

Botswana Automomotive Sector Study

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Discussion Draft¹

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The Automotive Sector

1. Introduction

The diversification of the export basket from products based on primary processing to manufactured industrial exports involves accumulated capabilities in particular sequences, mainly through definite stages. As is suggested by the theory of comparative advantage, and its factor endowment complement, the developing countries begin to export through primary product processing and unskilled labour intensive activities, before moving on to more capital intensive and skill intensive exports as countries move up the scale of development. In other words, on the basis of the country's development, one would expect that industrial exports from developing countries draw upon mature rather than frontier technologies. Needless to say, such exports generally emanate from import substituting industries.

However, in small landlocked countries like Botswana where the import-substituting industries are mostly confined to low value added processing industries, such as meat processing, textiles, dairy, bakery products ,etc, diversification of export basket of the type indicated above can not be achieved in the short run. This is not to deny the experiences of many other developing countries placed in a more or less similar position moving up the ladder by establishing foreign investment dependent export platforms for processing or assembly operations where inputs are all imported, although it leaves only a small proportion of local value added. In a situation in which the manufacturing technologies remain weak within the country, new entrants into the industry have to import capital goods and technology in a packaged form. Foreign Direct investment (FDI) in such situations may also involve the import of skilled expatriates. As indicated earlier, the investors under these circumstances may undertake assembly or processing activities initially. However, as the economy expands, more sophisticated and increasing local activities allow for the diffusion of technology and skills that enable the firms to undertake more complex activities within the industry. The spin off effects of such initial attempt is that the process of assembling imported components being broadened in the

course of time to encompass domestic suppliers, sub- contractors and specialized firms. The increasing local involvement allows for the diffusion of industrial technology and skills, keeps a larger proportion of value added within the country, creates new sources of competitiveness, and captures many of the externalities inherent in industrial development. In particular, setting up of supporting capital goods industries contributes significantly to the creation and diffusion of new technical knowledge, acting as a “hub” of technical progress (Rosenberg, 1986). The above depicted path of learning and gaining competitiveness may not always prove to be a smooth sailing exercise for many developing countries. Differing conditions and distortions in the policy initiatives in many countries may not enable them to keep on such a path, Botswana may be considered one such case.

Towards diversifying the export basket, the Botswana Government has intensified its efforts to attract more foreign investment into the manufacturing sector since the mid – 1980s as part of its Industrial Development Policy. The Financial Assistance Programme (FAP) offered attractive incentives, such as subsidizing wages, fixed asset investment and training costs for the initial five year period. Access to factory space was also available. Following the introduction of FAP, Botswana attracts to a certain extent, foreign direct investment into the manufacturing sector. However, many foreign investors closed their operations when the initial five year period of assistance under FAP expired. Others, who got assisted, did not develop to their full potential for production. Therefore, it may appear that one of the important motivations of foreign ventures has been to avail the generous subsidies offered under FAP.

This period has also seen new efforts by the government to encourage the technological deepening of export structure by importing foreign capital and technology. The desire to enter into progressively more technologically complex new initiatives has been intended to broaden the manufacturing base. The failed Hyundai experiment was one such initiative². However, it has to be reckoned in this context that there is no predictable

² The plant, costing P 60 million, was built in Gaborone to assemble Hyundai motor cars from knocked down kits, for sale to the South African market. The manufacturers were Hyundai franchised the

learning curve to travel for a country. Some times some investment endeavors turn out to be risky and unpredictable. The failed Hyundai experiment is a case in point. On many occasions, the late comers to industrialization face more cost and learning risk than already industrialized countries.

Despite the initial set back, Government intensified its efforts to attract foreign investment and technology for export processing by the establishment of the Botswana Export Development and Investment Authority (BEDIA) in 1998, replacing the Trade Investment and Promotion Agency, which had only limited powers and resources. Botswana Export Credit Insurance and Guarantee Company (BECI) was also launched to provide export guarantee services. BEDIA is in principle a one stop investment clearing agency that promotes, facilitates and monitors investment flows to Botswana. BEDIA expedites the provision of support services, such as industrial land, factory premises, necessary permits, grants and provision of power and water to investors. Policies and regulatory controls such as foreign exchange controls, have been eased over time, and foreign exchange controls were eventually abolished in order to make Botswana a more favorable destination for foreign investors.

Since 1998, BEDIA has assisted 13 companies from Zimbabwe, India, China, Mauritius, Europe and Sri Lanka to locate in Botswana's manufacturing sector. The manufacturing sector accounted for an average of 11 percent of total FDI; the rest being accounted for by other sectors like mining, finance and trade. Most of these investments in the manufacturing sector have been directed towards manufactured exports. This suggests a clear policy direction towards involvement of foreign investment in the diversification of exports in Botswana. The policy initiatives described above have had a noticeable impact on the structure of exports from Botswana. However, to date, there has not been much analysis of the working of foreign collaborated export ventures operating in Botswana. This is not to deny isolated recent attempts by BEDIA (BEDIA, 2003) on the Textile and

manufacturer in Botswana. Its ownership partners were a Zimbabwe business man and a UK business man. The venture obtained BDC loan of \$ 24 million and the same amount from two Dutch banks. In 2000 the plant was closed due to heavy loss as it could not reach the break even level of 15000 motor vehicles per year. There have been several allegations such as the inimical attitude of South African motor lobby, failure to comply with rules of origin stipulations and fraud by the management.

Garments sector which address some specific issues related to foreign investment and another study on investment climate by UNCTAD (UNCTAD, 2003), which discusses the foreign investment related issues in general terms.

The present study on the automotive sector looks into the major developments in the sector with a view to understand the issues pertaining to foreign investment and export performance, in particular technology and competitiveness associated with the manufactured exports in an emerging skilled and technology intensive sector.

