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The Export 'Success' of the Motor Industry Development Programme and the Implications for Trade and Industrial Policy

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1. INTRODUCTION

Developments in the automotive industry have received considerable positive publicity over the last few years. Firstly, and most importantly, this is a consequence of rapid export expansion, initially of components, but latterly also of vehicles. Recently, for example, Toyota announced a R3.5 billion investment programme partly to provide for the export of Corollas to Australia.¹ In April, Ford announced that they had invested R1 billion in their Eastern Cape engine plant and would be massively expanding production as the sole world supplier of the 1.3 litre RoCam engine.

A second positive development is that the automotive sector has been the recipient of considerable foreign investment including substantial fixed investment in assembly plants and component production. This has been at a time of weak market demand, falling import duties and the abolition of local content requirements. Thirdly, productivity has improved rapidly and there is substantial evidence of improvement in a range of benchmarks such as quality and operational shopfloor efficiency (Barnes and Kaplinsky, 2001). In June, for instance, the Pretoria BMW plant received the highest quality rating of any plant in the BMW group.² Fourthly, employment has remained relatively stable under difficult circumstances. Relative to the rest of the manufacturing sector, the automotive industry's share of sales, value added and investment have all increased over the period 1993-2001. On the whole it appears that the industry has weathered import liberalisation rather well.

The above developments have been strongly influenced by the Motor Industry Development Programme (MIDP). As a result, the MIDP is frequently cited as a successful example of trade and industrial policy and even as an example for other sectors to follow. But rapid export growth does not, in itself, signify success as exports have been strongly supported by sector specific policy measures. The objective of this paper is to probe these developments in greater depth by examining the process of international integration under the MIDP in some detail, focusing on the export experience and its effects at the sub-sector and firm level.³ The paper also attempts to draw some conclusions as to the broader implications for trade and industrial policy.

2. POLICY, OBJECTIVES AND THE FIRM LEVEL INCENTIVES

The experience of the automotive industry over the past two decades illustrates that the overall regulatory regime remains very important in determining the actions of firms. South Africa initially followed a programme of import substitution similar to that adopted in other developing countries especially in Latin America. Later, policy concerns were manifested in efforts to reduce the trade deficit in the sector, first by extending protection to components and then by promoting exports. More recently, the issue of rationalisation of the industry has come to the fore.

¹ See 'Toyota SA plans to double output' (*Business Report*, 18 July 2002).

² See 'Achieving new heights' (*Finance Week*, 14 June 2002).

³ The welfare implications of these developments are discussed more analytically in Black and Mitchell (2002).

After decades of protection South Africa had, by the mid 1980s, developed a fairly large and diversified automotive industry. The rates of protection on assembled vehicles were prohibitive and the domestic component sector was also assisted by requirements, which specified that 60% of the mass of the vehicle had to be locally produced. As a result, the industry was highly inward oriented and a large number of makes and models were produced in low volume at relatively high cost. The first major change to this long established programme of protection came with the introduction of Phase VI of the local content programme. Phase VI was the first attempt to address the problems of an inwardly oriented, overly fragmented industry with low volume output and associated high unit costs. Most importantly, local content was to be measured not just by the value of domestically produced components fitted to locally assembled vehicles but on a net foreign exchange usage basis. In other words, exports by an assembler counted as local content and enabled it to reduce actual local content (to a minimum of 50%) in domestically produced vehicles. Exports especially of components grew extremely rapidly giving assemblers greater flexibility in their sourcing arrangements.

One of the problems of the previous programmes was uneconomic volumes and the resulting high cost production structure. Phase VI was intended to encourage both local content and specialisation. However, it did not address the major factor impacting on the scale of production in the component sector - proliferation of makes and models in the domestic market. In fact the impact was rather the reverse. By increasing the flexibility of component sourcing (and hence reducing protection on components) but at the same time maintaining high nominal protection level on built up vehicles, the effective rate of protection for assembly increased sharply under Phase VI, leading predictably to an increase in the variety of models and makes being assembled locally in spite of the stagnant market.

Phase VI came in for heavy criticism with frequent changes adding to the atmosphere of uncertainty and in late 1992 the Motor Industry Task Group⁴ was appointed to re-examine the programme and advise government as to the future development of the industry. The eventual outcome was the Motor Industry Development Programme, which was introduced in 1995. It continued the direction taken by Phase VI and entrenched the principle of import-export complementation. However, it went a step further by abolishing local content requirements and introducing a tariff phase down at a steeper rate than dictated by South Africa's WTO obligations. Tariffs on light vehicles were phased down to 40 % for light vehicles and 30% for components in 2002 and in terms of the Mid Term Review,⁵ which came into effect in 2000, they will be reduced further to 30% and 25% respectively by 2007 (Appendix 1). Minimum local content requirements were also abolished and manufacturers of light vehicles are entitled to a duty free allowance (27% of the wholesale value of the vehicle) for the importation of original equipment components. Importantly, however, import duties on components and vehicles could be offset by Import Rebate Credit Certificates (IRCCs) derived from the export of vehicles and components a benefit,

⁴ The MITG was a tripartite forum representing industry, trade unions as well as government. Its recommendations were only partly accepted. Most notably the contentious proposal to encourage higher model volumes and force a degree of rationalisation was not accepted.

