

SECTORAL STUDY – PLASTICS CONVERSION

1 INTRODUCTION

Since World War II, the global plastics sector has undergone rapid growth, second only to the growth experienced in the computing industry (Doel, 2002). The key to the success of the plastics industry has been versatility - plastic products are used in a huge array of applications across many industries. Innovative technologies have resulted in ever lighter and more versatile plastic products.

The vast size of the global plastics industry makes it an extremely important sector from an employment perspective. In the US, employment in the plastics sector increased by 3% annually from 1975 to 2000, while employment in the rest of the manufacturing sector remained unchanged (Plastics Data Source, 2002).

At \$US 3.3 billion, the size of the South African market contrasts sharply with the likes of the US and Europe, which are worth \$US 331 billion and \$US 127 billion respectively (Africa Business Direct, 2002; Society of the Plastics Industry, 2002). South Africa also has a relatively low annual per capita consumption of approximately 45kg per head, as opposed to around 100kg per head in Europe and the United States (Mbendi, 2002).

South Africa's plastics industry comprises polymer producers, polymer processors, plastics converters and plastics recyclers. The plastics sector is divided into an upstream component that manufactures polymers as well as a middle and downstream component, which converts the polymers into finished plastic products (plastic converters). The plastic products are distributed to retailers and wholesalers, exported or in some cases distributed directly to consumers.

This report focuses on the plastics conversion industry, including recycling, but excludes upstream polymer production, except with references to upstream manufacturing where relevant.

Note: "Sector" in this report refers to the midstream plastics conversion, including recycling, but excludes downstream distribution and upstream polymer production.

2 PROFILE OF THE SECTOR

2.1 Industry classification

Plastic conversion is a subset of the plastics sector and can be segmented according to the production processes utilised by the industry. These processes are as follows:

Calendaring

Compounding (SIC 33792)

Injection moulding (SIC 33801)

Blow moulding (SIC 33802)

Extrusion (SIC 33803)

Plastics processes (SIC 33804)

Insulated wire and cable (SIC 35691)

Rotational moulding (SIC 39001)

Dip coating (SIC 39002)

Compression moulding (SIC 39003)

Cast moulding (SIC 39004)

Plastic furniture (SIC 39102)

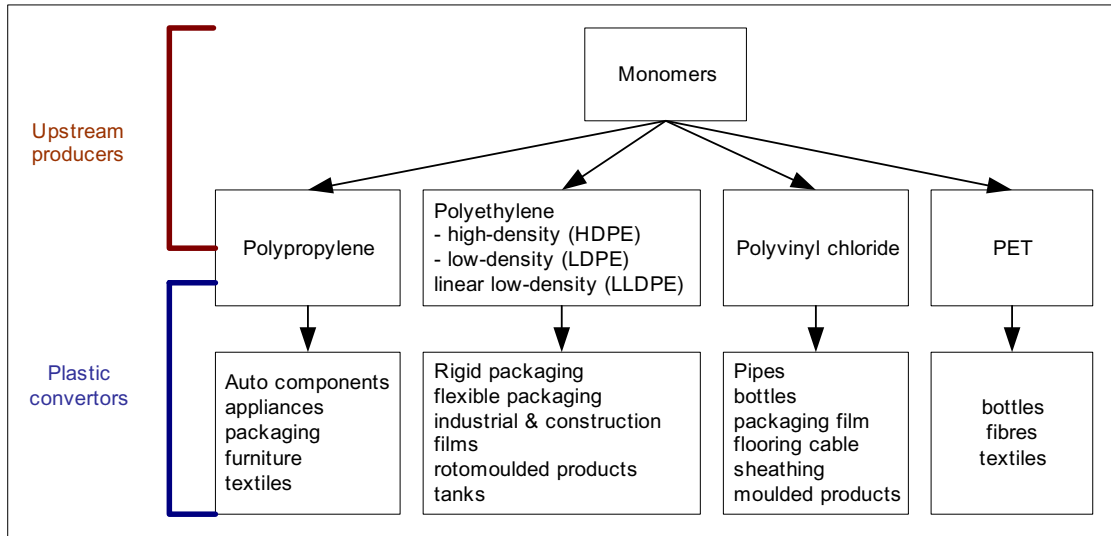
Thermoforming

2.2 Value chain, products and companies

The South African sector is largely characterised by the commodity plastics sector (around 80%), which is generally a lower margin, volumes-driven industry.

There is a marked difference between the industry characteristics of upstream producers versus middle and downstream plastic converters. Figure 140: The plastic value chain illustrates the entire plastics industry value chain, excluding the recycle and distribution activity and highlights the immediate links between the plastic converters and the upstream polymer producers.

Figure 140: The plastic value chain



Source: PARAS report, 1998

The upstream plastics industry is concerned with the conversion of chemicals into a variety of polymers or plastic resins. As these resins are the thread that connects the upstream industry with the middle and downstream industry, resin consumption is a reliable indicator of plastic industry activity (SPI, 2001). Plastic resin consumption tends to follow economic cycles and is expected to increase with the expected economic recoveries.

The South African upstream plastics industry is unusual in that it is coal-based and developed from Sasol's feedstock (Mbendi, 2002). This has resulted in a concentrated monopolistic upstream polymer manufacturing industry, which is dominated by Sasol Polymers. Sasol, incidentally, is investing significantly to move towards gas-to-liquid technology, which is far more cost-effective. Other upstream players are Dow Chemicals and SANS Fibres.

Plastic converters produce a wide variety of products including heavy-duty bags, form fill and seal, shade netting, packaging material and various types of bags, geo-textiles, industrial parts, automotive components and kitchenware. Intermediary products include film and plastic sheets, which are used by other converters.

Converters' products are utilised in a wide variety of markets including packaging, agriculture, sports and leisure, construction, electrical and electronic and automotive (European Union Plastics Converters, 2002).

Most companies in the converter sector are small companies. However, there are a few really large players such as Nampak, Kohler (currently merging with Nampak), Transpaco, Polyoak, and Astrapak collectively process nearly 80% of the polymers in the market.

Packaging is by far the dominant sector (consuming approximately 50% of polymers) within which many of these players operate. Intermediaries such as Ampaglass manufacture sheet for use by converters.

South Africa has a strong and vibrant recycling industry. The total percentage of recycling has not changed dramatically over the last decade, and remains around 15% per annum (PFSA, 2001). Various initiatives, some driven by legislation and others not, are aimed at increasing the level of recycling. The recycling industry mirrors the conversion industry in that a few companies (7%) of companies recycle the bulk (35%) of tonnages recycled.

3 THE GLOBAL CONTEXT

Europe, the US and Japan are the dominant players in the global plastics market and the characteristics of these players are compared and contrasted in Table 40. The table highlights Europe's dominant market share of the global plastics sector. The European Union alone has an annual capacity of 30 million tons (European Union Plastics Converters, 2002)⁴⁵.