2. The Automotive Sector

This sector broadly defined as the automotive sector refers to manufacture (assembling) of vehicles, accessories and parts (CSO, 2001). As seen from the tables 1 and 2, the export of vehicles constituted the second major commodity in the export basket between 1996 and 1998 which has declined since 2000 following the closure of the Hyundai assembling plant. If we classify products according to factor intensity, of the items listed in Table 1, the only product group which can be described as skilled labour or technology intensive appears to be item 2.³ As seen from the table, since the closure of Hyundai in 2000, the share came down from over 10 percent in 1998 to 2.78 percent in 2002. Even in this 2.78, considerable proportion represents only the export of stock and re-export of imported vehicles, accessories and parts, to other SADC countries. This can be illustrated with the help of the detailed product profile of the automotive sector export given in table 2. Of the seven product groups listed in table 2, production or assembling facility activities exists only for a few products. They are: 1) (8701) Tractors; 2) (8702) Motor vehicles for the transport of ten or more people; 3) (8708) Parts and accessories for motor vehicles and cars⁴. Therefore, the real export pertains to only these products.

³ The classification follows from the definition of Jose' Antonio Ocampo and Leonard Villar (1995). They classified products according to factor intensity as follows: 1) Natural Resource Intensive (foodstuff, leather and leather manufactures, and wood); 2) Unskilled labour intensive (apparel, shoes, printing, manufactures from plastic, pottery, preliminary jewellery) 3) Capital intensive manufacture (beverages, textiles, glass, cement and non-ferrous metals); 4) Skilled labour and technology intensive (industrial chemicals, rubber, basic ferrous metals, metals, automobiles, metal mechanical products)

⁴. Information supplied by Industrial Affairs Department, Gaborone, Botswana.

Table 1: Share of Exports

Chapter	Description	Share of exports				
		1996	1998	2000	2001	2002
Chap. 71.02	Diamonds	70.97	70.26	82.73	84.84	85.05
Chap. 87	Vehicles, Accessories & Parts	13.78	10.78	1.91	2.02	2.78
Chap.74 & 75	Copper-Nickel	5.37	4.89	5.84	4.08	3.29
Section 11	Textiles	2.34	3.39	1.71	1.31	1.25
(Chap.50- 63)	Soda Ash	0.84	1.10	0.69	0.88	1.83
Chap. 28.36	Cereals	0.05	0.14	0.13	0.11	0.00
Chap.10 & 11	Fruits and Vegetables	0.02	0.01	0.01	0.00	0.00
Chap. 6 - 8	Milk and Milk Products	0.00	0.00	0.00	0.00	0.00
Chap.04.01- 4.06	Live Animals, Meat and Related Products	2.85	3.76	2.17	2.96	1.89
Chapters 1, 2, 41	Other Products	3.78	5.66	4.81	3.79	3.92

Source: CSO

Table 2: Motor Vehicle Exports by Type of Vehicle (in pula)

HS Code	Description	Destination	1998	1999	2000	2001
8701	Tractors	RSA	99,973,936	46,865,332	127,485,058	158,171,599
		Zimbabwe	2,948,441	6,272,127	109,721	219,879
		Namibia	405,602	554,548	1,857,578	-
		Zambia	1,500,589	6,134,071	87,055	89,952
		ROW	9,355,167	13,124,243	576,080	368,485
		TOTAL	114,183,735	72,950,320	130,115,491	158,849,915
8702	Motor vehicles for the transport of ten or more persons, including the driver.	RSA	6,879,920	7,414,623	9,678,398	15,654,125
		Zimbabwe	5,567,372	24,563	74,552	3,267,660
		Namibia	744,921	381,476	-	-
		Zambia	3,392,499	1,561,952	694,773	2,411,213
		ROW	26,292,642	23,900,511	9,229,087	9,033,265
		TOTAL	42,877,354	33,283,125	19,676,810	30,366,262
8703	Motor cars and other motor vehicles	RSA	589,887,448	383,430,011	75,075,654	64,054,973
		Zimbabwe	1,929,579	1,402,676	2,194,939	3,261,847
		Namibia	15,974,348	3,919,990	3,862,717	1,805,136
		Zambia	780,433	918,466	971,496	638,791

HS Code	Description	Destination	1998	1999	2000	2001
	principally designed for the transport of persons (excluding those of 87.02), including station wagons and racing cars.	ROW	2,646,799	2,611,440	3,454,270	3,282,770
		TOTAL	611,218,607	392,282,584	85,559,075	73,043,517
8704	Motor vehicles for the transport of goods	RSA	164,557,205	147,896,835	16,501,975	13,305,705
		Zimbabwe	2,299,005	684,131	786,066	877,684
		Namibia	5,555,984	2,351,124	307,693	89,069
		Zambia	435,143	150,032	861,105	199,720
		ROW	199,917	2,077,067	1,231,540	1,865,454
		TOTAL	173,047,253	153,159,190	19,688,380	16,337,633
8705	Special purpose motor vehicles	RSA	3,088,526	5,010,182	6,830,779	5,394,670
		Zimbabwe	889,869	-	-	48,252
		Namibia	-	-	-	-
		Zambia	15	-	439,339	272,394
		ROW	3,272,333	1,584,672	380,527	526,270
		TOTAL	7,250,743	6,594,854	7,650,645	6,241,586
8708	Parts and accessories of the motor vehicles of headings 87.01 to 87.05	RSA	4,016,024	3,337,634	4,054,985	4,561,470
		Zimbabwe	258,502	148,055	230,791	461,251
		Namibia	32,316	3,052	749	681
		Zambia	30,326	26,357	1,213,229	39,905
		ROW	42,128	14,705	64,652	38,481
		TOTAL	4,379,295	3,529,802	5,564,406	5,101,788
8716	Trailers and semi-trailers; other vehicles, not mechanically propelled; parts thereof	RSA	426,607	366,562	533,094	2,135,071
		Zimbabwe	181,795	54,979	38,877	312,815
		Namibia	-	1,890	736	-
		Zambia	134,726	359,947	50,845	41,254
		ROW	1,759,261	808,281	118,549	6,255
		TOTAL	2,502,390	1,591,659	742,101	2,495,394

Source: CSO

3. A Profile of Exporting Firms

The following section examines the nature, characteristics, performance and competitiveness of the automotive sector by surveying the dominant exporting firms operating in the automotive sub sectors listed above. Before discussing those aspects, let us have a brief sketch of the recent global developments in the automotive industry.

