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Transfer of Technology for Successful Integration into the Global Economy

A case study of the South African automotive industry

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United Nations

New York and Geneva 2002

Note

This paper is part of the series of case studies on Transfer of Technology for Successful Integration into the Global Economy carried out by the Investment Policy and Capacity Building Branch, DITE, under the UNCTAD/UNDP Global Programme on Globalization, Liberalization and Sustainable Human Development: Best Practices in Transfer of Technology. The work has been carried out under the direction of Assad Omer, assisted by Maria Susana Arano. Overall guidance was provided by Khalil Hamdani.

The views expressed by the authors do not necessarily represent those of UNCTAD or UNDP.

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Preface

The main objective of the studies carried out under the UNCTAD/UNDP Global Programme on Globalization, Liberalization and Sustainable Human Development: Best Practices in Transfer of Technology is to identify factors that could enable firms in developing countries to upgrade technologies or develop new technologies with a view to enhancing their productivity. The case studies focus on successful cases of technology transfer and integration into the world economy. They are thus expected to provide lessons, in terms of *best practices*, to other developing countries in the context of *technological capacity building.*

The project consists of three case studies[1] of sectors where the selected developing countries have demonstrated their ability to create new productive capacities and successfully participate in the world market. Each of the sectors represents an example of created comparative advantage; that is, where a country's factor endowments were modified through investment in physical capital, human resources and the building up of capacities to develop and use new technologies. Central to an understanding of the catch-up process and the building of technological capacity across countries is the identification of firm-level factors as well as government policies and institutions that enable firms to thrive, grow and compete in the world market. Therefore the case studies aim to identify conditions under which sectoral development, integration into the global economy, and sustainable human developments are all linked together.

[1] The three case studies are: *A Case Study of the Pharmaceutical Industry in India*; *A Case Study of the South African Automotive Industry*; and *A Case Study of Embraer in Brazil*. These three studies will also be part of a forthcoming publication under the UNCTAD/UNDP GLOBAL PROGRAMME ON GLOBALIZATION, LIBERALIZATION AND SUSTAINABLE HUMAN DEVELOPMENT, which will include overview on the studies and on the international dimension of the national policies adopted in these cases.

INTRODUCTION

This paper reviews the development of the automotive industry in South Africa, from a highly protected, inward-focused industry to one with a marked export orientation, able to compete effectively in global markets. The Motor Industry Development Programme (MIDP), which reversed the import-substitution programmes that had shaped the industry from the early 1960s, played a significant role in this turnaround. Institutional support also contributed significantly to innovation and technological development to meet the high technical standards necessary to compete in international markets. The extensive foreign ownership of both vehicle and component manufacturers facilitated the transfer of skills and organizational development and provided access to international markets.

The study is organized in the following way. Chapter I discusses the factors that have shaped the formation of technological capability in the South African automotive industry. The chapter reviews the origins of the industry; the evolution from import-substitution polices to those more export oriented, including the ownership patterns, the location of the industry, and the importance of foreign direct investment (FDI); and finally, the aspects that attracted foreign automotive producers during the 1990s. Chapter II analyses the performance of the South African automotive industry, both qualitatively and quantitatively. The quantitative assessment includes the investment behaviour of the assemblers, and the market and export performance. The qualitative assessment focuses on the inter-firms relationships, the learning processes and the levels of labour productivity of the automotive industry. Chapter III concentrates in policies and institutions supporting the automotive industry in South Africa. It reviews the Motor Industry Development Programme and its recent modifications, and provides a critique of the programme. With respect to institutional support, the chapter discusses the role played by the South African Bureau of Standards in reaching international standards and enhancing quality. Chapter IV presents the stories of the successful integration into the global markets of two South African firms, Bosal Automotive and Volkswagen of South Africa. The concluding remarks highlight the characteristics of the South African automotive industry and the key policy aspects that have helped integrate the industry into global networks.

CHAPTER I
FACTORS SHAPING TECHNOLOGICAL CAPABILITY IN THE AUTOMOTIVE INDUSTRY

1. Origins of the automotive industry in South Africa

The South African automotive industry dates back to the 1920s when Ford and General Motors established assembly plants in the country, in 1924 and 1926 respectively. The result was acceleration in new car sales from about 13,500 units to 20,500 units between 1925 and 1929. The onset of the Great Depression in the 1930s halted the expansion of the industry until 1938/39 after which car sales picked up. A third assembly firm, the National Motor Assembly of Johannesburg, entered the market in 1939.

In the aftermath of the Second World War, the South African automotive industry grew further and even faster. In 1945, the assembly plants, Motor Assemblers and Car Distributors Assembly, were established in Durban and East London respectively. The Chrysler Corporation established a plant in Cape Town, closely followed by South African Motor Assemblers and Distributors in Uitenhage in 1948 and later by the British Motor Corporation in Cape Town in 1955 (Onyango, 2000). All these assembly plants assembled completely knocked down (CKD) imported kits.

The domestic market expanded rapidly and the production of cars reached 87,000 units in 1960, a level higher than in any other developing country at the time. Currently, the automotive industry in South Africa consists of 8 light vehicle assemblers (see table 1.1) and 11 producers of medium and heavy commercial vehicles. Toyota is the major producer (in terms of market share) of both cars and light commercial vehicles.

2. From import substitution to export orientation

From the early 1960s South Africa adopted import-substitution policies.[2] For the automotive industry these took the form of local content programmes (either by mass or value), augmented by high tariff barriers and direct import controls. These policies effectively built an anti-export bias into the automotive industry. Coupled with the small domestic market, this protection resulted in high dependence on local inputs and a proliferation of vehicle models. Short, high-cost production runs were the result.

[2] These policies were geared towards an attempt to build local industries behind protectionist walls to replace imports. Essentially, the Government sought to gradually replace imported manufactures by indigenous output. Tariffs were key to providing protective barriers so that local industries could grow and develop.

Table 1.1. Light vehicle assemblers operating in South Africa

Assembler	Ownership	Makes	Capacity (units)	Domestic market share 1999 (per cent)
Automakers	Nissan Fiat Sankorp	Nissan Fiat	75 000	9
BMW (SA)	BMW AG	BMW	40 000	8.4
Delta	GM Domestic	Opel Isuzu	75 000	11
SAMCOR	Ford Motor (90 per cent)	Ford Mazda	70 000	13.3
Land rover	BMW AG	Landrover	10 000	1
Daimler Chrysler	Daimler Chrysler	Mercedes Honda # Mitsubishi	40 000	9.9
Toyota	TMC Wesco	Toyota	120 000	23.6
VW (SA)	VW AG	VW Audi	100 000	22.6

Source: Onyango (2000)

In the late 1980s, the development model based on industrial import substitution was beginning to show considerable limitations. In 1989 there was a shift in policy to address the problems of an inward-focused industry that had low-volume production and associated high costs, through the introduction of Phase VI of the local content programme. It allowed firms to include exports as part of their local content requirement. The MIDP was introduced in 1995 to improve competitiveness through the adoption of market-based policies, and this was instrumental in bringing about the process of industrial restructuring necessary for successful integration into global markets. It introduced a more rapid rate of reduction in tariffs than that required by South Africa's World Trade Organization (WTO) obligations.

