

ESTABLISHING THE ROLE OF THE PHILIPPINE AUTOMOTIVE INDUSTRY IN THE EAST ASIAN PRODUCTION NETWORK: IDENTIFYING INDUSTRIAL ADJUSTMENT POLICIES THAT WILL FURTHER ENHANCE PARTICIPATION IN THE NETWORK AND RESPONDING TO THE CHALLENGES POSED BY CHINA'S EMERGING AUTOMOTIVE INDUSTRY¹

Roberto B. Raymundo

I. INTRODUCTION

A. Integrating the Local Automotive Sector within the International Production Network

One of the major industries that had successfully adopted both the regional as well as the global approach towards locating its production facilities and exploiting locational advantages is the automotive industry which has been predominantly driven by multinational corporations (MNCs) originating from the United States, Japan and Germany. The expansion of the production activities of these MNCs, particularly those originating from Japan, into the economies of East Asia over the past two decades have been primarily responsible for the creation of international production networks which continue to influence the extent of industrial development in the region. The international production networks in the automotive sector have made substantial contributions to East Asian economies in the form of foreign direct investments (FDI) to the host countries, creating new jobs and increasing production, establishing linkages by integrating local firms into their supply network and raising the level of production technology being used within the firm as well as with contracted local supplier companies in order to continually prepare for the challenges brought about by intense competition within a liberalized global trading environment.

Regional production networks set up by Japanese MNCs have been known to be one of the strongest and most efficient because of its ability to exploit the advantages behind the division of labor, just in time delivery logistics and workplace organization (Nagao, 2002). They

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have a dominating presence in the Southeast Asian region because of their early investment in regional production facilities and most of these have taken the form of partially owned plants, licensed assembly deals and technical assistance agreements (MacKnight, 1997). The Philippines currently hosts five of these major Japanese automotive manufacturers that have established assembly operations and parts factories in the country's industrial zones, and at the same time have brought in their respective affiliated parts suppliers within the Southeast Asian region.

Aside from Japanese firms, the country also plays host to three major automotive firms from the United States who have entered into joint ventures with local partners. However, unlike the Japanese firms which have been localizing production for the past several years, the joint ventures with American companies at best only assemble completely knock down units (CKD), or simply go into the domestic distribution of imported completely built up units.

The Philippines's participation in an international or regional production network in the automotive industry is necessary because it will ensure the survival or viability of its own automotive sector which is currently constrained by a relatively limited domestic market. Being part of an international production network provides a ready, captive, and in most cases, steady demand for its output. This considers the fact that the intermediate components the country produces forms an integral part of the MNC's final product being manufactured in some other economy within the network. If there is a strong demand for the final product within and outside of the region where the international production network is based, the participation of countries in the network as significant contributors to the value added being generated at each stage of production is strengthened.

Being a significant contributor within an international production network, whether it be global or regional provides major advantages that would serve developing economies well under an intensely competitive and very liberal trading environment. Providing higher value added parts and services within the network creates new jobs, opens opportunities for new investments, increases access to larger export markets, and new technologies. In addition, it also gives the country the opportunity to move up the network further in order to continue upgrading existing production facilities and provide higher end products in the medium and long term. The production of higher value added parts and services generates more income for host countries which puts it in a better position to achieve its development goals.

However, countries which are part of these existing networks cannot always expect to stay firmly entrenched in their current positions because of dynamic changes which are occurring in the competitive global economy. Flows of FDI (which are responsible for establishing the networks) have been known to shift towards countries which provide better location advantages, have good macroeconomic fundamentals, large domestic markets, cheap production inputs, reasonably priced skilled labor, attractive investment incentives, efficient export processing zones, adequate infrastructure, excellent logistical services and a stable political environment. In addition, external shocks similar to the Asian financial crisis of 1997 had influenced the movement of portfolio and FDIs into countries with more stable macro-economies.

The completion of new trade and investment agreements either under a bilateral, regional or multi-lateral arrangement may also contribute to the shifting direction of investments. And most recently, the accession of China to the WTO has already diverted a substantial amount of FDI coming from Japan, the U.S. and Europe because of the enormous potential offered by its market made up of 1.5 billion people, its large production base and low cost labor. These investments could have gone into one of the member countries in ASEAN but have found the potential offered by China's domestic market to be more attractive.

In view of these factors which may influence movements in FDIs, host countries must be aware of the necessary adjustments which need to be made on industrial policy in order to ensure that their position within the international production network can be further entrenched, strengthened and consequently upgraded so that they can continue to maximize the benefits from participation.

B. Framework

International production and distribution networks generally consist of vertical production chains extended across the countries in the region as well as distribution networks throughout the world with the major players being corporate firms belonging to the machinery industries including general machinery, electrical machinery, transport equipment and precision machinery, as well as electronics, computers, semi-conductors textiles, garments and many other products (Ando & Kimura, 2003).

International, regional or global production networks are the international systems set up to optimize production, marketing and innovation by locating products and processes or functions in different countries to benefit from cost, technological, marketing, logistic and other differences which create advantages for MNCs competing in international markets (Lall, Albaladejo & Zhang, 2004). A conventional global production network combines a large multi-divisional MNC a.k.a., flagship., its subsidiaries, affiliates and joint ventures, its suppliers and subcontractors, its distribution channels and value added resellers, as well as its research and development alliances and a variety of cooperative agreements, such as standards consortia (Ernst, 1997 and Sloan, 2000).

Trade theorists call the process 'fragmentation' (Arndt & Kierzkowski, 2001), while others call it 'segmentation', 'production sharing', 'integrated production', 'outward processing', or 'vertical specialization' (Borrus et al, 2000). The firm (i.e., flagship) breaks down the value chain into a variety of discrete functions and locates them wherever they can be carried out most effectively, where they improve the firm's access to resources and capabilities, and where they are needed to facilitate the penetration of important growth markets (Ernst, 1997) and (Sloan, 2000). Intra-regional trade in East Asia is increasingly characterized by 'production sharing', defined as the decoupling of previously integrated goods into constituent parts, components and accessories which in turn are distributed across countries on the basis of comparative advantage (Ng & Yeats, 1999). The main purpose is to gain quick access to lower-

cost foreign capabilities that are complementary to the flagship's own competencies. Outsourcing allows firms to focus on core business and improve efficiency (Ernst, 1997 and Sloan 2000).

While retaining their core competencies, MNCs are setting up international production systems on the basis of corporate strategies that seek to obtain the optimal configuration of their manufacturing processes by spreading production to locations that offer significant advantages in production costs and access to third markets (UNCTAD 2002). Fragmentation plays a growing role in industrial activity in some developing countries, particularly in technology advanced activities and for economies participating in an international production network, the effects on production, employment, exports and technological upgrading have been fairly dramatic (UNIDO 2002).

Arndt (2003) explains that the fragmentation of the production process through cross-border production sharing, or cross-border production fragmentation and intra-product specialization, has received a major boost from recent innovations in communications and transportation technologies and from market-opening challenges in trade and regulatory policies. As a result, the cost of coordinating economic activities across national frontiers has declined precipitously in recent years and manufacturers have responded by breaking up the production process and moving its constituent activities abroad, producing components and locating assembly in accordance with the dictates of comparative advantage.

Many companies utilize cross-border sourcing of components in order to increase competitiveness in markets for the final product. If a component can be obtained at lower cost from a foreign source, then the cost-savings can either be passed on in lower end-product prices, hence garnering larger market share, or be collected in higher profits at given prices. However, a country does not have to be the producer of an end product in order to reap the benefits from cross-border production sharing. Indeed, one of the attractive features of production sharing is that it facilitates a finer division of labor and thereby enables more countries to benefit from participation in global production networks. This can be especially valuable for economies trying to move up the value chain in international trade (Arndt 2003).

Rajan (2003), explains that another important feature of production sharing is that by reducing the costs of manufacturing a product, it makes the entire set of countries that participates in the integrated production system more attractive as export markets. In the same manner the countries become more attractive investment destinations and this is a mutually beneficial outcome for all participants. Lower income developing economies are not only able to gain comparative advantage in lower-end light industries, but also in the lower-end production stage of higher-tier industries. Middle and higher income developing countries are able to graduate to higher ends of the value added chain, i.e. more advanced stages of the Original Equipment Manufacturing (OEM) and eventually into the Original Design Manufacturing (ODM) phase. Countries could also move horizontally, in effect, improving product quality and serving higher value added market segments. This may evolve into Original Brand Manufacturing (OBM) which essentially involves moving from selling under a foreign label to

developing and selling under their own label, hence allowing them to capture brand name rents. Hong Kong has done this effectively in the case of apparels, with many labels being produced by Hong Kong brands. Other economies in the Asia Pacific region are developing their own “brand names” in computers and electronics.

High-wage countries tend to be at a competitive disadvantage in labor-intensive production activities. Continuing such activities increases production cost and reduces competitiveness. Modern technology enables firms to improve and maintain competitiveness by dispersing labor-intensive activities to labor-rich, low-wage locations. In the absence of cross-border fragmentation, rising wage costs would cause domestic firms to lose market share at home and abroad, as imports of competing products rise and exports of the home product fall. Cross-border sourcing enables firms to slow if not, reverse that process (Arndt 2003).

C. The Philippine Automotive Industry

The importance of establishing a viable and progressive automotive industry has long been recognized by the government as essential in hastening industrial development in the country. The implementation of several development programs in the automotive industry officially began in 1972 and special attention was given to the production of vehicles because of the industry’s ability to create backward and forward linkages, downstream industries and upstream services which are essential for developing an economy’s capacity to produce both intermediate and finished goods with high value added and the creation of new jobs that could significantly contribute to the reduction of unemployment. The linkages are expected to go a long way towards developing upstream industries such as plastics, rubber, metals and composite materials, machinery, chemicals and the electrical and electronics industries. The development of the motor vehicle industry was envisioned to significantly reduce the amount of foreign exchange used (by reducing imports of completely built-up [CBU] units) and increase the amount of foreign exchange being generated through exports of automotive parts. The foreign exchange, which is either saved or generated, was expected to improve the country’s balance of payments position.

However, compared to Thailand and Malaysia, the automotive industry in the Philippines has achieved relatively limited success in terms of producing a competitive motor vehicle and creating linkages in the local automotive parts sector. Although passenger cars and commercial vehicles manufactured in the Philippines may not be as competitive as their Thai and Malaysian counterparts, there is a lot of growth potential in the parts and components manufacturing sector in this country as reflected by its strong export performance over the past few years. Identifying the automotive parts and components where the country is competitive will help establish a market niche for the Philippines so that it can consequently become the production base for these products initially within ASEAN and ultimately in the entire Asia Pacific region.

The various industrial policies used during the past five decades began with the implementation of government programs that concentrated on import substitution, thereafter

shifting towards promoting exports of automotive parts, consequently to the development of the ASEAN complementation program and lately, the plan towards exporting CBU within an ASEAN trading environment subject to a zero to five percent tariff rate effective in 2004 under the Common Effective Preferential Tariff (CEPT) scheme. For the Philippines, the ASEAN Free Trade Area (AFTA) agreement and increasing globalization due to increased trade and FDIs will present both opportunities and risks to the local automotive industry. The opportunities would come from the effects of a bigger market and liberalization combined with the cost advantages that automotive firms in the country might offer. The risk pertains to the possibility of the automobile industry's failure to adjust and compete in a more liberal trading environment leading to the closure of firms in both the motor vehicle parts and components manufacturing sector as well as in the motor vehicle assembly sector itself (Aldaba 2000).

II. BACKGROUND ON THE LOCAL AUTOMOTIVE INDUSTRY

The Department of Trade and Industry (2004), reports that during the past ten years, the motor vehicle industry's contribution to output, employment, investments and exports have been increasing and the synergy within the industry has strengthened the linkages between motor vehicle assemblers and the motor vehicle parts and components manufacturers. The automotive industry represents a significant portion of global economic activity with extensive upstream and downstream linkages to many diverse industries and sectors.

The industry is composed of two sectors namely: motor vehicle assembly and motor vehicle parts and components manufacturing. The motor vehicle assembly sector is composed of firms, which assemble passenger cars, commercial vehicles (utility vehicles, pick-ups, vans, trucks, buses and special purpose vehicles) and motorcycles. The number of participants in each of the three motor vehicle assembly categories and their total production capacity as of February 2003 is presented below (see Table 1).

Table 1: Number of Participants in Motor Vehicle Assembly and Capacity

Categories	Number of Participants	Total Capacity
Passenger Car Assembly	14	221,450 units / year
Commercial Vehicle Assembly	21	145,950 units / year
Motorcycle Assembly	21	462,100 units / year

Source: Department of Trade and Industry Report, February 28, 2003

Currently, the industry is operating only at 40 percent of its total capacity due to the slowdown in demand caused by the Asian Financial Crisis. Most of the firms in the assembly sector are Japanese manufacturers namely: Toyota Motor Phils. Inc., Honda Cars Phils., Inc., Mitsubishi Motors Phils., Corp., Nissan Motor Phil., and Honda Phil., Inc. The other manufacturers are Ford Motor Co., Phil., Columbian Autocar Corp., Pilipinas Hino Inc., and Norkis trading company.

Table 2 shows the major assemblers and their corresponding ownership structures (foreign and local) as well as investments and employment as of February 2003:

Table 2: Ownership Structures, Initial Investments and Employment

Assemblers	Ownership (in percent)	Investments (in billions of pesos)	Employment	
Toyota Motor Philippines	Filipino	60.0	4.9	1,435
	Japanese	40.0		
Honda Cars Philippines, Inc.	Japanese	74.2	3.8	1,014
	Filipino	25.8		
Mitsubishi Motors Phils.	Japanese	100.0	1.2	1,338
Isuzu Motor	Japanese	70.0	2.0	900
	Filipino	30.0		
Nissan Motor Phils.	Filipino	60.0	1.9	541
	Taiwanese	30.8		
	Japanese	9.2		

Source: Department of Trade and Industry Report, February 28, 2003.

Toyota Motor Phil. Corp. has consistently maintained its position as the largest selling manufacturer for both passenger cars and commercial vehicles. Its market share of a little over 28percent for 2000 and 2002 is the largest in the industry and despite a slight drop to 25.9percent in 2001, it has been enough to still keep its position as the top selling automotive assembler. By 2003, it was able to capture 30percent of the market further securing its top ranked position. Mitsubishi Motor Phil. Corp. has consistently stayed at the second ranked position from 2000 to 2002, while Isuzu Phil. Corp. and Honda Cars Phil. Corp. are at the third and fourth ranked positions. The market shares of these two firms differ by a little more than a percentage point with Honda Phil. Corp performing better in 2002, being the fourth largest seller in the industry. Honda Phil. Corp. continues to increase its market share, consequently reaching 17percent by 2003. The market shares for the major automotive assemblers are presented in Table 3:

Table 3: Market Shares of the Major Automotive Assemblers
(in percent.)

Major Firms	2000	2001	2002	2003^a
Toyota Motor Phil. Corp.	28.6	25.9	28.9	30.0
Mitsubishi Motor Phil. Corp.	19.2	22.1	19.0	18.0
Isuzu Phil. Corp.	15.1	13.6	14.0	14.0
Honda Cars Phil. Corp	14.9	12.2	15.8	17.0
Nissan Motor Phil. Inc.	7.1	10.8	8.9	9.0
Ford Motor Co. Phil. Inc.	7.0	6.9	4.9	5.0
Others	8.1	8.5	8.5	7.0

Note: ^aInitial estimates for 2003; Source: Board of Investments

Based on the estimates for 2004 and the first two months of 2005, Toyota Motor Phil. continued to lead the industry in terms of sales by registering market shares of 33.15 and 32.62 percent respectively for the above-mentioned years. Mitsubishi Motor Phil. follows with the second largest market shares at 14.44 in 2004 and 15.61 percent for 2005. Honda Cars Phil. had the third largest market share in 2004 at 11.98percent; however, this had dropped to 10.79 percent during the first two months of 2005, falling behind Isuzu Phil. Corp. which reflected a market share of 12 percent. The market shares of the other automotive assemblers for the years 2004 and 2005 are presented as follows see Table 4.

Table 4: Market Shares of the Major Automotive Assembler, 2004 and Jan-Feb 2005
(in percent)

Major Firms	2004	Jan-Feb 2005
Toyota Motor Phil. Corp.	33.15	32.62
Mitsubishi Motor Phil. Corp.	14.44	15.61
Isuzu Phil. Corp.	10.51	12.00
Honda Cars Phil. Corp.	11.98	10.79
Nissan Motor Phil. Inc.	6.50	4.31
Ford Motor Co. Phil. Inc.	8.31	10.48
Others	15.11	14.19

Source: CAMPI

The largest number of passenger cars sold was 79,673 units in 1996. After the Asian Financial crisis, passenger car sales dramatically declined from 69,070 units in 1997 to 21,728 units in 2002. Commercial vehicles also experienced a decrease in sales during the onset of the Asian Financial Crisis, from 58,815 units in 1996 to 35,769 units in 1998. However, it performed relatively better compared to passenger cars as it began to show signs of recovery as sales increased to 52,968 units in 2001 and 63,858 units in 2002. Motorcycle sales exhibited a trend similar to commercial vehicles. Highest sales were recorded in 1997 at 225,138 units followed by a decline to 168,254 units in 1999, and consequently showing signs of recovery in 2001 and 2002 with 230,000 and 226,959 units respectively. Domestic sales for passenger cars, commercial vehicles, and motorcycles (in number of units) are presented in Table 5 below:

Table 5: Domestic Vehicle Sales, 1995-2003^b

Year	Passenger Cars	Commercial Vehicles	Motorcycles	Total
1995	65,808	53,392	126,956	246,156
1996	79,673	58,815	177,849	316,337
1997	69,070	51,418	225,138	345,626
1998	32,134	35,769	170,571	238,474
1999	25,130	39,505	168,254	232,899
2001	23,684	52,968	230,000	306,670
2002	21,728	63,858	226,959	312,545
2003 ^b	24,450	67,886	240,849	333,185

Note: ^aFigures include only locally assembled vehicles

^bInitial estimates

Source: CAMPI

From 2001 to 2003, the combined sales of passenger cars and commercial vehicles have been rising from 76,652 units to 92,336 units (see Table 6). A reduction in the combined sales was recorded in 2004 at 88,075 units. However, it is interesting to note that this decline was attributed to a drop in the sales of commercial vehicles at 54,798 units from 68,015 units in 2003. Passenger car demand on the other hand continued to recover as sales in 2004 increased to 33,277 units from 24,321 units in 2003. Presented below are the sales figures for the mentioned period including the first two months of 2005.

Table 6: Combined Passenger Car and Commercial Vehicle Sales, 2001- Feb. 2005

<u>Year</u>	<u>Passenger Cars</u>	<u>Commercial Vehicles</u>	<u>Total</u>
2001	23,684	52,968	76,652
2002	21,728	63,859	85,587
2003	24,321	68,015	92,336
2004	33,277	54,798	88,075
2005 (as of Feb)	5,320	8,012	13,332

Note: Figures include only locally assembled vehicles

Source: CAMPI

At present, the automotive parts manufacturing sector (including motor cycle parts) is the country's third largest industry, topped only by electronics and garments. The parts and components manufacturing sector is made up of 256 companies producing various parts and components made of metals, plastic, rubber and composite materials for both the original equipment manufacturers OEM and replacement markets.

The metal working sector, which comprises about 48percent, is the biggest bloc with 84 parts manufacturers. The second largest group is the rubber product manufacturers and the third largest group is the seat and trims parts makers. The marketing and distribution of parts vary for different target markets. Among local parts manufacturers, there are three target markets: the local OEM vehicle assemblers, the local replacement market and the export market where some companies differentiate between the US market and the rest of the world. The OEM parts market is very attractive to the parts makers because of the regular volume of business and the access to the parts manufacturing technology and production management systems which the assemblers can and do provide to their vendors (Department of Trade and Industry 2004).

