5.6 Comparison with the ASEAN Region

5.6.1 Why Compared with ASEAN?

In this section, the study of the autoparts sector in the ASEAN region (excluding Brunei and Singapore) is presented as a reference. However, one may doubt why ASEAN was chosen. Mercosur has a longer history of the automobile industry and the higher GDP per capita on average. Above all, the car production in Brazil alone was much larger than the total of the four ASEAN countries in 1994 (Table VI-5-6-1). Why are Japan and Korea inappropriate?

Table VI-5-6-1: Comparison between Mercosur and ASEAN countries

	Argentina	Brazil	Paraguay	Uruguay
Population (1993; ,000)	33,483	156,406	4,651	3,147
GDP per capita (1993; US$)	7,290	3,020	1,500	3,910
Car Production (1994; ,000)	409	1,581	NA	NA
Production 1995	285	NA*	NA	NA
	Indonesia	Malaysia	Philippines	Thailand
Population (1993; ,000)	187,151	19,032	65,775	58,824
GDP per capita (1993; US$)	730	3,160	830	2,040
Car Production (1994; ,000)	326	200	103	486
Production 1995 (estimates)	385	285	128	572

*: slightly increased.

The following reasons are taken into consideration. First, assemblers located in Argentina and Brazil do not have their own brands. They are subsidiaries or local licensees of multinational assemblers. Car assembly and autoparts procurement in Mercosur thus depend heavily on their global strategy. In contrast, national assemblers locate their headquarters in Japan and Korea. Second, the ASEAN automobile industry is rapidly growing, which in turn facilitating the localization of autoparts. Its dynamics might bring interesting suggestions to the Mercosur industry. Third, the ASEAN countries, like the Mercosur countries, see the regional trade liberalization as a step to prepare for the global liberalization. The regional framework consists of the Brand to Brand Complementation (BBC) and the ASEAN Free Trade Agreement (AFTA).[1]

5.6.2 Institutional Framework

(1) Trade, Localization and Tax Policy of the ASEAN Countries

The policy of the four ASEAN countries has been summarized in Table VI-5-6-2. Primary features of interest for comparison are:

[1] This chapter is largely indebted to the two JICA reports: (i) Report on the Development Plan to Promote the Manufacturing Industry in Thailand, 1995 (hereupon JICA Thailand) and (ii) Report on the Development Plan to Promote the Manufacturing Industry in Malaysia, 1995 (hereupon JICA Malaysia).

Table VI-5-6-2: Trade, Localization and Tax Policy of the ASEAN Countries

(excluding Brunei and Singapore)

Country	Import Restriction	Category/License	Compensation	Localization	Tariff*	Tax
Thailand	Liberalized with High Tariff	License Control over KD Assembly of PCs/Light CVs		MOI gives points to each components. M Deletion 28 items PC 54% Pick-up 65-80% engine assembly for one-ton pick-ups 70% (no BOI incentive 60%) Big Truck and Bus chassis with engine 40% with engine/wind shield 45% with engine and cab 50%	PC -2,400cc 42% PC 2,400cc- 68.5% Pick-up/Blind Van 60% Glass Van/Big Truck 40% KD Components 20% KD Big Truck 10% Autoparts 15-60%	Excise Duty CUB PC -3,000cc 32.5% CUB PC 3,000cc- 38% CUB Off-Road 27% CKD PC -2,400cc 32.5% CKD PC -3,000cc 38% CKD PC 3,000cc- 45% CKD Off-Road 27% VAT 7%
Philippines	Liberalized with High Tariff	CDP1(People's Car) PC -1,200cc CDP2 PC 1,200-2,800cc CDP3 PC 2,800cc- CVDP1 ASEAN Utility Vehicle -3t CVDP2 Light CV -3t CVDP3 CV 3-6t CVDP4 CV 6-18t CVDP5 CV 18t- Allows Only a Limited No. of Models per Category CDP1 up to three models CDP1 up to nine models	Part of foreign exchange necessary for importing CKD components has to be earned by assemblers and affiliated firms: 75% for importing CDP1 and 2, 100% for CDP3 and 25% for CVDP. However, CBU imports need not be compensated.	BOI gives points to each components. CDP1 51% CDP2 40% CVDP1 57.73% CVDP2 57.24% Others not regulated	PC 40% CV 30% KD Components 3% Autoparts 5-45%	Excise Duty (on wholesale price) GSL -1,600cc and DSL 1,800cc 15% GSL 1,600-2,000cc and DSL 1,800-2,300cc 35% GSL 2,000-2,700cc and DSL 2,300-3,000cc 50% GSL 2,700cc- and DSL 3,000cc- 100% VAT (on retail price) 10%
Indonesia	Liberalized with Extremely High Tariff	PC Category I CV -2.5t GVW Category II CV 2.5-9t GVW Category III CV 9-24t GVW Category IV CV Multiple Utility Category V CV 24t GVW-		Given Point System Tariff in accordance with Localization	CBU PC 125-200% CBU Category I 50-105% CBU Category IV 80-110% CKD PC -20%local 65% CKD PC 20-30% 50% CKD PC 30-40% 35% CKD PC 40-50% 20% CKD PC 50-60% 10% CKD PC 60%- 0% CKD LIV -20% 25% CKD LIV 20%-30% 15% CKD LIV 30%-40% 10% CKD LIV 40%- 0% PC Autoparts 0-65% CV Autoparts 0-25%	Luxury Tax not on Category II, III and V 20-35% VAT Registration Tax c. 10%
Malaysia	Import License for Bumuputera Only with Extremely High Tariff Quota based on Local Production	Category 1 PC -1,850cc Category 2 PC 1,851cc-2,850cc CV -2.5t GVW Category 3 PC 2,851cc- CV 2.5t GVW-	Export Credit Export/CKD*100 up to 20 points added to the local contents	M Deletion 30 items MIDA Local Content Point Category 1 60% Category 2 45% Category 3 MD only Penalty If not achived, imported parts will not be included in assembly costs.	CBU PC 140-200% CBU CV 35% CBU 4WD 50% KD PC 42% Proton 13% Perodua 0% KD Van 5% KD CV 0% KD 4WD 5% Autoparts 0-30%	Excise Duty PC (reduced rate for Proton) 25-65% Van 30% 4WD 45% CV 0% Sales Tax 10% Car Price Regulation

*: based on CIF price, except for Indonesia (CKD).
PC: passenger car.
CV: commercial vehicle.
All the information is subject to modifications.
Source: Handbook of the Automobile Industry 1996, and JETRO Daily for the Philippines.

(1) Automobile trade has been liberalized (except for Malaysia), but the tariff is still very high both for imported vehicles and CKD components.

(2) Measurement of local contents is based on the Given Point System, whereby the investment promotion agency gives points to each component. Thailand and Malaysia also adopt the Mandatory Deletion, forcing assemblers to localize designated components. Indonesia abolished the local contents regulation, but the tariff is reduced as an incentive according to the level of localization.

(3) Inland tax on car sales is also high.

As a natural consequence, cars are very expensive in the ASEAN countries. The high price and lack of export competitiveness hold back the production scale (Table VI-5-6-1), which keeps the price high: a vicious circle. Table VI-5-6-3 shows that, as far as passenger cars are concerned, Malaysian cars are even more expensive than those produced in Brazil.

Table VI-5-6-3: Car Price in Malaysia and Brazil

(1993; thousand unit, US$,000)

Malaysia	Sales	Price	Brazil Local	Price
Proton Saga	50.5	12-15	GM Omega	25-45
Proton Wira	43.6	15-21	GM Vectra	29-37
Nissan Sunny	4	15	VW Gol	7-13
Nissan Sentra	1.5	21-25	VW Voyage	11-15
Toyota Corolla	4.8	23-30	VW Logus	15-27
Honda Civic	3.7	24-29	Ford Escort	7-25
Ford Laser	1.8	20-23	Ford Verona (Orion)	17-31
Daihatsu Charade	1.8	14-18	Fiat Uno	7-15
Perodua Kancil (1994)	–	9-10	Fiat Tempra	19-27
			Brazil Import	
			Citoroën ZX	36-43
			Citoroën AX	23-26
			Fiat Tipo	17-19
			Honda Civic	26-36
			Honda Accord	36-45
			Renault 21	24-32
			Peugeot 405	26-40
			Toyota Corolla	35-42

Source: Proton for Malaysia, Sindipeças/BA&H, 1994, p.61 for Brazil.

In addition, there seems to be inconsistency in the tariff structure, which may discourage the local assembly and autoparts production. In the Philippines, for example, importing CKD components has to be compensated, but importing CBU (i.e. vehicles) does not have to. In Thailand, the autoparts sector is negatively protected since the tariff on materials and parts is higher than that on CKD.

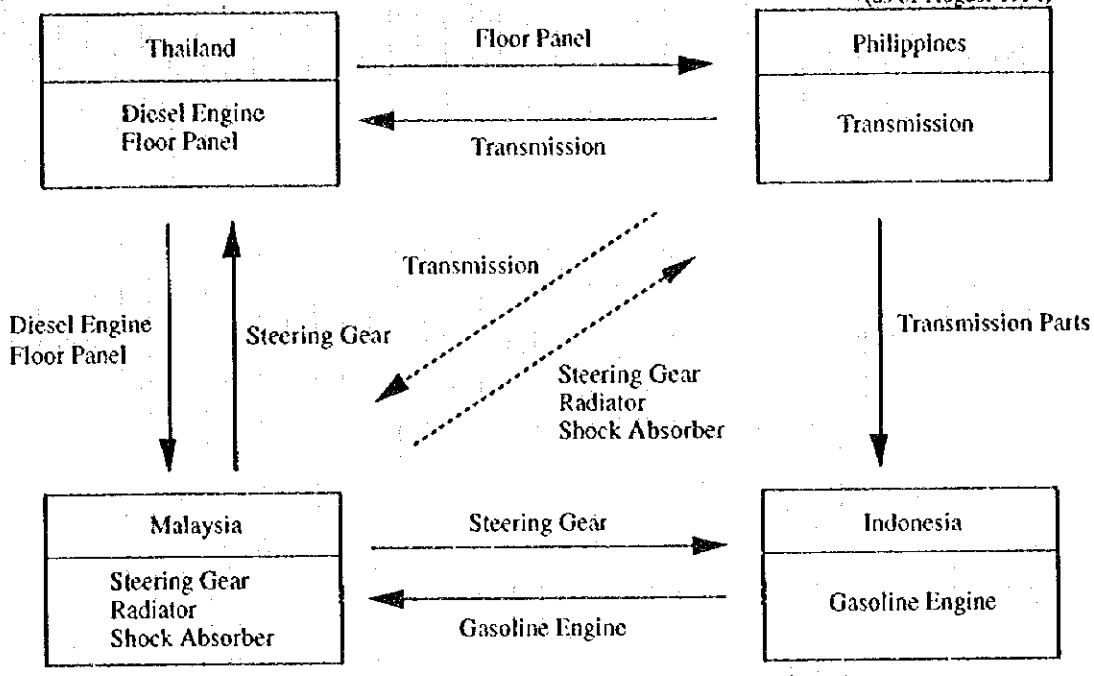
(2) Brand to Brand Complementation (BBC)

Assemblers are eager to reduce the purchasing cost. Governments are anxious about the absence of price competitiveness of local vehicles in the age of export-oriented industrialization. Such a harmony of both interests (especially Mitsubishi and the Philippines) triggered the introduction of BBC in 1988. This scheme is totally different from its antecedent AIU (ASEAN Industrial Complementation). While AIU tried to allocate autoparts to be produced in each member country from the top authority, assemblers can choose which country is specialized in which autoparts in BBC. This is more acceptable to member countries, too, because different brand holders may procure different autoparts from the same country. In other words, none of the member countries is likely to dominate the production of core components like engines and transmissions.

BBC allows assemblers to import autoparts from other member countries at half of the normal tariff. Autoparts imported through this scheme are regarded as local contents. In order to benefit from the scheme, assemblers submit the application to the ASEAN SEOM (Senior Economic Officers Meeting) with respect to the type, brand, model, eligible components and participating countries. New applications are necessary for each introduction of models or inclusion/deletion of autoparts. Nine assemblers have so far joined the scheme: Nissan, Toyota, Mitsubishi, Renault, Mercedes-Benz, Volvo, Mazda, BMW and DAF. Remarkably, American Big Three are absent at present. The diagram below is the complementation network developed by Toyota.

