export markets. Whilst the firms exhibit operational strengths and are clearly improving their operational competitiveness improvements, these successes are largely underpinned by political factors linked to the governance of the industry by OEM multinationals.

Irrespective of this, it is also clear that the firms are learning from exporting and that their competitiveness levels are being driven forward. This comes through very strongly in the next part of this section, which considers evidence of value chain upgrading or downgrading within each sub-sector.

3.3. Evidence of value chain upgrading

As highlighted in the introduction to this report, it is possible to identify four trajectories firms can adopt in pursuing the objective of upgrading:

- **Process upgrading:** increasing the efficiency of internal processes so that these are significantly better than those of rivals, both within individual links in the chain, and between the links in the chain
- **Product upgrading:** introducing new products or improving old products faster than rivals. This involves changing new product development processes both within individual links in the value chain and in the relationship between different chain links
- **Functional upgrading:** increasing value added by changing the mix of activities conducted within the firm or moving the locus of activities to different links in the value chain
- **Chain upgrading:** moving to a new, more lucrative value chain

The key question then, of course, is what evidence is there of these trends amongst the exporting automotive component manufacturers?

3.3.1. Process upgrading or downgrading?

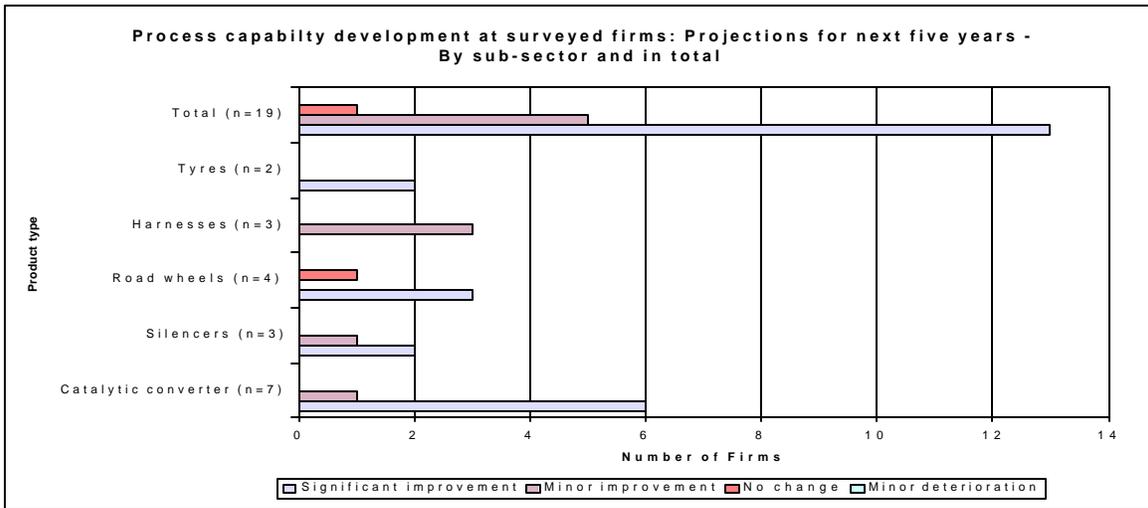
The evidence of process upgrading amongst the exporting firms is unequivocal. As highlighted in Figure 36, all 19 of the firms claim to have improved their performance in this regard, with 13 firms claiming significant and six minor improvements. Every firm moreover noted that they had improved their process capabilities over the course of the last five years as a pre-condition for their continued supply into the industry. The most notable upgrading activities relate to the deployment of processes to bolster quality, cost, delivery and speed (QCDS) performance. The principle reason for these changes emanate out of the exporting contracts that many of the firms have. Over the duration of the contract prices need to be driven down on an annualized basis. This means that processes need to be continuously improved simply to maintain gross margins. At the same time firms are facing ever more demanding quality performance requirements. Customer return rate targets are, for example, continuously ratcheted down. These findings are consistent with the quality, inventory control and absenteeism findings explored in 3.2.5.

Figure 36



Firm-level expectations pertaining to process upgrading over the next five years were similarly unambiguous. For the exporting firms to remain in their markets they will need to significantly enhance their QCDS capabilities. The types of process improvements expected are therefore largely in line with those experienced since 1997, i.e. more of the same: Better quality performance, enhanced inventory control, 100% delivery reliability and shorter lead times, etc. The surveyed firms' process upgrading expectations for the next five years are illustrated in Figure 37 and as revealed only one firm in the road wheels sub-sector anticipates no improvement in its process capabilities over the course of next five years. This firm is anticipating no new capital expenditure into its operations, hence its projection of no change relative to existing process capabilities. Unsurprisingly this is also a firm that believes it faces an uncertain future as a result of expected declining export orders.