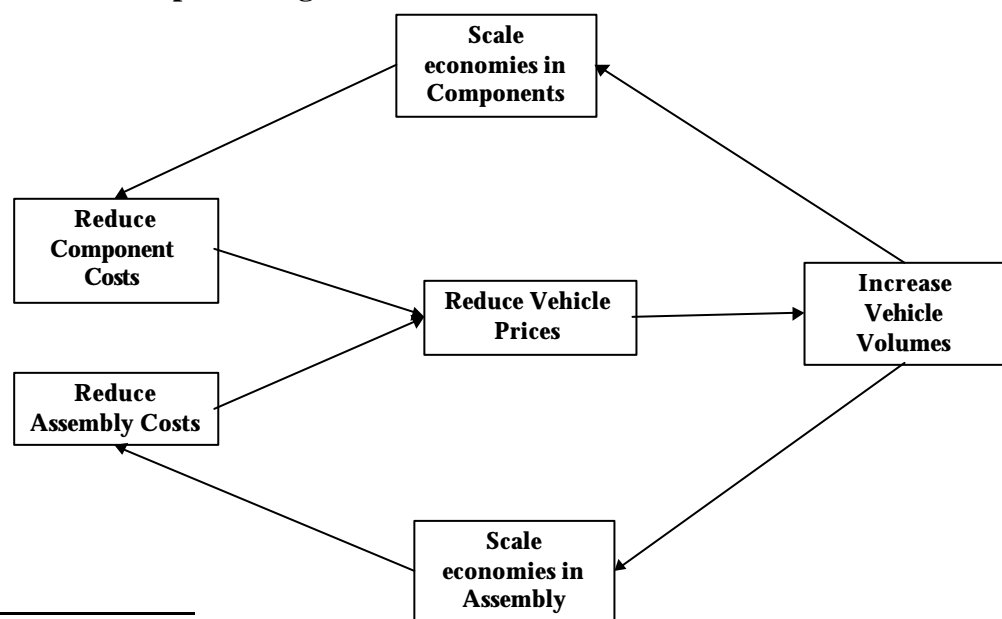
⁵ See Republic of South Africa (1999) for the proposals.

which will be phased down from 2003. The rebates are equivalent to the local content value is measured by the selling price less imported content. Import content is measured through a complicated system requiring component suppliers to also document the import content in their locally produced components.

The main elements of the MIDP, therefore, are falling protection and export assistance derived from the ability to offset import duties. While nominal duties on imported vehicles remain moderately high, the ability to rebate import duties by exporting enables importers to bring in vehicles at lower effective rates of duty. Import-export complementation also enables assemblers to use import credits to source components at close to international prices, so declining nominal protection on vehicles has to some extent been offset by reduced protection for components. This means that there is still a significant incentive to assemble locally.

The objective of the MIDP is to provide high quality affordable vehicles, provide sustainable employment and through increased production contribute to economic growth (Department of Trade and Industry, 2001). These, of course, are generic objectives, which are important to all sectors. More specifically, the MIDP is a trade facilitating measure with very particular industry policy objectives. As a result of protection, the industry structure has historically been very fragmented and the resultant failure to achieve economies of scale has not only made the assembly industry inefficient, but has imposed major negative externalities on the component sector.⁶ So the MIDP seeks to increase the volume and scale of production through a greater level of specialisation in terms of both vehicle models and components. Higher vehicle volumes allow for the attainment of economies of scale for component producers moving them further down their respective cost curves and enabling a higher level of localisation on an economic basis. In turn this would bring down assembly costs further (Figure 1). The route to achieving this is by encouraging a phased integration into the global automotive industry.

Figure 1: The schematic impact of higher volumes and economies of scale



⁶ See Black (2001) for more detail on this question.

The provisions of the MIDP could promote this process in two ways. Firstly, tariff reductions create greater competitive pressure, which forces industry rationalisation. Secondly, the provisions of the MIDP assist assemblers to enter export markets (thus achieving high volumes in selected vehicles) and to then import a portion of their requirements in order to maintain a full model range in the domestic market.

Essentially what is required is a transition from completely knocked down (CKD) assembly, which has typically been characteristic of vehicle production in protected developing country markets, eventually to full manufacturing (Table 1). CKD assembly involves relatively light investments and production costs are usually quite high especially if a high level of localisation is stipulated. In the full manufacturing stage, higher volumes would normally be attained allowing vehicle makers to localise components on an economic basis.

Table 1: Stages in the development of vehicle production in South Africa

	CKD assembly	Transition	Full manufacturing
Target market	Domestic	Domestic and export	Domestic and export
Level of integration with parent company	Low; import of CKD packs	Medium	High
Model line up	Many models	One or two	One or two
Derivatives	Limited to reduce costs	Full range to supply export market	Full range to supply export market
Localisation	Generally low but may be quite high as a result of local content requirement	Moderate based primarily on cost factors	Medium to high
Quality	Below source plant	Equal to source plant	Equal to source plant
Production cost	High	Medium; penalties incurred by high logistics costs	Low
Domestic design	Local adaptations	None	None - may do world wide R&D in niche areas

In the South African environment, where protection levels are moderate but declining, vehicle assemblers would like to rationalise and raise production volumes because this would enable them to reduce unit costs through simplifying production processes and by bringing down purchasing costs. However, market share considerations dictate that a prerequisite would be that they are able to maintain their model range - and this requires importing. Significant investment would also be required to upgrade the plant to meet higher volume and quality requirements. The decision to source vehicles from South Africa rests with the parent company which can also exercise leverage over component suppliers to locate in South Africa. Firms, anxious to maximise profitability and market share face essentially two basic strategic options (Table 2) although they may select to adopt a hybrid of these two.

Table 2: Strategic choices facing assemblers in relation to the MIDP

	Strategy 1	Strategy 2
Strategic choice	Rationalise production to one or two models and achieve significant export volumes.	Maintain a wide range of locally built models with low local content and offset duties with component exports.
Implications	Enables firms to earn credits and thus import other models on a duty free basis. This strategic response is in line with one of the key objectives of policy. By increasing model volumes, assemblers are able to reduce their in-plant unit costs associated with labour and tooling. Higher volumes make it economic to raise localisation. The incentives to do this are quite strong. Firstly, it enables firms to reduce logistics costs. Secondly, by raising local content, they are able to increase the rebates earned.	This option achieves little from the standpoint of industry restructuring. Assemblers do not reduce their cost base. Firstly, by maintaining a wide range of models, in-plant costs are not reduced and may even be increased. This is because model volumes may not rise and firms have to incur all the inefficiencies associated with low volume production. Secondly, component costs are reduced through importation but there is likely to be a shift to much lower levels of local content because of the capacity to offset import duties. In the medium to longer term such a strategy could become unviable because a low volume strategy based on imported components will not lower the cost base sufficiently for firms to compete in an environment of lower import duties.