Table 40: Relative size of the plastics converters market in Europe, the US and Japan in 2002

COUNTRY	NO. OF COMPANIES	NO. OF EMPLOYEES	SALES (MILLION EURO)
European Union	27 440	936 510	92 727
Europe (total)	29 256	1 000 706	97 908
US	13 068	610 900	63 332
Japan	19 684	447 000	86 648

Source: European Union Plastics Converters

The global industry performance in 2000 and 2001 was poor, but the industry is expected to start recovering in late 2002 to 2003 (Miel, 2002). This pattern is borne out in all the major markets with the European Union Plastics Converters reporting a fall in output of 0.4% in 2001, as opposed to the 5% rise in output during 2000 (Higgs, 2002). The poor performance in 2001 was due to a 4.2% decrease in the output of the construction market and a 0.8% decrease in the output of semi-finished products.

However, the European plastics processing market is likely to grow by 1.7% in 2002, largely the result of a 4.8% growth in demand for industrial (including automotive, electronics and home appliance parts) and consumer products (including house wares) (Higgs, 2002). The construction sector in particular, is forecast to achieve a growth rate of 5.1% by 2003, while commodity polymers for packaging food and other products will grow by 2% in 2002 and 4.7% in 2003 (Higgs, 2002). Packaging applications presently consume 31% of plastics in Europe. However, stricter environmental legislation, which proposes to raise the level of recycling, poses a challenge to European packaging converters. An increase in the amount of packaging imports from Asia also poses a threat to European producers (Higgs, 2002).

⁴⁵ The total contribution of plastics converters is larger, but some companies are integrated into different sectors, such as automotive, electrical and electronic, construction and toys and games.

The upstream polymer producing industry is largely driven by market share, rather than cost, with some companies entering huge cost cutting wars in order to protect their market share (Miel, 2002). US polymer consumption is expected to increase during 2003 and 2004 and over supply is likely to occur in 2005 (Miel, 2002). Resin prices in the European Union fell in 2001, leaving polymer producers with unattractively low margins (Higgs, 2002).

In the US, PET bottles presently have a small but growing market share with these companies facing thin profit margins and slow sales growth. Flexible packaging manufacturers fared better with many companies outperforming the stock market and recording attractive sales and profitability figures (Pryweller, 2002). Shipments of plastics packaging in the US are forecast to increase by 5.4% annually to 2005 (Pryweller, 2002). In Europe, the packaging sector's output grew by 4.2% in 2001, in contrast to the other sub-sectors in the plastics industry, whose outputs declined.

Traditionally, the USA, Europe and Japan accounted for 75% of world consumption of plastic, however, consumption in China, Taiwan, Korea, Thailand, Malaysia and India increased rapidly in the late 1990s. In addition to domestic consumption, these countries have become leading exporters of plastic products to USA Europe, Japan and other regions due to their low production costs, which give them a competitive advantage.

Packaging

Although demand for packaging continues to increase, the industry is characterised by growing over capacity, which is resulting in downward pressure on prices (Doel, 2002).

European players in this segment of the plastic industry are coming under increasing pressure from raw material suppliers who are utilising their power to dictate the prices of polymers, while there is pressure from customers, especially in the food industry, to decrease prices. The market is forecast to grow at between 4% and 5% per annum.

There appears to be a trend toward flexible packaging (Doel, 2002). With respect to rigid packaging, very high growth rates are forecast for PET, with global consumption forecast to reach 11 million tonnes in 2007. Food packaging is the area in which the most growth is forecast. In developed countries, pharmaceutical and medical products are a niche segment, which is forecast to grow.

Eastern Europe is posing a threat to Western European producers due to their ability to produce at a lower cost. The Far East also has the ability to produce low cost packaging, although their technical capabilities currently lag behind Europe.

Globalisation has put pressure on packaging companies to have a global presence, enabling them to supply their customers with local deliveries, regardless of where they choose to

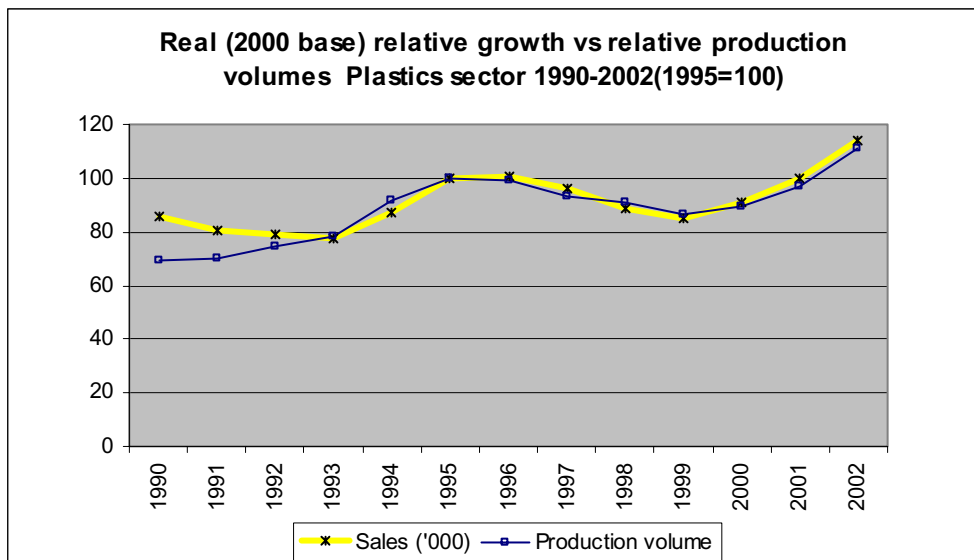
operate. Increasingly, polymer producers such as BASF and Shell are merging in full or part in order to remain competitive in the global market.

4 HISTORICAL, CURRENT AND FUTURE EXPECTED DOMESTIC PERFORMANCE

4.1 Domestic production and sales

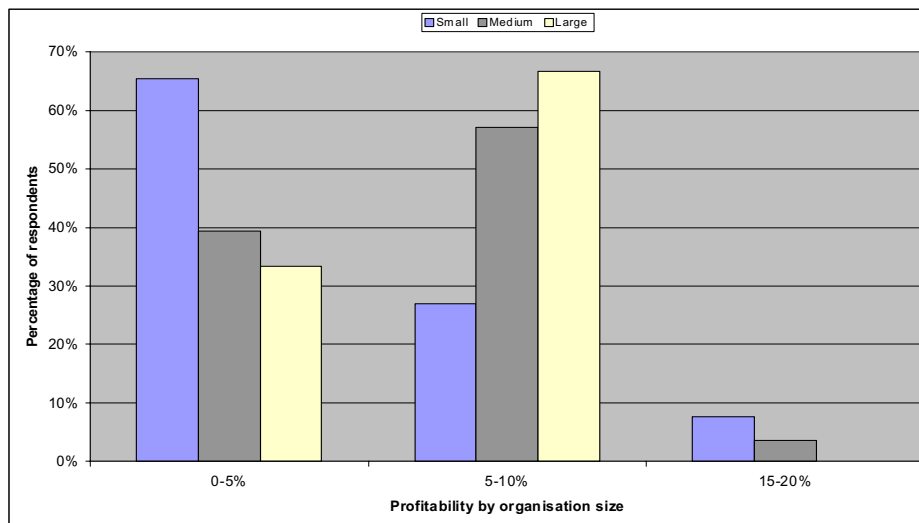
In Figure 141, it can be seen that real growth in terms of sales has fluctuated over the last decade, with a particularly positive upswing since 2000. The close correlation between turnover growth and production volume growth is indicative of an industry where margins are constrained (see Figure 142), and companies in turnover growth is driven by increased demand (as reflected in production), with price increases limited to adjustments in line with inflation growth.

