
CLUSTERING AS A POLICY STRATEGY FOR IMPROVING MANUFACTURING PERFORMANCE AND ECONOMIC GROWTH IN SOUTH AFRICA: A CASE STUDY OF THE MOTOR INDUSTRY IN THE EASTERN CAPE

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1.BACKGROUND AND RATIONALE FOR RESEARCH

South Africa=s current industrial policy has a two level focus: sectoral and spatial. The former (which is the one being addressed in this paper), deals with improving the performance and competitiveness of the manufacturing sector and ultimately economic growth, according to the industry cluster approach.

Industry clusters are concentrations of competing and related firms, bringing together both the firms producing final goods and their suppliers and contractors, which constitute so called supporting and related firms. At the same time, clustering attracts the economic infrastructure of an industry, such as specialised business services, human resources and education institutions. Firms in a cluster therefore cooperate at industry level, while competing at firm level. As will be referred to below, international experience from both developed and developing countries have illustrated the potential of clustering to improve manufacturing performance and competitiveness.

The recent adoption of this policy in South Africa was complemented by a change in focus to export promotion and international competitiveness under trade policy. Seeing that this has happened only recently, most of the cluster initiatives in various sectors of the economy are in their early stages of development. The Department of Trade and Industry (DTI) has played an active role in the establishment of some of these. The strategy was to concentrate on a few Arole model@ clusters which would demonstrate the potential effects of the collaborative process. The motor industry cluster in the Eastern Cape was established in 1997 (DTI, 1998).

The objective of this paper is to investigate the impact of the automotive cluster initiative in the Eastern Cape on the manufacturing performance of this industry. Empirical information from a questionnaire survey and interviews, involving both motor vehicle

assemblers and component manufacturers in the Eastern Cape region are used. Regarding the organisation of the paper, the next section gives a brief overview of the recent theoretical contributions in the field, followed by a discussion of the motor industry in the Eastern Cape and the establishment of the cluster. After that, the empirical findings are dealt with. Finally, an analysis of results and some recommendations are given.

2.THEORY OF INDUSTRY CLUSTERING

2.1 Defining Clusters

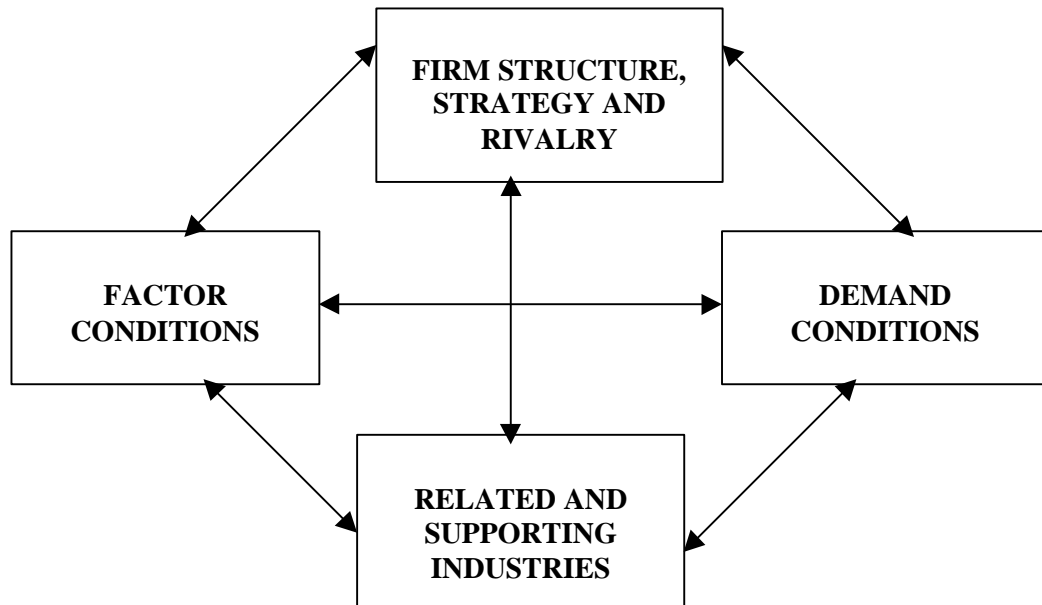
The essence of industry clusters lies in the ability to develop relationships through strategic partnerships between companies, customers, suppliers, research & education institutions, and the wider business community. The overall benefits of such well-structured and focused relationships include: “an improvement in company performance, an increase in the emergence and growth of new business; increased innovation, and an ability to attract knowledge-based inward investment” (Botham & Downes, 1999: 1). A further benefit is to improve competitiveness by combining skills and resources through collaborative arrangements, or common technologies, common buyers or distribution channels, or common labour pools (Porter, 1998: 149). While clusters often form naturally (e.g. Northern Italy and Silicon Valley¹) stakeholders in an industry or region can expedite the development of a competitive cluster through a process of interaction. Within this context, an industry can devise a *cluster initiative*, in which case stakeholders can combine efforts to exploit mutual projects to the advantage of the group (cluster) as a whole, and therefore improve the competitiveness of the region.

