Competing in the Global Economy: The Competitiveness of the South African Automotive Components Industry

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Forward

The KwaZulu-Natal Industrial Restructuring Project (KZN IRP) was initiated at the beginning of 1996, and is aimed at supporting industrial policy both in KwaZulu-Natal and more broadly. It is facilitated by international experts and is based at the Centre for Social and Development Studies, University of Natal Durban. The project has two important features: 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, and 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 has arisen out of both new research and the cumulative knowledge that has been generated from previous studies. These cover a number of KZN 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 sector, textiles into autos, footwear, middle-management capacity, human resource development, institutional support for industrial restructuring, and business services for manufacturing competitiveness. Enquiries regarding KZN 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: smithm@mtb.und.ac.za.

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Acknowledgements

The IDRC of Canada have funded the KwaZulu-Natal Industrial Restructuring Project (KZN IRP), which is based at the Centre for Social and Development Studies at the University of Natal Durban, for the last two years. This research report would not exist without the generosity of their funding. The research report, however, also owes its existence to the funding received from the Institute of Development Studies (IDS) at the University of Sussex in the United Kingdom.

The link between the KZN IRP and the IDS has been integral to the undertaking of this study in more than simply a financial sense, with the academic and moral support of Professors Mike Morris (KZN IRP) and Raphael Kaplinsky (IDS) contributing both to its development and completion. The time spent with Professor John Humphrey at the IDS was also extremely beneficial, and his support is also duly acknowledged.

Whilst the support of these internationally acclaimed academics has been instrumental to the success of this study; the views expressed in the report are entirely those of the author.

Contents

Preface

The principle purpose in this report is to present a detailed outline of the competitiveness of the South African automotive components industry. By focusing on value-chain and firm-specific competitiveness issues, the ***competitivity*** of the domestic automotive components industry relative to the global automotive industry of which it is now increasingly part is explored. The economic and internal performance trajectory of the industry is consequently investigated, with particular reference being made to the pre-1995 and post-1995 periods. The launch of the Motor Industry Development Programme (MIDP) in September 1995 represented a fundamental change in the competitive dynamics underlying the domestic industry, thus making it important to treat the pre and post-1995 periods as distinct points of analysis.

Significantly, very little reference is made in the report to the critical issue of ***connectivity.*** This relates to the relationship between domestic automotive component firms, South African Original Equipment Manufacturers (OEMs) and their international parent companies, as well as multi-national automotive component firms and issues of lead sourcing, supply chain tiering, modularisation, etc. The implications of these critical issues are covered in a forthcoming report.

The report represents one of the concluding points of a comprehensive study into the automotive components industry in South Africa. As an integral part of the research process, qualitative interviews were carried out at numerous automotive component firms in the Eastern Cape and Gauteng. In addition, a total of 35 firms from these two provinces, as well as KwaZulu-Natal[1] returned a detailed 15-page questionnaire, with this questionnaire forming the backbone of the quantitative findings presented in the report. Six of the seven domestic Interviews were also conducted at six of the seven OEMs, with all six of these OEMs completing a short questionnaire, which outlined their views of South African automotive component firms.

The study, of which this report is integrally part, was a joint project between the Institute of Development Studies, University of Sussex, United Kingdom (via Professors John Humphrey and Raphael Kaplinsky) and the KwaZulu-Natal Industrial Restructuring Project, based at the Centre for Social and Development Studies, University of Natal Durban (via Professor Mike Morris and Mr Justin Barnes). This report, whilst unavoidably academic in structure, has been written for an industrial audience. Whilst more detailed academic articles will emerge from the study it was deemed important that the considerable and hopefully useful information generated be disbursed to the industry's stakeholders in a readily accessible form.

[1] Interviews were not necessary in KwaZulu-Natal given the close relationship that the KwaZulu-Natal Industrial Restructuring Project has with the provincial automotive components industry.

Introduction

The South African automotive components industry is presently under enormous pressure. In line with the objectives of the MIDP, the industry is rapidly being exposed to international competition via a tariff phase-down schedule. Whilst nominal protection levels on the industry presently stand at 40%, real protection levels are significantly lower – with certain estimates putting it at only 3%. Many firms are as a consequence battling for survival, with 16 NAACAM members having ceased their operations over the last 18 months.

Achieving international competitiveness is no longer, then, simply desirable for South African automotive component firms, it is integral to their chances of surviving the liberalisation of the domestic automotive industry. As highlighted by Brown (1996: 3):

> *"The reasons why a particular firm is successful may be difficult to assess; underpinning the success of manufacturing firms, however, will be world-class production/operations capability."*

Importantly, this does not mean that achieving international competitiveness through the bolstering of internal performance capabilities will automatically lead to success; the automotive industry globally is much too complex for that. Issues pertaining to connectivity, i.e. the connection of a domestic firm to an international firm, be it for technological, marketing or design reasons, is another important factor that needs to be given detailed consideration when assessing the future of the automotive components industry in South Africa. What it does mean, however, is that a failure on the part of domestic component firms to achieve world-class performance in terms of their production/operations systems will almost certainly undermine their ability to survive the onslaught of global competition.

This is the central issue dealt with in this report. How does the South African automotive components industry perform in terms of its internal competitiveness? Is the industry moving in the right direction and where have improvements been made over the last four years? And finally are these improvements adequate in relation to continuously improving global standards?

As will be highlighted in the report, the industry is making significant strides in its attempt at becoming internationally competitive. In terms of the majority of performance indicators generated, the industry has, on average, made significant improvements over the last four years. There is, however, large variance between firms, with some firms doing considerably better than others. The findings pertaining to the competitiveness of the sampled firms included in the study are highlighted in **Section Four**, the central focus of the report. In order to situate the findings presented in **Section Four** brief consideration is given in **Section One** to the research methodology used for

the undertaking of the study. In **Section Two** a detailed profile of the firms included in the study is presented. This is an important section as it highlights both the representative and diverse nature of the sample of firms in relation to the national industry. In **Section Three** the importance of the issues presented in **Section Four** is situated by outlining the economic performance trajectory of the sampled firms for the period 1993 to 1997.

Section One: Research Methodology

Research into the automotive industry has formed a central component of the KwaZulu-Natal Industrial Restructuring Project's (KZN IRP) activities over the last three years. A number of detailed studies have been conducted into the automotive industry in KwaZulu-Natal over this period, with the research findings being presented to numerous industry forums. These have included the Motor Industry Development Council, NAACAM, Toyota SA's supplier council, various chambers of commerce, the Department of Trade and Industry, NUMSA and the KwaZulu-Natal Regional Economic Forum. On the basis of the research conducted, the Institute of Development Studies (IDS) at the University of Sussex in the United Kingdom approached the KZN IRP and requested that a joint research programme into the South African automotive components industry be established between the IDS and the KZN IRP. The central thrust of the research programme was a comparative study of the Brazilian, Indian and South African automotive components industries, with the KZN IRP responsible for the South African leg of the research.

The South African leg of the research kicked off in September 1997 with Justin Barnes of the KZN IRP visiting the IDS to discuss various issues pertaining to the study. Background research into the history and structure of the South African automotive industry was carried out from October 1997 to January 1998, after which the primary research phase of the study was initiated. After obtaining both NAACAM and NAAMSA's endorsement of the study, a number of automotive component firms were chosen for inclusion in the study in the Eastern Cape and Gauteng, using a stratified sampling procedure. Thirty firms were selected for participation, using NACAAM's most recent directory. The intention was to obtain a mix of both small and large firms in the sample. It was indicated to us, however, that four of the thirty firms chosen for participation were no longer operational and as such we had to alter the original list to include four additional operational firms.

The Eastern Cape and Gauteng firms were surveyed during the course of January and February 1998, with a total of 12 Gauteng and 11 Eastern Cape firms visited. Qualitative interviews were carried out at each of the firms, after which a detailed 15-page questionnaire was left at the companies. These were to be completed and returned to the KZNIRP. Additional questionnaires were also sent to a number of these companies' sister firms. The qualitative interviews served two purposes: (1) to generate a general understanding of some of the broader strategic issues facing the firms included in the survey, and (2) to ensure participation in the study, by way of explaining the importance and benefits of participating in the research undertaking.

The methodology followed in KwaZulu-Natal was slightly different. Given the KZN IRP's profile and on-going relationship with automotive component firms in the province it was felt that detailed qualitative interviews were unnecessary and questionnaires were therefore either posted or dropped off at 20 automotive component firms who had previously participated in KZN IRP research. Follow-up telephonic interviews were then conducted to ensure the

firms had received the questionnaire, and that they were willing to participate in the study. This was done during the course of March 1998. The quantitative data presented in this report represents questionnaire responses from 12-Gauteng, 9-Eastern Cape and 14-KwaZulu-Natal based firms, giving the study a total sample size of 35 firms. A number of additional surveys have since been returned, bringing the total number of firms that have returned questionnaires to 41. The information from these firms has unfortunately been received too late to be included in this report. When the research presently being conducted in India and Brazil is completed and comparative measures generated for the three industries, the national data set will be re-analysed, in order to incorporate the additional questionnaires.

In order to complement the firm-level research and better understand the manner in which value-chain issues impact on the performance of the automotive components industry, six of the seven South African OEMs were also visited during the course of February 1998. Professor Raphael Kaplinsky joined Justin Barnes in South Africa for a two-week period during the course of which they jointly visited the OEMs. Detailed qualitative interviews were conducted at each of the OEMs, whilst a short supply-chain questionnaire was also left behind for completion. All of the OEMs had returned these questionnaires in time for the writing of this report.

In summary then this research report represents one of the concluding points of an extensive research programme into the automotive components industry in South Africa. A rigorous research methodology was followed, encompassing as it did an extensive number of qualitative interviews and formal surveys. Both automotive component firms and OEMs participated in the study, whilst a significant amount of secondary research also took place with this entailing the reading of research material pertaining to the South African and international automotive industries. Additional reports outlining the comparative findings from Brazil and India, as well as the issue of global connectivity and the implications for South African automotive component firms will be generated in due course, as will provincially-based comparative reports.

Section Two: Profile of Sampled Firms

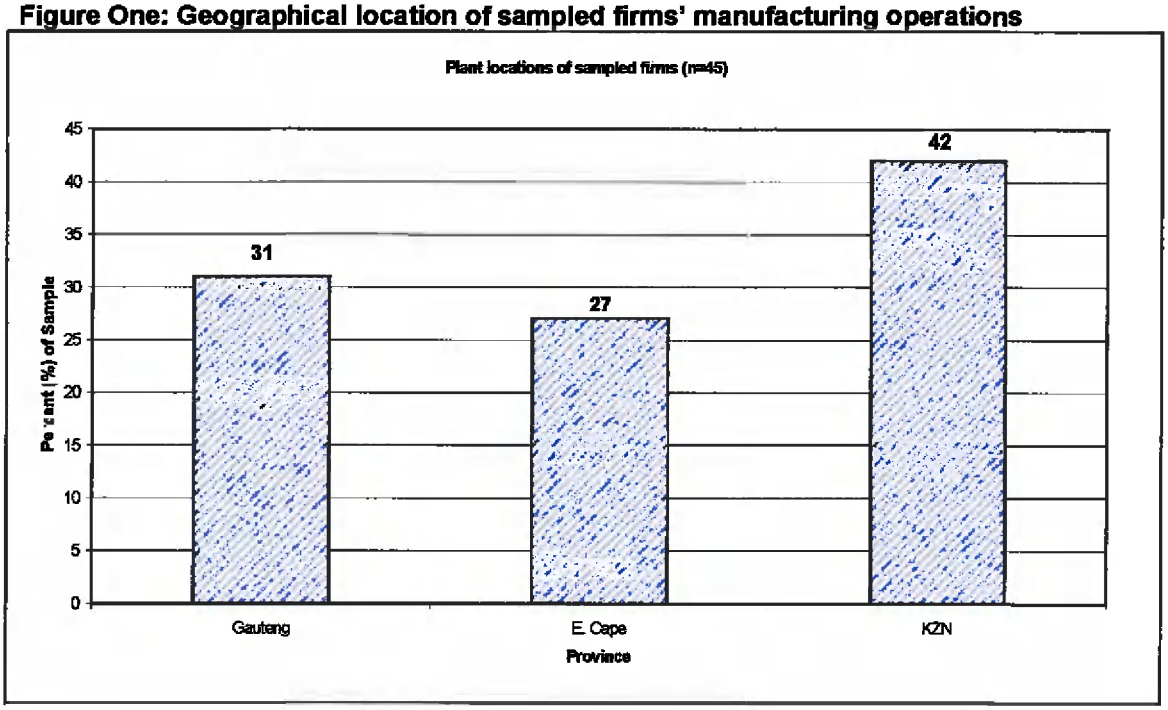
Whilst the findings presented in this report relate to nationally aggregated statistics it is important to outline the profile of the firms that were included in the sample. The profile is necessary as it highlights both the representivity and biases of the sample. The total sample of firms is therefore disaggregated below according to the following criteria:

1. Geographical location
2. Size (employment and turnover)
3. Percentage of production feeding into the automotive industry
4. Position in the automotive value chain
5. Automotive sub-sector (principle activities and raw materials usage)
6. Market focus
7. Date of establishment
8. Ownership

2.1. Geographical location

The 35 sampled firms together have 52 manufacturing plants located in South Africa. The majority of firms (80%) only have one manufacturing plant, with a small percentage having two, three and ten plants respectively. As outlined in Figure One, the largest percentage of the sampled firms' plants are located in KwaZulu-Natal (42%), with the remainder based in the Eastern Cape (27%) and Gauteng (31%). This highlights a bias in the geographical location of the sample, with the most important automotive component localities in South Africa being Gauteng (with 55% of NAACAM's members), followed by Eastern Cape (26%) and only then KwaZulu-Natal (11%).

Figure One: Geographical location of sampled firms' manufacturing operations



2.1. Firm Size

Given the fact that a stratified sampling procedure was used for the study it is unsurprising to see a relatively even spread of firm sizes amongst the sampled firms. This applies to measures of both employment and turnover, as highlighted in Figures Two and Three. As also illustrated in the two figures there is significant variance in firm size amongst the sampled firms. For example, the smallest firm included in the sample employs only 11 people, whilst the largest employs 1,003, giving the total sample a range of 992, or alternatively a ratio of 1:91 (meaning that the largest firm is 91 times larger than the smallest). In turnover terms the range is not as large with the smallest firm's turnover being R5 million and the largest R295 million, giving a ratio of 1:59. The spread of turnover figures is not directly comparable to the spread for employment however as five firms refused to provide the study with their turnover figures.

Figure Two: Employment spread of sampled firms

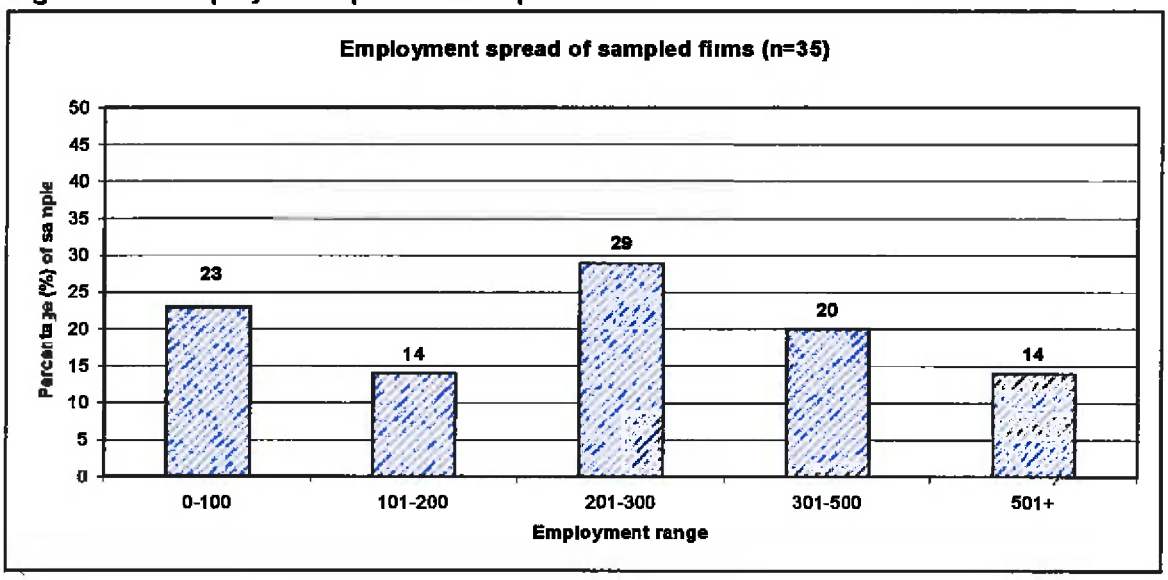
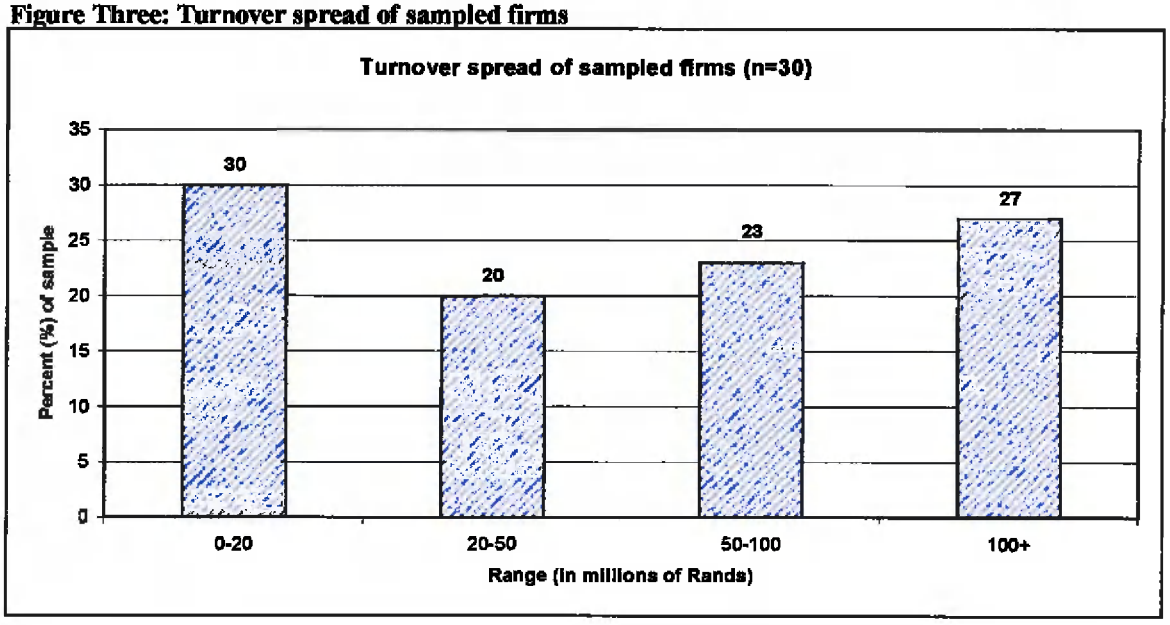


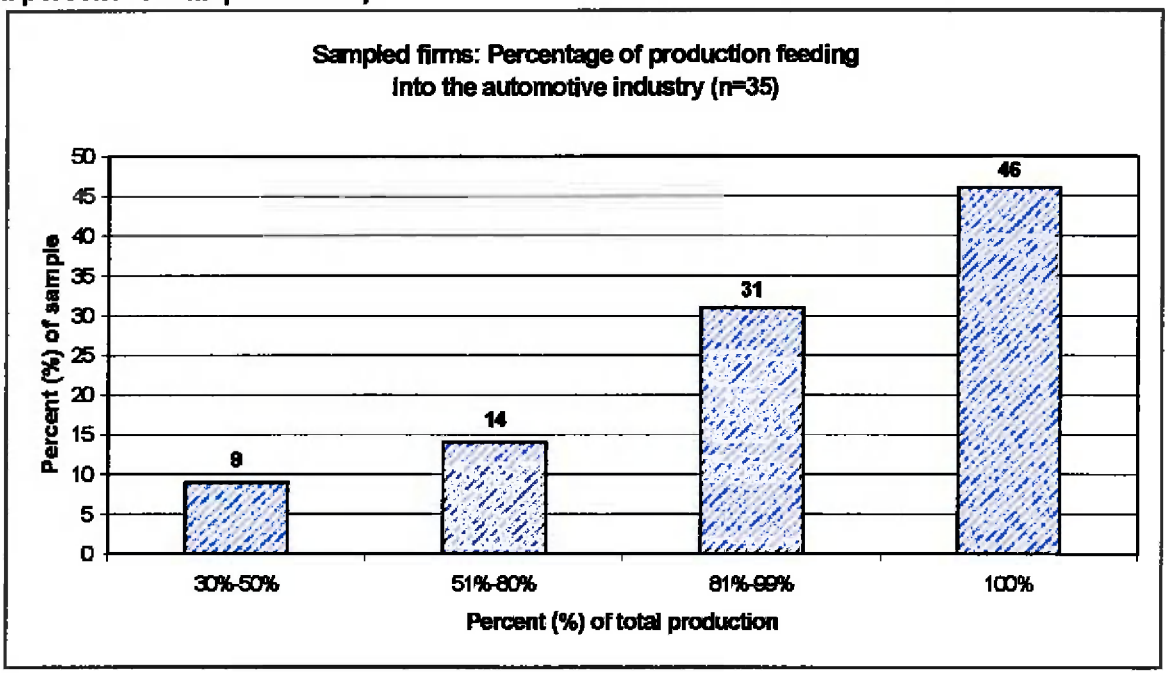
Figure Three: Turnover spread of sampled firms



2.3. Production into the automotive industry

As highlighted in Figure Four, nearly half of the firms included in the sample (46%) are exclusively reliant on the automotive industry for their survival, whilst an additional 31% have between 80% and 100% of their production feeding into the automotive industry. Very few firms (less than 10%) have less than half their production feeding into the automotive industry, thus highlighting the strong automotive orientation of the total sample of firms. The firm with the lowest level has 30% of its production feeding into the industry, although, significantly even this firm views itself as being an automotive components producer. The average level of production for the automotive industry in relation to total production for the sample is therefore 87%.