Figure 141: Relative turnover growth versus relative production growth 1990-2002



Source: IDC, 2002

Figure 142: Margins in plastics sector by company size



4.1.1 Demand outlook for the sector

A first factor to consider when considering long-term growth expectations is that relative consumption of plastics per capita per annum of 45kg per capita is still low compared to international rates of capita per annum. There is thus some potential to expand the market for plastics products within SA.

From the employer survey conducted as part of this study, a picture of employer optimism emerges regarding turnover growth projections for 2002 and beyond. It must be noted, however, that the focus group in this sector wished to temper some of the optimism of our survey.

The primary research conducted as part of this study corroborates the upward trend over the last years reported by some official sources such as the IDC that reported year-on-year growth for the last two years (2001 and 2002) of and 14.11% and 22.51% respectively, and the expectation that this trend will continue. The research indicated that medium-sized organisations were the most optimistic in forecasting turnover growth of 14% over the next twelve months and 31% over the next three years. Small organisations predicted that they would increase their turnover by 25% between 2002 and 2005. The large organisations forecast increases in turnover of 8% (12 months) and 15% (36 months).

Considering what is regarded to be a somewhat overoptimistic picture regarding export growth (see Section 4.3.1) these estimations can be regarded to be upper-limit expectations.

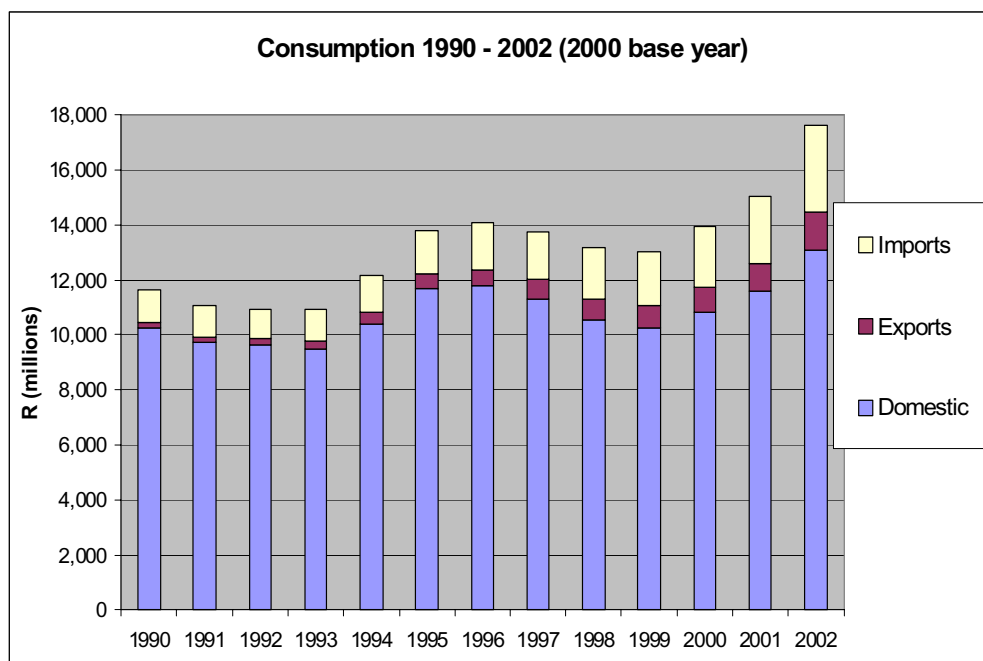
Based on both historical growth trends, as well as future expected growth, we can expect some growth in turnover in this sector. Further analysis of current and expected capital

investment also indicates that manufacturers are gearing up for larger volumes, despite current over-capacity.

4.2 Trade

The following graph illustrates that importation of plastic products has been steadily increasing during the 1990's, with a significant increase after 1994 when trade was liberalised.

Figure 143: Consumption 1990 -2001

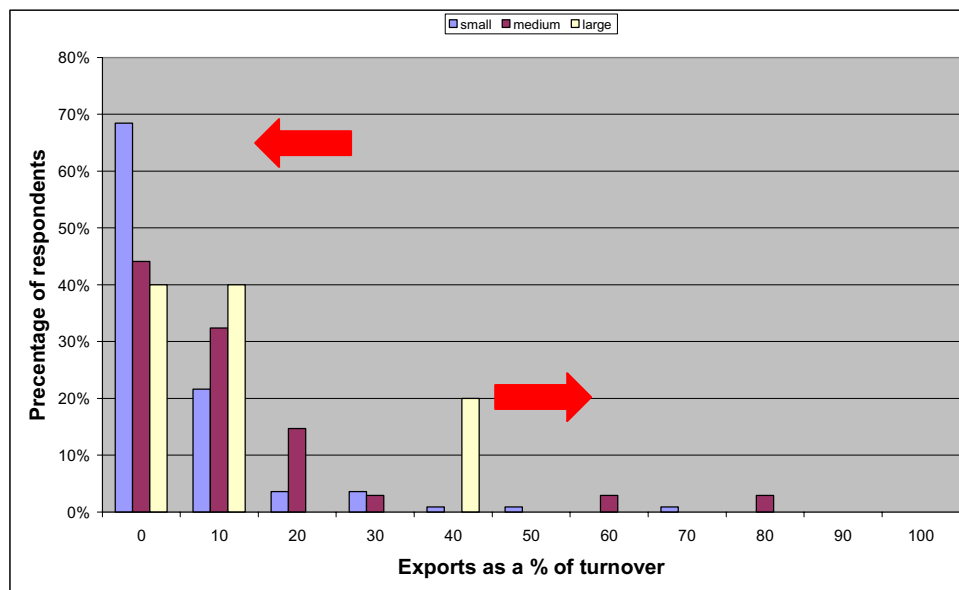


Source: Adapted from the IDC 2001

4.2.1 Exports

According to official figures the sector's turnover of approximately R13 billion (which is believed to be closer to R 17 billion per annum) of which exports accounted for R1.196 billion i.e. 9% of turnover. Although the absolute value of exports has increased from R1.190 billion in 2001 to R1.196 billion in 2002, exports' contribution to turnover has remained constant. Thus, exports account for a relatively small proportion of the total revenue of the plastics sector. This can be considered typical of a sector that is primarily commodity based, and which has many small and medium companies who are inherently geared for the domestic market. It can also in part be due to the nature of the products produced within the sector e.g. rigid packaging, which is a high-volume, low-density product and which cannot be competitively exported.

Figure 144: Exports contribution to turnover



What is however significant, as depicted in Figure 145 below, is that small and medium organisations forecast that exports will play a more significant role in turnover contribution in the short-term future, while large companies foresee exports' contribution to turnover as remaining relatively constant.

It appears from the data and interviews, that small and medium organisations manufacturing engineering plastics (i.e. higher value-add than pure commodities), are increasingly successful in penetrating export markets. Although it must be borne in mind that this survey was done when the Rand was at its weakest levels ever, and that the overall picture regarding exports are less optimistic when the Rand strengthens to below R 9 to the Dollar, it does not detract from the fact that many companies are well positioned to pursue exports.