The automotive sector consists of the production, assembling of automobiles, and manufacture of components and parts. It involves a production process which is both skill and technology intensive. In recent years, the automotive industry has undergone rapid transformation through fierce competition, mergers and cross border alliances. Today the industry demonstrates two distinct tendencies. They are internationalisation of production by forging of mergers and increasing alliances among the transnational leaders and regionalization of production and distribution. The latter tendency is derived not only from the search for low cost locations, but also for securing market by circumventing trade barriers and taking advantage of regional trade protocols (Morales,1994). The regionalisation of production has mainly taken advantage of the low wage rate prevailing in developing countries for skilled and semi-skilled labour for car assembling. It has been observed by several studies that developing countries can also take advantage as suppliers of components and parts, as part of local content.

As is well known, in the SADC and SACU region, South Africa is the strongest competitor in the automotive industry with high levels of automotive skills and manufacturing base for automobile components and parts supported by iron and steel and engineering industries. The industrial development programme has designed several incentive measures for its rapid development (SA Reserve Bank, 2003). There are nine vehicle assembly plants and a broad based component industry exists in South Africa today. Many assemblers have begun developing linkages with manufacturers on account of the factors mentioned above. The Motor Industry Development Programme (MIDP) initiated by the Southern African Customs Union (SACU) is the major driving force in supporting more vehicle assembly operations and manufacturing for the export of automobile components and parts in the SACU area (See Box 1).

It has also to be emphasised in this context that the rapid growth and development of the automotive industry in South Africa has been due to the high level of protection from imports, coupled with liberal subsidies for its development. The tariff for light motor vehicles and parts was above 40 percent in the late nineties. Even today it is as high as 36 percent, which may be phased down to 28 percent by 2009 (see table3).

Table 3: Phase down in the rate of customs duty on imported light motor vehicles

Date	Light motor vehicle (Duty as percentage of ad valorem)	Components (Duty as percentage of advalorem)
2003	38	29
2004	36	28
2005	34	27
2006	32	26
2007	30	25
2008	29	24
2009	28	23

Source- International Trade Administration Commission of South Africa

The point of emphasis is that the high tariff and incentives in the form of subsidies has helped the South African automotive sector to grow. This must have rendered the sector uncompetitive for export beyond SACU and SADC. One plausible reason for the introduction of MIDP must have been to make the sector more competitive. The MIDP, which stipulated a drastic reduction in import duties on completely built up units, has also been a facilitating factor in choosing South Africa as an assembling centre by western and Japanese automobile giants. It is evident from the above account that the phasing down of MIDP may reduce the attractiveness of South Africa as a location for assembling and manufacturing components for export in future. The assemblers of vehicles and manufacturers of automotive parts and components will be facing more competition as high cost manufacture and assembling under protection today will be replaced by cheaper imports unless the industry develops competitiveness based on its real strength arising out of productivity and efficiency.

Box.1.

Motor Industries Development Programme

SACU's MOTOR INDUSTRY DEVELOPMENT PROGRAMME (MIDP)

The programme benefits manufacturers in two automotive industry sub-sectors, namely the Light Vehicle sub-sector, and the Medium and Heavy Motor Vehicle sub-sector in the SACU region. The following countries form part of the SACU: the Republics of Botswana, Namibia and South Africa and the Kingdoms of Swaziland and Lesotho. The objective of the MIDP is to improve the competitiveness of manufacturers/assemblers of light motor vehicles, (i.e., including cars, minibuses and light delivery/goods vehicles), medium and heavy motor vehicles and manufacturers of automotive components for these vehicles in SACU. The programme aims to encourage production/assembly of vehicles and component manufacture for export to international markets.

Motor vehicle manufacturers within SACU that wish to participate have to register with the relevant Trade and Investment authorities in their respective countries. Manufacturers of light heavy motor vehicles have to comply with the extent of manufacture (i.e.; C.K.D. definition) as specified in Note 5 to Chapter 98 of Schedule No.1 to the Customs and Excise Act of SACU, 1964. The MIDP programme is based on concessional duties and rebates of customs duties. The duty liability of registered light motor vehicles and component manufacturers is rebated by way of duty free allowance (DFA) and the use of Import Rebate Credit Certificates (IRCCS). However, the customs duties on imported light motor vehicles are gradually being phased down at the rate of 2% per annum, until 2009, to reduce the protection afforded to the manufacturers of light motor vehicles in the SACU. The current rate of customs duty applicable to imported light motor vehicles is 36% having declined from 38% in 2003.

Duties on imported materials

Materials imported by light motor vehicle manufacturers or component manufacturers that are used in the manufacturing process are liable to the particular rate of duty applicable to a specific material, e.g., if polypropylene in primary form is imported from Germany, 10% duty would be payable. The value of all imported materials imported by component manufacturers or suppliers has to be reported, but is ignored for purposes of calculating the duty liability of light motor vehicles manufactured for the SACU market. The value of imported materials however, is taken into account when light motor vehicles, automotive components and accessories and tooling are exported and claimed under the MIDP.

Various rebate provisions not related to the MIDP exist to rebate the duty on imported materials. Manufacturers/importers that qualify for such rebate provisions, may use these rebate provisions. Component manufacturers are at liberty to scrutinize rebate items 316.01 (heaters/air conditioners), 316.11 (wiring harnesses), 316.13 (engines), 317.06 (various automotive components) and 320.01 (motor vehicle seats and parts of seats) to determine whether rebate provisions exist that provide for the relevant imported products used to manufacture specific automotive components.

Source- International Trade Administration Commission of South Africa, December, 2003.

In the above scenario, what are the scope and limits of Botswana being able to participate in the export of automotive products or undertake assembling operations? As mentioned earlier, already a few units exist in Botswana in the automotive sector engaged in the production, assembling and export. An understanding of the motivations of these units in locating production and assembling facilities in Botswana with regard to their performance on various dimensions like technology; production process, in particular, the linkages, labour market situation, environment both regulatory and incentives, may highlight the competitiveness issues of the sector. With this objective, we have undertaken a survey of exporters in the automotive sector. There are around ten firms operating in the automotive sector out of which four are producing for the domestic market only. We have included in our survey all exporting firms except one which does not want to cooperate for unknown reasons. This firm is specializing in bus body building and employs around a hundred workers. The details of the survey are discussed in the following sections. The ownership patterns, product structure of the firms and employment generated by the surveyed firms are given in Table 3.