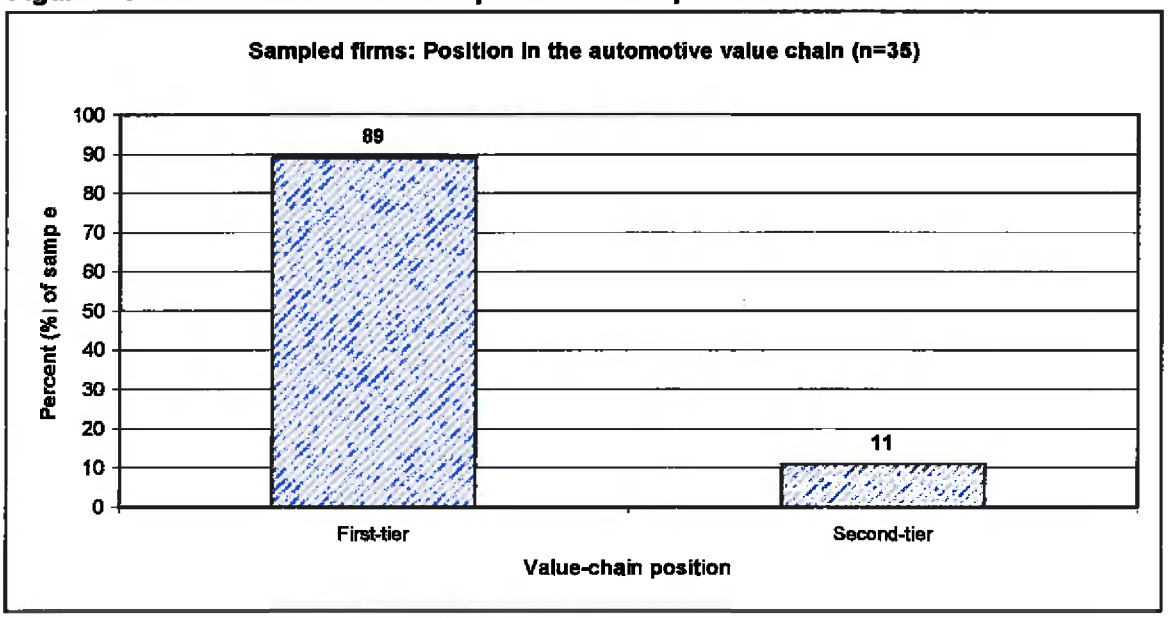
Figure Four: Sampled firms' levels of production feeding in the automotive industry (as a percent of total production)



2.4. Position in the automotive value chain

The overwhelming majority of sampled firms are first-tier component manufacturers. This is unsurprising given the biases in the firm selection process, where NAACAM was asked to facilitate contact with Eastern Cape and Gauteng firms. Four second-tier manufacturers were, however, included in the sample, with three of the four located in KwaZulu-Natal. The four second-tier component manufacturers do not skew the sample in any way as they are strongly automotive oriented, with automotive production accounting for 30% to 100% of their total production. Moreover, whilst the four firms are classified as second-tier component manufacturers, two of the four do have a small percentage of their total production feeding directly into domestic OEMs.

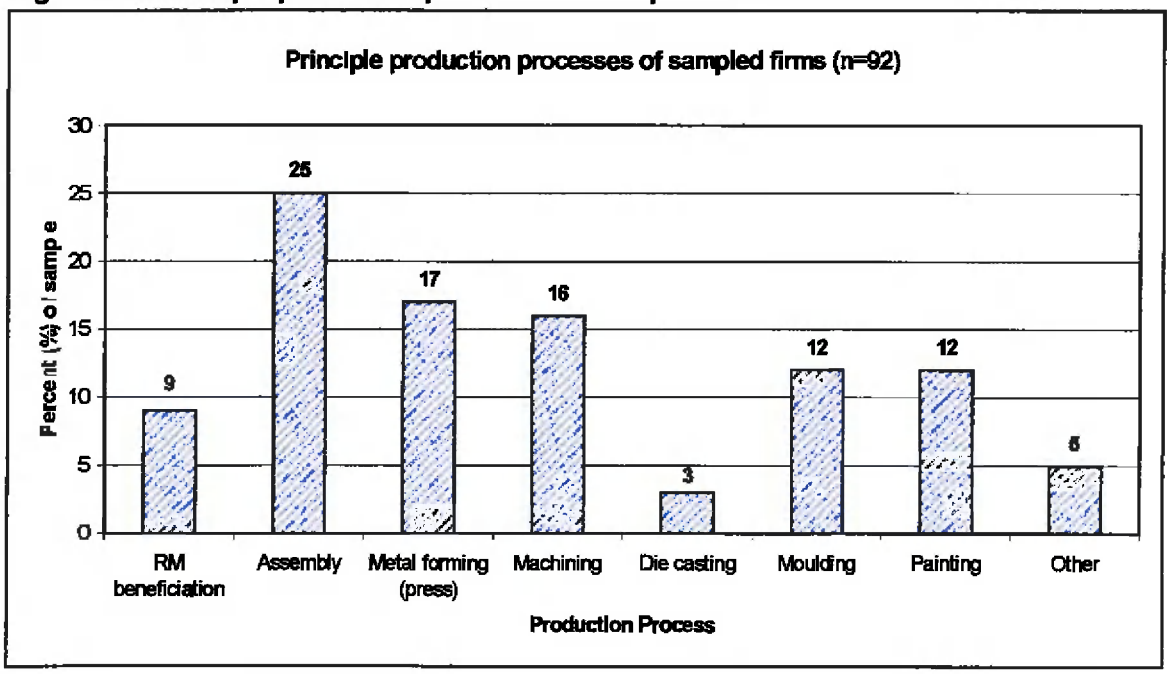
Figure Five: Automotive value chain position of sampled firms



2.5. Automotive sub-sector (principle activities and raw materials usage)

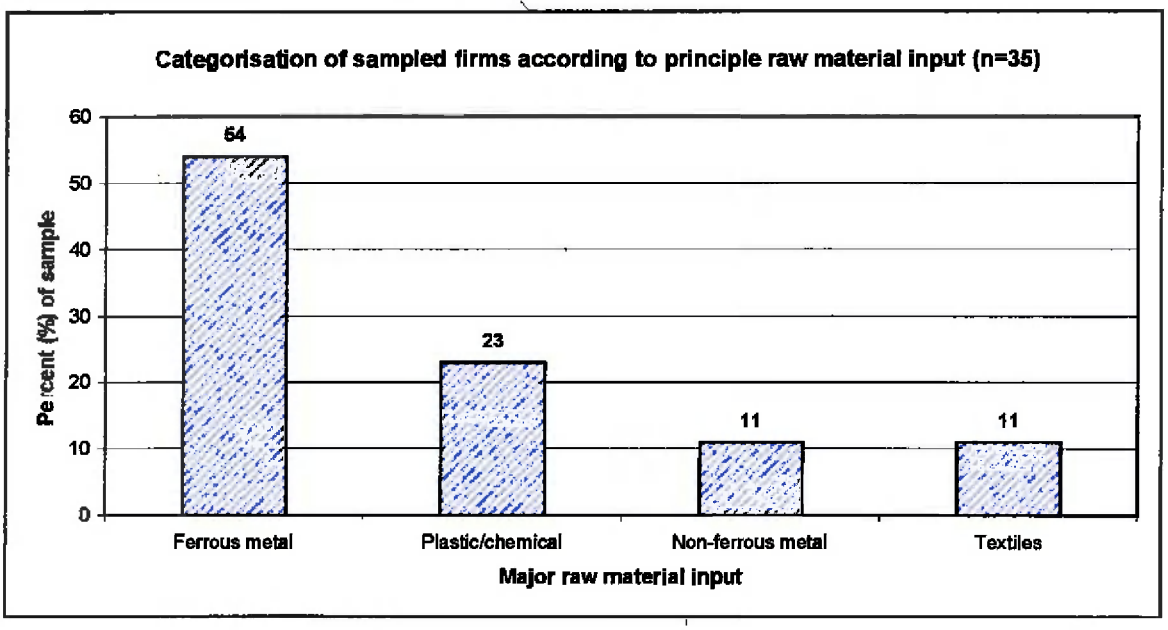
Given the "wide footprint" of many firms in South Africa it is unsurprising to note the diverse range of manufacturing activities that take place at the sampled firms. The 35 sampled firms together view themselves as having 92 core activities, with certain firms having up to five. The breakdown of these core activities is presented in Figure Six, as is the proportion of each activity to the total sample of 92. The five most important activities in order of importance are assembly, metal forming, machining, injection moulding and painting. Raw material beneficiation and die-casting are also represented in the sample, with the category "other" representing weaving, sewing, packaging and welding activities.

Figure Six: Principle production processes at sampled firms



In terms of principle raw material usage the sampled firms can be split into four categories: ferrous metals, non-ferrous metals, plastics/chemicals and textiles users. As highlighted in Figure Seven, over half of the sampled firms are primarily users of ferrous metals, although there is also a significant proportion of firms who are primarily users of plastics/chemicals inputs. Only a small percentage of firms can be categorised as primarily textiles or non-ferrous metals users.

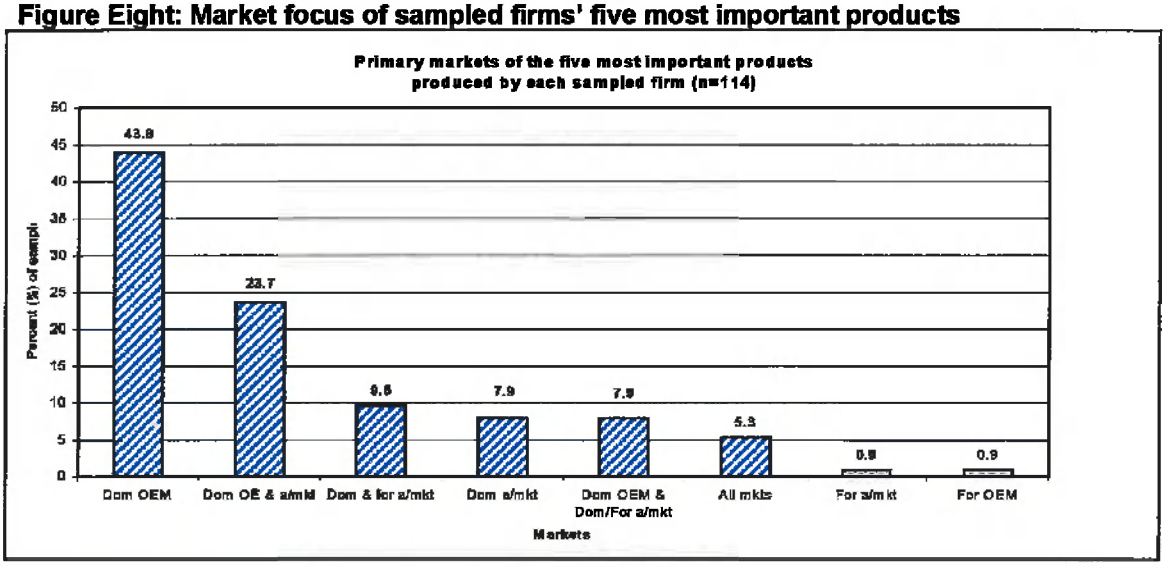
Figure Seven: Raw material inputs at sampled firms



2.6. Market focus

The domestic market is still clearly the most important market for the automotive components industry with most sampled firms indicating a strong orientation towards either exclusively domestic OEM supply or alternatively domestic OEM and aftermarket supply. As indicated in Figure Eight, very few firms have any of their five major products being sold primarily into foreign markets (OEM or aftermarket). A small but significant number of firms do, however, appear to be both domestic OEM and domestic and foreign aftermarket focused, or domestic and foreign aftermarket focused.

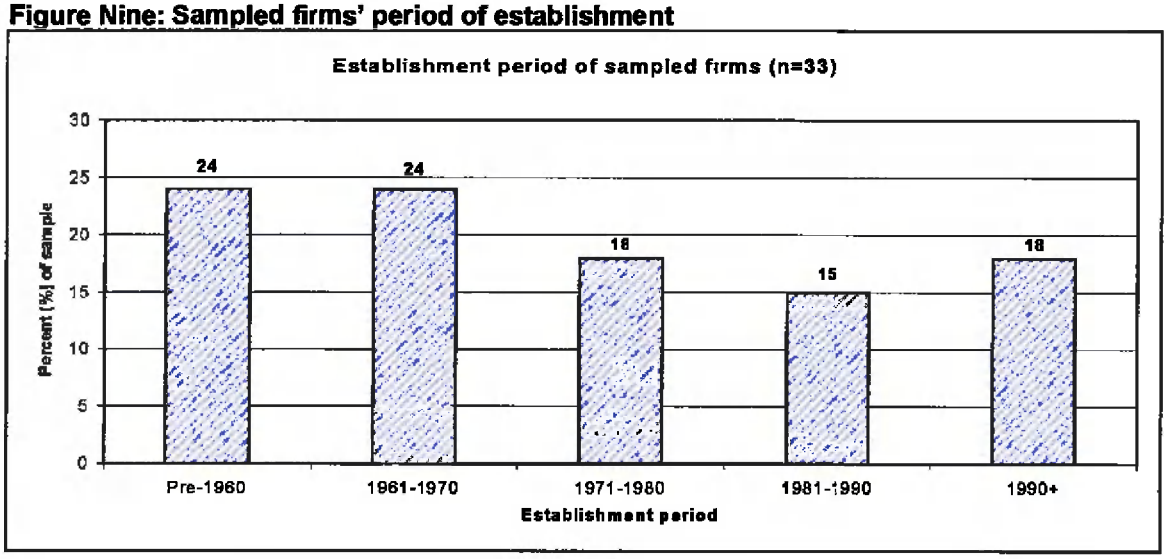
Figure Eight: Market focus of sampled firms' five most important products



2.7. Date of establishment

The age profile of the sampled firms makes for very interesting reading, highlighting as it does the long history of the automotive industry in South Africa, as well as general investment conditions in the automotive industry over the last few decades. Just under one-quarter of the sampled firms were, for example, established prior to the launch in 1961 of the first national local content programme for the automotive industry. Another 24% of the firms were established during the 1960s, with local content provisions clearly playing some role in the level of new investments. New investments then trailed off through the 1970s and 1980s, with a revival seemingly evident during the course of the first eight years of this decade; although it must be noted that this is also proving to be a decade of high firm mortality rates, a critically important issue not highlighted in the graph[2].

Figure Nine: Sampled firms' period of establishment

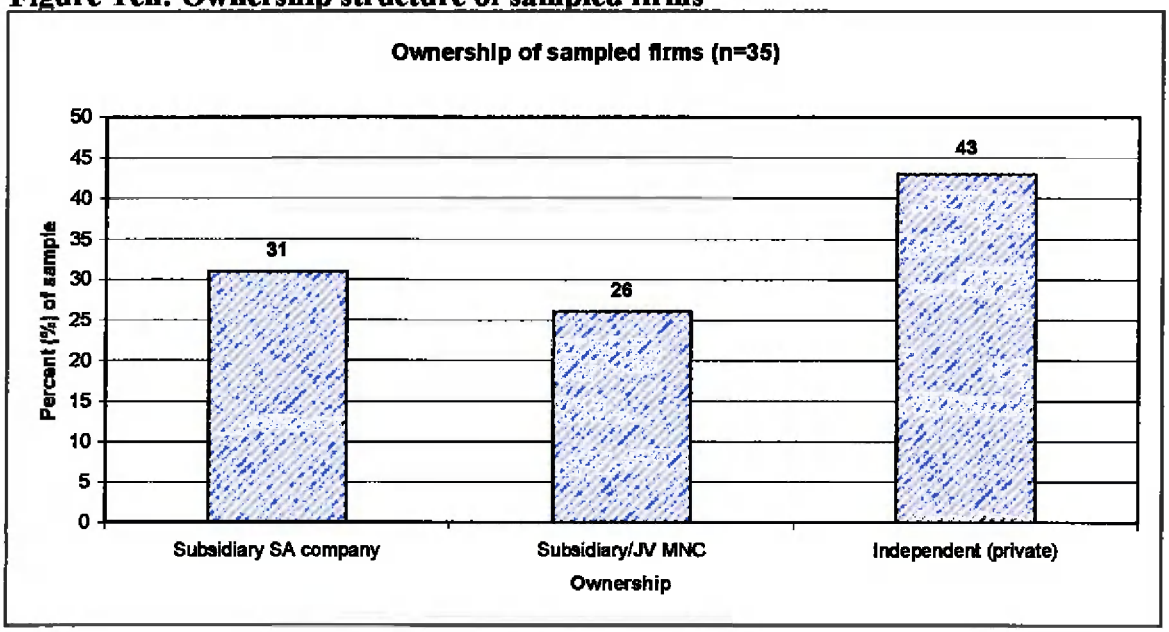


[2] For example, four of the 30 firms randomly selected from a 1997 NAACAM directory for inclusion in the study, were found to no longer exist. This represents a mortality rate in excess of 10% of the total sample.

2.8. Ownership

The majority of sampled firms are South African owned either via a national holding company or as an independent operation (i.e. privately owned[3]). This dominance of local ownership is clearly illustrated in Figure Ten, with roughly three-quarters of sampled firms falling under South African ownership. Significantly, however, just over one-quarter of the sample are subsidiaries of or joint ventures with multi national corporations.