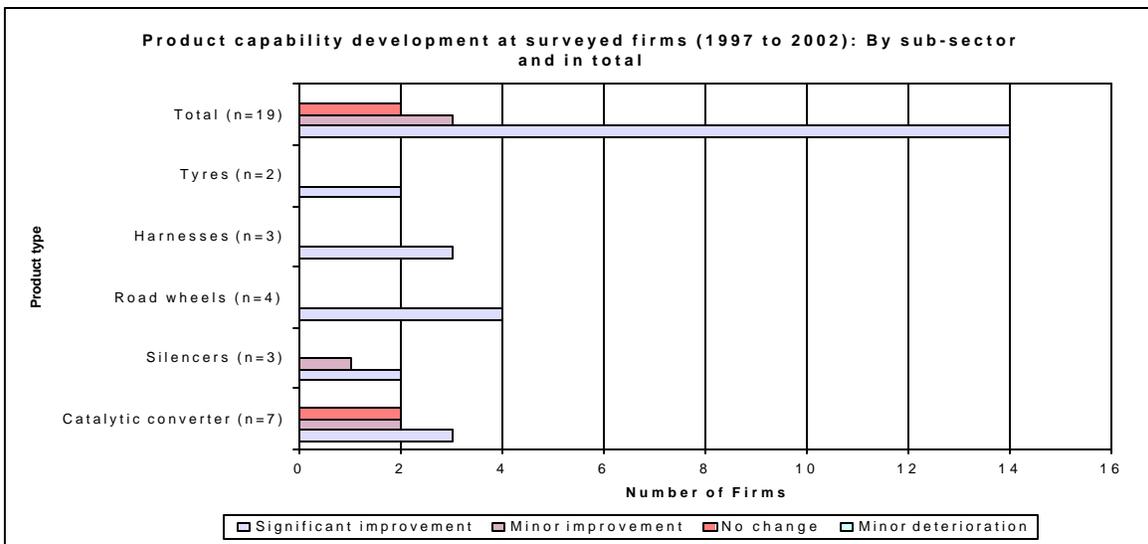
Figure 37



3.3.2. Product upgrading or downgrading?

As revealed in Figure 38, the product upgrading findings are similar to those for process upgrading. Almost all of the surveyed firms have experienced significant/minor product capability improvements over the course of the last five years. The only exceptions to this are two catalytic converter manufacturers that have experienced no major changes. This is because the two firms are Greenfield operations that have been producing the same technologically advanced products since their inception. It is, however, important to note that the product upgrading experienced by the firms is within the realm of tighter product specifications and not in terms of the manufacture of entirely new and more sophisticated products. Given the nature of the automotive industry, where MNCs largely control the design and development of products, the exporting firms have limited opportunities to contribute in this regard. Their challenge lies in their ability to manufacture products to tighter tolerances and conformance requirements, using more advanced materials, etc.

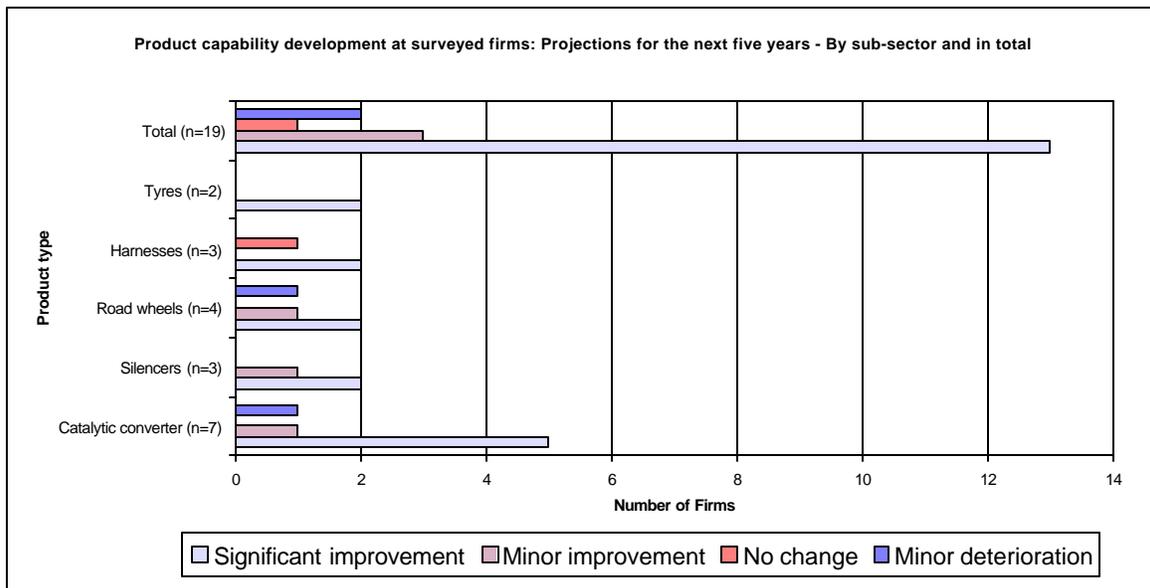
Figure 38



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As revealed in Figure 39 and as per the process upgrading findings, most of the surveyed firms anticipate further significant or minor product upgrading in their operations over the next five years. One harness manufacturer, however, expects no changes to the technological sophistication of the products it manufactures, whilst one catalytic converter and one road wheels manufacturer expect product downgrading to occur in their operations. In both cases the firms view their product upgrading potential to be undermined by their ownership. In the catalytic converter case, its licensing technology link to an MNC operator rather than a full equity relationship is viewed as the major problem, while the road wheels manufacturer anticipates no new capital being injected into its operation until it undergoes a change of ownership.

