

**ECONOMIC RESEARCH CENTER
DISCUSSION PAPER**

No.152

A Tale of Two (Philippine) Industries

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January 2005

**ECONOMIC RESEARCH CENTER
SCHOOL OF ECONOMICS
NAGOYA UNIVERSITY**

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Abstract

This paper reviews the histories of the Philippine automotive and electronics industries. The two industries present a very interesting contrast. The automotive industry has been around longer than the electronics sector in the Philippines. Moreover, it was the target of much government industrial policy in the form of various motor vehicle programs. In contrast, the electronics sector does not seem to have "enjoyed" the same level of government attention at the start. Yet the electronics industry is today the country's main exporter and a larger employer than the automotive industry. Their histories provide an example of the pitfalls of Philippine industrial policy.

*I wish to thank the Economic Research Center for the hospitality and access to their research facilities. I am grateful also to the participants of the ERC workshop for their helpful comments and questions.

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Introduction

This paper strives to recount and compare the histories of two industries in the Philippines: the automotive and electronics industries. The two industries present a very interesting contrast. On the one hand, the automotive industry has been around longer than the electronics sector in the Philippines. Moreover, it seems to have been the focus of much government targeted industrial policy in the form of the various motor vehicle programs that will be described later. In comparison, the electronics sector does not seem to have ‘enjoyed’ the same level of government attention at the start.

Yet today, the electronics industry is the more important industry as far as employment and exports are concerned. Electronics exports are by far the country’s most important export, accounting for more than half of the country’s manufactured exports. The electronics industry association SEIPI estimates that the industry employed 335,000 in 2002. The DTI estimates the motor vehicle assembly and parts industry employed around 40,000 in 2004. To students of industrial policy, it might be tempting to see in this contrast, support for the “Chicago school’s” philosophy of minimal government intervention and point to the greater degree of government intervention in the automotive sector as the culprit for its relatively lackluster performance.

Thus the story of the two brings us back to a very important debate in economics: the role or place of industrial policy. The World Bank (1992), in *The East Asian Miracle*, defines industrial policy as “government efforts to alter industrial structure to promote productivity based growth”. This actually brings us to another larger question: What is the role of government in an economy? To this bigger question, neoclassical economics’ prescription is normally for the government to step in only in instances of market failure.

As with any argument, there are two sides: those who say there is a place for industrial policy and those who would claim there is no need for one. The former school of thought is of course quite willing to assign government greater economic role, and for this reason we will call it the ‘activist’ school. Activist proponents often cite Japan, Korea, and Taiwan as examples of countries that were able to develop by pursuing policies designed to nurture selected ‘winner’ industries.

The latter might be called the Chicago school type of philosophy. Although it is not exclusive to the University of Chicago, this school of thought prefers that government takes a hands-off stance towards markets, a stance popularly associated with past and present stalwarts of Chicago; e.g. Stigler, Friedman. They point out that market intervention distorts price signals and usually brings with it unforeseen consequences and costs. They also question whether government bureaucrats can pick “winners” more successfully than profit motivated private businessmen.

We will not attempt to settle this debate here and we hope that this paper can be objective and not take either side. But it is tempting to attribute the relatively poorer performance of the Philippine automotive sector to the more extensive government intervention it has received. This paper hopes that by analyzing the facts and

circumstances surrounding the development of both industries, we can better assess the role that industrial policy played, if any, in either industry's development.

Brief History of Philippine Economy and Industrial Policy

In this section we briefly review Philippine economy and industrial policy. Policy impacting Philippine industry may be considered at two levels. At a macro level are economy wide trade and foreign exchange policies that impact all sectors of the economy and not just the automotive and electronics industries. The next level would be the industry specific policies, e.g. the motor vehicle program, that target a particular industry. The latter will be tackled in more detail later in the sections for the respective industries.

A general background of the Philippine economic history is also helpful for appreciating developments in the two industries. In particular, the great depression of 1983 had important consequences for industries focused on the domestic market like the automotive industry. Needless to say, the political crisis and attendant instability also had a great impact on investments.

Philippine trade policy may be characterized as one initially of import substitution, much like many of its southeast Asian neighbors. This lasted roughly from the decade of the 50s up to the late 70s. This strategy was characterized by a regime of import controls, including high tariffs and quantitative restrictions accompanied by exchange controls.

The country's bias towards import substitution in consumer goods arguably hurt employment generation. Most production activities were in assembly and packing operations heavily dependent on imported materials and capital equipment. Ironically, this bias against backward integration and exports prevented the Philippines from capitalizing on what should have been its comparative advantage - its labor surplus. As a result, the share of labor-intensive manufactured goods to total exports remained small throughout the decades of the 50s and 60s.

While import substitution initially had some benefits, it was eventually constrained by the relatively small domestic market. Medalla (1996) summarized negative consequences of this protectionist trade policy. She pointed out that the low tariffs on imported inputs made them artificially cheap, discouraging backward domestic linkages. The high tariff on imported finished consumer products, on the other hand, promoted finishing stage or assembly type of industries. Thus industries, which were heavily dependent on imported inputs, grew until they were constrained by the limited size of the domestic market.

Exports, on the other hand, were discouraged by the highly protectionist trade policy. The fixed exchange rate policy of the government kept the peso artificially strong, handicapping exports.

Furthermore, the protection structure artificially cheapened capital, encouraging greater capital intensity. From the 1950s to 1970s, the investment structure also favored

large and capital intensive industries. These industries were given tax exemptions, such as duties on raw materials and imported equipment. These incentives extended to so-called “new and necessary” industries, mainly geared towards production for the domestic market, were at the expense of small and medium enterprises. So-called preferred industries included such as basic metals and chemicals, paper and pulp, mining and cement.

Austria (2002) similarly observed that this pattern of protection adversely affected the efficient allocation of resources by favoring import-substituting manufacturing industries over exports and agriculture, and consumer goods over capital and intermediate goods. Yap (1999) noted that protection directed resources to sectors where the Philippines did not have comparative advantage. Moreover, he observed that the lack of competition removed the incentive to innovate fostering monopolistic firms that produced poor quality, high-priced products for the domestic market. Both concluded that the end result was an imperfectly competitive industry structure characterized by unrealized scale economies and dynamic efficiency losses due to the lack of competition.

Despite early efforts at exchange decontrol and some degree of liberalization in 1960s and 1970s, the general framework remained essentially inward-looking with the system of economic controls largely in place.

The extent of government intervention and involvement in the economy probably peaked with Marcos and the advent of Martial Law in the early 1970s. The government increasingly took the role of directing industrialization aimed at strategic sectors with limited or no private sector participation. Under Marcos, several government-owned enterprises, such as the National Steel Corporation, Philippine National Oil Company, and the National Power Corporation actively competed in the market, crowding out the private sector. Government monopolies were also set up in the coconut, rice and sugar production. Other industries were also the subject of heavy state regulation such as in the automotive sector.

The automotive industry “grew up” in this economic environment. This may explain why the industry was primarily inward looking; i.e. domestic market oriented. Indeed, this was true of most Philippine industries of the time because of the import substitution strategy pursued by the government. And this orientation may have been reinforced by the fact that neighboring countries were also pursuing a similar strategy, Thus it made it difficult at the time to export at the time because other countries also had high tariff walls to protect their automotive industries. In contrast, the growth spurt of the electronics exports occurred in the mid 90s, when tariff walls around the world were falling.

Economic reform and domestic liberalization

Export industries began to receive some attention during the 1970s. The Export Incentives Act (RA 6135) was enacted in 1970 to stimulate nontraditional manufactured exports. It provided for exemption from export taxes on industrial exports and granted tax

credits on export sales and excise taxes on intermediate inputs. Presidential Decree 92 of January 1973 allowed the deduction from taxable income of the total cost of direct labor and local raw materials used in export production. This was intended to promote backward integration and labor employment.

However, foreign exchange controls still handicapped export producers. The government's efforts to maintain a relatively strong peso worked against exporters. The government "floated" the peso in February 1970 in response to a balance of payments crisis. But, while the peso depreciated, the Central Bank very much still fixed the exchange rates.

The political and economic crises of the late 1970s and early 1980s forced a fundamental shift in economic strategy from inward looking to a more outward oriented strategy. There were major changes in the trade policy regime, which moved away from a trade-restrictive and protectionist policy framework to a progressive reduction of tariffs and elimination of quotas. The balance of payments crisis following the Aquino assassination in 1983 forced a massive depreciation of the peso that finally started the removal of the exporters' perennial handicap of an overvalued peso.

In 1981, the government began implementing a progressive reduction in tariffs through the Tariff Reform Program (TRP) to reduce the overall level of protection and the dispersion of tariff protection within and across sectors and industries. The basic aim of the program was to create a simpler and more uniform tariff structure. By adopting a low and uniform tariff structure, the government sought to improve access to crucial raw material and technology to encourage more globally competitive domestic industries. The tariff reform proceeded in three phases, progressively narrowing the range of tariffs as well as lowering the average nominal tariffs. By 2004, the program aimed at a uniform tariff rate of 5 percent and an average nominal tariff rate of 4 percent. (Austria, 2002).

The shift from import-substitution to export-orientation and import liberalization has had a profound change on the Philippine economy. Not surprisingly, the Philippine economy became a more open one, as evidenced by the increasing share of foreign trade in the Philippine economy. The export-to-GDP ratio rose from 13.6 percent in the 1967-72 period to 45.8 percent in 1998-2000 while the import-to-GDP ratio increased from 17.4 percent to 43.2 percent over the same period. (Cororaton, 2002) There has been a clear shift from primary sector exports to exports of higher value manufactured products, with the latter's share rising from about one-third in 1970 to over four-fifths of total exports by 2000 (Bautista and Tecson, 2003). Merchandise exports jumped from US\$8.2 billion in 1990 to US\$17.4 billion in 1995, and grew consistently by almost 17% per year until it reached US\$38.1 billion in 2000.

Changes were also introduced to improve the investment incentive system. The government previously adopted an implicit positive list for foreign investments, heavily restricting the entry of foreign capital into the Philippines. The liberalization of foreign investment followed the passage of the 1991 Foreign Investment Act. The law allowed foreign entry up to 100 percent equity ownership in all sectors of the economy except

those contained in its negative list and those expressly limited by the country's constitution.¹

The Philippines is usually characterized as capital scarce and thus in need of foreign capital and investments. But foreign investments are also sought in order to pick up technology. The entry of multinational firms is hoped to provide domestic firms access to leading edge technologies they may not otherwise have. Second, FDI also bring access to export markets. Not to be ignored are also the demonstration effects that can spillover to other sectors of the economy. Multinational companies' methods of operations may be emulated by domestic companies. Multinationals may also demand higher standards of service from domestic companies.

Though still relatively low by ASEAN standards, FDI inflow to the Philippines increased since liberalization. Foreign investment largely went to manufacturing but there has been a shift to services particularly after the Ramos administration opened up and deregulated key sectors such as telecommunications, power, retail trade, air and maritime transport, and banking. Policies were introduced to allow 100 percent foreign ownership in selected industries, such as in insurance and tourism. The government also lifted exchange controls to allow the freer flow of capital.

The government also sought for the regional dispersal of industries and promotion of regional investment outside the capital region. The first export processing zones was established in 1976, helping boost the country's exports. As Balisacan and Hill noted, these export zones provided a location for investors that offered better infrastructure than prevailing in the rest of the country. After 1986, the Philippine government accelerated the promotion of export processing zones and other industrial estates to encourage industrial dispersal and development across the country.