Figure Ten: Ownership structure of sampled firms



2.9. Summary

A wide range of firms is included in the sample. Not only is there variance in terms of geographical location, firm size, ownership, principle production activities, market orientation and period of establishment, there is also variance in terms of position in the automotive value chain, primary raw material usage and levels of production feeding into the automotive industry. The findings presented in the analytical sections of this report consequently need to be understood with this variance in mind. Aggregated findings are exactly that – they do not represent the performance of individual firms. Whilst the aggregated findings may therefore be a true reflection of the average state of the industry (represented by the sample of firms), they are not indicative of trends at the firm-specific or, in certain cases, even the sub-sectoral level.

[3] This category includes two owner-managed operations.

Section Three: Economic Performance

Economic performance figures provide a good indication of the state of the automotive industry. Knowing whether the industry is on an upward or downward economic trajectory is obviously critical, highlighting as it does the manner in which the industry has reacted to the competitive pressures facing it. Given the changed nature of the operating environment for domestic firms it is, moreover, also useful to compare the economic performance of firms over a five year period – half of which represent the MIDP period (1995-1997) and the other half Phase Six of the local content programme (1993-1995).

Of critical importance, though, economic performance figures highlight the symptoms of firm-level competitiveness or as is more common in South Africa uncompetitiveness. They do not, in any way, reveal the reasons underpinning firm-level success or failure. Firms do well or badly because of their internal efficiency or inefficiency and because of their connection into particular value chains – not because of their economic performance figures. The same can be said for an industry - overall efficiency levels in terms of a multitude of competitiveness issues are key to its success or otherwise. This will become increasingly clear in Section Four.

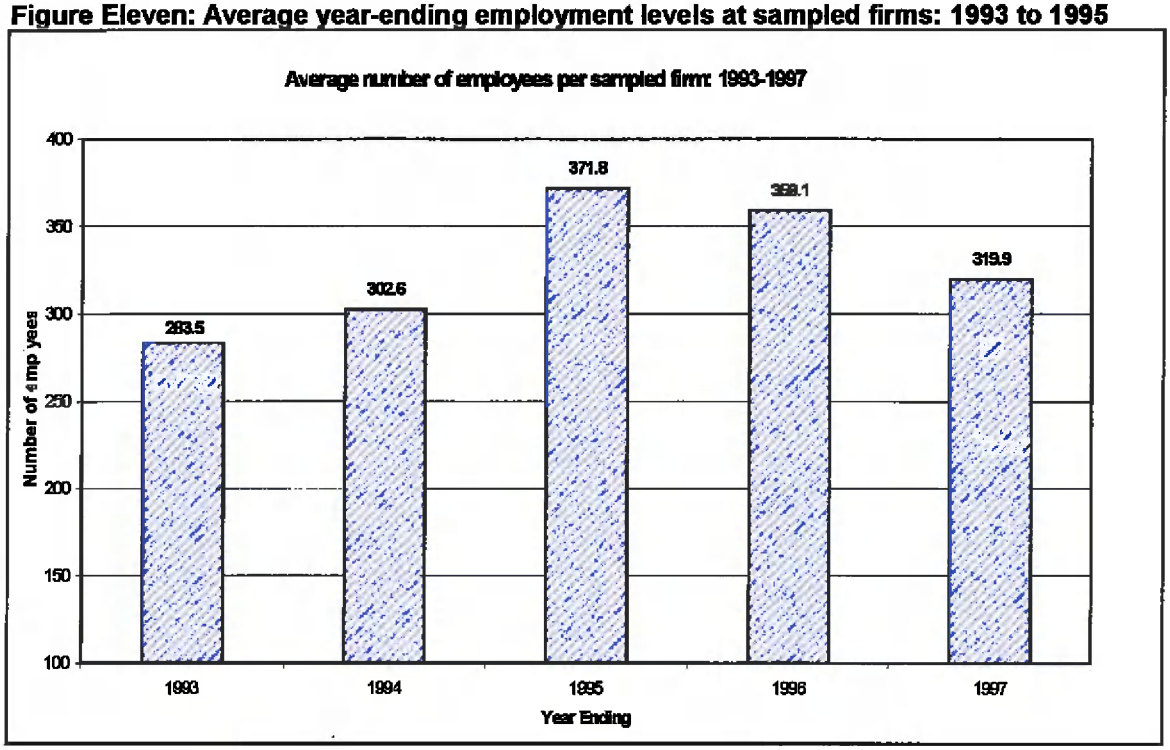
The economic performance of the sampled firms is analysed according to three important criteria in this section: employment, turnover and profitability. As will be highlighted mixed indicators have been generated, with various outliers influencing the sample average. Where applicable these outliers are highlighted. Overall, the industry is clearly struggling, although there is some dynamism that prevents too gloomy a picture from emerging. Of critical importance though is recognising that these figures represent the findings from surviving firms. The firms that have closed their operations recently are not included in the analysis. The picture would look very different if these firms' performance figures were included in the study. Notwithstanding this fact, the future of the industry rests with surviving firms. Understanding their performance trajectory is obviously then absolutely critical and the findings presented below need to be viewed with this importance in mind.

3.1. Employment

From a peak in 1995 of, on average, 372 employees per sampled firm, employment has fallen by 14% to 320 employees per sampled firm for 1997. This still represents a significant improvement on 1993 figures, however, when average employment stood at only 284 employees. The significant improvement in average employment levels for the period 1993 to 1995 and then steady decline from 1995 to 1997 is clearly illustrated in Figure Eleven. The massive increase (23%) in average employment for the period 1994 to 1995 reflects the 20% growth in automotive sales in South Africa for this period.

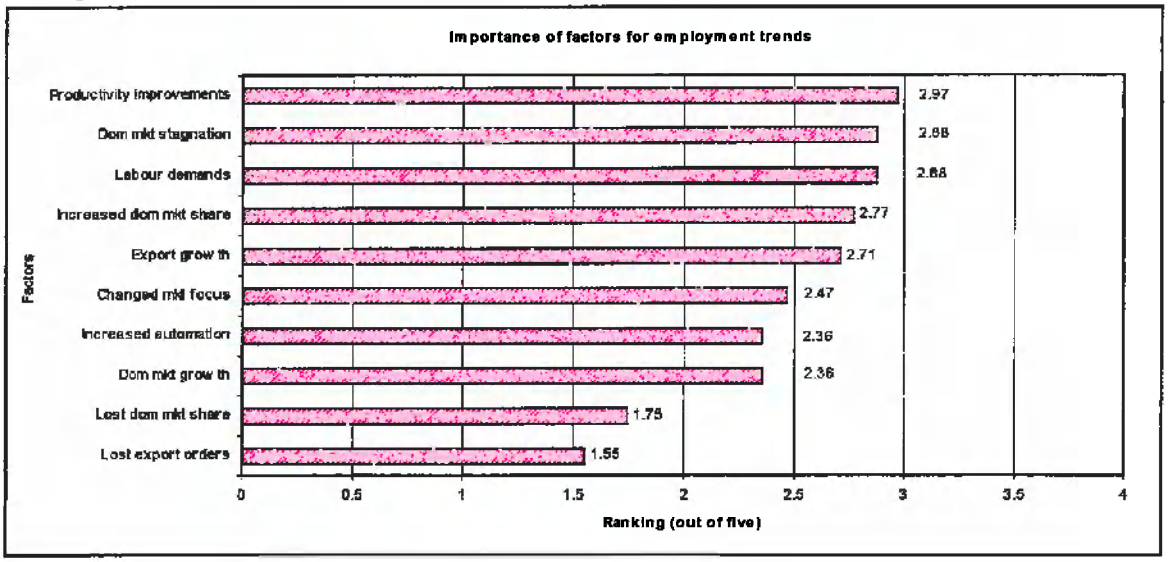
There is however significant variance between firms in terms of employment performance for the period 1993 to 1997. Some firms have, for example, increased the size of their labour force by up to 400% during the period; whilst others have lost 50% of their labour force over exactly the same period. Significantly though very few firms (less than one-quarter of the sample) employed more people at the end of 1997 than they did at the end of 1995.

Figure Eleven: Average year-ending employment levels at sampled firms: 1993 to 1995



In order to generate a firm-level understanding of the key contributing factors to employment trends, firms were requested to rank the importance of a number of factors, as contributors to their employment trends, with each factor being given a ranking out of five. As highlighted in Figure Twelve, the five most important influences on firm level employment, as seen through the eyes of the sampled firms, and in order of importance are: productivity improvements, domestic market stagnation, labour demands, increased domestic market share and export growth. As is clear from this list certain factors are positive whilst others are negative, highlighting as it does the extremely complex nature of the operating environment in which firms find themselves.

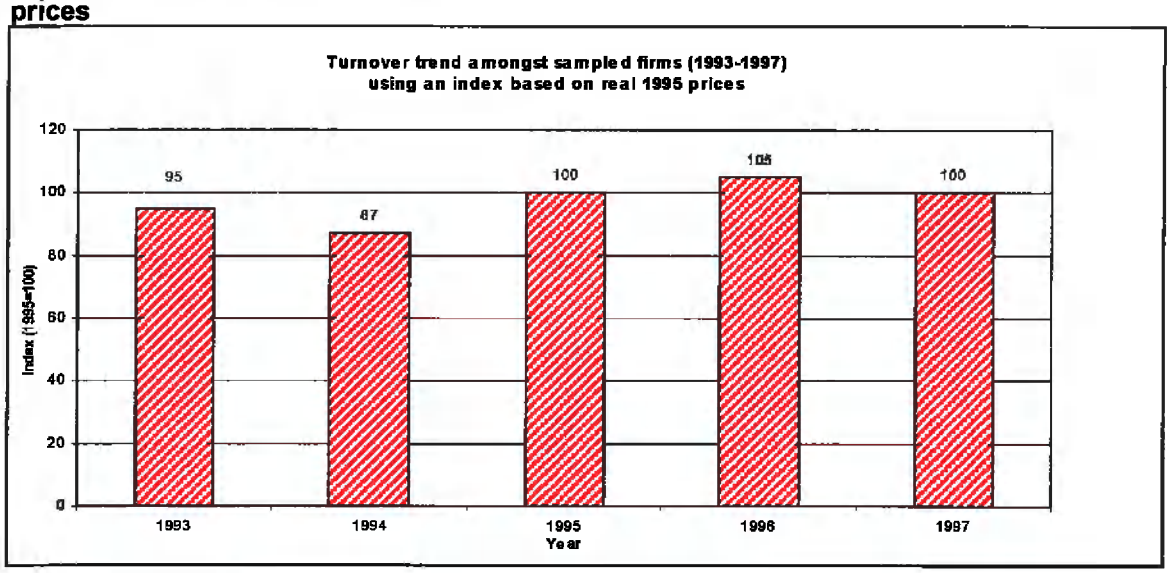
Figure Twelve: The ranking of factors that have influenced employment trends amongst sampled firms: One (not important) to Five (very important)



3.2. Turnover trends

Turnover trends reveal a similar pattern to employment trends. As highlighted in Figure Thirteen, sampled firms are, on average, struggling to maintain their output levels in the post-1995 period. Significantly, though the two trends are not directly comparable. First, turnover levels peaked in 1996, whilst employment peaked in 1995. And second, whilst turnover has, on average, stagnated in real terms (using an index based on a 1995 CSS deflator for the automotive industry) over the last two years, and even declined over the period 1996 to 1997, employment has dropped by a far more alarming 14%. This supports the findings presented in Figure Twelve, where firms highlighted productivity improvements as one of the key reasons for their employment trends. Whilst turnover growth is, moreover, barely evident it is important to note that firms are, on average, turning over more in the post-1995 period than they did in 1993 and 1994.

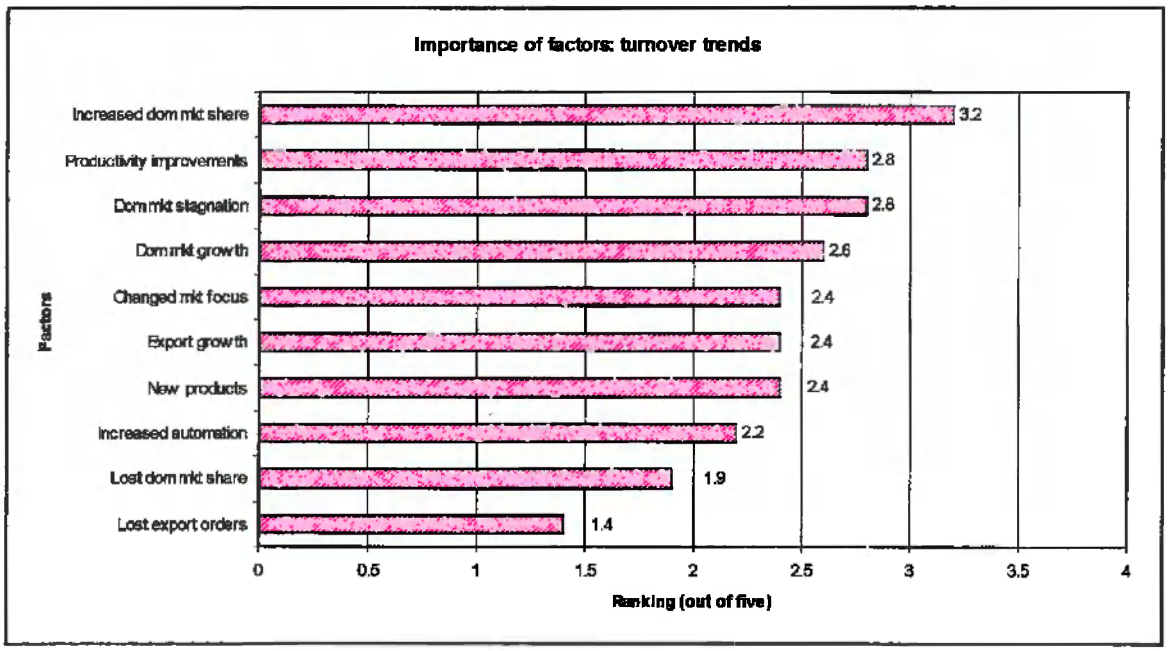
Figure Thirteen: Turnover trend of sampled firms using an index based on real 1995 prices



The factors influencing the turnover trends of the sampled firms appear to be very mixed. Firms clearly believe that their output is being impacted upon by a number of both negative and positive factors. On the positive side firms believe that they are increasing their domestic market share (perhaps at the expense of the firms that have closed down) and have improved their productivity; whilst the most negative factor is clearly that of domestic market stagnation. However, given that domestic market growth is also listed as an important contributor to turnover trends, it would appear that there is significant variance between the health of various market niches in the domestic automotive economy.

The relative importance of a range of factors to the turnover trends of the sampled firms, as indicated by the firms themselves, is highlighted in Figure Fourteen.

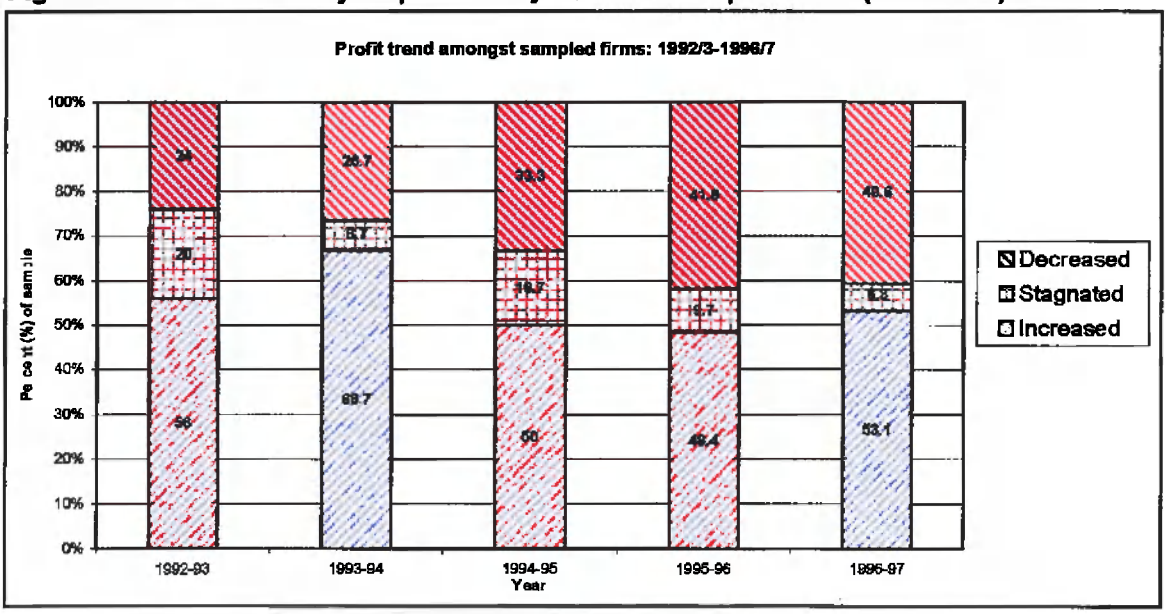
Figure Fourteen: The ranking of factors that have influenced turnover trends amongst sampled firms: One (not important) to Five (very important)



3.3. Profit trends

Profit trends at sampled firms have been highly variable. Certain firms have been increasing their profitability over the last five years, whilst others have been experiencing worsening levels of profitability from one year to the next. Figure Fifteen highlights the highly varied nature of the sample's overall profitability trend. Whilst many firms are doing well, a large percentage of firms are also clearly struggling. Significantly, however, the overall picture for the sampled firms does appear to have improved slightly over the last year, with the proportion of firms experiencing improved profitability having increased from just under 50% for the period 1995/1996 to 53% for 1996/1997. Notwithstanding this minor improvement, the industry is definitely not operating at the same profitability levels as evidenced during the period 1992 to 1994.

Figure Fourteen: Year-on-year profitability trends of sampled firms (1993-1997)



3.4. Summary of economic performance findings

Economic performance levels amongst sampled firms are highly differentiated with certain firms doing far better than others. This is clear from the turnover, employment and profitability trends presented. Firms are clearly, however, under greater pressure in the post-1995 period. A comparison between turnover and profitability levels reveals this. For example, whilst turnover levels have increased in real terms in the post-1995 period, firms are not generating the same profitability levels they did in the period of more subdued demand (1992 to 1994).

The key variables determining success or failure are extremely complex, with economic performance indicators offering us little explanation as to why firms are doing either well or badly. As noted in the introduction to this section, this is a major weakness of economic figures. Steve Brown in his book on strategic manufacturing argues this point persuasively, and it is therefore apt to conclude this section with a quote from him.

"Whilst the financial ratios are useful…[they]…are historical indicators ***after*** *the event…a firm's ability to provide excellent quality products at competitive costs and meet customers' delivery requirements, together with all other specific needs, are the competitive variables which enable a firm to win in the market place"* (1996: 34).

Section Four: An Analysis of the Competitiveness of the South African Automotive Components Industry

The fact that a firm is performing either well or badly economically does not provide us with a clear indication of its competitiveness capabilities. Whilst it most definitely does highlight the present financial strengths and weaknesses of the firm, it gives little indication of the firm's capacity to meet its markets' future demands. As highlighted by numerous international experts (Kaplinsky, 1994; Womack et al, 1990; Brown, 1996; Humphrey et al, 1998) considering key internal performance variables can help one to generate a more detailed understanding of firm-level competitiveness (i.e. a firm's ability to meet its markets' demands). These key variables are highlighted in Table One below (adapted from Kaplinsky and Morris, 1998).