Figure 39



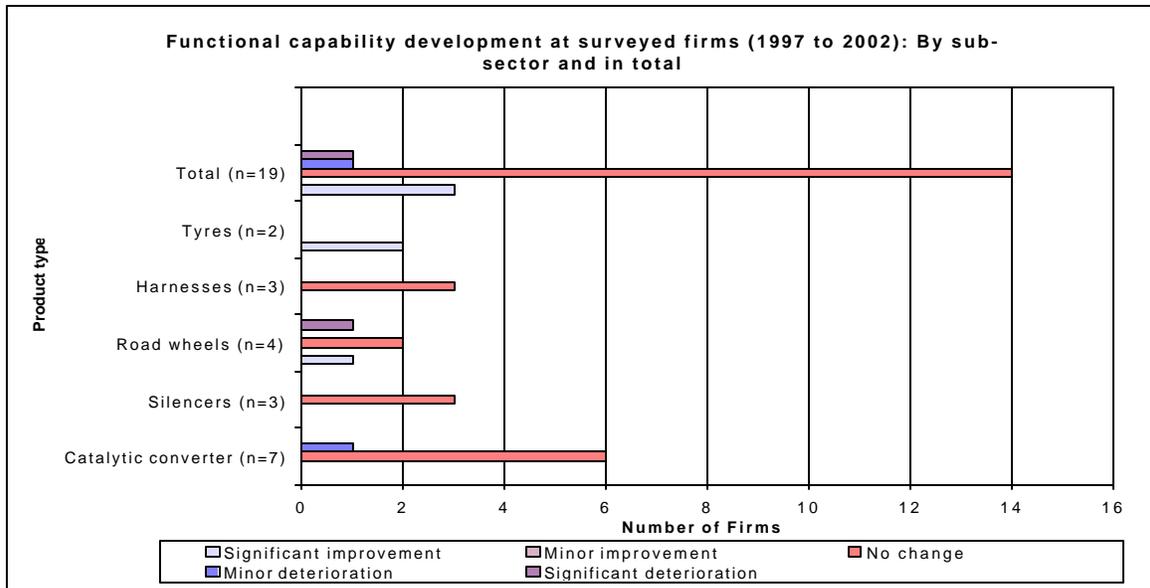
3.3.3. Functional upgrading or downgrading?

The overwhelming majority of surveyed firms operate as sub-contract manufacturing units to their MNC parent companies. Their functional responsibilities are therefore limited to manufacturing operations only. As such limited functional upgrading (i.e. the incorporation of additional high value-added functions) or downgrading (loss of high value adding functions) appears to have occurred since 1997. This is reflected in Figure 40, which reveals that 14 of the 19 firms have experienced no changes in their functional position since 1997.

The five exceptions to this fall on both sides of the functional upgrading/downgrading divide with three having experienced improvements to their functional position and the other two deteriorations. The minor downgrading example is from a catalytic converter manufacturer that previously had some product design and product development functions in its operation. These have since been closed with the firm now solely reliant on its parent company for these functions. The major downgrading example is from the road wheels sub-sector. The firm in question has not only experienced diminishing product development capabilities but has also lost a significant portion of its ability to market products independently of existing OEM mediated contracts.

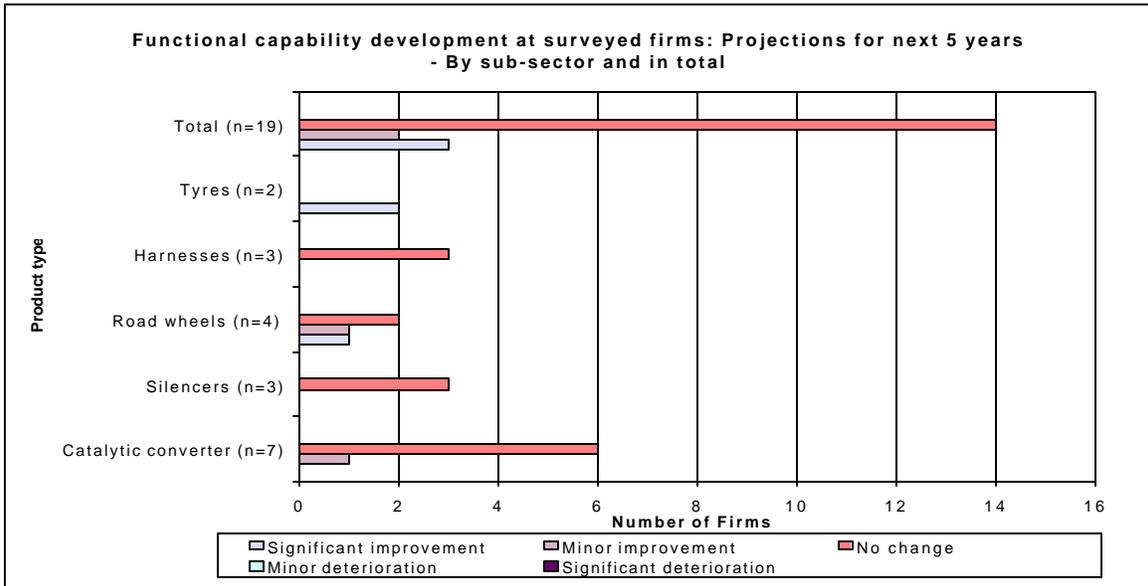
The three functional upgrading examples are significant and emanate from the road wheels and tyre sub-sectors. The road wheels manufacturer is the same firm discussed in 3.2.2. This firm has significantly expanded its design capabilities globally as a result of its purchase of a competitor in Western Europe and as a consequence now has the ability to follow a global branding strategy to expand business opportunities. The functional ambit of the firm has consequently been significantly expanded with additional higher value added activities being incorporated into its operations. One of the South African tyre manufacturers surveyed has followed a similar strategy of expanding its design capabilities, whilst one tyre firm's functional upgrading is linked to its recently established Internet selling capabilities. This represents a significant shift in the company's marketing capabilities.