2.2 Theoretical Development

The idea of clusters is not new. Marshall (1920) paid much attention to it in his study of industries in the United Kingdom in the early 20th century. Recently the concept has been given a new lease of life by Porter (1998). He argues that competitive advantage and strong industrial clusters are inter-related and that successful clusters drive economic development (1998: 149). Porter’s framework consists of four attributes: *demand conditions; supporting & related industries; factor conditions and firm strategy, structure & rivalry*. The main thrust of his argument, however, is the dynamic nature of the process and the manner in which the interplay between the four attributes generate competencies beneficial to competitiveness.

1 For an overview and analysis of successful international clusters like Silicon Valley in the USA and Sinos Valley in Brazil, see Bazan & Schmitz (1997), Kenney & Von Burg (2000), Rosenfeld (1997), Saxenian (1994) and Schmitz (1995).

FIGURE 1. PORTER'S "DIAMOND" OF COMPETITIVE ADVANTAGE



Source: Porter (1998: 72)

It is interesting to note that Porter's ideas are grounded in Perroux's (1950) understanding of economic growth and change. As cited in Bergman & Feser (1999: 6), he argues that propulsive or leading industries are important in understanding economic growth. Propulsive industries are essentially those that dominate other sectors because of their large size, considerable market power, and/or role as lead innovators. Perroux's ideas, as well as their extensions, are also relevant for industry clusters in that his theory of growth centers/poles contributed to the rise of a regional development strategy.

Dunning (1995: 466) refers to the cluster process as "*alliance capitalism*", which is an outcome of significant technological advances, coupled with the globalisation of many kinds of value-added activity. Inter-firm cooperation is neither a novel concept nor entirely remarkable. What is perhaps new is its relative importance in the way organisations operate and are structured. The ability of individual firms to generate growth that is based on innovation is increasingly being used to determine how successful the firms involved in cooperative arrangements are. Such growth is dependent on the quality of network relationships.

The contribution to institutional effectiveness of these alliances, as measured in terms of economic performance and innovative capacity, is referred to by Fountain (1997:1) as "*social capital*", which is the "capability" that is created when a group of organisations develops the ability to work together to obtain mutual benefits. Clearly, this view contrasts with the traditional thinking of economists since Adam Smith, whereby collaboration among firms was considered a sign of structural market failure, as opposed

to a means of reducing endemic market failure.² In line with Dunning (1995: 461-88), Fountain (1997: 8) also suggests that the goals of most strategic alliances in clusters should be to gain access to new and complementary technologies. This should enhance and expedite the innovatory or learning processes, and ultimately improve the efficiency of particular activities, e.g. research and development (R&D), marketing and distribution, as well as manufacturing methods.

Weber (1929: 134-135) was the first location theorist to discuss agglomeration explicitly. He suggested that agglomeration economics determine the favoured location only when the two main location factors, *transport orientation* (minimum transport costs) and *labour orientation* (low labour cost sites) are not dominant. Hence if transportation considerations result in industries concentrating close to raw material supplies or markets, this does not represent agglomeration theory. In a nutshell, Weber's point was that it would prove to be profitable for two or more firms to cluster at the same site if the agglomeration economics gained there exceeded the additional transport costs incurred as a result of deviation from the minimum transport cost site.

Marshall (1920: 261-72), Weber (1929: 134-5) and Porter (1998: 144) all base their arguments of geographic concentration on neoclassical externalities. Considerable emphasis is placed on knowledge spillovers due to geographic proximity. It is perhaps surprising that as trade barriers and communication costs fall, and as the internet becomes increasingly important in business, the local environment becomes a more important influence on competitive advantage. Due in part to the above-mentioned factors, and to the globalisation of markets and supply sources, and ease of mobility, several criticisms have been directed towards the role of geographic proximity in clusters. Krugman (1991: 54) e.g. argues that knowledge is invisible. Consequently, it is extremely difficult to assess its impact. Indeed technological and knowledge-related spillovers (examples of dynamic externalities) play an important role in the localisation of some industries, however, one should not assume that this is the overriding reason. At the same time, there is considerable evidence from the literature of externalities associated with e.g. lower transport costs due to geographic proximity, as sources of localisation. Krugman also believes that this could just as well be the result of increasing returns to scale.

In a similar perspective to Marshall, Nadvi & Schmitz (1994: 4-6) are of the opinion that industry clusters can be identified by their geographical concentration and intense set of backward, forward, horizontal and labour linkages. These linkages are based both on market and non-market exchanges of goods, services, information and people, as well as a network of private and public local institutions supporting the economic agents in the cluster. He further argues that the widespread availability of external economies and co-operation effects arising from the above features are commonly seen as the key factor

² **Structural market failure** arises from the actions of participants in or outside the market to distort the conditions of supply and demand. **Endemic or natural market failure** arises from the inability of markets to organise transactions in an optimal way; it is difficult to predict behaviour of participants (i.e. missing markets).

making small firms in a cluster economically viable and internationally competitive. In other words, this allows the cluster to reach a high degree of collective efficiency.