Figure VI-5-6-1: Toyota's Autoparts Procurement in ASEAN

(as of August 1994)



Note: Indonesia had not yet participated in the BBC scheme at that time. The supply in the ASEAN region is controlled by Toyota Motor Management Services Singapore (TMSS).

Nevertheless, this program is unlikely to impress the assemblers operating in the Mercosur market.[2] First of all, complete vehicles are not traded at the preferential rate of tariff. Therefore, assemblers have to produce a wide range of models in each country at the cost of scale economies. Second, best-seller models are varied between member countries. As can be seen from Table VI-5-6-4, the Indonesian prefer commercial vehicles, the Filipino and the Malaysian prefer passenger cars, and the Thai are heading for passenger cars in the process of motorization. Such model diversity hinders the autoparts trade aimed at by BBC, because autoparts suppliers have to produce model-specific parts for the export purpose. This is a reason why assemblers decided to develop so-called "Asian cars" (see below).

Table VI-5-6-4: Proportion of Passenger Cars and Commercial Vehicles in the ASEAN Countries

(1994)

	Passenger Car	Commercial V	Total	PC/Total
Indonesia	36,425	254,569	290,994	13%
Malaysia	129,001	39,180	168,181	77%
Philippines	56,000	27,165	83,165	67%
Thailand	149,000	278,446	427,446	35%
Total	370,426	599,360	969,786	38%

Source: Handbook of the Automobile Industry 1996, p.229

[2] There is an opinion to the effect that the autoparts trade is inefficient per se due to packaging costs, transport costs, damage during the transport and storage costs to cope with the delay at the custom.

Third, the scheme beneficiaries are limited to assemblers, but first-tier suppliers are also interested in procuring cheaper parts. Although first-tier suppliers like Nippon Denso actively lobbied the member countries, there is no information showing that their request has been accepted. Fourth, assemblers have to apply for BBC each time when needed, while the reduced tariff is automatically applied in Argentina and Brazil as far as the trade is compensated. Fifth, as in Mercosur, the member governments are concerned about the balance of intra-regional automobile trade. However, balancing the trade is extremely difficult, as the production scale of each country varies. Facing the trade imbalance between Thailand and Malaysia, Toyota decided to import shock absorbers from Malaysia, although produced efficiently in Thailand. The Malaysian supplier has to price the exports even cheaper than the competitive Thai products.

Table VI-5-6-5: Toyota's Trade Balance in the Intra-Regional Trade

(September 1994, US$,000)

	Thailand	Philippines	Indonesia
Export to Malaysia	4,131	2,543	1,470
Import from Malaysia	804	2,107	2,199
BoT in Malaysia	-3,327	-436	729

Source: T&K Autoparts

Finally, the progress of AFTA has led to the argument that the BBC is redundant. This issue is reviewed after explaining the AFTA.

(3) ASEAN Free Trade Agreement (AFTA)

AFTA's Common Effective Preferential Tariff (CEPT), effective since 1993, is a mechanism whereby the tariff on the intra-regional trade is reduced to 0-5% within 15 years. The eligible local contents are 40%, but this percentage is loose as the local input might be only 40% local; in this case, the real ratio is as low as 16%. There are three types of liberalization schedules: (i) normal track, (ii) fast track, and (iii) temporary exemption. The tempo of tariff reduction also depends on the base rate in 1993. The target rate will be achieved in 2000 for goods on the fast track with the base rate below 20%, and in 2008 for goods on the normal track with the base rate above 20%. All the four countries designated vehicles as exemption. Autoparts depend on the nomenclature and the country.

Table VI-5-6-6: The Tariff Reduction Schedule of Autoparts

HS Code		Indonesia	Malaysia	Philippines	Thailand
401110	Tire	N	E	F	F
401120	Tire	N	E	F	F
401210	Tire	N	E	F	F
401220	Tire	N	F	F	F
401310	Tube	N	*	*	F
681310	Brake Lining and Brake Pad	N	N	N	N
732010	Steel Leaf Spring and Leaf Spring	N	N	N	N
732020	Steel Coil Spring	N	N	N	N
840734	Engine (-1,000cc)	N/E	N	N	N
840790	Engine (others)	N	N	N	N
840820	Engine (diesel)	N/E	N	N	N
840991	Engine Parts	N	N	N	N
840999	Engine Parts	N	N	N	N
841581	Air Conditioner	N	N	N	N
841582	Air Conditioner	N	N	E	N
841583	Air Conditioner	N	N	E	N
841590	Air Conditioner Parts	N	N	E	N
851110	Plug	E	*	N	N
851120	Ignition Generator	N	*	N	N
851130	Distributor and Ignition Coil	N	*	N	N
851140	Starter	E	*	N	N
851150	Other Generators	E	*	N	N
851180	Glow Plug	N	*	N	N
851190	Parts of 851110-851180	N	*	N	N
851220	Illumination	N	*	N	N
851230	Audio-Signal Apparatus	N	*	N	N
851240	Wiper	N	*	N	N
851290	Parts of 851220-851240	N	*	N	N
852721	Stereo	F	F	N	E
852729	Radio	*	*	N	E
852731	Stereo	F	F	N	E
853910	Sealed Beam	N	F	N	N
853921	Halogen Lamp	N	F	N	N
853929	Filament Lamp	N	F	N	N
870600	Chassis with Engine	E	E	N	N
870710	Body	E	N	E	E
870810	Bumper	E	N	E	N
870821	Seat Belt	E	N	N	N
870829	Other Body Parts	E	N	E	N
870831	Brake Lining (Attached)	E	N	N	N
870839	Brake and Servo Brake	E	N	N	N
870840	Gear Box	E	N	N	N
870850	Axle	E	N	N	N
870860	Shaft	E	N	N	N
870870	Wheel	E	N	N	N
870880	Shock Absorber	E	N	N	N
870891	Radiator	E	N	E	N
870892	Muffler and Exhaust Pipe	E	N	E	N
870893	Clutch	E	N	N	N
870894	Steering Wheel, Column and Box	E	N	E	N
870899	Other Components	E	N	N	N
949120	Seat	N	N	N	*
	F: fast track	2	6	4	5
	N: normal track	27	29	38	42
	N/E: mix of both tracks	2	0	0	0
	E: temporarily exempted	20	4	9	4
	*: unclassified	1	13	1	1

Source: *JICA Malaysia Vol.1, Table 3-4-7, p.3-60*

However, the economic ministers agreed in 1994 to achieve the CEPT target by 2003, shifting five years ahead.

- Fast Track / Base Rate below 20%: 0-5% by 1998.
- Fast Track / Base Rate above 20%: 0-5% by 2000.
- Normal Track / Base Rate below 20%: 0-5% by 2000.
- Normal Track / Base Rate above 20%: below 20% by 1998 and 0-5% by 2003.[3]

For example, Malaysia's new schedule is as follows.

Table VI-5-6-7: New CEPT Schedule of Malaysia

	Track	Base	1993	1998	2000	2001	2003
1 Tire/Tube	F	30	27	11	5		
2 Brake Lining and Pad	N	*(30)	*	*	*		
3 Steel Leaf and Coil Spring	N	5	5	5	5		
4 Engine	N	2	2	2	2 (min.)		
		5	5	5	5 (max.)		
5 Engine Parts	N	0	0	0	0		
		35	33	20	14	11	5
6 Air Conditioner	N	15	14	8	5		
		30	28	20	14	11	5
7 Stereo and Radio	F	10	9	5			
8 Lamp	F	2	2	2			
		7.5	7	5			
9 Electricals for Combustion Engine	N	0	0	0	0		
		20	18	9	5		
10 Illumination	N	5	5	5	5		
12 Bumper	N	30	28	20	14	11	5
13 Seat Belt	N	30	28	20	14	11	5
14 Other Body Parts	N	30	28	20	14	11	5
15 Brake Lining (Attached)	N	30	28	20	14	11	5
16 Brake and Servo Brake	N	15	14	8	5		
17 Gear Box	N	15	14	8	5		
18 Axle	N	15	14	8	5		
19 Shaft	N	15	14	8	5		
20 Wheel and Parts	N	30	28	20	14	11	5
21 Shock Absorber	N	15	14	8	5		
22 Radiator	N	30	28	20	14	11	5
		30	28	20	14	11	5
23 Muffler and Exhaust Pipe	N	15	14	8	5		
24 Clutch	N	18	16	8	5		
25 Steering Wheel, Column and Box	N	30	28	20	14	11	5
26 Others	N	15	14	8	5		
		30	28	20	14	11	5
27 Seat	F	15	13	5			

F: fast track
N: normal Track
Source: JICA Malaysia, Vol.2, Table 3-3-4, p.3-52.

Moreover, all the exempted goods have to be transferred to the normal track by 20% every year to reach the same target by 2003.

[3] Thailand is going to cut down the tariff by 1998 ahead of this revised CEPT schedule. The rate will be 0%, 1% or 5% for raw materials, 10% for intermediate goods and 20% for final goods.

AFTA is a free trade zone; in other words, it does not have the common extra-regional tariff. However, its potential impact is expected to be large due to the loose local contents regulation. Such advanced trade liberalization appears to nullify the impact of BBC.

The problem of CEPT is mutualism. If the trade partner does not reduce the duty as planned, or keeps exempted goods intact, trade liberalization may come to a halt. Once the abolition of BBC is decided, SEOM cannot accept new applications. This means that, whenever new models are introduced, assemblers lose the merit of BBC without having that of CEPT in return. Therefore, assemblers showed strong resistance as soon as the governments set up discussion about the phasing out of BBC. In the end, the ministerial meeting accepted that BBC should stay as it is in September 1995.

(4) WTO

Based on the WTO-TRIM (Trade-Related Investment Measures), developing countries have to abolish the local contents regulation, compensation rules, etc. by the year 2000. There is a concern of causing a major shake-up of the trade structure and localization process of autoparts.

According to the Nippon Keizai Shimbun, daily economic newspaper in Japan, GM submitted an investment plan to the Thai government with a request for exemption from the local contents regulation (9 February 1996).[4] The government is said to have initiated a study to see possibilities that the schedule may be shifted two years ahead. This could have an enormous impact on Japanese assemblers. They have already made a substantial commitment in establishing a local supply network and thus cannot easily dismiss local products in favor of global-sourcing. The trade liberalization under WTO might threaten similar vested interest held by European and American assemblers in the Mercosur countries.[5]

5.6.3 Asian Car Initiatives

The diversity in the motorization levels and the locally-assembled models among the ASEAN countries is a major obstacle to the expansion of the intra-regional autoparts

[4] The aforementioned absence of interest in BBC among the American Big Three may be relevant for this request.

[5] This could be a reason why they support the waiver which the Brazilian government pleaded to WTO with respect to its new Automotive Regime.

trade. In order to overcome such scale constraints, Japanese assemblers presented "Asian cars" one after another (Table VI-5-6-8).

Table VI-5-6-8: Asian Cars

(unit)

Brand	Model/Base	Type	Location	Year	Production
Toyota	TUV	Jeep	Indonesia, Philippines, Taiwan	1994	89,000
Toyota	Tercel (Starlet)	1,300-1,500cc	Thailand, (Indonesia, Philippines)	1997	50,000
Nissan	AD Resort	1,600cc, Pick-up	Thailand, Philippines, Taiwan	1993	35,000
		1,600cc, Wagon	Thailand, Malaysia, Taiwan		
Mitsubishi		1,500cc Wagon	Indonesia, Philippines, Taiwan	1998	53,000
Honda	Civic	1,300cc-1,500cc	Thailand, (Indonesia)	1996	
Mazda/Ford		Small Truck	Thailand	1998	
Daihatsu	Kancil/Mira	850cc	Malaysia	1994	20,000
Daihatsu	Zebra/Hijet	1,300cc One-Box	Indonesia, Taiwan	1994	36,000
Nissan Diesel	Asia Truck	11t/14t GVW	Thailand, Indonesia, Malaysia, Philippines	1996	7,500

Source: IRC, Automobile Industry Report, 25 September 1994; Nippon Keizai Shimbun, 10 October 1995.

These initiatives have features interesting from the comparative perspective with Mercosur. First, the designated models are varied between assemblers. They are either passenger cars or multi-purpose commercial vehicles. The choice is strategic, taking account of the move of other assemblers, market trends, and the tax policy. In Mercosur, assemblers seem to locate pick-ups in Argentina and sub-compact cars in Brazil.