3. INTERNATIONAL INTEGRATION AND EXPORT EXPANSION

As far as exports are concerned, the automotive industry has been a stellar performer. This expansion has been assisted by the MIDP although it should be remembered that a wide range of manufactured exports which generally do not benefit from MIDP type incentives⁷ have also shown considerable expansion (Black and Kahn, 2001). But given that the objectives are not simply to assist exports, this section examines the export expansion in detail to assess a number of questions including the contribution to structural change, the extent to which economies of scale have reduced the cost base and the sustainability of export expansion. These are key measures by which we may assess the welfare impact of import-export complementation (Black and Mitchell, 2002).

3.1 Vehicle exports

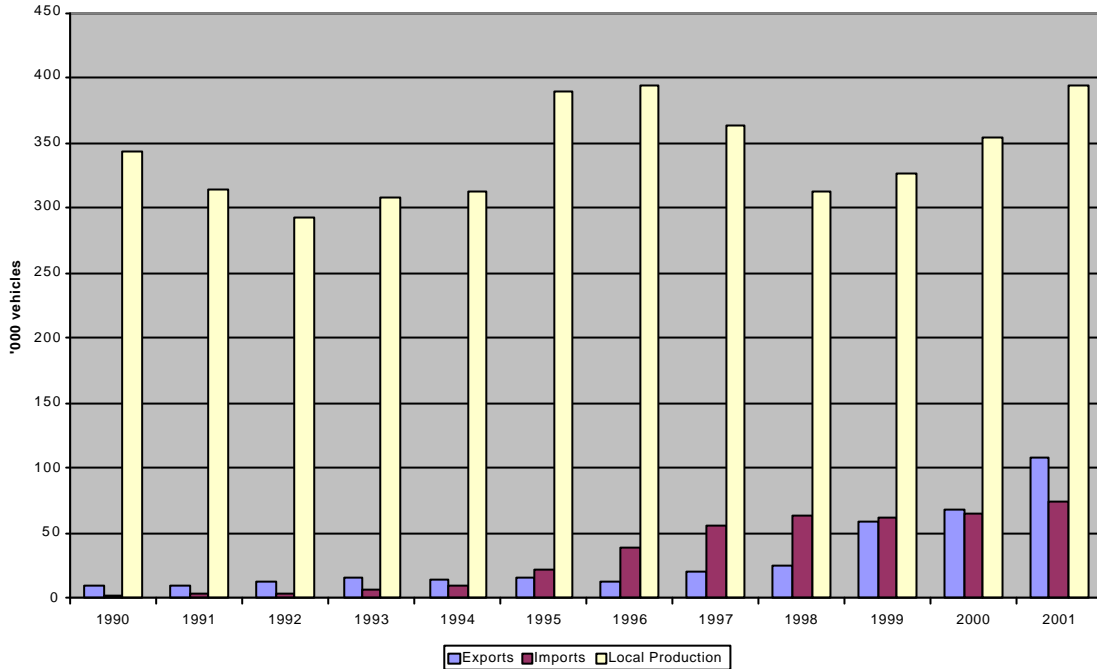
There was little growth in vehicle exports until 1999 when vehicle exports increased to 59 700 units from 25 900 units the previous year (Figure 2). In 2001, vehicle exports reached 108 300 units and according to the vehicle manufacturer's federation, NAAMSA, are estimated to exceed 175 000 units by 2007.⁸ To date the export

⁷ The clothing and textile industry does have a programme involving duty credit certificates (DCCs) which is similar in principle to the MIDP.

⁸ See 'Automotive investment set to rocket' (*Business Day*, 31 July 2002).

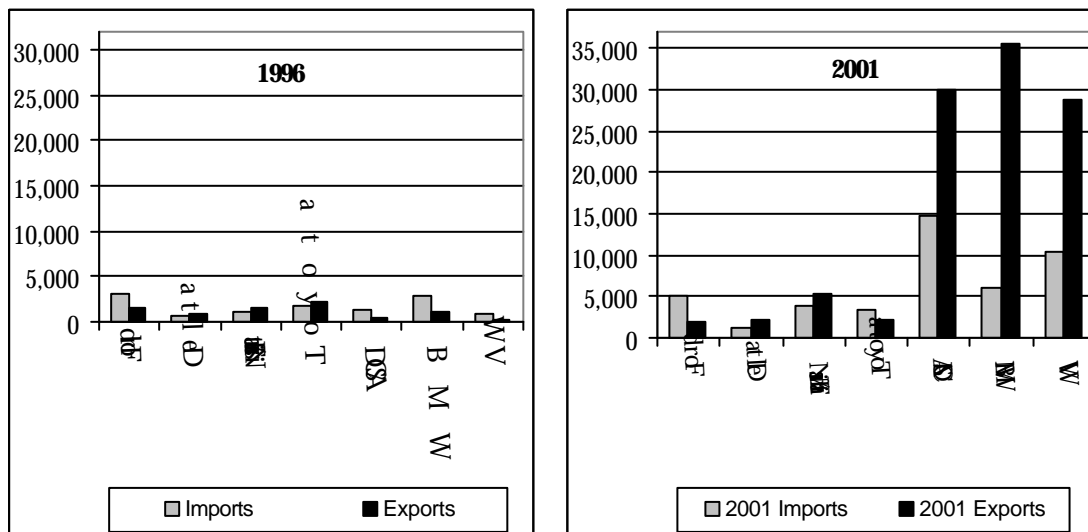
expansion had been restricted primarily to three firms which all happen to be German based.