Finally, according to Rabelotti (1998: 244), mechanisms allowing compensation govern the rational interest of firms to cooperate among each other. In the event that such co-operation takes place, the resultant effects would lead to an increase in the collective efficiency of the system.

2.3 The role of government in regional clusters

An increasingly relevant role of government is that of facilitating cluster development and upgrading (Porter, 2000: 13). Both Porter and DEAET (2000: 11) indicate that clusters must not be developed or created from 'scratch' within the context of declining markets and industries. This is one of the main pitfalls of cluster-based industrial policy. Rather, the emphasis should be on reinforcing and building on established and emerging clusters, not creating entirely new ones. As Porter (2000: 13) puts it, "there should be some seeds of a cluster that have passed a market test before cluster development efforts are justified." At any rate, most clusters usually form independently of government and sometimes in spite of it. Ultimately, the process of cluster upgrading involves the realisation that a cluster exists or has potential to, in which case government needs to remove any obstacles, relax constraints and eliminate inefficiencies, which frustrate productivity and innovation in the cluster. Although some constraints (human resources, infrastructure, etc) can be resolved by the private sector, others (government regulations, basic infrastructure, education, training policies) are a result of government policy and therefore require its intervention. Essentially, any government policy that results in increased costs with no potential for long-term competitiveness or social benefits needs revision. This clearly highlights the need for government focus to go beyond improvements in the general business environment.

By helping new companies to become established either to fill gaps in existing industry clusters or to extend the existing clusters into new markets, a region can strengthen its economy and create new employment. The region can also undertake efforts to address gaps and limitations in the economic foundations that support the ability of regional industry to compete in global markets (Anderson, 1994: 29).

3. THE MOTOR INDUSTRY IN THE EASTERN CAPE AND THE FORMATION OF THE CLUSTER

3.1 The Nature of the Industry

The automotive industry forms the backbone of the Eastern Capes industrial base, with strong linkages to other industries such as industrial textiles and leather tanning. The industry alone contributes almost 50% to the total value of manufacturing in the Eastern Cape (Hosking, 1999: 8). The two major vehicle manufacturers in Port Elizabeth are Volkswagen South Africa (VWSA) and Delta Motor Corporation (Pty) Ltd. VWSA's plants are in Uitenhage and Sidwell, and Delta's are at Straundale and Neave. The Ford

Motor Company of South Africa (formerly SAMCOR) also produces Ford engines at a plant in Straundale, but the Ford cars are assembled in Pretoria. Together with DaimlerChrysler in East London, VWSA and Delta produce about 46% of all passenger vehicles in South Africa, and in July 1999 held about a 30% share of the total South African passenger and light commercial vehicle market (Hosking, 1999: 8).

An important policy governing the motor industry not only in the Eastern Cape, but in South Africa in general, and one which needs to be looked at in conjunction with the cluster initiative, is the Motor Industry Development Plan (MIDP). This policy, which was introduced in 1995 to promote an internationally competitive South African motor industry, uses three main instruments: A gradual reduction in tariff protection to expose the industry to international competition, secondly, allowing exporting firms to earn rebates on automotive import duties and thirdly, a range of incentives to upgrade the capacity of the industry in all spheres (DTI, 1999: 3).

The component industry generally evolved around the automotive assembly plants. This is also characteristic of the Eastern Cape, where for example, component manufacturing is concentrated in Port Elizabeth/Uitenhage, within close proximity to assembly firms. Most of the larger component-manufacturing firms are affiliated to the National Association of Automotive Component and Allied Manufacturers (NAACAM), and are either subsidiaries of local firms or multinational corporations (MNCs), or produce under license from the latter. In addition, the larger firms also operate one or more manufacturing plants within a single town or region.

The nature of component manufacturing operations range from beneficiation of raw materials to engine manufacturing, both for the domestic market and export, and a number of firms have positioned themselves to take advantage of incentives and benefits under the (MIDP) since its inception. Most component firms export through the vehicle assemblers, and in so doing share or sell export credits earned under the import/export complementation scheme of the MIDP.

A recent survey conducted by Onyango (1999: 115) revealed that it is mainly the motor vehicle assembly sector in the Eastern Cape, which has benefited from reduced protection and trade liberalisation under the MIDP. He maintains that the firms in this sector have managed to establish an intensive export-driven manufacture of vehicles and components. He is quick to add, however, that in the components sub-sector, most firms are experiencing a decline in profits. At the same time, export activity in this sector is not highly impressive.