Second, the design of Asian cars is uniquely adjusted to the greatest common taste of the market, although the assemblers try to use as many components as possible designed for other models. Toyota, Honda and Isuzu will establish an R&D center in Thailand. Such region-specific development is a remarkable contrast with the "world car" initiatives in Mercosur. This may be attributed to the different levels of motorization, but the company's purchasing strategy (global sourcing/benchmarking or assembler-supplier trust) is pertinent as well.

Third, Toyota, Nissan and Mitsubishi produce the identical models in three countries, while Honda and Mazda concentrate the production of Asian cars in Thailand with a view to export in the future. The latter strategy owes its success to the progress of AFTA-CEPT and WTO.

Fourth, Toyota, Nissan, Mitsubishi and Daihatsu include Taiwan as a production base. They trade autoparts between ASEAN and Taiwan despite that there is no special tariff treatment. Taiwan is also suffering from small production scale but can supply a wide range of autoparts. This geographical expansion, as well as the naming ("Asian, not ASEAN, cars"), shows that the initiatives may have a scope covering the entire emerging Asia.

5.6.4 Trade of Vehicles and Autoparts

The vehicle trade is still sluggish partly because of protection and partly because of lack of competitiveness. The notable exception is Proton, Malaysia, which exported 15,000 units to the United Kingdom and Singapore in 1994. Through the export of CKD components to Indonesia and the Philippines, Proton would like to export 30% of its production by 1996. In Thailand, MMC Sittipol is exporting Mitsubishi-brand pick-ups to Europe. Thailand has an ambition to become the automobile export base of ASEAN and gives car exporters an incentive to reduce tariffs on material imports. Once Asian car plants start operation, Thailand will probably play an important role in the vehicle trade in Asia. Above all, its pick-up production has definitely reached an international scale. Pick-up exports to Japan is said to be promising in the near future.[6]

The autoparts exports from the four ASEAN countries amounted to US$ 1,268 million in 1993. The top exporter is Thailand with US$ 509 million (Table VI-5-6-9). In the same year, Argentina and Brazil exported US$ 2,665 and 602 million respectively. It should be noted that the trade structure of Malaysia, Indonesia and the Philippines is highly skewed. In these countries, stereo and radio sets account for about a half of the autoparts exports (even three-quarters in Malaysia). If tire is added, these two categories have 84% and 74% respectively in Malaysia and Indonesia. They do not have strong industrial linkages with other products and processes in the automobile industry. In contrast, Thailand is competitive in a wide range of mechanical parts at the regional level. According to one assembler, only Thailand has promising competence in almost all the supporting processes (Table VI-5-6-10).

[6] Mitsubishi ceases pick-up assembly in Japan and transfers the production facilities to Thailand in 1996.

Table VI-5-6-9: Autoparts Exports by Item

(1993*; US$,000)

	Thailand		Malaysia		Indonesia		Philippines	
Electricals for Combustion Engine	178,521	35.0%	6,316	1.3%	6,765	4.1%	8	0.0%
Clutch	108,470	21.3%	649	0.1%	260	0.2%	28	0.0%
Tire/Tube	49,794	9.8%	47,971	9.9%	37,101	22.5%	2,403	2.2%
Lumps and Illumination	43,255	8.5%	12,774	2.6%	1,911	1.2%	791	0.7%
Engine	25,963	5.1%	1,625	0.3%	163	0.1%	46	0.0%
Brake, Servo Brake, Lining and Pad	22,412	4.4%	7,823	1.6%	1,273	0.8%	24,733	22.2%
Engine Parts	20,324	4.0%	3,110	0.6%	1,771	1.1%	3	0.0%
Radiator	17,097	3.4%	1,486	0.3%	3,713	2.3%	3,142	2.8%
Others	12,162	2.4%	24,500	5.1%	1,994	1.2%	3,534	3.2%
Other Body Parts	8,511	1.7%	3,921	0.8%	4,689	2.8%	1,961	1.8%
Axle and Shaft	5,486	1.1%	49	0.0%	2	0.0%	0	0.0%
Wheel and Parts	4,094	0.8%	1,165	0.2%	12,097	7.3%	2,387	2.1%
Stereo and Radio Sets	3,777	0.7%	358,948	74.4%	84,533	51.3%	53,203	47.9%
Seat Belt	2,421	0.5%	161	0.0%	6	0.0%	0	0.0%
Steel Leaf and Coil Spring	2,290	0.4%	3,888	0.8%	5,545	3.4%	130	0.1%
Shock Absorber	1,467	0.3%	2,252	0.5%	11	0.0%	247	0.2%
Bumper	937	0.2%	587	0.1%	57	0.0%	6	0.0%
Muffler and Exhaust Pipe	857	0.2%	680	0.1%	35	0.0%	595	0.5%
Steering Wheel, Column and Box	799	0.2%	2,964	0.6%	581	0.4%	111	0.1%
Gear Box	743	0.1%	122	0.0%	526	0.3%	17,537	15.8%
Seat	308	0.1%	583	0.1%	1,595	1.0%	0	0.0%
Chassis and Body	163	0.0%	1,148	0.2%	28	0.0%	310	0.3%
Total	509,851	100.0%	482,722	100.0%	164,656	100.0%	111,175	100.0%

*: 1992 for the Philippines. Singapore, not presented here, is also an exporter of autoparts.
Note: air conditioners and parts are excluded as they are inseparable from those for domestic and office use.
Source: JICA Malaysia, Vol.2, Table 3-1-3, p.3-9.

Table VI-5-6-10: Strengths and Weaknesses of the ASEAN countries by process

	Thailand	Malaysia	Philippines	Indonesia
Stamping	O	Δ	Δ	O
AL Casting	O	Δ	X	O
Plastics	O	O	Δ	X
Rubber	O	Δ	Δ	Δ
Glass	O	O	O	O
FC Casting	O	X	X	O
Forging	Δ	X	Δ	Δ
Machining	O	X	X	Δ
Promising Process	All-Round	Plastics Small AL Casting Electricals	Small Plastics Labor-Intensive	AL Casting FC Casting Forging

O: Good, D: Fair, X: Unsatisfactory
Source: JICA Malaysia, Vol.2, Table 3-4-3, p.3-65

Such a situation has been rapidly changed by the progress of trade liberalization and rapid yen appreciation. The BBC scheme and the AFTA-CEPT tariff reduction encouraged assemblers first to exchange internally produced components, and then to establish an autoparts subsidiary to balance the trade between the member countries. This change has already appeared in Table VI-5-6-9; for example, Mitsubishi and Toyota concentrated the production of transmissions and gear boxes in the Philippines.

5.6.5 Presence of the Japanese Autoparts Suppliers

The Japanese assemblers and autoparts suppliers have made a large contribution to develop the ASEAN autoparts sector. Table VI-5-6-11 shows that more than 90% of the car production and sales are Japanese brands. Assemblers which invested in the ASEAN countries to overcome trade barriers also encouraged the co-operative suppliers to follow them, facing the local contents regulation and yen appreciation.[7]

Table VI-5-6-11: Share of Japanese Brand Vehicles in the ASEAN Countries
(1993*; %)

	Passenger Cars		Commercial Vs		Total	
	Prod.	Sales	Prod.	Sales	Prod.	Sales
Thailand	90	77	100	97	96	89
Indonesia	82	--	99	--	95	--
Malaysia**	19	17	87	88	35	33
Philippines	--	95	--	99	--	97

*: 1992 for Indonesia.
**: excluding Proton.
Source: BOT Asia Information, February 1995.

From Tables VI-5-6-12 and VI-5-6-13, the strength of each country (see Table VI-5-6-10) seems to be closely related with investment and licensing from Japanese autoparts suppliers. In Thailand, a wide range of autoparts (engine parts, electricals, power train, steering and brakes) can be procured. Indonesia has accumulated supply capacity of engine parts and power train with Japanese technology. On the other hand, Japanese suppliers located in Malaysia produce body parts and accessories, i.e. more auxiliary items. This agrees with the low share of Japanese cars in that country.

Table VI-5-6-12: Presence of the Japanese Autoparts Suppliers in ASEAN countries

	Thailand	Indonesia	Malaysia	Philippines	Taiwan	Korea
Subsidiary Plants	65	38	29	14	71	43
Technical Licensing	42	25	32	9	68	90
Total	107	63	61	23	139	133

Source: JOI, Overseas Investment and Loan, November 1994, p.22

[7] The ASEAN market is much smaller than Japan, and the price competition is increasingly harsh due to the recent yen appreciation and trade liberalization. Therefore, suppliers started to make alliance with their rivals and/or to deal with assemblers outside the *keiretsu* relationship.

Table VI-5-6-13: Autoparts Produced or Licensed by JAPIA* Members

	Thailand	Indonesia	Malaysia	Philippines	Taiwan	Korea
Engine Parts	37	21	9	1	24	44
Electricals (i)	9	7	7	2	14	5
Electricals (ii)	12	13	8	10	30	36
Power Train and Steering	22	21	4	2	17	26
Suspension and Brake	12	14	9	2	22	16
Body Parts	14	8	17	3	36	26
Accessories	8	4	10	5	19	8
Others	16	7	4	2	21	6
Motor Cycle	12	4	7	0	9	5
Total	142	75	75	27	192	172

*: Japan Auto Parts Industries Association.
Electricals (i): starter, alternator, plug, C/U, etc.
Electricals (ii): wiper, lamp, meter, harness, etc.
Source: JOI, Overseas Investment and Loan, November 1994, p.23

The next two sub-sections contrast the Thai and Malaysian autoparts sectors.

5.6.6 The Thai Autoparts Sector

(1) Industrial Structure

It is said that altogether 500 firms are producing autoparts including those for the REM and motor-cycle markets. According to an estimate of the JICA research mission, there are 148 first-tier and 124 second-tier OEM suppliers (Table VI-5-6-14). The average size of first-tier suppliers is much larger than the entire autoparts sector. However, a large proportion of 100% Thai firms deal with assemblers directly (Table VI-5-6-15). Among the foreign and joint-venture suppliers, 90% are affiliated firms of Japanese capital. Many local firms are also licensees of Japanese technology.

Table VI-5-6-14: Structure of the Thai Autoparts Suppliers

	Firms	
First-Tier Suppliers	148	40%
Second-Tier OEM Suppliers	38	10%
Second-Tier OEM and REM Suppliers	86	23%
REM Suppliers	76	20%
Export-Oriented Suppliers	26	7%
Total	374	100%

Note: not all the suppliers were identified in the business directory.
Source: JICA Thailand, Figure 4.2-2, p.4-2-14.

Table VI-5-6-15: Distribution of the Thai Autoparts Suppliers by Capital and Size

Entire Autoparts Suppliers					
Capital Origin	Firms		Employees	Firms	
Thai 100%	159	48.2%	-100	136	42.8%
Foreign 100%	12	3.6%	101-200	68	21.4%
Joint Venture	159	48.2%	201-500	70	22.0%
			501-	44	13.8%
Total	330	100.0%	Total	318	100.0%
First-Tier Suppliers					
Capital Origin	Firms		Employees	Firms	
Thai 100%	72	53.7%	-100	29	22.3%
Foreign 100%	4	3.0%	101-200	15	11.5%
Joint Venture	58	43.3%	201-500	47	36.2%
			501-	39	30.0%
Total	134	100.0%	Total	130	100.0%

Source: JICA Thailand, Tables 4.2-5, 4.2-6, 4.2-7 and 4.2-8, pp.4-2-11, 4-2-15 and 4-2-16. The original is SEAMICO Business Information and Research Co. Ltd., Directory of Supporting Industries in Thailand 1993. It lists 395 suppliers including those making motor-cycle parts.