In the automotive parts manufacturing industry, approximately 92 types of local parts were integrated into the high volume car models in the Philippines and a list of these parts our found in Table 7 below:

Table 7: List of Local Parts

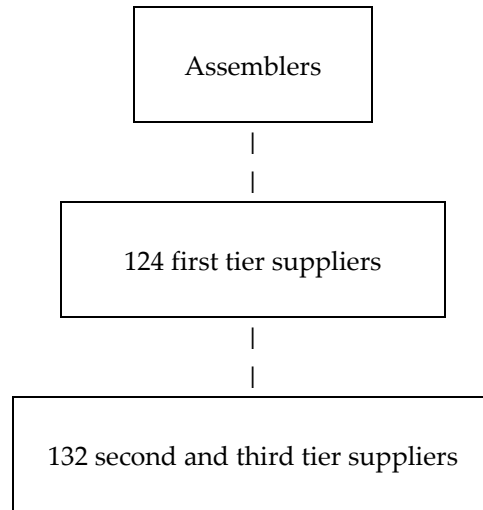
No.	Part Name	No.	Part Name	No.	Part Name
1	Flywheel	32	Aluminum Wheels	63	Room Partition Board
2	Exhaust Manifolds	33	Tires	64	Quarter Trim Penel
3	Oil Dip Stick	34	Small Metal Brackets	65	Roof Headlining Support
4	Rubber Hoses	35	Batteries	66	Trunk Matting
5	Radiator and Cap	36	Seat Covers	67	Door Opening Trim Mould
6	Radiator Shroud	37	Front Seat Assembly	68	Center Pillar Garnish
7	Alternators and Diodes	38	Front Seat Cushion	69	Torsion Bar Cover
8	Interior Lamps	39	Front Seat Back	70	Lower Radiator Shroud
9	Wiring Harnesses	40	Head Rest	71	Disc Brake
10	High Tension Cables	41	Rear Seat	72	Brake Drums
11	Fusible Links	42	Rear Seat Cushion	73	Brake Tubes
12	Battery	43	Rear Seat Back	74	Brake Hoses
13	Horn	44	Rear Seat Stop	75	Clips and Clamps
14	Transmission Case	45	Rear Seat Back Striker	76	Exhaust Pipes
15	Clutch and Housing	46	Rear Seat Back Board	77	Mufflers
16	Gears and Shafts	47	Seat Track	78	Fuel Pipes
17	Clutch Pedal	48	Seat Track Open Lever	79	Clamps
18	Forgings	49	Wire	80	Brackets
19	Coil Springs	50	Arm Rest and Visor	81	Radiator Grille
20	Strut Insulator	51	Assist Grip	82	Door Weatherstrips
21	Brushings and Rubber Parts	52	Battery Carrier	83	Qtr. Window Weatherstrips
22	Coil Springs	53	Moulding	84	Trunk Weatherstrips
23	Bound Bumper	54	Stripe	85	Windshield Weatherstrips
24	Hub Cap	55	Emblem and Name Plate	86	Backlite Weatherstrips
25	Pedal Pad	56	Rear License Plate Bracket	87	Hood Seal
26	Brake Pedal Assembly	57	Roof Cover and Moulding	88	Window Glass Run
27	Windshield	58	Mat and Silencer Pad	89	Radiator Hoses
28	Backlite	59	Carpet and Silencer Pad	90	Small Rubber Pipes
29	Front Door Glass	60	Roof Headlining	91	Torsion Bar
30	Rear Door Glass	61	Trim Board	92	Fuel, oil and air filters
31	Qtr. Panel Glass	62	Package Tray Trim Panel		

Source: Gimenez, Antonio A. "An Assessment of the Automotive parts Manufacturing Industry in the Philippines", Manila, 1995.

A. Automotive Assemblers and Supplier Structure

From the 256 companies, there are 124 first tier suppliers (those who directly supply the auto assemblers) and 132 second and third tier suppliers, who provide raw materials or accept sub-contracting arrangements with the first tier suppliers (see Figure 1).

Figure 1: Automotive Assemblers and Supplier Structure in the Philippines



Out of the 256 automotive parts manufacturers in the country, 103 are members of the Motor Vehicle Parts Manufacturers Association of the Philippines (MVPMAP) wherein, exactly 70 percent of these members are small to medium scale enterprises while the remaining 30 percent have multinational affiliations. Some of the auto parts makers who are not members of the MVPMAP are suppliers from Japan that were brought in by the multinational assemblers (Villadolid, 2004). The 256 firms are distributed as follows: metalworking – 48percent, rubber – 15percent, seats and trims – 10percent, plastics – 9percent, electrical – 8percent, and others – 10percent. The components sector currently manufactures about 330 parts including the following: 1) suspension: tires, steel rims, aluminum wheels, leaf and coil springs; 2) interior: carpets and seats; 3) electrical system: wiring harnesses, batteries, lamps and relays; 4) pressed components: mufflers, radiators, seats, frames, seat adjusters, oil and air filters, pedals; 5) rubber and plastic components: fan belts, rubber hoses and small plastic parts; 6) mechanical parts: transmission, engine parts, etc. ; 7) cast and forged components: gear blanks, brake disks, brake drums (Jose, 2005).

The principal components manufacturers in the country are Yazaki Torres Manufacturing Corp., and United Technologies Automotive Phils. (for wiring harnesses), Temic Automotive Phil., Inc., for anti-brake lock systems., Honda Engine Manufacturing Phils. Inc., (for engines) Asia Transmission Corp., and Toyota Autoparts Phils. (for automotive transmissions), Fujitsu Ten Corp. of the Phils. (for car stereos.) and Aichi Forging Co., Inc. (for forged parts).

Yazaki Torres Manufacturing Corp., is the leading firm in the Philippines which produces wiring harnesses and exports these items to the United States, Japan and European markets. The company is a Filipino (60 percent) and Japanese (40 percent) joint venture which generates an average of \$170 million worth of exports per year. It also manufactures battery cables, PVC electrical tapes and ignition cord sets, which are also integral parts of the wiring harness. It exports roughly 58 percent of its output to the United States, 28 percent to Japan and

10 percent to Europe, with its major customers being Ford, Mazda and Mitsubishi Motors in Detroit, Ford-Jaguar in Europe and Toyota, Mazda, Honda and Nissan in Japan (Torres 2004).

B. Location Clusters

Salazar (2004) provides a description of the size and location of the automotive assembly plants in the Philippines, particularly those located in the Laguna and Rizal provinces. Laguna, which is located in the southern region of the island of Luzon plays host to the majority of automotive assembly plants in the Philippines. Sta. Rosa, Laguna hosts the assembly plants of Ford, Isuzu, Honda, Nissan, Toyota, Star, Columbia Motors and several other automotive parts and components manufacturers. Ford Philippines has a P4.0 billion, 30,000 square meter production facility in the area, which has an optimal production capacity of 30,000 units annually. Toyota Motor Philippines has a 47,000 square meter production facility which can produce 25,000 units (of Corolla Altis, Camry and the old Corolla) per year, while Toyota Autoparts Manufacturing maintains a plant which has a size of 28,083 square meters and a production capacity of 200,000 units of G-type transmissions for Hilux and Hiace models and constant velocity joints (for Corolla) per year. Toyota Motor Philippines also operates a 39,000 square meter assembly plant in the Bicutan area which produces its sports utility vehicle, the Toyota Revo.

Sta. Rosa is home to another automotive company, Columbia Motors, as well as several industrial parks such as the Santa Rosa Business Park, Meridian Industrial Complex, Greenfield Development and the Laguna Technopark developed by the Ayala Group with two Japanese partners namely: Mitsubishi Trading Corp. and JFE Steel Corp. (formerly Kawasaki Steel Corp). The Laguna Technopark has a total land area of 400 hectares which currently has 108 locators, of which car assemblers and auto part suppliers account for 32 percent of the total sold area. Exactly 92.35 hectares of the area belong to the automotive sector (Abadia, 2004).

Located within the Laguna Technopark are Honda Car Philippines, Isuzu Philippines and Star Motors, along with 25 other automotive parts and components manufacturers which produce audio systems, brakes, airbags, seatbelts, clutch assemblies, vacuum florescent displays, plastic ventilators, seat fabrics, car seat assemblies, stamp metal parts, auto seat recliners and clutch and brake parts. Upon its entry into the local automotive industry, Honda Car Philippines also brought in its own support groups that produce major parts and components and are currently under the Philippine Economic Zone Authority. Roughly 70 percent of the parts and components made by these support groups are exported, while 30 percent go directly into the local assembly operations of Honda Cars Philippines. Isuzu Philippines currently has a 131,622 square meter production facility in the Techno Park, which it uses to produce CBUs that are shipped to selected countries in South America, and completely knocked down units which it exports to Vietnam.

The only major multinational car manufacturer which continues to maintain operations outside the Laguna industrial parks area is Mitsubishi Motors Corporation. It currently has a 190,000 square meter production facility located in Cainta, province of Rizal, which began

operations in 1964 and is the oldest and largest assembly plant in the Philippines today. During the period beginning 2002 up to 2003, the firm had produced more than 30,000 units of passenger cars and commercial vehicles combined, and currently has a market share of roughly 19 percent.

The top markets for Philippine merchandise exports of motor vehicle parts are Japan, Thailand, Singapore, Vietnam, the Republic of South Africa and Taiwan. Exports of motor vehicle parts and components for the past nine years are presented as follows:

Table 8: Exports of Automotive and Motorcycle Parts, 1996-Jan. 2005
(in US dollars)

Year	Automotive Parts	Motorcycle Parts	Total
1996	830,821,492	141,112,357	971,338,849
1997	759,692,953	157,281,711	916,974,664
1998	375,387,641	877,905,470	463,093,111
1999	515,863,458	109,707,212	625,570,670
2000	1,012,143,721	34,000	1,012,177,721
2001	954,686,354	203,288	954,889,642
2002	1,166,590,681	96,028	1,166,686,709
2003	1,325,372,926	54,589	1,325,427,515
2004	1,756,514,694	0	1,756,514,694
2005 Jan	157,696,664	0	157,696,664

Source: Bureau of Export Trade Promotion

Supplying both the local auto assembly industry with OEM parts and the replacement parts market, the country' parts makers are also major contributors to the economy in terms of exports. The National Statistics Office (NSO) reports that export of automotive parts have been significantly rising during the past few years. From \$759 million in 1997, exports reached \$1.16 billion in 2002 and \$1.3 billion in 2003.

Except for the decline in exports during the year 2001 (at roughly -5.68percent), automotive parts exports have grown significantly by 22.20percent in 2002 and 13.61percent in 2003 surpassing the US\$1.3 billion level. From January to October 2004, exports have exceeded US\$1.08 billion, which is an improvement of 10percent over the same period in 2003.

Large volumes of Philippine automotive parts exports are wiring harnesses, which make up about half of the total parts exports. The largest parts maker in the Philippines is the Yazaki-Torres Company, which is primarily involved in the production of wiring harnesses with annual exports amounting to P170 million. The firm is a supplier to major Japanese carmakers like Toyota, Honda, Mitsubishi, Mazda, and Nissan and to American giant Ford. It also builds car instrumentation, batteries and cables. Both the government and the industry are keen on expanding the manufacture of products that can be exported. Japan is the industry's biggest client, taking 40 percent of total production, followed by the US with 26 percent and Germany 15 percent. (Department of Trade and Industry Report 2004).

Presented below (Table 9) are the total automotive exports of the Philippines from the year 2002 to 2004, with an itemized breakdown in terms of automotive electronics, transport equipment, motor vehicles, automotive parts, metal and other automotive parts, motorcycles and motorcycle parts and others. Positive export growth was recorded in 2003 for a majority of the automotive parts except of motorcycles, motorcycle parts and others. The highest export growth performance was observed for motor vehicles, which grew by 6.3 times its level in 2002, followed by other automotive parts at 34.69percent, automotive parts at 13.61percent and metal automotive parts at 12.67percent. Automotive electronics exports grew by 2.54percent over the same period. Export data for the years 2002 and 2003 cover a 12-month period beginning January up to December, while data for the year 2004 covers the period from January to October.

Table 9: Automotive Exports, 2002, 2003 and Jan.-Oct. 2004

FOB value in US dollars.

Commodity Group	January to December 2002	January to December 2003	Export Growth Rate 2002-03	January to October 2004
Automotive electronics	317,860,672	325,920,936	2.54	248,084,573
Transport equipment	1,298,591,923	1,574,892,246	21.28	1,264,250,860
Motor Vehicles	24,858,780	155,889,123	627.10	91,455,001
Automotive Parts	1,166,589,557	1,325,372,926	13.61	1,080,307,834
Metal Automotive Parts	1,116,968,186	1,258,536,657	12.67	1,024,057,582
Other Automotive Parts	49,621,371	66,836,269	34.69	56,250,252
Motorcycles	650,141	198,725	(69.43)	205,255
Motorcycle Parts	96,028	54,589	(43.15)	0
Others	106,397,417	93,376,883	(12.24)	92,282,770

Source: Bureau of Export Trade Promotion

C. Automotive Parts and Components Exports for the Years 2003, 2002 and 2001

Based on the latest figures released by the Bureau of Export Trade Promotion (BETP), the largest value of exports generated by the automotive parts and components manufacturing sector for the year 2003 was at \$533.080 million which came from the category of "other parts and accessories of motor vehicle groups 722, 781,782 and 783." This category of parts and components grew by 38.4 percent in 2003 and by 60.14 percent in 2002. The above mentioned category covers automotive parts and components which include the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

Electrical wiring harnesses is the second largest contributor of foreign exchange earnings in the automotive parts and components sector generating exports of over \$507 million in 2003, \$519.7 million in 2002 and \$492.46 million in 2001. Export revenues for electrical wiring harnesses grew by 7.72 percent in 2002, but declined by 2.40 percent in 2003, despite exceeding the \$500 million level.

The third largest export earner falls under the category of bumpers and parts thereof of motor vehicle groups 722, 781, 782 and 783 with sales of over \$4.020 million for the year 2003. This category had grown dramatically by 457.2 percent during the year 2003. Although export revenues were only at \$721.5 thousand in 2002 and \$588.5 thousand in 2001, this still reflected growth of over 29 percent during the said period.

The category of silencers and exhaust pipes was the fourth largest export earner in 2003, but relative to the bumpers and parts category, its export revenues were larger during the years 2002 and 2001. In 2003, this category produced exports which were slightly over \$2.5 million, growing at a rate of 30.57 percent. Growth was even faster during the previous year at 108.67 percent with exports exceeding \$1.96 million in 2002 from \$941.15 thousand in 2001.

The last category that had brought export earnings beyond the one million dollar level was for radiators which produced \$1.102 million in 2003. However, the performance of this product category had been on the decline, with exports decreasing by 45.36 percent in 2003. In the year 2002, radiator exports exceeded \$2.016 million, but this also reflected a significant decline of 50.24 percent as compared to the 2001 level of \$4.053 million.

The other remaining categories of the automotive parts and components sector produced export revenues below one million dollars. Overall, only three product groups had shown positive growth during the year 2003, while the remaining eight categories reflected negative growth performances during the same period. The year 2002 had shown more expansion in this sector with eight product groups registering positive growth rates and only three product categories reflecting negative growth. A complete description of the export performances of each of the automotive parts and components product groups is presented in Table 10 below:

Table 10: Philippine Automotive Parts and Components Exports, 2001- 2003
(FOB values in US dollars)

Parts and Components	2001	2002	Percentage Change	2003	Percentage Change
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	72.88	178.78	145.31	31.07	(82.62)
Electrical wiring harness for motor vehicles	482,462.60	519,724.36	7.72	507,254.85	(2.40)
Bumpers and parts thereof of motor vehicle groups 722, 781, 782 and 783 of other materials	588.52	721.52	29.18	4,020.31	457.20
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	0	79.16	0	68.39	(13.60)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	14,463.55	2,736.28	(81.08)	101.75	(96.28)
Radiators	4,053.51	2,016.93	(50.24)	1,102.11	(45.36)

Silencers and exhaust pipes	941.15	1,963.94	108.67	2,563.31	30.57
Clutches other than sub-item 7486001	167.82	463.28	176.06	0	0
Steering wheels	0	285.21	0	229.32	(19.60)
Other parts and accessories of motor vehicles 722, 781, 782 and 783	240,524.27	385,185.24	60.14	533,080.73	38.40
Seats used for motor vehicles	1,126.03	255.50	(77.31)	166.44	(34.86)
Radio broadcast receivers used in motor vehicles	0	0	0	0	0
Automobile tires, pneumatic, all sizes, new other than steel belted	0	0	0	0	0
Drive axles with differential, whether of not provided	0	0	0	0	0
Components and parts of suspension shock absorbers	0	0	0	0	0

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781, 782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

For the year 2004, the top export earners from the parts manufacturing sector continued to be:

- 1) electrical wiring harnesses at \$746.757 million.;
- 2) other parts and accessories of motor vehicles 722, 781 and 783 at \$ 655.472 million.;
- 3) radio broadcast receivers at \$74.375 million.;
- 4) silencers and exhaust pipes at \$3.867 million.; and
- 5) bumpers and parts thereof at \$1.225 million.

Although the above mentioned components had exceeded the \$1 million dollar level for exports, only the product categories for electrical wiring harnesses; other parts and accessories of motor vehicles 722, 781 and 783; and silencers and exhaust pipes had reflected positive growth in the year 2004. Electrical wiring harnesses grew by 47.22 percent, followed by other parts and accessories of motor vehicles 722, 781 and 783 at 22.96 percent and silencers and exhaust pipes at 50.88 percent.

Other parts and component product categories which reflected positive export growth in the year 2004 were: laminated safety glass, gear boxes, clutches, seats, and components and parts of suspension shock absorbers. However, these product categories had generated export revenues way below the 1 million dollar level. Presented in Table 11 are the export figures for 2004 including the preliminary estimates for January 2005:

Table 11: Philippine Automotive Parts and Components Exports, 2003- Jan. 2005
(F.O.B. values in US dollars)

Parts and Components	2003	2004	2005 Jan	Percentage Change
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	31.07	34.09	0.00	9.73
Electrical wiring harness for motor vehicles	507,254.85	746,757.59	65,968.19	47.22
Bumpers and parts thereof of motor vehicle groups 722, 781, and 783 of other materials	4,020.31	1,225.24	27.92	(69.52)
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	68.39	29.44	0.00	(56.95)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	101.75	164.67	0.00	61.84
Radiators	1,102.11	932.61	0.00	(15.38)
Silencers and exhaust pipes	2,563.31	3867.64	2,410.43	50.88
Clutches other than sub-item 7486001	0.00	683.56	0.00	
Steering wheels	229.32	97.67	0.00	(57.41)
Other parts and accessories of motor vehicles 722, 781, and 783	533,080.73	655,472.54	62,665.46	22.96
Seats used for motor vehicles	166.44	223.95	0.17	34.55
Radio broadcast receivers used in motor vehicles	98,472.80	74,375.32	3,326.75	(24.47)
Automobile tires, pneumatic, all sizes, new other than steel belted	0.00	0.00	0.00	—
Drive axles with differential, whether of not provided	0.00	0.00	0.00	—
Components and parts of suspension shock absorbers	0.00	0.37	0.00	—

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781, 782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

D. Automotive Parts and Components Imports for the Years 2001-2003

Data on automotive parts and components imports covering the same product categories generally reflected an increasing trend for the year 2003. This is directly in contrast to the experience of the majority of product categories under automotive parts and components exports. For the year 2003, ten product groups had shown positive import growth, while only five product categories reflected negative growth.

The largest value of imports for the year 2003 can be attributed to the product category "other parts and accessories of motor vehicle groups 722, 781, 782 and 783" which showed imports of over \$295.78 million. This reflected growth of 36.74 percent compared to the 2002 level of \$216.314 million. Import growth during 2002 was also rapid at 23.66 percent, from an initial level of \$174.928 million in 2001.

The second largest imports were registered by the product category of gear boxes of motor vehicle groups 722,781,782 and 783 with import values exceeding \$24.557 million. This figure reflected a reduction of 20.95 percent from an initial level of \$31.066 million in 2002. Import values in 2001 were at \$29.040 million, which increased by 6.98 percent going into the year 2002.

Imports of electrical wiring harnesses for motor vehicles were the third largest at \$8.802 million. However, this amount actually reflects a reduction of 10.06 percent compared to the previous level of \$9.787 million in 2002. On the other hand, imports in this product category grew by 38.57 percent in 2002, from an initial level \$7.063 million in 2001.

The fourth largest imports were attributed to “other parts and accessories, nes of bodies including cabs.” of motor vehicle group 722” at \$8.367 million. Imports under this product category grew by 36.48 percent in 2003 and 27.44 percent in 2002. During the year 2001, import values were a little over \$4.791 million and continued to expand over the next two years.

Three other product categories had imports over the one million dollar level during the year 2003 and these were namely: steering wheels (at \$1.821 million), radiators (at \$1.715 million) and bumpers and parts thereof at (\$1.176 million). These three items reflected a rapid expansion in imports by the end of 2003 with steering wheel imports growing at 209.18 percent, followed by radiators at 86.71 percent and bumpers and parts thereof at 36.01 percent.