Figure 2: Exports, imports and local production 1990-2001



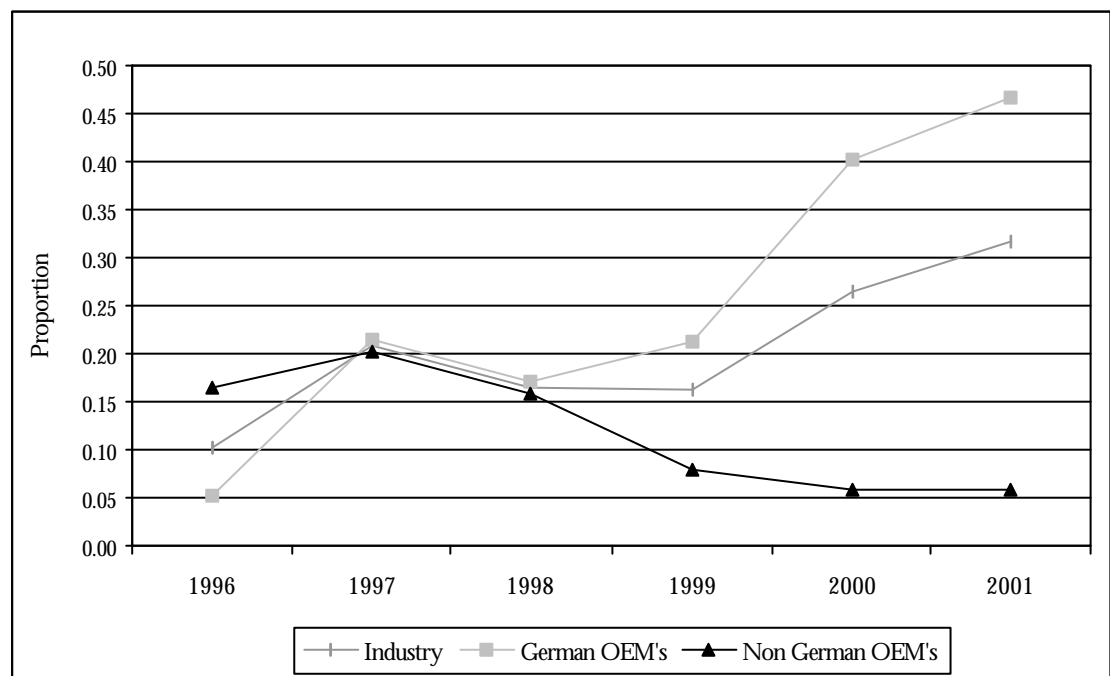
Vehicle exports are not just a function of competitiveness but depend on the global strategy of the parent company including its desire to optimise global production facilities in the context of the policy regime prevailing in each country location. The implications of this at firm level are evident in Figures 3 and 4.

Figure 3: CBU Imports and exports by company 1996-2001



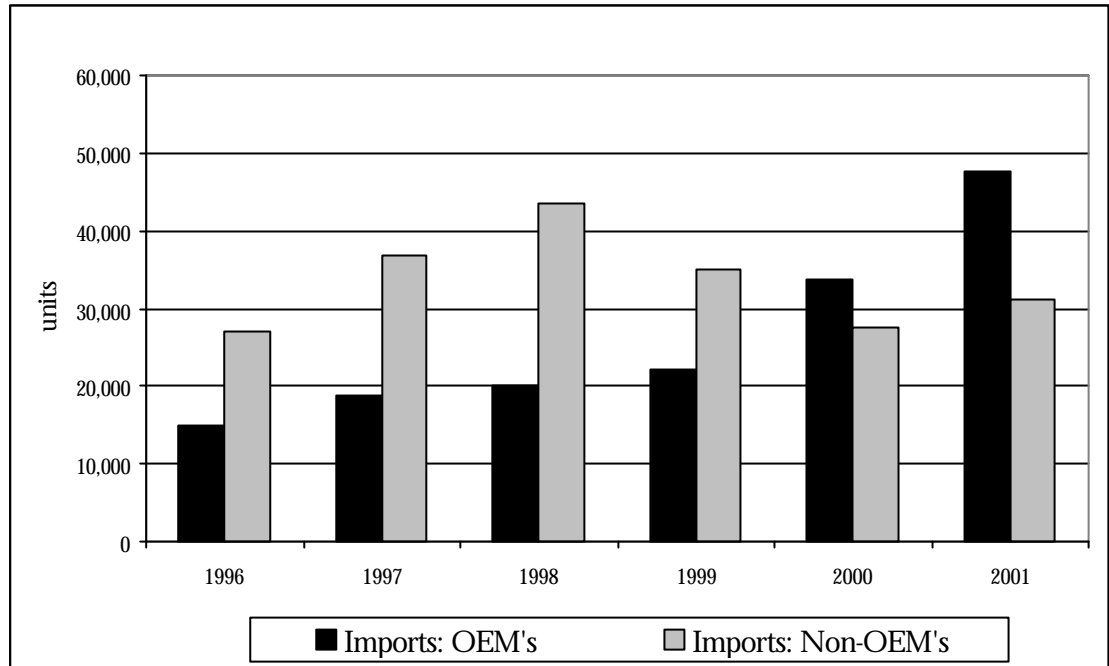
Certain vehicle manufacturers, for example, are increasing vehicle exports, which will allow them to import significant volumes of both vehicles and components duty free. Car makers are generating a growing share of IRCCs through vehicle exports as indicated in Figure 4, which also shows the differences between German and non-German companies. This creates the opportunity to rationalise their operations and with higher model volumes they then are also in a better position to encourage investments by first tier suppliers. They are also able to raise imports as indicated by the growing share of imports by vehicle makers compared to independent importers (Figure 5). Other carmakers are pursuing multi-model strategies (in some cases with low local content levels) for the moment and are generating exports of components. This option is unlikely to be sustainable in the medium to long term. The strategies of vehicle manufacturers can crudely be grouped according to the home base of the parent company.