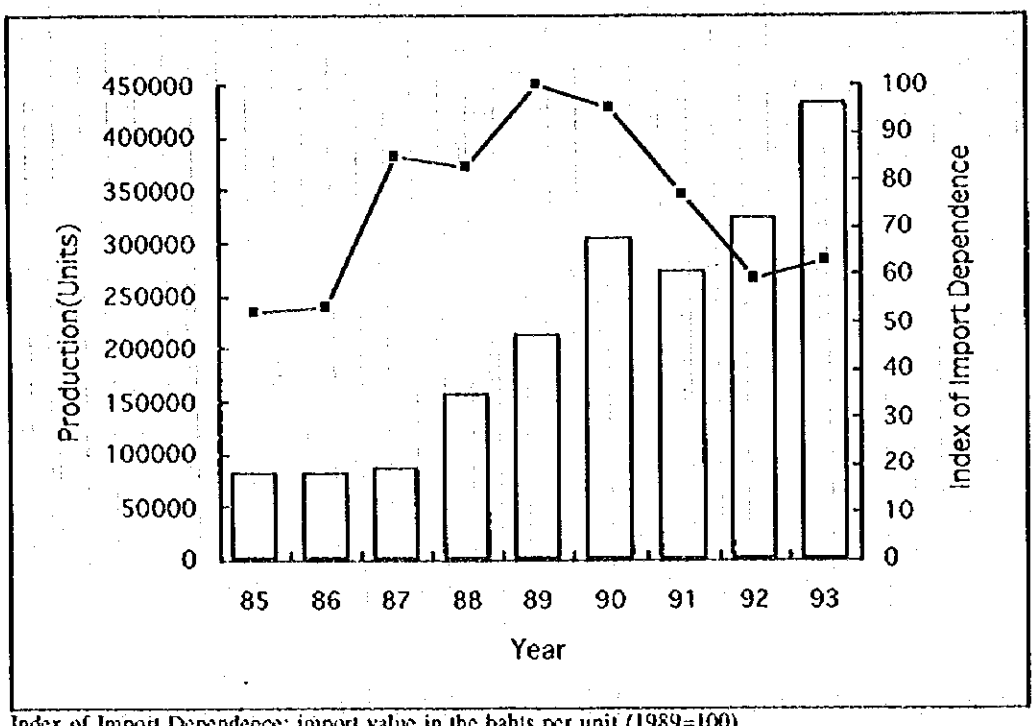
The localization of autoparts is steadily under way, although there is no flagship, like Proton in Malaysia, in the Thai automobile industry (Table VI-5-6-16). Diesel engine parts for pick-ups have been localized to comply with the ambitious local contents (see Table VI-5-6-2). Engine parts and body stamping parts are produced internally or procured from assemblers' subsidiary established to cope with the regulation. Thanks to the increasing market size and scale economies, the import dependence ratio of vehicles declined 40% from the peak of 1989 to 1993 (Figure VI-5-6-2).

Table VI-5-6-16: Autoparts Localization in Thailand

Localized
Engine: pick-up 5C (cylinder block, cylinder head, camshaft, connecting rod, crankshaft), engine gasket, bearing, piston ring, cylinder liner, valve, rocker arm, valve spring, timing belt, fuel filter, fuel tank, fuel hose, intake manifold, exhaust manifold, air cleaner, muffler, pipe, silencer, oil filter, radiator.
Power Transmission: pick-up transmission, clutch, master cylinder, release cylinder, clutch housing, clutch pedal, steel and aluminum wheel, tire,
Suspension: coil spring, shock absorber, stabilizer.
Brake: brake disk, brake drum, brake pedal, brake tube, brake hose.
Body and Stamping Parts: pick-up outer panel, inner panel, dash panel, floor pan/panel, strut house panel, cross member, side member, reinforce, steel bumper, small stamping parts (bracket, hinge, support, gasket, bar, stay).
Interiors: pick-up instrument panel, PC console box, seat, floor carpet.
Exteriors: other pick-up lamp.
Accessories: car radio, air conditioner, miller, tools.
Electricals: battery, alternator, starter, wire harness, spark plug, hone.
Plastics: small components (quality need be improved).
Rubber: localization nearly completed.
Imported
Engine: gasoline engine, fuel pump, fuel injection, carburetor, water pump, oil cooler.
Power Transmission: synchronized joint, differential gear, propeller shaft.
Suspension: lower are, upper arm.
Axle: knuckle, axle, hub.
Steering: steering wheel, steering column, steering shaft, steering gear, gear housing.
Brake: brake master cylinder, brake booster.
Body and Stamping Parts: PC skin panel, roof, fender panel, pillar, frame, side sill, plastic bumper.
Interiors: PC instrument panel, console box.
Exteriors: door lock, lock cylinder, head lamp, other PC lamp.
Electricals: meter, switch, relay, control.

Note: autoparts localized by one assembler may still be imported by another. These are regarded as localized.
Source: JICA Thailand, pp.4-2-20 to 4-2-28.

Figure VI-5-6-2: Import Dependence of Vehicles made in Thailand



Index of Import Dependence: import value in the bahts per unit (1989=100).
Source: JICA Thailand, Figure 4.2-1, p.4-2-8.

Table VI-5-6-17 shows the number of suppliers for each assembler. Common suppliers, i.e. those dealing with more than one assembler, produce standard parts such as rubber, safety glass, tires, lamps, electricals, accessories, and bolts and nuts. Five out of the seven Japanese suppliers organized the suppliers' association, but it is much looser than the Japanese *keiretsu*. From the suppliers' side, about half of them have business transactions with only one client assembler. They include the above subsidiaries of engine parts and body panels. However, one-third of them are said to be 100% Thai firms employing less than 200 workers. These PyMEs produce small stamping parts and plastic parts (Table VI-5-6-18).

Table VI-5-6-17: Number of Vendors per Assembler

Assembler	Exclusive	Common*	Total
Nissan	23	45	68
Mazda	19	47	66
Honda	11	32	43
Mitsubishi	7	26	33
Toyota	5	39	44
Hino	5	32	37
Isuzu	2	33	35
Total	72	---	---

*: supply to other assemblers as well.
Note: some of the assemblers counted only the main first-tier suppliers.
Source: JICA Thailand, Table 4.2-11, p.4-2-18.

Table VI-5-6-18: Number of Clients per Supplier

Business with	1 assembler	2	3	4	5	6	7	Total
No. of Suppliers	72	23	9	15	8	13	8	148
Percentage	49	16	6	10	5	9	5	100

Source: JICA Thailand, Table 4.2-10, p.4-2-17.

The research mission visited and scored 56 suppliers (Tables VI-5-6-19 and VI-5-6-20). They are graded into A, B, C and D. Obviously, 100% foreign firms and joint ventures demonstrated better performance than 100% local suppliers. However, many of the latter are Grade C. According to the experts, the Grade C firms can be promoted to Grade B relatively easily, if the workshop can teach how to apply basic theories to the shopfloor. By process, aluminum die casting is the best because of the introduction of new machinery, which dispensed with workers' experience. In contrast, stamping and plastics are to be much improved.

Table VI-5-6-19: Ranking of the Sample Suppliers by Capital Origin and Size

Capital Origin	Employees	Grade A	Grade B	Grade C	Grade D	Total
Thai 100%	-199	2	3	8	5	18
Thai 100%	200-499	2	3	7	2	14
Thai 100%	500-	1	4	4	0	9
J/V and Foreign		8	4	3	0	15
Total		13	14	22	7	56

Grade A: the level required to supply OEM parts with International Brand for International Market.
Grade B: OEM, International Brand, Local Market.
Grade C: OEM, Local Brand, Local Market.
Grade D: REM, Local Market.
Source: JICA Thailand, Table 6.2-5, p.6-2-13.

Table VI-5-6-20: Ranking of the Suppliers by Process

Process	Grade A	Grade B	Grade C	Grade D	Total
Ferrous-Foundry	3	4	3	1	11
Presswork	1	4	8	1	14
Plastic	2	1	5	4	12
Rubber	1	1	3	1	6
Die-Casting	5	2	1	0	8
Die-Forging	1	2	2	0	5
Total	13	14	22	7	56

Source: JICA Thailand, Table 6.2-3, p.6-2-8.

(2) Sector-Specific PyME Policy

Two features are salient in the Thai industrial policy. First, it is often combined with the regional development policy. Second, the government prefers to provide tax incentives for designated key products, although penalties are applied to the local contents violation.

Board of Investment (BOI) announced two important automobile-related policies in 1994. One aims at promoting vehicle exports from Thailand. If assemblers export more than 1,000 units a year, duty on material imports is zero. In addition, exporting plants located in Zone 2[8] enjoy seven-year exemption of corporate tax on the export income. The duty on machinery imports is also halved. Those located in Zone 3 are free from corporate tax on the export income for eight years and duty on machinery imports. Moreover, 25% of water, electricity and transport bills can be doubly deducted.

The other BOI policy aims at promoting supporting industries. Fourteen products and processes (die and mold-making, jigs and fixture, forging, foundry using induction furnace, tooling equipment, cutting and grinding tools, sintered products, heat treatment, surface treatment, engineering plastics etc.) are designated as the priority sectors with eight-year exemption of corporate tax given irrespective of the zone. Duty on machinery

[8] Zone 1 is Bangkok. Its surrounding areas are Zone 2. The remaining remote areas are zone 3.

imports is halved in Zone 2 and reduced to zero in Zone 3. Foreign capital participation is allowed 100%.

On the other hand, policies lacking incentives are not very successful. BOI initiated the BUILD scheme in 1992. An information center was established to register PyMEs willing to deal with large firms, arrange their match-making, provide necessary training and dispatch overseas missions. The database had comprised 1,200 firms by 1993, of which only four reached the agreement. The main problem is that no incentives were given to clients which had to promote suppliers at the technical level too low for ordinary transactions.[9] Moreover, PyMEs did not disclose sufficient information, or the datasheet did not have enough capacity to hold industry-specific information. BOI was working together with the Ministry of Industry (MOI) to prepare for the National Supplier Development Program (NSDP), still under discussion at the time of research (June 1994).

5.6.7 The Malaysian Autoparts Sector

(1) Industrial Structure

It is said that there are about 300 autoparts suppliers in Malaysia. Table VI-5-6-21 is the size distribution of the 109 questionnaire respondents. Half of them employ between 75 and 299 workers. In terms of turnover, two peaks can be identified: one for capital-intensive processes (transmission, suspension and steering) and the other for labor-intensive processes (body parts).

Table VI-5-6-21: Size Distribution of the Malaysian Autoparts Suppliers

(RM million)

Capital	Suppliers	Turnover	Suppliers	Employees	Suppliers
-0.5	16	-1.0	4	-29	11
0.5-2.5	44	1.0-5.0	30	30-49	15
2.5-	49	5.1-10.0	19	50-74	14
		10.1-20.0	17	75-99	26
		20.1-50.0	26	100-299	28
		50.0-	13	300-499	11
				500-	4
Total	109	Total	109	Total	109

Source: JICA Malaysia, Vol.1, Table 2-2-3, p.2-17

The production scale of the assemblers located in Malaysia is in general very small. In 1992, ten companies built 177,000 units divided into 89 models of 16 brands. Among them, Proton, which started automobile assembly as a national project in 1985, enjoys an exceptionally high volume. Based on this scale economies, Proton has played

[9] See Section VI.5.7 for match-making services in other countries.

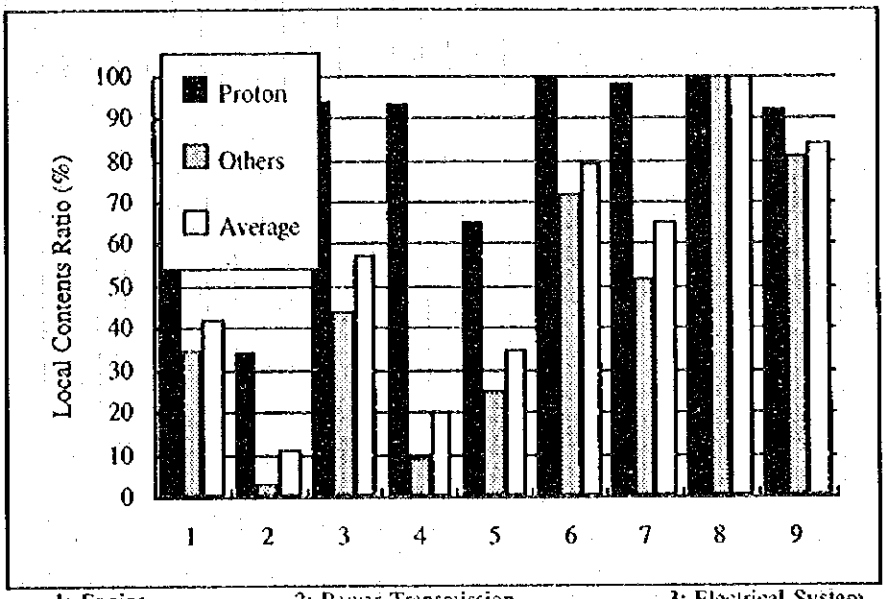
an important role in accumulating technological capability inside and then promoting local autoparts suppliers. As can be seen from Table VI-5-6-22 and Figure VI-5-6-3, a number of autoparts are localized only by Proton.