Unfortunately, the country is unattractive to investments at present. Perceived political instability seems to be a real deterrent to foreign investors, though this is mostly outside the realm of pure economics. But other common complaints of investors have been about poor infrastructure also. There seems to be a vicious cycle at work here, a chicken and egg problem – building some of this needed infrastructure would require foreign investments in the first place.

Automotive Sector

Many developing countries (DC) look at the automotive industry as a strategic if not a 'showcase' industry. In many countries, the automotive industry has extensive

¹ The negative lists are of two types: (a) List A - consists of areas of activities reserved to Philippine nationals where foreign equity participation in any domestic or export enterprise engaged in any activity listed therein shall be limited to a maximum of forty percent (40%) as prescribed by the Constitution and other specific laws; and (b) List B - consists of areas of activities where foreign ownership is limited to pursuant to law such as defense or law enforcement-related activities, which have negative implications on public health and morals, and small and medium-scale enterprises.

linkages with other sectors in the economy; e.g. steel, glass, rubber, plastics etc. To manufacture a motor vehicle, products from a wide array of sectors in the economy are assembled: tires (rubber), windshield (glass), metal body parts (iron and steel), upholstered seats (garments/leather), instrumentation panel (electronics and plastics), wiring harness (metal products), and others. In fact, among the multitude of goods and services produced in any economy, the automotive industry is potentially one of the most significant because it can have extensive upstream and downstream linkages to other economic sectors.²

Thus, for many developing countries, the automotive industry is regarded as a kind of 'badge', signifying the country has 'arrived' in an industrial sense. Consequently many developing countries have specifically targeted the sector in their industrial policy.

Except for Singapore, all the other major ASEAN countries have all targeted the automotive sector in their industrial policy. Malaysia and Indonesia have attempted to institute their respective national car programs. Malaysia started earlier and its Proton and Perodua now account for a lion's share of automobile sales in its domestic market. Of course, both companies enjoy very high tariff protection and Malaysia has asked for the industry's exclusion from the scheduled tariff reductions under AFTA. Indonesia tried to put up its own car company as well but was derailed by its economic crisis and Suharto's departure.

Thailand and the Philippines, on the other hand, are following a different strategy. Both are trying to attract instead the multinational automotive companies to invest and set up production facilities in their respective countries. Because of a better performing economy and more attractive investment climate, Thailand has been more successful and is now referred to as the Detroit of Asia.

The Philippine automotive sector on the other hand, suffers in comparison with its major ASEAN neighbor countries. Indonesia has a natural edge in the size of its population, which gives it the bigger market size. Malaysia and Thailand, on the other hand, boast higher per capita incomes, which makes possible the greater market demand for automobiles in those countries. And while all the ASEAN countries' automobile markets suffered in the wake of the Asian crisis, the other countries have rebounded more quickly than the Philippines. This is unfortunate because an EIU report even considered the Philippines as once having had the strongest auto industry in ASEAN.³ In 1969, the Philippines was second only to Malaysia in ASEAN car production. Thailand was a distant third and Indonesia at the bottom of the heap. (see table 1)

Moreover, several manufacturers have recently announced that they will no longer produce or assemble certain models in the Philippines. Honda has decided to import its Accord from Thailand. Mitsubishi is reportedly planning to do the same with its Lancer. On a positive note, Ford Philippines has started exporting the Lynx and Escape models to

² Yannis Karmokolias, *Automotive Industry Trends and Prospects for Investment in Developing Countries*, Discussion Paper 7, International Finance Corporation, August 1990.

³ EIU p. 44

Thailand. No doubt this is partly due to a global trend in the industry to rationalize operations. However, the automotive industry is characterized by economies of scale, and given the relatively small Philippine market, it is unavoidable that some operations may be relocated from the Philippines to other countries.

What ails the Philippine automotive sector? Why is it the laggard among the automotive industries of the region? What policies, if any, might be appropriate to pursue in order to support the industry? In this section we survey the state of the Philippine automotive sector with the objective of, if not answering these questions definitively, at least offering an understanding of the main industry issues.

Brief History of Philippine Automotive Industry

From 1916 up to 1951 the Philippines had been importing completely built up automobiles. Tolentino and Ybanez (1983) reported that as early as 1916, a certain E.C. McCullough and Company had been importing cars under franchise from Ford Motor Company in the USA.⁴ But a foreign exchange crisis led to the passage of the Import Control Law in 1950, which banned the commercial importation of CBUs, among other exchange and import controls, in an effort to conserve foreign exchange reserves. Thus, in 1951, Fabar Inc. was the first Filipino firm to start importing and assembling vehicles in completely knocked down form.

Like most automotive industries in developing countries, the small domestic market meant poor economies of scale. By May 1968, the industry had grown to a total of 19 firms assembling over 60 different passenger vehicle models with a market size of 10,000 units (annual).⁵ In the 1970s, there were around twelve companies offering a total of 130 different models for a total market size of 17,000 units a year.⁶

The decade of the 70s in the Philippines saw the dictator Marcos impose Martial Law. Economically, the country went through a phase where the government took an increasingly interventionist role. This was manifested in the automotive industry by the introduction of the Progressive Motor Vehicle Program in 1972. It featured a host of regulations on domestic content, foreign exchange earnings, and number of firms, among others. We will describe this program and its many variants in more detail later on.

As mentioned earlier, the assassination of the former senator Benigno Aquino Jr. in 1983 sparked a political crisis and triggered massive capital flight. The ensuing economic depression cut incomes severely. Sales of automobiles, being a luxury good, obviously suffered. The market prospects were so poor that one by one, the participants of the motor vehicle program left the country.

Fortunately, a peaceful transition back to democracy was managed in 1986 with Cory Aquino, the wife of the slain senator, becoming president. A measure of political

⁴ Tolentino and Ybanez (1983) p. 230.

⁵ Lim (1980) p. 22 and Tolentino and Ybanez (1983) p. 231.

⁶ EIU p. 36.

stability was achieved so that investments, and the automotive firms, started to return. However, the Aquino presidency would be hostage to a number of failed military coups that would sufficiently deter any significant inflow of foreign capital. Unfortunately, this is roughly the period of the first 'endaka'⁷ and as will be mentioned later, many analysts believe the Philippines missed out on the first wave of Japanese investments in southeast Asia as a result.

Normally, sustained economic growth brings with it the rise of per capita income, which in turn increases demand for the automobile, especially since the demand for convenience also increases with higher income. **Figure 1** suggests that there is a direct relationship between income (real GNP) and vehicle demand in the Philippines. One can clearly see also the impact of the great depression of 1983 to 1985 on motor vehicle sales. After the Ramos administration solved the power crisis of the early 1990s, the Philippine economy looked set for a recovery. Thus one might have thought that the outlook for the Philippine automotive sector looked bright.

As the Philippine economy boomed in the 1990s, so did the automotive industry, peaking in the years 1995 and 1996 with about 160,000 total annual new vehicle sales. However, like most other Asian countries, the Philippines suffered from the Asian financial crisis of 1997. Its economy, growing steadily since 1992, lost steam and plummeted to a -0.6% decline in 1998. The industry has not yet recovered to its 1996 peak.

The automotive industry mirrored the decline in the economy as total new registrations (cars and utility vehicles, excluding motorcycles, trucks, buses and special-purpose utility vehicles) plummeted from 204,991 units in 1996 to just 134,761 in 1999.

However, while total new registrations showed some recovery after 1997 crisis, this did not translate to more new vehicle sales. Data from the Chamber of Automotive Manufacturers and Producers, Inc. (CAMPI) shows that, for example, the 76 thousand (plus) total vehicle sales in 2001 is less than half of the 162 thousand units sold in 1996, prior to the Asian financial crisis. (see figure 2)

The situation is worse if only passenger cars were considered. Total passenger car sales in 2001 was only about ¼ of total sales in 1996; or about the same level as in 1974. Although in this case, it should be noted that the decline is partly due to the switch in consumer preference from sedans to Asian Utility Vehicles and Sport Utility Vehicles.

In fact, compared with other countries, the demand for new automobiles in the Philippines seems to be the slowest to recover (see Table 2). The same table also shows that the Philippine industry probably has the least economies of scale compared with its neighbors, since its capacity utilization, even at pre-crisis levels, was the lowest.

As of October 2001, there were 14 firms in the Car Development Program while there were 20 firms in the Commercial Vehicle Development Program. Some firms are in

⁷ Appreciation of the Yen.

both programs. In all there are about 26 distinct firms between the two programs. Passenger car assembly/production in 2002 is estimated at 25,000 units only while total commercial vehicle output in 2002 is estimated at 56,000 units.⁸ This implies a very low capacity utilization of 11.3% for passenger cars and 38.4% for commercial vehicles. If the market continues to remain depressed, then we should not be surprised if some firms will close shop. (see table 3)

While CAMPI data already includes CBU imports of CAMPI-member companies, CAMPI sales figures do not capture everything. A portion of new vehicle demand also goes to "backyard" or small players who assemble utility vehicles like "owner-type" jeeps, passenger jeepneys, and some less popular brands of AUVs (AUV "clones" e.g. Carter, Masa etc.) and the second-hand imports thru Subic. Figure 3 suggests that these could account for a sizable share of the market. In year 2000, for example, new vehicle sales accounted for only 54% of total registrations. The residual presumably went to this "backyard" or "small player" sector and the second hand imports. The "backyard" include the jeep/jeepney assemblers.⁹

In recent years, imports of second-hand vehicles through the freeports have become an important issue. The products of the backyard assemblers (jeepneys, AUV clones) are not likely to compete directly with the product lines of CAMPI members. Moreover, in recent years, some traditional jeepney assemblers like Sarao and Francisco Motors have closed shop already.

This suggests even more that perhaps the used vehicle imports are taking away significant market share from the domestic manufacturers. The growing numbers of these vehicles on the road cannot escape the eye of even the casual observer. These vehicles often sport relatively new registration plates yet either are models that were not commercially available in the Philippines or are clearly from older model years.

Most of these used imports are vans or sport-utility vehicles and are probably sourced from Japan. This implies that they would have had to be converted first from right hand drive to left hand drive, since Philippine laws ban the use of right hand drive vehicles.

This raises also the possible issue of customer safety. The average buyer is not likely to be able to discern the quality of the conversion work done. Since these second hand imports fetch prices that are a fraction of the comparable brand new version, they may not displace new vehicle sales one-for-one (just as second hand domestic vehicles do not). Nevertheless, they are probably taking away some market that would otherwise have allowed the assemblers to reach better capacity utilization.

⁸ Source for production estimates: Global Insight Asian Automotive Industry Forecast Report, April 2003.

⁹ The jeepney is a popular mode of transport in the Philippines. It is a locally developed vehicle, modified from the General Purpose vehicles left by the US Army after World War II. It uses imported surplus (second-hand) critical components, such as the engine.

Among the local assemblers, the major Japanese firms' subsidiaries dominate the market. For the year 2002, Toyota led the industry with a market share of 29%. In recent years, Ford and Kia have gained a foothold in the market. (see table 4)

Government Automotive Industry Policy

Believing in the potential catalytic role of the automotive sector to the economy, the government had instituted several successive programs to develop the industry. The programs were initially directed at the auto assembly sector, but were later on revised to focus on auto parts and components as well. This section provides a summary of these relevant government initiatives.