3.2 The Establishment of the Cluster Initiative

In the light of the above new focus in industrial policy, consultations and debates were conducted in 1997 at national level between relevant stakeholders, facilitated by the DTI , the Center for Scientific Industrial Research (CSIR) and the National Motor Industry Council, the outcome of which was the establishment of the Eastern Cape Automotive Industry Cluster in April 1998. It was further agreed to the creation of dedicated project

teams that would address high priority issues: *Human resources, Logistics, Supplier development and Strategic investments*. These project teams were formed to primarily identify, facilitate, co-ordinate and implement strategies and projects to realise the cluster's vision of “a viable, internationally competitive local automotive industry capable of achieving continuous growth” (DTI, 1998). The logistics project was formalized with the creation of a Section 21 Company, the Motor Industry Cluster Logistics Company (MIC) to facilitate the operations of the project (Russell, 1999: 4). The role of the government was mainly twofold: it provided the secretariat and funded the research undertaken by the appointed consultants.

The cluster executive leadership, however, ceased their meetings on the 22nd of November 1999, meaning that the active/operational activities of the cluster had a time span of about 18 months. It is not clear whether this was a formal decision to discontinue with the initiative in the region, since in November 1999 a national motor industry cluster was started.

4. THE ROLE OF THE CLUSTER INITIATIVE IN IMPROVING MANUFACTURING PERFORMANCE

4.1 Nature of the Study

This section analyses the impact the cluster initiative and its constituent projects has had on the performance of the motor industry in the region. The analysis is based on the findings of a survey covering the assembly firms and component manufacturers, together with the Ford engine plant based in the Eastern Cape. A total of 27 firms were involved. Eight of the surveyed firms explicitly declined to participate. At least 5 of these indicated that they did not form part of the cluster initiative, and 3 revealed that they were not aware of the existence of such an initiative. Information was therefore obtained from 15 firms, which represented 56% of the sample. Interviews also played a major role in developing qualitative information about the cluster process. These interviews were conducted with 14 leaders, most of whom were industry specialists and consultants affiliated to the four cluster project teams listed above, as well as union representatives and government officials from the DTI.

The sections below have been compiled from the data obtained from the questionnaire, and covers firstly some of the general market aspects relating to the industry (very briefly), before moving on to the cluster-specific information. For the sake of clarity, the findings are divided into those relating to the motor vehicle assembly industry and following that, the component manufacturers.

4.2 The motor vehicle assembly industry

All 3 assembly firms reported an annual turnover of over R500 million each, and each had a labour force of over 2000 employees.

4.2.1 Origin of Components

Buyer-seller relationships characterise the vertical dimension of a cluster. The theoretical literature indicates that strong backward linkages hold benefits for competitiveness. The spatial proximity of suppliers further facilitates the exchange of information and promotes a continuous exchange of ideas and innovations.

For the 3 firms combined, the majority of their components are obtained from abroad (58%). This could partly be the result of their reintegration into the global networks of their parent companies and partly a result of the import rebate credit scheme under the MIDP mentioned above. According to the survey by Onyango (1999: 105), at least 37,5 % of component suppliers in the Eastern Cape shared their duty drawback certificates with the assembles, while 31,3 % of them sold these to the assemblers, hence the obvious scope of gaining from imports for the assemblers. Regarding the components bought locally, most are obtained from the Eastern Cape (24 %), compared to the rest of the RSA (18%), which signifies the potential of creating sustainable relationships between component suppliers and OEMs. This clearly was the intention with the cluster initiative.

Whether the cluster initiative had improved relations in general between the assembly firms and component suppliers, DaimlerChrysler and Delta believed that it did, while VWSA did not agree.

4.2.2 Market area

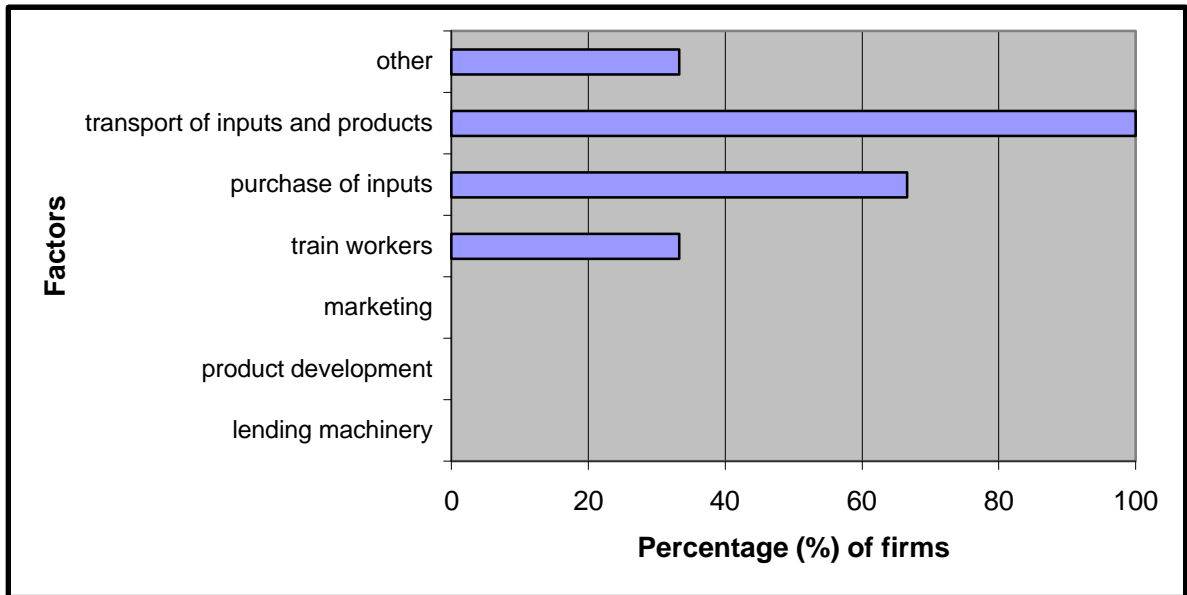
Between the 3 firms 40% of their vehicles are sold abroad, 48% are sold in South Africa; 8% are sold in the Eastern Cape and 4% within their immediate magisterial districts. Clearly the domestic market is still significant, despite the orientation towards increased exports. On closer inspection, however, DaimlerChrysler sells nearly 75% of its vehicles abroad, 20% in the rest of South Africa, 3% in the rest of the Eastern Cape and 2% within the immediate local area.