Table One: Market drivers and manufacturing performance and practice

Market drivers (demands)	Manufacturing performance measures	Manufacturing practices
1. Cost	Inventory use (raw materials, work in progress, finished goods)	Single unit flow, quality at source, cellular production, multi-skilling, production pulling (kanbans)
2. Quality	Customer return rate, internal defect and scrap rate	Statistical process control, quality circles, team working
3. Lead times	Time from customer order to delivery, delivery frequency of suppliers	Business process engineering, cellular structures in order processing and dispatch, supply chain management
4. Flexibility	Delivery frequency to customers, machine changeover times, batch sizes, lot sizes, inventory levels, throughput time through factory, distance traveled on factory floor	Value chain relationships, JIT, single minute exchange of dies, multi tasking and multi skilling, cellular production in manufacturing
5. Capacity to change	Suggestion schemes, labour turnover & absenteeism (proxy for employee commitment), employee development	Continuous improvement (kaizen), worker development and commitment
6. Time to market	Development of new products	Concurrent engineering, Research and Development

Understanding how South African automotive component firms meet the market drivers outlined in Table One will go a long way towards helping one understand the future potential of the industry. This section forms the central focus of the report by considering in some detail the internal performance of the industry according to these critically important criteria.

In order to present a structured analysis of the automotive component industry's competitiveness, this section is divided into three parts. In the first part detailed consideration is given to market demands, and here the focus is on the automotive component industry's customer demands, as well as

sampled firms' understandings of their own performance relative to their customers' requirements. The part is therefore broken into two areas of analysis:

- Domestic OEM perceptions of automotive component performance in South Africa, relative to international component suppliers
- Sampled firms' analysis of their market demands and their self-assessment of performance in terms of meeting these demands

In part two firm-level competitiveness issues pertaining to the sampled firms are disaggregated and explored according to the "market driver" principles postulated in Table One. Internal performance measurements have been generated for each of these competitiveness issues, and where possible comparative international performance measures are also highlighted. This part is therefore broken into six overlapping areas of analysis:

- Cost
- Quality
- Lead times
- Flexibility
- Capacity to change
- Time to market

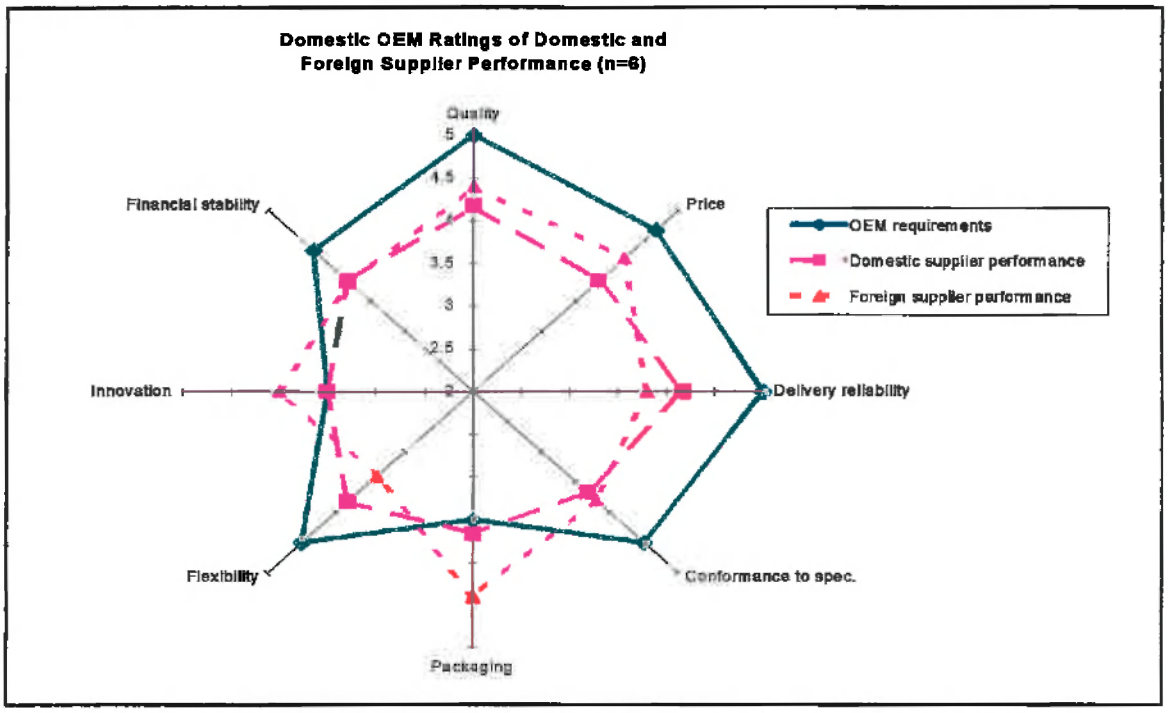
In part three consideration is given to the nature and growth of automotive component exporting over the last few years. Exports are seen as critical for the survival of the industry and form a central thrust of the MIDP, thus making it pertinent to explore in some detail the export performance of the sampled firms as a way of concluding the section.

4.1. Market demand and firm level responses

4.1.1. Domestic OEM demands

The six South African OEMs that were surveyed as part of the study held widely differing opinions as to the relative competitiveness of the domestic automotive components industry. Figure Fifteen, which highlights the average performance of the components industry relative to the international component firms feeding into the six South African OEMs, fails to highlight this and does not provide too disconcerting a picture of the gap between market demand and domestic supplier performance levels. Whilst foreign suppliers do appear to have an advantage in terms of their quality, price and conformance to specification, the gap between local and foreign performance is not that significant. It is only in the areas of innovation and packaging that foreign firms have a significant advantage, two areas that are not deemed as critically important by the domestic OEMs in any case. In the areas of delivery reliability and flexibility local firms have an advantage over foreign firms, although this is perhaps not too surprising given the fact that both these areas of competitive advantage are sensitive to geographical distance. The overall gap between domestic OEM demand and domestic suppliers' performance is, moreover, not that great.

Figure Fifteen: Domestic OEM ratings of South African and foreign auto component supplier performance



By disaggregating domestic OEM demand and considering OEM ratings of domestic supplier performance according to the three most demanding and three least demanding OEMs, a very different picture of domestic component performance is generated. The differences are illustrated in Figures Sixteen and Seventeen, with Figure Sixteen highlighting the demands and supplier ratings of the three most demanding OEMs, and Figure Seventeen highlighting the demands and supplier ratings of the least demanding OEMs.

Figure Sixteen: The three most demanding OEM's assessment of domestic vs. supplier performance

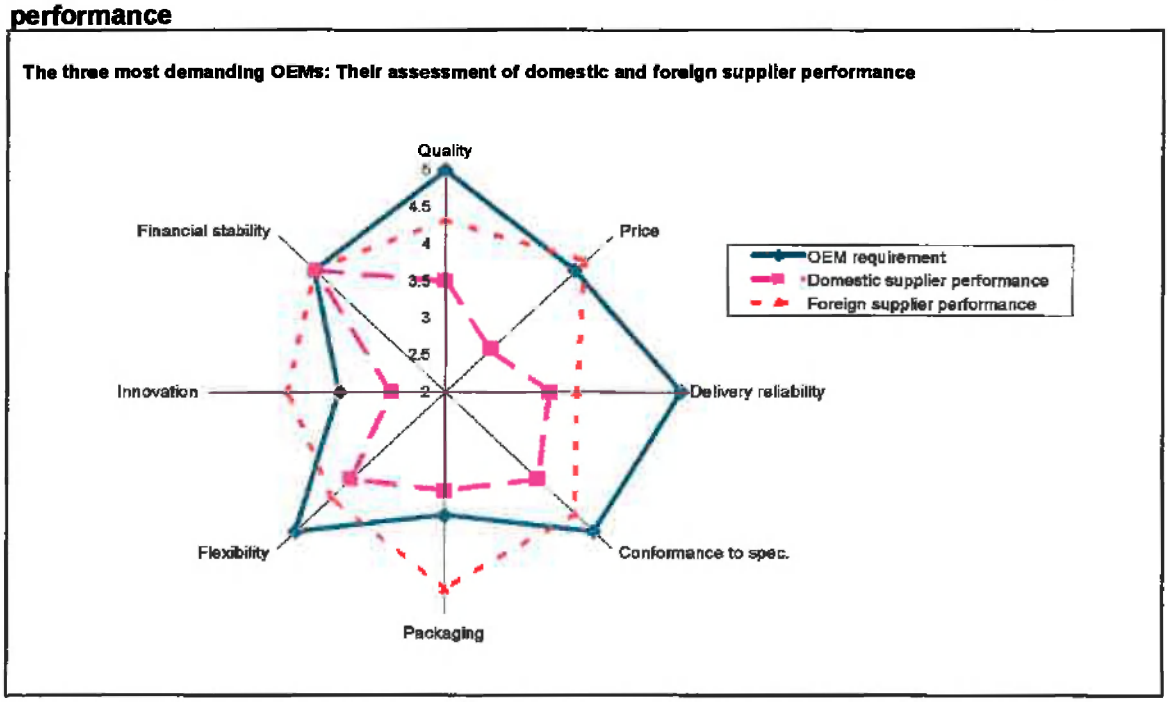
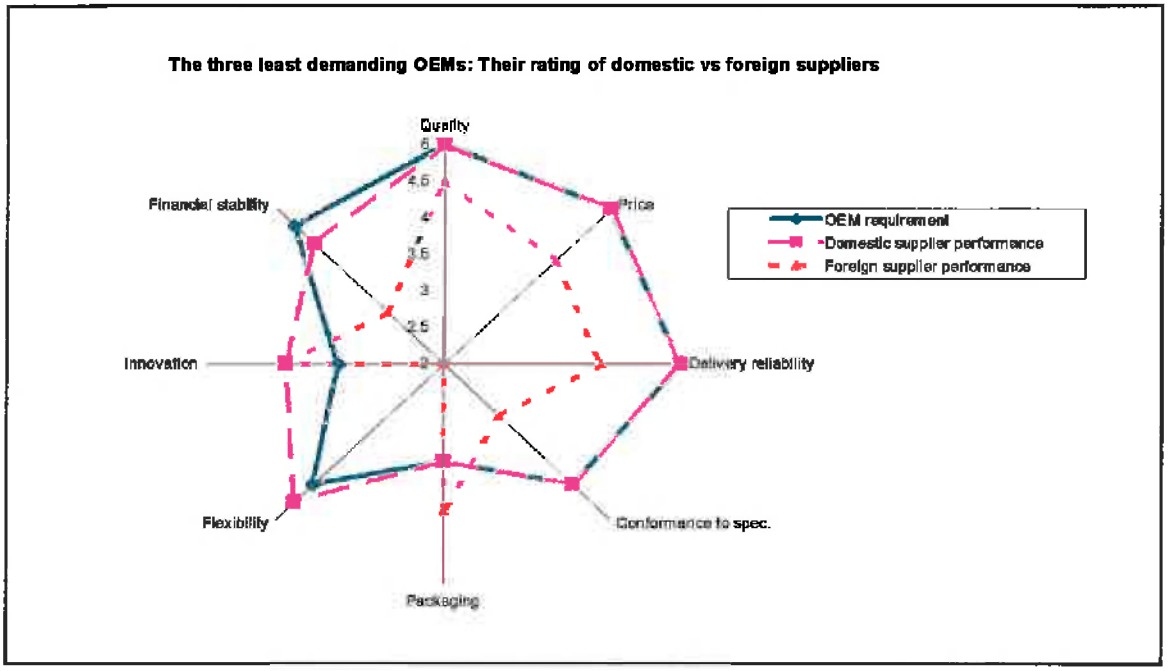


Figure Seventeen: The three least demanding OEM's assessment of domestic vs. component supplier performance



As is obvious from Figures Sixteen and Seventeen there is massive variance between the ratings OEMs give to their domestic and foreign suppliers. The three most demanding OEMs (i.e. where the biggest market gaps exist) view their foreign suppliers as being considerably better than their domestic counterparts, whilst the converse is true for the three least demanding OEMs. In financial and market share terms the three most demanding OEMs are, however, significantly more important to the South African automotive components industry than the three least important firms.

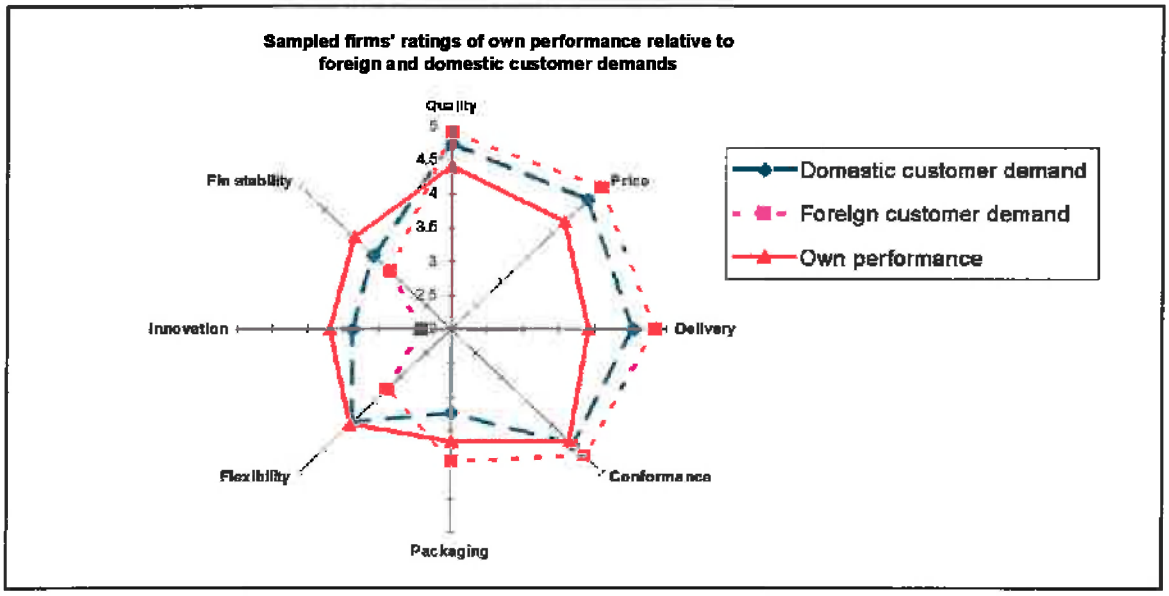
The warning signs are therefore out for the domestic automotive components industry. Market gaps need to be filled and the attainment of international competitiveness is of paramount importance for its future survival. The three most demanding OEMs are the three domestic customers with the most growth potential of the six OEMs included in the study, and unless their performance demands are met domestic demand for domestic automotive component production is likely to stagnate.

4.1.2. Domestic automotive component firms' understanding of their market's demands

The central question here relates to whether domestic component firms are aware of the challenges facing them in terms of their customers' demand? Significantly, the answer does appear to be yes, which is very different from the answers received during the course of previous automotive research in KwaZulu-Natal where firms believed they were largely meeting their market requirements (Barnes, 1997).

As highlighted in Figure Eighteen, sampled firms appear to be cognisant of the market challenges facing them. The sampled firms' indicated a large gap between their own performance and that of their foreign and domestic customer requirements, particularly in terms of the three most important performance criteria of quality, price and delivery reliability. A small gap in terms of conformance to specification and packaging demands of foreign customers was also noted. Firms appear confident that they are meeting their customers' requirements in terms of flexibility, innovation and financial stability performance criteria. Two of these criteria, innovation and financial stability, are clearly, though, not particularly important to customers.

Figure Eighteen: Sampled firms' rating of their own performance in relation to foreign and domestic customer requirements



Whilst firms may be aware of the challenges facing them they may still be struggling with regard to comprehending the magnitude of the competitiveness demands being placed on them. The gap between firm performance and foreign and domestic customer demand may, in fact, be greater than firms actually realise, particularly if one takes into account the rating of domestic and foreign supplier performance by the three most demanding OEMs (highlighted in Figure Sixteen). More importantly, South African OEMs are increasingly being integrated into their parent company's global networks. As this process continues it is likely that their demands on component suppliers will increase.

4.2. Firm level competitiveness issues

If South African automotive component firms are to compete it is essential that they improve their internal performance substantially. This is the most critical issue facing the domestic automotive components industry. It is moreover not only a critical issue in terms of export expansion, it is central to the survival and growth potential of the industry. If one refers back to Table One, as well as the radar graphs in 4.1, it is clear that there are numerous market drivers that firms need to take cognisance of, and react adequately to.

The following performance measures outline the trajectory of the industry's competitiveness in line with these market drivers, and as is highlighted, whilst the industry is making significant improvements in terms of its competitiveness there are still significant gaps between its performance and international best practice. It also needs to be noted that while various performance measures have been generated for each market driver, they are not necessarily pertinent only to that market issue. There is enormous overlap between the various performance measurements, although they are isolated under one driver in order to ensure simplicity of presentation.

4.2.1. Market driver No. 1: Cost

The measurement of inventory levels provides a good proxy for the measure of cost control at manufacturing firms. Firms with good control over their inventory are usually efficiently in control of manufacturing costs, with raw material, work in progress and finished goods stock all contributing to the costs of the products being manufactured. As highlighted in Figures Nineteen and Twenty, whilst significant improvements have been made in the industry since 1994, performance levels are still well below the international best practice figures generated by Nishiguchi (1989) and Anderson Consulting (1992) in their global comparative studies.