Through the various car manufacturing programs, which featured a host of import protection measures, local content requirements, barriers to entry and other policy measures, the government hoped to promote a local automotive sector. Few will argue that the result has been as intended. Consumers suffered from high vehicle prices and countries like Thailand have clearly overtaken us with their larger automotive sectors. Starting with the Aquino administration, the process of liberalizing the industry commenced and since then the number of car firms have increased.

The First Motor Vehicle Development Program (1972). The main policy instrument for the automotive industry in the 70s was the Progressive Motor Vehicle Program or PMVP created in 1972. The Philippine automotive parts and components industry was conceived basically through the implementation of this program, which had three components:

- The Progressive Car Manufacturing Program (PCMP);
- The Progressive Truck Manufacturing Program (PTMP); and,
- The Progressive Motorcycle Manufacturing Program (PMMP).

These programs had three main features: the local content rule, the limitation on the number of assemblers, and the prohibition of vehicle importation. The auto parts industry directly benefited from the first feature; and indirectly gained from the last, since it expanded the demand for locally-assembled vehicles.

To achieve economies of scale given the small domestic market, the program limited the number of car assemblers to five (5) and prohibited CBU (completely built-up) vehicle importations. The five assemblers were: General Motors Phils. (GMPI) – Isuzu; Ford Motors Co. – Mazda; Delta Motors – Toyota; Canlubang Automotive Resources Corp. (CARCO) – Mitsubishi; and D.M.G. Inc. – Volkswagen.

The local content requirement was initially pegged at 15% in the first year of the program, increasing to 25% and 35% in the second and third years respectively. It was hoped that this would force assemblers to pinpoint local suppliers capable of manufacturing automotive parts and worthy of financial or technical assistance.

The growth of the motor vehicle industry and the localization requirements of the

program seemed to have initially stimulated the growth of the parts manufacturing sector. By the end of 1978, there were more than 220 manufacturers supplying the assemblers, an impressive improvement from the 32 parts makers at the program's inception in 1972. This was probably achieved though, at the expense of car buyers, who had to pay higher car prices.¹⁰

An additional condition of the program required the assemblers to invest in larger, more capital-intensive ventures in automotive parts, the products of which were exported to other countries. CARCO established its Asian Transmission Corporation to manufacture transmissions. Ford invested in a stamping plant. Delta produced gasoline engines. Lastly, DMG produced vehicle body parts. (see table 5)

In 1983, as a result of the shortage of dollars, the assemblers were required by the government to earn their own foreign exchange. Moreover, the political and economic crisis that hit the country brought the industry to the verge of collapse. By 1984, only two participants (PAMCOR-Mitsubishi Motors and Nissan Motors) remained in the program. Ford and General Motors pulled out of the country and Toyota's assembler-distributor, Delta Motors Corp., closed shop. Consequently, the number of parts manufacturers dropped to 40 companies.

The Rationalized Motor Vehicle Development Program (1987). Soon after President Corazon Aquino assumed power and the Philippine economy stabilized, the motor vehicle program was revised through the Motor Vehicle Development Program, which consisted of:

- Car Development Program (CDP), which replaced the PCMP;
- Commercial Vehicle Development Program, which replaced the PTMP; and,
- Motorcycle Development Program, which took the place of the PMMP.

These programs' features are summarized in Table 6. Note that the "development of a viable automotive parts manufacturing industry" had become an explicit primary goal of the program. However, the manufacturing and export of auto parts did not perform as well as expected. Exports of auto parts increased, but only on the back of a few components such as wiring harness, transmissions, radiators, aluminum wheels, plastic grills, and rubber hoses. These were mostly the same parts exported during the old motor vehicle program. Wiring harness exports accounted for more than 70% of all automotive parts exports. The other items were mostly replacement parts and accessories.

On the other hand, the growth of vehicle sales and the local parts requirement of the program provided the parts makers with an expanding market, at least insofar as local

¹⁰ Tolentino and Ybanez (1983) p. 248. They cite an instance where an assembler estimated in 1975 that net of taxes, the ex-factory cost of a locally manufactured car was about 39% higher than the cif cost of a similar imported car.

sales were concerned. The number of auto parts manufacturing companies grew from 40 to 60 in the first year of implementation, then rose to as many as 164 in 1992.

Amendments to the Motor Vehicle Programs

There were several amendments introduced into the program, including the following;

The People’s Car Program. In 1990, the government opened the CDP to new participants willing to assemble cars with engine displacement of 1200 cc and below known as the People’s Car. Interested assemblers were required to have the capability to:

- Manufacture or assemble cars with a selling price of about Php 175,000ⁱ;
- Manufacture or assemble passenger cars from CKD (completely knocked-down) packs and the ability of the foreign partner/supplier/licensor, if any, to supply CKD packs;
- Earn at least 50% of their foreign exchange requirements, by exporting automotive and non-automotive products in accordance with the following schedule:

Year	Percent of Exports due to	
	Automotive	Non-Automotive
1990	20	80
1991	30	70
1992	60	40
1993	100	0

- Invest/bring in investments worth at least Php 200M in the manufacture and assembly of cars; and
- Commitment to manufacture major components.

In addition, a schedule of minimum vehicle local content requirements were imposed: 35% in 1991, 40% in 1992, and 51% in 1993. There were five (5) players who entered the market via the people’s car category: Honda, Daewoo, Daihatsu, Fiat and Kia. Participants in this category later “graduated” to the main car category under which some companies chose different models than those fielded in the People’s Car Category. Thus, Hyundai and Mazda entered the Philippine car market.

CDP’s Category III. In December 1992, the government again supplemented the CDP by creating a third category for passenger cars with engine displacement of 2190 cc and above.

The new category was opened to existing participants who were able to comply with the foreign exchange self-sufficiency rules in their respective present categories. New participants (i.e., companies that are neither a participant of Categories I and II) were also accepted in the new category if they have the capability to:

- Invest and/or bring in investments equivalent to US\$8M in the manufacture of motor vehicle parts and components for export and domestic markets and promote their trading under the ASEAN Brand-to-Brand Complementation scheme.
- Establish a new assembly facility, or utilize an existing assembly facility which is either idle or in operation. The assembly facility should be prepared in such a way where it can be utilized as contract-assembly so that the country can be a possible assembly base for small-volume car model of any brand, 100% of which shall be for the world market.

Mercedes-Benz, BMW, and Volvo took advantage of the third category to enter the CDP.

Several other modifications in the program were made between 1993 and 1996. These included:

- Changes in the engine displacements of vehicles qualified for Categories I, II and III.

Category I: With engine displacement of 1200 cc or below for gasoline engine, or with a diesel engine with corresponding displacement; or with a larger engine displacement provided that its selling price shall be in accordance with the price ceiling established for this category.

Category II: With engine displacement greater than 1200 cc up to 2000 cc for gasoline engine or equivalent displacement for diesel engine.

Category III: With engine displacement over 2190 cc for gasoline engine or equivalent displacement for diesel engine.

- The **number of basic models** that participants may register was increased from three to four.
- Relaxation of rules for the **importation of CBU passenger vehicles**, provided that these are new passenger vehicles with engine displacement of 2800 cc or greater for gasoline fed engines or 3100 cc or greater for diesel engines. Subsequently, only passenger vehicles with a book value of at least US\$20,000 were allowed to be imported.

Car Assembly Under the AIJV. Another important revision in the MVDP was the provision allowing for the implementation of the ASEAN Industrial Joint Venture (AIJV) mechanism. The main features of the AIJV are as follows:

- **Foreign Exchange Requirement.** While waiting for their respective automotive parts manufacturing projects to be set up, participants under the AIJV scheme are allowed to earn 50% of their foreign exchange

requirements during the first six months of SKD/CKD operations; the 50% balance shall be paid during the succeeding six-month period. Definitively, however, the participants under the AIJV scheme are required to earn 100% of their foreign exchange requirements for CKD importations through the generation of export earnings.

- **Parts Manufacturing Facility.** The participants are required to start the project implementation of their major automotive parts manufacturing facilities at the same time as their SKD assembly operations. The facility is expected to be operational within 24 months.
- **Investments.** Fifty percent of the investments allocated for the car assembly plant, excluding the cost of land, shall be in place during the year that SKD operations are started, and the proportionate amount of investments in the major automotive parts manufacturing facility, the schedule of which shall be approved by the BOI, shall likewise be in place.

Proton of Malaysia came in under this amendment.

Modification of the Rates of Import Duty. In 1995, the rates of import duties on motor vehicles and auto parts were also revised. Under EO 264, the tariff rate for CBU's was set at 40% while the rate for CKD's was lowered to 3%. The tariff differential was meant to encourage the development of the **local automotive assembly sector and of auto parts manufacturing**.

The New Motor Vehicle Development Program (1996)

In 1996, the government re-stated the policy objectives of the MVDP as:

First, the need to **increase exports of automotive parts and components** to develop a viable automotive parts manufacturing industry, which is the common and primordial objective of the CDP, CVDP, and MDP;

Second, the need to support accelerated rural development by providing suitable means for the transport of passengers and goods; and,

Third, the need to encourage and assist the development of the non-formal automotive industry in areas of safety, roadworthiness, and compliance with emission standards.

Entry into the program was also liberalized. The previously closed categories (People's Car, Passenger Cars (Main) and Light Commercial Vehicles) were opened to new participants, subject to minimum investment requirement for parts and components manufacturing, and to compliance with the local content and foreign exchange requirements. The salient points of the new program are shown in Table 7.

The MVDP, both the 1987 as amended and the 1996 versions, placed emphasis on the development of the auto parts industry. The main policy tools used to promote its development were:

- Local content requirements
- Foreign exchange requirement (earned by directly or indirectly **exporting** motor vehicles, **auto parts**, and even non-auto products—this was however eventually phased-out)
- Minimum investment requirements on auto parts manufacturing
- Promotion of ASEAN Brand-to-Brand Complementation (BBC) scheme
- Tariff differential between CKDs and CBUs

However, these measures are not without their costs as well. Takacs (1994) estimates that car assemblers enjoyed a net positive protection from the policies. They were hurt by the domestic content requirements but benefited from the import tariffs on imported vehicles. Of course, the car buyers were also hurt by these measures. Components manufacturers were the unambiguous beneficiaries of these policy measures. That the components manufactures still haven't developed casts some doubt on the efficacy of the domestic content requirement in the Philippines.

Tax and Trade Policy

The other main government policies impacting the industry were tax and tariffs or trade policies. Before changes were made on the Motor Vehicle Development Program, excise taxes levied on vehicles in the Philippine depended on the number of seats. The government had attempted to promote the Asian Utility Vehicle (AUV) segment by exempting vehicles with ten seats or more from excise taxes. This has caused a major shift in car buying towards AUVs. However, this also became an incentive for some car firms to re-label their models as an AUV to avail of the tax exemption. The result has instead been a significant amount of foregone tax revenue. While buyers of AUVs benefited, the vague definition and the loopholes in the program led to a number of high-end sport utility vehicles (SUVs) getting exempted from excise taxes by having 'jumper' seats installed in the back. In 2000, the government attempted to plug these loopholes by eliminating these exemptions on four-wheel drive vehicles having 10 and more seats. However, many vehicle manufacturers exploited another loophole in this program by introducing 10-seater or more, 4X2 versions of popular SUV models.

The Department of Finance, together with the Board of Investments, proposed in the latter half of 2002, and finally approved in the middle of 2003, a new excise tax structure based on the selling price rather than engine displacement. Taxation based on the number of seats was scrapped. However, tax exemptions for special vehicles like ambulances, fire trucks, buses and motorcycles remain unchanged.