Figure 40



With five positive exceptions, the surveyed firms were of the opinion that no functional movements would occur in their operations over the next five years. None of the 19 firms were therefore of the opinion that functional downgrading would occur. This is reflected in the findings presented in Figure 41. The five exceptions include the three examples discussed above, as well as a catalytic converter manufacturer that expects to upgrade and expand its selling function in future and a road wheels manufacturer that expects the same.

Figure 41



3.3.4. Value chain movements

A staggering 18 of the 19 surveyed firms had experienced no value chain movements over the course of the last five years, whilst none of the firms expected any movement for the next five years. The single exception is a silencer/exhaust components manufacturer that moved out of the value chain supplying metal formed components to OEMs and into the catalytic converter value chain where customers offered more significant volumes. This enabled the firm to invest in new technologies and thus upgrade its process capabilities.

3.3.5. The automotive industry as a producer driven value chain

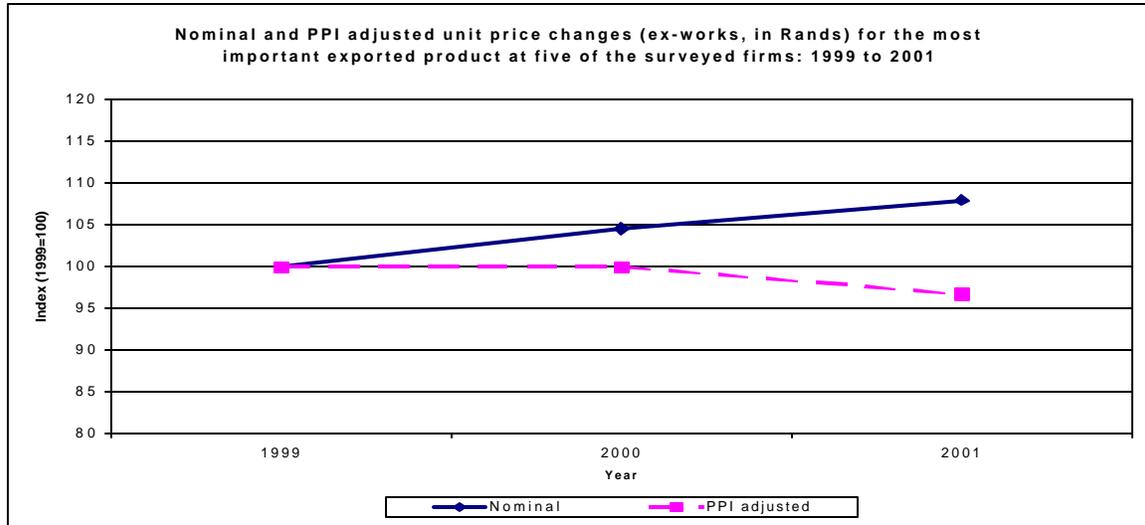
The firm level interviews that were undertaken revealed one unequivocal truth and that is that upgrading and downgrading possibilities are largely governed by the OEMs. This stems from the fact that the automotive industry is what Gereffi and Korzeniewicz (1994) refer to as a producer driven value chain. This means that the lead manufacturers in the sector largely prescribe the opportunities for South African based firms. It is therefore perhaps unsurprising to note the process and product upgrading that is occurring amongst the exporting firms.

The technology advancements that have occurred in the global automotive industry over the last few years have been very significant and this, in conjunction with the control of the industry by a few major OEMs, forces firms to conform to rapidly advancing product and process performance requirements. The global standard in the automotive industry is, for example, cost down three to

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five year supply contracts. For these contracts firms start at say R100 per unit supplied and yet by year five have to supply the product at R90. The South African based firms have to conform to this and as such are forced to improve their processes over the five year period in order to maintain margins. The pressures the firms are under in this regard is reflected in Figure 42, which captures the unit price movements (in Rands) at the five surveyed firms that completed this section of the quantitative questionnaire. As highlighted, unit prices for the firms' most important exported products fell, in real terms, by 3.7% over the period 1999 to 2001.