Aside from the fact that there are more product groups showing substantial increases in imports relative to exports during the year 2003, it can also be observed that there are actually an additional four more product categories or groups under imports as compared to exports. The Philippines currently imports radio broadcast receivers used in motor vehicles, automobile tires, drive axles with differentials and components and parts of shock absorbers. Based on the available export data from 2001 to 2003, the country did export any of these items during the above mentioned period. A complete description of imports and their corresponding growth rates is provided below see Table 12:

Table 12: Philippine Automotive Parts and Components Imports, 2001- 2003

(FOB values in US dollars)

Parts and Components	2001	2002	Percentage Change	2003	Percentage Change
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	72.88	178.78	145.31	31.07	(82.62)
Electrical wiring harness for motor vehicles	482,462.60	519,724.36	7.72	507,254.85	(2.40)
Bumpers and parts thereof of motor vehicle groups 722, 781, 782 and 783 of other materials	588.52	721.52	29.18	4,020.31	457.20
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	0	79.16	0	68.39	(13.60)

Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	14,463.55	2,736.28	(81.08)	101.75	(96.28)
Radiators	4,053.51	2,016.93	(50.24)	1,102.11	(45.36)
Silencers and exhaust pipes	941.15	1,963.94	108.67	2,563.31	30.57
Clutches other than sub-item 7486001	167.82	463.28	176.06	0.00	0.00
Steering wheels	0	285.21	0	229.32	(19.60)
Other parts and accessories of motor vehicles 722, 781,782 and 783	240,524.27	385,185.24	60.14	533,080.73	38.40
Seats used for motor vehicles	1,126.03	255.50	(77.31)	166.44	(34.86)
Radio broadcast receivers used in motor vehicles	0	0	0	0	0
Automobile tires, pneumatic, all sizes, new other than steel belted	0	0	0	0	0
Drive axles with differential, whether of not provided	0	0	0	0	0
Components and parts of suspension shock absorbers	0	0	0	0	0

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781,782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

For the year 2004, parts and component product categories with imports exceeding the \$1 million dollar level were: 1) other parts and accessories of motor vehicles 722, 781 and 783 (at \$278.670 million); 2) gear boxes of the motor vehicle groups 722, 781, 782 and 783 (at \$30.399 million); 3) electrical wiring harnesses (at \$16.094 million); 4) other parts and accessories nes of bodies (including cabs) of motor vehicles 722 (at \$8.320 million); 5) bumpers and parts thereof (at \$2.136 million); 6) radiators (at \$1.861 million); and 6) radio and broadcast receivers (at \$1.413 million). Import values of the other parts and components categories along with the corresponding growth rates from 2003 to 2004 are presented in Table 13 below.

Table 13: Philippine Automotive Parts and Components Imports, 2003- 2005

Parts and Components	2003	2004	2005 Jan	Percentage Change
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	483.55	283.28	16.59	(41.42)
Electrical wiring harness for motor vehicles	8,802.60	16,094.83	350.22	82.84
Bumper and parts thereof of motor vehicle groups 722, 781, and 783 of other materials	1,176.21	2,136.96	120.99	81.68
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	8,367.71	8,320.48	451.08	(0.56)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	24,557.56	30,399.10	1,850.57	23.79
Radiators	1,715.55	1861.64	96.30	8.52

Silencers and exhaust pipes	277.74	753.70	18.39	171.37
Clutches other than sub-item 7486001	542.64	510.62	40.37	(5.90)
Steering wheels	1,821.23	329.12	13.77	(81.93)
Other parts and accessories of motor vehicles 722, 781, and 783	295,781.46	278,670.97	23,018.11	(5.78)
Seats used for motor vehicles	834.56	395.18	22.93	(52.65)
Radio broadcast receivers used in motor vehicles	1,257.72	1,413.79	1,473.21	12.41
Automobile tires, pneumatic, all sizes, new other than steel belted	0	9.67	0	
Drive axles with differential, whether of not provided	182.86	348.91	6.78	90.81
Components and parts of suspension shock absorbers	339.96	221.81	9.11	(34.76)

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781, 782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

E. Philippine Automotive Exports and Imports with the United States

Foreign trade statistics from 1999 to 2003 reveal that the Philippines actually maintained a trade surplus with the United States. Over the past five years, exports of automotive parts to the U.S. had consistently surpassed \$300 million, reaching its highest level at \$407.2 million in the year 2000, and leveling off at \$395.7 million by the end of 2003. Although exports had declined in 2001 and 2002, the recovery in 2003 was significant, registering an export growth rate of roughly 9.7 percent. In Table 14, the Philippine automotive exports to the U.S. from 1999 to 2003.

Table 14: Value of Philippine Exports to the US, 1999- 2003
(USD '000)

Items	1999	2000	2001	2002	2003
Engines an engine parts	2,030	5,230	9,593	5,801	6,948
Bodies, Chassis for Passenger Cars	17	5	22	0	7
Automotive Tires and Tubes	1,115	2,931	495	140	430
Other Parts and Accessories	311,828	399,065	358,316	354,760	388,294
Total	314,990	407,231	368,426	360,701	395,679

Source: U.S. Foreign Trade Statistics

On the other hand, Philippine automotive imports from the U.S had peaked to \$151.3 million during the year 2002, while the lowest level of importation was undertaken in 2001 at \$91.29 million. The value of all automotive imports was substantially below those of exports during the 1999 to 2003 period. Table 15 provides automotive import values over the above mentioned period.

Table 15: Value of Philippine Imports from the U.S., 1999- 2003
(USD '000)

Items	1999	2000	2001	2002	2003
Passenger cars, new and used	28,091	60,594	44,381	84,642	27,904
Trucks, buses and special purpose vehicles	8,951	18,622	10,172	4,194	4,141
Engines and engine parts carburetors, pistons and rings	2,721	2,438	7,960	8,238	8,742
Bodies and chassis for passenger cars	3	886	1,925	1,663	395
Automotive tires and tubes	4,393	4,727	1,816	1,591	1,149
Other parts an accessories of vehicles	47,370	49,557	24,985	50,970	77,619
Total	91,529	136,824	91,239	151,298	119,950

Source: U.S. Foreign Trade Statistics

F. Trade Surplus with the United States in Automotive Parts and Components

The Philippines currently has a trade surplus with the United States in the automotive parts and components sector. The trade surplus has stayed well above the \$200 million level, with the largest surplus recorded during the year 2004 at \$317.9 million, while the lowest trade surplus was at \$209.4 million during the year 2002 see Table 16. These figures provide a very optimistic view of the potentials for a bilateral trade agreement with the United States which includes the automotive parts and components manufacturing sector of the Philippines. The formation of a bilateral trade agreement with the U.S. should consider further strengthening the linkages between the automotive assemblers in the U.S. and the parts manufacturing industry in the Philippines which can continue to improve its competitiveness as markets are expanded and efforts made in order to further upgrade technical capabilities.

The MVPMAP reported that the local parts industry could produce only 15 percent of the components needed by automobile assemblers in order to produce one vehicle. The report lays out the entire supply chain of the motor vehicle industry and indicates that only 15 percent of the parts produced are local while 85 percent are imported. The direction to be taken by the industry is to identify the strategic products out of the remaining 85 percent vehicle parts that local assemblers are still importing.

Table 16: Automotive Exports and Imports to the U.S. and the Balance of Trade, 1999- 2004
(USD '000)

Item	1999	2000	2001	2002	2003	2004
Exports	314,990	407,231	368,426	360,701	395,679	416,579
Imports	91,529	136,824	91,239	151,298	119,950	98,634
Trade Balance	223,461	270,407	277,187	209,403	275,729	317,945

Source: U.S. Foreign Trade Statistics

In terms of value, locally produced vehicle parts already account for 40 percent of the value of locally assembled vehicles. As previously mentioned, the country has 256 automotive parts manufacturers, 124 of which are considered first tier producers or those directly supplying the needs of local automotive assemblers. The remaining second and third tier suppliers who

provide the raw material needs of the first tier producers serve as their subcontractors. All three tiers of suppliers form the backward link of the automotive sector supply chain. The forward link is composed of shippers, forwarders, dealers and other upstream services (Tenorio and Lugo 2003).

Among countries in Asia that have significant local automotive industries, the Philippines have one of the smallest motor vehicle parts manufacturing sectors. In contrast, neighboring Thailand has roughly 700 parts manufacturers, while Malaysia and Indonesia each have an estimated 500 parts producing firms.

An audit of the local content capability of the industry is being validated by the Board of Investment (BOI), which is tasked with completing the latest updated motor vehicle development program (MVDP). The BOI focused on five major components of the revised MVDP and these are mainly the: 1) identification of the automotive supply chain; 2) harmonization of most favored nation tariff rates; 3) control of secondhand imports; 4) revisions of the excise tax scheme and; 5) the extension of the ASEAN AICO scheme (Tenorio & Lugo 2003).

The country continues to encourage greater participation by both local and foreign investors in the assembly of motor vehicles, parts and components manufacturing through the provision of tax breaks offered under the manufacturing free trade zone areas such as the Philippine Economic Zone Authority, the Clark Development Corporation and the Subic Bay Metropolitan Authority. Motor vehicle assembly under the MVDP requires an initial investment of at least \$10 million for passenger cars, \$8 million for commercial vehicles and \$2 million for motorcycles in parts and components manufacturing for both foreign and local investors. Parts and components manufacturing is listed as an investment priority area and is entitled to incentives (e.g., income tax holidays and duty drawback arrangements) under the Omnibus Investments Code. (Department of Trade and Industry Report 2003).

III. PUBLIC POLICIES IMPOSED ON THE AUTOMOTIVE INDUSTRY FROM 1960-1972

The automobile industry in the Philippines had gone through three stages in its development: the importation of CBU units from 1916 to 1950, the assembly of CKD units from 1951 to 1972, and the promotion of local parts manufacture from 1972 onwards (Tolentino and Ibanez 1983).

From 1916 to 1950 vehicles were imported mainly from the United States, domestic production activity in the automobile sector was virtually non-existent and only a network of distributors and dealers existed who sold CBU units.

During this period, the economy began experiencing a severe depletion in its foreign exchange reserves, which led the government to consequently prohibit the commercial scale importation of CBU cars and trucks under the Import Control Law of 1950. By 1951, a new

import control law was enacted establishing priorities in the allocation of foreign currency for imports. Government only for the import of CKD car components by firms who were operating automotive assembly plants provided foreign currency allocations. Throughout the 1950's and 1960's there were no concerted efforts to limit the proliferation of assemblers (which reached 20 firms) and models (which had 60 different varieties) or rationalize the automobile industry, which continued to be heavily dependent on imports (Tolentino and Ibanez 1983). With local annual demand of only 17,000 units, no plant could be anywhere near the minimum efficient scale.

The first formal motor vehicle manufacturing programs implemented in 1972 were: the progressive car manufacturing program (PCMP); the progressive truck manufacturing program (PTMP); and the progressive motorcycle manufacturing program wherein the Philippine market was declared closed to the importation of CBU units. The government realized the need to rationalize the industry by limiting the number of car assemblers to five large firms with local content required for domestically assembled cars. The government's local content requirement (from 10percent in 1973 to 52.5percent in 1976) spurred the assemblers to pinpoint who among their suppliers were capable of going into more serious manufacturing of automotive parts and to develop them through either financial or technical assistance (Development Bank of the Philippines, 1996).

A. Local Content Requirement

Under the local content requirement policy, multinational assemblers, which entered into joint ventures with local partners, were expected to initiate and push for the domestic manufacture of automotive components. The Board of investments (BOI) expected the assemblers to subcontract the manufacture of parts and components to local firms, particularly to SMSEs, and in the process upgrade engineering and production skills and provide new technological know-how to the country's industrial sector. It was hoped that Japanese assemblers in particular would transplant the practice of subcontracting which was prevalent in Japan and considered a source of their competitive strength in automotive production (Tecson 2001). Initially the basis for estimating local content was based on the following formula:

$$\text{Local Content Ratio} = \frac{\text{FOB import price of local parts} + \text{foreign exchange earnings on exports}}{\text{FOB export cost of CBU}}$$

Consequently, this formula was revised because it had failed to reflect the actual proportion of the true local contents in the final product and that it was possible to attain the minimum prescribed local content by way of expanding exports. In addition, the formula was not supported by further definition of what may be considered domestically manufactured components (Tolentino & Ibanez 1983). The revised formula for calculating local content was supposed to shift emphasis to parts manufacturing and away from foreign exchange generation. The new formula is presented as follows:

Local Content = (points x local content of components) + 15 percent assembly allowance

The points referred to is the ratio of CKD price of individual parts of components to the CKD full pack price. Local content of components refers to the selling price of each component less imported materials, depreciation of imported equipment and other foreign costs. Assembly allowance refers to other local materials and supplies used in assembly.

To comply with the local content requirements imposed in 1973 the assemblers started to produce parts such as: engine blocks, coil springs and springs (by Delta Motors); body stamping and soft trims (by Ford Philippines); transmissions (by Yutivo Francisco and GM-Isuzu); transmissions, soft trims and wiring harnesses (Chrysler Philippines-Mitsubishi); and seat pads and miscellaneous car parts (DMG Inc.). And in order to fund their own foreign exchange requirements, the assemblers began to export their manufactured parts such as engines to Japan (by Delta Motors); body panels to other ASEAN countries (from Ford Philippines); transmissions to Japan and ASEAN countries (by Chrysler Philippines) and seat pads and other car parts to Germany (DMG Inc.) (Tecson 2001).

The automotive manufacturing industry had grown substantially from its inception in 1972 up to 1982. During this period, more than 220 manufacturers (from an initial 32 firms in 1972) were supplying the requirements of the motor vehicle assemblers. However, this period of rapid expansion had come to an end in 1983, as the economy experienced a political and economic crisis, capital flight and the consequent depletion of the country's foreign exchange reserves. This brought about the near collapse of the industry that by 1984 only two participants (PAMCOR-Mitsubishi and Nissan) remained in the program and that the number of parts manufacturers was reduced to 40 firms (Development Bank of the Philippines, 1996).

IV. PUBLIC POLICY AND INDUSTRIAL ADJUSTMENTS UNDER THE 1987 MOTOR VEHICLE DEVELOPMENT PROGRAM

A. The New Motor Vehicle Development Program

Considering that the automotive industry still has the potential to stimulate growth, create backward linkages and expand employment opportunities, significant efforts were undertaken by government in an attempt to revive and rationalize the program. In 1987, the Car Development Program (CDP) replaced the PCMP while the Commercial Vehicle Development Program (CVDP) replaced the PTMP where more emphasis was placed on the development of parts and components to be produced for export.

The CDP had undergone several changes during its first few years of implementation particularly focusing on the addition of new car categories to be produced by new entrants into the market. A "people's car" category was established in 1990, (as an addition to the main car category) followed by a third category of automobiles with engine displacements of above 2,190 cc and above (Mercedes Benz, BMW and Volvo). Subsequent amendments in 1992 and 1994

permitted the assembly of passenger cars with more than 2,800 cc and the entry of Malaysia's national car (the Proton) under the ASEAN Industrial Joint Venture Scheme (AIJV) (Tecson 2001),

In 1996, the motor vehicle development programs (CDP and CVDP) were liberalized, in effect, allowing the entry of new participants into the industry, subject to minimum investment requirement for parts and components manufacturing and to compliance with the local content in foreign exchange requirements.

In 1998, changes were introduced into the program guidelines which included the following revisions: 1) allowing foreign exchange earnings from exports of automotive parts worth at least \$200 million annually to be considered for local content and the restoration of the mandatory list of components to be locally sourced. The BOI was vested with the power to adopt a short mandatory list of strategic and high technology automotive parts (such as: engines, transmissions, clutch and brake systems, suspension systems and drive line assemblies), and those assemblers would then be prohibited from importing these parts after the set target dates for local production. It was expected that this policy would encourage the entry of FDI into high technology parts manufacturing and consequently stimulating the transfer of technology that would upgrade the level of technology used by the local industry. However, by the year 2000, the local content requirement and the foreign exchange requirement were terminated following the country's commitment to the Agreement on Trade Related Aspects of Investment Measures (TRIMs Agreement) under the GATT-WTO requirements (Tecson 2001).

Under the Structural Adjustment Program (SAP) of the World Bank, tariffs on CBU's fell from 70 percent in 1970 to 40 percent in 1993. Since the tariffs for CKD's fell even faster, it widened the tariff differential between CBU's and CKD's from 20 percent to 37 percent in 1995 (Aldaba 2000). This differential will be eliminated in 2004 when a uniform tariff of 5 percent on all CBU and parts imports will be imposed. Although liberalization was accompanied by some deregulation efforts, a local content ratio of 40 percent was maintained until compliance with the Trade Related Investment Measures (TRIMS) Agreement was enforced in 2003 (Tecson 2001 and Ofreneo 2003).

B. The Automotive Industry after the Asian Financial Crisis

The government as well as local and foreign auto manufacturers has been in the process of rebuilding and strengthening the Philippine automotive manufacturing industry in both the areas of automotive assembly and parts manufacturing since the 1997 Asian financial crisis brought on a severely contracted domestic market volume.

Efforts are currently underway to build up the country's competitiveness to recover lost ground brought about by the economic crisis and one of the measures being implemented are revisions in the MVDP which covers the Car Development, Commercial Vehicle Development and Motorcycle Development programs.

The MVDP was designed to provide assistance, incentives and priority to domestic vehicle production as well as provide rules that will govern incoming and existing investments in the automotive sector. In 1998, the government proposed a number of changes for the revision of the MVDP. One of the proposals identified is to focus on auto parts in the export market and CBU units for export to niche markets. Another focuses on lifting the privilege of local assemblers to import CKD units. Also included in the proposal are the removal of the price ceiling for people's cars, putting up new parts plants by new participants, setting a one year deadline for net foreign exchange earnings, retaining reasonable tariff differentials between CBU and CKD at least until year 2000, granting incentives for new and modernizing car assembly plants under the Investments Priorities Plan (IPP), setting up of an industry development fund wherein guidelines will be prepared by assemblers, auto parts makers and representatives of the Board of Investments (BOI) and granting of additional tax incentives for new assemblers, locating in less developed areas. Although there have been no reports on the implementation of the government's proposal, it has initiated moves that have served as a big boost to the local auto manufacturing industry (Reyes 2000)

The Department of Trade and Industry (DTI) is promoting the CALABARZON area as a hub for the manufacture of auto parts and components. This strategy addresses difficulties associated with low economies of scale, the high cost of transportation and distribution as well as industrial wastage. In addition, this is complemented with wholesale credit guarantees to further encourage the development of SMSEs engaged in auto parts manufacturing. On the other hand, in terms of employment, major players in the local markets such as Toyota, Mitsubishi, Honda, Isuzu, Nissan and Ford continue to play a big role in augmenting employment in areas where manufacturing plants are located. The automotive assembly industry currently employs about 9,000 workers and the parts manufacturing industry employs about 45,000 people (Tenorio & Lugo 2003).

After the 1997 crisis, Japanese auto manufacturers continue to dominate the new vehicle market with 80 percent market share (over \$1.104 billion) while U.S. companies account for 5 percent share (\$69 million). Japanese brand Asian utility vehicles (AUV) account for about 70 percent of commercial motor vehicle sales in the Philippines. The leading AUV brands are Toyota, Mitsubishi and Isuzu and through the years, have evolved into multi-purpose vehicles (Miranda 2002).

The three largest American auto manufacturers re-entered the Philippine market after pulling out in the 1980's when the country experienced a severe economic and political crisis. To date, only Ford Motors had established full assembly operations in the Philippines. General Motors and Daimler-Chrysler bring in semi-knocked down (SKD) and CKD units from their production plants located in other parts of Asia (Miranda 2002).

C. Expanding the Manufacturing Base through ASEAN and the Asia Pacific Region

The government is also attempting to develop the automotive manufacturing industry by broadening manufacturer orientation beyond the domestic market. It continues to promote trade and export under the Association of Southeast Asian Nations (ASEAN) Industrial Cooperative Organization (AICO) Scheme. The AICO is a cooperative arrangement involving at least two member countries of the ASEAN and this includes agreements involving the physical movement of intermediate and final automotive parts and products between the participating countries, resource sharing, industrial complementation and industrial cooperation activities. Based on the new intra-firm rule finalized by the ASEAN working Group on Industrial Cooperation, the exchange of AICO final products among participating companies is deemed sufficient to satisfy resource sharing, industrial complementation or industrial cooperation criteria of AICO.

The effect of this intra firm rule is that companies from the same group or those that are administered to by the same principal with manufacturing facilities in different locations in ASEAN can use the AICO scheme to rationalize production units.

These companies can assign specific units to cater to their regional and global production requirements. Aside from allowing this intra firm transaction, other measures have been drafted to improve the AICO scheme. These measures include the automatic waiver of 30 percent equity requirement from 1999 to 2000, reduction of AICO processing time from 60 to 45 days, issuance of the COE from 14 to 10 days while the administrative process to effect AICO tariff rates has been reduced from 60 to 45. The government is expected to increase its participation in the ASEAN regional complementation program by undertaking international subcontracting programs and continuing to promote FDI (Reyes 2000).

An overview of the automobile industries in four ASEAN countries (Thailand, Malaysia, Indonesia and the Philippines) shows that Thailand has the most developed industry, already significantly ahead of its neighbors over the last few years. By the mid 90's, Thailand was already home to by far the largest concentration of Japanese automobile and parts manufacturers in the ASEAN 4. In addition, in 1998, Auto Alliance Thailand (AAT) that is a Ford-Mazda joint venture, started to produce cars, as did General Motors in 2000. Each of these has the capacity to produce 100,000 automobiles a year. The investment by car manufactures encouraged parts makers to expand into Thailand (see Table 17). Japanese, American and European car manufacturers have positioned Thailand as a base for exports of automobiles and plan to continue increasing investment for purposes of capturing a larger share of the Asian market (Mori 2001).