Figure Nineteen: Average inventory levels at sampled firms: 1994 to 1997

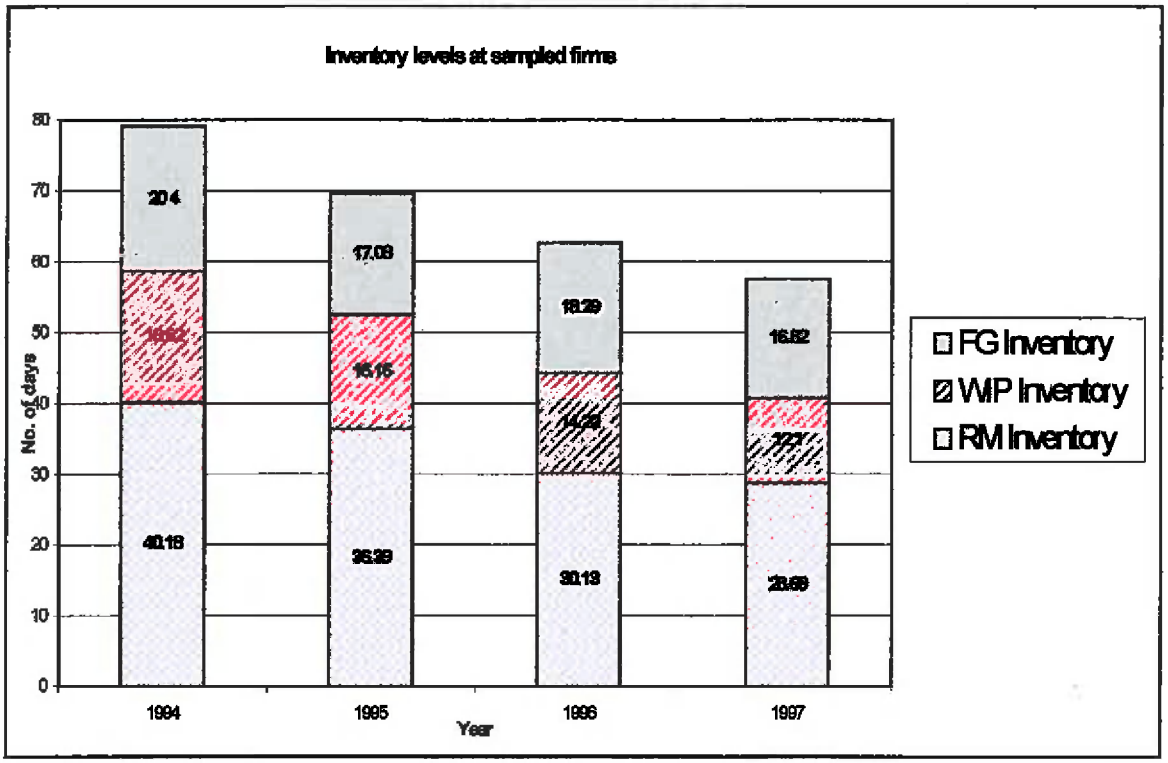
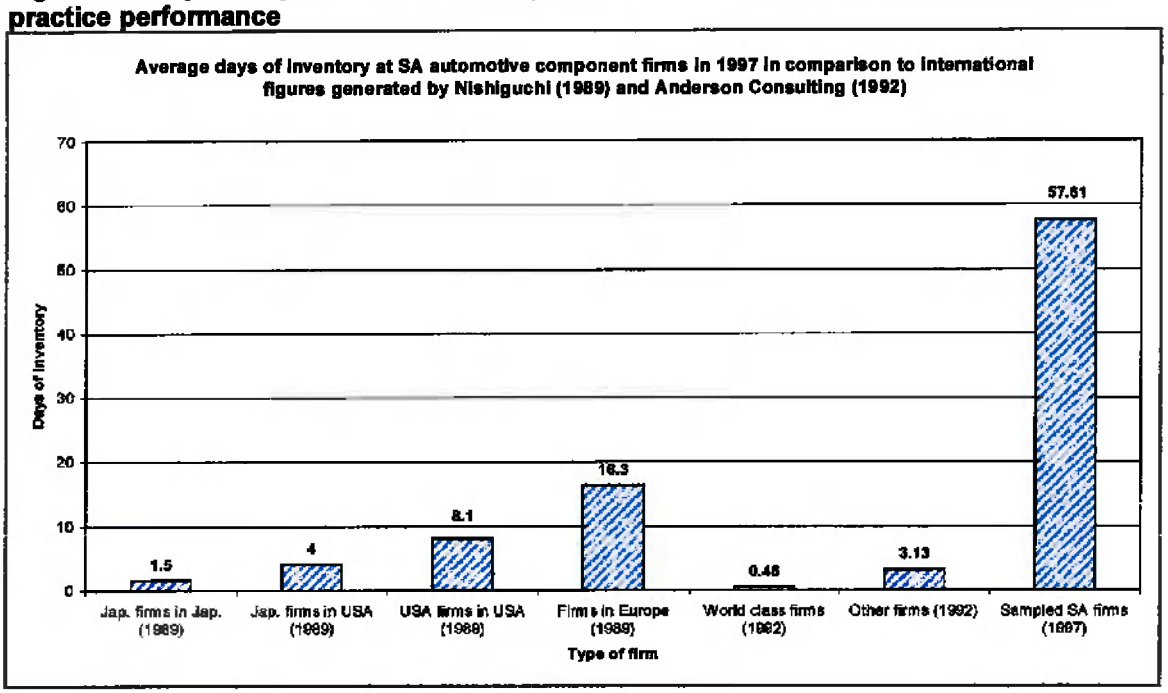


Figure Twenty: Sampled Firm inventory performance (1997) vs. international best practice performance



An extremely mixed picture is therefore presented in Figures Nineteen and Twenty. Whilst improvements have been significant (27% over a four year period), the general performance of the industry is still well below what is required for international competitiveness. It also needs to be borne in mind that the two comparative studies are dated (1989 and 1992). The comparative international figures are therefore likely to be significantly better in 1997 than they were five or eight years ago. Significantly, though, there is also wide variance in terms of the performance of the South African firms included in the sample. For example, many of the best performing firms have total inventory levels of less than 10 days, which is comparable to the level for American firms in America and European firms in 1989. Conversely, however, other sampled firms have alarmingly high levels of inventory - in excessive of 150 days!

The reasons underpinning the generally high levels of inventory at the sampled firms are both complex and multifaceted. It is most definitely not simply a factor of firm size with particular small firms holding massive amounts of inventory (over 100 days) and certain large firms very little (under 10 days). It therefore appears to be largely a value chain, as well as an internal control issue. Raw material suppliers in particular sub-sectors (e.g. ISCOR for ferrous metals) are notorious for their inflexibility and many firms are consequently forced to hold on to excessive amounts of raw material stock. However, this does not explain the high levels of work in progress and finished goods stock at both small and large firms. Many firms clearly operate according to old Fordist methods of production, where buffer stock proliferates at every stage of production and large product lots are transferred from one workstation to the next. Firms are also clearly building according to forecast and not set orders, with production pushing rather than production pulling still the norm in the industry.

4.2.2. Market driver No. 2: Quality

There are three important measures of quality: customer return rates, and internal defect and rework rates. Customer return rates is an important measure of quality as it highlights customer satisfaction levels regarding the quality performance of a particular firm. Importantly, though, customer return rates offer little indication of the internal quality performance at the firm. A firm may have an extremely poor internal production system and yet provide good quality products to its customers by following stringent quality checks at the end of the production process. The problem with this, however, is that the quality is generated at an exorbitant cost, in terms of both the price of the product being produced and other performance variables such as flexibility, delivery reliability, etc. Customers may therefore be satisfied with their supplier's quality but they are likely to be dissatisfied with the firm's overall performance.

Measuring the extent to which quality is built in at source, i.e. built into the production system itself, is therefore critical, as the ideal quality situation is one where low customer return rates are complemented by low internal defect and rework rates. Only then is it possible to provide high quality products at low prices – one of the key determinants of market success (and even survival).

As highlighted in Figures Twenty-One and Twenty-Two, the sampled automotive component firms need to improve their quality performance enormously. Internal defect rates have improved consistently since 1994, although they are still very high in international comparative terms, whilst customer return rates have actually worsened, on average. This is a significant finding as it highlights the increased demands being placed on the South African industry by more demanding domestic and international customers – demands that are likely to intensify as the industry continues its integration into the global economy.

Figure Twenty-One: Average internal defect rates at sampled firms: 1994-1997

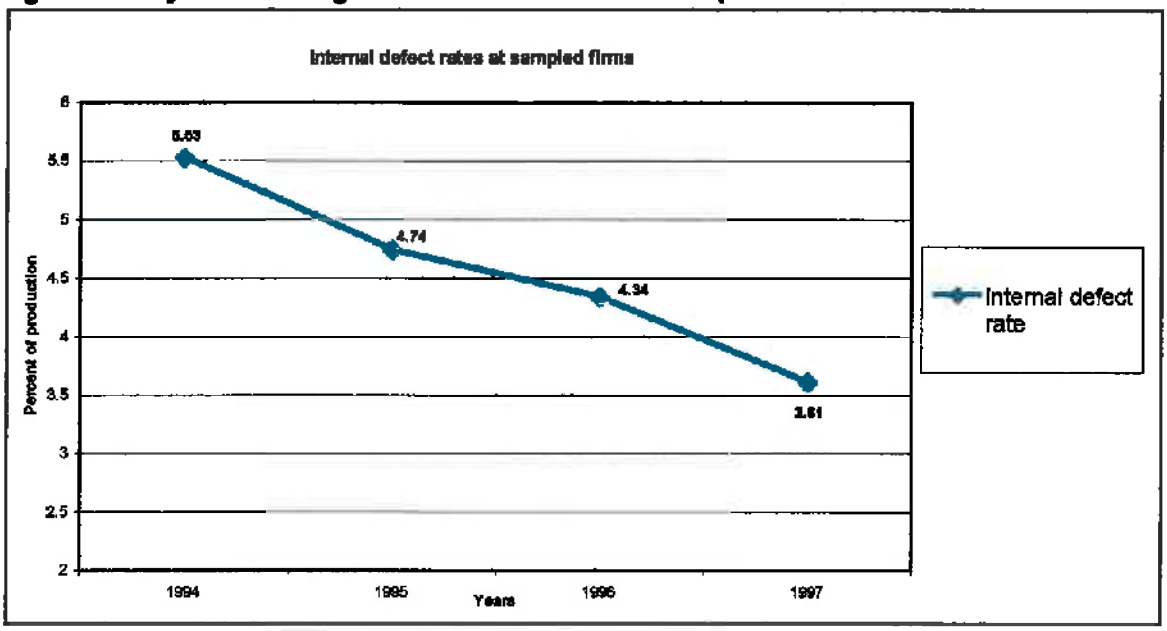
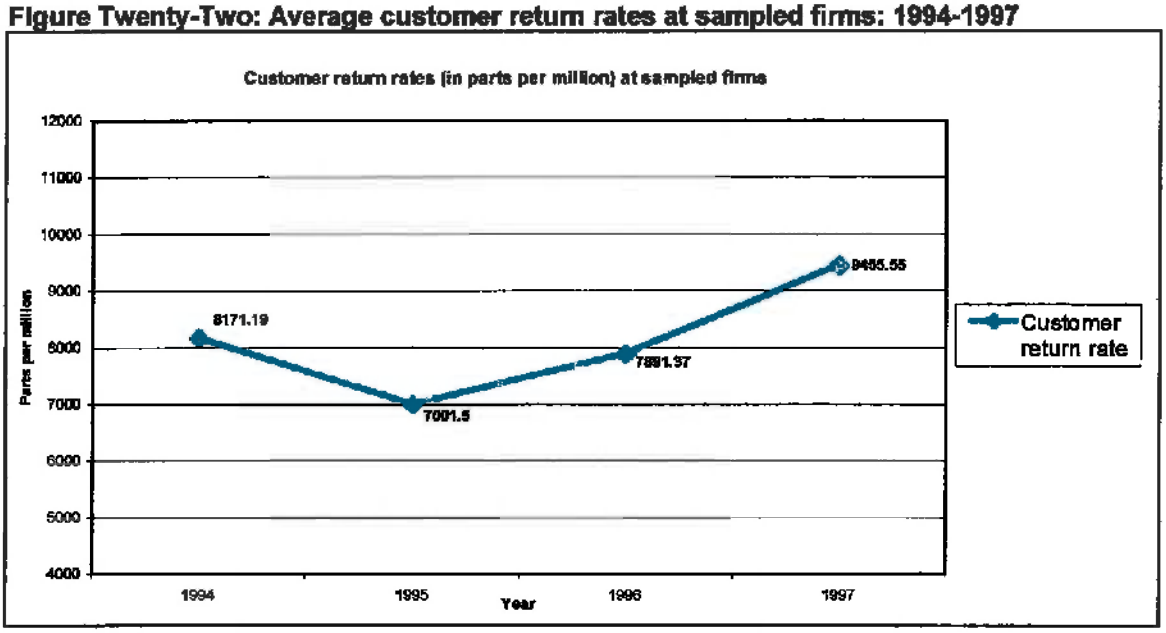


Figure Twenty-Two: Average customer return rates at sampled firms: 1994-1997



Both figures do, however, hide the significant variance in quality performance between firms. Some firms have internal reject/rework rates in excess of 13%, for example, whilst others claim to have none whatsoever. A similar story is true for customer return rates, with certain firms claiming to have zero customer returns and others up to 80,000 parts per million. It is clear though that most firms face an enormous quality challenge, with more rather than less firms experiencing quality problems.

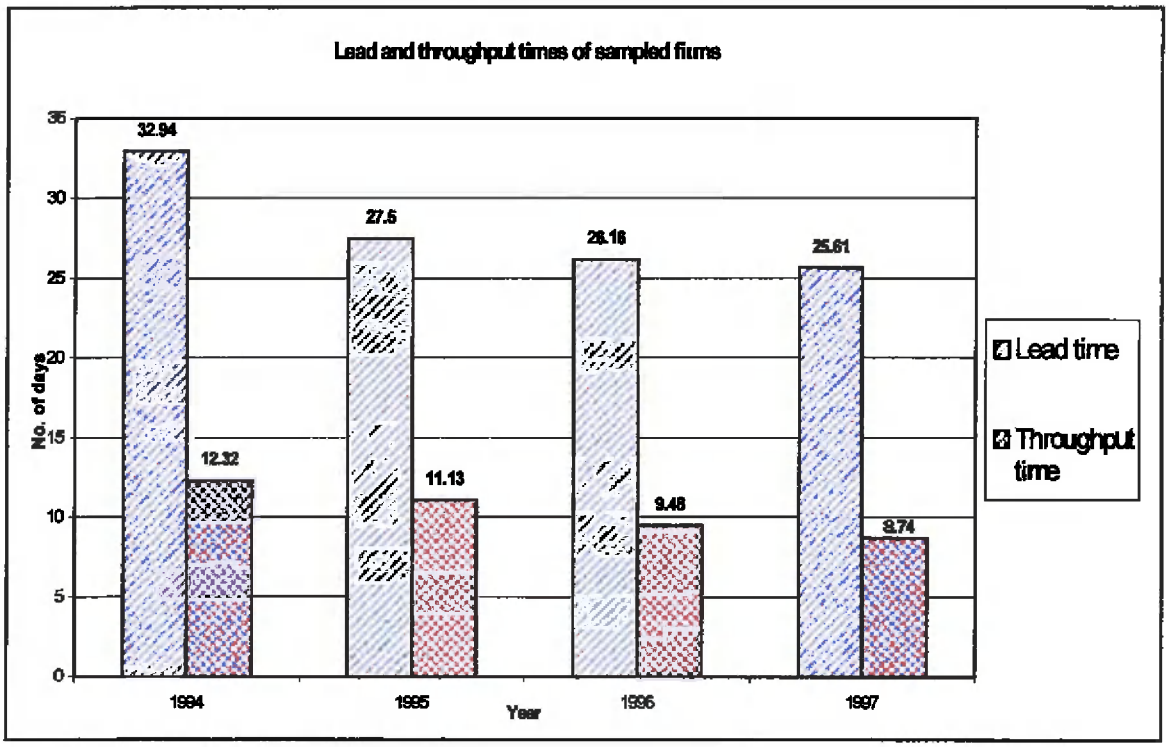
An example of the quality challenge facing South African firms emerged from a recently completed international benchmark undertaking by the author. Two firms making a very similar and overlapping range of products, one in South Africa and the other in the United Kingdom were benchmarked with one another. The UK firm had a customer return rate in 1997 of 344 parts per million, whilst the South African firm's customer return rate was 80,000 ppm. One of the international customers that was being supplied by the UK automotive components firm was, moreover, dissatisfied with its performance and was demanding no more than 100 parts returned per million. Quality is clearly then no longer an order winning characteristic in the international market. It is now simply order qualifying.

4.2.3. Market driver No. 3: Lead time

Lead time refers to the time from the firm's taking of a customer order to the delivery of the product ordered. It is impacted on by three key variables: the logistics and administration system of the firm, the efficiency of suppliers and the flexibility of the production system in place at its own factory. Given the complexity of the issues relating to internal firm flexibility this is dealt with as market driver no. 4. Here we are solely interested in the manner in which the logistics and administration system at firms, and the frequency of supply from suppliers (a proxy for measuring Just-In-Time supply), impacts on the speed at which firms can deliver products to customers. As highlighted in Figure Twenty-Three lead times are excessively high at sampled firms, particularly when one takes into account the difference between the total lead and

throughput times, with throughput times measuring the time taken for the production of a product once production begins. All other time is superfluous and its extent represents poor supply chain coordination and logistics control.

Figure Twenty-Three: Lead vs. throughput times at sampled firms: 1994-1997

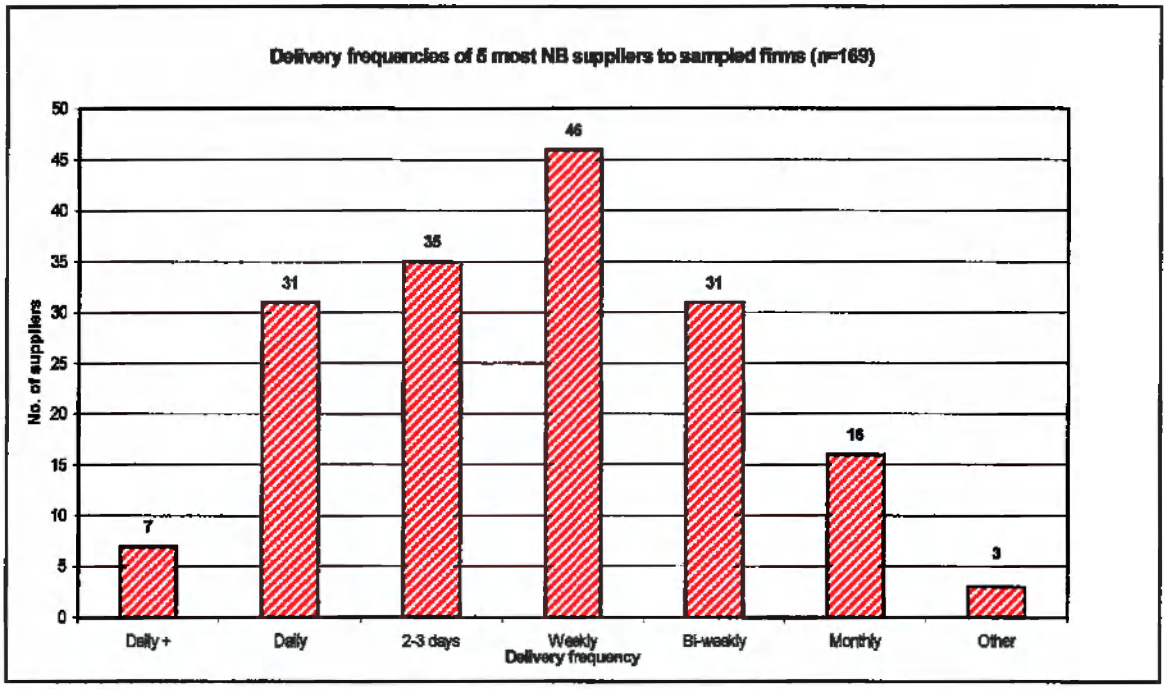


Average lead times amongst sampled firms improved by 22% over the period 1994 to 1997, with this representing a significant improvement in response times. Importantly, however, throughput times improved by 29% over the same period, thus suggesting that firms have improved their internal flexibility to a greater extent than they have dealt with their broader lead time issues. Firms clearly, then, need to give greater consideration to their administration and logistics functions. Moving towards cellular manufacture or single unit flow production may improve internal manufacturing flexibility but it needs to be complemented by cellular order taking and procurement systems to maximise the advantages of a more flexible production system.