Figure 4: Proportion of IRCCs generated via CBU exports



Source: Naumann, 2002

Figure 5: CBU imports by OEMs and independent importers (non OEMs)



Source: Naumann (2002)

3.2 Japanese based firms

The strategies of Japanese based assemblers have historically been constrained by the relatively low ownership stakes held in the South African affiliates as well as by market share considerations. Historically, Nissan and Toyota were domestically owned and operated under licence agreements. During the apartheid years, Japan prohibited Japanese firms from undertaking direct investments in South Africa although there was considerable two-way trade. In the early years, following the introduction of the MIDP, the South African operations received access to a wide range of African markets but these were too small to significantly boost output. Toyota remained in a relatively strong position given its large domestic market share in both cars and light commercials and its Durban plant continued to produce approximately 80 000 vehicles per year. However, the company found it difficult to generate sufficient export volumes to offset its component import duties and has frequently been in the position of having to purchase import credits from independent component exporters. Both Nissan and Toyota have increased their stakes in the South African operations. In 2002, Toyota Motor Corporation increased its stake in Toyota South Africa to 75% following the earlier acquisition of a 27.8 percent stake in 1999. These closer ties reflect a strategic response to greater competitive pressure in the South African market.⁹ Toyota South Africa will now be firmly integrated into the parent company's global production network

⁹ At the time of the purchase of the initial stake, Shinji Sakai, a senior managing director of Toyota Motor Company stated that 'since the freeing of South Africa's economic system we are seeing more

Nissan also faces the problem of limited access to export markets within the worldwide group. However, its share in the domestic market is less secure although its market share in light commercials remains high. It exports small volumes of vehicles and CKD kits to African countries. For many years the plant also produced Fiat Uno vehicles and now undertakes contract assembly for Fiat. This arrangement may be complicated by the Renault investment in Nissan Motor Company as Renault is trying to obtain a foothold in the South African market for its vehicles.

3.3 American based firms

Ford and General Motors established assembly plants in South Africa during the 1920s. During the 1980s both firms disinvested as a result of political pressures¹⁰ Both firms have now reinvested in South Africa and established closer links with the South African operations but were initially reluctant to source vehicles from South Africa on a significant scale. This is partly as a result of having surplus capacity worldwide as well as already having assembly plants in all significant markets. Ford now has 100% ownership of the local operation and is forging closer links having recently announced the possible introduction of a high volume vehicle export programme.¹¹ Delta is in a more difficult position regarding vehicle exports as General Motors does not have a significant stake in the local company, which is a prerequisite for a large scale vehicle export contract. Both companies, however, export a wide range of components, many of which are peripheral products but in the case of Ford, include engines.

3.4 German based firms

The German strategy (BMW, VW and Daimler Chrysler) is far more advanced in terms of the level of integration into the activities of the parent company. All the plants are wholly owned by the parent company and increasingly integrated into the global network for both vehicles and components. All three now have significant vehicle exports. They have been assisted in this process by the fact that none of the German companies has a wide geographical distribution of plants - the South African plants are, therefore, benefiting from the globalisation of German vehicle manufacturers looking to expand capacity, increase their share of output outside of high cost Germany as well as retain their strategic foothold in the southern African market. This requires greater production efficiencies and export capability requiring in turn larger investments and a degree of rationalisation of the product line.

BMW has a well developed export strategy and is well advanced in making the transition to a full manufacturing plant (see Table 1). It currently is in the second stage of this process. Having dropped production of the 5 and 7 Series vehicles, it produces only the 3 Series E46 in South Africa. Assembly costs are lower than in Germany as a result of lower wages but the company pays a premium for logistic

competition and we need to enhance our strength'. See 'Toyota Japan to buy chunk of its local carmaker' *Sunday Independent*, (13 October, 1999).

¹⁰ There was substantial disinvestment by international firms during the 1980s as a result of the international campaign against apartheid.

¹¹ See 'High volume export deal is the subject of Ford SA talks' (*Business Report*, 5 July 2002)

costs given its continuing import requirements. While local content is being increased, further localisation is complicated by the fact that main E46 production continues in Germany supplied by German component plants. Domestic production reached 49 500 units in 2001 with 70% of output being exported to markets such as the UK, US, Australia and Japan. Even though this represents a tripling of production volumes over those achieved five years ago, it is still not sufficient to justify very high levels of localisation. However, a number of suppliers have located near the Rosslyn plant. These include ZF subsidiary, Lemforder, which assembles the axle system making use of both imported and local subcomponents.¹²

Volkswagen (South Africa) is a major exporter of vehicles having received a large contract to export Golf 4 vehicles a year to Europe. The South African subsidiary benefited from a lack of capacity in the global group and this contract gives it the opportunity to rationalise the number of models being locally produced and perhaps eventually to become sole world wide a supplier of a particular VW model. The key to this strategy will be the successful localisation of key component capability. Ironically, although the Golf 4 is being produced in volumes exceeding 40 000 units per annum, it currently has extremely low levels of domestic content partly because it was introduced very quickly and also because of exacting technology requirements.

Daimler Chrysler has extensively modernised and expanded what was a small and outdated East London plant¹³ and is exporting C Class Mercedes vehicles mainly to Australia and smaller markets in Asia. The tie up with Chrysler also offers possibilities for domestic production of a smaller vehicle with greater local potential in the domestic market.