In 1998, a recession year, the eight light-vehicle producers assembled 301,000 units, of which 8.4 per cent were exported. With falling protection in the 1990s, import levels began rising: they accounted for 18.2 per cent of locally produced vehicles in 1998, as shown in table 1.2.

Table 1.2. Automotive production and sales in South Africa ('000 units)

	Production	Sales (domestic)	Exports
1990	343	335	10
1991	315	308	10
1992	293	284	13
1993	308	298	16
1994	313	308	15
1995	389	387	16
1996	394	421	12
1997	364	399	20
1998	313	351	26

Source: Black (1998)

3. Ownership patterns

A distinctive feature of the South African auto industry is its particular ownership structure. All assemblers are now wholly or partly owned by their respective parent companies in Japan, the United States or Europe. The associated corporate governance structures have significant implications for technology transfer and integration of the industry into global markets. For instance, local producers, through the networks and supply chains of their "parent" companies, are able to access new technologies and tap into existing markets.

Ford and General Motors (United States firms) entered the South African market in the 1920s, but they disinvested during the period of sanctions in the 1980s. However they subsequently reinvested in South Africa and established close links with local firms (Samcor – now renamed Ford Motor Company – and Delta). Daimler Chrysler, Volkswagen (VW) and BMW (German firms) wholly own their South African subsidiaries and the local firms are well integrated into the global automotive network. Volkswagen (South Africa) is the country's major exporter of vehicles. It has benefited from the lack of capacity in the global group, and, as a result, has obtained large export orders (e.g. 60,000 VW Golf 4 vehicles a year to Europe). In the case of United States firms (such as Ford and General Motors), Nissan of Japan and the German-based firms, the links with South African firms are through franchise partnerships.

4. Location of the industry

The South African automotive industry is located in three geographic clusters: Port Elizabeth/East London, Durban/Pinetown and Pretoria/Johannesburg.

Geographic proximity facilitates inter-firm interaction, in this case specifically between vehicle assemblers and components manufacturers. Local firms produce a range of components, from leather car seats to tyres and catalytic converters, which are used by the local auto industry and are also exported mainly to Germany and the United Kingdom (Galloway, 2000). Located close to the Port Elizabeth/East London cluster is the major test facility of the South African Bureau of Standards (SABS). This is one of the key support institutions for the automotive industry, providing testing facilities for the industry's products. Indeed a symbiotic relationship has developed between the industry and the SABS that supports technological developments in the industry. The SABS has cooperated with individual firms in the development of the test facility and of technical standards, which are necessary for local vehicles and components to meet the demands of international markets.

5. Foreign direct investment

The South African automotive industry has attracted substantial foreign direct investment (FDI) in both automotive assembly and component production. FDI has often involved greater commitment by a parent company to the local company. This has led to associated positive spillovers such as technology transfer, human capital development, learning processes in organizational development and access to export markets. Human capital development has included, for example, transfer of managerial skills, which in turn has led to organizational development. The supply linkages between the auto and components producers have been instrumental in supporting the improvements in quality standards required for a successful integration into the world market. Moreover, links into the global automotive chains of the parent companies have underpinned the good export performance of the 1990s; they have assisted in the development of internationally competitive vehicle assemblers and components producers.

6. Attracting foreign automotive producers in the 1990s

The Japanese and the American auto producers, buoyed by the collapse of the apartheid regime in 1994, have invested quite substantially in the South African automotive industry. Since 1996 Toyota (Japan) and Nissan (Japan) have invested over US$74.6 million and US$77.6 million respectively, in the purchase of shares in the local subsidiaries, which in turn has allowed the local subsidiaries room for upgrading plant and equipment that generates further production capacity. Prior to 1996, the Japanese were restricted from entering the South African market due to the latter's apartheid policies. The American auto producers, Ford and General Motors, have also recently invested in the South African industry: up to US$62.68 million and US$77.6 million respectively, since 1995. These investments were more a case of reinvesting in the country since both these companies had disinvested during the height of the apartheid regime. Now the attraction is to develop the production capacity in South Africa and use that as a launching pad into the rest of the African region.

The three big German auto manufacturers, BMW, Volkswagen and Daimler-Chrysler, have always maintained a presence in South Africa. Huge investments by these companies over the past five to six years have been motivated largely by their desire to capitalize on the opportunities presented within the framework of the Motor Industry Development Programme (MIDP) (discussed in detail later in the paper). Daimler-Chrysler invested US$163.6 million in 1998 for the expansion of the existing Eastern Cape plant where top-of-the-range Mercedes Benz vehicles are produced. BMW has invested US$149 million since 1996 for the expansion of production capacity at its plant near Pretoria where the 3-Series vehicles are now being produced. Since BMW had an existing plant in South Africa, and since the BMW market share in South Africa is larger than its share in Germany, it made business sense to invest in its existing facility as opposed to opening a new plant in a new location. Volkswagen, with the aim of using the incentives provided by the MIDP to tap into overseas markets, launched a US$149 million investment in 1998 to increase production capacity and upgrade its workshop facilities. Volkswagen in South Africa is now currently exporting Golf 4 cars to Europe.

CHAPTER II
PERFORMANCE OF THE SOUTH AFRICAN AUTOMOTIVE INDUSTRY

This chapter reviews, both qualitatively and quantitatively, the performance of the automotive industry in South Africa. The review is based on a number of surveys and other data sources (Black, 2000 and 1998; Onyango, 2000; Barnes, 1998; Department of Trade and Industry, 2000).

1. Quantitative assessment

With respect to the quantitative assessment, the focus is on investment in plant and equipment, R&D, human capital development, and other related expenditures. Furthermore, the assessment deals with issues related to market research, marketing activities as well as export performance in terms of products exported, export earnings and export markets.

A. Investment

The investment behaviour of assemblers is influenced by a number of industry-specific factors. The importance of economies of scale in automotive production means that the increasingly competitive environment exerts some pressure on firms to increase production as a way of reducing unit costs (Black, 1998). Given the small size of the domestic market, such a scenario may require that the parent company create export opportunities for the South African subsidiary, and invest accordingly. Key investment decisions are made outside South Africa by the global parent, and therefore short-term profitability in a minor South African subsidiary is likely to be of much less concern than medium-term market prospects and strategic considerations related to market share and the location logic of global production networks.

Investment has been rising in both the assembly (table 2.1) and component industries. Some firms such as BMW and Volkswagen have embarked on major expansion, with new investment and export plans. While FDI inflows into the South African economy totalled a moderate US$6.57 billion during the period 1995-1997, the automotive industry was the third largest recipient (after telecommunications and food and beverages). In the assembly industry, apart from plant upgrades and expansions that have created new production capacity, a significant trend has been the purchase of majority or minority stakes by the parent company, such as the purchase by Toyota Motor Corporation (TMC) of Toyota SA. The investments made in plants have not, however, reached the level of the massive investments that have been made in emerging market economies such as Brazil, Thailand, Argentina and Eastern Europe (Black, 1998).