Meanwhile, the Philippine automotive sector had also been heavily protected, as might be expected from an import substitution strategy. Nominal tariffs were certainly high (see table 8), but even when measured using Effective Protection Rates or Domestic

Resource Costs, the sector received more protection than the overall manufacturing sector did. Aldaba (2000) (see table 9). The effective protection rate measures the net protection on the value added of a sector while the domestic resource cost is the estimated ratio of total domestic cost evaluated at social opportunity cost, to the net foreign exchange earned. Thus it represents the “social cost of promoting exports or of protecting import substituting industries.”¹¹

Since 1994 though, the Philippines has brought tariffs on motor vehicles down. It also slashed tariffs on completely built units (CBU) imported from ASEAN Free Trade Area (AFTA) member countries to below 5% starting January 2003 as part of its commitments to the trade body. The Philippines has also made commitments to the World Trade Organization (WTO) to scrap the local content requirements of vehicle manufacturers starting 2004.

With the elimination of these trade barriers and very little government assistance, the local auto industry is more open to competition from vehicle manufacturers in AFTA especially, Thailand, Malaysia and Indonesia. But the Philippine government has noticed the protection extended to the auto industry by governments of other Asean member countries. For instance, Malaysia imposes duties as high as 300% on CBUs to protect its national car program. Thailand, meanwhile, imposes an 80% import duty on all CBUs. In this regard, the Philippine government is currently contemplating to increase its import levies to 30%-50% on CBUs, and to 10-30% for completely knockdown (CKD) units.

Political Considerations

Before one dismisses outright the motor vehicle as fundamentally flawed, in fairness we should also recognize that it was very poorly implemented. Very often, political connections enabled certain firms to circumvent the regulations. Doner (1991) provides a very good account of the political maneuverings surrounding automotive policy formulation and implementation in the Philippines. He provides many anecdotes for example, of how one firm's Filipino owner used his close connections to Marcos to get away with local content requirement noncompliance.¹² This is on top of loopholes that existed in local content requirement rules. For example, firms were allowed to use exports to offset required local component procurement.

As we have seen, one feature of the Philippine motor vehicle programs had been a limit on the number of firms. This of course raises the question of how many firms is right for a market. It also opens the door to lobbying activities by those outside wanting to enter. It also raises the question of how credible a threat is the government's stated policy to limit players to a particular number. During his term as BOI head, Vicente Paterno, was of the opinion that two firms were enough. But the PCMP apparently started

¹¹ See Aldaba (2000) p. 24 for a discussion of the methodology.

¹² Doner p. 177. Most of the incidents related in this section are drawn from his book.

with five assemblers. The three “excess“ firms were supposed to be phased out, but they in fact continued operations for several years.

A decision like this is not likely to be devoid of politics. Doner provides a very detailed account of the maneuverings by the interested parties to be included and the reader is referred to his account for more details. Even though Paterno thought two was the right number, apparently he was worried about the consequences of excluding either a Japanese, European, or American firm¹³ and thus increased the number to three. The National Economic Council, the government planning agency at the time, increased that further to four, partly on the basis of more optimistic market demand projections, but Doner hints at possible lobbying also by parties eager to participate in the program.

But this was not the end of it. Ford apparently felt its bid to enter the program was weak and it faced the risk of being left out of the program. Doner claims that Ford headquarters thus dispatched Henry Ford’s wife Christina to meet with Mrs. Marcos, who was a personal friend. Not long after, the BOI announced that there would be five firms instead of four, and Ford was the last firm.

Both sides of the industrial policy debate could use these anecdotes to argue their respective sides. One side could argue that the programs failed partly because it wasn’t implemented correctly. On the other hand, the other side could also use the experience to underscore the difficulty of deciding on the number of firms in a market by fiat, rather than leaving it as a natural outcome of market forces.

Electronics industry

Brief History of the Electronics Industry

Literature on the history of the electronics industry is not that abundant. However, there have been studies dealing with the home appliance industry.¹⁴ (for example Tan 1987). The Philippines has been producing electric fans even before the Second World War. The first air conditioner company Aircon, Inc. was apparently established in 1943 by J. Concepcion Sr.. The Ysmael Steel Company may have been the first refrigerator manufacturer in the country with brand names like Felda and Admiral. Another local entrepreneur in the appliance business was the same D.M. Guevara that assembled Volkswagen automobiles later on. His Radiowealth company produced radios, televisions, electric ranges and other home appliances.

Initially, tariff rates on appliances were based on the 1909 tariff code. Some typical tariff rates are for example, 25% for refrigerator and stove/range; 15% for electric fan and sewing machine. There were no tariffs on some appliances like TV sets and airconditioners since they obviously had not existed in 1909 and therefore were not

¹³ Doner p. 166

¹⁴ See for example Tan, 1987 pp. 3-10. Much of the historical information here is from Tan. Appendix 1 of her study provides a very useful summary of government policy towards the appliance industry.

provided for in the 1909 code. Then consistent with the import substitution strategy of the time, tariff rates were raised in 1957. Tariffs on refrigerators became 120%, electric stove and fan were 25%, airconditioners were 70%, and for sewing machines 50%.

The balance of payments crisis of 1970s brought with it import restrictions on many goods, including many home appliances, as the government sought to conserve foreign exchange reserves. The government also tried to use the tax system to promote local content. As early as 1964, through RA 4122 and the National Internal Revenue Code, the government levied a reduced sales tax of 7% for locally manufactured phonographs, radio sets, and TV sets. Imported counterparts were assessed a much higher 40% sales tax.¹⁵

The only set of government policies comparable to the motor vehicle programs for the electronics industry that we could find is the Electronics Local Content Program (ELCP) of 1975. The ELCP apparently took off from RA 4122 described above and defined a list of 13 parts/components (in the first program year) that could benefit from lower sales taxes if they were locally manufactured. This list would expand to 18 and 24 components and parts in the second and third years respectively. In addition, the import duties on raw materials or semi-processed materials needed to manufacture the listed items were reduced to 20% or less.

The ELCP apparently covered only end products in the “brown lines” of appliances. “Brown lines” included TV sets, stereo and radio phonographs, and tape recorders among others. Importation of items prescribed as local content was restricted.

The ELCP was apparently renamed the Progressive Export Program for Consumer Electronic Products or PEPCEP later in 1983.¹⁶ In general, PEPCEP initially allowed the importation of certain raw materials, parts, and components but gradually reduced the amount that could be imported over succeeding years. Non PEPCEP participants apparently faced even more restrictions or higher tariffs in their importation. Tan (1987) in her appendix 1 provides a very short description of PEPCEP as well as a chronological list of other government rulings issued to support it. Otherwise, information on ELCP/PEPCEP was hard to obtain. In fact, BOI/DTI staff that we contacted had difficulty locating information on the ELCP/PEPCEP.

Clearly, the success story in recent years for Philippine exports has been its electronics exports (although not of consumer electronics or appliances), accounting for more than half of total exports in recent years (see Tables 10 and 11). Not surprisingly, the US is our largest market, accounting for about 26%. However, the market for our electronics exports appears relatively well balanced: Europe 22%, Japan 11%, ASEAN 17%, other Asian countries 21%, and other countries, 3%.

¹⁵ According to Tan (1987) Appendix 1, an article was considered locally manufactured if it met “local content requirements which consists of five types of components, namely, printed circuit board, coils, transformers, chassis and cabinets.” She did not elaborate on how this was actually measured in practice.

¹⁶ Tan (1987) p. 26.

It is almost certain that the success of electronics exports can be explained in part, if not wholly, by the tremendous amounts of investment, especially foreign, into the sector. The Philippine Economic Zone Authority estimates that electronics accounted for 51% of total PEZA investments in 1995-99. In the same period, exports from these zones increased from 22% to 50% of total Philippine exports. Multinational corporations accounted for 85% of these exports, with Japanese firms alone accounting for 46%.¹⁷

The Semiconductor and Electronics Industry of the Philippines Inc. (SEIPI) classifies the electronics industry into the following sub sectors, together with a short list of some products:

1. Semiconductor Components and Devices – Pentium III, DSPs, Integrated Circuits, Transistors, Diodes, Resistors, Coils, Capacitors, Transformers, Lead Frames, PCB
2. Consumer Electronics - TV Sets, Electronic Games, Radio Cassette Players, Karaoke Machines, Radio Cassette, Recorder
3. Office Equipment - Photocopy Machines and Parts, Electronic Calculators
4. Control and Instrumentation - PCB Assembly for Instrumentation Equipment
5. Automotive Electronics - Anti Skid Brake Systems (ABS), RC Systems, Car Radios, Wiring Harness
6. Electronic Data Processing - Personal Computers, Hard Disk Drives, Floppy & Zip Drives, CD ROM, Motherboards, Software Development, Data Encoding and Conversion, Systems Integration Customization
7. Telecommunications - Telephones, Pagers, VHF, UHF Radios, Cellular Phones, Scanners, Satellite Receivers
8. Communications and Radar - Pagers, CCTV, Radar Detectors, Marine and Land Mobile Radios, CB Transceivers
9. Medical and Industrial - Spiro Analyzers, Smoke Detectors

The consumer electronics category produces primarily for the domestic market, while the electronics components categories are mainly for export. Since semiconductors account for about 70% of the total output, Philippine electronics is mainly export oriented. Not surprisingly, most of these companies have located in export zones. The following Table 12 provides a perspective on the relative sizes and export performance of the various subsectors.

Ironically, in the Export Development Strategy for Seven (7) Priority Products¹⁸ of 1982 by the then Ministry of Trade and Industry (MTI), on page two of the export promotion strategy for electronics we read:

“Although further promotion of the component industry should be encouraged, it becomes evident that to promote export of electronics prime importance should now be given to the stimulation of the first category.”

¹⁷ See Hill and Balisacan (2003) p. 231.

¹⁸ The seven products were garments, furniture, electronics, gifts and housewares, construction services, fresh and processed foods, footwear and leather goods)

By first category, the MTI referred to finished consumer and industrial electronic products. We cite this passage as another instance of how government can misread which sectors, or industries even, have the potential to be winners.

By December 2001, there were already 715 firms in the industry. The overwhelming majority of these firms are foreign (72%). Domestic firms account only for 28%. Japanese firms are by far the most significant, 30% of the total number of firms are Japanese.

Internal Drivers and Obstacles

Skilled labor appears to be the comparative advantage of the Philippines.¹⁹ While Philippine labor is not the cheapest, it is cost competitive. The country boasts a labor force of 32 million, English speaking workers with over 100,000 engineering, IT and technical graduates every year. Indeed, the industry is increasingly an important employer in the economy, increasing tenfold from 38,000 workers in 1985 to 307,000 by 2001. In fact the World Competitiveness Yearbook ranks the Philippines first out of 49 countries in the availability of skilled labor and third in availability of competent senior managers. Interviews with some Japanese firms support the SEIPI claim that electronics employers find Philippine labor trainable and of high quality.

However, there are complaints of rising wages, which if it continues without accompanying productivity improvements, may ultimately erode our comparative advantage in labor. Some of our competitors in electronics like Malaysia and Singapore do not even have minimum wage laws. Thus, increasing labor productivity could be critical to the country's maintaining its comparative advantage in labor for the electronics sector.

Another potential threat on the horizon as far as labor is concerned is also our perceived declining quality of education. In many international comparisons, our students tend to score near the bottom of the ladder, particularly in mathematics and sciences. This trend too, if it continues, will erode our labor advantage. As teachers, we note also the deteriorating English abilities of our students.