3.5 Constraints on competitiveness

The boom in vehicle exports has been driven by the MIDP. Firms do not generally see South Africa as an export platform and is unlikely that, without the MIDP, exports would have risen as dramatically as they have. Nevertheless, costs are low in some aspects and the weak currency, low labour and management costs together with cheap land and electricity are important competitive advantages. Actual assembly costs for local operations such as BMW and DaimlerChrysler are well below in-plant costs in their respective German plants. Where these South African operations incur significant cost disadvantages is in the area of inbound and outbound logistics. This is a function of high transport costs and long distances to foreign markets as well as high levels of imported content. Higher volumes in the region of 100 000 units per annum would enable higher local content and the resulting reduction in logistics costs would enable South African plants to compete without any support.

Achieving higher levels of local content is not easy. Volumes of 40-50 000 units per annum do not justify the investments required to raise local content above a level of approximately 60%. One solution would be for component suppliers to domestic carmakers to achieve minimum efficient scale by exporting say half of their output.

¹² There has also been significant expansion in certain component suppliers. See for example "August Lapple invests R100m in new press line", *Business Report*, 6 November, 2000.

¹³ See "Daimler Chrysler to invest R900m in SA" *Business Day* (27 November 1998).

The presence in South Africa of the three major German car firms, all with significant vehicle export activities, should be attractive to German component firms. Indeed, the German based carmakers have co-operated to pursue investments by first tier suppliers. To some extent they have been successful but real constraints remain. As an integral part of the global production capacity of the parent companies, SA based assemblers would normally be expected to use the exactly the same supplier as the parent company, a practice known as lead sourcing. These suppliers may be different for VW, BMW and DaimlerChrysler. Increasing output by supplementing production in order to reduce unit costs is constrained by the fact that this might make inroads into the established capacity of existing foreign suppliers.

These problems could be obviated if assemblers achieved higher volumes, in particular, if they became sole global suppliers of a particular model. But, aside from the fact that they have capacity elsewhere, the major vehicle companies are reluctant to source, say, 100 000 vehicles from South Africa when the local market only accounts for 15 000 units, especially as the country is still regarded as a somewhat risky location. In this sense, South Africa competes with other emerging market locations. German firms have invested heavily in eastern Europe, Japanese firms such as Toyota have huge interests in Europe and the US and among emerging markets have concentrated investment in south east Asia, particularly Thailand.

3.6 Component exports

While vehicle export expansion occurred only recently, the rapid growth in component exports dates back to the late 1980s and has continued up the present time (Table 3). Bearing in mind that the prime objective of the export complementation scheme is to assist component suppliers to generate high volumes, which would make them more efficient, and able to compete in the domestic market against imports, we need to examine this performance in more detail. For while the rapid expansion of component exports has been welcomed, this development also raises policy concerns. Firstly, there is the issue of the implications for the overall integration of the industry particularly given the profile of products, which are being exported. Secondly, there is the question of the sustainability of the rapid export expansion that has taken place and, thirdly, the rapid increase in duty free importation, which has potential dangers for the component sector. These actual and potential difficulties are discussed below.

Table 3: Component exports 1996-2001 (Rmillion)

Component category	1996	1997	1998	1999	2000	2001	% of total (2001)
Catalytic converters	485	835	1520	2569	4683	8989	48.4%
Stitched leather components	1259	1408	1854	1888	1926	2391	12.9%
Tyres	296	342	498	639	682	781	4.2%
Silencers/exhaust pipes	170	151	493	598	337	282	1.5%
Road wheels and parts	227	325	446	518	551	725	3.9%
Engine parts	137	285	390	383	409	520	2.8%
Wiring harnesses	92	136	207	304	319	391	2.1%
Automotive Tooling	279	309	256	264	362	441	2.4%
Glass	71	105	112	147	171	241	1.3%
Radiators	107	93	108	111	72	70	0.4%
Other Components	928	1126	2011	2253	3088	3795	

3.7 The profile of component exports and implications for industry integration

While a wide range of components are exported, much of the expansion has been in a small range of products such as catalytic converters, automotive leather, tyres and wheels. Some of these components could be described as ‘peripheral’¹⁴ in the sense of being relatively minor components, which have high raw material content and not being particularly complex in terms of incorporating large numbers of sub-components. Some major component exports categories are characterised by relatively light investments with a low level of integration into the domestic industry, either in terms of supply to domestic vehicles or in terms of the use of sub-components. Because exports account for the vast share of output in most of these cases, domestic consumers (either assemblers or the aftermarket) do not receive the benefit of reduced costs due to economies of scale. This is one of the criteria affecting the welfare outcome of the import-export complementation policy (Black and Mitchell, 2002).

The bulk of export expansion has not been by ‘traditional’ component suppliers but by a rapidly emerging new group of mainly foreign owned firms frequently with links to vehicle manufacturers.¹⁵ It could be argued, therefore, that local assemblers in conjunction with their multinational parents have developed large component export businesses, which do not contribute much towards the more integrated development of the automotive industry. Thus, if multinational vehicle manufacturers select the strategy of developing large scale exports of ‘peripheral’ components (Strategy 2 in Table 2) instead of reducing their cost base by expanding vehicle exports and