Having capable suppliers that react timeously and reliably to orders is, of course, another part of this important equation. Having a sophisticated JIT-based logistics system will mean very little if suppliers are incapable of delivering flexibly and with perfect quality themselves. Any attempt at lessening lead times should consequently involve suppliers, although ironically this seldom occurs in a structured and mutually beneficial manner. Figure Twenty-Four highlights the need for supplier involvement in lead time improvement. Each of the sampled firms were requested to indicate how frequently each of their five major suppliers delivered to them, with this question acting as a proxy for the measurement of supplier flexibility and the extent to which the sampled firms were operating JIT systems back into their supply chains. Given the long lead times evident it was perhaps unsurprising

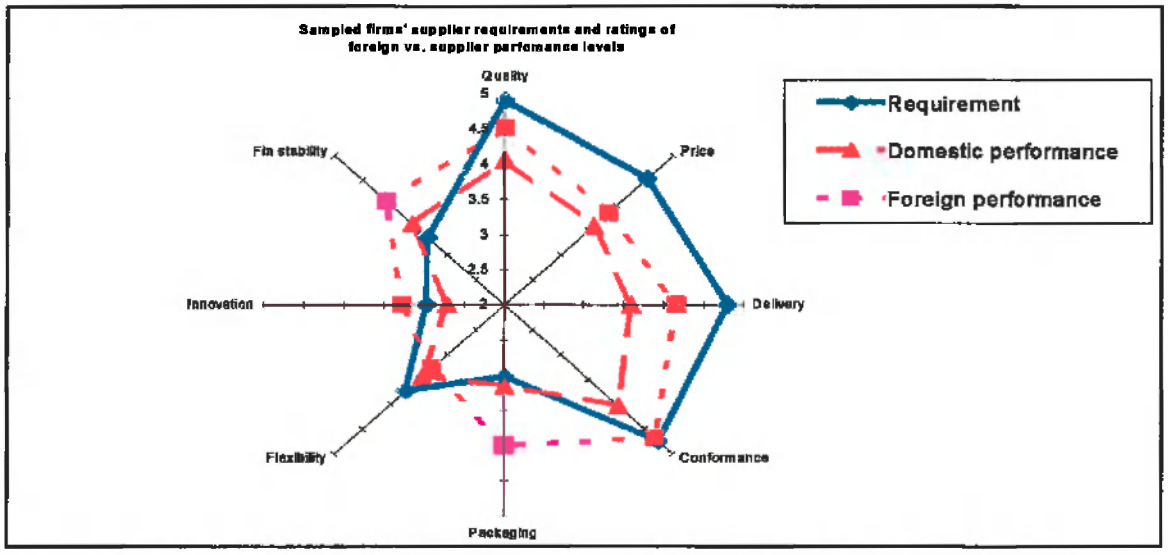
to see the lack of JIT amongst suppliers. For example, nearly three-fifths of major supplier deliveries to sampled firms occur weekly or less frequently, with well under one-quarter of deliveries taking place daily or more frequently.

Figure Twenty-Four: Delivery frequencies of the five most important suppliers to each of the sampled firms



If the domestic automotive components industry is to improve its performance substantially it is therefore critical that due attention be given to its supplier base. This point becomes even clearer when attention is given to the rating that the sampled firms give of their suppliers' performance. As illustrated in Figure Twenty-Five there is a significant gap between the sampled firms' requirements and their suppliers' performance (especially domestic suppliers). No single firm can be an island of competitiveness in a sea of inefficiency, and until firms give greater consideration to the competitiveness of their own supply bases they will struggle to improve their own internal performance.

Figure Twenty-Five: Sampled firms' supplier performance requirements and their ratings of foreign vs. domestic supplier performance levels



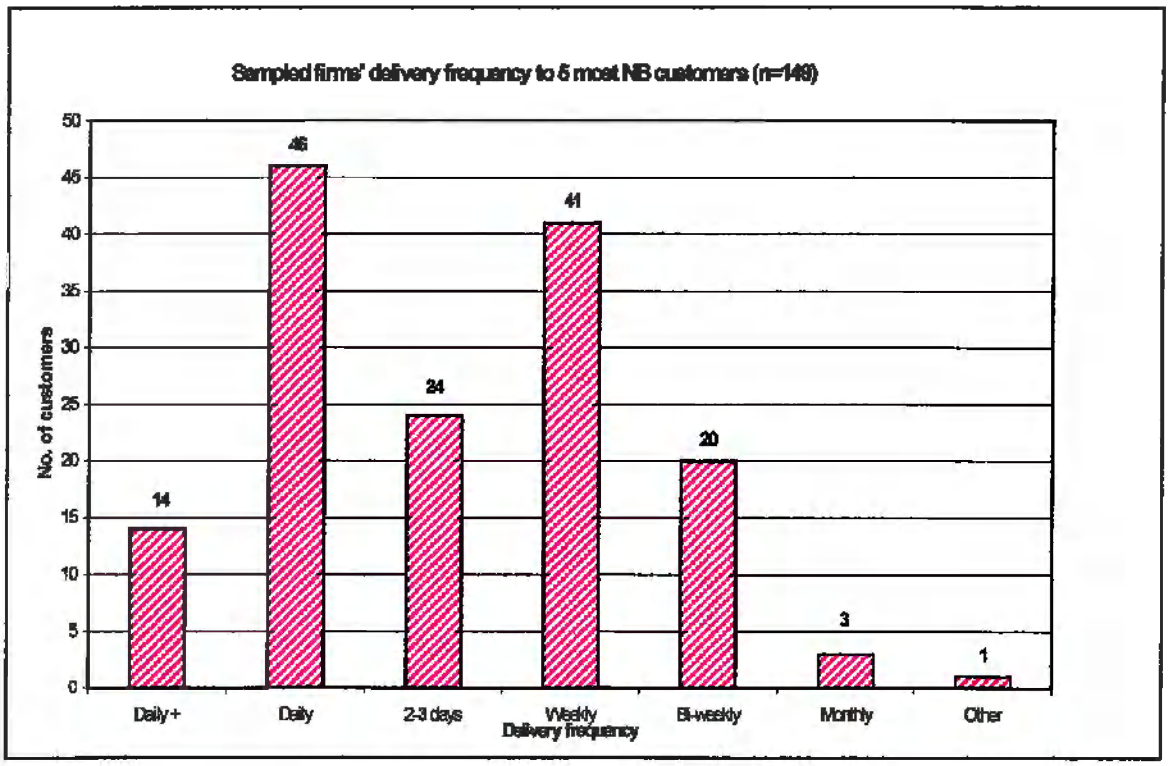
Market driver No. 4: Flexibility

Notwithstanding the importance of value chain issues, many firms are clearly struggling with their own internal efficiency levels. This is a critically important issue as efficiency, which we will measure by way of various flexibility measures here, determines not only the market responsiveness of a firm, but also to a large extent its performance in terms of price, quality and delivery reliability criteria. These are all moreover key success variables in the automotive components industry.

Some of the important issues pertaining to firm-level flexibility have been discussed under different market drivers. For example, inventory levels, lead and throughput times, as well as supplier delivery reliability are important determinants of a firm's overall flexibility. Other important measures also highlight the extent of a firm's internal flexibility, however, and these are discussed below.

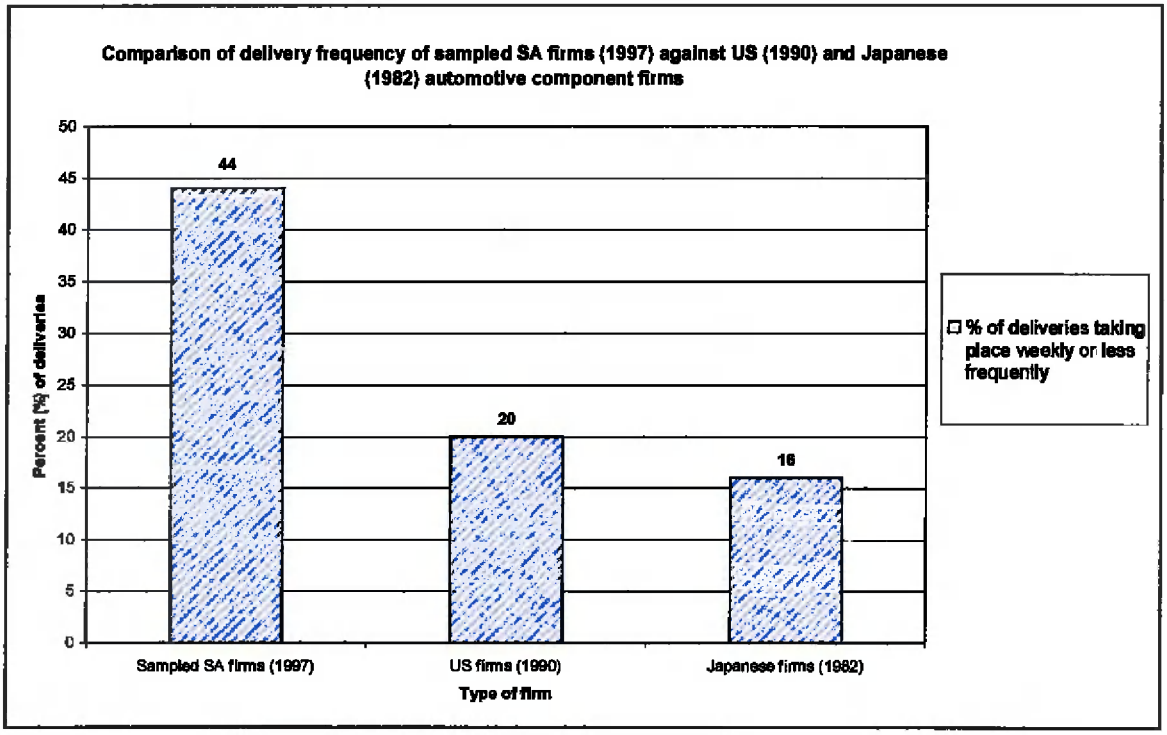
Delivery frequency to customers: Logic dictates that the more frequently a firm delivers to its customers the more flexible its production system. A firm operating according to an old Fordist method of production with massive amounts of inventory, large batch and lot sizes, slow throughput and long machine changeover times, is highly unlikely to cope with customer demand that designates the frequent delivery of supplies on a JIT basis. Measuring delivery frequency to customers is therefore a useful measure of internal firm flexibility. As highlighted in Figure Twenty-Six, the sampled firms do not deliver that frequently to their major customers, with many firms delivering products on a weekly and bi-weekly basis.

Figure Twenty-Six: Delivery frequency of sampled firms to their five major customers



In international comparative terms this is not a particularly impressive spread of delivery frequencies. In comparison to a study quoted in Womack, Jones and Roos (1990) it is clear that the sampled firms do not deliver as frequently to their customers as American and Japanese automotive component firms delivered to their customers in 1990 and 1982 respectively. This is illustrated in Figure Twenty-Seven.

Figure Twenty-Seven: Comparison of delivery frequencies: Sampled firms vs. US (1990) and Japanese (1982) first-tier automotive component firms



Whilst delivery frequencies to customers are a good indication of flexibility, firms can, of course, have finished goods warehouses with significant levels of stock that are delivered on an ***apparent JIT*** basis. This does not, however, represent true flexibility and it comes at an exorbitant cost, although admittedly it does help the customer in terms of its own flexibility requirements. The utilisation of other measures of internal flexibility is therefore critical, including batch sizes, lot sizes, and machine changeover times.

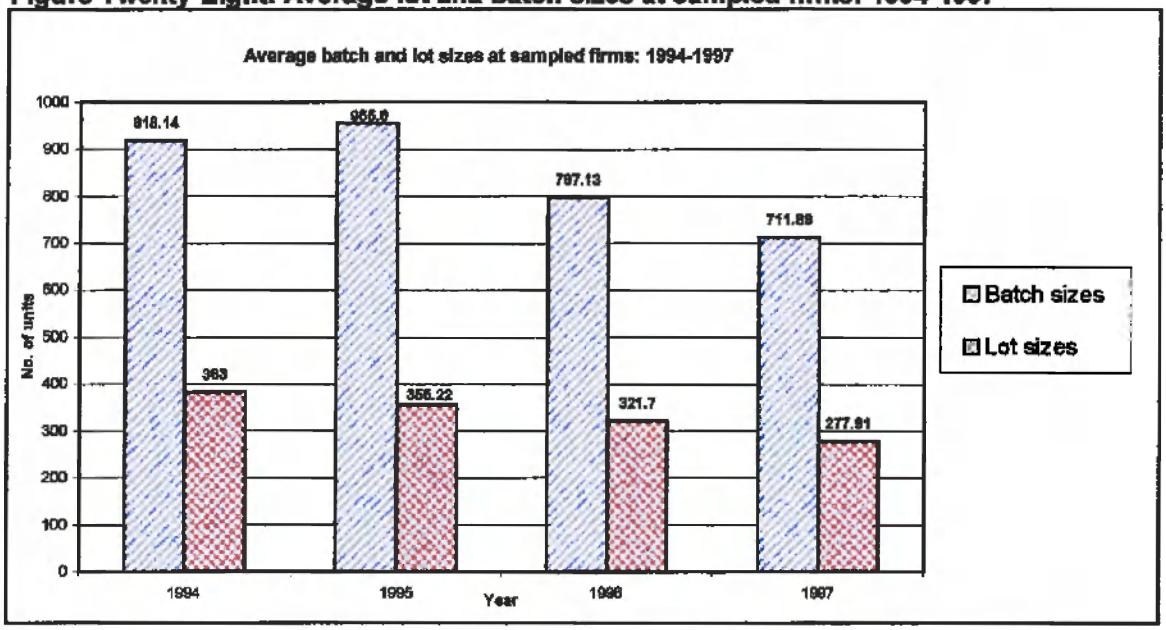
Batch and lot sizes: Batch size indicates the quantity of manufacture of one particular product in a factory before machines are re-set to produce another product, whilst a lot size represents the actual quantity of product passed from one work station to the next. Both are important performance variables as increasing flexibility entails the manufacture of as small a batch size as is possible, with this small batch then being broken up and transferred from one work station to the next in as small a lot size as is possible.

In South Africa, batch sizes in manufacture are often the same size as the customer's order plus a certain percent extra in order to take into account possible internal rejects. Lot sizes are likewise kept as large as is possible in order to maximise machine utilisation. By lowering both batch and lot sizes

firms effectively cut their inventory levels and increase their throughput. There is usually also an improvement in quality as smaller quantities of product are easier to control and inspect for defects at the various stages of production. Lowering batch quantities can potentially however be risky particularly if machines are old and the labour force (including management) poorly trained. In order to lower batch quantities effectively it is moreover necessary to reconfigure the production systems at the firm, i.e. moving towards cellular production, single unit flow lines, team-working, etc.

Significantly both batch and lot sizes are declining in the industry, with batch sizes having declined by 22%, and lot sizes by 27% since 1994. This improvement is clearly illustrated in Figure Twenty-Eight.

Figure Twenty-Eight: Average lot and batch sizes at sampled firms: 1994-1997



Whether these batch and lot size trends represent improvement is not immediately clear, however, as they could simply represent smaller customer orders, rather than a pro-active movement towards improving firm-level flexibility.

Machine changeover times: Decreasing batch and lot sizes in a firm is contingent upon a rapid reduction in machine changeover times. It would prove impossible to improve production flexibility if, for example, it took four hours to change a press. The costs of continuously changing the press would prove exorbitant given the amount of downtime that would develop. Firms consequently need to focus on ways to decrease their machine changeover times, a difficult endeavour given the age of many of the machines in use in South Africa, and the fact that they were designed for the mass production of undifferentiated products.

Notwithstanding these factors, single minute exchange of die (SMED) principles could be adhered to at firms to drastically improve machine changeover times. Whilst machine changeover time measurements were not requested from the sampled firms (given the difficulty of making comparisons

between different machines, applications, raw material inputs, etc.) it is clear that it is an important issue in the industry. It radically curtails the success of flexibility initiatives, particularly when machine down time is one of the key measurements used in production planning. The importance of this issue is illustrated by a benchmarking example. A sample product was recently followed at a firm that was being benchmarked by the author, with the sample product "flowing" through four production stages. The machinery involved had a cumulative changeover time of five and one-quarter hours, thereby drastically limiting the firm's ability to improve its internal flexibility.

Given customer demands for flexibility and delivery reliability (as highlighted in Figures Fifteen to Seventeen) it is critically important that firms consider the application of new machine changeover principles to increase internal efficiencies in line with market demands.

4.2.5. Market driver No. 5: Capacity to change

Perhaps the most important determinant of future success for South African automotive component firms, is the industry's capacity to change in line with ever increasing market demands. The automotive industry both domestically and internationally is becoming far more demanding. Whether firms fail or grasp the opportunities afforded by these demands will depend largely on their ability to use their resources effectively, with the most important of these being their human resources. Unless firms continuously innovate in terms of their production and organisational systems, as well as their products, they will fall behind their competitors. International case studies have shown that human resource capability is the most important weapon that any firm has in its armoury when confronting the demands of international competition, as it is a firm's human resource capacity that gives it the ability to innovate and continuously improve operations.

Unfortunately both human resource development and human commitment to change appears to be rather limited in the domestic automotive industry. For example, average levels of expenditure on training amongst sampled firms represented just 2.23% of their total remuneration costs and only 0.37% of their turnover, whilst less than half (49%) of the firms belong to a training board. One would expect far greater levels of investment in training particularly when one takes into account that the average level of numeracy amongst workers at the sampled firms is estimated to only be 67%. Despite these rather disappointing investment levels in human resource development most firms (69%) indicated that they were presently placing a far greater level of emphasis on training than they did three years ago. A quarter of firms claimed that the emphasis had stayed the same, while only 6% believed that they were now placing less emphasis on the training of their workforce.

The real problem with human resource development (HRD) in the automotive components industry escapes statistical analysis, however, pertaining as it does to the low levels of trust that exist in the industry between management and labour. The low levels of HRD in the industry could be overcome more easily if the antagonistic and, in many cases racially defined, labour relations

problems at firms were improved dramatically. The new work organisation principles driving globally competitive firms internationally are based on high levels of trust, with workers being made increasingly responsible for the day to day facets of production operations. Workers are, for example, increasingly multi-tasked and multi-skilled – a necessity given the demands placed on workers through the generation of cellular production systems. Whilst many automotive component firms are slowly moving towards the initiation of team-working, self directed work teams, green areas, suggestion schemes, etc. all of these initiatives are premised on the existence of high levels of both worker and management commitment to the success of the firm. Unfortunately, however, there is little indication of the necessary levels of commitment within South African automotive component firms.

Figure Twenty-Nine: Absenteeism & labour turnover rates at sampled firms: 1994-1997

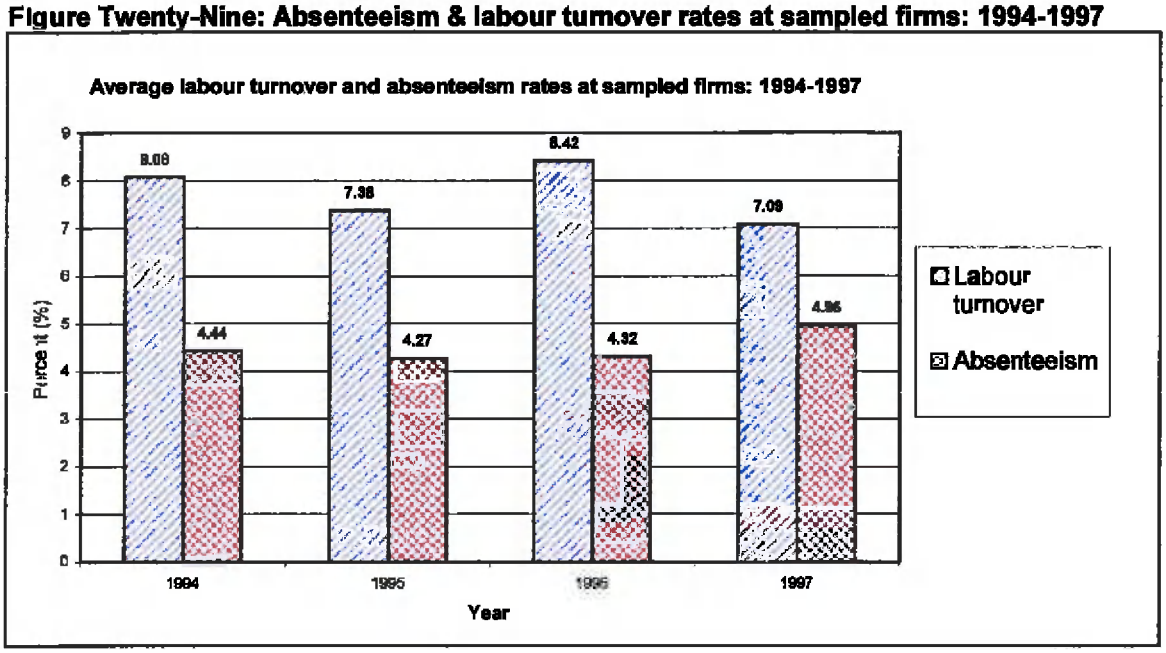


Figure Twenty-Nine highlights, for example, the high levels of both labour turnover and absenteeism at the sampled firms. Even more critically, unlike the majority of the other performance indicators generated the trajectories of the two indicators do not suggest on-going improvement in the industry. The findings presented in Figure Twenty-Nine are therefore highly disconcerting. Given that these two measurements are useful proxies for measuring levels of worker commitment to firms and hence to change, it is clear that the industry is not performing well in this regard. This becomes particularly obvious when one compares absenteeism levels amongst the sampled firms with the absenteeism levels of firms included in an Anderson Consulting study (1992) which compared the performance of 18 international automotive component firms. The top nine firms were classified as "world-class" and the remaining nine as "other". Average levels of absenteeism amongst the world-class firms was 0.8%, and for the others 3.2%, which is still well below the average in South Africa.