Table VI-5-6-22: Autoparts Localization in Malaysia

Localized
Engine: (engine assembly), fuel pipe, air cleaner, fuel tank, exhaust pipe front, silencer front and rear, radiator, radiator hose/clamp, fun complete, fun shroud, cables and linkages for engine control.
Power Transmission: clutch control cables.
Electricals: battery, battery cables, alternator, belt for alternator drive, starter motor, spark plug, wiper motor, horn, wiring harness complete, flasher.
Brake: tubings.
Suspension/Steering: front shock absorber, rear shock absorber, strut, coil spring, leaf spring, shackle pins, u-bolts, worm and pinion gear, tie rod.
Wheel: localization completed.
Body: floor assembly, roof assembly, rear windshield glass, front windshield glass, front side glass, rear side glass, windshield washer container/hose, body side trim molding, mud flaps, seat assembly, front and rear seat belt, carpets, sound proofing, spare wheel cover, rubber mats.
Direct Consumables: localization completed.
Accessories: localization completed.
Localized by Proton
Engine: (cylinder head), (crankshaft), (valve cover), (cylinder block), exhaust manifold, bolt for cylinder head.
Power Transmission: clutch, flywheel, gear box assembly, some control parts, front drive shaft assembly (FF).
Electricals: except for ignition coil, electrical distribution center, bulbs, cigar lighter, turn signal lamp switch.
Brake: except for brake caliper, servo, brake pad/shoe for wheel brake, brake shoe for parking brake.
Suspension/Steering: except for power pump, oil reservoir, hoses, rear suspension arm, steering column, pulley.
Body: localization completed, (spot welding), (stamping except for small parts).
To be Localized by Proton
Engine: intake and exhaust valve system, fuel carburation system, connecting rod.
Power Transmission: gear box housing.
Brake: brake caliper, servo.
Suspension/Steering: power pump, oil reservoir, hoses.
(To be) Localized by Other Assemblers
Engine: camshaft pulley, engine gasket complete, expansion tank/cap for cooling system, catalytic converter.
Electricals: ignition cables, various lamps, instrument cluster.
Brake: hand brake cable, brake lever for parking brake.
Suspension/Steering: front and rear stabilizer, steering wheel.
Body: (spot welding of CKD components), door, fender, hood hardware, trunk lid hardware, trunk floor hardware, emblem, window and door molding, weather strip, front and rear bumper, wing mirror, door inside panel, sun visor, dashboard including glove box, rear view mirror, roof lining, console, boot trims/moldings, rear parcel shelf.

Note: internal production by assemblers in parentheses.
Local materials are limited to glass, PP and natural rubber.
Production of air conditioners, shock absorbers, clutches and brakes are limited to sub-assembly of imported parts.
Source: JICA Malaysia, Vol.I, pp.2-4 to 2-10.

Figure: VI-5-6-3: Local Contents Ratio by the LMCP Classification



1: Engine 2: Power Transmission 3: Electrical System
4: Brake 5: Suspension and Steering 6: Wheel
7: Body 8: Direct Consumables 9: Accessories
Note: the local contents are 80% for Proton and 40% for the other assemblers in 1993.
Source: JICA Malaysia, Vol.1, Figure 2-1-1, p.2-11.

Proton is at present making efforts at localizing the production processes of engine and power-transmission parts. Table VI-5-6-23 reveals that the recent progress is outstanding, although heat treatment, rolling and forging are still relatively weak.

Table: VI-5-6-23: Localization of Key Processes for Engine and Power-Transmission Parts

	Production Process	Eng/Trans A	Eng/Trans B	Localized C	Localized D	C/A	D/B
1	Sheet Metal	25	23	17	17	68%	74%
2	Welding	26	23	17	18	65%	78%
3	Plastics	13	12	8	9	62%	75%
4	Painting	35	27	21	21	60%	78%
5	Assembly	37	31	20	21	54%	68%
6	Rubber	28	24	15	16	54%	67%
7	Others	46	41	25	28	54%	68%
8	Stamping	49	45	26	32	53%	71%
9	Casting	30	28	12	17	40%	61%
10	Plating/Surface	41	37	16	23	39%	62%
11	Machining	81	70	29	45	36%	64%
12	Heat Treatment	41	35	12	21	29%	60%
13	Rolling	8	7	2	3	25%	43%
14	Forging	18	15	3	9	17%	60%

A: LMCP sub-groups belonging to the engine and power-transmission group (total 128).
B: excluding autoparts unused by Proton from A.
C: localized sub-groups belonging to A (total 57).
D: C plus sub-groups to be localized by Proton in 1995-96.
Source: JICA Malaysia, Vol.2, Table 2-2-2, p.2-12

Proton organized the suppliers into PPP (Proton Vendors Association). There are 128 members in 1994. Proton announces its production and development plan at PPP and assists suppliers through PPP by organizing seminars/workshops on 5s and QCD and arranging visits to good suppliers. The assembler-supplier relationship is much looser than the so-called Japanese style. Proton's multi-sourcing policy to avoid delivery risks did not intensify competition but made cost reductions more difficult due to insufficient production scale. The suppliers increased the number of clients to accelerate the depreciation of expensive machinery. In that sense, Proton's assistance has contributed to the development of the entire automobile industry in Malaysia.

Table VI-5-6-24: Number of Clients per Supplier

Business with	1 assembler	2	3	4	5	6	7	8	9	Total
No. of Suppliers	102*	33	20	8	7	7	10	9	2	198
Percentage	52	17	10	4	4	4	5	5	1	100

*: 48 firms only with Proton.
Source: JICA Malaysia, Vol.2, Table 4-2-1, p.4-3

The relationship between suppliers and assemblers other than the people's car producers is a difficult one. As for passenger cars, the production scale of the latter dropped from over 100,000 units in 1984 to 33,000 units (plus 38,000 commercial vehicles) in 1993. This absence of scale economies deprives them of bargaining power with suppliers through single-sourcing. Suppliers are reluctant to accept the assemblers' standards and specifications, to co-operate for the JIT system, and to invest in expensive molds and dies. The products are often more expensive than imports and full of quality variance. It seems that only the mandatory deletion items and auxiliary components are localized. When localizing new autoparts, they tend to contact local suppliers already promoted by Proton.

Table VI-5-6-25: Number of Vendors per Assembler

Assembler	Vendor
Proton	128
Oriental Assemblers	31
Assembly Services	86
Tan Chong Motor Assemblies	63
Swedish Motor Assemblies	30
AMI (Ford)	45
Automotive Manufacturers (M)	51
Cycle & Carriage Bintang	64

Source: JICA Malaysia, Vol.1, Table 2-4-4, p.2-72.

The Malaysian government does not promote all the autoparts suppliers equally, but pays special attention to Bumiputera (Malay, i.e. non-Chinese) businesses. The performance and competence of Bumiputera suppliers is yet to be improved. Table VI-5-

6-26 shows that the technological capability of Bumiputera firms is concentrated on a narrow range of processes, above all, assembly, stamping and plastic injection.

Table VI-5-6-26: Autoparts Suppliers by Process

		Total		Bumiputera	
		Firm	%	Firm	%
1	Assembly	59	54.1	16	55.2
2	Stamping	39	35.8	9	31.0
3	Plastics	16	14.7	9	31.0
4	Machining	39	35.8	6	20.7
5	Painting	29	26.6	6	20.7
6	Others	28	25.7	6	20.7
7	Welding	31	28.4	4	13.8
8	Foundry	14	12.8	3	10.3
9	Heat Treatment	22	20.2	2	6.9
10	Plating/Surface	12	11.0	1	3.4
11	Rolling	11	10.1	1	3.4
12	Forging	10	9.2	1	3.4
13	handa	13	11.9	0	0.0
14	Rubber	13	11.9	0	0.0
15	Sheet Metal	5	4.6	0	0.0
16	Glass	3	2.8	0	0.0
17	Sintering	1	0.9	0	0.0
18	Ceramics	1	0.9	0	0.0
	Total	109		29	

Note: multiple answers were allowed.
multiple answers
Source: JICA, Malaysia, Vol.I, Table 2-2-4, p.2-18.

The out-sourcing to second-tier suppliers is wide-spread. For them, however, business with first-tier suppliers is usually a minor proportion. Their primary business is the supporting industry related to electricals and electronics. The automobile industry enjoys the fruits of the preceding development of the internationally competitive electrical and electronic industry.

(2) Sector-Specific PyME Policy

One of the reasons why the Malaysian government established Proton was to make it promote local (Bumiputera in particular) autoparts suppliers. The government applied the preferential duty on CKD components (recently raised from zero to 13%) and excise duty (half of the ordinary rate). The ample protection and the resultant scale economies[10] facilitated Proton to spend their resources in the guidance of local suppliers. Since Proton actively searched for potential vendors, local suppliers did not have to take pains of marketing. Under the program called Proton Vendors Development System (PVDS), a team of engineers examines the suppliers technical competence, conducts feasibility studies, introduces new technology if necessary, follows up the performance

[10] In 1993, Proton's best-seller model was sold 5-6,000 units per month. The production cost was still 2-5% higher than that at the volume of 10,000 units per month.

and establishes a long-term business relationship. This program was later developed into the Vendor Development Program (VDP), which will be discussed in detail in Section VI.5.7.

Box VI-5-6-1: Proton Vendors Development System

(i) Identification of Parts
- annual master plan
- long-range product plan
- engineering cost estimates
- cost estimate review based on cost table

(ii) Identification of Vendors
- 4M's assessment (man, machine, material, method)
- vendor evaluation (strength, weakness, opportunity, threat)
- matchmaking program
- plan, do, check and action concept (PDCA)

(iii) Selection of Vendors (Secured Market)
- Proton policy (single sourcing, Bumiputera vendor preferred, etc.)
- appointment of vendors

(iv) On-Going Assistance
- QC audit
- close monitoring
- advance information to vendors on LRPP
- offshore market penetration
- special program (PPP, matchmaking program, government grant, etc.)

(v) Long-Term Objectives
- QCD
- management
- technical

Proton also co-operates with National Productivity Center (NPC) to improve the quality control system of its suppliers. The program contents are similar to the Japanese style of TQC, including 5s, QC circles, QCD (Quality, Cost and Delivery), weekly meetings and morning briefings, etc. Three inspectors from NPC and Proton conduct quality auditing for each supplier twice a year. On the other hand, SIRIM's services related to ISO9002 is not well received, mainly because the course is not sector-specific and thus not very practical.[11]

[11] Of the 109 questionnaire respondents, 23 have acquired and 46 are preparing for ISO9002. In the Malaysian economy as a whole, 628 firms have been certified with ISO9000 by March 1995.

Box VI-5-6-2: NPC-Proton Joint Program

(i) Training
-Module 1: 5s practice
-Module 2: ISO9000
-Module 3: QCC for group leader
-Module 4: QCC tools and techniques workshop
-Module 5: QCC for facilitators
-Module 6: workshop on managing QCC's
(ii) QCC Convention and Camp Quality
(iii) Productivity Measurement for Automotive Component Industry
(iv) Consultancy
(v) National Seminar for Automotive Component Industry

Seeing the success of Proton, the government has allowed the second (with Daihatsu) and the third (with Citoroën) people's car makers, to be followed by the makers of people's one-ton pick-up trucks (with Hyundai) and people's vans.

5.6.8 Implications to the Mercosur Countries

From the viewpoint of assemblers, the framework of Mercosur covering the automobile trade seems to be more attractive than BBC and AFTA-CEPT. However, the tariff under Mercosur from 2000 is much higher than that of CEPT from 2003. Moreover, current disputes surrounding the domestic Automotive Regime are causing concern. It is important to demonstrate the decisiveness to stick to a rigid schedule, even through the pace may be slower, so that the regional co-operation will go ahead.