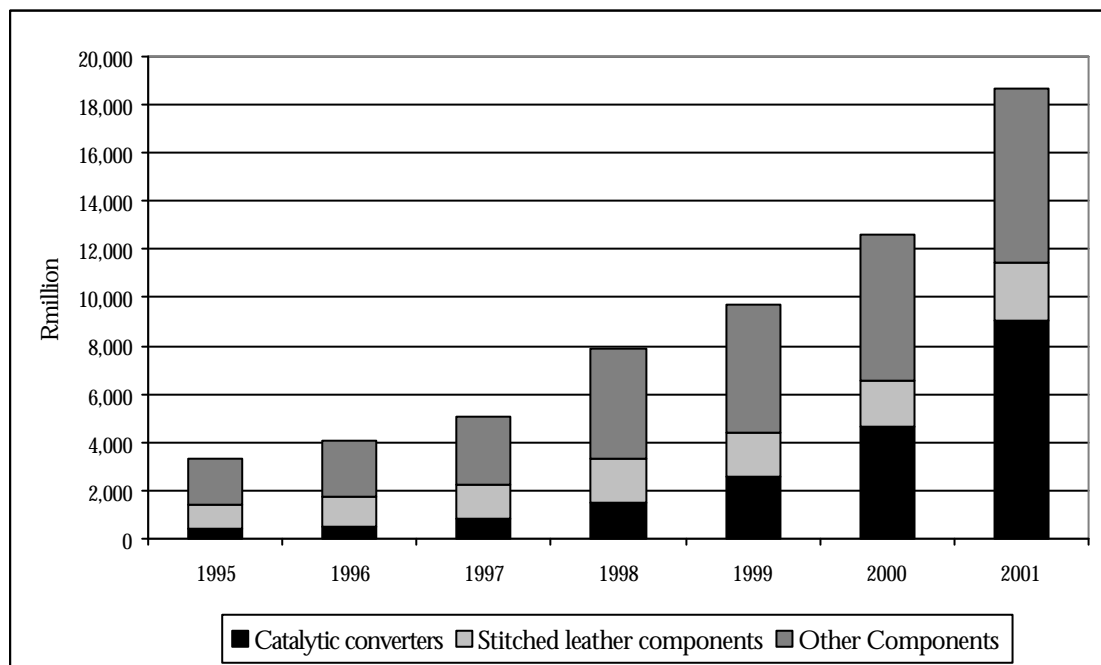
¹⁴ The visiting chief executive of a major carmaker referred to them as “salami”.

¹⁵ Similar trends have been observed in other countries experiencing rapid international integration and export expansion such as Brazil (Posthuma, 1995) and Argentina (Miozzo, 2000).

localising major components, not only will this not contribute to lowering the cost base of the automotive industry nationally, but it could create question marks over their own viability in the longer run.

It is certainly true that component exports have been dominated by a small number of products. In 2001, catalytic converters alone amounted to nearly R9 billion or 48.4 % of total component exports (Figure 6). This is a product, which was only recently used in SA but has been the product of choice for firms wanting to generate import credits. The South African catalytic converter industry now supplies over 10% of total world supply and looks set to expand further¹⁶ having reached the critical mass requiring investment in inputs such as the ceramic substrate where the required investments are much larger than for the relatively simple coating and canning process.

Figure 6: Exports of catalytic converters, automotive leather and other components



The industry supplying leather seat amounted to a further 12.9% of total component exports in 2001. It supplies the bulk of BMW's global requirements and is an important supplier to a number of other foreign vehicle manufacturers. Interestingly, at the time of the Mid Term Review, automotive leather was regarded as sector which was dominating component exports enabling assemblers to import very high volumes – but exports in this category have now declined in relative terms partly due to a shortage of local leather.¹⁷

¹⁶ A number of large contracts have been announced over the last few years. See for instance “Bosal signs R810m converter deal” (*Business Times*, 8 August 1999), “Delta, Tenneco clean up with R2.3bn catalytic converter deal” (*Business Report*, 13 September 2000), “Renault seals R11 billion export deal for catalytic converters” *Business Report*, 28 November 2000.

¹⁷ Footwear producers have complained about the impact on leather supply resulting from the MIDP. See Ballard (2001).

However, the argument above needs to be qualified. Firstly, if the growing volume of vehicles exports are included in the export profile, the picture looks very different. Vehicles are high value added products, which include a wide range of locally produced components.

Secondly, while a substantial shift in the profile of exports has taken place over the last few years and the proportion of total exports accounted for by a small number of products has increased, it is not clear that this has all been in the direction of low value added components. Most notable among the growth of high value added, complex components is the current expansion of engine exports by Ford. The production of engines is highly capital and scale intensive. Minimum efficient scale for an engine plant is in excess of 200 000 units per annum for a single basic make of engine. This illustrates the problem encountered in raising local content in SA where the highest model volume is approximately 50 000 units. It also illustrates the advantage of specialisation. The Ford engine which is to be exported in volumes of 240 000 per annum with a local content level of 82%, has attracted new investment in a range of local and foreign suppliers.¹⁸

3.8 Sustainability

A second key question concerns the sustainability of the large investments that have been put in place. Firms are quick to argue that they will pack up and leave if benefits are seriously reduced. Certainly, early investments in the catalytic converter industry gave the impression of being somewhat footloose. Only limited segments of the total production process were carried out in South Africa. The same could be applied to automotive leather, a very labour intensive process, which shares many of the attributes of the notoriously footloose garment industry.

Sustainability under a regime of falling assistance, is a function of related factors such as actual cost competitiveness which depends in turn not only on the costs of labour, materials, logistics etc. but also on more dynamic attributes such as scale of production (in relation to minimum efficient scale) and the rate of productivity improvement over time. Also important are levels of sunk investments including not just fixed capital but also a trained labour force and other infrastructure specific to the enterprise and the level of local integration in terms of a local supply network and market. All these factors can contribute to the value chain becoming more embedded in the particular location.

The apparently exceptionally rapid export growth in certain components has, in fact, not been all that unusual. Comparing dollar levels of exports into the EU from South Africa and a range of countries on the EU periphery, it is evident that growth rates from countries such as Hungary, Poland and Turkey in major component export categories such as leather, road wheels, tyres, exhausts and wiring harnesses have significantly exceeded the growth rate from South Africa. Catalytic converters is the one exception (Barnes, 2002).