Infrastructure problems usually rank high also on the list of investor complaints. In the electronics industry, the high power costs, poor quality of power and water, and poor roads pose a challenge to firms. Intel has reportedly decided not to establish a wafer fabrication plant in the country for these reasons. Besides being expensive, power fluctuation is also excessive, which is a problem for the semiconductor companies. Deloitte (2002) cites that power voltage could fluctuate in the Philippines by more than +/- 10% while in Malaysia by comparison it fluctuates between +3%/-0.05%. This is unfortunate, because wafer fabrication would greatly add to the local value-added of the

¹⁹ This seems to be a common assessment of the literature. See for example Morisawa (2000) p. 9 and Tecson (1999).

industry. In fact, it seems that the Philippines is really engaged mostly in assembly and testing. (see figure 4)

Government Policy

In an interview with Mr. Ernesto Santiago of SEIPI, he expressed the opinion that, at least in recent years, the government had not intervened heavily in the industry. A BOI official shares this opinion and added that this was due in part to the fact that it was the way industry wanted it. This is not to say the government neglects the sector because the DTI and BOI have a task force assigned to meet regularly with the electronics sector. They have assisted the industry in very specific and micro-level interventions like improving traffic flow by removing an electric utility's posts obstructing traffic on key access roads to the firms. Another concrete area industry and government is working on together is solving the 'truck hijacking' problem on the South Luzon Expressway.

We have been unable to find any industrial policy at present specifically targeting the electronics in the same way as we have the Motor Vehicle Development Program in the case of the automotive sector. Mr. Santiago of SEIPI mentioned that a wafer fabrication bill had been filed in the legislature, presumably seeking to attract wafer fabrication to the country. However, it apparently has not prospered.

The government did have in place at one time, the Electronics Local Content Program (ELCP), whose objective was to promote the increase of local value added in electronics by developing ancillary industries. However, this program was discontinued in 1986,²⁰ before the spectacular growth of the industry in the 90s. Moreover, it dealt primarily with the consumer electronics sector and not the semiconductor and components, which accounts for the bulk of our current electronics exports.

The electronic parts and component manufacturers had pushed for the ELCP. It required assemblers to source from local suppliers, parts and components included in a list drawn up by government. Tecson (1999) believes the program was a failure because it tended to be more regulatory or coercive than promotional; i.e. it required local procurement instead of providing incentives so that such a network of local suppliers could first exist. Because the local suppliers were not cost competitive and could not meet the required quality, the assemblers were thus forced to use high-priced low quality parts, which in turn limited exports. This of course reduced their demand for parts and components, worsening the problem. In the end, the government had to allow in-house production of parts and components to count towards satisfying the local content requirements. This effectively gave the go signal to assemblers to resort to in-house production, ironically reducing the development of inter-firm linkages and specialization.

The error of the ELCP lay in assuming that simply forcing local procurement would automatically lead to a network of competitive local suppliers to sprout up. Perhaps having learnt this lesson, the BOI implemented a Backward Linkage Program in

²⁰ Tecson (1999) p. 33.

1995 that involves the extension of technical assistance to supplier firms. It consists of three sub-projects: the Assembler-Supplier Matching Program, the Center-Satellite Pilot Project and the BOI-JETRO Support Industry Promotion Project. The third has the objective of upgrading local supplier capabilities in the metal press and plastic injection sectors so as to meet Japanese assemblers' standards.

Backward Linkages

The lack of backward linkages is a problem common to both the electronics and automotive industries. The Japanese External Trade Organization (JETRO) (2003)²¹ conducted a questionnaire survey of Japanese affiliated manufacturers based in eleven Asian countries and regions.²² The questions ranged over a wide range of topics and issues: future plans, subcontracting and cost structure, problems and even views on a free trade agreement between the Philippines and Japan.

Of particular relevance to this issue of backward linkage perhaps are some responses on the procurement patterns of Japanese firms in the Philippines compared with similar firms in neighboring countries. Japanese manufacturers in the Philippines tend to have the lowest rate of locally procured materials and parts. (see Table 13) The JETRO survey reports that 60.5% of Japanese firms in the Philippines indicated "difficulty in procurement of local parts and raw materials" as one of their production problems. This is significantly higher than the average of 44% for ASEAN. In the survey, only Vietnam had a higher proportion of firms (61.8%) expressing this problem.

Some of the companies we interviewed also confirmed this when they remarked that they had difficulty finding local subcontractors to outsource parts of their production activities. This is consistent with observations that Philippine industry suffers from poor backward linkages. The semiconductor industry for instance, has often been cited as an example of an export with low domestic value-added.

To put things in perspective, we note that such complaints are not unique to the Philippines. Warr (1987, 1989) also reports the same criticism of poor backward linkage with domestic firms made about foreign firms in free trade and export zones in other countries like Malaysia and Indonesia. Belderbos et al (2000) estimated the distribution of procurement by Japanese manufacturing subsidiaries in select Asian countries. They found that Thailand and China also had relatively low rates. Admittedly, the Philippines had the lowest rate though. (see table 14)

The Philippines does not invest enough in research and development and has traditionally been dependent on imported technology. Radelet (1999) presents evidence that manufactured exports growth can enhance economic growth and technological

²¹ Overseas Research Department, Japan External Trade Organization (JETRO), "Japanese Affiliated Manufacturers in Asia: Survey 2002", March 2003.

²² The countries or regions included: Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, China, Hong Kong, India, South Korea, and Taiwan. Respondent companies covered a wide spectrum of industries, not just automotive and electronics.

progress by fostering ties between domestic firms and multinational firms who have leading-edge technologies. This is a motivating factor also in the government's investment incentives program.

Some studies like the World Bank (2000)²³ have characterized the Philippine export structure as the most high-tech in the region, and perhaps the world. Hill (2003)²⁴ cautions however against such a label for Philippine exports, noting that electronics products can span from relatively low to high tech and the country's exports actually specialize in low tech electronics activities. The findings of low local procurement and frequent description in the literature of the industry as having low value added suggest that Hill's assessment is probably more accurate.

This finding of poor linkage with domestic suppliers is consistent with the findings of Radelet (1999). There he noted that many countries pursued the strategy of establishing an "export platform" or enclave where exporters could operate in an environment free from problems of poor trade policies, weak infrastructure, bureaucracy and inconsistent rule of law prevalent in the general environment. In many of these countries, he found similar poor backward linkages with domestic suppliers. It is possible that in an export processing zone, the incentive of relatively free importation of raw materials and capital equipment (duty free in the Philippine case) may precisely reduce the incentive for locators to go outside the zone for suppliers. Domestic suppliers outside export processing zones also generally do not enjoy duty exemptions for their own inputs, which may render them uncompetitive.

Another possible explanation may lie in the workings of the Japanese keiretsu. There is much literature that suggests Japanese firms tend to rely more on long term supplier relationships. Such networks of suppliers are called keiretsu and very often, these firms follow a parent company to a foreign location. Some studies find that Japanese firms are less eager to switch to local suppliers because of such networks.²⁵

This would thus seem to be an obvious strategy to increase Philippine manufactured exports: to improve the backward linkage of Philippine manufacturing by raising the capability of local firms to supply to multinationals' affiliates here. We recall that when General Motors decided to locate in Thailand over the Philippines a few years back, GM had cited the well developed supplier network that was available there as a plus for Thailand. Further study is needed to establish the reason for the poor domestic supply capability.

It is the opinion of many that a key factor explaining the rapid growth of the sector in the 1990s was the tremendous influx of investments into the sector. In the first part of the presidency of Fidel Ramos, the country had to grapple with a crippling power crisis. Probably as investors saw that the administration was serious, and more

²³ World Bank (2000), "Philippines Growth with Equity: the Remaining Agenda", p. 19.

²⁴ In Balisacan and Hill (2003) p. 225.

²⁵ See Belderbos et al (2000) for example, for a summary of this literature.

importantly, successful in solving the power crisis, those investments started coming in. In fact, Tecson (1999) is of the opinion that the country had already missed out on the first wave of investments by multinational electronics companies in the region in the late 1980s due to the political instability, e.g. the numerous coups launched in the administration of Pres. Aquino. Table 15 below shows the spurt in investments, particularly in 1993-94.

In this light, if one could consider any government policy as having been instrumental for the success of the industry, it could be the investment incentives program, notwithstanding the criticisms mentioned earlier about poor backward linkages. This would include not just legislation such as the Investment Incentives Act (1967), Export Incentives Act (1970), Omnibus Investments Code (1987) and the Foreign Investment Act (1991), to name the primary ones. The Omnibus Investments Code of 1987 granted income tax holidays while the Foreign Investments Act of 1991 allowed foreign equity participation up to 100% in areas not included in the Foreign Investment Negative List if the form exported at least 60% of its output.

Nevertheless, it appears the Philippines may not have been as quick and decisive in attracting foreign investments, at least from Japanese firms. As Kunio (1994) notes, Japanese investments started flowing into Thailand as early as the 1950s and were the main investors in the 1960s. In contrast, it was not until 1967 that the Philippines allowed Japanese investments and on a minority basis at that. (see table 16)

Export Zones, Foreign Direct Investments and Japanese Multinational Companies

In both industries, technology plays an important role. As we noted, the Philippines has relatively low ability to generate its own technology and must depend on foreign capital for this. Thus foreign direct investments are critical in both industries. The importance of attracting foreign investments was recognized and export zones were a key part of government strategy.

Perhaps it is the establishment of export zones and the incentives given to locators there that have been most instrumental in attracting these investments. A World Bank Study, *Managing Global Integration* (1997) judged the incentives given by the country in its export zones as “the most generous and flexible set of incentives available anywhere.”

Export zones are enclaves created by the government with incentives to firms that locate there. Typically firms locating in an export zone receive the following privileges

1. duty-free import of raw materials, intermediate inputs capital goods privileges for export production
2. reduced government bureaucracy. Usually firms deal with just one government agency
3. tax concessions like tax holidays
4. better infrastructure than available in other parts of the country

Thru these zones, governments usually hope to attract more investment, thereby generating employment and income. It is also hoped that foreign investors would be bringing with them technology transfer.

The literature is not unanimous on the benefits of export zones though. Warr (1987, 1989) is one such opinion. Warr (1987) in fact focused on the Bataan export zone, the first export zone to be set up in the Philippines. Warr (1989) compares estimates of the costs and benefits associated with some of these zones for the Philippines, Indonesia, Malaysia, and Korea. He finds that while the Bataan zone earned a negative real internal rate of return (-3%), the sample zones for Indonesia, Korea, and Malaysia returned 26%, 15%, and 28% respectively.

Despite the positive rates of return for Indonesia, Korea, and Malaysia, Warr nevertheless is pessimistic about the benefits of export zones and judges them as 'definitely not "engines of development"' The main reasons for his negative judgment seems to be his belief that many of the features of the export zone (e.g. reduction of government red tape, better infrastructure) could be extended to the rest of the domestic economy without incurring the cost of establishing a special enclave.

While we agree that some measures like reducing red tape for all firms, not just those in export zones, is definitely a first best option, developing economies may be constrained in pursuing others. For example, poor infrastructure is a frequent complaint of business in the Philippines. But lack of resources would prevent the government from radically improving the infrastructure over the whole country in a short time. Improving the infrastructure in select special zones may be a more pragmatic way to enable firms located within to compete.