Autoparts suppliers in Mercosur are also technically more advanced than those in ASEAN. Nevertheless, assemblers are busy with finding new ones in ASEAN, while drastically cutting them off in Mercosur. Such a contrast can be explained by the following factors.

First, the recent yen appreciation pushed Japanese autoparts suppliers out of the origin country to Asia. This means that DFI in the autoparts sector may continue without local contents regulations. There is no factor forcing European and American suppliers to invest in Mercosur. Second, the ASEAN market, smaller though it is than the Mercosur market, has strong economic ties with other dynamic Asian countries. The total Asian market might well be much larger in the future.

Third, assemblers located in Mercosur tend to produce world cars, while those located in ASEAN are introducing Asian cars. World cars standardize autoparts between different continents and enable assemblers to procure them from all over the world. This will put pressure on local suppliers to improve productivity and quality to an international

level. A large proportion of weak suppliers cannot cope with such a harsh competition. On the other hand, autoparts for Asian cars are unique to the Asian region in principle. In that sense, local production and even local development is more appropriate. Assemblers thus promoted local suppliers, or asked for investment and licensing from co-operative suppliers, and established R&D centers in Thailand.

These factors surely demand different types of policy in Mercosur from that in ASEAN. Or at least, policies successful in Asia have to be adjusted to the Mercosur conditions.

5.7 Policies to Promote the Formation of Subcontracting Relationships

5.7.1 Introduction

Autoparts suppliers, substantially damaged in the late 1980s, could not assert themselves aggressively in the formation process of the Automotive Regime.[12] They could enjoy a consequent dynamism of car sales, but only as far as business with assemblers is maintained. On the other hand, assemblers succeeded in liberalizing autoparts trade further, and at the same time, forced them to accelerate technological change.

Suppliers managed to insert the local contents regulation and later the compulsory use of products made by independent suppliers in exported vehicles.[13] Nevertheless, the Tequila Shock in Mexico made it clear that trade policy is not sufficient to rescue the country from trade imbalance caused by massive imports of components and capital goods. This shows that a promotional policy from the standpoint of autoparts suppliers may be extremely important. In other words, they should regard incoming or expanding multinational assembly plants not solely as clients but also as the source of assistance for financial procurement, technical change and quality control.

Japanese *keiretsu*, multi-layer subcontracting pyramid, is perhaps the best example. With a prospect for stable procurement roughly informed, suppliers have strenuously devoted themselves to improving cost, quality and delivery competitiveness. In return, they have been receiving various kinds of support from their primary customer, especially at the first-tier level (Table VI-5-7-1). Having learned the effectiveness of this channel for promoting local suppliers, some developing countries introduced the *keiretsu* system as a governmental policy[14] so that the balance of trade in the automobile industry might be improved. In the present section, the cases of Korea and Malaysia will be studied to induce implications for the Suppliers Development Program of Argentina. Different settings did not allow these countries to repeat the history; consequently each government had to demonstrate unique policy tools.

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[12] Another reason for their weak position was the division of authority into four associations: CAFAC, CAIA, CIFARA, and CIMC. Their recent unification into AFAC is surely a right direction.

[13] In addition, they recently pushed the government to approve the "Autoparts Regime", whereby they can also procure their parts and materials at the low rate of tariff (2%), the same condition as assemblers enjoy (Clarin, 16 noviembre 1995).

[14] Not included here are such match-making systems as "Bolsa de Negociación", which facilitate one-off business transactions.

Table VI-5-7-1: Multi-Layer Keiretsu System in the Japanese Auto Industry

(Sample Questionnaire)

	1st-tier		2nd-tier		3rd-tier	
Avg. no. of employees		1198		69		10
Units produced per month		4540000		530000		140000
Customers	Assemblers 1st-tiers		1st- and 2nd-tiers some also with assemblers		2nd- and 3rd tiers	
When business with the primary customers started	1950s	45%	1960s	32%	1970s	47%
			1970s	24%	1980s	42%
			1980s	24%		
Assistance from the primary customer	Equity participation	41%	Rental equipment	25%	Technical support	11%
	Personnel exchange	33%	Technical support	19%	Rental equipment	11%
	Management guidance	21%	Not particularly	54%	Not particularly	79%
	Rental equipment	25%				
	Not particularly	38%				
Products designed by	Own	27%	Own	7%	Customers	100%
	Basic by customers / detailed by own	32%	Basic by customers / detailed by own	16%		
	Customers	42%	Customers	77%		

Source: "The Auto Industry: A Scenario for the 21st Century", Fujimoto, T. and A. Takeishi, 1994

5.7.2 *Keiretsu*-Formation in Korea

In 1975, the Korean government introduced "the Law Promoting the Organization of PyMEs into *Keiretsu*". It designated manufacturing sectors and product items (42 sectors and 1160 items in 1993) exclusively for PyME activities. Under this law, parent companies have to make clear product designs and specifications, ordering methods and delivery dates, and notify these conditions to PyME suppliers six months before agreeing a long-term contract (a minimum of three years). Moreover, a parent company and the association of its suppliers must co-operatively submit a "common business plan" to the Ministry of Trade and Industry, including not only the above contract matters but also programs for quality enhancement, facility modernization, firm-size rationalization and technological improvement. The "common business plans" accepted in 1992 covered 139 parent firms and 1261 children PyMEs.

The automobile and autoparts industry has been one of the main targets of this *keiretsu*-formation policy. At first, assemblers were oriented to concentrate on unit and engine assembly, while 29 items and 48 PyMEs were designated in the six sub-sectors (engine, body, electricals, transmission, brake system and steering system). Each supplier was allocated to only one product item. According to Table VI-5-7-2, 19 parent companies are now organizing 404 PyME suppliers (including the motorcycle sub-sector) in 1993. All the major assemblers, eight major first-tier suppliers, and 30.7% (404/1317) of all the PyME suppliers are participating in this process. It should be noticed that autoparts were also designated as the PyME domain and that 173 firms are promoted as second-tier suppliers. That is to say, the policy intends to multiply the subcontracting layers.

Table VI-5-7-2: Progress of *Keiretsu* Formation in the Korean Auto Industry

		1980	1985	1990	1991	1992	1993
No. of Designated Items	Automobile		102	112	112	112	112
	Autoparts	32	120	81	81	81	81
	Motorcycle		52	55	55	55	55
	Total	32	274	248	248	248	248
No. of Parent Companies	Automobile	7	8	7	7	9	9
	Autoparts		12	13	13	14	14
	Motorcycle	1	2	2	2	2	2
	Total	8	22	22	22	25	25
	(Total)*		17	17	17	19	19
No. of Children Companies	Automobile	141	262	179	235	28	238
	Autoparts		166	101	150	173	173
	Motorcycle	11	87	45	51	58	58
	Total	151	515	325	436	469	469
	(Total)*		471	284	380	404	404

*: excluding duplications
Source: "Handbook of the Auto Industry 1994", Korean Association of the Auto Industry

The outstanding feature of this policy is implementation compelled by the National Executive. Another policy reformulating the division of labor between large companies and PyMEs is less authoritative; the Ministry could ask large companies to transfer their activity to PyMEs in the sector more appropriate for the latter. In both cases, PyME suppliers are supposed to enjoy a preferential access towards financial, technical and managerial assistance from public sources as well as parent companies. The role of *keiretsu* relationship has recently advanced to enhance suppliers' development and design capability so that they can join so-called design-in.[15]

5.7.3 Vendor Development Program in Malaysia

In Malaysia, the Mandatory Deletion Program (i.e. 30 designated components had to be removed from the CKD package) and the Local Material Content Policy pressed the car assemblers to use local PyME suppliers as a "stick". This was supplemented by a "carrot", i.e. the Venture Development Program (VDP). VDP was originated from the localization program of Proton, a nationally-promoted car assembler. Proton managed its subsidy fund to offer factory auditing, techno-managerial consultation and production facilities. The Government upgraded this scheme into a policy using public budget in 1992 and rearranged it into the "Tripartite Agreement" in 1993 so as to encourage wider participation, and at the same time, to spread the financial burden of direct subsidy. Co-ordination of the program was recently transferred from MITI to the Ministry of Entrepreneur Development.

[15] Hyundae had admitted 31 suppliers in its "Guest Engineering Program" by 1991.

The system functions in the following way:

(1) an anchor (parent) registers at the Ministry;

(2) the Ministry hands a list of potential *bumiputera* (the local Malay, i.e. excluding the resident Chinese) vendors (children) to the anchor;

(3) a technical team from the Ministry and the technical support institutions carries out an evaluation of the technical, financial and managerial aspects of potential vendors to raise their probability of being selected;

(4) the anchor visits and appoints promising enterprises;

(5) the anchor appoints a financial institute;

(6) he chosen financial institute lends first to the anchor, then the anchor lending to the chosen vendors.

The maximum lending is RM1million. This financial assistance is of the nature between a loan and a grant; the repayment requirements are 10% up to RM250,000 and 50% for the remaining. If RM1million was borrowed,

250,000*0.1+750,000*0.5=400,000, i.e. 40%

has to be repaid. The grace period is six months after the initial production, and the repayment term is five years.

As was shown in Table VI-5-7-3, 43 anchors has so far registered, who are bringing up 59 vendors. While the simple average of vendors per anchors is 1.37 (59/43), it is said in fact that many of the anchors have yet to choose their vendors. The estimated total of the vendors' sales turnover is about RM190million (about US$1.3million per vendor). As far as the automobile and autoparts industry is concerned, Proton and Perodua, two nationally-promoted assemblers, are co-operative. Proton, pioneer of VDP, holds 19 vendors under the scheme. Although both assemblers will surely increase the number of vendors in the near future, it seems at the moment that only 4.8% (19/425[16]) of the first- and second-tier suppliers are participating.

[16] This figure of the total autoparts suppliers in Malaysia, estimated by the JICA development study conducted in 1994, includes large-scale firms unlike the above Korean figure.

Table VI-5-7-3: VDP Anchors and Vendors by Sector

Anchors*		Vendors	
Electrical and Electronics	37	Plastic Components - Injection Molding	19
Wood-Based	3	Wood-Based Furniture Components	13
Automotive	2	Sub-Assembly, Auto-Inserting and Surface Mounting Technology	8
Light Engineering	1	Metal Stamping and Fabrication	7
		Automotive Components	5
		Wire Cord and Wire Harnessing	4
		Electrical - Electroplating	2
		Telecommunications Equipment	1
Total	43	Total	59

*: anchors by nationality -- Japan 25, Malaysia 8 (including Proton and Perodua), USA 4, Taiwan 3, Germany 2, France 1.

Source: Malaysia International Trade and Industry Report 1995

5.7.4 Suppliers Development Program in Argentina

Argentina has started its Suppliers Development Program (SDP) since November 1994. The Secretariat of Industry co-ordinates INTI, promoters (parents) and suppliers under the scheme, which follows the following steps:

(1) a promoter registers at the Secretariat;

(2) the promoter appoints suppliers along the Secretariat's guideline;

(3) a technical team from the Secretariat and INTI carries out an initial diagnosis of the suppliers at the fixed cost of the latter;

(4) INTI devises an action plan including a set of indicators and a training program;

(5) INTI provides the suppliers with periodical diagnoses and, in co-opertion with the promoter, technical assistance;

(6) the action plan will be completed within three years.

The long-term contract with the promoters entitles selected suppliers to institutional finance from BICE. The operational costs of the scheme were supposed to be funded by the penalty from the car assemblers disregarding Section 3 of Decree 2278/94 ("25% of the value of exported vehicles should come from components made by local independent suppliers.") as well as the consultation fee.

Although the Secretariat originally planned to nominate 150 suppliers in the 14 sectors, only 20 have thus far been chosen in the first eight months (see Table VI-5-7-4). With regards to the automobile and autoparts industry, CIADEA, SEVEL, Ford and Volks Wagen, and Deutz as a first-tier supplier, appointed seven suppliers. The main reasons why the progress was slower than expected are said to be (i) the insufficient number of INTI experts in such field as ISO9000, (ii) the abrupt transfer of the financial resource collected from the penalty to other expenditures, and (iii) hesitance of potential

promoters from agreeing a long-term contract. As for (i), INTI holds staff of only six ISO experts trained by the German DGQ and has requested the Secretariat of Industry for financing training of forty more auditors. Compared with Malaysia, however, promoters include major foreign assemblers. The pace of about one car-related supplier per month is not at all slow, with the ratio of supplier participation being 2% (7/350[17]).