Table 4: Characteristics of Firms in the Sample

No. Firm	Ownership type	Share of the foreign partner	Product type	Employment (2003)	Age of the firm(in years)	Export destinations
1	Joint venture: majority foreign controlled	60	Leaf Springs	85	5	*SACU
2	Joint venture: equal status	50	Car Batteries	75	10	SACU/rest of Africa

3	Fully foreign owned	100	Reconditioned tractors	45	8	Rest of Africa
4	Fully foreign owned	100	Assembling of Trucks and Buses	100	10	SACU
5	Joint Venture	50	Electrical Harnesses for Automobiles	690	8	Europe

*SACU- South African Customs Union

As seen from the table, the entry into the sector has been facilitated by foreign direct investment. Of the five firms listed in the table, two are fully foreign owned companies, whereas the other three have local equity participation; one majority foreign owned and the other two having equal equity shares. The foreign investors were attracted to Botswana to access new markets and business opportunities by contact promotion missions organized by both BDC (Botswana Development Corporation) and BEDIA (Botswana Export Development and Investment Authority). The sector employs 995 workers; the leading firm in the sector is the wiring harness manufacturing company, working under the technical management of DELPHI International, which alone employs 690 workers. According to employment figures, all other firms in the sector belong to the medium scale sector. Total export from all firms for the year 2003 is P500 million pula. As seen from the table, the direction of export is diversified. There is no concentration of exports to the SACU region. Only two firms exported 100 percent to the SACU area. The rest of Africa accounted 100 percent of export of one firm and twenty five percent of another. Europe was the destination of hundred percent of another firm's export.

The average age of the firms is eight years; two have been producing for the last ten years, and two for eight and one five years. Of the five firms, three firms had the benefit of FAP assistance; although they came to Botswana not being attracted by the FAP. We shall discuss in detail later the motivational factors in locating production facilities in

Botswana. Out of the five firms, only two firms enjoy the advantages from MIDP (Motor Industries Development Programme). These firms import original components from Europe and export outside SACU; that qualifies them to meet the requirements of benefiting from the MIDP. The share of output of these firms constitutes around 75 percent of the total output reported by the surveyed firms.

The sales ranged from P15 million to P 330 million. Though these firms have been the only producers of the products in Botswana, all of them admitted that they face high level of competition from imports both internationally and regionally, especially from SACU competition, and in particular South Africa.

It is interesting to observe from the table that except for two firms (one which assembles the trucks and buses and another which produces electrical harnesses for automobile plants) all others have nestled in the niche market. The leaf springs and the batteries are supplied to agents having links with big workshops, not to assemblers; and therefore these firms cater to the replacement demand. Similarly, the reconditioned tractor exporter targets the middle income farmers who can not afford to buy a new tractor. This firm has been marketing the assembled tractors for the domestic market for the last ten years and entered the export market two years ago. The company has realised from market intelligence that there exists a potential market for reconditioned second hand tractors in the SADC countries and ventured into export. The size of the firms in terms of turnover and export is given in

Table 5: Size of the Firms according to turnover for the year 2003

Turnover (in pula million)	No. of firms	Percentage of export
1 to 15	Nil	-
15 to 30	2	80
30 to 50	1	60
50 to 100	-	
100 to 200	-	
200 and above	2	100

Table 5 gives the details of the firms according to the size of the turnover. As seen from the table, two firms have a turnover between P15 million to P30 million and 80 percent of the turnover is from exports. Another firm's turnover falls between P30 million to P50 million and 60 percent of the turnover is derived from exports. Two firms have turnover P200 million and 100 percent of the turnover is from export.

4. A Profile of the Technology

In this section we shall detail the process of technology acquisition and development. As is well known, Botswana has not been able to create significant local technological capabilities or institutions. All firms in our sample imported technology in a packaged form. This included not only basic designs and peripheral designs, but also all the machinery and equipments, technology and know-how, skills and even the basic inputs. In the case of one firm which used only a "screw driver" technology for, the import was in the form of SKD kit. Very little equipment was necessary to re assemble the kit. The import of skills in the initial stage of operation involved bringing in expatriate engineers and technicians, even for setting up the plant and installing the machinery. The proportion of skilled workers in the total has been relatively high at the beginning of the plant operation.

Expatriates did the initial activities like preparation of initial project outlines, construction of basic civil works, plant construction, detailed engineering, project scheduling and training of local workers. Table 6 below indicates the share of the expatriate employment in the surveyed firms, both on the commencement of operations and in 2003.

Table 6: Expatriate Workers in the Total Work Force

No. Firm	Beginning of the year of operation (in percentage to total)	As on 2003(percentage to total)
1	30	3
2	25	4
3	20	4
4	23	5
5	20	3

As Table 6 reveals, the percentage of expatriate workers in the total was high at the initial stages, however, it declined in the course of time. The expatriate workers have been used initially to train the local workers. As the local skills have developed, the number and the share of expatriates to the total employment have declined dramatically as seen in the table. This means that these firms have accumulated capabilities in routine operations and basic maintenance of given facilities. The progressive acquisition of skills through sector specific learning processes through the migration of skilled people is the right step forward, the expansion of technological capabilities to generate and manage technological change can not be linked automatically to the growth of output. This demands technological learning of a deeper variety by drawing upon imported inputs and core technology and know-how. Given the technological backwardness of Botswana, this appears a remote possibility. In this context, it is only relevant to highlight the sources of technology acquisition to keep abreast with the latest developments in technology. In the case of fully owned foreign companies, the latest technology is automatically transferred whether it is assembling or manufacture.

However, in the case of partnership arrangements, the firms are under technical management of the foreign collaborator which, in turn, means that foreign companies are responsible for the technology upgrading and management. All the major developments in the technology is transferred to the local firms under this arrangement.