Warr also referred to firms in these zones as 'footloose' in the sense that they could easily pack up and move from one zone in one country to a zone in another country. While he did not specifically refer to it in his 1987 or 1989 articles, we do see a potential for host countries to engage in "bidding wars" of export zones. In other words, in an effort to attract investors, countries may try to outdo each other in offering more and more generous incentives, akin to a Bertrand price war, that leaves each country with minimal benefit from the zones. Multinational firms, aware of this, may also play off one country against each other to get the best "deal" in return for investing in the country.

Manasan(1988) calculated the internal rate of return of hypothetical investments in the ASEAN countries before and after incentives. She found that the rate of return on these hypothetical investments after the incentives were roughly similar across all the countries. This suggests that the countries' incentives probably roughly cancelled each other out, implying foregone government revenue.

Were there other reasons these investments come here? Tecson (1999) noted that the 'endaka' or yen appreciation that followed the Plaza Accord of 1985 saw the yen appreciate from 250Yen/\$ in 1985 to 125 Yen/\$ by 1989. This sent many Japanese firms abroad to lower cost production locations in order to stay competitive with the strong yen.

This was the first wave of investments mentioned. It is said that we missed the first wave of Japanese investments due to the political turmoil in the Philippines at that time which scared away most but the bravest of foreign investors.

The power crisis of the early 1990s likely also deterred investors. But its resolution in the middle of the decade combined with the relatively stable political environment of the Ramos presidency put the Philippines back on the radar screens of investors. By the time the second wave of Japanese investments started (in the mid 1990s, following another yen appreciation), the Philippines was poised to capitalize on it. Indeed, a casual inspection of the investment figures for the electronics industry in the Philippines shows a surge of investments between 1993 to 1995 which preceded a similar surge in electronics exports from 1995 to 1998.

Finally, in the case of the hard disk drive industry, Tecson (1999) suggests that something similar to a herd instinct or bandwagon/demonstration effect may have also been at work. Tecson cites the case of relocation of four Japanese HDD (Hitachi, Fujitsu, Toshiba, NEC) majors, all between 1994 and 1996. These firms brought with them also their affiliated suppliers. Moreover, Tecson reported that at the time, with the exception of Fujitsu, the Philippines was the only Asian assembly facility outside Japan for these companies.

However, Tecson conducted interviews and there does not seem to be evidence that the major HDD comp discussed their location decision among themselves. However, her interviews suggest that their respective supplier companies definitely came to the Philippines to be close to their major buyer firms.

So What Have We Learned? (A Tentative Synthesis)

Like many of its neighbors, the Philippines had pursued an import substitution policy initially. There was a fair amount of state intervention in the form of trade and monetary policy, and even direct participation in the market through state owned enterprises. It was only later that it started opening the economy and orienting activity towards exports. In retrospect, the import substitution policy biased resources towards the final consumer goods sectors and hindered development of backward linkages. Early push for industrialization through high protection resulted in a large but generally inefficient manufacturing sector. The sector has been unable to adjust to a less protected environment resulting in the curious phenomena of ‘deindustrialization’ at a low level of economic development (Balisacan and Hill, 2003).

The automotive industry was 'born and grew up' in this environment. The electronics industry's formative years on the other hand, came mostly after the move to more liberalized markets. Balisacan and Hill's characterization of the Philippine manufacturing sector above might well be applied to the automotive industry in particular to explain its relative uncompetitiveness today.

As far as industrial policy is concerned, both the automotive and electronics industries were the recipient of government intervention, although it seems to different degrees. Arguably, the automotive industry has been the recipient of the heavier hand of government intervention. Through various incarnations of the motor vehicle development program, a host of policies comprising import protection, foreign exchange earning and domestic content requirements among others were implemented. Yet today, the Philippine automotive sector remains the smallest compared to its major ASEAN neighbors.

The electronics sector, on the other hand, seems to have escaped this kind of close scrutiny by the government, even though policy makers seem to have recognized the growing importance of the sector. The one industrial policy specific to it, the Electronics Local Content Program seemed to have been a failure and was scrapped in 1986. The recent surge of electronics exports seems to have been the result of large investments by foreign MNCs in the 1990s. Despite the sector's success, it is not without its critics. Many point out that precisely, the sector has poor linkages with the rest of the economy and local value added is low. In fairness, this seems to also be a criticism made of the automotive sector.

It is always very difficult to compare two different industries, each with their own unique circumstances. In this case it is tempting to point a finger at the heavier government intervention as the culprit for the relatively poorer performance of the automotive industry.

However, one should also consider precisely some of these different circumstances. First, the electronics industry was and remains an export-oriented industry, which gives it a much bigger potential market, and the ability to exploit economies of scale. On the other hand, the automotive industry grew up at a time when tariff walls were high internationally and industries tended to concentrate more on the domestic market. Since the Philippine market for automobiles is small, this meant the industry did not enjoy the economies of scale that is so important to automobile production.

The timing of the electronics industry's birth in the Philippines was also fortuitous in another way. It escaped the great depression of the Philippine economy from 1983 to 1985. That depression dealt a severe blow to all of Philippine industry but arguably, the automotive industry was among those most hurt. And since its market was mainly domestic, it meant the Philippine market would not be attractive for many more years. In contrast, the export oriented electronics industry continued to grow even through the Asian crisis, when the Asian economies went through an economic slump.

Then also the electronics industry is what one might call a 'sunrise' product. We are only beginning to exploit the full potential of electronics and everyday we are witness to an explosion of more and more new products and applications of electronics. The automobile on the other hand, is a mature product. Also, because it is a "big ticket" item, the typical buyer may not consume that many units over his/her lifetime. This implies naturally a much bigger market volume-wise for electronics products.

The protection accorded the automotive industry probably contributed to its lack of competitiveness. The various local content schemes that were imposed on the industry did the same and imposed costs on consumers as Takacs' analysis shows.

The development of the Philippine automotive industry certainly did give rise to the creation of rents and rent seeking activities, a common criticism of government intervention. Doner's accounts suggests that this may have been due in no small part to a lack of government bureaucratic expertise to manage industrial policy. The many revisions to the motor vehicle programs suggests that the Philippine government agencies concerned may have been too flexible in implementing the program. Then also, very often these bureaucrats' hands were tied because of the political influence that some participants were able to wield as a result of their connections.

The electronics industry on the other hand, can trace its strong growth to robust global demand and the influx of foreign capital that preceded the growth spurt in 1995 to 1997. The main government industrial policy for electronics, the ELCP/PEPCEP, had apparently been dismantled in the late 1980s. In any case, the program had targeted mainly the consumer electronics sector. Coincidentally or not, that sector accounts for only 1.5% of total electronics exports (based on 1998 export figures).

This cursory review suggests that the various motor vehicle programs have not been successful in promoting the automotive industry. On the other hand, what may have been more critical for the electronics industry may have been the investment incentive programs that played a role in attracting the foreign capital in electronics to the Philippines. These investment incentives though, were in general available to many other industries' firms as well. Thus on the balance, it seems that Philippine industry specific policy did not work as intended. Admittedly, the Philippine automotive programs were badly implemented. But even if it had been implemented properly, would they have worked?

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Table 1 Automotive Production ('000 units)

	1969	% share	1976	% share	1982	% share
Malaysia	25.0	36	51.6	22	100.9	24
Thailand	11.7	17	48.7	21	70.0	17
Philippines	20.1	29	50.6	22	54.0	13
Indonesia	1.4	2	75.6	33	189.0	46
Singapore	11.9	17	4.3	2	a	0
ASEAN (Total)	70.1	100	230.8	100	413.9	100

a. Local production ceased as of 1980

Source: EIU (1985)

Figure 1. New Vehicle Registrations vs. GDP Growth (1981 to 1999; GDP Growth based on constant prices)

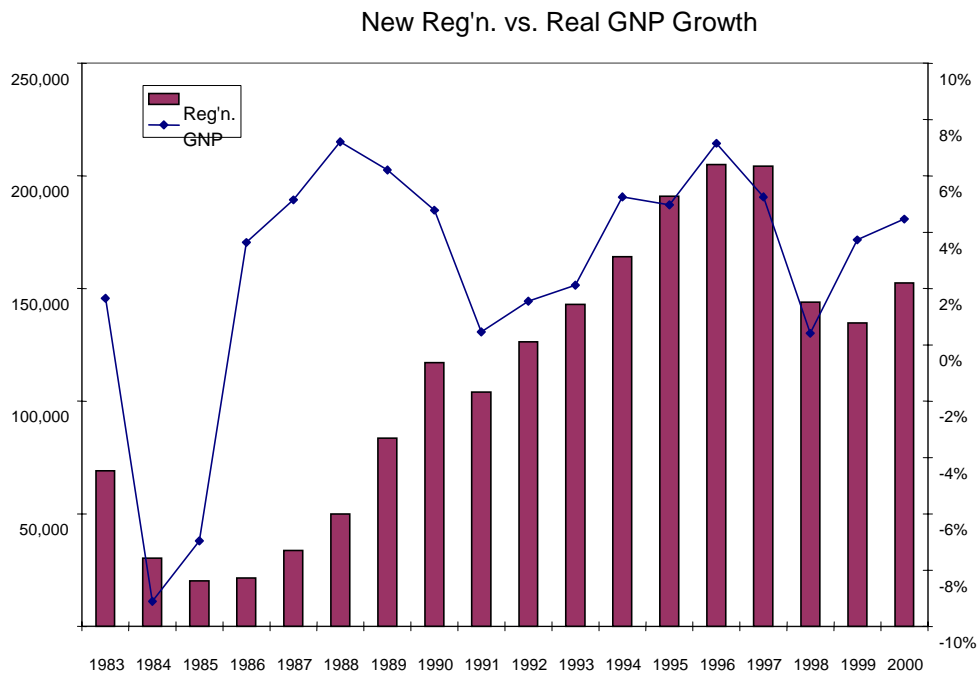
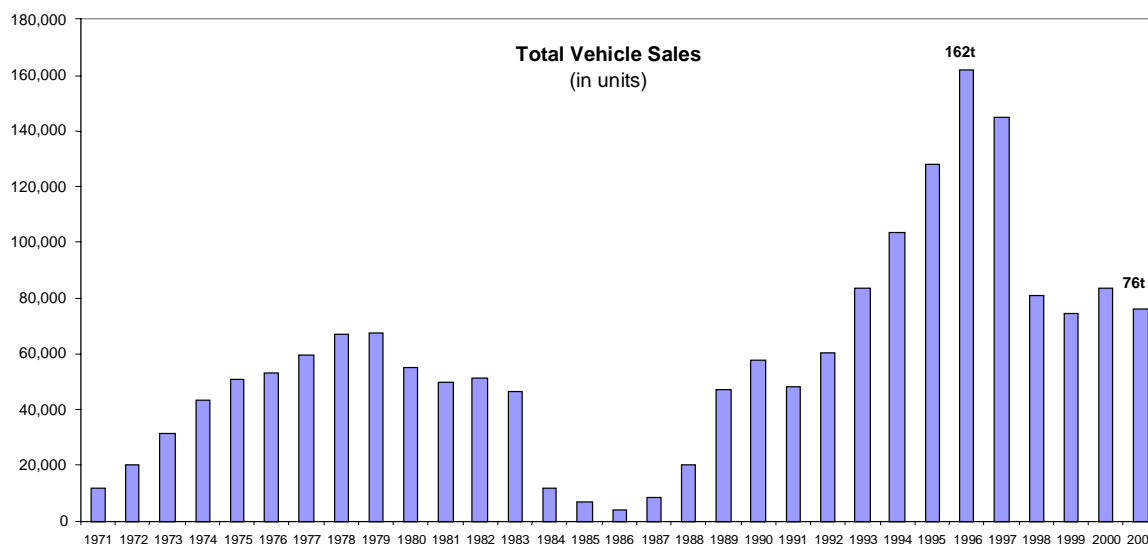


Figure 2.