Table 17: Four Major Automotive Markets in ASEAN, 2003- 2004 and Projections for 2005 and 2010

(Total vehicle sales in units)

Total Vehicle Sales	2003	2004	2005 projection	2010 projection
Indonesia	357,000	376,000	397,000	530,000
Malaysia	435,000	415,000	505,000	620,000
Philippines ^a	92,336	96,000	104,000	170,000
Thailand	390,000	420,000	468,000	585,000
Total	1,262,000	1,297,000	1,463,000	1,888,000

Note: ^aRevised estimates

Source: Autopolis, 2004

ASEAN's automobile industry must quickly adjust to the rapid globalization that is going on among car manufacturers today. Japanese, American and European car manufacturers are all starting production of world strategic vehicles, such as small cars targeting the advanced countries and some Asian countries, and low priced vans for the developing countries, more or less simultaneously at production facilities around the world. The manufacturers are shifting toward optimum sourcing and production from a global perspective. Within ASEAN even Thailand faces a number of issues if it is to play a part in these global strategies. Meanwhile, Japanese, American and European car manufacturers' interest in Asia is beginning to shift towards China, which contains great potential both as production base and a market. If ASEAN's automobile industry were to maintain its presence in Asia, the realistic option would appear to be to increase the depth of the industry throughout the region, through mutual complementary activities (Mori 2001).

V. THE LIMITED SUCCESS OF THE MOTOR VEHICLE DEVELOPMENT PROGRAM

The problems and difficulties encountered by the automotive industry during the two periods: initially from 1973 to 1986, and the succeeding period from 1987 onwards are presented below. Reasons cited by the studies of Aldaba (2000) and Tecson (2001) provide explanations for the limited success of the past two automotive development programs and also provide insights for future policy adjustments to be undertaken in order to revitalize the local automotive industry and bring it towards the direction of improving international competitiveness and consequently attaining some of the success already being experienced by Thailand and Malaysia.

A. Problems and Difficulties Encountered During the 1973-86 Period

1. The Assemblers use of in-house Production and Subsidiaries Instead of Sub-contracting to Local Filipino Firms

Although the assemblers were required to increase the amount of local content in the domestic production of automobiles (from a targeted 10percent in 1973 to 60percent by the end

of 1976), the success was limited considering that from 1973 to 1978, local content was still below 30 percent. One of the reasons cited by Tecson (2001) which could explain this outcome was that the multinational assembly firms did not subcontract the production of parts to local Filipino firms but instead opted for in-house production of parts or in some cases set up subsidiaries partly owned either by the assembler or by the supplier of the assembler. At the onset, this was understandable considering those local parts manufacturers that could meet the cost, quality and delivery requirements of the multinational assemblers were extremely few or in some cases may even be non-existent. Toyota was used to relying on a network of suppliers coming from Toyota City in Japan, and in order to comply with the local content requirement, they had initially produced the parts in-house, then consequently encouraged its affiliate firm Aichi Forging (a member of the Toyota *keiretsu*), to set up operations in the Philippines in 1974. The auto assembler DMG Inc., relied on a supplier firm named Hella, which is actually a subsidiary of Hella Inc., a German multinational specializing in lights and horns (Tecson 2001).

Local parts manufacturers, which had increased from 32 firms in 1972 to 220 in 1978, were able to develop the production of parts that had lower value added. But higher value added parts and components were confined to the in-house operations of the assemblers or with their tightly controlled affiliates. One of the reasons why assemblers were forced to adopt such strategies was due to the inability of materials suppliers to deliver the output required by the assemblers. Most local suppliers did not have the advanced technical capabilities that would meet the cost, quality and durability standards of the assemblers. Thai foundries for example were able to produce a minimum of 120 moulds per hour per machine while the Philippine counterparts could only generate 20 to 25 moulds per machine (Abrenica, 2000). Similarly the Department of Science and Technology (DOST) revealed that the 1995 level of ductile iron technology in the Philippines had not even reached Japan's level from 1965. Assemblers were forced to integrate vertically and to undertake other strategic alliances even with their competitors. Toyota Motors Philippines Inc. was said to have produced forged parts for transmissions in a joint venture with the Philippine Automotive Manufacturing Corporation (PAMCOR the assembler of Mitsubishi vehicles).

2. Transfer pricing which Discouraged Local Sourcing

The Board of Investments (BOI) indicated that the use of "deletion allowance" was also responsible for the failure to achieve the desired local content requirement. This allowed foreign firms to transfer prices and in the process, discourage local sourcing. When a part or component was used in an assembled unit, it was assigned a deletion allowance, which in effect indicated the value to be deducted from that of the CKD pack. Since this was based on the marginal production cost of the parent company, it was price lower than if the component were to be imported separately – that is, when not included in the CKD pack (Tecson 2001). Thus the more parts sourced locally, the higher the price of the locally assembled vehicle (Ken 1977, cited by Abrenica, 2000a), making CKD importation a more attractive alternative to local sourcing (Tecson 2001).

3. The Economic Crisis of 1983

Capital flight caused by political instability, the consequent occurrence of a severe foreign exchange crisis and a deep recession led to the closure of several assembly operations and a drastic reduction in the number of parts manufacturers from a high of 220 firms in 1978 to 40 firms by 1986. The major automotive assemblers such as Delta Motors went bankrupt, Ford, GM, Chrysler and DMG left the country and Philippines Nissan and PAMCOR ultimately closed down in 1986. The industry collapsed and practically had to start all over upon the assumption of the new Aquino Administration in 1987.

B. Problems and Difficulties Encountered During the 1987-2000 Period

1. Policy Changes in the New Program that Fragmented a Limited Market

Policy changes in the automotive industry after 1987 had further fragmented an already narrow market. The implementation of the 1987 Car Development Program which had four categories and three assemblers, was followed by the 1990 People's Car Program which allowed new assemblers to enter the market and consequently move up into other car categories, then followed by the 1992 Luxury Car Program, the 1994 ASEAN Industrial Joint Venture Scheme and the 1996 Deregulation of the Automotive Industry which opened up the closed vehicle categories to new participants and removed restrictions on the number of models and variants all leading to an industry which at present is made up of 14 passenger car assemblers, 21 commercial vehicle producers and 21 motorcycle assembly firms.

The adoption of policies that fragmented an already narrow market for cars was inconsistent with the desired success of the local content rule. Scale economies in both assembly and parts manufacturing could not be achieved because of the inability to keep the number of car assemblers to the required minimum. With the eventual deregulation of the domestic market still protected by a 40 percent tariff on CBUs, the proliferation of brands and models in the absence of parts standardization meant that imposition of a local content rule could only translate into inefficient production and hence, inflated car prices that further dampened demand (Tecson 2001).

Several studies on the Philippine car assembly industry have shown that one of the main obstacles to production efficiency is the diseconomies of scale associated with production oriented towards internal markets of limited size. The local car market is small compared to the minimum scales of production required in the industry. In view of the small size of the Philippine market, during the year 2000 there were 19 companies that were assembling vehicles or producing them under contract for Japanese, Korean and European manufacturers and as a result, the average output per assembler in that year was extremely low with only eight firms (Toyota, Nissan, Honda, Mitsubishi, Asian Car Makers, Francisco, Isuzu and Universal) having an annual production capacity of above 10,000 units (Aldaba 2000).

Automobile sales in Thailand exceeded 500,000 units during the year 2003, while the Philippines had only been able to generate sales of over 20,000 units for passenger cars for the year 2002, and over 24,000 for the year 2003. The best sales performance ever recorded for automobiles in the Philippines was in 1996 at 79,673 units. The passenger car market in Thailand is practically 25 times larger than that of the Philippines, which allows them to better exploit the advantages behind scale economies, and makes their automotive industry more attractive for foreign investors.

Although the total production capacity for passenger cars in the Philippines is over 220,000 units per year, the very low demand makes it extremely difficult to achieve the minimum efficient scale, reduce average cost, lower prices and improve its competitive position. Thailand on the other hand has a production capacity of over 440,000 units per year, which is below its demand of over 500,000 units during the year 2003.

As the Philippine economy continues to recover, passenger car demand will be expected to increase; however, it is important to consider the need to reduce the extent of fragmentation in the market caused by the relatively large number of models, varieties and assemblers of automobiles.

Increasing exports of parts and components and ultimately CBUs will help reduce the difficulties brought about by a weak domestic market. However, it would still be necessary to identify the parts and components where the country can compete, adopt a program that would promote parts standardization, and concentrate on the largest selling passenger car models which are potentially close to achieving a minimum efficient scale of production.

2. Lower Tariff Rates on CKDs compared to Raw Material Imports for Parts Production During the year 1995

Aldaba (2000) provides a brief description of tariff changes on the automotive industry since 1972. Tariffs and import restrictions have been imposed to protect the local car assembly industry since 1972. In 1972, the importation of CBU passenger cars was officially banned, while between 1973 and 1980, a tariff of 100 percent was levied on CBU vehicles, which was constantly reduced to 70 percent in 1981, to 50 percent in 1982 and to 40 percent in 1993. In the year 2000, CBU rates were reduced to 30 percent and by 2004 a uniform tariff rate of 5 percent will be applicable on CBUs.

CKD parts on the other hand were levied tariff rates of 30 percent from 1981 to 1992 and this was reduced to 20 percent by 1993. With the legislation of EO264 in July 1995, tariffs on CKD parts were lowered to 3 percent.

Under EO264, average tariff rates on manufactured parts and components declined from 26.5 percent in 1994 to 24.6 percent in 1995. Note that with the tariff reduction in 1995 (as embodied in EO264) tariffs on raw materials are higher than CKD imports. Actual tariff rates on locally produced parts range from 10 to 35 percent (except for carpet which are at 50 percent)

while CKD imports are levied a much lower tariff rate of only 3 percent. Given this tariff structure it became cheaper to import CKD components than to produce them locally and with the elimination of local content requirements assemblers will be free to choose the parts to be locally purchased (Aldaba 2000). With this policy it became clear that car assembly was being favored over parts manufacturing, notwithstanding the stated program objective of developing a competitive local car parts industry. The widening tariffs differential accorded car assembly greater effective protection and local parts industry development was compromised in favor of importing CKD packs (Tecson 2003).

3. Cost Penalty of the Local Content Rule

Local content requirements had been adjusted on several occasions from 1973 up to 1996. When further liberalization initiatives were imposed in March 1996, one of changes included referred to government's removal of the rule that required assemblers to adjust their local content progressively. However, they were still required to maintain a local content ratio for passenger cars of 40 percent and for commercial vehicles depending on the category from 13.8 to 54.8 percent. Aldaba (2000) explains that while this regulation provides protection to domestic producers of parts, the effect is somewhat different on the assembly firms that must buy locally. The use of local components has entailed a "cost penalty" among car assemblers who often must bear the high cost of local inputs, the inability of some local suppliers to meet product quality specifications, and the untimely delivery of some local suppliers. As mentioned in the previous sections of this study, assemblers were consequently forced to adopt in-house production of parts or encouraged subsidiaries or close affiliates to put up parts manufacturing plants. Thus Toyota and Mitsubishi invested in transmission plants, Honda and Kea constructed engine assembly plants, and Toyota and Nissan built stamping plants. If exports from these parts manufacturing plants are not significantly large, then the assemblers themselves have contributed to the "cost penalty" Aldaba (2000).

4. Loopholes in the Local Content Rule

Based on the initial definition given for the local content rule, a firm may comply with the domestic content requirement by raising its export earnings rather than the value of the locally manufactured components, which it used. Local assemblers used this guideline as a loophole in connection with their compliance with the local content rule. Because of this, it became rational for firms to choose to export because they could earn export credits (and hard cash in the process), whereas the price of assembled cars increased as more local components were integrated into them (Abrenica, 2000). Although the mandatory list of components to be sourced locally (engines, transmissions, clutch and brake systems, suspension systems and drive line assemblies) was restored in 1998, and that assemblers would then be prevented from importing these parts after the set target dates for local production, this was also accompanied by a policy allowing foreign exchange earnings from exports of automotive parts worth at least \$200 million annually to be considered for local content credit. Compliance with the mandatory list was expected to have been accomplished through FDI into the manufacture of strategic, high technology automotive parts. This loophole in the local content rule as well as its actual

implementation, ironically worked against the healthy development of the parts industry (Tecson 2001).

5. High Effective Protection Rates and Domestic Resource Cost

The automotive industry was subject to heavy protection given that high tariff rates were levied on imported CBUs ranging from 100 percent in 1973 to 40 percent in 1999. Estimates of the effective protection rate within this period indicate that transport equipment was relatively more protected compared to the entire manufacturing sector. Effective protection rates for transport equipment were at 48.80 in 1988 and 57.32 for 1994, both which were relative higher compared to 28.30 and 19.17 for the same years in the entire manufacturing sector (Tecson (1996), Pineda (1997) and Medalla (1998)). The effective protection rate measures the extent of protection that an industry is receiving by incorporating the effects of tariffs on both inputs and outputs of a specific industry.

In 1994, the domestic resource cost for transport equipment, which was estimated at 1.88, was also higher compared to the entire manufacturing sector at 1.18. The domestic resource cost measures the amount of domestic resources used per unit of foreign exchange saved or generated from the production of a tradable good. It indicates whether a country is efficient and is internationally competitive relative to other industries and other countries.

Both high effective protection rates and domestic resource costs in the automotive industry relative to the entire manufacturing sector indicate its greater inefficiency in the use of resources and the lack of comparative advantage. Consequently, the inefficiency is also reflected in higher production costs. For 1994 and 1995, the factory price of passenger cars which had local content of 41 percent were three times higher than those of their imported CBU Japanese counterparts. For light commercial vehicles, production costs were in the range of 2.37 to 2.59 times than those in Japan. At 44 percent local content in 1995, the cost differences even widened, except for pick-up vans. In 1995, the cost of a passenger car (1.2L) was 3.68 times its Japanese counterpart while the delivery van was 3.92 times its Japanese equivalent (Aldaba 2000).

6. Limits to the Transfer of Technology

The imposition of local content requirements was expected to force multinational assemblers to source parts and components from the local economy, which would encourage the emergence of Filipino supplier firms that would absorb the technology for parts manufacturing. Domestic sourcing is expected to induce the upgrading of engineering and production skills and provide new technological know how to the country's industrial sector (BOI Report 1973).

However, these expectations were not completely realized particularly during the early stages of the automotive development program because Filipino supplier firms were close to being non-existent and those that did exist were not able to meet quality cost and delivery requirements of the Japanese assemblers. FDI into the parts manufacturing sector should have

increased the extent of technology transfer into the local industry. However, it seems that the extent of technology transfer has been limited particularly for higher value added components, which were either produced in house, or within a tightly controlled affiliate. Although local technicians were being trained to operate machinery and equipment, technology transfer was not substantial and limited to the transfer of machinery and equipment with training and continued check-ups being undertaken by foreign consultants. Technical staff being sent by the assemblers and auto parts makers to their mother units abroad are trained and expected to “echo” the training they received to the rest of the production workers in the local plant. Japanese supervisors are dispatched to local plants in order to conduct training and be present for troubleshooting, however, technology transfer continues to be limited for high value added parts and components and the transfer of design technology and new product development (which is the kept the domain of the parent firms) has yet to take place. The extent of technology upgrading being undertaken by local firms is the key determinant of their ability to qualify as suppliers to internationally competitive firms; this unfortunately has not been vigorously pursued by government (Tecson 2003).

VI. THE NEED TO FURTHER RATIONALIZE THE INDUSTRY

A. Focusing on the Largest Selling Models

In view of the already narrow domestic market in the Philippines, the alternative route which can be taken is to promote exports particularly in the ASEAN market since all imported CBUs, CKDs, parts and raw materials in the automotive sector are now subject to tariff rates between zero and five percent under the CEPT scheme of AFTA. However, in order to be competitive in the ASEAN region, it is important to at least be able to start with models that can be produced at the minimum efficient scale in the local market so that these models will have lower average costs compared to what is prevailing today in the highly fragmented market. Identifying the largest selling vehicle models and focusing production on them and gradually phasing out models which are less popular should reduce the extent of fragmentation in the domestic market and move companies closer to economies of scale production. After an initial reduction in average cost is achieved because of the larger production of limited models, further reductions in average cost can be realized once exports begin to expand within the ASEAN region. Limiting the number of models based on the largest selling ones can also help attain standardization in the production of parts and components. Tier-1, 2 and 3 suppliers will also have an opportunity to achieve economies of scale production because they will be able to produce larger volumes of output because of the reduced number of models that have to be supplied with parts. Resources of parts manufacturers do not have to be spread out thinly because there will be lesser models to focus on and greater specialization will occur.

Aside from focusing on the largest selling models it will be necessary for both assemblers and parts and components manufacturers to drastically improve productivity and efficiency. Significant reductions in production cost are necessary in order to compete in an environment without tariff protection and without local content requirements. Close to 90

percent of the production cost is accounted for by raw materials, 40 percent of which is traced to local sources while 50 percent from imports (Aldaba 2000).

The largest selling passenger car models which the automotive industry may focus on are the following: the Honda Civic, Toyota Corolla, Nissan Sentra Exalta, Honda City and the Mitsubishi Lancer for passenger cars. For AUVs, these are the Toyota Tamaraw FX, Mitsubishi Adventure, and the Isuzu Highlander. And for the light commercial vehicles these are: the Honda CRV, Toyota Hi-ace and the Mitsubishi Pajero. Actual sales figures for these models are presented in Table 18:

Table 18: Largest Selling Vehicle Models, 2002

Model	Unit Sales
Passenger Cars	
Toyota Corolla	8,161
Honda Civic	3,103
Honda City	2,843
Mitsubishi Lancer	1,523
Nissan Sentra Exalta	1,255
AUVs	
Toyota Tamaraw FX	12,326
Isuzu Highlander	8,293
Mitsubishi Adventure	7,778
LCVs	
Honda CRV	7,477
Toyota Hi-ace	1,976
Mitsubishi Pajero	1,913

Source: CAMPI, 2003

For 2004, the Corolla and Tamaraw FX, continued to be the largest selling models for Toyota. The company's leading position is also further bolstered by the 6,700 unit sales of the Toyota Vios. The Mitsubishi Adventure and the Isuzu Highlander are the next most popular vehicles with sales exceeding 5,000 units. The Honda City and CRV reflected sales of over 3,000 units making Honda Philippines the third largest firm in the automotive industry in terms of market shares. The other vehicle models which have generated sales between 1,900 to 2,000 units are presented as follows see Table 19:

Table 19: Largest Selling Vehicle Models, 2003

<u>Model</u>	<u>Unit Sales</u>
Toyota Vios	6,700
Corolla	7,161
Tamaraw FX	9,413
Honda City	3,370
Civic	2,383
CRV SUV	3,158
Mitsubishi Adventure	5,087
Lancer	1,787
L300 F/B/WT/AF	2,211
Nissan Sentra	1,506
X-Trail	2,976
Ford Everest	2,386
Escape	1,728
Isuzu Highlander	5,609
DMAX	1,914
<u>Hyundai Starex</u>	<u>1,919</u>

Source: CAMPI, 2003

B. Focus on Parts and Components Manufacturing

As previously discussed, the existence of a narrow and fragmented market prevents firms from producing at the minimum efficient scale, resulting to a higher average cost of vehicle production in the Philippines. Production for the export market (particularly the ASEAN region) may overcome the domestic demand constraint, but will require the production of a CBU that can match the cost and quality specifications of vehicles manufactured by Thailand, China and Malaysia. As a starting point, assemblers should focus on the largest selling models and improve efficiency and productivity, reducing average cost, and hopefully paving the way for a more competitively priced vehicle which will have a better chance to penetrate an ASEAN market with zero and five percent tariff rates.

Although Ford Philippines has already produced vehicles for export in the ASEAN region, a more promising alternative to pursue is to focus on parts and components manufacturing for export. Although China may have the largest production base, the largest market and the lowest labor cost in the region, it cannot produce all vehicle parts with the same cost, quality and delivery requirements which multinational assemblers need. The Philippines may have the relatively higher labor cost, but on the other hand possesses a highly educated and technically skilled workforce. It has a parts manufacturing industry which has produced \$1.3 billion worth of parts and components exports, and can be further developed because of the presence of locally sourced materials, and the technical experience and expertise which can be easier to upgrade relative to CBU production for export. Thailand, Malaysia and China may have the advantage in exporting CBUs, and instead of facing this competition head on, the

Philippines at present, may take the direction of establishing its market niche in the parts and components industry. A large and growing Asian market provides enormous opportunities for the local parts and components sector. If vehicle sales in the ASEAN region were combined with China, Korea, India, Singapore and Taiwan, the combined market is expected to go beyond 8.14 million units generating a huge demand for various types of OEM and replacement parts that the Philippines can exploit within the next few years.

At present, roughly 45 percent of the total parts and components used in a vehicle can be produced locally, however, only less than one fourth of these locally produced parts is purchased by the multinational automotive assemblers. Despite this low rate of procurement, it is promising to note that all these parts and components which the local automotive industry can produce is actually exported to the United States, Japan, Europe and several Southeast Asian countries (Villadolid, 2004).