Table 2.1. Investments in plant and equipment by vehicle manufacturers

	Vehicle assembly (US$ current)
1990	330 million
1991	332 million
1992	390 million
1993	181 million
1994	214 million
1995	338 million
1996	354 million
1997	324 million
1998	516 million

Note: The data in this table is presented in US$; the exchange rate is approximately US$1= 8.30 rand.
Source: National Association of Automobile Manufactures of South Africa (NAAMSA), 1999

South African firms, historically benefited with a protected trade regime, have been slow in adopting modern techniques and more flexible forms of production that have become standard practice amongst the major players in the international automotive industry. This is unsurprising if one looks at patterns of R&D expenditures that show a very small, albeit growing, commitment to R&D investment.

Average R&D expenditure as a percentage of sales amongst the sampled firms is differentiated between exporting firms and non-exporting firms. Exporting firms tend to spend significantly large amounts on R&D (2.55 per cent of total sales) as compared to the 0.95 per cent of the non-exporting firms. Collaboration between motor assembly firms and the South African Bureau of Standards, as well as the engineering faculties of academic institutions such as the Universities of Cape Town and Stellenbosch, have been of particular significance in, for example, the development and testing of engines and catalytic converters.

Transfer of technology and other spillovers have been significant features associated with the investment in local subsidiaries by parent companies. Investment in Toyota SA by TMC (Japan) has resulted in the upgrading of plant and equipment to meet internationally competitive standards. Technologies previously unavailable in South Africa have now spread across the automotive industry; this has brought benefits such as superior product design, transfer of skills (know-how) and relevant machinery. These developments, although progressing slowly, are geared towards reducing average *lead* times and average *throughput* time (measured in days). A number of manufacturers have adopted multi-shift or double-shift production (especially for export), thereby introducing greater flexibility into production organization (*Cape Times*, 23 March 2001).

B. Market performance

Net profits before tax of the light vehicle assemblers increased from a rather low base of US$ 113.10 million in 1992 to a record level of US$ 561.94 million in 1995 (table 2.2). Since then, profits have dipped precipitously, and the industry incurred large aggregate losses in 1997 and 1998. Indeed the significant volumes of imported vehicles led to much greater price competition and lower margins, which added to the pressures of stagnating sales volumes (Black, 1998).

Table 2.2. Aggregate profit performance of vehicle manufacturers

	Net profit before tax (US$ current)
1992	113.10
1993	185.45
1994	321.66
1995	561.94
1996	120.93
1997	(118.91)
1998	(59.81)

Source: Department of Trade and Industry, 1999

Economic performance and profitability in the component industry have also fallen sharply. This is highlighted by the fact that average employment levels per sampled firm declined 14 per cent between 1995 and 1997, and turnover in real terms stagnated over the same period (Barnes, 1998). In a subsequent survey of 21 component firms, conducted by the *Department of Trade and Industry* in 1997, Black (1998) reported that the sampled firms' profits fell by 74.6 per cent during 1996 from their record levels of 1995. The prominent contributing factors were falling margins, resulting from pressure applied by vehicle manufacturers, and the increasing desire of the vehicle manufacturers to use imported components (see table 2.7).

C. Export Performance

Automotive exports from South Africa expanded dramatically from just US$ 121.15 million in 1988 to approximately US$ 2.45 billion in 1999, of which just over US$ 0.81 billion was accounted for by vehicles. In unit terms, light vehicle exports increased from 11,400 units in 1992 to approximately 58,000 units in 1999. The main destination for vehicle exports is to Africa. However exports to non-African markets are likely to be the fastest growing in the short term, and will consist mainly of passenger cars. Volkswagen has a large contract to export Golf 4

vehicles to the United Kingdom and BMW exports its 3-Series vehicles to Australia and a number of Asian markets. As table 2.3 indicates, there has been a major expansion in production of a wide range of components, especially of products such as leather seating material, catalytic converters, wheels, tyres and exhaust pipes.

The prime objective of the import-export complementation scheme is to assist component suppliers to generate high volumes, which make them more efficient and able to compete in the domestic market against imports. Under this scheme, import duty on components and vehicles may be offset by import rebate credit certificates derived from the export of vehicles and components.[3] This is expected to support the development of more volume-based products for global consumption. While this objective has been achieved in part, it is clear that 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. The major links of these firms are with the global networks of the parent companies.

In June 2000, the changes to the MIDP included a productive asset allowance (PAA), which became effective as of 1 July 2000 (see appendix 1 for further detail). This involves a non-tradable duty credit, calculated at 20 per cent of qualifying investments, which is made available to manufacturers for five years. Assemblers are able to use this duty credit to import vehicles, maintaining the range of imported products offered to the consumer. Assemblers are encouraged to assemble vehicles for the local market through an allowance of up to 27 per cent of the components of locally produced cars to be imported duty free (*Business Day*, 2 June 2000).

Table 2.4 shows the rise in total automotive exports over an 11-year period. The industry supplying leather seat covers supplies the bulk of BMW's global requirements, and it is an important supplier to a significant number of other foreign vehicle manufacturers. The industry is labour-intensive, and a sizeable tanning industry has developed to support it. The catalytic converter industry, which is capital-intensive, currently supplies more than 10 per cent of the total world supply, and is set to expand even further.[4] It has reached the critical mass, requiring investment in inputs such as the ceramic substrate, where the required investment is much larger than for the relatively simple coating and canning process. A major advantage of the industry is that 90 per cent of the precious metal content in the catalytic converter is included in the valuation of exports that are eligible for import rebate.

[3] The significance is that it enables exporters to earn import credits, which they can then use to source components at close to international prices.
[4] See case study of Bosal later in the paper.

Box 1. Toyota's production and exports

The largest vehicle producer in the country, Toyota SA, has responded to the need for closer integration into global production networks by expanding its export programme. For the first time, the South African company will embark on large-scale production of components to feed into the Toyota Motor Corporation (TMC) global production network.

Under this new programme, Toyota SA is entering into a joint venture with TMC and Cataler Corporation of Japan to produce catalytic converters for use in TMC's products. This new venture aims to become the fourth source of exhaust catalysts for the Toyota global manufacturing network. Production of exhaust catalysts started in the latter half of 2001, and annual production is geared to rise to more than one million units per year. The new facility will make use of Toyota's patented advanced catalytic converter technologies, therefore involving quite significant technology transfers, where previously there were none.