All three firms perceived the cluster initiative to have managed to create a greater understanding of customer needs and market opportunities in South Africa and abroad.

4.2.3 Inter-firm cooperation

Inter-firm cooperation (i.e. horizontal, shared-resource and/or end market relationships in a cluster) is the one which theoretically sets apart industry clusters from industrial districts in that it emphasises co-operation between *competing* end market producers, as opposed to co-operation between end market producers and their suppliers.

FIGURE 2. AREAS OF COOPERATION BETWEEN ASSEMBLY FIRMS



n=3

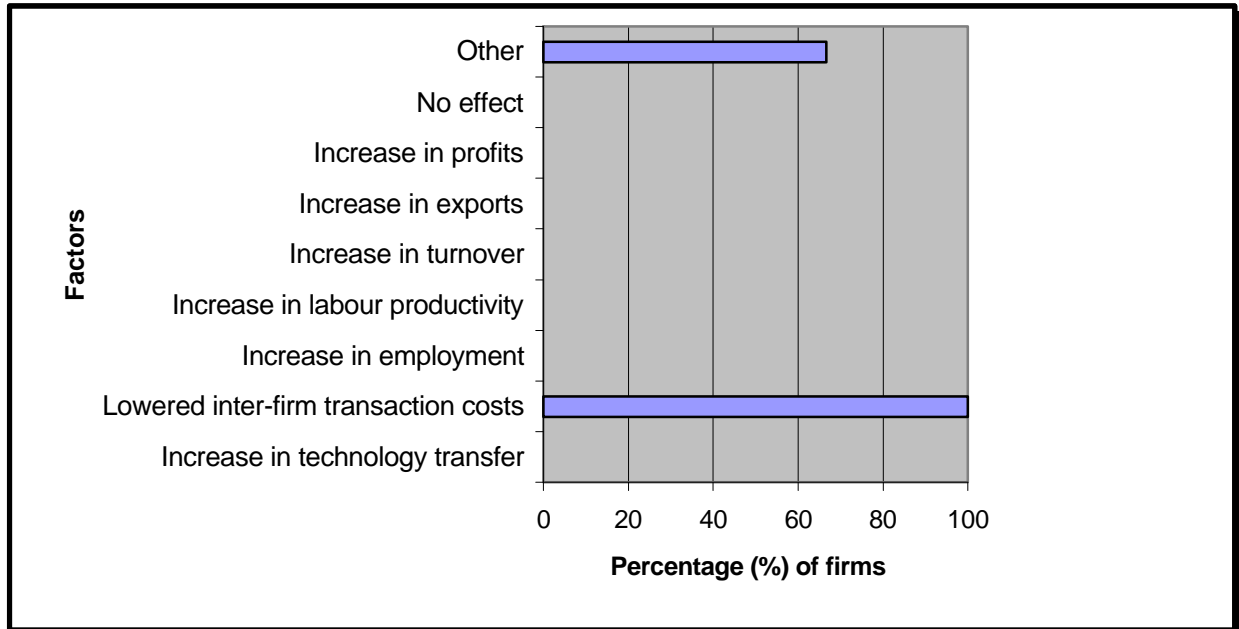
The responding firms were asked whether they had any formal relations with other firms in the industry. Figure 2 shows that there was a very clear response from all of them in pointing out their cooperation in the transport of inputs and products, which was made possible by the joint MIC Company. Some cooperation also took place in the training of workers. In other areas, such as marketing, product development and the lending of machinery, there was no cooperation at all.

4.2.4 Manufacturing performance

The final part of the survey on assembly firms sought to establish the impact the cluster initiative had on the aspects of individual firm performance as given in Figure 3.

As indicated, the 3 firms were in consensus that the process managed to lower inter-firm transaction costs by eliminating bottlenecks and cost drivers. Essentially, their continued cooperation within the MIC logistics company has resulted in a reduction of logistics costs that account for approximately 15% of their total costs. Since the establishment of this company in 1999, this has resulted in a saving of R23million for its stakeholders. As a result of the cluster process, the assembly firms also seem to have been able to reach consensus on the necessary infrastructure requirements for the continued viability of the industry. This is illustrated in Figure 3 as 'other' areas in which the cluster initiative has had an impact on the assembly firms.