If the multinational automotive assemblers supports the local parts manufacturing sector by further localizing their procurement, the demand for these parts and the income of small to medium scale second and third tier suppliers are expected to increase. This would then bring more business to related activities such as replacement parts and service shops. Several local parts manufacturers are actually capable of supplying first-tier firms and assemblers on demand or on an hourly basis which would substantially reduce and maybe even eliminate carrying cost inventories. If this is done continually, it would further reduce prices of parts and components in the long term (Villadolid, 2004).

According to surveys conducted by the Japan External Trade Organization (JETRO), it was observed that the Philippines had the lowest local parts procurement ratio relative to Thailand, Malaysia, and Indonesia (Asakura 2004). Most of the parts and components used in the Philippines were imported from neighboring ASEAN countries or from Japan. This may be explained by the fact that multinational automotive assemblers are still more comfortable sourcing the majority of their parts from other countries either because of their close affiliation with the supplier subsidiaries or members of a *keiretsu* or they are not satisfied with the quality, cost and delivery capabilities of the local second and third tier suppliers. This makes it absolutely necessary to upgrade the technical capabilities of local parts and components manufacturers in order to meet the quality, cost and delivery requirements of the multinational automotive assemblers and stay firmly entrenched within their international production networks.

1. Exports of Automotive Parts and Components across Major Trading Partners

An assessment of the potential of the automotive parts and components sector to compete internationally can initially be observed from their export performance. Based on the product classifications currently used by the Bureau of Export Trade Promotion, electrical wiring harnesses consistently produced the largest export revenues compared to the other eleven automotive parts and components categories that were able to export from the year 2001 to 2003. The largest buyer of electrical wiring harnesses during the year 2003 was the United

States at \$230.920 million, followed by Japan at \$203.423 million; the European Union at \$24.643 million and the ASEAN region at \$16.223 million see Table 20.

Table 20: Exports of Parts and Components across Selected Countries and Regions, 2001- 2003

(FOB values USD '000)

Parts and Components	Year	US	EU	Japan	ASEAN	Thailand	China	Malaysia
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	2001	27.40	24.21	20.46	0.47	0	0	0
	2002	36.30	40.28	1.27	0.33	0.09	0	0
	2003	0	21.69	8.48	0.74	0.25	0.16	0
Electrical wiring harness for motor vehicles	2001	258,177.97	20,703.84	163,987.40	11,889.79	6,136.99	5,087.80	22.88
	2002	253,341.18	37,611.57	173,553.98	24,500.35	14,892.74	3,950.03	0
	2003	230,920.10	24,643.67	203,423.37	16,223.84	6,848.14	2,743.98	152.45
Bumper and parts thereof of motor vehicle groups 722, 781, and 783 of other materials	2001	0	29.55	502.58	8.38	0	11.96	0
	2002	125.02	8.61	587.77	0	0	0	0
	2003	81.30	15.79	1,077.87	2,097.14	1,328.55	22.17	414.41
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	2001	0	0	0	0	0	0	0
	2002	0	18.61	0	0	0	57.05	0
	2003	0	0	0	0	0	68.39	0
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	2001	273.44	250.62	1,263.92	11,627.95	9,323.50	518.89	925.34
	2002	0	0	0	2,496.87	1,282.28	55.41	221.42
	2003	0	0	101.75	0	0	0	0.00
Radiators	2001	3,312.28	18.53	13.81	0.92	0	0	0
	2002	1,288.14	41.76	33.30	0	0	0.66	0
	2003	688.86	49.78	0	2.21	1.44	0	0
Silencers and exhaust pipes	2001	898.93	18.73	0	23.49	23.49	0	0
	2002	1,951.48	11.67	0.22	0.56	0.56	0	0
	2003	2,562.79	0.35	0.54	0.28	0.28	0.06	0
Clutches other than sub-item 7486001	2001	0	0	158.08	1.03	1.04	0	0
	2002	0	0	349.16	22.64	22.64	0	0
	2003	0	0	0	0	0	0	0
Steering wheels	2001	0	0	0	0	0	0	0
	2002	43.57	0	99.85	0	0	0	0
	2003	0	0	149.03	0	0	0	0

Table 20: Exports of Parts and Components across Selected Countries and Regions, 2001- 2003

(FOB values USD '000) *(continued)*

Parts and Components	Year	US	EU	Japan	ASEAN	Thailand	China	Malaysia
Other parts and accessories of motor vehicles 722, 781,782 and 783	2001	26,435.32	26,145.99	90,447.90	73,516.80	49,251.10	698.87	11,308.24
	2002	49,249.54	30,087.99	152,672.60	120,956.26	85,056.70	4,659.00	14,847.11
	2003	88,987.64	38,204.38	200,099.74	160,529.43	117,866.39	3,104.10	17,077.72
Seats used for motor vehicles	2001	68.66	0	13.75	1043.62	0	0	1043.62
	2002	59.79	0	0	195.16	0	0	195.61
	2003	0	0	36.70	128.14	0	1.61	65.49

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

The second largest export earner falls under the product category of other parts and accessories of motor vehicle groups 722, 781, 782 and 783. In the year 2003, this product category produced exports worth \$200.099 million in Japan and \$160.529 million in the ASEAN region out of which \$117.866 million or 73.42 percent went into the Thai automotive industry. The United States and Europe both purchased a huge amount of these parts worth \$88.987 million and \$38.204 million respectively.

The third largest export earner for the year 2003 was the product category for silencers and exhaust pipes which generated sales of \$2.562 million in the United States followed by bumpers and parts thereof at \$2.097 million in the ASEAN region.

The product category for gear boxes, radiators, and seats for motor vehicles formerly generated export revenues that surpassed the \$1 million level. In 2001, exports of gear boxes reached \$11.627 million in the ASEAN region wherein \$9.323 million went into the Thai economy. During the same year \$3.312 million worth of radiators were sold in the United States and \$1.043 million worth of seats for motor vehicles went to the Malaysian automotive sector. Despite these impressive export figures in 2001, the sales performance of these product categories have dramatically dropped during 2002 and 2003. During the year 2003, only \$101.5 thousand worth of gear boxes were sold in Japan and there were no exports to the United States, Europe the ASEAN region and China. Only \$688.855 thousand worth of radiators were sold in the United States and only \$128.139 thousand worth of seats for motor vehicles were exported to the ASEAN region and none to the United States and the European Union. Presented below are the various automotive parts and components exports of the Philippines to its major trading partners for the years 2001, 2002 and 2003.

2. Imports of Automotive Parts and Components across Major Trading Partners

Although the value of exports may provide an initial indication of the potential competitiveness of locally manufactured automotive parts and components, this should be considered in comparison with the amount of imports being undertaken for the same product groupings or categories. Presented in the succeeding table are the actual imports of automotive parts and components from the country's major trading partners.

The largest imports undertaken by the Philippine automotive industry was for the product category covering other parts and accessories for motor vehicle groups 722, 781, 782 and 783. During the year 2003, imports from Japan under this product category were the largest at P190.479 million, followed by the United States at \$46.080 million, the ASEAN region at \$34.537 million, the European Union at \$6.825 million and China at \$3.661 million.

The second largest value of imports for 2003 was for gear boxes from Japan at approximately \$23.346 million. Imports from this country have been consistently large over the past three years with \$29.008 million in 2002 and \$27.434 million in 2001. The ASEAN region was also a major source of gear box imports in 2001 and 2002 at \$1.298 million and \$1.564

million respectively. However, it is important to note that imports from the ASEAN region had declined in 2003 to \$994.824 thousand.

Electrical wiring harnesses for motor vehicles exhibited the third largest importation of automotive parts and components with imports from Japan being the largest at \$4.462 million followed by the ASEAN region at \$1.813 million during the year 2003. Imports of this product category from Japan have been rising over the past three years with \$2.871 million in 2001 and \$3.425 million in 2002. The United States imported over \$1.858 million worth of electrical wiring harnesses in 2002 but since then had reduced this to \$726.183 thousand in 2003. Imports from the European Union, Thailand, China and Malaysia were less than \$1 million during the three year period.

The product category for other parts and accessories n.e.s. of bodies including cabs. of motor vehicle group 722, reflected the fourth largest imports particularly from Japan, the ASEAN region and the United States. Imports from these countries during the year 2003 were \$3.741, \$2.458 and \$1.203 million respectively. Imports from Japan have also been relatively large during 2001 at \$2.538 million and in 2002 at \$3.778 million. Imports from the European Union, Thailand, China and Malaysia were less than \$500 thousand during the three year period.

Other parts and components imports which had exceeded the \$1 million level were radiators from the ASEAN region at \$1.152 million and steering wheels from Japan at \$1.438 million both during the year 2003. All of the other remaining parts and components categories generally had imports which were below the \$1 million level from 2001 to 2003. A complete description of the imports for the 15 automotive parts and components categories are presented see Table 21.

Table 21: Imports of Parts and Components Across Selected Countries and Regions, 2001- 2003
(FOB values USD '000)

Parts and Components	Year	US	EU	Japan	ASEAN	Thailand	China	Malaysia
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	2001	28.48	135.62	12.19	92.15	71.78	50.84	0
	2002	5.20	67.45	9.53	26.76	0	72.19	0
	2003	60.90	64.82	4.30	14.40	0.09	108.03	0
Electrical wiring harness for motor vehicles	2001	2,051.90	358.65	2,871.98	1,522.41	218.13	21.35	7.09
	2002	1,858.24	321.42	3,425.22	2,998.98	617.79	25.53	1.67
	2003	726.18	593.13	4,462.56	1,814.00	523.29	89.65	9.25
Bumper and parts thereof of motor vehicle groups 722, 781, and 783 of other materials	2001	48.44	25.52	799.74	231.30	52.18	6.44	26.98
	2002	1.31	10.89	464.03	276.86	126.23	14.26	21.82
	2003	14.47	5.12	427.33	643.09	362.71	7.42	25.80
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	2001	474.82	72.37	2,538.15	879.67	307.84	48.47	26.48
	2002	488.53	74.69	3,778.40	1,157.77	270.20	111.94	1.06
	2003	1,203.78	68.02	3,741.46	2,458.33	482.43	31.28	10.35
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	2001	2.12	6.94	27,434.18	1,298.35	177.61	237.25	22.15
	2002	47.54	34.10	29,008.56	1,564.14	82.59	397.67	66.06
	2003	26.16	0	23,346.37	994.82	270.31	179.82	0
Radiators	2001	23.16	26.27	446.10	558.82	4.36	21.40	1.49
	2002	10.55	13.70	227.57	590.43	3.51	25.16	0.12
	2003	31.80	4.81	446.64	1,152.44	2.13	23.97	3.22
Silencers and exhaust pipes	2001	11.00	9.91	154.68	41.46	37.58	3.96	0.47
	2002	26.88	3.59	111.86	8.95	1.00	6.85	0
	2003	10.10	8.55	147.98	11.66	0.35	14.58	0
Clutches other than sub-item 7486001	2001	31.87	22.08	706.52	40.51	11.63	120.33	0.72
	2002	13.56	29.79	379.98	49.77	8.58	25.63	11.95
	2003	25.13	4.41	278.42	138.05	94.23	37.42	2.63
Steering wheels	2001	4.43	24.97	178.05	51.55	0.09	0.26	2.60
	2002	13.21	17.03	377.83	44.87	21.90	78.92	2.71
	2003	177.39	37.69	1,438.78	130.54	50.56	9.58	55.62

Table 21: Imports of Parts and Components Across Selected Countries and Regions, 2001- 2003

(FOB values USD '000) (continued)

Parts and Components	Year	US	EU	Japan	ASEAN	Thailand	China	Malaysia
Other parts and accessories of motor vehicles 722, 781,782 and 783	2001	5,902.39	3,132.84	118,376.76	24,364.28	10,845.56	3,057.45	4,491.22
	2002	8,490.60	3,847.88	157,396.08	25,546.39	8,122.24	4,537.60	4,434.22
	2003	46,080.61	6,826.00	190,479.22	34,537.19	13,254.43	3,661.64	3,118.77
Seats used for motor vehicles	2001	12.71	13.59	281.16	11.40	3.45	0.16	0.97
	2002	12.40	1.40	199.40	9.95	2.65	3.20	6.96
	2003	5.40	2.24	649.78	19.43	5.14	30.14	7.80
Radio broadcast receivers used in motor vehicles	2001	47.22	3.78	6.87	84.12	0	39.18	0
	2002	0	0	0.30	5.45	0	1.13	4.75
	2003	3.69	0	0.05	2.64	0	4.00	2.26
Automobile tires, pneumatic, all sizes, new other than steel belted	2001	0	0	39.34	15.49	15.49	0	0
	2002	0	0	3.28	0.17	0.17	0	0
	2003	0	0	0	0	0	0	0
Automobile tires, pneumatic, all sizes, new other than steel belted	2001	0	6.14	146.49	0.23	0	0.15	0
	2002	7.10	0	13.60	0	0	0	0
	2003	0	11.49	171.19	0	0	0.90	0
Components and parts of suspension shock absorbers	2001	46.27	1.19	131.25	0.99	0.73	3.13	0
	2002	113.66	0	70.51	5.79	0	7.78	0.24
	2003	28.65	2.35	285.88	11.13	4.73	0.21	0

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

3. Net Trade Ratio Estimates

One measure, which can be used to indicate trade competitiveness, is the net trade ratio (NTR). The NTR is computed by taking the difference between the exports and imports of specific parts or components divided by the sum of both exports and imports of the same parts or components. Large positive NTRs indicate a high level of trade competitiveness, while relatively lowers NTRs and in some cases, negative NTRs reflect lesser trade competitiveness.

Based on the data released by the BETP/DTI, a comparison of the existing automotive parts and components exports of the Philippines with its corresponding imports in the same product categories reveals that the country can further develop its huge potential advantage in the production of electrical wiring harnesses (with net exports of \$498.452 million) , bumpers and parts (\$2.844 million), silencers and exhaust pipes (\$2.366 million) as well as other parts and accessories of motor vehicles 722, 781, 782 and 783 (\$ 237.299 million). Positive NTRs are highest for electrical wiring harnesses, silencers and exhaust pipes, bumpers and parts and other parts and accessories of motor vehicles 722, 781, 782 and 783 with the estimates at 0.966, 0.837, 0.547 and 0.286, respectively.

Table 22: Automotive Parts and Components Exports, Imports, Net Exports and Net Trade Ratios, 2003
(USD '000)

Parts and Components	Exports	Imports	Net Exports	NTR
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	31.07	483.55	(452.48)	(0.88)
Electrical wiring harness for motor vehicles	507,254.85	8,802.60	498,452.20	0.97
Bumpers and parts thereof of motor vehicle groups 722, 781,782 and 783 of other materials	4,020.31	1,176.21	2,844.10	0.55
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	68.39	8,367.71	(8,299.33)	(0.98)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	101.75	24,557.56	(24,455.80)	(0.99)
Radiators	1,102.10	1,715.55	(613.44)	(0.22)
Silencers and exhaust pipes	2,564.31	227.74	2,336.57	0.84
Clutches other than sub-item 7486001	0.00	542.64.	(542.64)	(1.00)
Steering wheels	229.32	1,821.23	(1,591.91)	(0.78)
Other parts and accessories of motor vehicles 722, 781, 782 and 783	533,080.73	295,781.46	237,299.30	0.29
Seats used for motor vehicles	166.44	834.56	(668.12)	(0.67)

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781,782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

On the other hand, extremely low negative NTRs can be observed in the product categories of gear boxes (-0.992), other parts and accessories, nes of bodies (including cabs) of motor vehicle group 722 (-.98379), laminated safety glass (-0.879), steering wheels (-0.776), seats used for motor vehicles (-0.667) and radiators (-0.218)

For 2002 and 2001, NTR estimates reveal almost the same set of product categories having a potential comparative advantage. Table 23 presented below shows positive NTRs for electrical wiring harnesses, radiators, silencers and exhaust pipes and other parts and accessories for motor vehicle groups 722, 781, 782 and 783. However, it is important to note that the product category of bumpers and parts thereof reflected negative trade ratios for the years 2002 and 2001. This is in contrast to the positive NTR which it displayed in 2003. This major difference may be attributed to the fact that the above mentioned product category had an export growth rate of 457.20 percent during the year 2003.

Table 23: Automotive Parts and Components Exports, Imports, Net Exports and NTRs, 2002
(USD '000)

Parts and Components	Exports	Imports	Net Exports	NTR
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	178.18	285.98	(107.80)	(0.23)
Electrical wiring harness for motor vehicles	519,724.36	9,787.08	509,937.29	(0.96)
Bumpers and parts thereof of motor vehicle groups 722, 781,782 and 783 of other materials	721.52	864.82	(143.31)	(0.09)
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	79.16	6,130.95	(6,051.79)	(0.97)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	2,736.28	31,066.30	(28,330.02)	(0.84)
Radiators	2,016.93	918.66	1,098.27	(0.37)
Silencers and exhaust pipes	1,963.94	463.12	1,500.82	(0.62)
Clutches other than sub-item 7486001	463.28	577.32	(114.04)	(0.11)
Steering wheels	285.21	589.05	(303.84)	(0.35)
Other parts and accessories of motor vehicles 722, 781, 782 and 783	385,185.24	216,314.44	168,870.80	(0.28)
Seats used for motor vehicles	255.50	360.52	(105.02)	(0.17)

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781,782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

In addition, the product category for radiators exhibited positive NTRs for 2002 and 2001 at 0.374 and 0.532, respectively. This is also in contrast to its NTR in 2003 which was -0.218. Radiator exports were at \$2.016 million and \$4.053 million in 2002 and 2001, respectively, and had imports of \$918.661 thousand and \$1.238 million during the same period resulting in trade

surpluses for the two years. However, exports declined by 45 percent in 2003, and imports increased by 86.74 percent which lead to the negative trade ratio for the said year.

In view of the positive trade ratios of radiators for 2001 and 2002, it may also be mentioned that this product category has a potential comparative advantage which can be further developed within the short and medium term period.

With the exception of bumpers and parts, most of the product categories which had positive NTRs during the years 2003 and 2002 also reflected the same trends in 2001, but with the addition of the product group for seats for motor vehicles which exhibited a positive NTR at 0.471. Exports for this product category had exceeded \$1.126 million while imports were at \$405.4 thousand. Despite the large export values in 2001, this product group suffered major declines at a rate of 77.31 percent in 2002 and 34.86 percent in 2003.

The trends with regard to net exports values for 2002 and 2001 have remained relatively consistent with those of 2003 (see Table 24). The product categories of electrical wiring harnesses, and other parts and accessories of motor vehicle groups 722, 781, 782 and 783 continue to reflect the largest net export values for 2001 and 2002, followed by radiators, seats for motor vehicles and silencers and exhaust pipes.

Table 24: Automotive Parts and Components, Exports, Imports, Net Exports and NTRs, 2001
(USD '000)

Parts and Components	Exports	Imports	Net Exports	NTR
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	72.88	433.16	(360.28)	(0.71)
Electrical wiring harness for motor vehicles	482,462.60	7,063.11	475,399.49	0.97
Bumpers and parts thereof of motor vehicle groups 722, 781,782 and 783 of other materials	588.52	1,302.03	(713.51)	(0.37)
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	0.00	4,791.89	(4,791.89)	(1.00)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	14,463.55	29,040.10	(14,576.55)	(0.34)
Radiators	4,053.51	1,238.99	2,814.52	0.53
Silencers and exhaust pipes	941.15	567.14	374.01	0.25
Clutches other than sub-item 7486001	167.82	1155.11	(987.29)	(0.75)
Steering wheels	0.00	322.36	(322.36)	(1.00)
Other parts and accessories of motor vehicles 722, 781, 782 and 783	240,524.26	174,928.06	65,596.20	0.16
Seats used for motor vehicles	1,126.03	405.43	720.60	0.47

Source: Bureau of Export Trade Promotion, Department of Trade and Industry

Notes: ^aMotor vehicle groups 722, 781, 782, and 783 refer to the following: 722: tractors, 781: motor vehicles designed to transport persons, 782: motor vehicles designed to transport goods, 783: road motor vehicles.

^bOther parts and accessories of motor vehicle groups 722, 781,782 and 783." This category of parts and components includes the following items: chassis with engines, brakes, servo boxes and parts thereof, non-driving axles, steering columns, steering boxes, suspension shock absorbers and road wheels and parts accessories thereof.

The product category for radiators exhibited positive NTRs during 2001, 2002 and 2003, however, this had only occurred for the United States (0.986, 0.984, 0.912) and the European Union (0.173, 0.505, 0.8248). NTRs were negative for all other trading partners for this category, and in several extreme cases, the Philippines did not even export and only imported radiators from Malaysia, China, Thailand and Japan.

The product group which includes silencers and exhaust pipes showed positive NTRs only for the United States (0.975, 0.972 and 0.992) during the three year period, and the European Union 0.330 and 0.530 (for 2001 and 2002). The Philippines was generally a net importer for this product category with its other trade partners and in extreme cases did not export but only imported these items from Malaysia and China.

For the product category which includes other parts and accessories of motor vehicles 722, 781, 782 and 783, NTRs were positive for almost all trading partners during the 2001 to 2003 period except for Japan (2001 and 2002) and China (2001 and 2003). For trading partners such as the United States, the European Union, Thailand and Malaysia, NTRs were all positive and fell within a minimum value of 0.317 (the U.S. in 2003) to a maximum of 0.825 (Thailand in 2002).