Source: Toyota (SA)

Table 2.3. Total component exports (US$ current)

	1995	1996	1997	1998	1999	Per cent of 1999 total
Catalytic converters	107.77	134.72	181.52	276.36	421.14	26.6
Stitched leather covers	283.05	292.79	225.00	337.09	309.50	19.5
Tyres	60.8	68.82	74.34	90.54	104.75	6.6
Silencers/exhaust pipes	21.11	39.53	32.82	89.63	98.03	6.2
Road wheels/parts	48.61	52.79	70.65	81.09	84.92	5.4
Engine parts	31.11	31.86	61.95	70.91	62.78	4.0
Wiring harnesses	11.38	21.39	29.56	37.64	49.83	3.1
Automotive tooling	71.94	64.88	67.17	46.55	43.28	2.7
Glass	13.61	16.51	22.83	20.36	24.09	1.5
Radiators	21.38	24.88	20.22	19.64	18.20	1.1
Ignition/starting equipment	1.11	3.72	6.52	8.54	15.41	1.0
Filters	3.61	9.76	11.96	13.09	13.94	0.9
Transmission shafts, cranks	8.05	8.83	1.52	11.27	13.93	0.9
Brake parts	6.38	6.74	8.48	13.82	12.95	0.8
Shock absorbers	10.55	12.33	12.17	11.45	12.62	0.8
Batteries	14.72	13.95	19.13	14.36	11.14	0.7
Car radios	1.94	0.93	6.30	8.54	11.96	0.7
Clutches/shaft couplings	4.44	4.88	7.17	9.27	8.85	0.6
Other components	195.00	154.41	122.82	203.45	268.52	16.9
TOTAL	916.66	941.86	1 031.96	1 363.6	1 585.90	100

Source: Department of Trade and Industry (1999).

Table 2.4. Automotive exports
(Fob values, US$ current)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Components	53.5	115.4	153.8	269.2	379.3	515.2	583.3	916.7	941.9	1 032.0	1 363.6	1 585.9
Vehicles	67.7	88.1	146.5	150.8	144.5	176.1	193.1	250	174.4	314.6	420.9	840.3
TOTAL	121.2	203.5	300.3	420	523.8	691.3	76.4	4 200	116.3	1 346.6	1 784.5	2 426.2

Source: Department of Trade and Industry, 1999 and 2000

While South African automotive exports into the Southern African Development Community (SADC)[5] have increased rapidly, this has been at a slower rate than total automotive exports. For example, light vehicle exports to SADC accounted for 12 per cent of the total in 1999, a sharp decline from the 64 per cent share in 1996. For medium and heavy commercial vehicle exports, which have not grown significantly in volume terms, Africa remains the dominant market, although the SADC share declined from 89 per cent in 1996 to 60 per cent in 1999. Two reasons account for this. First, the collapse of the Zimbabwean market and the raising of tariff barriers in response to economic problems have slowed sales into South Africa's major regional market. Secondly, light vehicle exports from South Africa have been increasing at a very rapid pace to markets such as Australia and Europe, reflecting the increasingly important role played by South African operations of firms such as BMW and VW in the global strategy of their parent companies

The growth in exports to Europe (see table 2.5) is a direct result of local subsidiary firms accessing the traditional markets of the parent companies. The investments of global automotive producers in local operations have facilitated the inclusion of these local firms into the "parent" company's global supply networks and markets.

The export performance of the South African auto industry has improved significantly in the 1990s for two reasons:

(i) The import-export complementation arrangements[6] of Phase VI of the local content programme and the MIDP have powerfully assisted export expansion, in particular by facilitating the integration of South Africa as a supplier of selected components into the

[5] SADC is a regional economic bloc consisting of 14 countries in southern and eastern Africa. South Africa is by far the largest member country with the most diversified industrial base.

[6] This is a scheme that allows import duty rebates based on exports. Essentially, this enables assemblers to use import credits to source components at close to international prices, therefore providing a strong incentive to assemble locally.

global networks of the major vehicle producers. Ford's Port Elizabeth engine plant has been designated the sole supplier of 1.3-litre engines to Europe and Asia, with the first shipment at the end of 2001, and SA Trim has a contract to produce all leather car seats for BMW (Cape Times, 17 May and box 2 later in this paper). In this sense, integration is happening more rapidly with the major producing countries, especially Germany, than within the southern African region itself.

Table 2.5. Destination of South African light vehicle exports by value (Percentage)

Country/region	1996	1997	1998	1999
Germany	-	5	25	57
United Kingdom	3	2	15	13
Australia	11	19	15	10
Mozambique	9	9	7	4
Taiwan Province of China	-	5	4	3
Zimbabwe	36	18	8	2
Zambia	7	6	6	2
Malawi	9	7	4	2
Kenya	9	5	3	1
Mauritius	1	1	1	1
Ghana	-	-	1	1
Other	15	13	4	3
European Union (EU)	4	7	41	70
SADC	64	46	27	12

Source: Department of Trade and Industry (2000)

(ii) A second driver of export expansion has been falling protection and limited domestic market growth possibilities, which have forced firms into the export market. A significant share of this export expansion has been destined for SADC, a process that has accelerated since the advent of democracy in South Africa and the dropping of sanctions. Although recently the rate of growth in the SADC market has been declining for reasons mentioned earlier.

Table 2.6. Destination of medium and heavy commercial vehicle exports (percentage by value)

COUNTRY/REGION	1996	1997	1998	1999
Mozambique	14	19	23	28
United States	-	-	4	27
Malawi	19	19	12	16
Zambia	12	12	7	6
Zimbabwe	36	25	17	4
United Kingdom	-	3	-	4
Belgium	-	-	1	3
United Rep. of Tanzania	6	3	4	2
Angola	-	4	1	2
Dem. Rep. of the Congo	-	1	1	1
Kenya	6	3	7	1
Other	9	11	24	5
SADC	89	82	66	60
North America	-	1	8	30
EU	-	3	2	8

Source: Department of Trade and Industry (2000)

2. Qualitative Assessment

A qualitative assessment of the performance of the automotive industry requires focusing on the nature of inter-firm relationships in the industry, learning processes within firms, and increasing labour productivity, among other factors.

A. Inter-firm relationships

It is interesting to note the blend of cooperation and competition that exists among firms in the automotive industry. Vehicle assemblers compete with one another, sometimes through fierce price competition, while cooperative relationships are found between vehicle assemblers and components producers. Table 2.7 shows the extent of support provided by vehicle manufacturers to local components manufacturers. It appears as if such linkages (or support) are declining. This is possibly explained by increased import competition, as tariff barriers have fallen.

Table 2.7. Purchases of original equipment components by vehicle manufacturers

	Local purchases (US$ current)	Imports (US$ current)	Total purchases (US$ current)	Local content (per cent)
1994	1 525	2 100	3 625	42
1995	1 863	2 575	4 438	42
1996	1 546	2 332	3 879	40
1997	6 641	10 380	3 958	39

Source: DTI Survey, 1998

Another interesting perspective regarding inter-firm relationships is provided by a survey of components producers (Barnes, 1998). Barnes asked firms whether they consulted with their suppliers when designing new products, and whether their customers assisted them to improve quality. Tables 2.8 and 2.9 suggest that there is a great deal of inter-firm cooperation, to the extent that most firms in the sample seem to cooperate with their suppliers and customers on matters of product development and quality. Barnes suggests that this cooperation involves collaboration on design and product specifications. Also involved in this collaboration are the SABS and testing facilities at various universities (e.g. Stellenbosch).

Table 2.8. Do you consult with your suppliers when designing new products?