Table VI-5-7-4: SDP Suppliers by Sector*

Sector	No.
Containers	6
Autoparts	5
Confectionary	4
Miscellaneous Metal Processing	3
Casting	2
Total	20

*: There are 14 promoters, of which two, including Ford, have not appointed suppliers.
Source: INTI

5.7.5 Global Trends and Country Characteristics

Unlike assemblers spontaneously and strategically formed the multi-layer *keiretsu* system in Japan,[18] the government intervened to encourage the *keiretsu* formation in the above three countries. This is understandable as, when the policy was introduced in these countries, assemblers were struggling for their own survival and did not have time to consider such macro-economic problems as increasing trade deficits caused by importing more components.

Each of the countries learned the Japanese experience with practical modifications. Comparison of their approach towards the *keiretsu*-formation policy can be made with respect to the following four issues: (i) whether the *keiretsu* formation is imperative or not, (ii) how potential suppliers are chosen, (iii) who actually supports the participant suppliers, and (iv) whether first-tier suppliers are allowed to become parents etc. or not.

Promoters in Argentina are free to choose a supplier as far as the 25% rule is kept, but INTI takes an initiative of guidance in return for the consultation fee. As for the first-tier supplier, Deutz was designated as a promoter. Although *keiretsu* formation is a must for designated autoparts in Korea, the appointment of children suppliers is entrusted to parents, who devise a "common business plan" together with their suppliers. Fourteen first-tier suppliers are already playing the role of parents. In Malaysia, assemblers decide

[17] This estimate of the total autoparts suppliers in Argentina, prevailed in the business circle, also includes large-scale firms.
[18] Their experience of hierarchical business realignment forced by the war regime might have led them to this structure.

whether or not they register as an anchor. Anchors can choose any supplier as far as it is a *bumiputera* PyMEs. First-tier suppliers have not yet been accepted as an anchor.

Such bench-marking suggests what may be missing in Argentina. Nevertheless, to copy good foreign policies do not necessarily guarantee a success, especially (1) if the conditions in the automobile and autoparts industry are varied between countries and (2) when the global trend in the industry is facing a fundamental change. Good policies for the present situation of the Argentine autoparts sector must not go against such tidal waves as unit delivery and new trade/investment order and at the same time must take account of local characteristics as to assemblers, suppliers and the business custom among others (public and private financial resources, supporting institutes, etc., are discussed in the other chapters).

(1) Global Trends

a) New Trade and Investment Order

The impact of WTO on the *keiretsu*-formation policy is two-fold. First, it becomes increasingly difficult to set aside a sector or a product item for PyMEs as in Korea, because this regulation prohibits large foreign autoparts suppliers from establishing a local plant. Second, the liberalization of investment makes plant relocation and technology licensing more efficient. For example, assemblers in Korea might feel it more economical some day to procure components from a subsidiary of a Japanese autoparts suppliers located in South-East Asia than to promote local PyMEs.

b) Unit Delivery and Hierarchical Subcontracting

Japanese car assemblers keep direct transaction with much fewer component suppliers than their American and European rivals (Table VI-5-7-5). Instead, first-tier suppliers sub-assemble a set of components before delivery. Similar relationships exists between first- and second-tier suppliers, then second- and third-tier suppliers, ... This arrangement has several merits for car assemblers: (i) reduction in the number of processes at the assembling plant, (ii) reduction in the burden of cost/quality/delivery control, (iii) reduction in the cost of promoting many mediocre suppliers, and (iv) reduction in the development lead-time through co-operation with first-tier suppliers.

Table VI-5-7-5: The Number of First-Tier Suppliers

Assembler	Intra-assembler Production (%)	Number of First-Tier Suppliers	
Toyota	30	229	club members only
Nissan	30	193	club members only
GM	70	1500	per assembly plant
Ford	50	2300	
Mercedes	43	2000	excluding minor customers
VW	44	NA	
Peugeot	50-60	950	300 major customers
Renault	50-60	1100	will reduce to 700-800
Fiat		1000	
Hyundae		452	will reduce to 300
Kia	30	292	

Source: "The Automobile Industry", Japan Automobile Industry Association, and IDCJ Interviews.

Western assemblers are now following the same path. Their subsidiaries in Argentina and Brazil are not exceptions; in particular, the model change is an excellent opportunity for concentrating the order on suppliers who have introduced new machinery. This trend has at least two kinds of implication to the *keiretsu*-formation policy. First, assemblers are increasingly reluctant to bear the cost of bringing up suppliers showing poor performance directly. Second, development and design capability of first-tier suppliers, indispensable for the above merit (iv),[19] depends partly on their size, which does in turn on the number of customer assemblers.

(2) Local Conditions

a) Assemblers

Chaebul (local business group) assemblers in Korea and nationally-promoted assemblers in Malaysia are well motivated to co-operate with the policy by the market protection and preferential treatment from the government. Multinational and licensee assemblers in Argentina are driven to do so in order to comply with the 25% rule (Section 11 of Decree 2677/91). Multinationals in Malaysia, lacking scale economies, have little incentive to bring up local suppliers.

The assemblers located in Argentina are actually conducting guidance of some suppliers on their own irrespective of the SDP framework. The multinationals can rely on a larger team of diagnostic engineers from the purchasing division of their Brazilian plant. Tooling and quality control are their main targets, for which they organize cells or workshops and facilitate self-help of the participants. The reason why the assemblers

[19] Table 5.7.1 shows that such capability clearly distinguishes first-tier suppliers from those at the lower levels in Japan. In contrast, it is not terribly important while assemblers produce a licensed model, because they just transfer component designs from the license holder to local suppliers.

took such initiative without expecting institutional rewards may be because grading up existing suppliers is easier than bringing up new suppliers (as in Korea and Malaysia) owing to the accumulated knowledge of the suppliers' competence. Nevertheless, the European and American multinationals tend to be specialized in unit assembly and prefer inviting subsidiaries of multinational suppliers to promoting local suppliers.

b) Suppliers

Argentina was proud of almost 100% local content ratio based on 1200 autoparts suppliers ten years ago. Some of them recognized by the crisis around 1990 the advent of the liberalization age where quality control and price competitiveness are of paramount importance. They made a head start for continuous improvements and followed the expansion of vehicle production and the introduction of new models by aggressive investment in new plants and machinery and acquisition of weaker suppliers. While they are now categorized in Rank A together with subsidiaries of multinational suppliers, others have just satisfied assemblers' demand for cost reduction by raising the rate of operation and managed to remain at the first-tier level (Rank B firms). Still others, i.e. Rank C firms (accounting for up to three-fourths of the total suppliers depending on the assembler), might be shed off from the list of first-tier suppliers.

In Korea and Malaysia, enhancement of the local content ratio per se was, and still is, a raison d'être for the *keiretsu*-formation policy. The Malaysian Government even established Proton in order to raise the local content and to level up the supporting industry including autoparts suppliers. As the promotion of *bumiputera* enterprises, many of which are still inferior to resident Chinese suppliers, is imperative, foreign assemblers located in Malaysia do not hide complaints of high cost for bridging the large technological gap.

c) Business Custom

Competent first-tier suppliers in Argentina and Malaysia deliver components to almost all the assemblers in the country. Such independent suppliers ensure production scale more easily than those sticking to a single assembler, but for the parent assemblers, diffusion of the fruits to their rivals discourage them from bearing the promotion cost. This might be one of the reasons why the depth of involvement by Argentine promoters, unlike Proton which has a political mission, is relatively low.[20] Korean assemblers tend to prefer exclusive transaction with children suppliers.[21] Their size and development

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[20] Another might be because the promoters cannot guarantee a long-term contract due to the market volatility.
[21] 58.7% of 1187 Korean autoparts suppliers have transaction with only one assembler. The percentage will rise to 80.6% if those with two assemblers are included.

capability are thus limited despite of the parents' strong commitment and the relatively large market size.

5.7.6 Conclusions

It can be argued from the above discussion that the following modality of *keiretsu*-formation policy would fit the present state of the automobile and autoparts industry in Argentina:

- Although the multinational car assemblers do not neglect the SDP as was in the case of the Malaysian VDP, their own programs of suppliers development have the priority. SDP should function as a support to the private initiative rather than be juxtaposed with the latter.

- It seems that INTI's ambition to control over the pace and content of SDP (or the ambition of the Secretariat of Industry to use SDP for the restructuring of INTI) might be a reason for the lack of coordination. The assemblers have (i) more abundant technical resources for diagnostics and practical improvements of the production site[22] and (ii) more precise business perspectives to which the SDP schedule should be adjusted. On the other hand, their own programs would have been more substantial without the appropriability problem and the market volatility.

- Therefore, a policy framework should be constructed so that it may provide incentives for the assemblers to intensify their programs. This may include:

(1) "Joint Promotership", whereby all the customer assemblers of a participant supplier are encouraged to join the program and share the costs and benefits. In other words, such common suppliers are seen as the industrial infrastructure.

(2) stronger link with the institutional finance and guarantee system. Quality improvements based solely on manual skills and management tools will sooner or later hit the ceiling. Once INTI acknowledges that the threshold is passed, the Secretariat need to co-ordinate credit to introduce more productive machinery and plants with increasing order from the promoter and other assemblers.

INTI plays less ambitious roles in auditing the program progress, co-operating for experiments and testing, and conducting joint R&D of pre-commercial technology, safety and environment.

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[22] Car assemblers modified ISO9000 to create their own quality standard. INTI is not regarded as a proper certifying body of this standard.

- Such time-consuming promotion through *keiretsu* subcontracting may not keep pace with the fierce competition for the first-tier status in the age of globalization and unit delivery. However, an increasing amount of outsourcing will probably create demand for more specialized second-tier suppliers. SDP should aim at accepting more pairs between first- and second-tier suppliers.

- In the case where first-tier suppliers become a promoter, they usually have neither sufficient resources nor know-how to provide guidance for their second-tier suppliers. Therefore, the room for INTI's initiative will be greater than the case including a car assembler. Moreover, INTI can assist the reorientation of autoparts PyMEs which no longer hold the first-tier status, and provide consulting services to qualify them as a candidate for the SDP selection by their customers (i.e. first-tier suppliers).

- For INTI to play such roles, it must not only expand the ISO9000 staff but also learn business needs more seriously and accumulate practical experience. Focusing on production engineering, the institute should accept more joint R&D with PyMEs rather than commissioned testing and analysis. Organizational reform which facilitates an interdisciplinary project team beyond the boundary of INTI's branch institutes would make it more oriented towards problem-solving projects.

- Lastly, the current competition will produce more after-market suppliers as well as second-tier suppliers. As the former do not have a manufacturing customer, INTI is expected to be their adviser.

5.8 Summary and Policy Recommendations

5.8.1 The Automobile Industry and Autoparts PyMEs in Argentina

Multinational car assemblers look at their Argentine plants in their global strategy. They evaluate the relative attraction of the Mercosur region and Argentina, and the capability of their plants and local autoparts suppliers.

Despite the so-called Tequila Shock, car assemblers have thus far remained optimistic about the market expansion of the Mercosur countries. The Mercosur trade agreement / Protocol 21 enables them to build a more efficient plant than the ASEAN Free Trade Agreement / Brand to Brand Complementation. By reducing restrictions on the vehicle trade, assemblers can limit the number of models per line in order to enjoy complementation and scale economies. The peaceful solution of the recent dispute with Brazil has further boosted their confidence in the regional unity.

Compared with Brazil, Argentina is proud of the economic stability, head-start for economic liberalization and absence of legal discrimination. The Automobile Regime appealed to incoming assemblers that the operational conditions in Argentina were radically improved. However, a similar regime being introduced at present by the Brazilian Government may significantly raise the merits of manufacturing in Brazil vis-à-vis in Argentina. Therefore, the number of models per brand in each of the countries reflects the difference of market size and suppliers' capability more accurately from now on. This could mean that, while Brazil may produce almost a complete line-up, Argentina might be specialized in only one or two models per brand and export almost 80% of these products to the neighboring countries. A couple of Japanese and Korean newcomer assemblers have already decided to be located in Brazil.