Source: CAMPI

Table 2

	(1)	(2)	(3)	(4)		
	New Demand (2002)	Capacity	Pre-Crisis Production	Pre-Crisis Sales	(1)/(3) in %	(4)/(2) in %
Indonesia	318,400	700,000+	386,000 (1997)	386,500 (1997)	82	55
Philippines	85,600	367,100	131,200 (1996)	162,000 (1996)	53	44
Thailand	409,300	996,800	559,400 (1996)	589,700 (1996)	69	59
Malaysia	440,800	570,000	462,400 (1997)	404,900 (1997)	109	71

Source: UNESCAP (2002); Global Insight Asian Automotive Industry Forecast Report, April 2003

Table 3

	No. of Participants	Annual total capacity (units)
Passenger Car Assembly	14	221,450
Commercial Vehicle Assembly	20	145,650

Source: UNESCAP (2002)

Figure 3

Brand New Vehicle Sales vs. New Registration

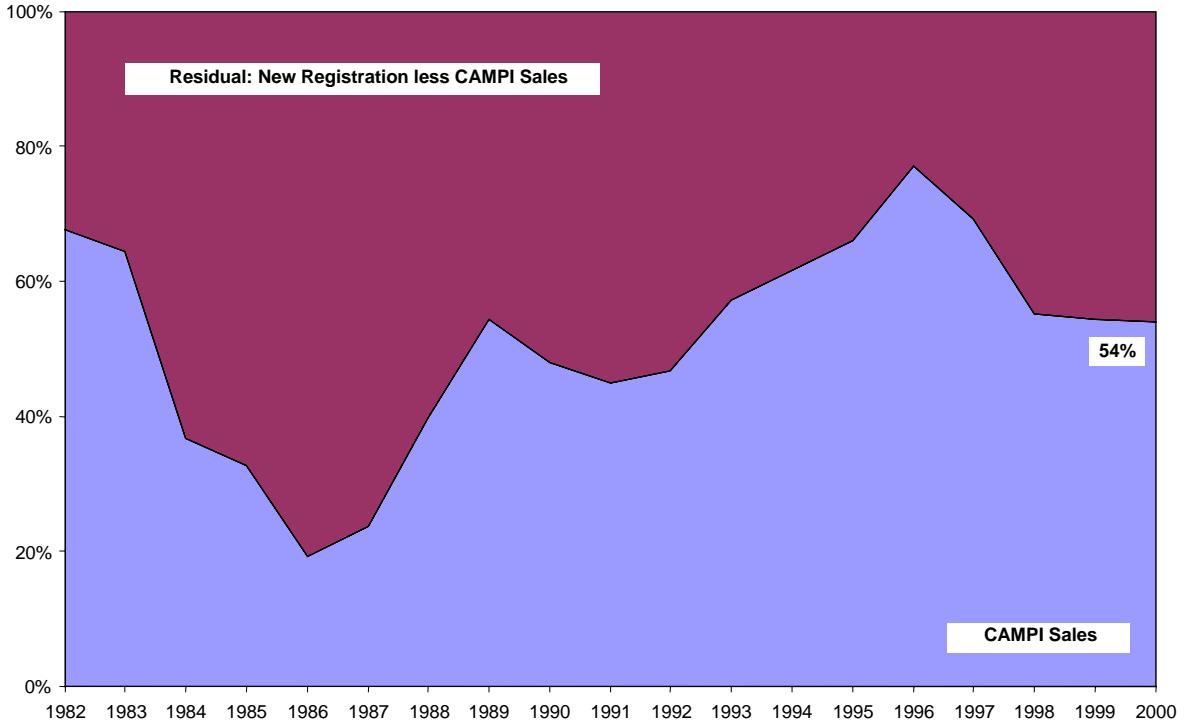


Table 4: Sales by Company ('000 vehicles)

Company	1999	% Share	2000	% Share	2001	% Share	2002
Toyota	21.6	29.1	24.0	28.5	19.9	25.9	24.8
Mitsubishi	15.8	21.3	16.1	19.1	16.9	22.0	16.3
Honda	13.0	17.5	12.5	14.8	9.4	12.3	13.6
Isuzu	5.8	7.8	8.3	9.8	10.4	13.6	12.0
Nissan	7.3	9.9	9.7	11.5	8.3	10.8	7.6
Ford	2.0	2.7	6.0	7.1	5.3	6.9	4.2
Kia	2.8	3.8	3.0	3.6	2.7	3.5	2.8
Chevrolet	0.1	0.1	0.3	0.4	0.6	0.8	1.0
Others	5.7	7.7	4.4	5.2	3.2	4.2	3.3
<i>Total</i>	<i>74.1</i>	<i>100.0</i>	<i>84.3</i>	<i>100.0</i>	<i>76.7</i>	<i>100.0</i>	<i>85.6</i>

**Table 5: Investments of Assemblers on Major Autoparts
(under the first development program)**

Assembler	Investment	Main Market
GM	Transmission plant for cars and light commercial vehicles (LCV)	Locally-assembled GM cars and LCVs Exported to Opel (Germany) and Isuzu (Japan)
Ford	Body stamping plant for production of doors, trunks and other body panels	Locally-assembled Ford cars. Exported to UK and Germany for use in Escorts and Cortinas
Delta Motors	Engine plant (for Toyota 12R engine) with foundry and machining capability	n.a.
CARCO – Mitsubishi	Transmission plant	Exported to Japan and Thailand
D.M.G.	Stamping plant for locally-designed LCV	No exports

Source: Gimenez, Antonio. An Assessment of the Automotive Parts Manufacturing Industry in the Philippines. Manila, 1994.

Table 6: Salient Features of the Rationalized Motor Vehicle Programs

ITEMS	CAR DEVELOPMENT PROGRAM	COMMERCIAL VEHICLE DEVELOPMENT PROGRAM	MOTORCYCLE DEVELOPMENT PROGRAM																																																																		
Objective	<ul style="list-style-type: none"> development of a viable automotive parts manufacturing industry technology transfer and development employment generation reasonable consumer prices of motor vehicles; and foreign exchange savings and earnings. 	- same as CDP -	- same as CDP-																																																																		
Coverage	<ul style="list-style-type: none"> passenger cars up to 2,800 cc engine displacement 	<ul style="list-style-type: none"> Category I Asian Utility Vehicles (AUV) up to 3,000 kgs GVW Category II Light Commercial Vehicles (LCV) up to 3,000 kgs GVW Category III Vehicles 3,001 -6,000 kgs GVW Category IV Vehicles 6,001-18,000 kgs GVW 	<ul style="list-style-type: none"> Category A Two-wheeled motorcycles with no limit to engine displacement Category B Three-wheeled vehicles with unitize chassis and no limit to engine displacement 																																																																		
Local content (%)	<table> <tr> <td>1988</td> <td>32.26</td> </tr> <tr> <td>1989</td> <td>36.58</td> </tr> <tr> <td>1990</td> <td>40.00</td> </tr> </table>	1988	32.26	1989	36.58	1990	40.00	<table> <tr> <td></td> <td>Yr 1</td> <td>Yr 2</td> <td>Yr 3</td> </tr> <tr> <td></td> <td><u>1988</u></td> <td><u>1989</u></td> <td><u>1990</u></td> </tr> <tr> <td>Cat I</td> <td>43.10</td> <td>51.21</td> <td>54.86</td> </tr> <tr> <td>Cat II</td> <td>35.62</td> <td>41.69</td> <td>44.42</td> </tr> <tr> <td>Cat III</td> <td>16.83</td> <td>20.33</td> <td>21.90</td> </tr> <tr> <td>CatIV-A:</td> <td>16.50</td> <td>19.91</td> <td>21.44</td> </tr> <tr> <td>IV-B:</td> <td>17.08</td> <td>20.64</td> <td>22.24</td> </tr> <tr> <td>IV-C:</td> <td>10.69</td> <td>12.65</td> <td>13.53</td> </tr> <tr> <td>IV-D:</td> <td></td> <td>10.87</td> <td></td> </tr> <tr> <td></td> <td>12.87</td> <td>13.77</td> <td></td> </tr> </table>		Yr 1	Yr 2	Yr 3		<u>1988</u>	<u>1989</u>	<u>1990</u>	Cat I	43.10	51.21	54.86	Cat II	35.62	41.69	44.42	Cat III	16.83	20.33	21.90	CatIV-A:	16.50	19.91	21.44	IV-B:	17.08	20.64	22.24	IV-C:	10.69	12.65	13.53	IV-D:		10.87			12.87	13.77		<table> <tr> <td></td> <td>Yr 1</td> <td>Yr 2</td> <td>Yr 3</td> </tr> <tr> <td></td> <td><u>1988</u></td> <td><u>1989</u></td> <td><u>1990</u></td> </tr> <tr> <td>Cat A</td> <td>44.02</td> <td>51.28</td> <td>54.86</td> </tr> <tr> <td>Cat B</td> <td>38.20</td> <td></td> <td>44.02</td> </tr> <tr> <td></td> <td>46.64</td> <td></td> <td></td> </tr> </table>		Yr 1	Yr 2	Yr 3		<u>1988</u>	<u>1989</u>	<u>1990</u>	Cat A	44.02	51.28	54.86	Cat B	38.20		44.02		46.64		
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	46.64																																																																				
Foreign exchange requirement (%)	<ul style="list-style-type: none"> Participants shall earn 50% of their foreign exchange requirements for CKD importations through generation of export earnings Exports of automotive units and components will be given higher foreign exchange credits than exports of non-traditional and/or non-automotive products if still allowed Foreign exchange credits for exports of non-automotive products will progressively be phased out during the first five program years. 	<ul style="list-style-type: none"> Participants shall earn 25% of their foreign exchange requirements through generation of export earnings. - same as CDP - 	- same as CVDP -																																																																		

- Foreign exchange credits shall account in the foreign exchange requirements as follows:

	<u>Auto</u>	<u>Non Auto</u>
1988 encouraged	100	
1989	20	80
1990	40	60
1991	60	40
1992	80	20
1993	100	0