	Exporters	Non-exporters
YES	7	21
NO	1	3

Source: Barnes (1998)

Table 2.9. Do your important customers assist you with quality control?

	Exporters	Non-exporters
YES	8	22
NO	0	2

Source: Barnes (1998)

The relationships between parent (foreign) and local firms are particularly important, both for assemblers and components manufacturers. Through the franchise modality of involvement with South African firms, the parent companies are engaged in technical support, training programmes and financial commitment in terms of investment. Barnes (1999) found that these links were fostered by the following factors:

- Levels of foreign ownership and investment have been increasing and trade, especially exports, expanding. Direct equity stakes by Nissan and Toyota could be the forerunner of direct Japanese investments in the component industry.

- Until the early 1990s, with the exception of the German companies (Mercedes, BMW and Volkswagen), all local assembly operations were domestically owned and operated under licence. This has changed substantially, and much closer links have developed between the local firm and the overseas parent (box 2).

- Ford and General Motors have taken substantial equity stakes, with Ford recently increasing its stake to 90 per cent in Samcor (now renamed Ford) that produces Ford and Mazda vehicles.

- Political acceptability (of South Africa) and an automotive policy that encourages exports and, therefore, specialization, have given strong encouragement to parent companies to increasingly incorporate their South African interests into their global networks.

- There has also been significant foreign investment, particularly by German firms, in the component industry in areas such as tyres, catalytic converters, engines, seating and axle assemblies.

- Certain South African automotive firms have subsidiaries in the region and South Africa tends to act as regional headquarters to foreign firms with interests in southern Africa. Examples include South Africa's US$ 33 million investment in the Afinta Motor Corporation of Swaziland for the assembly of medium to heavy commercial vehicles, and a US$1.04 million investment by Nissan (SA) in the Quest assembly plant in Zimbabwe for the manufacture of a range of Nissan vehicles (*BusinessMap,* 2000, unpublished data).

Box 2. Expansion at BMW (SA)

BMW (SA) has benefited greatly from its close association with the parent company in Germany. Substantial amounts of investment in plant and equipment, technology transfer and improved access to international markets of the parent company have been some of the factors associated with its rise in production and exports. The South African manufacturer is currently fulfilling a US$ 652 million export order of the 3-Series BMW vehicles to BMW markets all over the world that were traditionally served by the BMW parent company in Germany. These markets include the United Kingdom, Japan, Australia, the United States, Hong Kong (China), New Zealand, Taiwan Province of China and Germany. Each of the exported vehicles has a domestic component percentage of at least 60 per cent. In addition to the export of cars, SA Trim, a BMW-owned producer of leather seating, has an export contract worth 1 billion rand to supply leather seat covers to all BMW markets around the world. It is these kinds of "parent-subsidiary" linkages that are very important for providing access to international markets.

Source: BMW (SA)

B. Learning Processes

Work organization – the manner in which production/assembly is structured – is important for achieving and maintaining a competitive edge in the automotive industry. South African automotive producers have been relatively slow in adopting the "lean production" methods that have contributed to the expansion of the Japanese automotive industry and to the success of Japanese transplants in the United States and the United Kingdom (Black, 1994). Broadly defined, "lean production" not only includes production, but also linkages to suppliers and to the distribution system.[7] In the South African industry, low education levels of the labour force and a legacy of shopfloor conflict seem to impose constraints on the introduction of a production system which is essentially dependent on a much more motivated workforce. South African firms appreciate the need to introduce more automation but are again constrained by the absence of policies that would create both high levels of training (multi-skilling) and commitment from the workforce. Therefore, marginal gains from the introduction of more automation are limited as they depend on a workforce that is committed and sufficiently skilled to handle the automation. Although automation is a significant method for improving labour productivity, in lower-wage countries such as South Africa and Brazil, it is indeed likely that automation may be introduced more for reasons of improving quality than to lower costs (see Krafcik J, 1989).

[7] "Lean production" is a system that was pioneered by Toyota in the early 1980s, which has as its main elements: continuous improvement, teamwork, flexibility and close relationships between producers, suppliers and the distribution network.

C. Labour productivity

In general, the automotive industry in South Africa suffers from low levels of labour productivity. South African firms are on average not as competitive in terms of their operational dynamics as their more aggressive European counterparts (see table 2.10); they nevertheless still possess a labour-cost advantage (see table 2.11), which suggests that there is potential for South African firms to improve their competitiveness and expand production. However, there are some firms that are very competitive and have been able to achieve high levels of labour productivity. This point is supported by table 2.10, which shows that regarding quality (customer returns and internal defects) and human resource development, in particular, some individual South African firms are more competitive than their European counterparts, but perform much worse on an industry average.

A low skill base, both at the managerial and at the shop floor level, is a key constraint in the automotive industry. Almost all surveyed firms (94 per cent) agreed that the lack of sufficient skills and/or the high cost of the available small pool of skills had affected productivity and competitiveness levels. Surprisingly though, average levels of expenditure on training in the industry are quite low (compared with other industries in South Africa). On average, firms spend 1.4 per cent of their total remuneration costs on training. This is a factor that also contributes to the low labour productivity in the industry.

South African firms actually have a labour cost advantage over their European counterparts that to some extent compensates for the lower average output per employee. Although this may suggest that operational competitiveness is lacking in the South African automotive industry, it does not rule out the potential for future improvements.

Box 3. Learning German in South African assembly plants

An interesting learning process that is currently in practice at the BMW and Daimler-Chrysler plants in South Africa is language instruction. Local managers and shop floor workers are benefiting from lessons in the German language from hired experts who have been instrumental in improving the literacy levels at these plants. Since there is an increasing German involvement in the operations of the local subsidiaries, and since local managers and workers now deal more often with German supply networks and markets, providing German lessons improves coordination and flexibility within the individual firms, and between the firm and its supply networks and markets.

Source: Authors

Table 2.10. Average competitiveness benchmark findings for firms in South Africa and Western Europe, including an outline of the best performing firms, 1997

Market driver	Measure	South Africa average	South Africa best	W. Europe average	W. Europe best
Cost control	Raw material stock: days	44	4.2	15.1	7.5
	Work in progress: days	9.9	3	7.6	1.8
	Finished goods stock: days	15.2	0.2	6.7	3.2
Quality	Internal defects: percentage	4.4	0.4	3.4	0.9
	Customer returns: (parts per million)	20 285	38	265	50
Human resource development	Absenteeism: percentage	6.8	2.5	5.4	4.1
	Labour turnover: percentage	9.9	2.0	9.5	4.0
	Expenditure on training as a percentage of remuneration	1.4	2.7	2.0	2.6
Innovation	R&D expenditure as a percentage of turnover	0.8	2.0	5.4	12.5

Source: Barnes (1999)

Table 2.11. South African vs. European firms' output/average remuneration costs per employee

	Output per employee (US$)	Average remuneration costs per employee (US$)	Remuneration costs as a percentage of employee output
South African firms	34 426	6 149	17.9
European firms	136 393	25 559	18.7
South African as a percentage of European figures	25.2	24.1	95.7

Source: Barnes (1999)

CHAPTER III
SUPPORTING THE AUTOMOTIVE INDUSTRY: POLICY AND INSTITUTIONS

Institutional support and selective policy interventions have played an important role in the development of an internationally competitive industry in South Africa. In this chapter we focus on the role of the Department of Industry and the South African Bureau of Standards. The former was responsible for the local content programmes, and at present it is responsible for the Motor Industry Development Programme (MIDP), which involves formulating, implementing and monitoring the MIDP. The South African Bureau of Standards has been instrumental in substantively influencing the restructuring of the automotive industry and its integration into the global economy. It is a statutory organization responsible for the development and publication of standards, certification and testing of standards. As such, it is important for technology transfer and innovation in terms of both product and process development.