Let us now discuss the aspects of in-house training in place in these firms. All firms in the sample have placed emphasis on in-house training. The training programmes involve both on the job training as well as attachments at the parent company's plant abroad. The period of training, varies from one month to three months. In the assembling plants it is only one month; whereas in other firms, it goes up to three months. The basic qualifications for newly recruited skilled workers are Junior Certificate with vocational training qualifications in the sector specific tasks, such as a certificate in automotive trade. The Automotive Trades Technical College, Gaborone; run by the government, trains students in automotive engineering trades and, therefore, those recruited already have an exposure to automobile technology (see Box 2). The annual budget of the college, on an average works out to around ten million pula per year. This includes both capital and revenue expenditure that also includes scholarships for students. Every year, around 200 students receive training and government spends approximately P. 50,000 per student per year.

The training imparted by the college considerably reduces the time taken to train the workers for a specific job. After a few years experience, these workers are distributed to various departments requiring high level skills, such as supervisory, quality controls, etc. Though, at present, most of the workers are operating at the low end of the technical spectrum, all the firms are of the opinion that the workers are capable of undertaking deeper and a more diverse range of technical operations. The earlier exposures to automobile engineering enable the workers to resort to multiple tasks and, therefore, made them more adaptable and flexible across various tasks.

Box 2
Automotive Trades Technical College

The college, established in 1982, with the support of the German Agency for Technical Co-operation (GTZ), is the biggest institution in Botswana offering automotive and metal skills training. From its humble beginnings, the college has expanded tremendously in both numbers of students and diversification of courses. It offers apprenticeship training in the following trades: auto mechanics; auto electrical; heavy plant mechanics; panel beating/spray painting; fitting; machining; and welding. The courses lead to National Craft Certificate Examinations. All workshops are fully equipped with modern machinery to provide trainees with the latest technology in the automotive industry, which has been so dynamic in recent years. Every year the college enrolls around 350 students.

In July 2004, the College launched new programmes in Engineering, leading to Certificate and Diploma levels. Further, the school has developed and successfully piloted its Entrepreneurship Development Programme. The programme aims to equip the past graduates of technical colleges, brigades and other institutions with the necessary skills to prepare them to start and run their own small businesses.

The college continues to support the growth of the automotive industry through the supply of skilled labour. The college commits itself to continue providing quality training to its students and making them competitive in the job market

Source- Botswana Review,2004

5. The Advantages of Location

On the question of why Botswana has been selected as a production base for export, the responses indicated the advantages similar to the ones documented in earlier studies (UNCTAD, 2003) and voiced in several reports, such as the Heritage Foundation, Transparency International, Competitiveness Report and the World Economic Forum (BIDPA, 2003). The responses are listed in Table 7. The general advantages listed in order of importance include political and economic stability, low degree of corruption and violence, market access to SACU, no exchange controls, low tax rate, growing economy; etc. However, the specific advantages listed appeared very revealing regarding the dynamic advantage of the region.

Table 7: Locational advantages of the firms surveyed

No. of Firms that Responded	Advantages listed by firms
5	<p>a)General</p> <p>1) Political and economic stability, low degree of corruption and violence, peaceful industrial relations</p> <p>2) Market access to SACU,no exchange controls, low tax rates , growing economy</p> <p>b) Specific sectoral Advantages</p> <p>1)Skilled labour and low wages</p>

a) Emerging Comparative Advantage?

The general impression of relatively high wage levels in the manufacturing sector was not shared by the firms. The firms surveyed reported the average wage of skilled labour (junior certificate+automotive trade+experience) has been P1000 to P1200 per month, which according to the firms is relatively low compared to the South African wage level in the automotive industry. In the case of highly skilled labour, wage levels are slightly higher (P2500 to P3500 per month), which is because of the high level of qualification and training of skilled labour (engineering degree+additional training in automobile trade). However, the numbers of very skilled employees are relatively low in the firms surveyed.

We have made an attempt to compare the average wage level of the manufacturing industry in Botswana with South Africa. The survey of average monthly earnings (Stats SA, 2003) for the year 2003 in South Africa had been R5488, which is equal to P4321 at

current prices. (using rand- pula exchange rate R1.3:P1). This means that the average wage in South Africa is around three and a half times than of Botswana. This way of comparing may be spurious for; the industry in South Africa is more integrated structurally than that of Botswana, implying a high volume of value added thereby higher wages. Since we did not get the wage levels in the relevant industry and year and skill categories, the above comparison may be taken only as a rule of thumb. However, the UNIDO statistics on South African industry provide detailed industry data on employment and the wage levels up to 2000 (UNIDO, 2004). We have compared the wage level in the automotive sector in Botswana to the South African industry group titled Parts\accessories for automobiles. The results are revealing. The South African wage in Pula terms works out to be P4165 i.e., around three and a half times that of Botswana. The following general observation by another study undertaken in BIDPA on the trends in wages and productivity appears worth quoting in this context.

“It is worth observing that over the entire period from 1990 to 2001, average hourly manufacturing wages in dollar terms declined by 30 percent or 3.2 percent per annum. The combination of modestly rising labour productivity and modestly declining average hourly wages (in US dollar terms) combined to reduce unit labour costs. This should have boosted Botswana’s international competitiveness in manufacturing, if competitors had their unit labour costs.” (Situation Analysis, 2004).

Table 8 below presents some international comparisons of labour cost per worker (in dollars) in the manufacturing industry. Unfortunately, the latest available data are for 1995-99.

Table 8: Labour cost per worker in some Southern African Countries

Countries in Southern Africa	Labour Cost per Worker in Manufacturing 1980-84 (average \$ per year)	Labour Cost Per Worker in Manufacturing 1995-99 (average \$ per year)
Botswana	3250	2884(-11.26)
South Africa	6261	8475(+35.36)
Zambia	3183	4293(+ 34.87)
Zimbabwe	4097	3422(-9.98)
Mauritius	2983	3287(10.19) @

@Only for 1997. Source- **World Development Indicators, 2003, World Bank**

.As seen from the table, compared to 1980-84, annual labour cost per worker in Botswana has come down from \$3250 to \$2884 in 1995-99, registering a decline of around 11 percent. The decline has been much faster than that of Zimbabwe. In the case of South Africa and Mauritius, the major competitors of Botswana, the wage levels had gone up 35% and 10% respectively during the period confirming, to some extent, the observations made above on the relative wage advantage of Botswana.

b) Availability of Skilled Labour and Productivity

The firms did not confront scarcity of skilled labour in the factor market. We have already explained the reasons for this phenomenon in the above section. On the basis of the data on comparative labour cost and availability of skills, we can not conclude on the comparative advantage of Botswana unless we take into account the quality of labour in terms of productivity. All firms in our sample admitted that the productivity is **fair** or **good**. Two firms are of the opinion that the system of production takes care of productivity. The system is a chain system in which the worker is supposed to finish the work within an allotted time in a moving chain. The other two firms have their own norms such as chargeable hours compared to actual hours. In the case of one firm, the chargeable hours are converted to output norms to estimate productivity. In another, output norms like the number of pieces per day are fixed as a productivity measure. The firms did not air any complaints regarding productivity. However, according to them; HIV/AIDS may pose a major threat to the productivity and efficiency of labour employed in the future. We shall discuss this issue in detail below.