¹⁸ These include Visteon, Murray and Roberts Foundries, Atlantis Forge, Kolbenco, Bell Essex and Smiths Industries. See 'Ford's engine plant revs up to generate forex of R1.5bn' (*Business Report*, 19 July, 2002).

3.9 Displacement of existing component suppliers and jobs

Clearly burgeoning component exports have enabled assemblers to offset duties and in some cases reduce local content. This is the reason that some of the new growth industries have been much criticised by the component producer's federation, NAACAM. This concern is compounded by the capital intensity of certain export sectors. For instance, the catalytic converter industry is highly capital intensive with relatively few jobs created for the huge values of exports being generated. But other major component exports such as automotive leather and wiring are in fact very labour intensive. In any event, complaints from the 'traditional' component industry have become more subdued as vehicle exports have created new, high volume opportunities for suppliers.

4. CONCLUSION: THE IMPLICATIONS OF THE MIDP FOR TRADE AND INDUSTRIAL POLICY

The MIDP has achieved some real successes but there are also vulnerabilities and questions over sustainability. This section reflects on the broader implications arising out of the auto industry export experience.

4.1 The importance and sector specific nature of global value chains and networks

The automotive industry is what Gereffi (1994) terms a producer driven value chain. The key decisions on the sourcing of vehicles from different regions are made in a handful of global companies based in places like Detroit, Stuttgart and Nagoya, while local subsidiaries actively compete and lobby for vehicle export contracts. While access to export contracts would entail very demanding requirements, they would normally be accompanied by additional parent company investment and support in the form of specialised skills and other assistance. Multinational carmakers also have a major influence on where the bulk of component production takes place and can 'encourage' suppliers to relocate or establish production in South Africa or in any other location. The MIDP places pressure on the drivers of the automotive value chain (the carmakers) to source product from South Africa. In turn they are able to use their global leverage to facilitate this. In this respect, there are important differences with the buyer driven value chains which characterise other sectors such as garments.

4.2 The nature of competitiveness and comparative advantage

Recent developments in the automotive industry point to a number of findings about the nature of competitiveness and comparative advantage.

- i) Industry structure and comparative advantage* - A decade or two ago, the automotive industry was regarded as the very antithesis of comparative advantage, being both inefficiently structured and inward looking. It produced a multitude of models for the local market and as a result the component industry was also uncompetitive, as it had to adapt to a low volume, domestic market.

The strong export response lends support to the view that the industry was not necessarily lacking comparative advantage nor 'inefficient' but that major technological effort was expended in adapting to specific market conditions (Black, 1996). For example, the protected domestic market required that effort be applied to deal with major complications in the areas of logistics, materials flow, machine changeovers and production scheduling arising from low volume production and associated complexity. As a result, firms developed expertise and capacity in low volume, flexible production which counted for little in the international market place, which requires cost minimisation and the achievement of optimal performance from world scale plant.

ii) Demonstration effects - By encouraging initial investments, export incentives can promote further developments in a number of ways, leading to increasing returns. Easterly (2001) cites the example of spillover effects precipitated by the initial investment made by a Bangladeshi garment entrepreneur, which sparked expansion in this sector. The South African car industry is a case in point. For instance, the programme encouraged BMW to embark on a major vehicle export programme. This provided an important learning experience for others, especially international rival, DaimlerChrysler who admit that they may not have made the investment without the BMW example.¹⁹ In a sense this is a form of increasing return. The BMW experience - successful as it turned out - lent credibility to the system of incentives and showed that South African firms could successfully build and export high technology vehicles. Other car firms are now following a similar path.

iii) Investment determines competitiveness - There is considerable inertia in international investment patterns. Obviously, given the risks and start up costs, multinational firms will not relocate to new international sources of supply in order to shave a few percent off costs. But whether the low cost production location ends up being Mexico, Thailand or South Africa will depend not on natural endowments or static concepts of comparative advantage but on where the investment in up to date technology takes place. Once established the new production centre will be competitive by virtue of sunk investments in modern plant and infrastructure.

4.3 The role of stable and credible incentives in achieving economic objectives

Viewed purely as an export programme, the MIDP has been enormously successful and it looks quite possible that the automotive industry will become a net exporter in the next few years. Some of the problems associated with this are indicated in this paper and in Black and Mitchell (2002). What does the MIDP experience tell us about the use of incentives? Firstly, it is clear that stable and credible incentives can have a major impact on firm behaviour. Secondly, that it can be helpful if the carrot (in this case in the form of export incentives) is supported by a stick (in this case in the form of lower tariffs and growing imports which have placed the industry under considerable competitive pressure).

¹⁹ Interviews

Growing exports has been seen as the major route to job creation in the South African economy. The export side of this equation has largely been achieved but job growth has been disappointing. The evidence seems to indicate that firms have slimmed down, rationalised and improved labour productivity. Also much exporting has not been in particularly labour intensive sectors. An important issue facing policy makers is to approach the employment objective more directly and use microeconomic incentives to encourage growth in more labour demanding sectors both for the local and export markets.

APPENDIX 1

The MIDP as amended in the Mid Term Review

Year	CBU Duty (Light vehicles)	CKD duty	Qualifying value of eligible Export Performance	Components, heavy duty vehicles & tooling exported: CBU light vehicles imported	Qualifying Precious Metal Content in Catalytic Converters	Productive asset allowance
2002	40.0%	30.0%	100%	100:65	50%	20%
2003	38.0%	29.0%	94%	100:60	40%	20%
2004	36.0%	28.0%	88%	100:60	40%	20%
2005	34.0%	27.0%	82%	100:60	40%	20%
2006	32.0%	26.0%	76%	100:60	40%	20%
2007	30.0%	25.0%	70%	100:60	40%	20%

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