**FIGURE 3 IMPACT OF CLUSTER INITIATIVE ON ASSEMBLY
FIRMS**



n=3

It is also clear from Figure 3, however, that the assembly firms perceived the industry not to have benefited from the cluster initiative in areas such as improving profits, exports, turnover, labour productivity and employment. There is an inconsistency in the responses, because one would expect that reduced costs would normally result in higher profits. From the interviews complimenting the survey, this could be interpreted as firms not experiencing visible increases in profits due to very competitive markets and some cost reductions therefore being given through to customers.

4.3 The component sector

As indicated above, the vast majority of the respondent firms are located around Port Elizabeth (58,3%) and Uitenhage (25%), while the remaining firms (16,6%) are to be found in East London.

4.3.1 Origin of Raw Materials

The majority of firms (42%) obtained their raw materials nationally, followed by 33 % of firms who purchased most of their raw material abroad. The remaining 25 % of firms acquire most of their raw materials locally in the Eastern Cape.

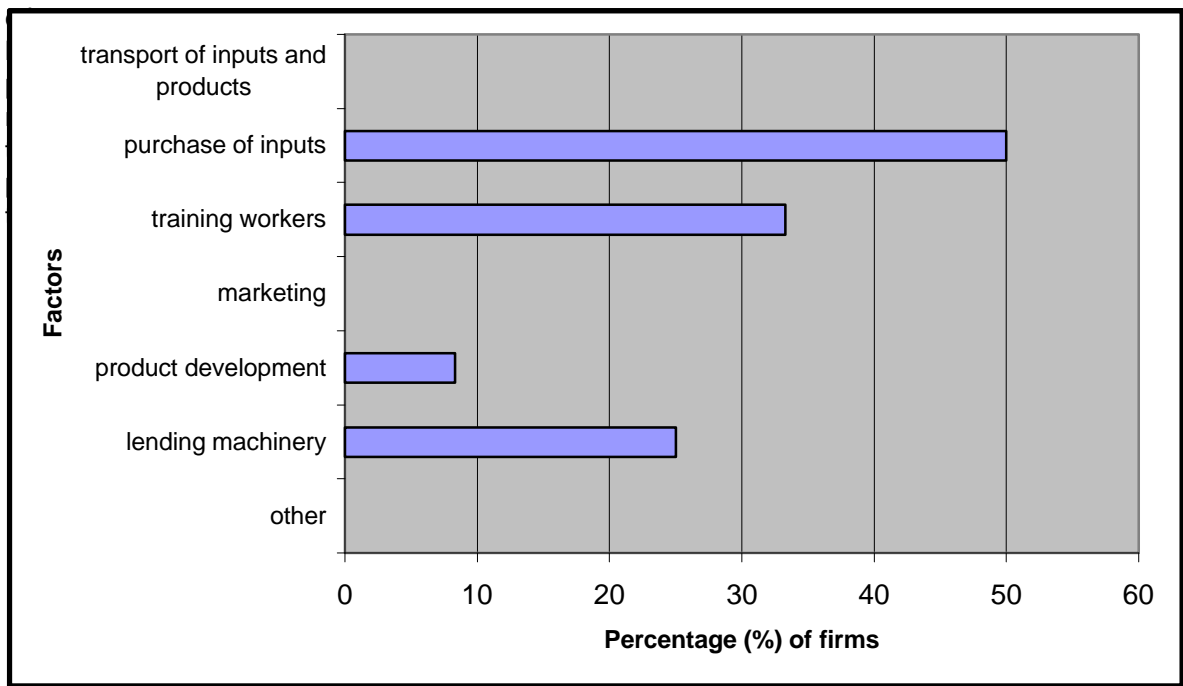
4.3.2 Market Area

The surveyed sample revealed that the greatest concentration of the demand for the components produced by them (58%) was in the Eastern Cape. This is not surprising, given that after Gauteng, the Eastern Cape has a substantial concentration of the automotive industry. At least 25 % of the demand concentration was in the rest of the country, whilst 17 % was abroad.

4.3.3 Inter-firm cooperation:

As with the assembly firms, an inquiry was made into the level of inter-firm horizontal cooperation. The findings are shown in Figure 4. When asked if any of them had formal arrangements with other firms, 45% of the respondents affirmed this. On closer inspection however, most of these arrangements were not with local, geographically proximate component manufacturers, but with foreign-based component manufacturers. The respondents were further asked how their informal relationships developed. Nearly 66,6% of the respondents cited industry associations. Given the fact that nearly all the respondents belonged to the industry association NAACAM, this is not a startling revelation.