The Philippines used to be a net exporter of gear boxes during the year 2001 for all its trading partners in the automotive sector. NTRs in 2001 ranged from a minimum of 0.370 (China) to a maximum of 0.984 (the United States). However, going into 2002 and 2003, NTRs either became negative, negative one (all imports and no exports) or zero (implying no trade at all). The latest year wherein the Philippines had a positive NTR in gear boxes was in 2002, particularly with Thailand (0.878) and Malaysia (0.540).

The product category which includes seats for motor vehicles revealed positive NTRs only for Malaysia (0.998, 0.931, 0.787 for 2001, 2002 and 2003, respectively) and the United States (0.687, 0.656, for 2001 and 2002). All other years and trading partners reflected negative trade ratios equal to or close to one. It is interesting to note that from 2001 to 2003, the Philippines consistently imported (and did not export) seats for motor vehicles from the European Union and Thailand, and had exported more of this product to Malaysia and the United States.

As for the remaining product groups, the country was generally a net importer of automotive parts and components under the categories of laminated safety glass, clutches, steering wheels and other parts and accessories of bodies (including cabs) of motor vehicle group 722. The country also had NTRs equal to negative one (implying all imports and no exports) for auto radios, automobile tires, drive axles and components and parts of shock absorbers. A complete description of the NTRs for all the major trading partners of the Philippines in the automotive parts and components sector is provided in Table 25.

Table 25: NTRs for Parts and Components across Selected Countries and Regions, 2001-2003

Parts and Components	Year	US	EU	Japan	ASEAN	Thailand	China	Malaysia
Laminated safety glass for vehicles, aircraft, spacecraft, vessels	2001	(0.02)	(0.70)	0.25	(0.99)	(1)	(1)	0
	2002	0.75	(0.35)	(0.77)	(0.98)	1	(1)	0
	2003	(1)	(0.50)	0.33	(0.90)	0.45	1	0
Electrical wiring harness for motor vehicles	2001	0.98	0.97	0.97	0.77	0.93	0.99	0.53
	2002	0.99	0.98	0.96	0.78	0.92	0.99	(1)
	2003	0.99	0.95	0.96	0.80	0.86	0.94	0.89
Bumper and parts thereof of motor vehicle groups 722, 781, 782 and 783 of other materials	2001	(1)	0.07	0.23	(0.93)	(1)	0.30	(1)
	2002	0.98	(0.12)	0.12	(1.00)	(1)	(1)	(1)
	2003	0.70	0.51	0.43	0.53	0.63	0.50	0.86
Other parts and accessories, nes of bodies including cabs. of the motor vehicles of groups 722	2001	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	2002	(1)	(0.60)	(1)	(1)	(1)	(0.32)	(1)
	2003	(1)	(1)	(1)	(1)	(1)	0.37	(1)
Gear boxes of the motor vehicles of groups 722, 781, 782, and 783	2001	0.98	0.95	(0.91)	0.80	0.96	0.37	0.95
	2002	(1)	(1)	(1)	0.23	0.88	(0.76)	0.54
	2003	(1)	0	(0.99)	(1)	(1)	(1)	0
Radiators	2001	0.99	(0.17)	(0.94)	1	(1)	(1)	(1)
	2002	0.98	0.51	(0.74)	(1)	(1)	(0.95)	(1)
	2003	0.91	0.82	(1)	(1)	(0.19)	(1)	(1)
Silencers and exhaust pipes	2001	0.98	0.33	(1)	(0.28)	(0.23)	(1)	(1)
	2002	0.97	0.53	(1)	(0.88)	(0.28)	(1)	(1)
	2003	0.99	(0.92)	(0.99)	(0.95)	(0.66)	(0.99)	(1)
Clutches other than sub-item 7486001	2001	(1)	(1)	(0.63)	(0.95)	(0.84)	(1)	(1)
	2002	(1)	(1)	(0.04)	(0.37)	0.45	(1)	(1)
	2003	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Steering wheels	2001	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	2002	0.53	(1)	(0.58)	(1)	(1)	(1)	(1)
	2003	(1)	(1)	(0.81)	(1)	(1)	(1)	(1)

Table 25: NTRs for Parts and Components across Selected Countries and Regions, 2001-2003 (continued)

Parts and Components	Year	US	EU	Japan	ASEAN	Thailand	China	Malaysia
Other parts and accessories of motor vehicles 722, 781, and 783	2001	0.63	0.79	(0.13)	0.50	0.64	(0.63)	0.43
	2002	0.71	0.77	(0.02)	0.65	0.83	0.01	0.54
	2003	0.32	0.70	0.02	0.65	0.80	(0.08)	0.69
Seats used for motor vehicles	2001	0.69	(1)	(0.91)	0.98	(1)	(1)	1
	2002	1	(1)	(1)	0.90	(1)	(1)	0.93
	2003	(1)	(1)	(0.89)	0.74	(1)	(0.90)	0.79
Radio broadcast receivers used in motor vehicles	2001	(1)	(1)	(1)	(1)	0	(1)	0
	2002	0	0	(1)	(1)	0	(1)	(1)
	2003	(1)	0	(1)	(1)	0	(1)	(1)
Automobile tires, pneumatic, all sizes, new other than steel belted	2001	0	0	(1)	(1)	(1)	0	0
	2002	0	0	(1)	(1)	(1)	0	0
	2003	0	0	0	0	0	0	0
Drive axles with differential, whether of not provided	2001	0	(1)	(1)	(1)	0	(1)	0
	2002	(1)	0	(1)	0	0	0	0
	2003	0	(1)	(1)	0	0	(1)	0
Components and parts of suspension shock absorbers	2001	(1)	(1)	(1)	(1)	(1)	(1)	0
	2002	(1)	0	(1)	(1)	0	(1)	(1)
	2003	(1)	(1)	(1)	(1)	(1)	(1)	0

Note: Estimates based on export import data provided by the Bureau of Export Trade Promotion, Department of Trade and Industry

Presented in Table 26 are the NTR estimates for the Philippines, Thailand, Malaysia and China for the years 2000 and 2001. It is again important to note that it is necessary to select parts and components groupings, which are the same across countries in order to have a meaningful comparison of NTR estimates.

Table 26: Net Export Trade Ratios, 2000

Product Name	Philippines	Thailand	Malaysia	China
Bumpers and parts for motor vehicles	(0.74)	0.18	0.71	(0.31)
Parts and accessories of bodies for motor vehicles	(0.91)	0.48	(-0.33)	(0.32)
Brake system parts for motor vehicles	0.94	0.07	(0.50)	0.68
Transmissions for motor vehicles	0.53	(0.96)	0.16	(0.47)
Wheels including parts and accessories for motor vehicles	0.74	0.91	0.75	0.79
Radiators for motor vehicles	0.75	0.93	(0.11)	0.55
Muffler and exhaust pipes for motor vehicles	0.20	0.23	(0.44)	(0.10)
Steering wheels, steering columns and steering boxes for motor vehicles	0.25	0.21	0.58	(0.71)
Other motor vehicle parts	0.12	(0.72)	(0.69)	(0.63)

Note: Computed based on data from the International Trade Statistics 2003

Based on the initial set of parts and components being exported in the automotive industries of the Philippines, Thailand, Malaysia and China for the year 2000, a comparison of NTR estimates reveal that the Philippines actually possesses some comparative advantage in the production and exports of brake system parts, transmissions, and other motor vehicle parts as evidenced by the higher NTR values (of 0.940, 0.5312, and 0.121 respectively) as compared to Thailand, Malaysia and China. It is interesting to note that Thailand, Malaysia and China have negative NTR values for other motor vehicle parts, indicating that they are net importers of these items, while the Philippines is the only net exporter and the only negative NTR value for the Philippines is shown for bumper and parts for motor vehicles at (-0.738), while the other countries have two or more parts and components groupings, which have negative NTR values. Thailand has negative NTR values for transmissions and other motor parts; Malaysia is a net importer of parts and accessories for bodies, brake system parts, radiators, and mufflers and exhaust pipes. China has six parts and components groups, which have negative NTR values. China is only a net exporter for brake system parts, wheels and accessories and radiators.

For 2001 (see Table 27), NTR estimates for the same set of countries reflect almost the same patterns as compared to the year 2000. The results presented below show that the Philippines has the highest NTR values for brake system parts, transmissions and other motor vehicle parts (with values of 0.945, 0.471 and 0.168 respectively). The Philippines is only a net importer for bumper and parts, and parts and accessories of bodies with negative NTR values of (-0.525) and (-0.991) respectively. China is a net importer in six out of the nine parts and components groups, Malaysia has five negative NTR values, while Thailand is a net importer in three out of the nine parts and components groups.

Table 27: Net Export Trade Ratios, 2001

Product Name	Philippines	Thailand	Malaysia	China
Bumpers and parts for motor vehicles	(0.53)	0.35	0.71	(0.42)
Parts and accessories of bodies for motor vehicles	(0.99)	0.09	(0.34)	(0.49)
Brake system parts for motor vehicles	0.95	0.08	(0.65)	0.59
Transmissions for motor vehicles	0.47	(0.97)	0.01	(0.81)
Wheels including parts and accessories for motor vehicles	0.75	0.87	0.74	0.82
Radiators for motor vehicles	0.47	0.89	(0.22)	0.48
Muffler and exhaust pipes for motor vehicles	0.19	(0.56)	(0.37)	(0.34)
Steering wheels, steering columns and steering boxes for motor vehicles	0.38	0.39	0.57	(0.80)
Other motor vehicle parts	0.17	(0.75)	(0.64)	(0.58)

Note: Computed based on data from the International Trade Statistics 2003

The abovementioned results actually provide a good indication of the country's potential and of the market niche that the Philippines should further establish and exploit. The country has a comparative advantage in the production and exports of parts and this should be further strengthened by continually upgrading the level of technology used by manufacturers in order to improve efficiency, productivity, reduce average costs and ensure that product quality meets international standards. In addition, the steel and aluminum casting industries should be assisted by government in terms of attracting investments in molds and high technology equipment to further raise productive capacity and meet stringent requirements on quality and tolerance standards such as specialty and alloy steel parts and high grade specific resin parts. so that parts manufacturers can further tap these industries as adequate sources of low cost high quality materials.

The Philippines is the only country among the ASEAN 4 that has experienced a positive NTR for motor vehicle parts and accessories (product group: SITC 784) between 1997 and 2001 (Them 2003). These estimates are presented (Table 28) as follows:

Table 28: NTRs for ASEAN 4, Product Group SITC 784-Motor Vehicle Parts and Accessories, 1997- 2001

Country	1997	1998	1999	2000	2001
Indonesia	(0.67)	(0.75)	(0.88)	(0.71)	(0.67)
Malaysia	(0.67)	(0.22)	(0.30)	(0.38)	(0.36)
Philippines	0.12	0.32	0.29	0.39	0.39
Thailand	(0.79)	(0.11)	(0.36)	(0.48)	(0.52)

Source: Tham, 2003

Nevertheless, the Philippines has been reported to be a net component exporter since the 1990's and hence there has not been much change since the implementation of AFTA PECC, 2002. Parts exporters are also reported to be limited to a few components roughly 22 parts and components. that were mostly developed in response to the MNC's global and regional strategies Ofreneo, 2003. These parts and components are enumerated as follows: 1) wiring harnesses; 2) ABS controls; 3) gear boxes (transmissions); 4) car stereos; 5) body parts and other

related parts; 6) alloy wheels, related parts and accessories; 7) car speakers; 8) auto batteries; 9) V –belts; 10) radiators; 11) lights and signals; 12) silencer and exhaust system; 13) parts of crane trucks; 14) oil, fuel and air filters; 15) tires; 16) Seats; 17) Bumper and parts; 18) axles, wheels and parts; 19) steering wheel columns; 20) clutches; 21) shock absorbers and parts ; 22) safety glass and others.

4. Revealed Comparative Advantage Estimates

Another measure, which can be used as an indicator of trade competitiveness using exports and import data on automotive parts and components, is the revealed comparative advantage (RCA). Estimates of the RCA can be computed by taking the percentage of parts and components exports out of the total exports of the Philippines divided by the percentage of total Philippine exports to world exports. A larger value will indicate a greater comparative advantage in the production and export of the part or component being considered. Presented below are the actual RCA values for the Philippines, Thailand, Malaysia and China for nine groupings of automotive parts and components. It is important to note that a comparison can only be undertaken for automotive parts and groupings, which are common across countries (hence, only nine groupings could be compared).

As presented in Table 29, results for the year 2000 show that Philippine RCA estimates are highest among the four selected countries for brake system parts (3.372), transmissions (12.045) and other motor vehicle parts (0.535). Philippine RCA estimates are the second highest for radiators (0.769), and third for parts and accessories of bodies (0.033) and wheels including parts and accessories (0.774). In the group, the Philippines have the lowest RCA values only for bumpers and parts (0.026).

Table 29: Revealed Comparative Advantage Estimates for 2000

Product Name	Philippines	Thailand	Malaysia	China
Bumpers and parts for motor vehicles	0.03	0.39	0.37	0.12
Parts and accessories of bodies for motor vehicles	0.03	0.22	0.01	0.10
Brake system parts for motor vehicles	3.37	0.17	0.02	0.57
Transmissions for motor vehicles	12.05	0.01	0.01	0.04
Wheels including parts and accessories for motor vehicles	0.77	1.22	0.26	0.86
Radiators for motor vehicles	0.77	1.27	0.07	0.38
Muffler and exhaust pipes for motor vehicles	0.04	0.10	0.02	0.09
Steering wheels, steering columns and steering boxes for motor vehicles	0.39	0.49	0.44	0.06
Other motor vehicle parts	0.54	0.32	0.05	0.16

Source: Computed based on data obtained from the International Trade Statistics 2003

For 2001, almost the same results can be observed considering that the Philippines again registered the highest RCA estimates for brake system parts, transmissions and other motor vehicle parts (at 4.445 and 1.104 and 0.919 respectively). As shown in Table 30, the lowest RCA

values of the Philippines relative to the group were for bumpers and parts and parts and accessories of bodies at (0.044 and 0.000 respectively).

Table 30: Revealed Comparative Advantage Estimates, 2001

Product Name	Philippines	Thailand	Malaysia	China
Bumpers and parts for motor vehicles	0.04	0.46	0.52	0.11
Parts and accessories of bodies for motor vehicles	0.00	0.25	0.01	0.10
Brake system parts for motor vehicles	4.45	0.20	0.02	0.61
Transmissions for motor vehicles	1.10	0.00	0.00	0.00
Wheels including parts and accessories for motor vehicles	0.58	1.02	0.23	1.03
Radiators for motor vehicles	0.32	1.54	0.06	0.47
Muffler and exhaust pipes for motor vehicles	0.06	0.06	0.03	0.10
Steering wheels, steering columns and steering boxes for motor vehicles	0.25	0.34	0.43	0.04
Other motor vehicle parts	0.92	0.32	0.06	0.17

Note: Computed based on data from the International Trade Statistics 2003

These results show that China despite having the lowest labor cost and the largest market that facilitates economies of scale production does not necessarily have a comparative advantage in the production of all automotive parts and components. More importantly, the Philippines have a comparative advantage in brake systems, transmissions and other motor vehicle parts as shown by the high RCA values, which they registered.

A logical explanation for the country's strength in transmissions may be found in the fact that Toyota uses the Philippines as a base for producing transmissions to be exported under the AICO scheme. Toyota manufacturing plants in Malaysia, Thailand and Indonesia use these transmissions for the assembly of CBUs both for the domestic and export markets. Brake system parts and other motor vehicle parts may be produced competitively in large volumes because of the available source of materials coming from the local steel and aluminum casting industries. In addition, one of the largest first-tier manufacturers namely Nissin Brake Phil. Corp which started operations in 1995, as well as Nissan Philippines produce pressed parts and brake pedals under the AICO scheme. Finally, brakes and clutches along with wiring harnesses, transmissions, tires, batteries, filters, radiators, silencers, exhaust pipes and alloy wheels have been identified as developed and have been exported over the past several years because of their competitiveness in terms of cost and quality (Tandingan 2003, BOI, Motor Vehicles Department Report 2003).

To establish and strengthen the market niche in parts and components it will be necessary for manufacturers to create strategic alliances based on parts and components and sell the finished products as a complete set. Such alliances (whether between large, medium or small scale enterprises or conducted in the form of mergers, collaborative ventures or subcontracting arrangements) will help fill gaps in terms of investments in new technology and equipment, market consolidation and skills upgrading that will improve competitiveness. For example, leaf spring manufacturers can consolidate with coil spring, wire spring and wheel manufacturers to produce an entire set of power train components ready for delivery

(Tandingan 2003, BOI, Motor Vehicles Department Report 2003,). A list of automotive parts based on a functional classification or grouping is provided below. Various firms can undertake a collaborative effort based on these groupings to produce specific parts and components and sell the final product as an assembly or a complete set (see Table 31).

Table 31: List of Automotive Parts by Items

Item	Final Product
Internal engine parts	Piston, piston ring, cylinder liner, intake valve, exhaust valve, bearing, thrust washer, gasket, oil seal, fuel pump, carburetor, fuel injection system, air cleaner, oil cleaner, oil pump, water pump, radiator, muffler, silencer, clutch, automatic transmission, universal joint, drive shaft, propeller shaft
Power train components	Leaf spring, coil spring, wire spring, wheel, handle steering, steering system, tie rod, tie rod end shock absorber, tire for passenger car, tire for commercial vehicle, tire for light duty truck, brake power assist, brake cylinder, brake tube, break shoe, electronic brake control device
Chassis components	Body for passenger cars, body for bus, body for truck, fuel tank, except LPG., window frame, door hinge/handle/lock, window regulator, seat, seat belt
Body components	Car battery, switches, instruments, meters., wiper, horn, dynamometer, starter, distributor, ignition coil, spark plug, car lamp bulb, lighting system except car lamp.
Electrical devices	Car air conditioner, compressor, heater, airbag module, car navigation system, car audio
Engine and power train components	Gasoline engines and engine components, diesel engines and engine components, radiators, supported catalyst, muffler and silencer, clutches, gear boxes, lubricants, filters and cleaners, transmission shafts, drive axles, crankshafts, ball/roller bearings, bearing houses, flywheels, pulleys, gasket, joints and joint components
Suspension components	Chassis springs, coiled springs, brakes, friction materials, brake linings, tires for passenger cars, tires for commercial vehicles, solid/cushion tires, inner tubes, wheels, wheel parts and accessories, suspension, shock absorber, steering wheels, steering columns/boxes

Table 31: List of Automotive Parts by Items (continued)

Item	Final Product
Body components	Chassis with engines, bodies of passenger cars, other vehicle bodies, bumper and bumper parts, motor vehicle seats, safety seat belts, toughened safety glass for vehicles, its mountings and fittings, other body parts and accessories
Electrical components	Automotive batteries, starter motors, generators, spark plugs, ignition coils, dynamometers, sealed beam lamps, filament lamps, windshield wipers, defrosters, gauges, horns, clocks
Other equipment	Air conditioning units and its components, compressors for air conditioning, car amplifiers, car speakers, car audio equipment

Source: Tandingan 2003, BOI, Motor Vehicles Department 2003

Considering that the metal working sector makes up the largest bloc of parts manufacturers (84 out of the entire 256 firms) and that the second largest group is the rubber product manufacturers followed by the seat and trim parts makers, the government should identify, recognize and develop these groups of firms as the main local source of materials for steel and aluminum casting, natural rubber parts and general plastic parts. Presented below are the specific parts that can be developed to become competitive exports under the above-mentioned categories (see Table 32).

Table 32: Parts and Components to be developed as Competitive Exports

Item	Final Product
Steel and Aluminum Casting	Magwheel center piece, magwheel access, Automotive machinery parts, Automotive wheel rims and discs, Metal stamping/ stamped parts for automotive, Brake and clutch pedals, accelerator pad pedals, Hinges, auto seat spring, frame assembly, Condenser coil for aircon and evaporator assembly, Metal balls, shafting bolts and nuts, Bracket master cylinder, Under chassis components
Rubber Parts	Automotive seal, o-ring, Transmission support, engine support, suspension bushing, radiator support, shock absorber bushing, oil seal, oil filter, Mud guard and cup, pedal pad, arm rest, link wood, stopper and rubber handle, Radiator hose, door weather strips, windshield weather strips, engine mounting, bodyside mounting, door trim opening, hose for fuel, extruded and molded products, rubber plastic matting, Rubber belting and automotive fan belt
Interior	Seat assembly, upholstery for car seats, Door trims, Visor and headlinings, car carpets and vacuum formed car parts
Fabricated Parts	Console box, Radiator shrouds, Mud guards
Plastic Parts	Windshield clip, carpet clip, siding clip, Knob an guide, Bezel and fuse box

Table 32: Parts and Components to be developed as Competitive Exports (continued)

Item	Final Product
Electrical Components	Automotive transmission units, Alternators, starters and parts, Automotive low tension wire, Electronics and semiconductor tooling, Car stereo and speaker
Design	Fabrication and repair of plastic injection moulds, Die casting moulds, Tool and die design, machine/ parts design and fabrication
Glass Parts	Automotive tempered glass and tempered flat glass for individual use

Source: Tandingan 2003, BOI, and Motor Vehicles Department, 2003

The below-mentioned parts and components have materials, which can be sourced locally, can be produced using labor-intensive techniques, and fall within the experience and expertise of local firms.