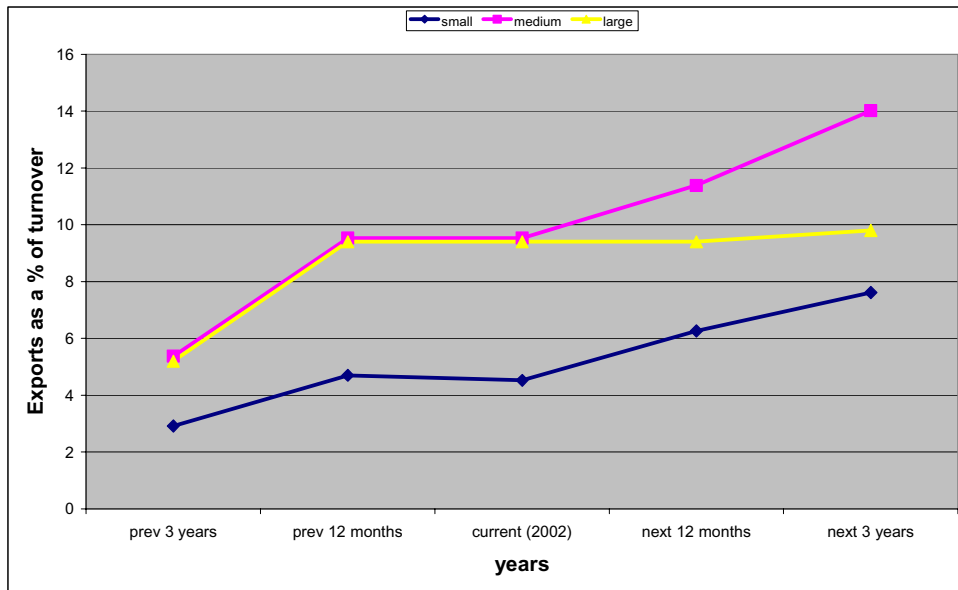
Three interrelated reasons for, or factors contributing to the optimism of these companies in terms of exports were identified. Most of the companies have been able to improve efficiencies and quality primarily through the introduction of more modern technology. Although factors such as labour productivity also plays a role, there is general agreement that the ability to produce cost effectively and to international labour standards are pre-requisites to compete internationally, and that technology plays an important role in achieving it.

However, there is another, often overlooked factor which plays a significant role in achieving export success. Many companies that are exporting successfully indicated that innovation plays a major role in their success. This does not relate purely to product innovation. Process innovation, i.e. finding better ways to manufacture as well as the ability to improve

the cost / product characteristics through changes in the mix of raw material compositions, also plays a role.

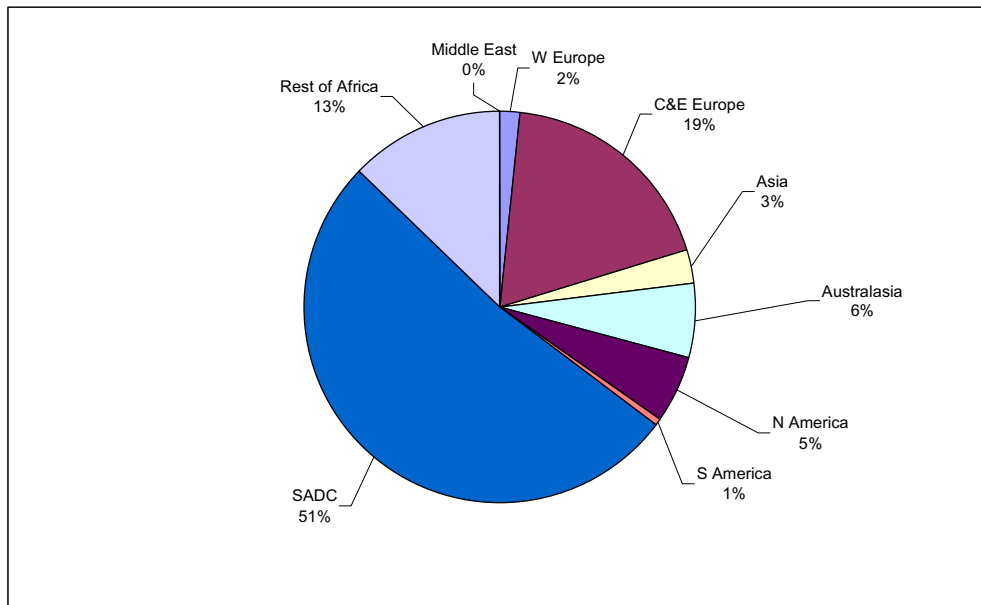
The analysis in section 5.1.2, Growth in export markets, indicates that access to markets is not a major impediment to exports, but that organisations may require support in the areas of market intelligence.

Figure 145: Export trends and forecasts



It is also important to understand where exports are destined in order to establish the impact of existing trade agreements. In general, SADC and the rest of Africa are the predominant export destinations for exporting organisations, especially for small and medium-sized companies, while Europe is the second largest export destination.

Figure 146: Export destinations for small organisations in 2002



No evidence was found that the EU free trade agreement has had a major positive impact on South African exporters. Similarly, America is not a major export destination, which suggests that AGOA has had no impact as yet on the plastics sector specifically.

4.2.2 Imports

Although exports have grown rapidly (620%) since 1990, this has been off a low base. Currently imports are more than double the value of exports.

The future regarding imports is highly uncertain. A number of factors need to be considered, as follows:

- Imports appear to grow at least at the same rate as exports, so will continue to be a threat to local manufacturers
- There is general agreement amongst employers that there will always be a presence of imported plastics product, especially low-cost imports from the Far East. The question is however whether this presents a long-term threat to local producers. Most producers indicated the contrary, citing factors such as improved competitiveness of the domestic industry, as well as improved mechanisms to deal with anti-dumping as factors which points towards sustainability of the domestic industry. However there are aspects of the plastic bags agreement that are focussed on cutting down imports.

- Isolated examples of dumping were noted, but interviewees did not indicate that they considered dumping to be a major threat
- A concern repeatedly raised was the ability of the customs authority of South Africa to accurately identify and report on plastic products being imported.

4.3 Employment

4.3.1 Number and types of jobs

Since the sample of companies surveyed were considered to be representative of this sector trends regarding changes in types of employment and employment growth over the last three years can be regarded to be an accurate reflection of changes in the sector.