1. Motor Industry Development Programme (MIDP)

From a policy perspective, the automotive industry in South Africa has been driven by a series of local content programmes, very high tariff protection, and, more recently, the Motor Industry Development Programme that runs until 2007. The MIDP has marked a shift from import substitution to export orientation.

In 1960, the domestic content of a locally assembled vehicle was only 20 per cent. This prompted the introduction of the first of a series of local content programmes in 1961, resulting in a rapid rise of local content to 52 per cent on a mass basis by 1971. Later phases of the programmes increased local content requirements to 66 per cent for all light vehicles.[8] The main objective behind these programmes was to minimize the use of scarce foreign currency. Phase VI of the local content programme, introduced in 1989, marked a substantial change of direction. It was the first attempt to address the problems of an inward-oriented, severely fragmented industry with low volume output and associated high unit costs. Under this programme, local content was to be measured not just by the value of domestically produced components fitted to locally assembled vehicles, but also 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 per cent) in domestically produced vehicles. Exports, especially of components, grew extremely rapidly and gave assemblers greater flexibility in their sourcing arrangements.

In 1995, Phase VI of the local content programme was replaced by the Motor Industry Development Programme. It was introduced after a comprehensive consultative process

[8] This requirement was introduced under Phase III of the local content programme in 1971 and was extended to light commercial vehicles in Phase V, introduced in 1980.

involving all industry stakeholders. This consultative process continues through the Motor Industry Development Council. The MIDP continued the direction taken by Phase VI and entrenched the principle of export complementation. However, it went a step further by abolishing local content requirements and introducing a tariff phase-down at a more rapid rate than was required by South Africa's WTO obligations.

The MIDP consists of two parts:

- Light Vehicle Programme; and
- Medium and Heavy Vehicle Programme.

A. Light Vehicle Programme

The Light Vehicle Programme covers passenger vehicles, mini buses and light commercial vehicles. To participate in the Programme, assemblers have to be registered vehicle assemblers and have to undertake completely knocked down (CKD) assembly of vehicles. The key elements of the programme are as follows:

- The excise-duty-based local content system, which applied under Phase VI, has been replaced by a tariff-driven programme;[9]
- There is no minimum local content requirement;
- Tariffs are being phased down to 40 per cent for light vehicles and to 30 per cent for components by 2002 (see table 3.1);

Table 3.1. Import duty phase-down for light vehicles and components under the MIDP

	Vehicles	Components
1995	65.0	49.0
1996	61.0	46.0
1997	57.5	43.0
1998	54.0	40.0
1999	50.5	37.5
2000	47.0	35.0
2001	43.5	32.5
2002	40.0	30.0

Note: Tariffs for each year are applicable from 1 January.
Source: DTI, 2000

[9] This implies that a single tariff will apply to all components as opposed to the previous system under which each component had its own excise duty.

- Manufacturers of light vehicles are entitled to a duty free allowance (amounting to 27 per cent of the wholesale value of the vehicle) for the import of original equipment components;

- Import duty on components and vehicles may be offset by import rebate credit certificates derived from the export of vehicles and components.[10] The value of the certificates is equal to the net foreign currency earnings of the exports, that is the FOB export value less foreign currency usage in the manufacture of exported products. The prevailing duty on components (table 3.1) applies to the balance.

- The programme also contains a provision for additional duty free allowance, which is a facility granted to vehicle manufacturers assembling vehicles for the domestic market. The facility allows for up to 27 per cent of the components of locally produced cars to be imported duty free.

The Department of Trade and Industry conducted a mid-term review of the MIDP recently. While the MIDP is perceived by the South African Government as having had a generally positive effect in terms of increasing exports and improving productivity, a number of changes were introduced, effective from July 2000, as follows:

a) The MIDP has been extended to 2007 in order to provide a long-term planning environment;

b) Tariffs on imported light vehicles will be reduced from 2003 by 2 percentage points per annum, to 30 per cent in 2007. Tariffs on original equipment (OE) components will be reduced from 2003 by 1 percentage point per annum, to 25 per cent in 2007;

c) The small-vehicle incentive is being phased out as it is seen as having served its purpose;

d) The duty free allowance on imported components is being maintained at 27 per cent;

e) The import rebate credit facility for component exports is being reduced from the current 1:1 ratio to 1:0.6 by 2007;

f) The ratio of exports of components exported versus CBU (Completely Built Up) light motor vehicle imports is being adjusted from 1:0.75 to 1:0.6 by 2003 to encourage component manufacture; and

g) A productive asset allowance (PAA) has been introduced to encourage investment (see appendix 1 for details).

[10] The significance is that it enables exporters to earn import credits, which they can then use to source components at close to international prices.

B. Medium and Heavy Vehicle Programme

At the introduction of the MIDP in 1995, the South African Government adopted the view that medium and heavy vehicles were key items of capital equipment and should be available at competitive prices. Protection was therefore sharply reduced. Although this industry was not subjected to a formal mid-term review, it was decided to investigate the rebate provision for drive train components (automatic diesel engines, gearboxes and drive axles) and the duty for assembled vehicles. Amendments, which came into effect in July 2000, include the following (see appendix 2 for further details):

a) The rate of duty on medium and heavy motor vehicles is to remain at 20 per cent;

b) The rebate on drive train components is to be amended to provide a full duty rebate;

c) The duty protection afforded to tyres is to remain at 15 per cent; and

d) The rate of duty on original equipment components is to be reduced from 30 per cent to 25 per cent from 2002 to 2007, by 1 percentage point per annum, as in the case of light vehicles. OE components can, however, be imported with a full duty rebate.

A survey of components producers (Barnes, 1998) shows that firms are well aware of the demands placed upon them, both in terms of the Phase VI Programme and the MIDP. They highlighted the need to significantly improve plant efficiency, expand investment and exports, and enhance technological capabilities. Firms indicated that customer demands drove the innovation process at the firm level. In particular, they mentioned the role of domestic customers in this process, while exporting firms emphasized the key role of international customers.

C. A critique of the MIDP

The MIDP is widely regarded as being successful, especially with respect to increasing investment and exports. This is consistent with the overall macroeconomic framework of Growth, Equity and Redistribution (GEAR) in South Africa that seeks to encourage renewed growth and sustainable development through investment and exports. Although the MIDP is sector-specific, the rationale behind it is not confined to the automotive sector.