Figure 42¹⁵

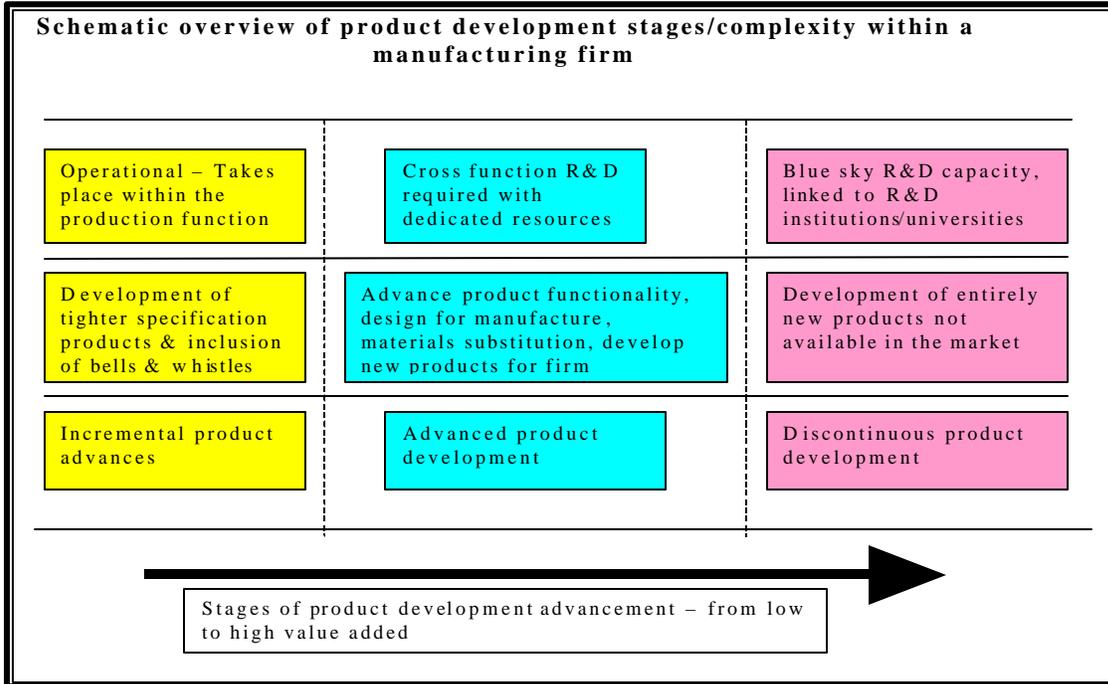


Process improvements have not, however, only been driven by cost factors. Firms, for example, made frequent mention of the quality, delivery reliability and lead time pressures they were under, with the goal posts for these requirements shifting each year. These goal post shifts are clearly also driving the product upgrading trajectory evident, although this upgrading is restricted to incremental/operational type changes and not the higher value adding product upgrading elements associated with more advanced product development or even new product development.

The limited product upgrading band within which the surveyed firms operate is highlighted conceptually in Figure 43 below. In the conceptual model product upgrading can be disaggregated into three types: Incremental, advanced and discontinuous. Incremental upgrading relates to the ability to manufacture more technically demanding products, as well as the addition of “bells and whistles” to existing products, whilst advanced product development includes the development of functionally advanced products, design for manufacture, materials substitution and the development of entirely new products for the firm. The final category represents the development of entirely new products for the industry, i.e. “blue sky developments”. The only exceptions to the conceptual model can be found in the road wheels and tyre sub-sectors, where three firms in particular have product development potential throughout the incremental, advanced and discontinuous spectrum.

¹⁵ Please note that the Production Price Index deflator used is from series KBP7044J of the South African Reserve Bank. This is seasonally adjusted and is for the manufacturing of machinery and transport equipment.

Figure 43



Whilst the firms are manufacturing ever more technologically sophisticated products and according to ever more demanding conformance specifications, the lack of blue sky product development capability amongst the surveyed firms needs to be viewed with some concern from a value chain upgrading perspective. The South African based manufacturers are generally manufacturing sub-contractors to their parent companies. Functional competence is therefore largely restricted to the conversion of materials into final product, thus limiting the potential for upgrading outside of a strict manufacturing context. The only redeeming factor to take cognisance of in this regard is that as the automotive products the firms manufacture become more advanced and technical requirements more difficult to attain, the barriers to entry for manufacturing will increase, thus giving the firms a comparative advantage. The upgrading in evidence amongst the surveyed firms whilst generally limited in scope as a result of the producer driven nature of automotive value chains, is definitely not limited in terms of depth. Evidence from the exporting firms suggests that they are on a strong upgrading path.

4. POLICY CONSIDERATIONS

The findings presented in the first three sections of this report have covered a wide ambit. As highlighted in Section 1, the South African automotive components industry has performed impressively relative to the manufacturing average through the 1990s, but particularly since 1998. Significant improvements in exporting levels, value added output, as well as Labour productivity bear testimony to this positive change. The only two negative macro findings that emerge relate to the sector's weakening import position and its flat capital productivity trajectory.

The findings presented in Section 2 generally reinforce these positive findings in relation to the major exporting sub-sectors researched. Each of the sub-sectors has significantly grown its exporting base, with the catalytic converter industry, in particular, growing at a prodigious rate. The findings generated do, however, reveal a number of additional issues worthy of consideration. The first relates to the sub-sectors' continued marginal position in their principal export market, the European Union. The only exception to this is the South African catalytic converter industry, which ranks as the most important source destination for extra-EU catalytic converters. Second, exporting growth is occurring in sub-sectors where manufacturing displacement is occurring from the EU, i.e. where significant growth in extra-EU imports is occurring. Whilst South Africa is rapidly growing its exports into the EU for these products so are the Eastern European countries. In almost every case South Africa's recent exporting growth has failed to match the trajectory of the main exporting East European countries.

The firm-level research findings presented in Section 3 confirm the reasons for the South African firms' mixed exporting performance, whilst also exploring their upgrading trajectory. Whilst the findings reveal that the automotive component exporters have significantly enhanced their operational competitiveness over the course of the last five years from both a process and product point of view, a number of concerns relating to the sustainability of exporting emerge. The general consensus amongst exporting firms is that they are only able to survive in their export markets because of the export/import rebate mechanism of the MIDP. The firms argue that they are largely competitive at an ex-works level with manufacturing costs cited as a major advantage, but that logistics costs and supplier performance are a major problem.

On the basis of the findings presented, four key policy considerations emerge: Understanding the role of the MIDP, the lack of competitiveness at the exporting firms, the role of political economy factors in forging buyer/seller matches and finally support for upgrading opportunities.

4.1. Understanding the role of the MIDP

The macro data generated reveals that the growth of the industry is largely being driven by exports. However, these exports have a sting in their tail. Whilst the exports are reflective of significant progress in their own right, they are leading to massively increased imports as a result of the duty rebate mechanisms of the MIDP. Whilst the MIDP is set to continue through until

2007, and is clearly doing more right than wrong (as verified through the macro economic data) it is essential that more consideration be given to the industry's present import/export balance.