The following figure, Figure 147 presents the actual sample data regarding changes in employment

Figure 147: Changes in employment between 1999 and 2002, sample data

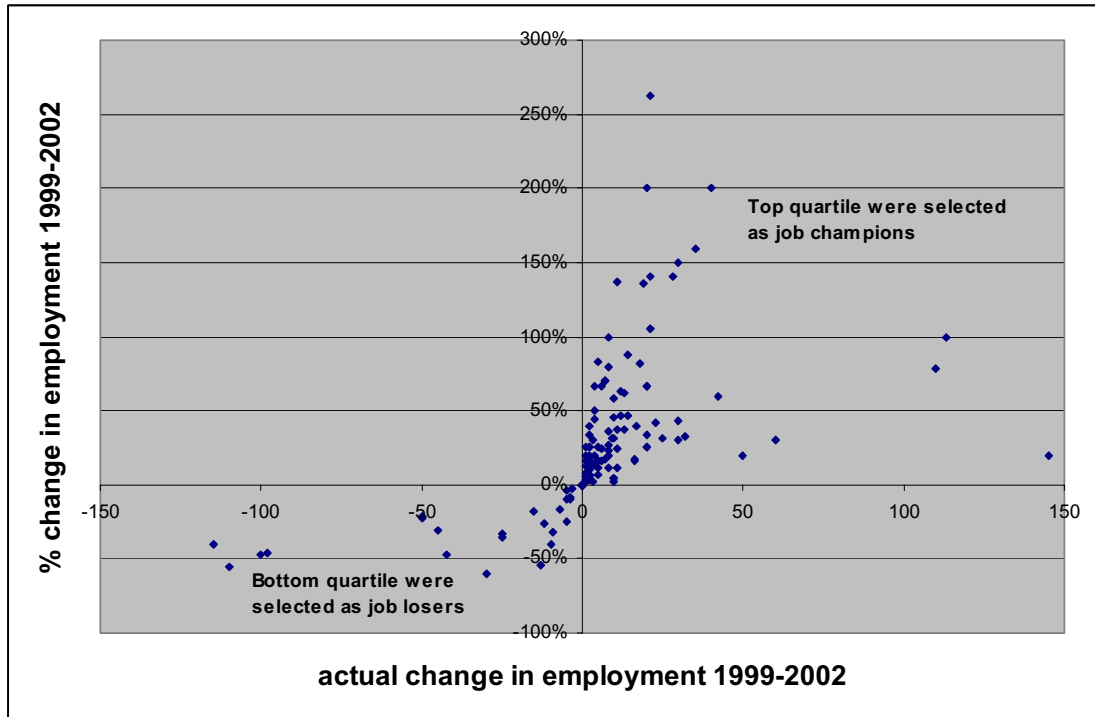
Plastic converters	Sample employment 1999*	Sample employment 2002*	Compound Annual Growth Rate
Permanent employees (FT and PT)	7649	8254	2.6%
Casual employees	65	179	40.2%
Temporary employees	507	642	8.2%
Sub contracted labour	123	241	25.1%
Total labour	8344	9316	3.7%

Although some secondary sources (Malikane, 2000) indicated very low levels (0.5%) of employment growth over the last decade, the primary research is in line with official figures, such as the IDC, which shows that employment has grown steadily over the last decade. However although there has been a decline reflected in official employment figures over the last two years.

The primary research corroborates official growth figures, having found almost 4% compound growth per annum in employment during 1999-2002. When evaluating the job champions

(i.e. companies that have grown employment) versus job losers (i.e. companies that have shed jobs), it becomes clear that more jobs were gained than lost over the last three years.

Figure 148: Company profile according to employment growth and loss



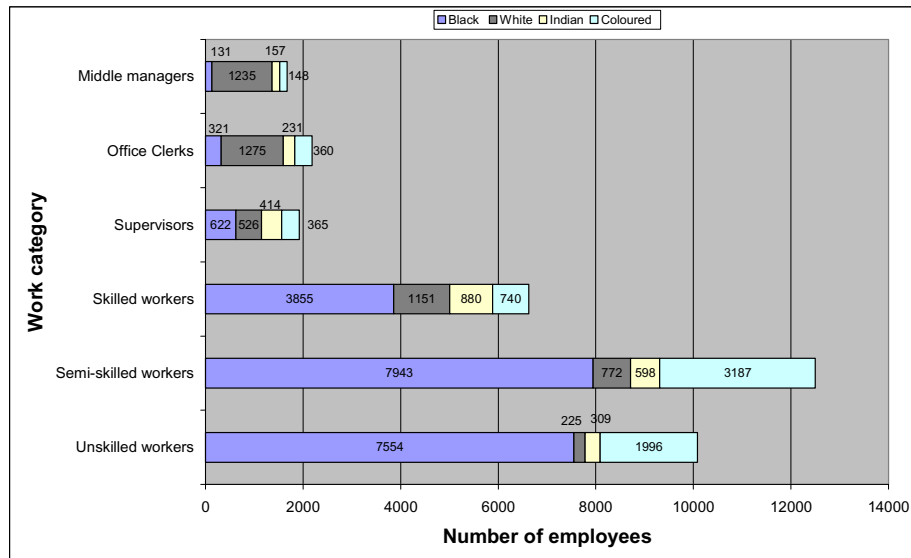
A breakdown of total employment into the various employment categories is given in Figure 148, which shows that permanent employees (both full-time and part-time) make up the majority (88%) of the workers employed in this sector. This figure is however down from 92% in 1999, a similar trend to other sectors within the metals and engineering industry. Further investigation revealed that this trend is the result of two factors. The first is the need for manufacturing flexibility, which incidentally was found to be a competitive advantage of domestic manufacturers. The second relates to employers' perceptions about retrenchment conditions within labour legislation.

4.3.2 Race profile

Figure 149 indicates the work categories reported in the survey, subdivided by race. The employment figures indicate that the sector is comprised predominantly of black semi-skilled and unskilled workers. The breakdown of supervisors is more evenly spread across the racial groups. Office clerks and middle managers are predominantly white, highlighting the need for employment equity actions in these areas. It should be noted that there appeared to be no

major drive towards addressing these imbalances within the near future, unless their business survival depended on it, e.g. a requirement to obtain government tenders.

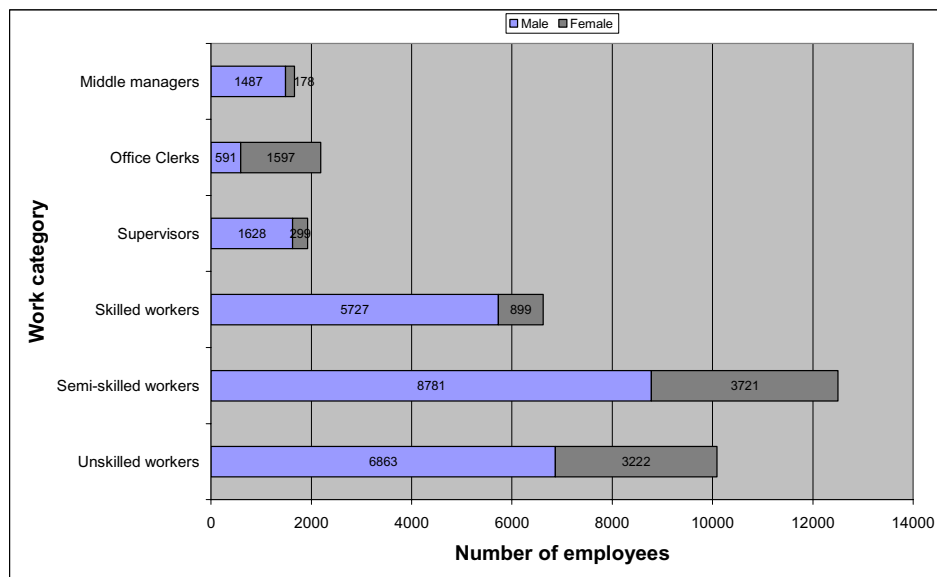
Figure 149: Survey employment categories by race



4.3.3 Gender profile

Figure 150 represents the work categories reported in the survey, subdivided by gender. The employment figures indicate that the sector is comprised predominantly of male skilled, semi-skilled and unskilled workers. Many employers interviewed pointed out that although they intended growing their proportion of female employees, certain job categories were inherently unsuitable to female employees. It should be pointed out, however, that it is in the ranks of supervisors and middle managers that female employees are the most under-represented.