Although the incentives that form part of the MIDP have been successful in encouraging exports, there have been complaints from other automotive producers in the southern African region (especially Zimbabwe), who find it difficult to compete with South African automotive products because the import-export complementation programme virtually subsidizes South African exports into the region. A study of the automotive industry in Zimbabwe by Muradzikwa (1999) revealed for the first time that Zimbabwe components producers view the MIDP as an obstructive framework that runs against the concept of fair trade.

Incentives, whether they are MIDP related or not, are almost always problematic. Firms are willing and sometimes able to abuse incentive facilities to their best advantage but to the detriment of the other more needy firms in the industry/economy. For instance, firms utilize incentives under the pretext of wanting to expand exports although they would have exported anyway even without the incentives. In this case, the incentives have not really achieved their objective. However, there is no evidence to suggest that such practices are happening with the MIDP pack of incentives.

2. South African Bureau of Standards

The role of institutional support has been very important in South Africa, especially in terms of ensuring standards for the international market and enhancing quality competition. Institutions such as the South African Bureau of Standards (SABS), Department of Trade and Industry (DTI), and various research and academic institutes, all have a part to play in enhancing the competitiveness of the automotive industry.

The SABS plays a critical role, especially for firms wanting access to international markets. Goods are inspected, tested and analysed in terms of compulsory specifications, and are tested in accordance with numerous international test methods. Individual firms may also set standards against which products can be tested by the SABS. Commodities that do not meet the specified requirements are rejected, or even destroyed. For instance, the SABS destroyed a consignment of some 3,000 sets of brake pads that did not comply with compulsory specifications. Testing and certification facilities at the SABS are increasingly being considered as a passport to export opportunities for South African companies, and collaboration between the SABS and various automotive firms has been an encouraging feature in the industry's quest for international competitiveness.

Collaboration between the SABS and automotive firms has led to the establishment of various testing and certification facilities. One such example is the EuroType Test Centre (Pty) Ltd, a state-of-the-art laboratory that can perform vehicle emissions testing to the most exacting European, American and Japanese environmental requirements. Although South Africa manufactures and exports more than 1.5 billion rand worth of catalytic converters each year, it is the only major country in the world that does not require any control over the poisonous gases emitted by motor vehicles. Vehicles manufactured in South Africa for export to countries with strict air pollution requirements therefore need to be tested before leaving the country; hence the strategic importance of the EuroType Test Centre (see box 4).

Box 4. EuroType Test Centre

The EuroType Test Centre is a 30-million-rand investment in the Eastern Cape located near the Port Elizabeth/East London automotive cluster. It is critical for the export programmes of firms wanting to make inroads in international markets. The specifications of the facility include fuel temperature control, oil temperature control, combustion and transition control. The Centre has already secured contracts from Daimler-Chrysler and BMW to perform vehicle emission testing for all their export vehicles so as to be competitive in international markets. As the Managing Director of BMW, Ian Robertson has correctly asserted, "The EuroType Centre is invaluable in our efforts to penetrate additional overseas markets where international emission testing is a legal requirement".

Source: SABS

CHAPTER IV
SUCCESSFUL INTEGRATION INTO GLOBAL MARKETS: THE STORIES OF TWO FIRMS

In addition to the snapshots of firm experiences documented in the boxes in the paper thus far, the experiences of two firms are examined here in greater detail with a view to highlighting their success in integrating into global markets.

1. Bosal Automotive: innovating for global integration

Bosal Automotive produces a range of products from precision tubing, including exhaust systems, catalytic converters, tow bars, roof racks, jacks and warehouse racking systems. The Belgian parent company has 30 manufacturing plants in countries including the Netherlands, Canada, Mexico, the United States, and the Czech Republic, in addition to its South African plant. It also has 50 distribution plants around the world. Bosal's South African plant has been operating for more than 40 years.

Bosal has its group Research and Engineering Centre at Lummen, Belgium, with satellite centres at Ann Arbor, Michigan (United States), and Pretoria, South Africa. The key areas of activity include research, advanced engineering, product development, manufacturing and industrial development to cover the whole spectrum, from new product development to pilot production. These activities are aimed at developing new product models striving for leaner production, lower cost and shorter lead-time targets. Research into product innovation includes lightweight exhaust systems, weight reduction programmes for existing product lines and development of innovative technology. The company's exhaust plant in South Africa was awarded the QS 9000 Achievement Quality Award by the SABS in September 2000. Ford, General Motors and Chrysler determined the international quality standard, which is based on criteria of cost reduction, reduction of inspections required and consistency of quality. Bosal was the first South African exhaust manufacturer in South Africa to achieve this standard.

Also in September, 300,000 Daewoo cars of the Republic of Korea were fitted with South African manufactured catalytic converters. An agreement between Daewoo and Catalytic Converter Industries, a subsidiary of Bosal Automotive, for these converters followed an earlier order of 17,000 converters, indicating that Daewoo was convinced of the quality of the South African product. Bosal automotive engineers worked closely with their counterparts in Daewoo to develop a catalytic converter to meet the specific requirements of the Korean car manufacturer. This transfer of knowledge and cooperation in this venture has seen the development of a relationship of trust between the two firms in that the contract will continue for the duration of the model's life.

The South African firm has demonstrated its ability to meet the high technical standards of the international market place. This has involved adoption of manufacturing technology,

organization and systems, which meet international best practice, with the assistance of Daewoo. Skills development programmes were also undertaken and additional jobs created in a region of South Africa, which faces a daunting unemployment problem.

2. Volkswagen of South Africa: export-led skills development and employment creation

Volkswagen of South Africa (VWSA) is the largest foreign employer in South Africa, directly employing 6,500 workers. Employees receive extensive education and training opportunities, ranging from basic literacy and skills training to assistance with tertiary education.

Exports of VW vehicles have grown rapidly over the past six years. In 1994, VWSA began a three-year contract to export its Jetta models to China in a deal worth over US$ 208.33 million in foreign exchange earnings. In 1997, 6,000 VW vehicles were exported to Europe, Australia and Africa, and in 1998, VW (SA) exported 5,000 "generation three" Golf Gti vehicles to the United Kingdom in a deal worth US$ 72.7 million. The South African manufacturer currently has an export order for 68,000 Golf 4 vehicles to Europe, making VW the biggest vehicle exporter in Africa. This Golf 4 deal is worth US$ 746 million, and a total of US$ 22.39 million in capital expenditure has been undertaken to upgrade plant, tooling and equipment at the VW Uitenhage plant within the Port Elizabeth/East London cluster. Over 1,000 new jobs have been created to meet this large export order and more than US$1.49 million has been invested in training for employees working in the export programme. Such skills development has the potential to improve labour productivity and competitiveness, and this in turn provides a sound base for further export expansion and integration into the global markets.

These two success stories of firms illustrate that from being isolated in a South African market by high protection barriers, it is possible within a relatively short period of time (just over a decade) to become integrated into global markets and to be able to compete on the basis of the exacting standards of these markets. This has been achieved through the policy support of the MIDP and through greater market access that is related to the global auto producers investing in local subsidiaries.