Furthermore, the overwhelming majority of exporting firms indicated an unhealthy dependence on the MIDP. Until this changes, it is unlikely that imports into the South African automotive industry will be arrested as increased levels of exporting occurs solely for the purposes of importing. Whilst the existing phase down of the MIDP's export incentive through to 2007 should help in this regard, it is also essential that the exporting firms attain genuine export competitiveness to overcome the reducing export benefits received (hence the importance of 4.2 below). If this does not occur and if the firms remain as dependent on the MIDP as they presently claim to be then there will be increasingly limited export opportunities for firms in the next few years.

4.2. Enhancing the competitiveness of the exporting firms

Whilst the majority of the exporting firms indicated significantly improved process and product capabilities since 1997 there are still major impediments to their competitiveness, hence their dependence on the MIDP. It is therefore critical that government support be more focused on overcoming the identified weaknesses. These are apparent at three levels. The first relates to input weaknesses at the firms. It was frequently argued that domestic raw material beneficiaries such as ALUSAF and ISCOR are guilty of "MIDP pricing" (import parity pricing or higher as a result of raw material qualifying as local content and hence needing to be sourced in South Africa). Where this is occurring - mainly in the road wheels sub-sector - the firms claim it is having a detrimental impact on their price competitiveness. This stands in stark contrast to the view held of Columbus Stainless by the catalytic converter and silence/exhaust component manufacturers. Its pricing policy was generally highlighted as a competitive advantage.

The second relates to operational weaknesses, with labour efficiencies noted as being especially weak in a number of instances. Given the extent of the weaknesses highlighted it is essential that the industry's competitiveness be benchmarked on an ongoing basis to identify both competitiveness shortfalls and areas of comparative strength. The reason why this is so important relates to the fact that the industry is locked into a producer driven global value chain and therefore needs to stay abreast of the moving frontier of international competition. This is generally not an industry where firms can move into lower value adding sub-sectors with less stringent conformance requirements. If firms perform poorly relative to value chain requirements they are generally removed from the value chain altogether. It is therefore essential that product and process upgrading continues in the industry - not simply to gain competitive advantage but simply to ensure that firms maintain their position within the value chain.

The third and final area relates to value chain weaknesses at the output end of the individual firms. Logistics costs (including harbour inefficiencies and excessive wharfage rates) were highlighted as a major competitive impediment resulting in significant ex-works price advantages at firms translating into uncompetitive landed prices in foreign markets. It is therefore critical that the DTI support programmes such as the Motor Industry Cluster and the Durban Automotive

Cluster initiatives that are attempting to deal with these issues through the facilitation of firm-level logistics collaboration.

4.3. Bilateral consultations

For the major exporting sub-sectors, political economy issues are clearly more important than the usual market forces associated with the willing seller willing buyer scenario. The DTI consequently needs to recognise that the usual buyer/seller matching process is ineffective for the bulk of automotive component exports and that the major exporting sub-sectors need to be supported in entirely new ways. The DTI needs to enter into bilateral consultations with both the exporting automotive component manufacturers and the OEMs with this taking a number of potential forms.

For the automotive component manufacturers the DTI could prevail on the firms in each sub-sector to come together to brainstorm government interventions to bolster their competitiveness position versus sister plants globally, as well as opportunities to encourage further investment. As highlighted in Sections 1 and 3, if the automotive components industry is to maintain its impressive exporting trajectory further capacity will need to be created and yet the indicators suggest limited capital expenditure occurring in the industry, as well as amongst the exporting firms. A similar process of bilateral consultation is required for the OEMs who are usually the custodians of the exporting contracts. Whilst this is occurring through the DTI's strategic investment working group, perhaps less attention should be given to attracting entirely new investments in the industry and more attention should be focused on encouraging existing firms to expand and/or further develop their operational capabilities.

4.4. Supporting upgrading opportunities

Finally, from a value chain perspective it is important to support upgrading opportunities where they exist. As highlighted under the banner of operational competitiveness it is essential that the DTI further support programmes that lead to product and process upgrading as this is simply the starting point for continued firm-level survival in this ever more demanding sector. However, it is also critical that where other forms of potential value chain upgrading exist (e.g. functional upgrading) that these opportunities be grasped. The DTI could have a major role to play in this regard with the most notable opportunities existing in the alloy wheels and tyre sub-sectors. Certain of these firms appear capable of expanding their brand presence and their design capabilities and as such generating higher rents and hence having a stronger multiplier in the South African economy. It is important then that the DTI support such opportunities. The most appropriate steps in this regard pertain to bilateral consultations with the individual sub-sectors (as per 4.3) leading to the development of institutional support systems that provide further impetus for knowledge intensive activities within the South African environment.

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Developing systems that effectively grapple with these four areas of policy consideration would go a long way towards establishing an industry export platform that is de-linked from the exigencies of the MIDP and associated political economy factors. This is obviously critical as the automotive industry is clearly on an improvement trajectory and is already a major contributor to the well-being of the South African economy. The key question of course, is the sustainability of the process beyond the finite life span of the MIDP given the present value chain issues impacting on sub-sectoral performance.

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APPENDIX A

**Department of Trade and Industry
Exporting value chains study: 2002**

Company: _____

Date: _____

Name of Respondent: _____

Position in Company: _____

Please note that this questionnaire comprises six sections. Each section deals with a particular facet of your company's operations, particularly as this pertains to your engagement with international value chains. The six sections consequently explore:

1. Your profile and economic performance
2. Your downstream value chain linkages (i.e. with customers)
3. Your operational performance
4. Your upstream value chain linkages (i.e. with suppliers)
5. Your product development capacity
6. Your electronic commerce capabilities

Instructions for completion:

- For those particular questions you cannot answer in the questionnaire, please indicate DNM (Do Not Measure) as an answer.
- Most questions allow for historical data. Where this data is available it would be extremely valuable to us. However, where it is not available we would prefer current data rather than no data at all.