C. The Need for Strategic Alliances

The use of a strategic partner will be necessary in a global environment with greater competition. Forming an alliance with a strategic partner will help fill gaps in current market technology, can help turn excess capacity into profits, reduce risk and entry costs into new markets, accelerate product innovations, achieve economies of scale, helps better overcome legal and trade barriers, extends the scope of existing operations and cuts exit costs when divesting operations (Mason; 1993). The firms produce their respective parts and components and sell them as an assembly or group. The option to sell the components individually may still be undertaken, but the important objective to accomplish is to reduce average cost and raise quality and forming the strategic alliance may facilitate this. A market niche may be created in the form of low cost parts, which at the same time meets international product standards, and delivery requirements set by assemblers as well as first tier firms. Greater collaboration among parts manufacturers, common parts sourcing, more integrated component system approach and sharing of research and development initiatives can increase cross border alliances that will be necessary to strengthen ASEAN integration and meet the challenges posed by globalization (Tandingan 2003).

Based on the experiences of Thailand and Malaysia, these strategic alliances may be implemented through the use of a module system approach. The module system is a group of components that are linked by function and are supplied to the automotive assemblers. ASEAN manufacturers will need extensive research and development initiatives and huge investments to create new ways to take core parts and convert them into highly efficient assemblies (Chiasakul 2004).

D. The Role of Government in Upgrading Technical Capabilities

Aside from the formation of strategic alliances among parts and components manufacturers, a strong partnership between government and the local automotive sector is necessary in order to continue improving technological capabilities. A research and development center should be set up in order to assist SMSEs in studying rapid prototyping and methods to upgrade production capabilities. Initially called the Automotive Technology Excellence Center, this institute is a tie-up between the state run Technical Education and Skills Development Authority (TESDA), the Metal Industry Research and Development Center (MIRDC) and the Department of Trade and Industry among other relevant government agencies. It should facilitate the provision of: 1) human resource development programs for the industry; 2) technology transfer; 3) and the establishment of a testing laboratory. This strategy will optimize the use of the capital equipment donated to these agencies and the same time will address the problem of inadequate engineering capabilities among manufacturers and the prohibitively high research and development costs. (Tenorio and Lugo, 2003) .

1. Skills Certification System

Salazar (2004), reports that Japanese automotive industry experts who recently visited Manila indicated that the Philippines still plays no important role in the global auto parts making industry and is actually on the verge of losing investors. The major recommendation given by these experts was to first improve the skills of local automotive parts technicians. A plan to set up a skills certification system to help upgrade skills and accredit qualified local workers for international status is being set up under the Japanese Frontline project led by Kenzo Mori. The project started in August 2004 and it includes a survey of the skills needed and actual skills levels of automotive workers, existing wage performance evaluation systems, existing training programs and facilities, organizational buildups, actual education and training, the planned startup of the certification system and the preparation of manuals and reports. The evaluation conducted by Mori under the Frontline project revealed that local auto parts suppliers had a lot of catching up to do compared to Japanese assembly manufacturers and large suppliers in the area of skills training resources and capabilities. The Frontline project is designed to establish standards for key skills relating to the production of automobiles and their parts and design and build a certification system for automobile manufacturing technicians in specific categories including certification standards and criteria. It also includes the development of an education and training infrastructure that can be shared within the industry. The processes of metal press work, plastic molding and casting machining were identified and selected as special areas of interest. The operations of skill certification related to these are metal stamping operations, plastic injection molding, iron casting, lathe operation and milling machine operations. The project is also designed to evaluate the knowledge and skills of workers on the basis of the fixed criteria and certify them publicly so that it has to adopt uniform certification procedures and industry wide valuation criteria and maintain fairness and reasonable certification practices. The certification would also lessen the period of training granted by a company while at the same time upgrading worker productivity.

E. Export Incentives Program

The Philippine Government had recently passed an initiative to help make the country a regional export-manufacturing hub. The incentives would be a form of tax credit that may be applied to any of the tax requirements of auto parts manufacturers such as income tax or VAT. The incentives will apply only to incremental increase in the volume of exports.

Ford Motor Company is currently the only firm to take full advantage of the Philippines automotive export program. The incentive program grants domestic manufacturers tariff preference through the application of credit of \$400 for every \$5000 worth of exports phased down over the next five years (from 2005-2009). The export initiative comes under the ASEAN Industrial Cooperation (AICO) program, which allows the trading of vehicle at preferential tariffs of zero to five percent. The program has enabled Ford to locate the assembly of brands such as Lynx and Escape to the Philippines, and also allowed Ford to move the manufacturing of Ford Ranger to Thailand. Ford is the only manufacturer in the Philippines to export CBUs to ASEAN member countries. Ford Philippines exports the Ford Lynx and Escape and the Mazda Protégé and Tribute to Thailand and Indonesia (U.S. International Trade Commission 2004). Ford Philippines exported 13,327 vehicles worth \$190 million to Thailand in 2002 compared to 2001 where it exported only 2,785 units. By July 2003, Ford vehicle exports reached 10,000 units and the commitment for the year 2004 is 16,000 units of vehicle exports (Department of Trade and Industry Report 2004).

F. Need for Technology Transfer Strategies

Policies such as: attracting FDI into strategic high technology automotive parts manufacturing; the imposition of local content requirements and; the use of tariffs to protect the industry could not sufficiently facilitate the direct transfer of technology to local firms that were envisioned to be efficient suppliers to automotive assemblers. At best, local parts suppliers with low value added components (belonging to tier 2 and tier 3) were established. Gimenez (1994) explained that the slow growth of the parts manufacturing sector and their lack of competitiveness in terms of price and quality may be traced to the following reasons: 1) the lack of locally manufactured raw materials which forced components manufacturers to import; 2) the low productivity and lack of quality measures among small and medium parts makers; 3) old equipment and technologies that are obsolete and: 4) the lack of mold design technology, tool and die making.

A more effective means of technology transfer will consequently help local parts manufacturers address the above-mentioned problems and be more competitive. It will be necessary to look at the initiatives taken by governments of other countries, which were more proactive in encouraging the creation, and deepening of linkages between multinational enterprises and local firms. Singapore has a Local Industry Upgrading Program LIUP. with the purpose of upgrading, strengthening and expanding the pool of local suppliers to foreign affiliates (UNCTAD 2001) that are efficient, reliable and internationally competitive. Organization and financial support are offered to upgrade and develop vendors, while foreign

firms are encouraged to enter into long-term contracts with local suppliers, which in turn are assisted to upgrade their products and processes.

VII. ADVANTAGES BEHIND ASEAN INDUSTRIAL COMPLEMENTATION

In 1998, the ASEAN nations adopted the Brand-to-Brand Complementation (BBC) scheme, which allows an approved auto part to enjoy a minimum of 50 percent margin of tariff preference and local content accreditation if it is a component for the manufacture of any product in the participating countries. Japanese automakers have developed the parts complementation system on the basis of the BBC scheme. Toyota for example rapidly established the complementation scheme in 1989. Toyota retained three production plants in Thailand, one in Indonesia, and one in Malaysia and one in the Philippines. In the summer of 1990, Toyota began to construct two parts plants in order to promote complementation of parts production – T&K Autoparts in Malaysia and Toyota Autoparts Philippines. In July 1990, Toyota established Toyota Motor Management Services in Singapore. The objectives of the company were to coordinate the circulation of parts under the BBC and to manage logistic costs in Asia. In early 1993, T&K Autoparts began the exports of steering systems to Thailand, the Philippines and Indonesia. Toyota Autoparts Philippines also started the offer of transmissions to Malaysia, Thailand and Indonesia. Toyota Astra Motor began to provide gasoline engines to Malaysia, while Toyota Auto Body Thailand exports floor panels to UMW Toyota Motor in Malaysia. In the Toyota group, the transaction value of parts and components within the ASEAN region increased from 1.6 billion yen in 1992 to 8.4 billion yen in 1993 to 15.5 billion in 1994 (Yoshimatzu 1999).

Tecson (2001) points out that multinational automotive firms were in constant search for new markets, low cost assembly points, as well as component suppliers that would enhance their competitive advantage in export markets. Japanese firms in particular had fine-tuned their subcontracting networks in Japan and took advantage of ASEAN developing countries desire to jump-start their local automotive industries.

The Basic Agreement on the ASEAN Industrial Cooperation (AICO) scheme was signed at the Third ASEAN Economic Ministers Retreat in Singapore in April of 1996 and it was opened to any ASEAN brand company which has a minimum 30 percent ASEAN national equity, and is willing to undertake resource pooling, industrial complementation, or other industrial cooperation activities. A minimum of two companies in two different ASEAN countries is required to form an AICO arrangement, and AICO approved products get a preferential tariff rate in the range of zero to five percent, local content accreditation and other non-tariff incentives.

Unlike the Brand-to-Brand Complementation (BBC) scheme, whose target is the automobile sector, the AICO is open to all manufacturing sectors but expects its immediate beneficiary to be auto manufacturers see Table 33. The AICO is similar to the BBC in a sense that it sees the ASEAN area as a common market, and grants the ASEAN made products the same preferential treatment as domestic products. The automakers are the leading

manufacturers that have developed their operations based on these concepts, creating the most advanced complementation system in the region. The AICO allows zero to five percent preferential tariffs before the CEPT comes into effect and thereby enables insiders to enjoy benefits resulting from the ASEAN market and to strengthen their competitiveness before the full market liberalization (Yoshimatzu 1999).

Table 33: Toyota Motors' Brand to Brand Complementation and the ASEAN Industrial Cooperation AICO. Network

Thailand Diesel engines Steering columns Body parts	Philippines Transmissions Constant velocity joints Combination switches
Malaysia Steering links Engine computers Wiper arms and blades	Indonesia Gasoline engines Clutches Door locks, door frames

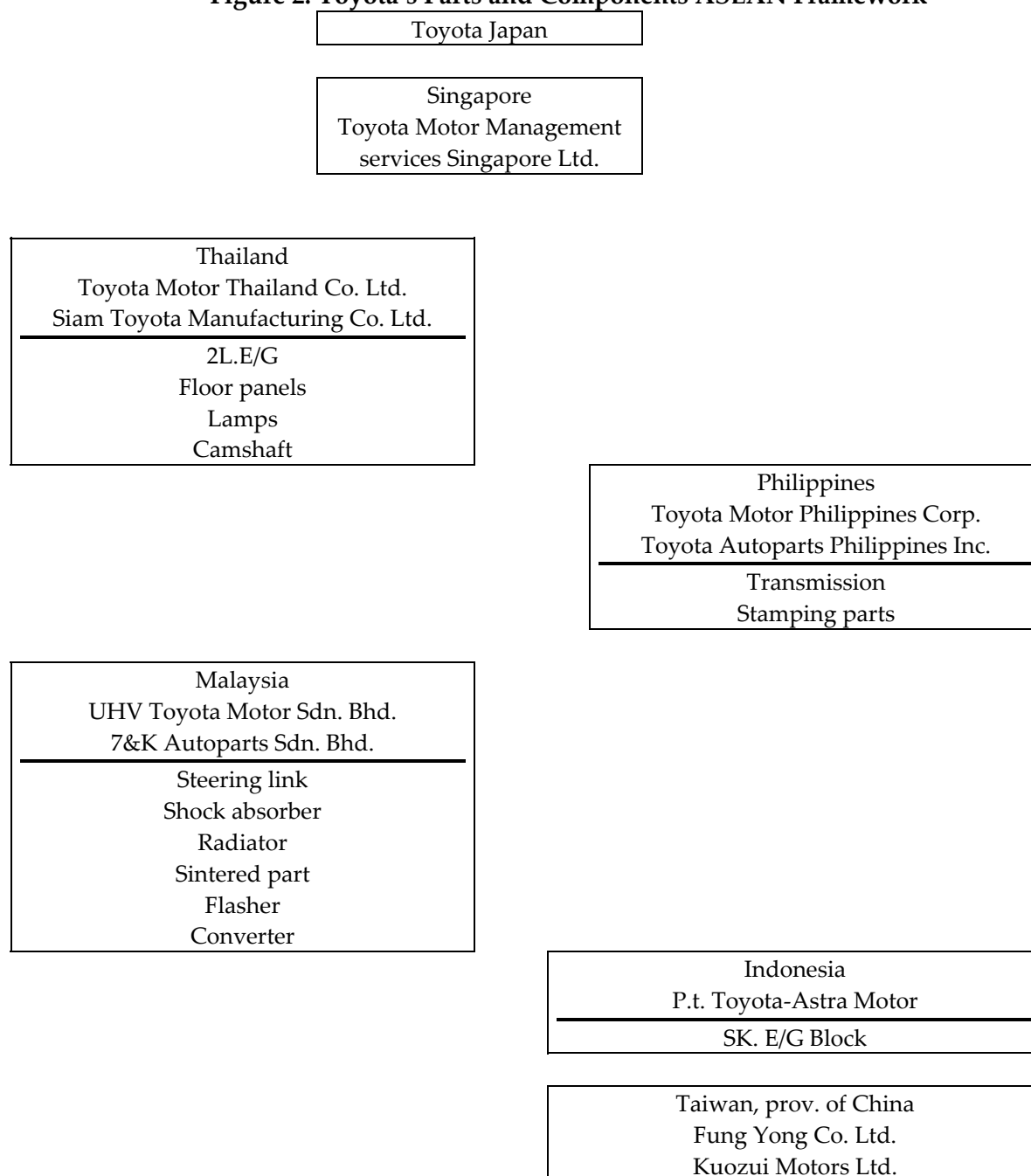
Source: Toyota Motors, Co.

A. Toyota's Participation in the AICO Scheme

Toyota's vehicle production network in the Asian region, which was partly created as a result of these countries' import substitution policies but at the same time, was also a rational response to the regional industrial cooperation policies of ASEAN. Toyota continues with its intra-firm trade in parts and components throughout the region, coordinated by Toyota Motor Management Company located in Singapore, leverages the comparative advantage of each country in the region. The firm continues with its exports of steering links from Malaysia, diesel engines from Thailand, transmissions from the Philippines and engines from Indonesia (UNCTAD 1996). Presented below is an illustration of Toyota's parts and components ASEAN framework.

Toyota Group's manufactured parts and components constitute about a third of total Philippine automotive exports, with 2003 output of \$369 million seen to grow beyond \$400 million by 2005. Toyota Auto Philippines (TAP) President Yasuro Takeuchi sees a further strengthening of TAP's partnership with the Philippines, coming at a time when Toyota has identified the country as a major automotive operations base in Asia from which increased auto parts exports are earmarked for Toyota's global procurement system. (Financial Times Information Limited 2004).

Figure 2: Toyota's Parts and Components ASEAN Framework



Source: UNCTAD Report 1996

In addition, Akio Toyoda, Senior Managing Director for Toyota Motor Corporation expressed that TAP will continue to play a critical role in supplying transmissions for vehicle models produced worldwide. Total transmission export volume will reach roughly 250,000 units by the year 2005. For the year 2003, Toyota attained a 30 percent market share, with total sales of 27,821 units, which represents 12 percent growth as compared to the year 2002. . This was impressive considering that the entire market only reflected a 10.8 percent growth in sales

equal to roughly 92,336 vehicles (Chamber of Automotive Manufacturers of the Phil. Inc. (CAMPI) 2004).

With a population of 450 million, the ASEAN is larger than the European Union, and together, the automotive industries of Malaysia, Thailand, Indonesia and the Philippines have become a potential challenge to industries outside the region. In 2002, Malaysia reported the highest vehicle sales among the ASEAN four with 434,954 units compared to Thailand's 409,382, Indonesia's 317,721 and the Philippines' 86,417. However, sales alone do not give the true picture, because although Malaysia had the largest sales figures, its production was only 456,822 units, which mostly ended up in their domestic market. Thailand on the other hand, produced more than 500,000 units and exports models like the Ford Ranger, Opel Zafira and Honda City to other ASEAN countries (Ngui, 2003).

B. Honda's ASEAN Production Network

Among ASEAN's most notable automotive investors is Honda Motor Co. Ltd., which is the only Japanese automobile firm to have manufacturing plants in all four markets –Malaysia, Thailand, Indonesia and the Philippines. Satoshi Toshida, the managing director of Asian Honda Motor Co. Ltd., which oversees Honda operations in the region, says that "Honda production bases in ASEAN are fully empowered to serve as many customers as possible, and is looking to further make its products competitively priced by focusing on specific production models in respective markets".

Honda chose Bangkok as its production base because Thailand is Honda's largest market in Southeast Asia. The firm's activities in the ASEAN region are not confined to the assembly of vehicles but also involve manufacturing car parts. In Malaysia, Honda produces constant velocity joints, a kind of drive shaft, while its counterpart in the Philippines manufactures intake valves, in Indonesia it produces engine parts and in Thailand it makes body and stamping parts. Toshida further states that this is part of Global Honda's policy, which is a strategy of global production and procurement of resources.

As tariff rates are reduced to a level of zero to 5 percent under the AFTA-CEPT scheme and local content requirements eliminated, Asian Honda is planning better coordination of the various plants in Southeast Asia. Toshida states that the strategy is to bring the benefits of ASEAN market liberalization to both the customers and host economies by utilizing economies of scale to transfer products between countries. Honda Bangkok has begun to streamline its production facilities including the unifying all production processes of its City subcompact model in Thailand. By 2005, Honda will cease assembly of the subcompact the most saleable model. in Indonesia and the Philippines, and will have its largest plant in Thailand for the entire ASEAN region having an annual production capacity of 120,000 vehicles, the bulk of which is the City subcompact model.

Toshida continues by saying that AFTA has changed the way of doing business in Southeast Asia wherein the production strategy is no longer to manufacture of the local market but to exchange models and engine parts between one market and the next.

The scheme started recently with the exchange of the Accord from Thailand with the Stream from Indonesia. Beginning 2004, all City and Accord models will be fully exported from Thailand to Indonesia and the Philippines (Ngui, 2003).

C. Mitsubishi's Philippine Production Base

Mitsubishi Motors Corporation is investing P10 billion into its Philippine operations, to make the country its production base in the ASEAN region for its new sports utility vehicle (SUV) model. Hideyasu Tagaya, executive officer and corporate general manager of Mitsubishi's international operations headquarters indicated that the investment decision was based on the country's potentials of becoming a globally competitive automotive manufacturing center. The project involves the production of more than 200,000 SUV units that will be exported over the next six to seven years. Of the total units, two-thirds will go to the ASEAN countries and the remaining units will be shipped to the Middle East, Africa and South America. These exports are expected to generate about \$200 to \$240 million in revenue for the country annually.

Of the new P10 billion investment, Mitsubishi Motors (Phils.) Corp. will be using P2 billion for tooling facilities and product development activities. The project is expected to generate local parts purchases worth P5.5 billion a year while employing 6,000 people (Department of Trade and Industry Philippine Business Report, 2004). Regional parts and component flows undertaken by Mitsubishi, Honda, Toyota and the other major Japanese assemblers in the ASEAN region are presented in Table 34:

Table 34: Regional Component Flows in ASEAN by Major Japanese Assemblers

Country of Origin	Parts and Components	Destination
Thailand	Toyota: engine pressed parts, alternators, starter, steering coil, in panel, stabilizers	Indonesia, Malaysia, Philippines
	Mitsubishi: Engine 1200 and parts	
	Honda: side panel, flow panel, door panel, trunk hood, right handle for City	Philippines Indonesia, Malaysia, Philippines
	Nissan: high pressure cable, pressed parts, interior trim, rear combination, water pump, oil pump, radiator	Indonesia, Malaysia, Philippines
	Isuzu: diesel engine, pressed parts, engine parts	Indonesia, Malaysia, Philippines
Indonesia	Toyota: 7K engine, clutch, door locks, door frame, seat adjuster	Thailand, Malaysia, Philippines
	Mitsubishi: brake body	Thailand Philippines
	Honda: cylinder block, cylinder head	Malaysia, Philippines
	Nissan: meter	Thailand
	Isuzu: AUV parts, brake parts	Thailand
Malaysia	Toyota: steering link, engine computer, aircon, joint pressure relay, antenna	Thailand, Philippines
	Mitsubishi: steering coil	Thailand, Indonesia, Philippines
	Honda: bumper, in panel	Thailand, Indonesia, Philippines
	Nissan: pressed parts, spring suspension	Thailand, Indonesia, Philippines
	Isuzu: steering gear	
Philippines	Toyota: transmission, joint, combination switch, steel parts	Thailand, Indonesia Malaysia
	Mitsubishi: transmission	Thailand, Indonesia Malaysia
	Honda: intake manifold, coil, console, pedal, converter, right handle for City	Thailand, Indonesia Malaysia
	Nissan: pressed part, ventilator, pedal waist	Thailand, Malaysia
	Isuzu: manual transmission	Thailand

Source: JETRO 2000

D. Ford Motor Company's ASEAN Strategy

On October 14, 2003, Ford Motor Company reaffirmed its commitment to turn the Philippines into a regional export hub for its ASEAN operations. The company announced that it is investing an additional \$50 million into its Santa Rosa manufacturing facility. The investment which is to be made over the next several years, is driven by the company's aggressive new vehicle programs for the Asian market and is going to be used for upgrading production facilities, tooling and coverage for engineering costs related to new vehicle programs.