FIGURE 4. AREAS OF COOPERATION BETWEEN COMPONENT MANUFACTURERS



n=12

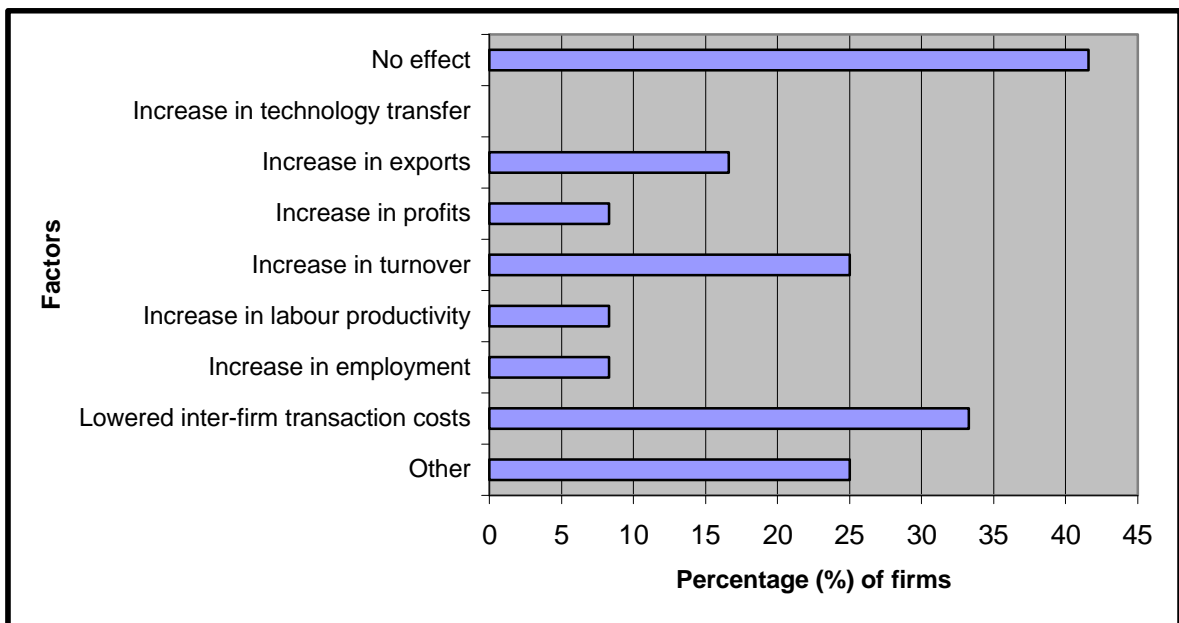
As illustrated in Figure 4, the survey established that nearly 50% of the respondents cooperated with other component suppliers in purchasing inputs, while for 33,3% of them, the training of workers was their main area of cooperation. 25% of the respondents co-

operated in lending machinery, and 8,3% in product development. Clearly there is evidence of some cooperation between component suppliers. Moreover, the fact that at least 66,6% of the firms indicated that they occasionally exchanged ideas or discussed problems with other producers gives further indication of cooperation.

4.3.4 Manufacturing Performance

Despite the positive findings on inter-firm cooperation, there seems to be mixed perceptions on the economic benefits that the cluster initiative had on individual firm performance. As indicated in Figure 5, these varied from firms which indicated that the initiative did not have any effect on their economic performance (41,6%) to firms which indicated that it had reduced inter-firm transactions costs by eliminating bottlenecks and cost drivers (33,3%). At least 25% of the firms maintained that the initiative had increased turnover, whereas 16,6% of them said that they experienced an increase in their exports, whilst 8,3% was of the opinion that the cluster had resulted in an increase in labour productivity, the same percentage being cited for resulting in an increase in employment and profits.

FIGURE 5. IMPACT OF CLUSTER INITIATIVE ON COMPONENT FIRMS



n=12

The cluster initiative therefore appears to have had a relatively small impact on the variables used to represent manufacturing performance. The biggest response was “no effect”. An important aspect such as technology transfer also does not seem to have been affected.

The relevance of the main findings within a theoretical context, particularly Porter, follows in the next section.

5. ANALYSIS OF RESULTS AND RECOMMENDATIONS

Regarding raw materials, which are an important component of *factor conditions*, a drawback for the cluster was that the respondent component firms obtain only 25 percent of their raw materials from the Eastern Cape. Attempts were made by the strategic investments project team to remedy this. There was uncertainty, however, as to which institution, Investment South Africa (ISA) or the Center for Investment and Marketing in the Eastern Cape (CIMEC) should have institutionalised the findings. Not only was there a disconcerted effort in attracting investment by these two associations, but the survey also revealed that there was no leadership from the two main motor industry associations (NACAAM and NAAMSA) within the cluster. The theoretical literature specifically indicates that trade or industry associations in successful clusters focus on innovation, upgrading and developing cluster specific knowledge and expertise.

A further issue relating to *factor conditions* is the ability of the cluster initiative to affect the skills base of the region and productivity. Only 8.3 % of the firms indicated that it had resulted in an increase in productivity. Regarding industry-specific training, the sentiment from the interviews and the audit conducted by the Human Resources Project (HRD) team was that the training and tertiary institutions in the region did not meet the needs of the industry. Being in existence for such a short space of time, it was not really possible for the cluster to facilitate this. No tangible results emanating from the HRD project team are visible in the industry, judging from the surveys and interviews.