All data will be treated with absolute confidentiality by the researchers and will not be handed to any third party. Reports that are written based on the data will be circulated to participating firms in June. Your participation is greatly appreciated. Please return questionnaires to Dr. Justin Barnes, School of Development Studies, University of Natal, Durban 4041. Phone 082-7875608, (031) 2601361 or Fax 031 2602359.

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SECTION 1: PROFILE & ECONOMIC PERFORMANCE

1. Please indicate the average number of employees (including contractees on payroll) at your firm from 1997 to 2001, as well as total firm sales for the same period. *Please index your sales to 1999 if you are unwilling to provide actual figures.*

Year ending	No. of employees	Sales (Rands)	Sales Index (1999 = 100)
2001			
2000			
1999			100
1998			
1997			

2. Please indicate your profit trends for the period 1997 to 2001 (in real terms, relative to profit performance in the preceding year). *Please "x" the relevant column.*

Year ending	Increased	Unchanged	Decreased
2001			
2000			
1999			
1998			
1997			

3. Please provide a breakdown of the following as a percentage of your cost of sales:

	2001	2000	1999	1998	1997
Materials					
Direct labour (wages)					
Indirect labour (salaried)					
Inbound & outbound logistics					
Capital costs					
Royalty payments					
Total	100%	100%	100%	100%	100%

4. As a % of sales, how much did your firm invest in **new capital equipment** 1997-2001? *Please provide the total % & a breakdown in terms of machinery, IT software/hardware & buildings/fixtures.*

Year ending	Total	Machinery	IT software/hardware	Buildings/ fixtures
2001				
2000				
1999				
1998				
1997				

SECTION 2: DOWNSTREAM VALUE CHAIN LINKAGES

5. How many customers do you have in total, and where are they located?

Year Ending	Total	National (% in SA)	International (% outside SA)
2001			
2000			
1999			
1998			
1997			

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6. What are the 5 major products manufactured by your firm & towards which types of markets are they directed? *Please indicate the product & "x" the relevant column(s).*

Product	Domestic Manufacturer	Domestic wholesale/retail	Foreign manufacturer	Foreign wholesale/retail
a.				
b.				
c.				
d.				
e.				

7. If different from above, what are the 5 major exported products produced by your firm & towards which types of markets are they directed? *Please indicate the product & "x" the relevant column(s).*

Product	Domestic Manufacturer	Domestic wholesaler/ retailer	Foreign manufacturer	Foreign wholesaler/ retailer
a.				
b.				
c.				
d.				
e.				

8. Using 1999 as your base year, please indicate the indexed change in your *unit price* for each of your 5 most important exported products over the period 1997-2001. For example, if the 1999 unit price was 100 & the price decreased by 5% through 2000, then the 2000 index would be 95, etc.

Product	2001	2000	1999	1998	1997
a.			100		
b.			100		
c.			100		
d.			100		
e.			100		

9. What % of your sales are exported & how has this changed over the period 1997 to 2001?

Year Ending	Exports % of sales	Year Ending	Exports % of sales
2001		1998	
2000		1997	
1999			

10. Please indicate your two most important regional export markets (e.g. North America, Western Europe, etc.), & their contribution (%) to your total export sales:

Year Ending	Most important export market	% of Export sales	2 nd Most important export market	% of Export sales
2001				
2000				
1999				
1998				
1997				

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11. How important has exporting been for your firm over the last **24 months** for *each* the following issues? (1=*not important*, 5=*moderately important*, 10=*critically important*).

	1	2	3	4	5	6	7	8	9	10
Improved economies of scale										
Increased profitability										
Increased productivity										
Improved price competitiveness										
Increased technology competence										
Improved manufacturing processes										
Improved product quality										
Increased product development capacity										
Enhanced labour skills										
Enhanced management skills										
Enhanced e-commerce capabilities										

SECTION 3: OPERATIONAL PERFORMANCE

12. How many **different products** do you manufacture (i.e. how many active product numbers do you have), and what is your **total production** volume for your entire range of products since 1996?

Year Ending	No. of products manufactured	Total production volume
2001		
2000		
1999		
1998		
1997		

13. What quality accreditations does your company have, when did you receive them, and what was the key reason for their acquisition?

Accreditation (e.g. ISO 9001/2)	Year received	Reason for obtaining accreditation
a.		
b.		
c.		
d.		

14. Please provide your 1997 to 2001 year-end performance figures for the following operational performance indices:

Performance measure	2001	2000	1999	1998	1997
Days of Inventory: Raw Material ⁱ					
Days of Inventory: Work-In-Progress					
Days of Inventory: Finished Goods					
Customer reject rate (indicate whether % or ppm) ⁱⁱ					
Absenteeism rate (%) ⁱⁱⁱ					

15. Please provide your **average lead time** performance (i.e. your response time from a customer placing an order to your delivery of the product) for your three **most important exported products (in days)**:

Year ending	Product 1:	Product 2:	Product 3:
2001	<i>days</i>	<i>days</i>	<i>days</i>
2000	<i>days</i>	<i>days</i>	<i>days</i>
1999	<i>days</i>	<i>days</i>	<i>days</i>
1998	<i>days</i>	<i>days</i>	<i>days</i>
1997	<i>days</i>	<i>days</i>	<i>days</i>

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16. Please state the total amount that training investment represented as a % of your company's **total remuneration bill** (wages + salary) & company **turnover** for the period 1997 to 2001:

Year	Training expenditure as a % of total remuneration	Training expenditure as a % of turnover
2001		
2000		
1999		
1998		
1997		

SECTION 4: UPSTREAM VALUE CHAIN LINKAGES

17. How many raw material and component suppliers do you have (i.e. suppliers to your production line only), and where are they located?