6. The HIV/AIDS and Labour Turnover Rate

All the firms interviewed shared increasing concerns on the impact of HIV/AIDS on labour turnover; though the severe impact of the scourge is felt only by one firm. The firm concerned lost five skilled workers out of seventy in less than two years. However, in the case of other firms surveyed, the problem has not been that severe so far. To illustrate, the biggest employer of the firms surveyed lost only two skilled workers out of 690 due to HIV/AIDS. All the firms together lost only ten workers in the year 2003 due to HIV/AIDS. However, it was reported that the morbidity levels of workers (intensity of

falling sick) in all the firms has gone up marginally, resulting in a relatively high turnover rate recently. This has increased the cost of training and is depleting already built up skills. There is a feeling of a high degree of uncertainty regarding the continuity of the existing supply of skilled labour. Recognizing the implication of this problem, three firms in our sample have initiated programmes to address the issue. One major programme has been conscientising the workers about the impact of HIV/AIDS and on measures for preventive care and treatment. Guidance and counseling has been arranged in collaboration with the social workers. Male condoms are also distributed free. Through these types of programmes, the workers are sensitized and educated about the dangers and consequences of the epidemic.

All firms admitted that this strategy will not work beyond a point, as workers fear being stigmatised if they check their HIV/AIDS status. Therefore, the managements of the firms do not know the status of their workers. Workers take sick leave and disappear. Later management is informed of their death by relatives. This may probably be because the firms have not taken a policy decision to put in place the mechanisms with which HIV/AIDS among workers can be addressed. Specific measures for giving support to workers who are infected and affected by HIV/AIDS will have to be developed and implemented. The ongoing procedures like arranging lectures, etc, can not help beyond a certain point. As the firms do not have specific policies and measures in place to rehabilitate the affected workers, the workers have fears about being kicked out of their jobs and their families once their HIV/AIDS status is revealed. Therefore, it is important that the firms institute policies and measures aimed at increasing the level of understanding to address the general welfare and concerns of the staff with respect to the management of the epidemic. In tackling this problem, the highest level of sensitivity, understanding and compassion for the infected and affected personnel should be the guiding principle of the firms and the labourers.

7. The Disadvantages

This section will look into the disadvantages those Botswana exporters in the automotive sector face. A major disadvantage voiced by almost all firms relates to transportation and utility costs (see Table 9).

Table 9: Locational Disadvantages of the Firms Surveyed

No. of Firms that responded	Disadvantages listed
5	1) Land- locked and therefore high transportation cost 2) High utility Cost 2) High cost of capital 3) HIV/AIDS 4) No export incentive 5) The regulatory system 6) Delays in obtaining work permits 7) High cost of rental space 8) Undue delay and high cost of serviced land. 9) Fluctuations in exchange rate

Serious concerns were raised by the firms regarding the cost of transport, electricity, and telecommunications. The cost of transport has been very high according to all the firms interviewed, in particular, the inland transportation cost from Durban which is the major port to import. Three firms reported that from Durban, to Gaborone and back constituted nearly 60 percent of the total transport cost. All the companies feel the pinch of it because all their raw materials or parts in CKD form are imported from abroad. Walvis Bay operated by Namport is considered to be efficient and cost effective however, since the flow of freight is low, it is not a competitive and cost effective alternative at present. Therefore, firms tend to keep to the route they are familiar with. This is an issue that needs serious attention at the national level. We shall return to this issue later.

The business cost indicators, such as water and telecommunications, are also relatively more costly in Botswana. Though Botswana has a better track record of availability and reliability of electricity supply, all the manufacturers voiced their concern regarding its cost as the manufacturing process consumes electricity. Among the countries of the region, Botswana has the highest cost of electricity. The latest estimates on relative cost are not available for comparison. However, estimates in US dollars for 2002 indicated that a KWh of electricity costs 5.3 cents in Botswana whereas it is only 3.2 cents in South Africa. Similarly, the mobile and fixed line charges in Botswana are second highest in Southern Africa. Similarly, a three minute local call by fixed line will cost \$0.11 in Botswana whereas the cost in South Africa is US\$0.06. Similarly, a three minute local mobile call will cost \$0.94 in Botswana whereas in South Africa it is \$ 0.51. Again the price of water (perm3) is \$1.02 in Botswana whereas it is only \$0.3 in South Africa (BEDIA, 2003, UNCTAD, 2003). As the manufacturing process does not need much water, the manufacturers did not complain about the cost of water. The delays in the allocation of land have been identified by two firms as another constraint. To illustrate, one firm producing automobile batteries wanted to expand its operations by manufacturing inputs so that it can avoid some of the imported inputs. One major input which the firm has been importing is lead. It constitutes sixty percent of the total imported inputs. By establishing a plant to break used up batteries to take out the lead and recycle them after treatment will save millions of pula for the company and create a domestic base for further integration. The company has applied for land allocation five years back and still waiting for a response from the government. Such examples can be multiplied.