Labour turnover rates are also surprisingly high amongst sampled firms, particularly when one takes into account the present labour market and

opportunities for employment outside of the firms in which people are employed.

It does need to be noted, however, that there is significant variance between firms in terms of both labour turnover and absenteeism levels. Nearly three-fifths of the sample, for example, have labour turnover levels of below 5%, with some firms having no labour turnover whatsoever. On the other hand, two-fifths of sampled firms have labour turnover levels in excess of 5%, with certain firms experiencing labour turnover rates of up to 41.5% per annum.

The range for absenteeism is almost as large, with certain firms experiencing negligible levels of absenteeism that are comparable with international best practice (i.e. approximately 1%), whilst others experience levels in excess of 10%, and in certain instances up to nearly 20%! The reasons underpinning high absenteeism levels are obviously complex, but they most certainly do make a significant contribution to manufacturing inefficiency. This is clearly highlighted in the Anderson Consulting report (1992: 15) where it is noted that:

> *"Absenteeism is important because an unpredictable labour supply can have an impact on both productivity and quality."*

Unless both management and labour buy into HRD programmes at firms, there is little chance of ongoing improvements taking place. Competing internationally does not only require that firms work harder in their endeavours to capture market share, it also requires that they work smarter – something which is very difficult to do without adequate levels of HRD at both the management and worker levels. Continuous improvement programmes such as suggestion schemes, which are integral to attempts at getting firms to work smarter, are largely reliant on labour and management commitment to the firm and by intimation one another. The failure to achieve adequate levels of commitment is unfortunately one of the principle reasons for the failure of most suggestion scheme and other continuous improvement programmes at automotive component manufacturing operations in South Africa.

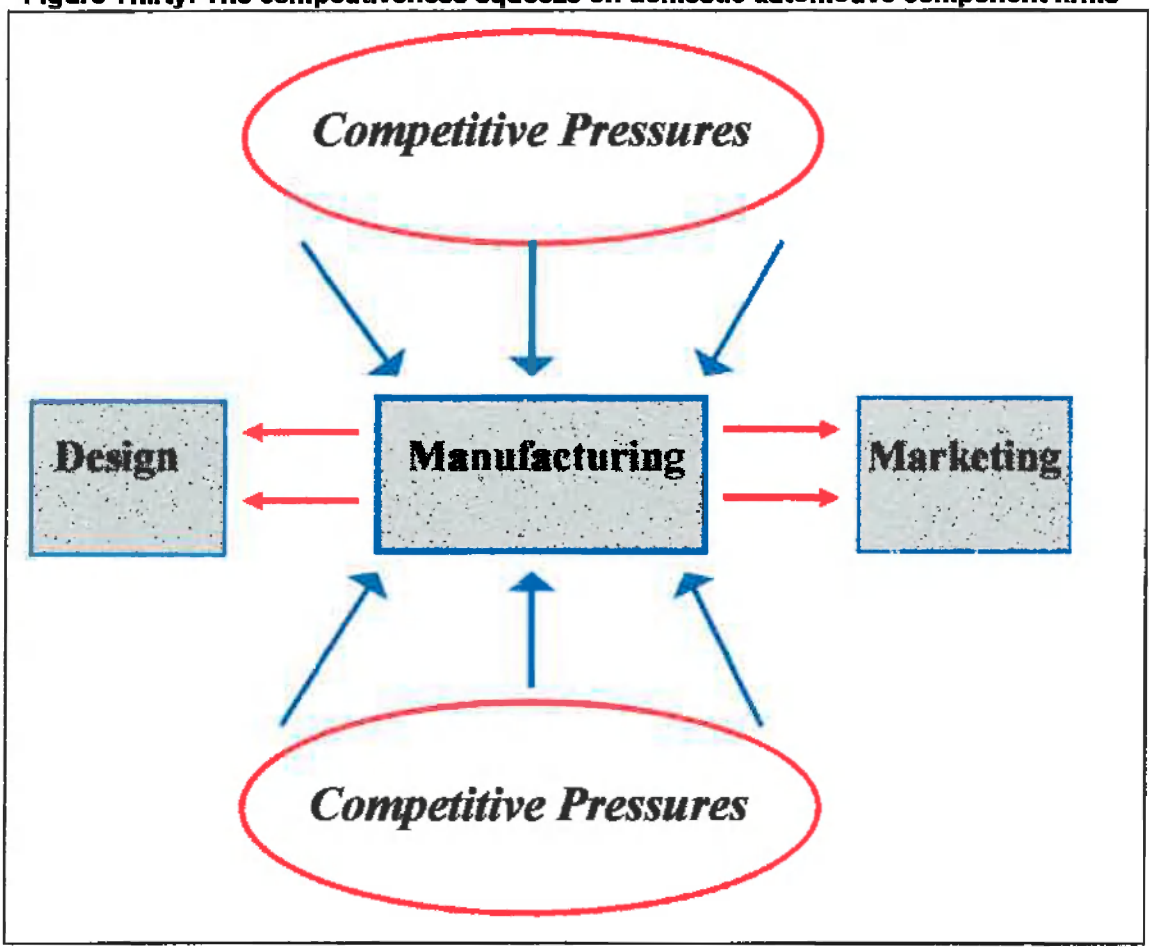
4.2.6. Market driver No. 6: Time to market

One of the key determinants of production/operations success for any manufacturing company is its ability to develop new products for the market. Unfortunately for the South African automotive components industry this is a potential market advantage that is being rapidly evaporated in line with global sourcing and its associated lead sourcing principles. Except for certain OEM market niches where some level of localisation is permitted, and in certain stable technology aftermarket segments, South African automotive component firms are not viewed as sources of innovation.

If one refers back to Figures Fifteen through Seventeen, it is quite clear that innovation demands on South African automotive component firms are very low relative to manufacturing competency requirements such as quality, delivery reliability, price and conformance to specification. As highlighted in

Figure Thirty South African automotive component firms are being increasingly squeezed into a narrow band of firm-level value added, i.e. manufacturing, with the multi-national automotive component companies largely controlling global marketing and design developments, particularly for high value-added components[4].

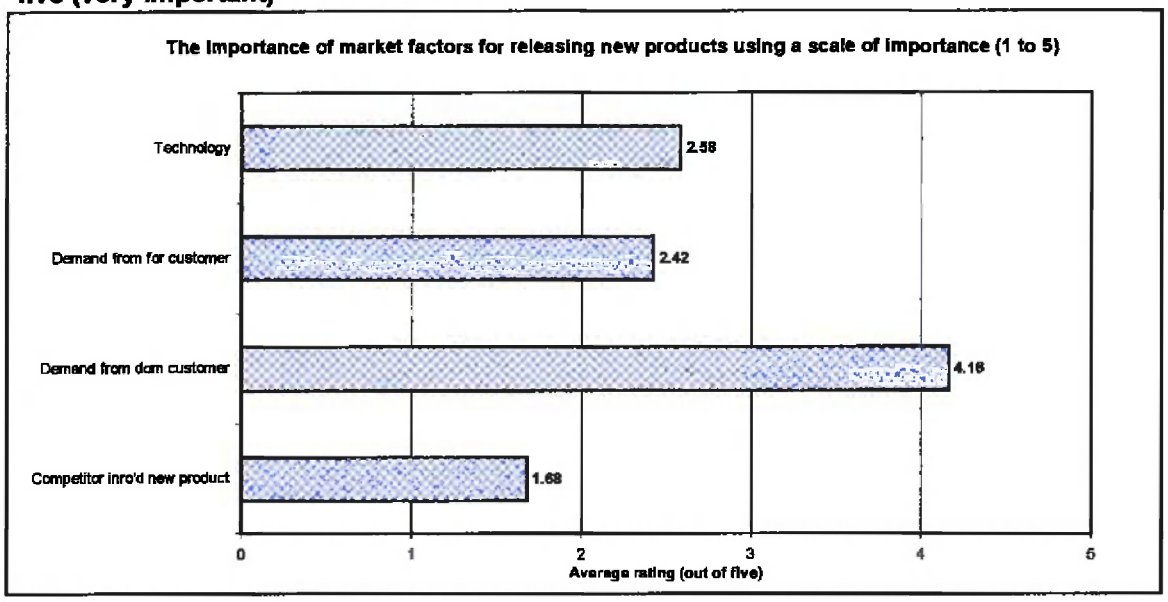
Figure Thirty: The competitiveness squeeze on domestic automotive component firms



As the automotive components industry is increasingly integrated into the global automotive economy this trend of low innovation demand is likely to continue. Less than three-fifths of the total sample of firms had, for example, released new products into the market since the beginning of 1997, with those firms that had claiming that it was domestic rather than international customer demand that led them to introduce the new product(s). The relative unimportance of foreign customer demand for product innovation is clearly illustrated in Figure Thirty-One, with most firms who have introduced new product(s) seeing the domestic market as the most important factor driving their new product sales.

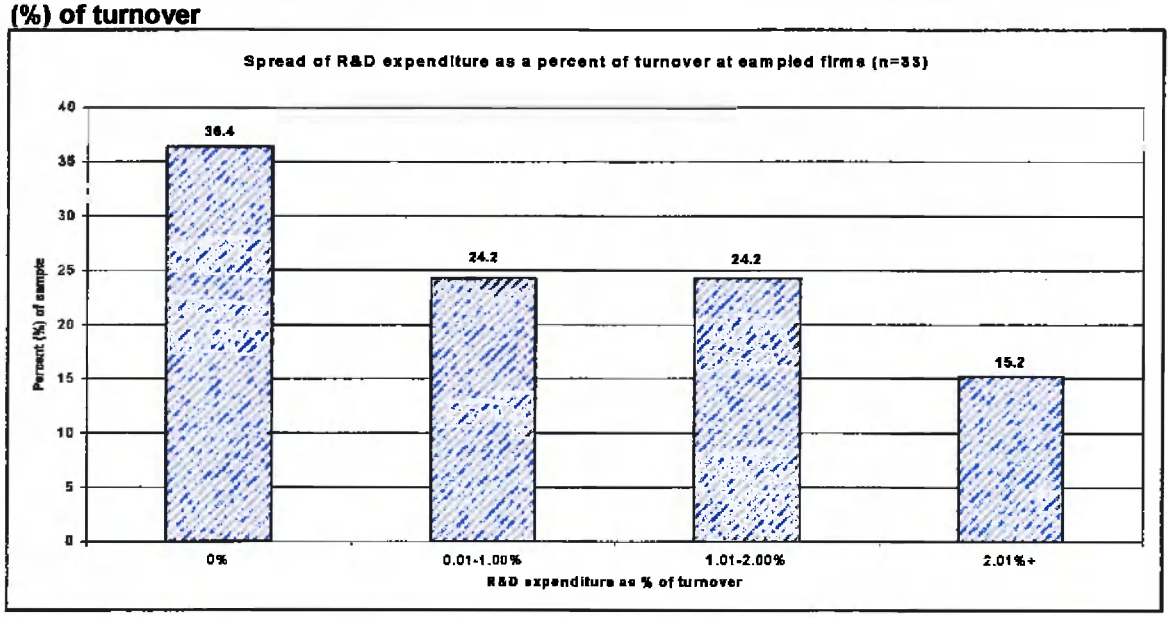
[4] This is a critically important issue that will be given far more detailed consideration in a forthcoming report by the author and Prof. Raphael Kaplinsky.

Figure Thirty-One: The importance of market factors for the introduction of new products since the beginning of 1997, using a rating system of one (not important) to five (very important)



The issues of new product development and product development lead times are highly relevant to the multi-national corporations that dominate the global automotive components industry, but it appears as though South African automotive component firms are precluded from competing on the basis of these market drivers. This is one market driver against which the majority of South African automotive component firms (please note that the term ***majority*** is used here as there are always exceptions) are unlikely to be given the opportunity to compete. Average Research and Development (R&D) expenditure levels at the sampled firms further corroborate the argument presented here. As highlighted in Figure Thirty-Two, the overwhelming majority of firms spend very little on R&D. Average expenditure on R&D is, for example, only 1.3%, with 36% of the sampled firms spending nothing whatsoever.

Figure Thirty-Two: R&D expenditure levels at sampled firms, expressed as a percent (%) of turnover



4.3. Exporting

If one looks at the structure of automotive component exports from South Africa, and the benefits that firms claim they are receiving from exports, it becomes even more clear that export customers do not see South African firms as important providers of innovation.

This is clearly illustrated in Figure Thirty-Three, which highlights the growing gap between the value and the volume of exports (as a percentage of total output) from those sampled firms that do export (which is just over half of the sample). The gap suggests that firms could be exporting products of a lower value-added type in comparison to the products they are supplying into the domestic market.

Figure Thirty-Three: Exporting sampled firms: exports as a percentage of their total turnover value and production output (1993-1997)

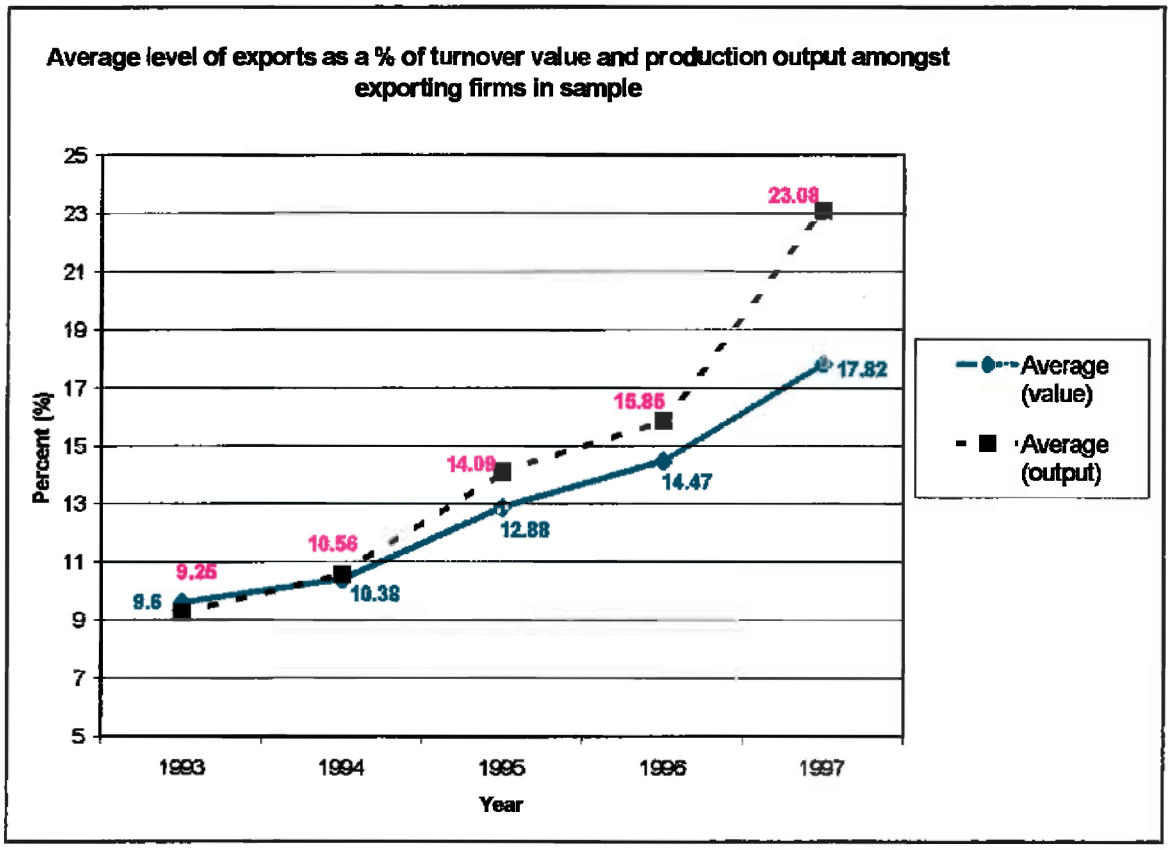
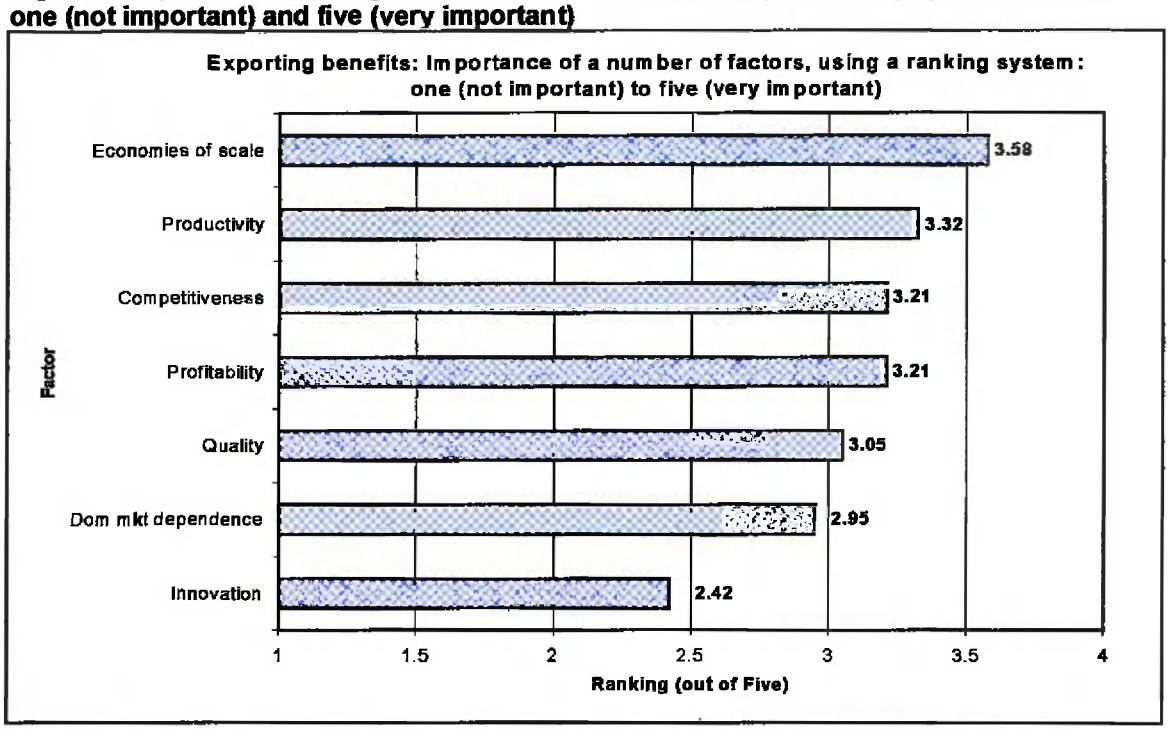


Figure Thirty-Four further illustrates this lack of innovation demand from international customers by highlighting the sampled firms' perceptions of the benefits that they receive from exporting. Innovation ranks as the least important of the seven potential benefits that the exporting sampled firms were asked to rank. This verifies the sampled firms' assessment of foreign customer innovation demands highlighted in Figure Eighteen.