Year Ending	Total	National (% in SA)	International (% outside SA)
2001			
2000			
1999			
1998			
1997			

18. What proportion of your total raw material/component purchasing (by value) is imported & how has this changed over the period 1997 to 2001?

Year Ending	Imports as % of purchases	Year Ending	Imports as % of purchases
2001		1998	
2000		1997	
1999			

SECTION 5: PRODUCT DEVELOPMENT CAPACITY

19. Do you have a budget for new product research and development?

Yes	No
-----	----

20. If yes, please indicate your budget, expressed as a % of sales: _____%

21. What proportion of your total sales (in terms of value) comes from new products introduced in the past one, two and five years respectively?

Proportion of sales from products introduced in:	%
2001 only	
2000 and 2001	
1997 to 2001	

22. On a scale of 1 to 10 (where 1 = not important, 5 = moderately important & 10 = critically important), what are the primary reasons for your introduction of new products? Please "x" the relevant column.

	1	2	3	4	5	6	7	8	9	10
Copied competitor product										
Own Research & Development										
Demand from local customer										
Demand from international customer										
Relationship with Multinational parent company										
Relationship with licensor										

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SECTION 6: ELECTRONIC COMMERCE CAPABILITIES

23. Which of the following IT is your company currently using? (Please circle appropriate number)

IT	Yes	Planned	No
1. E-mail with: a. SA firms only	1	2	3
b. International firms only	1	2	3
c. Both	1	2	3
2. Website: a. A basic, static website	1	2	3
b. An interactive website	1	2	3
c. A trading website	1	2	3
3. EDI: a. SA firms only	1	2	3
b. International firms only	1	2	3
c. Both	1	2	3
4. Intranet (for internal communications and knowledge management)	1	2	3
5. Extranet: a. SA firms only	1	2	3
b. International firms only	1	2	3
c. Both	1	2	3
6. Web-based B2B trading exchanges/hubs/e-marketplaces	1	2	3
7. Enterprise Resource Planning (ERP)	1	2	3
8. Other (Please specify):	1	2	3

24. If your firm has registered with Web-based trading sites/e-marketplaces, answer the following:

- a. Please list the B2B trading hub(s) that your firm is currently using: _____
- b. How would you classify the trading sites (e.g., online auction, request for quotes, trade leads, online showrooms, e-Retailers, etc.)? _____
- c. Has your firm ever posted a product(s) for sale at this site? [Y] [N]
- d. Has your firm ever completed a sale by using this site? [Y] [N]
- e. Has your firm ever attempted to buy any products at this site? [Y] [N]
- f. If yes to e, was the transaction completed successfully? [Y] [N]

25. Firm-level electronic commerce capabilities (Please circle appropriate number):

	Yes	Planned	No
1. Have you allocated specific resources for e-commerce activities:			
a. Financial?	1	2	3
b. Personnel?	1	2	3
2. Do you take orders online?	1	2	3
3. Do you accept electronic payment for orders?	1	2	3
4. Do you use the internet/EDI to buy:			
a. Production-related materials?	1	2	3
b. Maintenance, repair and operating (MRO) supplies?	1	2	3

26. What % of your acquisitions (by value) are supported through the use of B2B e-commerce? ____%

27. What % of your sales are supported through the use of B2B e-commerce? ____%

28. Please rate the importance of each e-commerce driver for your firm on a scale of 1 to 10 (1 = not important, 5 = moderately important & 10 = critically important)

	1	2	3	4	5	6	7	8	9	10
Parent company										
Domestic suppliers										
International suppliers										
Domestic customers										
International customers										
Flexible production										
Cost reduction										
International competitiveness										

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i Total inventory holding:

$$\frac{\text{Turnover for current year}}{\text{Value of raw material holding at year end}} = \text{Raw material stock turns per year}$$

$$\frac{\text{Operating days per annum}}{\text{Raw material stock turns per annum}} = \text{Raw Material Inventory Days}$$

For WIP and Finished Goods replace “Value of raw material holding” with value of WIP and Finished Goods respectively. The sum of these three inventory types will equal the value of total inventory holding.

ii Customer return rate:

$$\frac{\text{No. of units returned by customer}}{\text{No. of units sold during current year}} \times 10^6 = \text{Customer Return rate ppm}$$

OR If an extremely wide range of products is manufactured and unit values vary so much that individual returns skew unit customer returns enormously then the following may be used:

$$\frac{\text{Value of units returned by customer}}{\text{Value of units sold during current year}} \times 10^6 = \text{Customer Return rate ppm}$$

iii Absenteeism rate:

$$\frac{\left(\begin{array}{l} \text{No. of man days lost due to} \\ \text{employees not being at work} \end{array} \right)}{\left(\begin{array}{l} \text{Total no. of man days available} \\ \text{to company during current year} \end{array} \right)} \times 100 = \text{Absenteeism rate (\%)}$$

Only holiday leave should be EXCLUDED from this figure – absenteeism therefore includes compassionate and sick leave.