Out of five firms, three have expressed concern about the high rate of interest for working capital in Botswana which is relatively high compared to South Africa. To illustrate, the prime rate of interest in South Africa is 7.5 %whereas it is 15% in Botswana. To them, in the area of investment incentives, Botswana had a clear advantage earlier when the Financial Assistance policy was in operation. The Financial Assistance Programme which was also open for foreign investors was replaced by subsidized loan schemes of CEDA, are not be available to foreign investors. The financial incentives, such as the

Credit Guarantee Scheme and a loan fund for the citizen contractors, are closed to foreign investors. Almost all exporters are of opinion that Botswana's low profit tax regime, which is more or less similar to the Mauritian scheme, is a poor substitute to attract investment compared to a range of incentives offered by other regional competitors. To illustrate, South Africa offers several schemes to attract foreign investors for export processing which inter alia include export marketing and investment assistance scheme, low interest rate finance, tax holiday schemes, medium term loan financing and so on. Lesotho provides concessional loans and a comprehensive export credit facility. Zimbabwe, Swaziland and Namibia also offer tax holidays for manufacturing. Namibia, Zambia, Lesotho and Namibia provide training grants, while Swaziland, Namibia and Mauritius provide subsidies on buildings. Namibia and Zimbabwe provide export processing incentives. It is again pointed out by the firms that many of the above mentioned competitor countries have relatively cheaper business inputs like low cost of utilities compared to Botswana. Coming to the regulatory environment, issues like the bureaucracy surrounding the allocation of land has already been mentioned.

Another issue voiced by the firms was the issuance of work and residence permits for expatriates, which continue to be slow and cumbersome. All the non-citizen employees are required to have the work and resident permits. The work permits are granted only after a labour market test i.e., only if there are no suitable local candidates for the post and a proposal for training of citizen to replace the non- citizens. The firms are of opinion that at the initial stage of the production operations when the firms need to have relatively more expatriates, the delays in processing applications had created several problems. The clearance procedures for work and resident permits used to take unduly long number of years. Many employees had to remain for many years under a procedure of "waivers" that must be renewed every three months. Though the delays and procedures are still there, the intensity of the problem related to work and resident permits have subsided as many expatriates have left these firms.

The strengthening and weakening of the Pula against other currencies in non- SACU countries in the rest of Africa has been pointed out by two firms as another constraint to

competitiveness. The depreciating currencies in the SADC region have had an adverse effect on Botswana's export in the region in the sense of affecting the stability of import prices. On many occasions the importers had approached to renegotiate prices. The case of batteries and reconditioned tractors exported to Zimbabwe, Mozambique and Zambia are illustrative examples. The countries currencies depreciated faster compared to the Pula between the export order and delivery time, which is normally about two months. Therefore, the full settlement of payment on delivery of goods depreciation of importers currency meant more cost to importers .They also claim to have benefited in terms of lower cost of imports. However, other firms have created three accounts (Rand, Dollar and Euro) in order to mitigate the adverse effect of currency appreciation and depreciation. The explanation of the three producers on the advantage of having three accounts is the following. If a firm imports from the USA when Pula depreciates settlement of payment can be done using the dollar based account. If Pula appreciates, export to the USA will mean less Pula per unit of dollar. To mitigate against this scenario cash balances from the sale may be put in the dollar account. In this way, cross country fluctuations can be managed without incurring much loss.

8. Implications of Cost Structure

The cost structures of the exporting firms given in Table 10 show interesting patterns. On average, eighty seven percent of the cost is accounted by imported raw materials. Of the imported raw materials, SACU's share is relatively low, and works out to only sixteen percent of the total imported materials. The value added by labour is below ten percent. The payment for utilities works out to between three and four percent. Among the major utilities, electricity and telecommunications account for most of the expenditure. Since the processes involved in assembling and manufacturing of components do not require much water, expenditure on water is negligible. The lack of indigenous raw materials limits the scope for more value added in this sector. In the assembling unit, ninety one percent of the cost is accounted for by the imported kit. One striking feature of the cost data is that only one firm is seen to have procured inputs from local sources. However, the procured inputs from the local agent are imported from South Africa. All firms admitted that none of the materials needed by them are locally produced,although they

are willing to procure some of the raw materials from local area, such as seat cushions; car mattresses, headlights, etc; if they are of the right quality and right price.

Table 9: Cost Structure for firms in the sample

No. firms	Raw materials imported	Imports from SACU	Locally procured	Cost of labour	Electricity	Water charges	telephones
1	85.00	60	1.00	9.62	3.00	0.05	1.33
2	87.40	10	nil	10.00	1.80	0.02	0.15
3	87.40	nil	nil	9.5	2.00	0.001	1.05
4	91.00	10	nil	6.70	1.11	0.01	1.20
5	86.00	nil	-	10.60	2.00.	0.02	1.30

9. A Strategy for Development.

Automotive sector manufacturing for export heralds a new phase in the export diversification efforts of Botswana; although the volume, value and variety of these manufactured exports are relatively low. This is only natural to expect from an economy which is characterized by a relatively undiversified manufacturing production structure. As a consequence, the country remains a small player in this sector. However, it has to be underlined in this context that the entry into the export of manufactured goods has been made possible due to the increasing role of foreign investment. The local partners are also players in this new endeavor. The technology management has been undertaken exclusively by the foreign collaborators. The role of BEDIA and BDC has also to be appreciated as facilitators for attracting foreign investment and technology into this sector for export processing. Of the five exporters, three of them are nestled in niche markets, and one in assembly plant and other producing components for the technical management of Delphi. The total exports by these firms amounted to P500 million in 2003. Of the five firms, only two are getting the incentives provided by Motor Industries Development

Programme. Others were not eligible as they are not exporting outside .The direction of export is not confined to the SACU area. It remains diversified.

Our survey of the major exporters has suggested the advantages as well as disadvantages, of locating production in Botswana for export processing. Despite the disadvantages of a weak industrial base, the decision to locate the production/assembling base in Botswana has been prompted by several factors like political and macro economic stability, etc which are already well known to the outside world. However, in the specific context of automotive sector, two factors were listed by exporters. They are relatively low wage levels and availability of skilled labour. Available data on wage levels in the major producing countries in Southern Africa suggested that the falling wage levels in Botswana have been greater than other regional countries and it appears that the trend still continues.

The ‘acquired advantages’ of skill availability has been the outcome of state sponsored investment in technical education in the automotive trades. The productivity of workers, according to the exporters, is fair, although exporters voiced their anxiety and fear regarding the impact of HIV/AIDS on future labour turnover and productivity.