New models will not be produced in Argentina if the assembling plant fails to satisfy the productivity and quality standard of the headquarters. This constant monitoring forces local plants to improve not only their own productivity and quality but also of their autoparts suppliers. Almost all the suppliers visited by the research team started to tackle productivity and quality problems after the crisis around 1990 and the Automotive Regime of the next year. While many of them recently introduced activities aimed at ISO9000 or the customers' equivalent standard, some have already completed, and are periodically reviewing, their quality manual and procedure. They said they would be certified by the end of 1996.

Although such QC methods as the 5s, cells system and quality self-control system brought about spectacular improvements, investment in new production technology and facility is indispensable so as to stay at a first-tier level in the age of unit delivery. Step-by-step improvements through QC activities brought some suppliers to secure a disproportionally large order from customer assemblers including those with which they had not yet dealt. They actively committed their internal reserves, made use of credit from machinery suppliers and, although not very often, even raised fund at the overseas financial market. On the other hand, others could not maneuver much beyond a review of inventory costs and investment plans. The former are thus exploiting scale economies and exhibiting the quality level beyond attainable by just taking care of antiquated machinery.

Consequently, there seems to be a wide variety of capability among the autoparts suppliers in Argentina. At the top are not only joint ventures with foreign capital but also local firms having acquired technical licenses, automated machinery and plants of weaker competitors (Rank A). Following are those reasonably well-managed and quality-conscious but not endowed with resources necessary for introducing new production technology (Rank B). At the bottom are, typically speaking, family businesses short of accountability and exclusively dependent on a particular assembler (Rank C).

Competition with the rest of the world, especially Brazil, in the autoparts sector is getting harsher. Two handicap clauses in favor of Argentina, i.e. the compensation at the ratio of 1:1.2 and the 25% content from local independent suppliers in exported vehicles, have created a breathing space for struggling PyMEs. However, the metal-processing industry in Brazil stands on a more robust and diverse foundation derived from its large market and ample experience of exports to advanced countries. The number of Brazilian suppliers using a licensed technology and/or qualified with ISO9000 is far greater. Moreover, some of the local makers are participating in the detailed design of brand-new models.

Summarizing the perspective of the autoparts sector in Argentina, the OEM market is expected to keep growing although some fluctuations like in this year might happen. Nevertheless, possible switches of assemblers' investment to Brazil and future recovery of Brazilian autoparts suppliers might again precipitate Argentina into trade imbalance of vehicles and autoparts, which may well jeopardize the Mercosur framework per se. Therefore, it can be said that promotion of the domestic autoparts sector is an urgent issue. From the above discussion, key focuses of this policy recommendation seem to be (1) financial assistance to Rank B firms, and (2) consultative support to Rank C firms.

5.8.2 The Government's Role

The government-led industrial development outlived its times even in Japan, well-known for the success in industry-specific interventions. In addition, financial problems prevent the Argentine Government from allocating abundant resources. But for intimate communication with the private sector or sufficient experience in the industrial policy, the government must take a highly selective stance. Its most important functions should thus consist in the spheres which the private sector cannot cope with on its own: macroeconomic stability, financial restructuring, reinforcement of the Mercosur framework, etc.

The Suppliers Development Program (SDP), though not industry-specific, could offer a basic policy framework to the autoparts sector. SDP is right in that neither the government nor INTI intervenes the selection process of suppliers. As was argued in Sub-Section VI.5.8.1, however, roles expected to the public sector in promoting Rank B firms are obliged to be quite different from those in promoting Rank C firms. The current SDP framework should be more flexible so that the public and private participants, and their division of labor, can be modified case by case. In order to avoid duplications and unfruitful interventions in business affairs, "rank-specific" policy is considered in the following.

(1) Policies towards Rank-B firms

Rank B firms will need large investment if they successfully remain at the first-tier level. To produce components for newer models on a larger scale, they have to compete with Brazilian suppliers, which enjoy institutional finance at a preferential rate. However, the amount and conditions of private loan towards PyMEs are extremely severe after the Tequila Shock. The government should thus redouble their efforts at normalizing the financial market to attract foreign investment and lending. Moreover, it can play an important role in reinforcing such institutional finance as from BICE, BNA, FONTAR etc., and at the same time, in encouraging early establishment of the guarantee system such as the Sociedades de Guarantía Recíproca.

Some argue that in the current state of financial crisis the government should concentrate on the provision of information, not finance. This could be misleading, as Rank B suppliers have a better access to information of new technology and quality management specific to their needs than public institutions do. Their information sources are assemblers' suggestions, overseas exhibitions and private consultants. For example, seminars and training courses at IACC (Instituto Argentina de la Calidad) are said to be

too elementary to satisfy business needs of Rank B firms. This is why they depend on private consultants or newly employed specialists for quality improvements. Customer assemblers in particular have more abundant technical resources for diagnostics and practical improvements of the shopfloor. Their own programs of suppliers development have already been well under way.

Bearing the actual flow of information in mind, SDP needs to be reformulated so that assemblers can play a central role (Figure VI-5-8-1). In the SDP1, assemblers design a program guideline, select first-tier suppliers and provide technical assistance as well as good offices to technology licensers, accountants/consultants and equity participants. The role of the public sector is to reward private efforts with financial incentives. That is to say, INTI evaluates the initial formality of the investment plan and monitors the progress of the program based on the plan schedule. Financial institution exchanges information of the program viability with INTI and offers cheaper capital and easier guarantee than market in accordance with the need for plant expansion and renovation. In return for their assistance, promoter assemblers share the benefit of new investment with their suppliers in terms of the better quality, punctual delivery and lower price. The Secretariat of Industry and ADEFA, representative of the assemblers, arrange such framework as the "Joint Promotership" to take care of the balance among the member assemblers within the budgetary limit.

INTI is likely to make a more significant contribution to commercially less viable projects. For example, INTI could purchase widely applicable foreign technology and resell them to a number of suppliers. Construction of a dream autoparts plant is another good idea, where assemblers and suppliers can capture inspiration from the application of state-of-art technology without taking high risk. Improvements on safety and environment are not completely trusted to private initiatives. Through such joint R&D, suppliers will accumulate research know-how necessary at the first-tier level, while INTI will get acquainted with business-oriented mind and practical problem-solving. The government can use subsidy as a leverage to induce INTI in this direction. In addition, subsidies could be provided for the suppliers' associations to organize a trip to overseas plants and exhibitions, for specialists nominated by them to be invited at seminars, and for company engineers/managers to attend at training courses.[23]

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23 AOTS QC seminars are well-reputed, but those of JUSE (Japan Union of Scientists and Engineers) is unknown. JUSE provides training courses in Spanish, Portuguese and Chinese; a number of Brazilians and Chinese have already participated.

(2) Policies towards Rank-C Firms

In fact, assemblers have nearly finalized the listing of first-tier suppliers with the end of 1996 in scope. It seems too late to urge them to think twice so that they might retain business with Rank C firms, as the promotion through direct technical assistance is a patient process. Nevertheless, it is still possible to keep them alive by transforming them into after-market specialists or second-tier subcontractors. In the age of open economy, they, too, need to brush up production technology and quality management in order to manufacture small lots of diverse products.

Demand for more specialized second-tier suppliers is expected to grow thanks to the trend of increasing outsourcing. However, it is probably beyond the budgetary capacity of the government to provide financial assistance towards Rank C firms. Even if provided, they may spend that money for conspicuous consumption of the owner family unless their accountability is established. Instead, the government should play a greater informational role. As the source of ideas of family businesses is often quite narrow (owners' friends, etc.) and they are frequently short of even general information, it is advisable to reinforce information services of CIEI, etc. to widen their scope. Important topics of the seminar include management philosophy and the global trend.

Technical assistance through SDP may also have a more solid raison d'être to promote second-tier suppliers (Figure VI-5-8-2). Most first-tier suppliers have accumulated much smaller resources than assemblers to provide technical assistance for external entities.[24] In the SDP2, INTI is expected to supplement promoters' initiatives by getting involved in program design and technical assistance as well as in basic training of potential participants. Again, the government can use subsidy as a leverage to reorient INTI.

INTI itself can supplement their resources with private experties for the technical assistance and training courses through: (i) the registration system of qualified techno-managerial experts, (ii) the innovation/quality awards at the level attainable for PyME suppliers, and (iii) small public contribution towards QC funds spontaneously established by PyME suppliers. Joint R&D with second-tier suppliers should also be encouraged. *Minor modifications of production technology widely applicable to cash-scarce PyMEs* (e.g. partial automation affordable to PyMEs) are highly desirable research themes. Details are to be jointly specified with the suppliers association.

[24] INTI's role could be even larger for after-market specialists, as they cannot rely on manufacturing promoters.

Figure VI-5-8-1: Policy Framework for the Rank B Firms

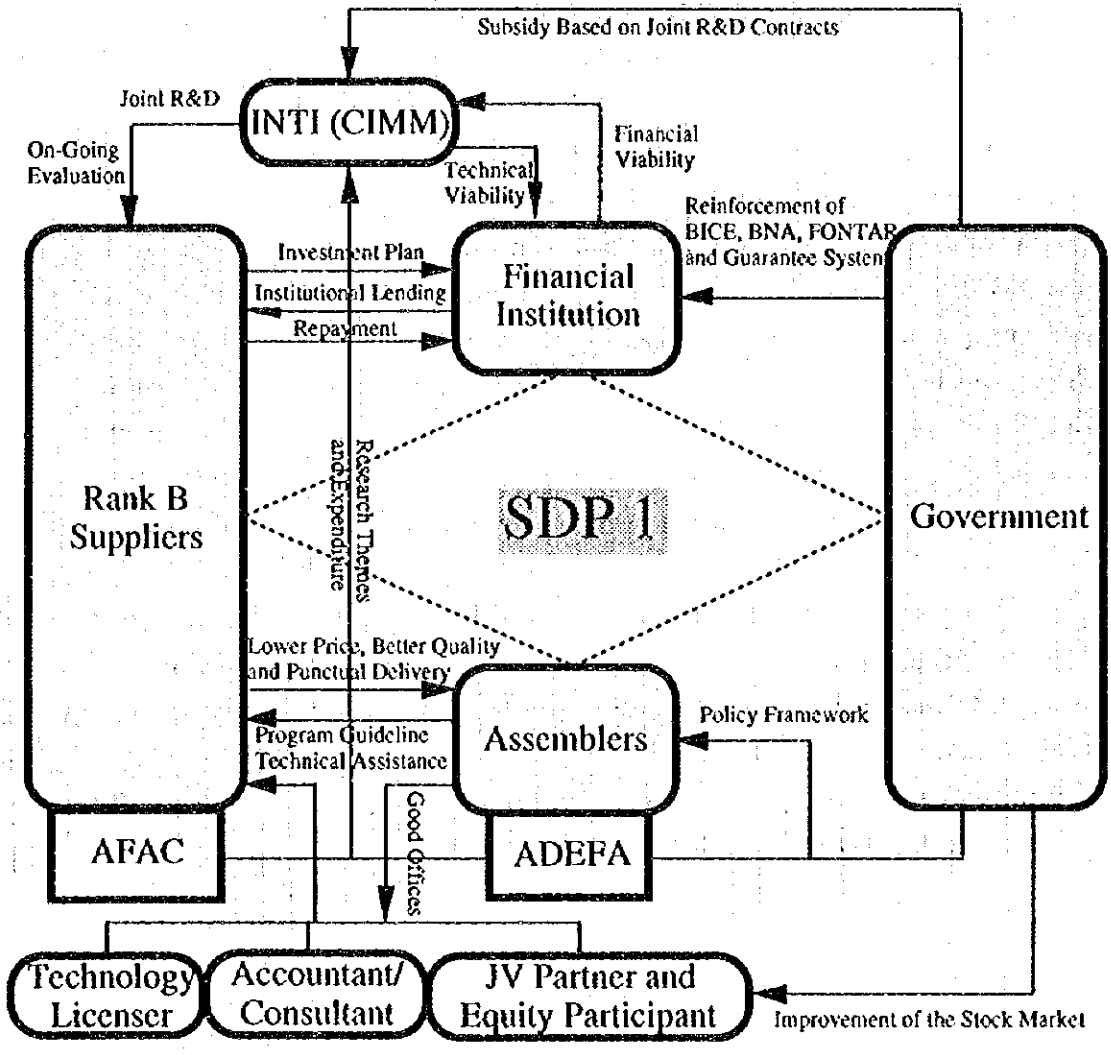

Figure VI-5-8-2: Policy Framework for the Rank C Firms