Figure 150: Survey employment categories by gender



4.3.4 Outsourcing

The prevalence of outsourcing was found to be relatively low, with 80% of the small plastic converters surveyed not outsourcing any services at all. The remaining 20% (11 companies) did outsource some services. Transport was the most commonly outsourced service with 4 of the 11 companies making use of outsourced transport services. Two companies made use of outsourced payroll services. Use of outsourcing to perform technical services such as specialised machinery, wire-cutting and plastic moulding were reported by four plastic converters.

Of the medium-sized companies, 64.7% did not outsource any services. Of the 12 companies that did report using outsourced services, cleaning was the most commonly outsourced service with 3 of the 12 companies outsourcing this function. Only 2 companies outsourced security. Of the 5 large companies surveyed, only 2 companies did not outsource any services and the services outsourced included cleaning, distribution and inking. These results would suggest that outsourcing is more prevalent among larger plastic converters who wish to focus on their core competencies.

Table 41. Outsourcing expressed as a percentage of turnover by company size for 2002

Company size	Outsourcing expressed as a % of turnover
Small	13.1%
Medium	3.1%
Large	1.7%

Table 41 shows that smaller companies spend a relatively greater proportion of their turnover on outsourced activities, which is surprising as larger companies are more likely to outsource non-core activities. This trend may be due to the fact that certain outsourced functions e.g. security do not scale in terms of value for very small companies, for example a very small company and a large company may each require only 1 security guard and thus the % value of the outsourcing is relatively greater for smaller companies.

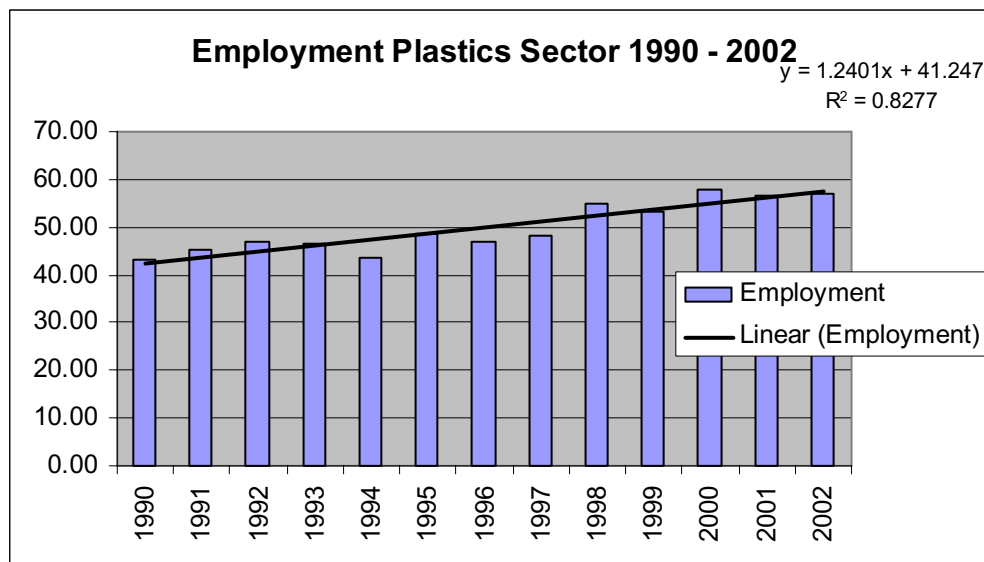
4.4 Investment

As noted earlier, there appears to be a sense of optimism in the industry and growth as reflected, was partially due to investment in new equipment and expansion of capacity. When one considers the extent of investment as provided by the research sample over the last ten and three years respectively, as well as the investment intended for the next 12 months, this is clearly reflected in the investment rates. Of significance is that 116 of the 133 companies sampled (87%) reported capital investment during 2002.

5 DRIVERS OF EMPLOYMENT GROWTH

The plastics sector has over the last decade shown an overall increase in employment, although this growth has not been consistent year-on-year. Instead, after each growth period, the sector has shed jobs again, although the losses have been much smaller than the growth spurts. A case in point is, a growth of 9.1% was experienced from 1999 to 2000, with an accompanying loss of 1.5% from 2000 to 2001. IDC data indicates an estimated 30% growth in employment over the last decade.

Figure 151: Employment trends in the plastics sector 1990-2002



Source: Adapted from the IDC 2002

The study aimed to explore employer perceptions of the factors (if any) that contributed to employment growth within the plastics sector.

5.1 Demand

Increased demand is a major growth factor for the industry, and many interviewees indicated that this would singularly be the most important driver for growth in employment. When considering the increase in domestic consumption, one should not necessarily conclude that this is the silver bullet to create employment within the South African context. Although exports have grown considerably since the early nineties, imports have by far been outstripping exports at a factor of two and a half times.

5.1.1 Domestic growth markets

Although a general perception exists among interviews that the domestic market has reached its capacity in the packaging sector, there are some clear indicators as to which sectors will be growing. This growth is not necessarily limited to the domestic market.

Recycling (packaging industry)

The implemented plastic bag regulations have had a profound impact on the South African packaging and recycling industry. As defined by the “Socio-economic impact study of the proposed plastic bag regulation” (Bentley West, 2001), significant structural changes will occur within the industry. In the aftermath of the initial announcements for example, Nampak closed its KZN plant. Subsequently, companies have come to understand that the impact will not be so much in volumes throughput, as it will be in adapting to new market requirements. For example, lower volumes of bags will be produced, but throughout will be slower, more or less evening out. It is also opening the employment market for “finishing” opportunities, which must be done by hand.

The most profound impact will be on the recycling industry. Indicators are that the current recycling industry is under severe capacity constraint and will not be able to cope with the volumes. This provides a clear investment opportunity as the recycling plant is typically very labour intensive. It also provides the opportunity for informal job creation (collectors), which industry experts have indicated that as many as 2000 jobs could be created. It needs to be noted, however, that these are informal jobs, of low quality and wages. Note that the can recycling industry has over its first 3 years created 38000 employment opportunities at only R22 million.

Recycling (PET)

Another area that has been identified as a potential growth area is PET recycling (Bentley West research, 2001). The demand for PET from the South African packaging sector has grown at a phenomenal rate. It has more than trebled over the last 4 years. Currently the total South African plastics market demands 166,000 tons of PET per annum and sources indicate that bottle grade PET will approach 75,000 tons by 2005.