The major disadvantages imposed from the supply side are the high utility and transport costs, lack of export incentives, delays in obtaining work permits and land allocation, etc, which we have discussed in greater details in the above sections. The challenge is taking advantage of the dynamic comparative advantage: can Botswana further enlarge and deepen the sector? If so, what are the strategic measures towards this end? The following strategic issues deserve particular attention in this context.

Enlarging the sector involves attracting more producers and assemblers into the sector for final processing. This means a transformation from the status of a marginal player to a dominant one, which may be difficult in the short run. The country has to build upon the already acquired advantages. It is important to develop a broad based aggressive strategy to woo firms in the producer countries for final assembling and also producing for the niche markets which could involve export to the regional SACU and SADC markets and

the rest of the world appears a right step forward in this direction. With the already established reputation for assembling and also manufacture of auto parts, it should be relatively easier to attract a leading assembler to Botswana. This is because in the automotive industry the assembling sector appears to be the most competitive as it uses skilled labour, developing countries struggle to attract assembling plants to utilise the skilled labour. Needless to say, this involves careful planning and identification of the world leaders in the automotive sector and the strategies needed to attract them to Botswana. The types of skills needed for the manufacturing and assembling operations as we have seen, are already available in the country. Since the manufacturing and assembling process consumes very little water, it is an appropriate alternative strategy for industrial development in a country where water is a scarce commodity.

The two important agencies involved in facilitating and coordinating export promotion, BEDIA and BDC, have to play a proactive role by reviewing the existing international scenario in auto assembling and component manufacture, also taking into cognizance the lessons of other countries which have been providing assembling facilities and undertaking ancillarisation and subcontracting of component manufacture for transnationals in the auto sector to develop production linkages. This may be followed by a plan to develop production platforms, which involves not only quality infrastructure but also an incentive structure that may enlist long term commitment by assemblers and producers. As we have already seen in the above sections, the major bottleneck in this sector appears to be high utility costs and inadequate structure of incentives when compared to competitors in the region. The critical issues for a comparative assessment like how adequate the available infrastructure and incentives are, appear important in this context. In what ways it needs to be upgraded? There is an issue of reducing overland transport costs by inducing producing resorting more to Walvis Bay than Durban. The longer and more expensive road route is still being preferred by transporters. Walvis Bay has not attracted significant volumes of import / export traffic .What are the strategies to market this transport corridor as an alternative to Durban? May be a multipronged

strategy is necessary, as suggested by IMPACT (2003)⁵ Though this appears a general issue, we feel the future of automotive sector assembling and production very much depends on easing the transportation cost. There are also issues of a regulatory type, such as work permits and bureaucratic delays which are viewed as major obstacles. These are areas of major concern to the producers. It is, therefore, important that the government address these issues as fast as possible. Needless to say, there is need for policy thrusts to be put in place at the firm level, such as measures for dealing HIV/AIDS about which we discussed earlier.

The automotive sector is undergoing rapid change, not only organizational but also technological. Such changes are triggered by product differentiation and flexible production systems that involve new innovations, cosmetic as well as fundamental. This means that Botswana has to develop higher order skills in basic areas such as auto electronics and control systems, instrumentation, mechanical and electromechanical skills. The present advantage of automotive skills may need be complemented by higher order skills if the broadening of this sector is being prioritised for future development.

Another major component of the strategy should be further deepening of the sector by integrating assembling with local procurement of components and parts. As we have seen in earlier sections, a manufacturing base for export already exists; although, it is very narrow. Strategy should be developed to integrate with the assembling some components by deepening the production base through product additions. As we have seen earlier in the above sections, the value added by labor appears the only contribution of this sector. The manufacturing production structure is not generating the linkage advantages of backward integration as there is no local procurement. This appears a major challenge for further expansion of exports from this sector. The strategies of sharing in some areas of production and developing thereby a degree of complementarity with the firms from producer countries is therefore important. This complementarity in the production and

⁵ The IMPACT report underlines the major task ahead, such as changing the negative perceptions in respect of cost and reliability, changing the resistance to change by transporters, security from stray animals on the roads, enforcement of axle load limitations, better services along the route, better road condition, etc.

assembling can be enhanced by developing linkages. Globally, the Production systems of transnational enterprises are evolving towards involving linkage opportunities for small and medium enterprises. The country must also strive for niches where it can produce some of the components. Towards this end, market research may be undertaken to confirm the potential items to be manufactured in consultation with existing and potential assemblers to assess partnership and linkage opportunities for national investors.

10. References

1. BIDPA (2003), "Situation Analysis to Assist in the Development of a National Export Strategy for Botswana", Gaborone, Botswana.
2. BIDPA (2003), "Manufacturing Sector in Botswana: A Profile of Issues for Further Research", Gaborone, Botswana.
3. B&T Directories (2004), "Botswana Review of Commerce and Industry" Gaborone, Botswana.
4. Botswana Export Development and Investment Authority (2003), "Viability and Competitiveness of Garment Textile Sectors in Botswana", Gaborone, Botswana.
5. Central Statistical Organization (2001), Trade Statistics for Botswana, Gaborone, Botswana.
6. Impact (2003), Trans Kalahari Corridor, A Report by USAID/RCSA sponsored project, Stanton, South Africa.
7. International Trade Administration Commission of South Africa (2003), "Motor Industries Development Programme", InfodocD/2003, Gaborone.
8. Morales, Rebecca (1994) Flexible Production: Restructuring the International Automobile Industry, Polity Press, Cambridge.

9. Ocampo, Jose Antonio (1994), Trade Policy and Industrialization in Columbia, in G.K Helleiner (ed), Trade Policy and Industrialization in Turbulent Times , Routledge, London.
10. Rosenberg, Nathan (1986) “Perspectives in Technology”, Cambridge, Cambridge University Press.
11. Rubenstein (1992), “Changing Auto Industry, a Geographical Analysis”, Routedge, London.
12. Statistics South Africa (2003), Labour Force Survey, Office of CSO, Pretoria
13. South African Reserve Bank (2002), Incentives for Industrial Development in South Africa, Johannesburg.
14. UNIDO://www:unido.org/country/stats/staYableD.cfm
15. UNCTAD (2003), Investment Policy Review Botswana, New York and Geneva.
16. World Bank (2003), World Development Indicators, Washington.