CONCLUDING REMARKS

The automotive industry in South Africa has evolved from a highly protected, inward-focused industry to one with a marked export orientation, able to compete effectively in global markets. A number of specific characteristics of the South African automotive industry have contributed to its integration into international markets. Those characteristics include extensive foreign ownership of both vehicle assemblers and components manufacturers; close links with parent companies; and effective linkages between assemblers and component manufacturers. Links with parent companies have facilitated technology and skill transfers, as well as organizational development, and they have provided access to international markets; at the same time linkages between assemblers and components manufacturers have been instrumental in driving technological development and setting industry standards.

At present the South African automotive industry is facing the challenges of competitive international markets. Given the history of tariff protection, this is not easy. Current developments in the industry suggest an increasing trend towards integration into global production networks and this has already resulted in various benefits for the local industry in terms of technology transfer and related spillovers.

Guided by the MIDP, which is an industry-specific policy approach, the automotive industry is striving to develop a competitive advantage. As has been indicated by firm-specific experience, different routes to integration into the global markets are possible. Competitive advantage may be built on technological development (either in terms of product or process), productive and organizational efficiency and quality standards.

The key factors that have assisted in integrating the industry into global networks have been the incentives provided under the MIDP, falling tariff protection that has increased import competition, the supportive role of institutions such as the SABS, and access to international markets through the parent company. Supported by these factors, the vehicle assemblers have positioned themselves to compete globally by embarking on intense export-driven manufacture of vehicles and components.

The components producers, however, have enjoyed relatively fewer benefits. The rapid decline in protection that has left the industry exposed to surging import competition, and the fact that vehicle assemblers are able to source components from overseas directly under the import/export complementation scheme of the MIDP, have worsened their situation.

South Africa has been gradually adjusting its automotive industry support programmes, which have powerfully assisted export expansion, to make them compatible with WTO rules. For example, the import-export complementation scheme of the local content programmes would have been found inconsistent with the WTO Agreements that entered into force in 1995. In particular, local content programmes are included in the illustrative list of the Trade-Related Investment Measures (TRIMs) Agreement, as measures that are inconsistent with the obligation of national treatment provided for in paragraph 4 of Article III of GATT 1994. Therefore the South African authorities eliminated local content requirements in 1995.

Moreover, the excise-duty-based local content system would have qualified as a subsidy. The excise duty is a financial contribution by the Government in the form of fiscal incentives, which confers a benefit to the recipient and is specific to an industry. Thus it fits the definition of an actionable subsidy under the WTO Agreement on Subsidies and Countervailing Measures. Furthermore, for a subsidy to be actionable, the Subsidies Agreement requires the determination of adverse effects on the interests of another Member. Adverse effects include injury to the domestic industry of another Member, nullification or impairment of benefits accruing directly and indirectly to another Member under GATT 1994 – in particular the benefits of concessions bound under Article II of GATT 1994 – and serious prejudice to the interests of another Member.

Because of the high integration of the South African automotive industry with parent companies, it is unlikely that adverse effects may have occurred, at least in the form of injury to the domestic production of another Member or by way of nullification or impairment of benefits accruing directly and indirectly to another Member under GATT 1994. In this case, those adverse effects may have arisen from the displacement or impediment of imports of a like product of another Member into the market of the subsidizing Member. However, other automotive producers in the southern African region have seen their ability to compete with South African automotive products undermined by the fact that the import complementation programme virtually subsidizes South Africa's exports into the region. In this case, adverse effects may take the form of injury to the domestic production.

Export-import complementation schemes are used by other developing countries in the context of regional integration processes, such as in the cases of the Southern Common Market (MERCOSUR)[11] and the Andean Community[12] in Latin America. These automotive regimes include, in addition to the aim of establishing a competitive sector integrated into the global market, the objectives of regional free trade and regional integration.[13]

[11] See website: www.mercosur.org.uy: MERCOSUR/CMC/DEC N° 04/01, *Política Automotriz del Mercosur*
[12] See www.comunidadandina.org: *Convenio de Complementación en el Sector Automotor*
[13] For details on exports, see United Nations/CEPAL (2001), *La Inversión Extranjera en América Latina y el Caribe.* Chile, 2002.

APPENDICES

Appendix 1: Productive Asset Allowance

To encourage investment in plant modernization a new support package has been introduced in the form of a productive asset allowance (PAA), effective from 1 July 2000.

Government policy has sought to encourage greater scale economies, and, in line with world trends, certain South African-based manufacturers are moving towards common platform engineering[14] with a reduced number of component suppliers.

The PAA is a non-tradable duty credit calculated at 20 per cent for the qualifying investment in productive assets, which will be spread equally over five years. Assemblers can utilize this duty credit against CBU imports only, which will sustain the range of products being offered to the consumer but not necessarily locally produced. Marginal low volume products could therefore be discontinued and production capacity focused on higher volume products for global consumption.

Components manufacturers who are being encouraged by these assemblers to invest in new plants and tooling to support their own expansions will be awarded the same PAA as noted above, with the provision that 80 per cent of the duty saved be passed on to the component manufacturer. The 20 per cent remaining duty saved by the assemblers on such investments will serve as encouragement for strategic investments in components to supply local assembly plants. What this means for the components manufacturers is that they have access to duty free imports (either of machinery and equipment, or of components that are produced in low and unprofitable volumes in South Africa) measured as 20 per cent of the value of productive investments made by the manufacturers. This would enable the components manufacturers to access inputs and technologies at world prices, thereby increasing their potential competitiveness. To qualify, assemblers must submit a detailed business plan to the Director General of the Department of Trade and Industry, which is considered according to strict criteria on a case-by-case basis for the most recent investments in the industry. Companies, which received support through the now discontinued Tax Holiday Scheme, or any other investment support, will not be considered.

[14] A situation whereby a single chassis (platform) is used to produce different makes of the same model of vehicle. For instance, BMW uses a single chassis (platform) to produce the 3-Series that has six models: 316i, 318i, 320i, 323i, 325i, and the 328i.

Appendix 2: Mid-Term Review: Amendments to the Medium and Heavy Vehicle Programme

	Duty	Extent of rebate			
	OE Components	Drive-train components	Tyres	Cabs/bodies	Other components
1 Jan 2000	35 %	Full duty less 15 per cent	Full duty less 15 %	Full duty	Full duty
1 Jul 2000	35 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2001	32.5 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2002	30 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2003	29 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2004	28 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2005	27 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2006	26 %	Full duty	Full duty less 15 %	Full duty	Full duty
1 Jan 2007	25 %	Full duty	Full duty less 15 %	Full duty	Full duty

Note: The extent of the rebate on cabs of an integrated load-body design and panel vans/buses under rebate item 317.07 as well as the CKD definition for these vehicles as set out in Chapter 98 is to be further investigated to ensure that these vehicles comply with the CKD definition applicable to light motor vehicles.

Source: DTI Press release, 2000

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