Automotive

The engineering plastics sector is largely under-exploited (only 20% of the plastics sector) and significant growth could exist in this area. Specific areas that demonstrate high potential is in the automotive components and trim market - to date the automotive manufacturers have generally imported and the market has only about 15 to 20 players servicing this sector. Although certain areas demand high investment (between R15m and R30 million), cases have been noted where, with minimum investment, companies have been able to very

successfully enter this market. The MIDP extension to 2012 is a further positive. Assisting manufacturers to obtain the necessary certifications and quality standards will be critical though, especially training, implementation and certification to ISO/TS 16949. A possibility exists to obtain synergies in this regard with the AIDC. Of concern though is that the automotive and transport markets tend to source the plastic components that they require globally, a practice that is responsible for the low market share of 4% that the plastic sector has in these two markets (Engineering News, 2001). Efforts will thus have to focus on obtaining local sourcing agreements with the OEMs if this growth is to be harnessed.

Engineering (niche products)

Many interviewees stressed that South Africa's competitiveness lies within its ability to be flexible and manufacture small runs of highly specialised, niche products. Many interviewees who are successfully exporting have managed to do this and further assistance to locate such niche markets would facilitate growth.

5.1.2 Growth in export markets

The sector's turnover for 2002 was R14.92 billion of which, exports accounted for R1.196 billion i.e. 8% of turnover. Thus, exports account for a relatively small proportion of the total revenue of the plastics sector. Small and medium sized organisations from the survey sampled, forecast that exports will play a more significant role in turnover contribution in the short-term future, while large companies foresee exports' contribution to turnover as remaining relatively constant. Predictions are that exports will continue to increase.

As can be seen from the preceding discussion, there is a trend for medium and large companies to export relatively more to the developed regions such as Europe and North America. This could be due to the fact that only companies of this size can produce products in sufficient volume and of a sufficiently high level of quality for these relatively sophisticated markets, but could also be the result of international alliances that only medium and large companies are able to forge. Large companies foresee relatively little growth in exports. There were no indicators that the European Union free trade agreement or AGOA has made any significant impact historically, or will in the future, on exports.

It is clear that small and medium companies are more prone to export to SADC and Africa, and given the highly competitive nature of the developed markets, it would perhaps be wise to focus on developing markets and enhancing trade agreements to stimulate these markets.

5.2 Capacity

The ability to increase capacity is one of the factors that influence the ability of a company to grow. Table 42: Average shift number, length and capacity utilisation by company size shows that the larger companies tended to have a greater number of shifts. Average capacity utilisation was 89.8% with medium sized companies reporting the highest level of capacity utilisation of 90.1%

Table 42: Average shift number, length and capacity utilisation by company size

	Number of shifts in 24 hrs	Length of each shift (hrs)	Capacity of each shift (%)
Small	1.9	9.1	89.9
Medium	2.2	8.5	90.1
Large	2.6	9.6	86.0
Average	2.0	9.0	89.8

Within the plastics sector, theoretical capacity has been indicated at approximately 90%, which means that without further investment, current output could probably only be extended by 5%

There are on average only two shifts every 24 hours, which indicates that capacity can probably be extended by a third.

Local availability of raw materials is limited though, which indicates that material will most probably have to be imported to service this increased consumption. However, the survey of employers did not indicate access to input materials as an impediment to growth.

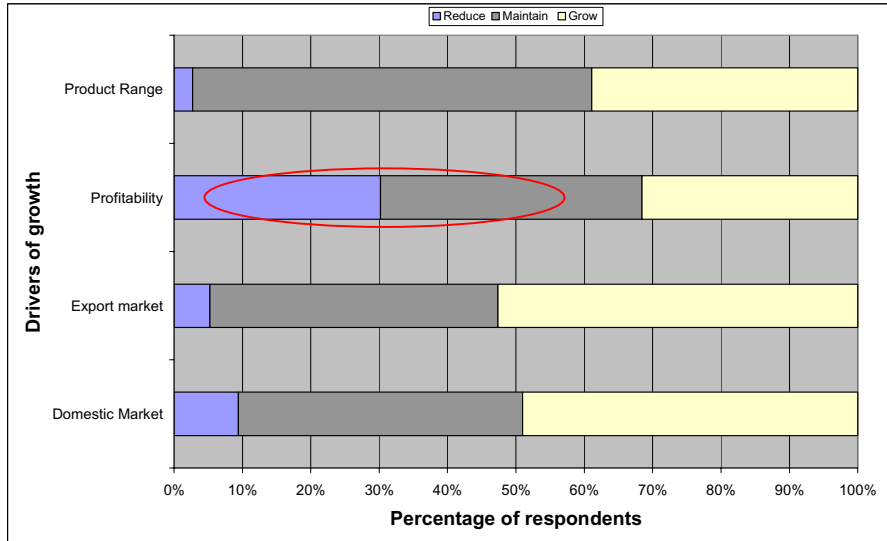
Cost of inputs was highlighted by our employer survey to be a major constraint. In-depth interviews and focus groups allowed employers to elaborate, where they alleged that import parity pricing practices of upstream suppliers placed them at a competitive disadvantage.

5.3 Margins

Typically overall profitability can be increased by either increasing volumes or increasing price. Many of the interviewees indicated that SA plastics manufacturers were generally reducing margins to increase volumes, thereby increasing overall profitability although

profitability per unit might be lower. Both the quantitative survey and subsequent interviews highlighted this fact.

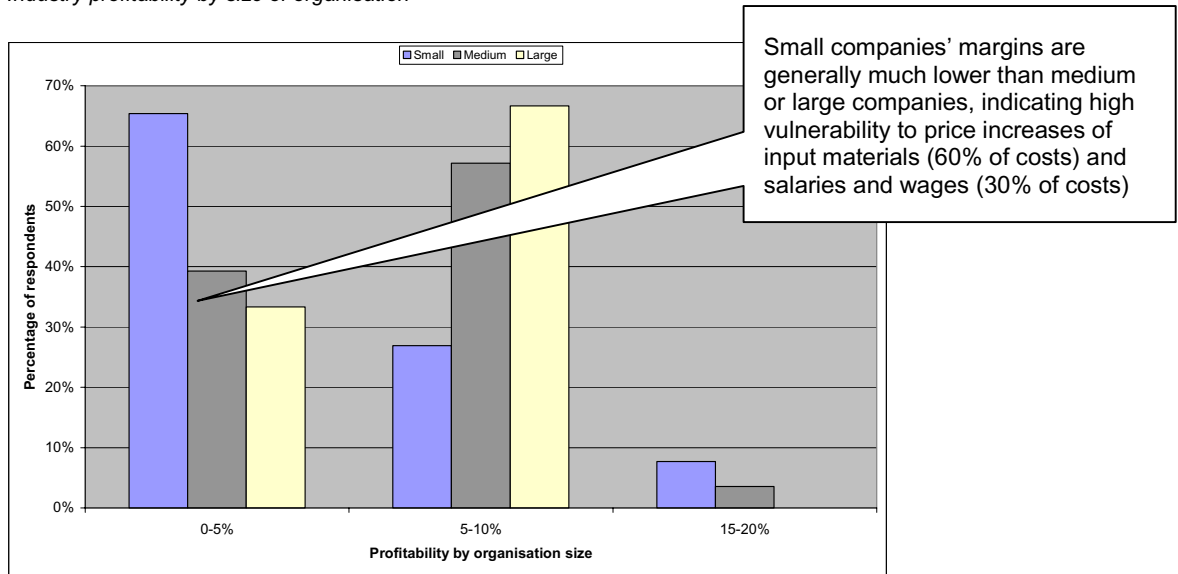
Figure 152: Perceptions regarding specific objectives to achieve growth targets



The respondents were asked to indicate their organisation’s profitability. Generally, profit margins are between 5 and 10% in the sector. A greater proportion of smaller organisations highlighted that margins were between 0 and 5% indicating that the industry has certain operating volumes beyond which margins increase.