The increased production capacity and export capability of Ford Philippines would put the country in a position to be an important export hub in the ASEAN region and would be second, only to its operations in Thailand. Ford Philippines already holds the distinction of being the nation's sole exporter of CBU vehicles to its neighboring ASEAN countries. Within the framework of the ASEAN Free Trade Area agreement AFTA, the company currently exports the Ford Lynx and Mazda Protégé sedans and the Ford Escape and Mazda Tribute SUVs to Thailand and Indonesia.

The Ford Vehicle Export Program first took shape with the signing of a memorandum of understanding (MOU) between the Department of Trade and Industry and the Ford Motor Company in Washington last November 2001. The export program was officially launched in March 2002 with the Ford Lynx. In September 2002, the first Ford Escape bound for export was produced at the Santa Rosa plant. So far, the program has exported 12,000 units, and is expected to reach 17,000 units by the end of the year.

Bill Ford, chairman of Ford Motor Company stated that "the company's decision to increase investments in the Philippines and boost CBU exports is timely, and well aligned with the national government's MVDP. Ford Motor Company appreciates the government's the immediate implementation of new auto policies to address the critical issues identified in the MVDP, including the rationalization of the excise tax system to a value-based structure and the export incentives for CBU exports. I believe a clear commitment from the governing leadership towards progressive policy reforms is vital to the survival of the auto industry and provides a sustainable business environment for automotive investors."

The increased production at the Santa Rosa plant will benefit the local economy by creating new job opportunities, not only with Ford Philippines, but also from our parts and components suppliers. The current production at the Santa Rosa plant is approximately 15,000 units, which falls short of the optimum capacity at 40,000 units a year. The introduction of new vehicle programs and the additional volume from exports are critical to boost production to its optimum capacity. These actions are expected to double the work force to almost 1,250 from the present 650 workers."

In addition, Ford Philippines will be sourcing more parts and components for its vehicles from local suppliers, which will contribute to the growth of the parts and components sector. The company is launching three new vehicle models namely: the Ford Everest, Ford Lynx RS 2.0l and the Ford Escape 3.0l. Local Ford operations currently assemble both Ford and Mazda vehicles at its assembly plant in Santa Rosa Laguna. The plant, which began operations in September 1999, covers 30,000 square meters and has achieved both ISO 9002 and ISO 14001 certification.

VIII. LESSONS FROM THE THAI AND MALAYSIAN EXPERIENCE

A. The Automotive Industry in Malaysia

The automobile industry in Malaysia achieved a relatively greater amount of success compared to the Philippines partially because of the promotion of its domestic car projects. Until the mid-1960's, most vehicles in Malaysia were imported as CBU units. Later in the decade, a handful of automobile companies opened assembly plants in the country to build vehicles from imported CKD units.

In the early 1970's, the Malaysian government created policies aimed at developing the domestic automotive industry and encouraging automakers to assemble vehicle locally. The government adopted several measures including local content requirements, import quotas, a tariff system on CBU imports, and the Mandatory Deletion Program (MDP). The MDP required components to be sourced locally.

In order to promote a more solid manufacturing base, the Malaysian government took the initiative to invest in the automobile industry during the early 1980's. The automobile industry has developed to a considerable extent and it enjoys tax benefits and protective tariffs for domestically produced cars. The first national car project (NCP) was launched to rationalize the local automotive industry and to foster growth in the rest of the industrial sector through technical spin-offs and linkages. At the same time the NCP was targeted to assist and accelerate Bumiputera participation in the automotive industry. Consequently, Proton (an acronym for Perusahaan Otomobil Nasional or National Automobile Enterprise) was established as a joint venture agreement between Mitsubishi Motor Corporation (MMC), Mitsubishi Corporation (15 percent equity each) and the Heavy Industries Corporation of Malaysia (HICOM: 70 percent equity) in 1983.

The government's plan was to create a Malaysian automotive manufacturer who would benefit from preferential tax and duty rates so that it could gain a large share of the market demand, and therefore, operate with scale economies. In return for these privileges, Proton would source as many components as possible from domestic manufacturers, so that the domestic component industry also could gain scale economies and justify investments in more sophisticated products.

The second national car project or Perodua was launched in 1993 to produce mini passenger cars with Daihatsu (a subsidiary of Toyota Corporation) and two national commercial vehicles. Apart from the national car projects, there are 8 conventional assemblers that are related to global motor groups. Overall, these 12 assemblers have a total installed capacity of 600,000 units (Tham 2003).

The two domestic cars, Proton and Perodua, now collectively command 80 percent of the local passenger car market. However, it is important to note that the protectionist policy being imposed continues to hinder the further development of the supporting industries. The local

manufacturing base did not develop as much as what was initially planned. At present, the automobile industry, though making progress, still suffers from a lack of quality and high prices. Low quality and high costs of production are largely due to the high dependence on imports (Sadie 2000).

Protection and subsidies are both used to enable national passenger cars to capture a larger share of the domestic market. The estimated effective rate of protection for the transport and equipment sub-sector was as high as 252 percent in 1987 (Alavi, 1996). In contrast, Proton was given a preferential import duty rate of 13 percent on CKD parts and a 50 percent exemption from excise duty (Tham 2002). In the case of Perodua, no import duty was provided and a partial exemption was given for the excise duties of certain models. The Ministry of International Trade and Industry (MITI) further regulated the selling price of each model as its approval was required for price setting. As these policies were implemented, the local market share of NCPs increased steadily from 64 percent in 1991 to 93 percent in 2000.

During the 1990's, sales of new vehicles grew strongly. In 1991, sales of new vehicles were estimated at 194,654 units and by 1997; they had more than doubled to 404,869 units. Particularly noteworthy, in 1997, Malaysia had the largest new car market in ASEAN. In 1998, Malaysia, like most other ASEAN nations was hit hard by the Asian economic crisis as total new vehicle sales fell to 163,852 units (Sadoi, 2000).

Under a highly protected environment, and with rapid growth in domestic demand, the automobile industry grew at an average rate of 10 percent from 1991-2000 (Koo 2001). By the year 2001, there were 200 Malaysian controlled local companies and 50 licensees and joint ventures of multinational auto parts manufacturers who were supplying parts for the NCPs. There were 32 Tier-1 manufacturers supplying to Proton, with 8 of these companies being majority foreign owned firms. (Tham 2003).

B. The Automotive Industry in Thailand

The approach used by Thailand in order to develop its automotive industry was very similar to that of the Philippines except for the fact that they had implemented liberal policies in the sector at an earlier time. Thailand also utilized import-substitution to induce the development of the automotive sector in the country through the establishment of joint ventures with multinational companies from Japan, the United States and Europe (Abbot 2003). However, the FDI (FDI) led strategy led to a deterioration Thailand's trade balance and the subsequent introduction of local content requirements in 1971. The initial 25 percent of local content requirement was increased gradually until it reached 50 percent in 1983 (Somkiat et al, 2003). Import bans on CBUs and increasing the tariffs on CKDs in 1978 were used to further boost the development of the industry (Tham 2003).

The rapid growth of the Thai economy during the 1980's led to a substantial expansion in automobile demand. Production could not increase fast enough in order to accommodate the rising demand resulting to significant price increases for automobiles. In addition, the Japanese

yen was continually appreciating and the rising cost of production prompted Japanese assemblers in Thailand to encourage their Tier-1 suppliers to relocate to Thailand (Thamvit, 2001). As a response to these events, the Thai government moved toward partially liberalizing the sector by removing the import ban on CBUs in 1991 and reducing tariffs on CKD kits from 112 percent to 20 percent. The tariff rates for CBUs were set between 60-100 percent depending on the engine capacity (Tham 2003).

Growth in the industry temporarily ended with the onset of the 1997 Asian financial crisis. Tham (2003) explains that the financial crisis weakened domestic demand resulting to an emergence of excess capacity and a greater orientation toward exports due to the maintenance of the production level of the Japanese assemblers. The Ministry of Industry (MOI), at the same time, established the Thailand Automotive Institute (TAI) to support and promote the industry. The MOI formulated a Master Plan for the automotive industry (1998-2002), which set the goal for Thailand to become the automotive production base in Asia with a strong domestic supplier base. Under the specified targets, Thailand is to produce 1 million vehicles per year wherein 70 percent are pick-up trucks and 30 percent being passenger cars. In addition, it is to produce internationally recognized and standardized replacement equipment manufacturing (REM) parts with an export value of more than 200 billion Baht within the year 2006. A local value added of more than 60 percent was also to attain for auto vehicles and parts within the same year. Further liberalization was pursued with the removal of the local content requirement in 2000 (in compliance with the TRIMs Agreement), lowering tariff rates and relaxing equity policy to attract more FDIs that will facilitate the attainment of these targets.

In the ASEAN region, Thailand has the largest combined automotive production capacity at 1 million units per year generated by 13 manufacturers/ assemblers. There are 1,700 firms in the parts and components manufacturing sector where 709 are Tier-1 manufacturers. Approximately 287 (or 40 percent) of these are majority foreign owned firms (Tham 2003). Global sourcing has become a very important strategy for manufacturers, particularly for the procurement of complex parts for the module approach, which has a direct impact on vehicle quality and performance. Local content requirements were abolished in January 1, 2003 in order to support the global sourcing strategy and to promote closer regional cooperation in the production network (Chiasakul 2004).

Thai assemblers are currently making efforts to reduce production costs in the passenger car category mainly through optimal sourcing of parts and raw materials. The specific measures are: 1) expansion of local procurement, 2) expansion of regional complementation system, 3) reciprocal supplying among assemblers, and 4) sourcing from non-affiliated parts manufacturers. Assemblers are also reducing costs by improving productivity through the following measures: 1) changing factory layouts, 2) updating production facilities and 3) automating operations through the deployment of welding robots and other equipment (RIM, Pacific Business and Industries, 1996).

Cost cutting is the essential part in keeping growth of this industry. However, cost reductions and price pressures have intensified since 2001, as a result of intense competition in the global automotive market. Leading vehicle makers are pushing for reductions in the range of 5 percent per year for major component parts supplied to the OEMs. As pricing becomes a key determinant in attracting buyers of cars in ASEAN, vehicle manufacturers are passing cost reduction to the component parts suppliers. The cost reduction method is applicable to every supplier in the OEM parts supply chain from tier 1 to tier 3 level suppliers (Chiasakul 2004).

IX. PROSPECTS WITH REGARD TO CHINA'S DEVELOPMENT OF ITS OWN AUTOMOTIVE INDUSTRY

During the past few years, China has been experiencing rapid economic growth and increased foreign trade and at present is the world's second largest economy in purchasing power parity (PPP) terms. Its inclusion in the WTO brings both risks (in terms of increased competition) and at the same time significant exports opportunities for ASEAN countries. Tariff rates have dropped from 43 percent (in 1992) to about 15 percent (in 2002) within the decade and its WTO commitments are better than many other developing countries WTO commitments. Examples of these are the average bound tariff of 7 percent by 2005, foreign entry and ownership in services within 5 years and the removal of local content requirements and liberalized rules in investment (Intal 2002). China's accession to the WTO will likely continue for some years to serve as a great magnet for foreign investments in several industries, one of which being the automobile industry (Kueh, 2004).

Growth in the automotive industry has been impressive and shows enormous opportunities for investors. During the year 2003, the production of passenger cars in China was at 2,018,900 units, buses at 1,195,200 units, and trucks at 1,229,600 units. Growth for the year 2003 was at 84.8 percent for sedans, 11.9 percent for buses and 12.5 percent for trucks.

A fast growing China can be a strong export market and engine for growth for ASEAN and the rest of East Asia for years to come. The ASEAN China Free Trade Agreement (ACFTA) in particular is expected to deepen trade and investment linkages but the extent of the benefits will depend a lot on the domestic reforms and adjustments that would increase their flexibility in the presence of more intense competition.

Presented below (Table 35) are vehicle sales statistics from 1997 to 2003 for nine Asian countries, which are expected to be the major markets to be tapped by international production networks currently located in the ASEAN region:

Table 35: Asian Countries and Vehicle Sales, 1997- 2002 and Estimates for 2003

Country	1997	1998	1999	2001	2002	2003
China	1,564,862	1,604,480	1,831,905	2,376,884	3,248,058	3,850,000
Korea	1,512,935	779,905	1,273,029	1,451,450	1,622,268	1,650,000
India	701,775	607,400	820,831	829,036	898,386	900,000
Taiwan	482,438	475,143	423,109	347,420	398,882	400,000
Thailand	363,156	144,065	218,330	297,052	409,242	470,000
Malaysia	404,837	163,851	288,547	396,381	434,954	435,000
Indonesia	386,767	59,376	93,814	299,573	317,097	357,000
Philippines	144,435	80,231	74,414	76,670	85,587	92,336
Singapore	34,812	37,493	48,975	74,277	65,612	60,000
9 Asian Countries	5,596,017	3,951,944	5,072,954	6,148,743	7,480,086	8,140,336

Source: BOI, Motor Vehicles Department, 2003

The Chinese automobile industry is already quite substantially dominated by foreign investments and foreign technology, targeting the domestic market. The only Chinese passenger car is the Red Flag. Involvement in the WTO had increased interest in FDI in China and the potential influx of foreign made sedans might help further touch upon the very existence of China's own carmakers. FDI by automotive assemblers into China has been essentially for import substitution manufacturing, but the most recent Honda initiative signals a shift to the export markets as well. The automobile industry has a fast growing domestic market, which may eventually go into export (such as the Honda plant in southern China) (Kueh, 2002).

Kueh (2002) further explains that the Chinese sedan industry is made up essentially of assembly plants with core technology being controlled by various multinational automotive companies. The sedan industry caters exclusively to the Chinese domestic market and it has therefore followed the Asian experience of hosting FDIs for import substitution purposes. However, there are clear signs that the Chinese auto industry is on the threshold of targeting the export market as well. Thus, given that most multinational automotive firms investing in China also have considerable stakes in ASEAN countries, the new reorientation seems poised to create an enormous amount of competition to undermine themselves in third country markets. In view of this, the regional network for sedan manufacturing is bound to significantly reshuffling in the years to come. The multinational automotive firms will have to readjust their modus operandi, by assigning for example, their manufacturing plants in different parts of the region to specialize in different models and classes of vehicles to be produced.

Given the pace with which sedan production has been expanded in China in the recent past, and given as well the accelerated adoption of advanced western designs and manufacturing technology, the Chinese automobile industry seems poised to be fully integrated into global networks of production and marketing under the control of the global automobile giants such as General Motors, Toyota, Nissan and Volkswagen. Following WTO accession, the country has indeed seen most existing foreign carmakers expanding their scale of investment in China, and many newcomers, notably the Japanese auto giants joining in the spree as well. This

will greatly help to raise the scale of output, which is bound to spill over to the export markets sooner or later with or without the pressures of any excess production capacity (Kueh 2004).

The passenger car industry is one of the pillar industries in China, but strongly dominated by FDI and foreign technology notably from Japan, Taiwan, Germany and the United States.

The biggest competition ASEAN is facing is the emergence of China as an automotive market due to its cheap production base and huge domestic market. It is fast becoming a favorite location among Japanese automotive manufacturers and among the Japan Auto Parts Industries Association (JAPIA) members alone, a four-fold increase in the number of firms from 1996 to 2002 was seen. There were initially 31 JAPIA members with production bases in China during 1996. Six years later, the number increased to 134 members (Tenorio and Lugo 2003).

X. CONCLUSION

Automotive support industries in ASEAN should think regional instead of just the domestic market in order to better face the challenges posed by China. AFTA will lower costs if industrial complementation is attained because it will lead to large-scale economy effects. Integration is necessary because efficiency cannot be attained on a country-to-country basis.

The creation of AFTA has allowed automotive manufacturers to fulfill their need to produce in large volume and maintain economies of scale. Not only are individual ASEAN markets too small to sustain domestic automotive manufacturing, but also the single countries are not large enough to compete for FDI in the context of exponential growth occurring elsewhere in Asia. Without full unification of ASEAN member economies into one cohesive market, the Southeast Asian region could face stiff competition from China or other growing markets like India and experience market decline.

In view of the tariff reduction to be enforced under the AFTA CEPT scheme, it will again be necessary to rationalize the industry by: 1) focusing on the production of largest selling vehicle models in order to reduce fragmentation of the narrow market and allow firms to achieve economies of scale production; 2) focus on parts and components manufacturing where the Philippines has some comparative advantage; 3) identify the largest selling model or variant for each assembler and encourage these multinational assemblers to make the Philippines its production base for export to the ASEAN region and consequently to China, India, Korea and Taiwan. The Philippine government had recently passed an initiative to help make the country a regional export-manufacturing hub. The incentives would be a form of tax credit that may be applied to any of the tax requirements of auto parts manufacturers such as income tax or VAT and that the incentives will apply to incremental increases in the volume of exports. Ford Motor Company is currently the only firm to take full advantage of the Philippines automotive export program.

To establish and strengthen the market niche in parts and components manufacturing it will be necessary for firms to create strategic alliances based on parts and sell the finished products as a complete set. Such alliances whether between large, medium or small scale enterprises or conducted in the form of mergers, collaborative ventures or subcontracting arrangements. will help fill gaps in terms of investments in new technology and equipment, market consolidation and skills upgrading that will improve competitiveness.

Aside from the formation of strategic alliances among parts and components manufacturers, a strong partnership between government and the local automotive sector is necessary in order to continue improving technological capabilities. A research and development center should be set up in order to assist SMSEs in studying rapid prototyping and methods to upgrade production capabilities

A more effective means of technology transfer should be devised to consequently help local parts manufacturers become more competitive. It will be necessary to look at the initiatives taken by governments of other countries, which were more proactive in encouraging the creation, and deepening of linkages between multinational enterprises and local firms

Nonetheless, the future of the ASEAN auto market is highly dependent upon trade with China and other potential large markets. There are possibly two ways to discern the future of the ASEAN auto market and its competition. One way to create greater competition is by the development of the local industry-manufacturing base in the region. This could be done by becoming major parts suppliers for non-regional developing markets in order to withstand potential down sizing of investment by foreign manufacturers in the ASEAN region. The second way is to try to maintain market size by creating an attractive environment for foreign investors. Attracting investment can be accomplished by the removal of tariffs, harmonizing standards and taxes and ensuring that customs procedures are conducted in an open and transparent manner.

In a very liberal global trading environment, the continued existence of the local automotive industry will depend largely on the competitiveness of parts and components manufacturers. But aside from maintaining low average costs, upgrading technological capabilities and achieving superior product quality, the presence of strong links as suppliers of intermediate inputs to the major automotive assemblers in the East Asian region is a major advantage that may be established by a firm if it is part of an international production network. The constraint of having a narrow fragmented domestic market may be overcome if the automotive sector can strengthen its position within the international production network. Subcontractors or suppliers of intermediate inputs or services are put in a situation where they benefit from external economies generated by the foreign firms. As long as the multinational automotive assembler has a sustained regional or even global demand for its final product, the other firms which contribute parts and components during the various production stages will benefit from their participation in the network. Aside from the benefits of sustained demand, higher output, income and employment levels, there will be greater opportunities for

investments, the exposure to new technologies, new products and production processes and management techniques.

Location specific advantages which the country can already provide in the form of cheap production inputs, competitively priced skilled labor, attractive investment incentives, efficient export processing zones, adequate infrastructure and efficient logistical services should further be enhanced in order to secure a larger volume of FDIs in both assembly and parts manufacturing. Some of the Philippines' location specific advantages found in the industrial estates of the CALABARZON, the Subic Bay, Clark Free Trade Areas and other Economic Zone areas may attract the attention of foreign investors, however, if technological upgrading is not undertaken for second and third tier suppliers as well as for their workers and other raw material providers, the success generated by the establishment and operation of these economic zones will be limited.

In addition to upgrading local capabilities and providing adequate infrastructure, the investment promotion agencies in the country should also continue intensifying its match making efforts between MNCs and local supplier firms to the extent of providing guaranteed purchasing contracts to ensure the localization of the procurement of inputs. Efforts should be further intensified towards setting up industrial extension systems that would provide technical support with either subsidies or financing programs and technical assistance to local parts manufacturers and grants for technology acquisition and productivity improvement. Efficient second and third tier suppliers which are able to meet the quality cost and delivery time requirements of multinational automotive assemblers will further increase the location specific advantages of the country, making it more conducive for foreign investors to set up production facilities that will form part of an East Asian production network.

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