A less obvious, though important role the cluster could have played, was to assist component suppliers in implementing quality standards systems. These refer to the standards in the automotive industry certified by the South African Bureau of Standards (SABS). Interviews for the research revealed that few component manufactures have these ratings in place.

As discussed above, successful clusters benefit theoretically from the presence of *related and supporting industries* in geographical proximity through the exchange of information and the promotion of a continuous exchange of ideas and innovations. As already mentioned, although both component suppliers and assembly firms obtain a relatively small percentage of their raw materials from within South Africa, they seem to obtain a relatively greater proportion of their components from the immediate Eastern Cape region than the rest of the country. At the same time, there appears to be an improvement in defined backward and forward linkages between firms, judging from the responses to the survey on the level of interaction between suppliers and their customers. Another development in the area of *demand conditions*, however, seems to have worked against this. Export markets have been a major focus for the motor industry in general and the assembly firms in particular. The implementation of the duty rebate scheme under the MIDP on the other hand, seems to have boosted the assembly firms' demand for foreign components. This in turn could have had a negative effect on the development of strong local backward linkages and cooperative relationships with component producers locally.

One area where the cluster initiative did make a difference through *mutual cooperation* was to lower input costs, mainly in the case of the assembly firms. Geographic concentration therefore enabled the industry in this respect to achieve a cooperative benefit and a certain critical mass, which is necessary to support such cluster-specific *factor conditions* as logistics. The MIC Logistics Company therefore substantiates the notion of “cooperative competition”. It further typifies the existence of *social capital* in that relationships have been derived purely from commercial and business relations. Not only has the cooperation in logistics led to cost savings, it has also facilitated the development of a cluster specific logistics capability. For example, a dedicated information technology system (the EDI tracking system) has been put in place. Despite the fact that logistics is one area which was able to show tangible results in the short term, the fact that traditionally competing stakeholders were able to organise regional assets to build “collaborative advantage” through strong relationships, holds potential for attempts to foster regional development.

Despite the overall impression that the cluster initiative has had a limited impact on the industry’s performance, especially the component manufacturers and that the process was riddled with various problems, it is important to realise that an initiative such as a cluster is slow to get off the ground. Given the various positive factors developed by the cluster, it has made notable contributions to the industry, especially in terms of creating industry capability and lessons for the motor industry in general as well as industrial policy formulation.

As for the way forward, The Eastern Cape's motor industry seems to have realised the need for exporting activity in order to remain viable. This is reflected in the huge export contracts granted to the assembly firms and to a lesser extent, the component manufacturers. The survey for this research revealed, however, that this increase in export activity is not a direct result of the cluster initiative, but rather the MIDP and trade policy. International experience with industry clusters (i.e. Brazil) indicated that great potential exists for clustering to strengthen export activity. In South Africa's case there is therefore a need to find ways in which cluster activity can further improve export competitiveness, especially through industry associations, parastatals, and the DTI. CIMEC seems to be promoting export activity in the region. More importantly, there is a need to continually develop the entire value chain within the industry, with particular emphasis on component suppliers.

Barriers to entry for component suppliers are very high (Barnes, 1997: 5). Coupled with the tendency towards integration of local assembly firms into their global networks, this makes it increasingly difficult for local component suppliers to upgrade their technological capabilities to international standards. Government policy could therefore focus on this aspect. This, however, needs to be complemented by efforts from the private sector through cluster initiatives. One of the main goals under supplier development is to provide support to ensure the introduction of new technology and resources to meet international industry demands (DTI, 2000: 2). This is imperative, given that for example, the cluster initiative in the Eastern Cape has not resulted in any significant technology transfer, especially in the component industry.

Within the context of the broader South African economy, there remains the need to attract foreign direct investment (FDI). Indeed FDI will result in additional employment effects, but more importantly, foreign investment in a cluster may contribute to the development of the local production system (Altenburg & Meyer-Stamer, 1999: 1706). This is because new entrants in a cluster can invest in complementary activities, which therefore increase the division of labour along the value chain, strengthening positive externalities for already established firms. It is important to realise that strong inter-firm cooperation will make the cluster less vulnerable to, "the volatility of footloose investment," (Altenburg & Meyer-Stamer, 1999: 1706). However, it is important in some cases to avoid emphasis on subsidies in attracting investment. Instead, policy makers should strengthen the attractiveness of the cluster by enhancing interdependencies. It is also important to invest in dynamic locational advantages such as a specialised workforce or R&D facilities.

Finally, it is important to develop cluster policy in a broader and dynamic context, based on improvements in productivity and by giving attention to all possible and emerging clusters in South Africa, as opposed to only targeting particular industries. This would require a repositioning of local and provincial government structures in order to become more involved in regional development issues. It also implies that these different levels of government need to be encouraged to incorporate competitive strategies into their policies.

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