Commodity plastics in general have very low margins, whereas engineering type plastics typically have higher margins. This is also valid for niche products and highly innovative products, hence requirement to stimulate “rejuvenation” in innovation. Renewal of technology within South Africa is potentially a constraint (our replacement terms are typically greater than 5 years, even as long as 15 years, whereas the UK is actively pursuing a strategy to renew in less than 5 years. The costs of importing machinery is also prohibitive, hence refurbishment and second hand machinery highly prevalent. Some pockets of innovation in machinery design and manufacturing (in South Africa) have been noted, which could stimulate renewal.

Figure 153: Industry profitability by size of organisation



5.4 Size of organisation

The survey data was used to establish if there is a relationship between organisation size, in terms of number of employees, and employment growth. The change in employment (including permanent, non- permanent, casual, temporary, outsourcing and sub-contracting labour) was identified for the various organisations between 1999 and 2000. The organisations were then grouped into small, medium and large depending on the number of employees in the organisation (small < 50; medium > 50 and < 250; and large >250).

The average change in employment is reflected in the table below.

Table 43: Relationship between employment growth and organisation size

	Number of organisations in sample per category	Change in employment 1999 – 2002
Small (< 50 employees)	111	14%
Medium (50, 250)	34	2%
Large (> 250 employees)	5	6%

Although the growth rate for small companies is very high, one must note that this is off a relatively low base. This does not negate the importance of large companies. In absolute terms, our representative sample showed that small companies increased jobs by 304 while large companies increased jobs by 425. It can be concluded that although there is greater

percentage growth amongst smaller companies, large companies were the greatest source of new jobs during the period under review.

5.5 Use of technology

The survey data was used to establish if there is a relationship between employment intensity, defined as turnover per employee, and which is reflective of technological sophistication, and employment growth. The change in employment was identified for the various organisations between 1999 and 2000. The organisations were then grouped into three categories defined broadly as labour intensive, moderate use of technology and technology intensive depending on the organisation's employment intensity ratio (Labour intensive < R 0.09 million per employee; moderate use of technology > R 0.09 million and < R 0.6 million and technology intensive > R0.6 million per employee). The average change in employment for the groupings is reflected in the table below.

Table 44: Relationship between employment intensity and employment growth

	Number of organisations in sample per category	Change in employment 1999 – 2002
Labour intensive	22	2%
Moderate use of technology	99	17%
Technology intensive	12	3%

Throughout this study it was consistently mentioned by manufacturers that investment in technology is an important factor towards competitiveness, and that companies that fail to upgrade technology are under threat. The above seems to corroborate that investment in technology is a driver for competitiveness, growth and employment creation.

6 IMPEDIMENTS TO EMPLOYMENT GROWTH

The study investigated employers' views of the main impediments to job creation, growth and competitiveness. The same factors were consistently raised, namely:

Factors inhibiting employment creation

- Increased cost of process technology
- Labour legislation
- Salary and wage cost
- Growth in demand for products

Factors inhibiting growth

- Government support schemes
- Labour legislation
- Process efficiency
- Access to export and domestic market and competitor intelligence

Factors inhibiting competitiveness

- Access and cost of skilled labour
- Cost of input materials

The factors were then plotted in a table to determine the relative importance of each one for the different types of companies. As can be seen from Figure 149, six factors emerge as the most important inhibiting factors as experienced by the survey sample.

Increased cost of process technology is a highly constraining factor, regardless of company size, exporting propensity or ability to grow employment. Similarly, **growth in demand for products** is as important, except for non-exporters. Although **salary and wage cost** appeared to be less important to small and medium companies, it is very important regardless of whether companies exported or not, or has grown or shed jobs over the last three years. **Labour legislation** appeared to be somewhat less important to small, non-exporting companies and availability of appropriate skills is most important to large companies. Interestingly enough, all categories rated **access and cost of appropriate skills** as an inhibitor to competitiveness. **Government support programmes**, although frequently cited as an inhibiting factor, rated relatively lower than all the aforementioned factors for all categories. Cost of input materials is also a major inhibiting factor to competitiveness, although interviews appeared to accept this factor as a cost of business.

The sections below, analyses each of the major impediments to job growth, growth and competitiveness according to the following company categories:

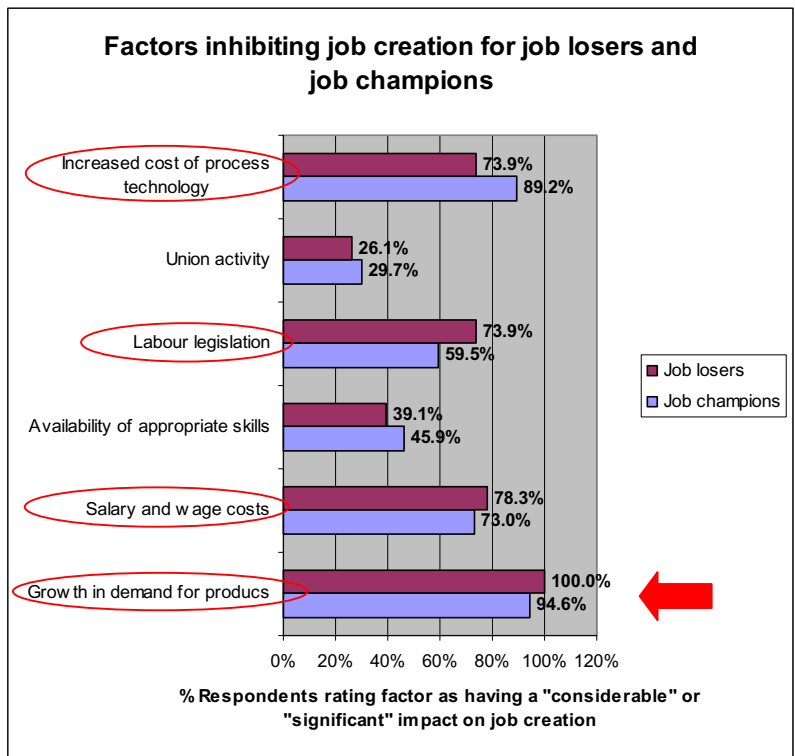
- Job champions versus job losers
- Exporters versus non-exporters
- Company size (small, medium and large)

6.1 Factors inhibiting job creation

Differences between job champions and job losers regarding factors inhibiting job creation

The research sample was segmented into companies who created jobs versus companies that shed jobs.

Figure 154: Factors that inhibit job creation according to job champions and job losers



Job losers generally experienced all the factors as more prohibitive than job champions, except for the factor that relates to the increased cost of process technology and the availability of appropriate skills. The most important factor inhibiting employment growth was