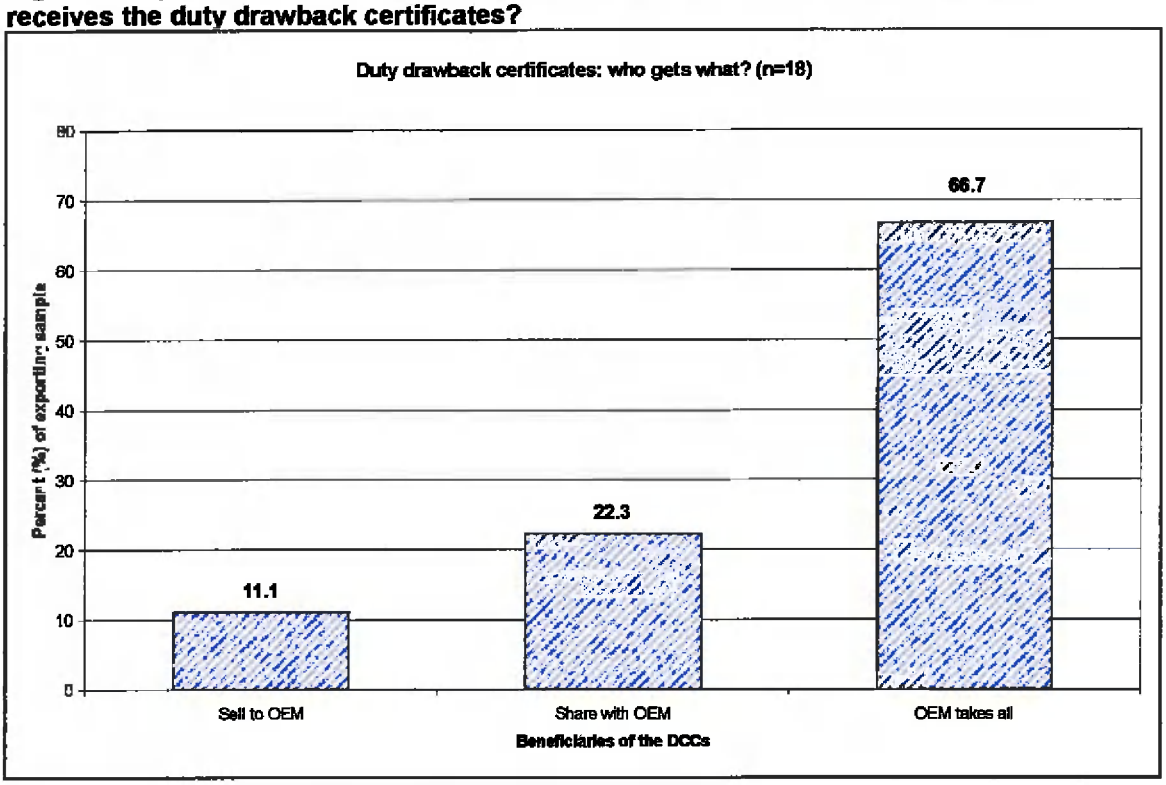
Figure Thirty-Four: Exporting firms: Benefits received, using a ranking system between one (not important) and five (very important)



Despite the lack of innovation benefits that firms claim they are receiving from exporting, Figures Thirty-Three and Thirty-Four highlight that exporting offers other significant benefits to those firms that have been able to penetrate export markets. The growth in automotive component exports from South Africa is in fact one of the most redeeming features of the MIDP. Exports are, for example, clearly growing extremely rapidly and firms do perceive the generation of major advantages from exporting, particularly in terms of economies of scale in production, productivity improvements, increased competitiveness and profitability.

The potential benefits of exporting are, however, limited somewhat by the manner in which the MIDP functions, with two-thirds of exporting firms claiming that all of the duty credits they earn as part of the Import-Export Complementation (IEC) scheme is kept by the domestic OEMs. The manner in which duty credits are shared (or rather not shared) between sampled firm exporters and domestic OEMs is illustrated in Figure Thirty-Five.

Figure Thirty-Five: Sampled exporting firms and the IEC component of the MIDP: Who receives the duty drawback certificates?

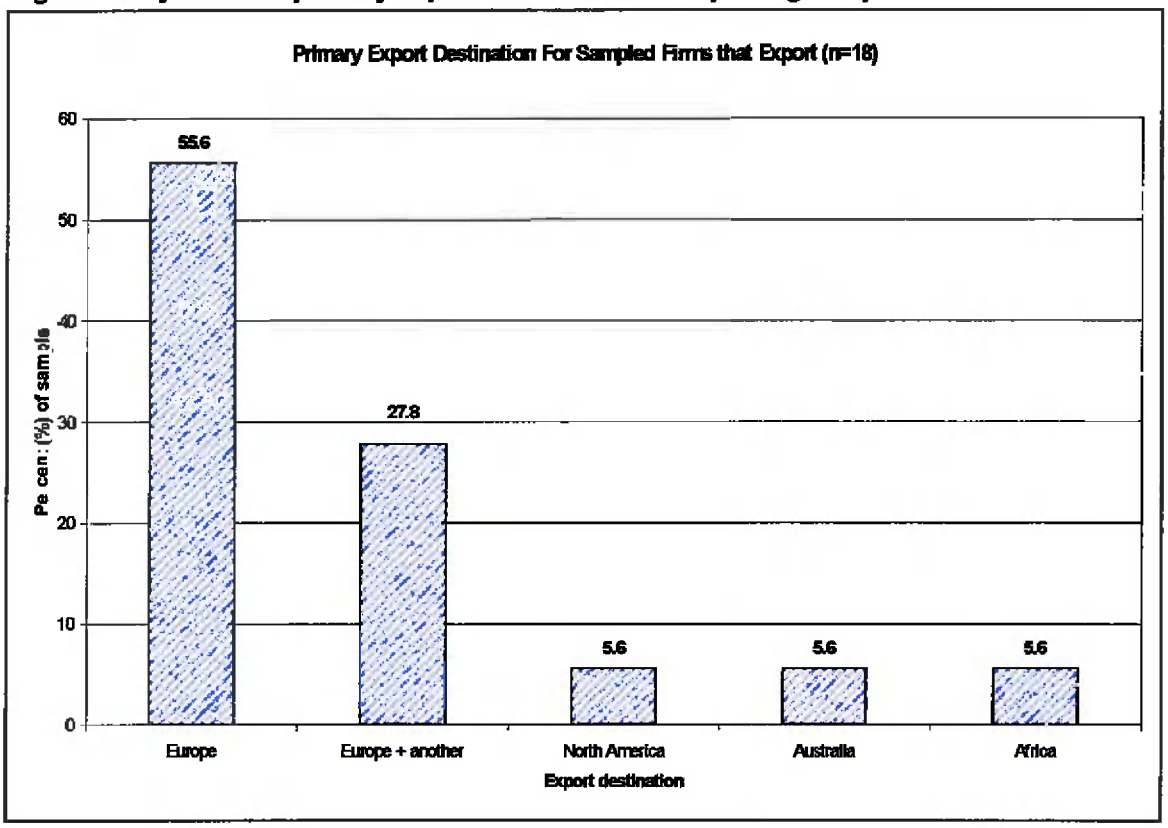


The primary export market for the sampled firms is clearly Europe; with Germany in particular being an extremely important export destination. The importance of Europe as an export destination is highlighted in Figure Thirty-Six, with other export destinations such as Australia, North America and even Africa of only marginal importance in comparison to its dominance. The South African automotive industry's strong historical attachment to the German automotive industry appears then to have been concretised rather than diluted during the course of the industry's reintegration into the global automotive industry.

Given the structure of the MIDP and the manner in which it benefits export focused rather than domestically focused firms it would appear that those export oriented automotive component firms that tie themselves to the German-owned OEMs have an advantage over others in terms of their long term survival.

Importantly moreover Figures Twelve and Fourteen highlight that once firms penetrate export markets, ongoing export growth usually follows. "Lost export orders" was, for example, ranked as the least important factor underlying the sampled firms' turnover and employment trajectories.

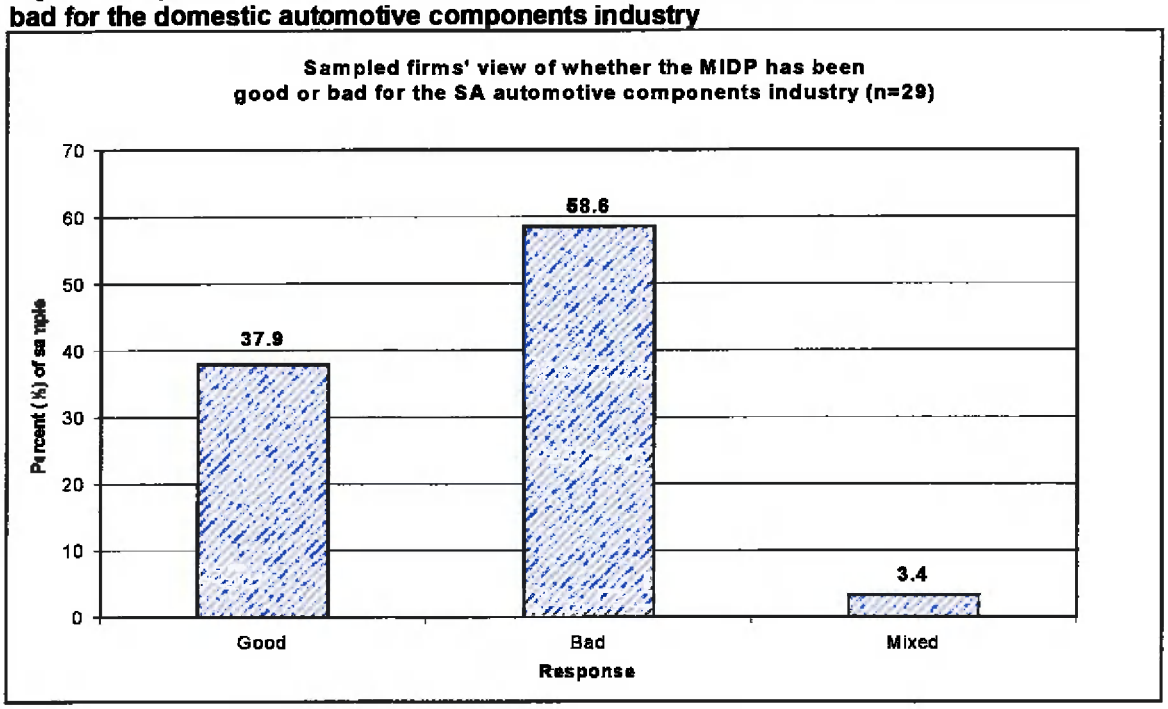
Figure Thirty-Six: The primary export destination for exporting sampled firms



One consequently needs to view export growth from the automotive components industry in a nuanced manner. Whilst certain sampled firms are, for example, clearly benefiting from, and growing their competitive capabilities through exporting, the way in which the MIDP is structured and the manner in which power relationships work in the industry (i.e. between OEMs and automotive component firms) prevents one from generating too rosy an outlook. Whilst exports have increased substantially so have imports, with the overall net effect of the MIDP on the country's trade balance actually being more negative than positive. The types of automotive components that the industry is exporting is obviously also important, especially when one bears in mind that seat parts and leather seat covers (31%), catalytic converters (12%) and tyres (7%), all low value-added products, made up over 50% of total exports in 1996.

Given the factors outlined above it is not particularly surprising then that the majority of sampled firms (nearly three-fifths) believe that the MIDP has had a largely negative impact on the development of the automotive components industry. Sampled firm perceptions of the MIDP are highlighted in Figure Thirty-Seven.

Figure Thirty-Seven: Sampled firm perceptions of whether the MIDP has been good or bad for the domestic automotive components industry



Those firms that do believe that the MIDP has been good for the automotive components industry believe that the most important benefit has been increased exporting. On the other hand those firms that believe the MIDP has been bad for the industry note reduced market demand, excessive competitive pressures and model proliferation as the most negative aspects of the programme. Both the positive and negative aspects of the MIDP, as highlighted by the sampled firms, are presented in Figures Thirty-Eight and Thirty-Nine.

Figure Thirty-Eight: Positive aspects of the MIDP as highlighted by sampled firms (n=15)

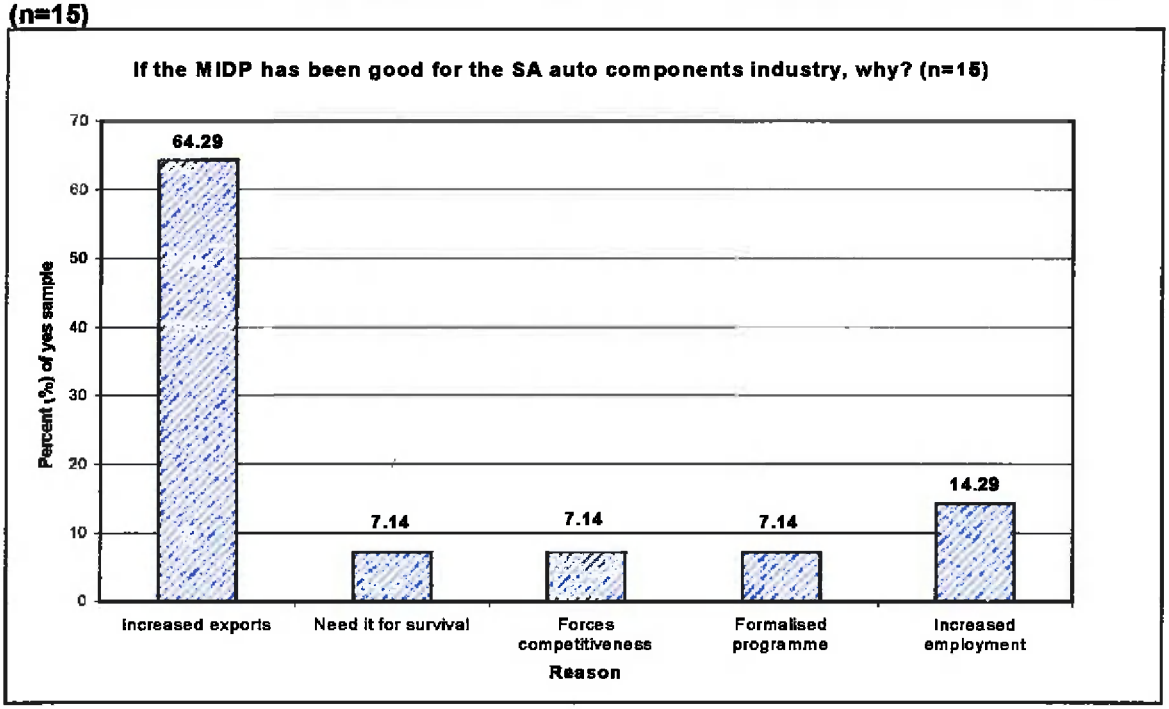
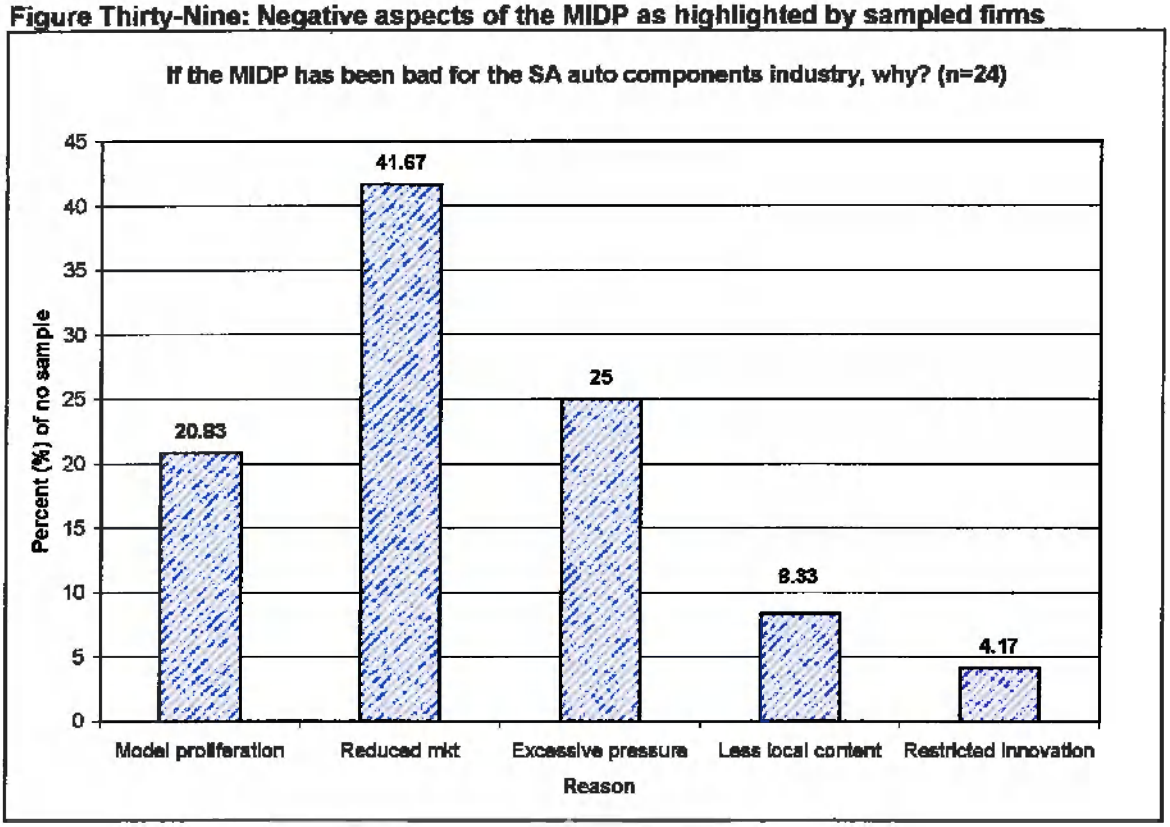


Figure Thirty-Nine: Negative aspects of the MIDP as highlighted by sampled firms



Conclusion

The picture presented in this report is rather mixed. Whilst the industry is clearly under severe pressure to improve its international competitiveness, significant improvements have definitely taken place, with the internal performance measures generated showing improved performance in terms of the meeting of most market drivers (or demands).

The automotive component firms included in the study are experiencing very mixed economic conditions with this being reflected in the economic performance indicators generated. The general trend though is one of decreased profitability in the face of increased competition. The post-1995 period is clearly posing enormous challenges to the automotive components industry in South Africa, with many firms feeling undue pressure from the various facets of the MIDP. The fact that firms are, in general, responding to the competitive threats facing them is, however, positive. The level of export growth from sampled firms, whilst artificially inflated by the IEC component of the MIDP, is, for example, indicative of the sampled firms' improved competitiveness.

In comparison to the international figures presented in the report, it is obvious, however, that the industry still has a long road to travel in terms of the attainment of international competitiveness. Internal performance indicators may suggest that the industry has improved but whether these improvements will be sufficient to sustain present levels of output into the future is open to question. As has been highlighted throughout the report, the ability of the sampled firms to improve their competitiveness is dependent on both value chain and firm-specific issues. The meeting of market drivers (or demands), both domestically and internationally, is contingent upon firms finding new mechanisms for improving their performance. This will be impossible to achieve unless the weaknesses discussed under each of the market driver headings in **Section Four** are suitably resolved.

Given the globalisation of the industry many domestic automotive component firms are increasingly likely to be precluded from competing in the global market place on the basis of their design and marketing capacities, hence the critical importance of firms' generating more competitive production/operation systems. This is the most important challenge facing the automotive components industry in South Africa, and along with the issue of connectivity, it will decide the future success or failure of the industry.

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