Table 7. Salient Feature of the New Motor Vehicle Development Programs

ITEMS	CDP	CVDP	MVDP
OBJECTIVES	<ul style="list-style-type: none"> - Development of the parts manufacturing industry - Technology transfer and development - Employment generation - Foreign exchange savings and earnings 	<p>--same as CDP--</p> <ul style="list-style-type: none"> - Encourage and assist the development of the non-formal automotive industry in terms of safety, road worthiness and compliance with emission standards 	<p>--same as CDP--</p> <ul style="list-style-type: none"> - Support accelerated rural development by providing cheaper alternative transportation units for goods, services, passengers in rural areas
COVERAGE	<ul style="list-style-type: none"> - Category I <ul style="list-style-type: none"> - with engine displacement of 1,200 cc and below and with a reasonable price ceiling - larger engine displacement may be allowed provided its selling price shall be in accordance with the price ceiling - Category II <ul style="list-style-type: none"> - above 1200 but below 2,190 cc - Category III <ul style="list-style-type: none"> - above 2,190 cc 	<ul style="list-style-type: none"> - Category I <ul style="list-style-type: none"> - AUVs up to 3,000 kgs GVW - Category II <ul style="list-style-type: none"> - LCVs up to 3,000 kgs GVW - Category III <ul style="list-style-type: none"> - Vehicles 3,001 -6,000 kgs GVW - Category IV <ul style="list-style-type: none"> - Vehicles 6,001-18,000 kgs GVW <ul style="list-style-type: none"> - IV-A: 6,001-9,000 - IV-B: 9,001-12,000 - IV-C: 12,001-15,000 - IV-D: 15,001-18,000 - Category V <ul style="list-style-type: none"> - Trucks above 18,000 kgs. GVW and SPVs 	<ul style="list-style-type: none"> - Category A <ul style="list-style-type: none"> - Two- wheeled motorcycles with no limit to engine displacement - Category B <ul style="list-style-type: none"> - Three- wheeled vehicles with unitize chassis and no limit to engine displacement
LOCAL CONTENT	<p>Categories I & II</p> <ul style="list-style-type: none"> - 40% minimum - 50% forex award if LC weighted average is at least 50% <p>Category III: None</p> <p>The local content requirement shall be terminated by 2000 based on the agreement on TRIMS under GATT</p>	<p>Categories I and II</p> <ul style="list-style-type: none"> - 45% minimum - 50% forex award if LC weighted average is at least 55% <p>Category III: 21.90%</p> <p>Category IV-A: 21.44%</p> <p>IV-B: 22.24%</p> <p>IV-C: 13.53%</p> <p>IV-D: 13.77%</p> <p>Category V: 13.77%</p> <p>The local content requirement shall be terminated by 2000 based on the agreement on TRIMS under GATT</p>	<p>Category A - None</p> <p>Category B - 35%</p> <ul style="list-style-type: none"> - 50% forex award if LC weighted average is at least 55% <p>The local content requirement shall be terminated by 2000 based on the agreement on TRIMS under GATT</p>

FOREIGN EXCHANGE REQ'RMNT. (%)	Categories			Categories					
	I	II	III	I&II	III&IV				
1996	5.0	45	75	1996	5.0	5.0	1996	5.0	
1997	7.5	45	75	1997	7.5	5.0	1997	7.5	
1998	7.5	50	75	1998	7.5	5.0	1998	7.5	
1999	15.0	50	75	1999	15.0	5.0	1999	15.0	
2000	15.0	55	75	2000	15.0	2.0	2000	15.0	
	The foreign exchange requirement shall be terminated by 2000 based on the agreement on TRIMS under GATT			The foreign exchange requirement shall be terminated by 2000 based on the agreement on TRIMS under GATT			The foreign exchange requirement shall be terminated by 2000 based on the agreement on TRIMS under GATT		
INVESTMENT REQ'RMNT. FOR NEW PARTICPNTS.	US\$ 10 million worth of investment in parts and components manufacturing facility			US\$ 8 million worth of investment in parts and components manufacturing facility			US\$ 8 million worth of investment in parts and components manufacturing facility		

Table 8 Philippine Automotive Tariffs (%)

	1988	1993	2000	2003
Cars*	50	40	20	5
Trucks/Buses	30	35-65	15-20	5

*From as high as 100% from 1973-80.

Source: Aldaba (2000), Tariff and Customs Code

Table 9 EPRs and DRCs of Transport Equipment and Total Manufacturing

	1983		1988		1994	
	Transport Eqpt	All Mfg	Transport Eqpt	All Mfg	Transport Eqpt	All Mfg
EPR ¹	50.6	42.8	48.8	28.3	57.3	19.2
DRC/SER ²	2.4	1.7	1.4	1.5	1.9	1.2

¹Effective Protection Rate

²Ratio of Domestic Resource Cost to Shadow Exchange Rate

Source: Aldaba (2000) p. 24

Table 10 Philippine Exports

	1985	1990	1995	1996	1997	1998	1999	2000
Total Exports (M\$)	4629	7821	17447	20543	25228	29496	35037	38079
Manufactures (%)	59.7	76.6	81.5	84.7	86.1	88.4	90.1	89.9
Manufactured Exports (M\$)	2765	5995	14224	17409	21712	26090	31562	34242
of which								

Electronics (%)	38.2	32.8	52.1	57.3	60	65.8	57.1	64.8
Machinery (%)	1.1	2.5	5.2	7.4	12.4	12.7	15.7	17.3
Garments (%)	22.5	26.3	18.1	13.9	10.8	9	7.2	7.5
Textiles (%)	1.4	1.5	1.5	1.4	1.4	0.9	0.7	0.7

Source: Balisacan and Hill (2003) p. 232

Table 11 Electronics and Motor Vehicles Exports, 1995-1999 (\$ billions)

	ELECTRONICS ^a			MOTOR VEHICLES ^b		
	Value of Exports	% of World Exports	World Export Rank	Value of Exports	% of World Exports	World Export Rank
Indonesia	18.4	0.6	22	0.6	0.0	44
Malaysia	211.9	6.4	5	1.3	0.1	37
Philippines	72.8	2.2	14	0.7	0.0	42
Thailand	81.5	2.4	12	3.4	0.2	25
ASEAN 4	384.6	11.6		6.0	0.3	

^a Electronics includes office equipment, electronic components, consumer electronics, computers, and telecom equipment

^b Motor vehicles includes finished vehicles and parts.

Source: Sturgeon and Lester (2002) page 4

Table 12: Value of Exports of Electronics Sector and Consumer Electronics Products: 1993-1998 (Value in FOB US\$)

SUB-SECTOR	1993	1994	1995	1996	1997	1998	CAGR (%)
Total Electronics	3,515	4,886	7,556	10,610	14,962	19,873	33.5
Semiconductor devices	2,674	3,767	6,060	8,468	11,495	15,665	34.3
Electrical machinery/apparatus & appliances	98	171	214	206	281	510	31.6
Telecom/sound & video apparatus	369	462	550	747	832	692	11
Electronic office and automatic data processing machines	215	233	441	878	2,101	2,173	47

Consumer electronics:	160	252	291	310	253	293	10.6
Audio video products (brown lines)	136	219	258	271	215	260	11.4
Household appliances (white lines)	19	28	27	32	34	32	9.1
Other consumer electronic products	4	52	6	8	4	2	-10.9

Source: BOI, TESDA Study on Electronics

Figure 4 The Electronics Value Chain

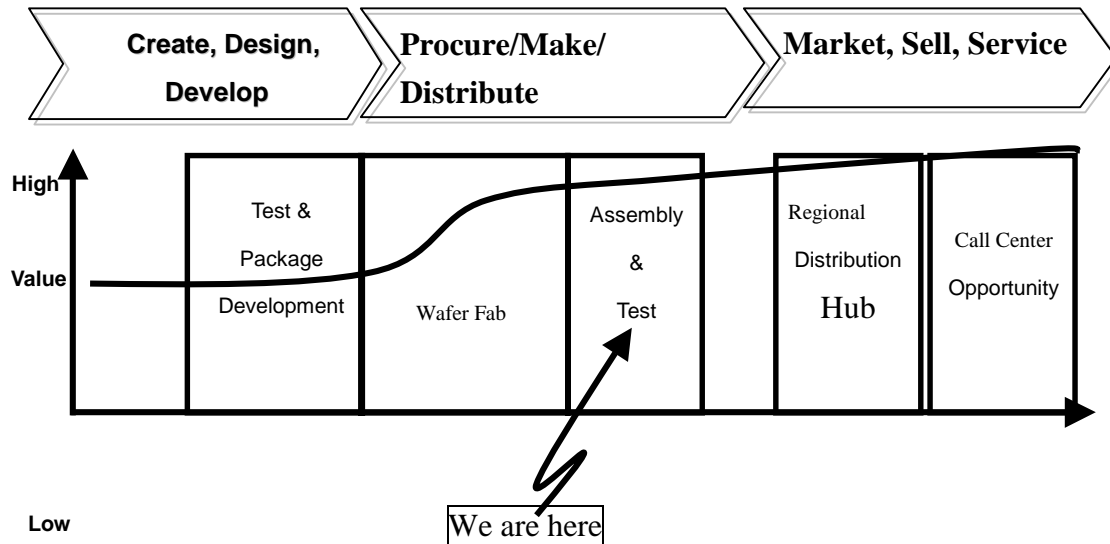


Table 13: Percent of Respondents Procuring Locally by Share of Materials and Parts

	% OF MATERIALS AND PARTS LOCALLY PROCURED IN YOUR LOCATION										
	0	1 to 20	21 to 30	31 to 40	41 to 50	51 to 60	61 to 70	71 to 80	81 to 90	91 to 100	Unknwn
Total	5.1	27.7	11.7	7.1	6.9	6.5	8.3	7.9	9	9.8	3
ASEAN Subtotal	5.7	31.9	11.5	7.2	6.9	7.2	7.3	6.5	7.9	7.9	2.1
Thailand	3.5	25.2	9.7	8.8	9.7	8.4	8.4	8.4	8.4	9.3	3
Malaysia	2.9	28.2	13.2	7.5	3.4	9.2	9.2	6.9	9.2	10.3	0.6
Singapore	8.8	20.2	11.4	7.9	6.1	7	7	11.4	12.3	7.9	4.2
Indonesia	2.5	31	8.9	8.2	10.8	8.9	8.2	4.4	8.2	8.9	1.3
Philippines	10.1	45.6	17.4	4.7	4.7	3.4	5.4	2	4.7	2	0.7
Vietnam	13.4	55.2	6	3	3	3	1.5	6	1.5	7.5	4.3

ROK	13.3	20	3.3	6.7	-----	3.3	16.7	6.7	10	10	9.1
Taiwan	5.7	17.1	0.5	8.6	7.6	1	13.3	15.2	9.5	11.4	2.8
China (excl HK)	3.3	24	12	6.6	7.1	6.8	6.8	8.5	10.7	14.2	4.7
Hongkong	2.9	29.4	7.6	5.9	8.8	5.9	5.9	5.9	8.8	8.8	-----
India	2	5.9	9.8	7.8	7.8	5.9	23.5	13.7	13.7	9.8	3.8

Source: JETRO

Table 14 Distribution of Procurement by Asian Manufacturing Subsidiaries of Japanese Electronics Firms in 1992 over regions of origin

	Local (%)	Japan (%)	Asia (%)	Other (%)	Subsidiaries (#)
Hong Kong	48	34	18	0	8
S. Korea	46	50	4	0	25
Singapore	40	43	15	2	27
Taiwan	50	43	6	1	38
NIEs	46	44	9	1	98
Indonesia	63	17	20	0	5
Malaysia	34	44	16	6	40
Philippines	16	42	42	0	4
Thailand	28	55	15	2	34
ASEAN-4	62	47	17	4	83
China	23	72	0	5	7
Asia-9	39	46	12	3	188

Source: Belderbos etal (2000) Based on their calculations using MITI data

Table 15: Investments in the Electronics Industry

YEAR	VALUE (BILLION US\$)	% GROWTH
1992	0.04	
1993	0.22	450.0

1994	1.29	486.4
1995	2.16	67.4
1996	1.08	-50.0
1997	1.47	36.1
1998	0.67	-54.4
1999	0.79	17.9
2000	1.24	57.0
2001	0.72	-41.9

Sources: *Philippine Board of Investments (BOI) & Philippine Economic Zone Authority (PEZA)*

Table 16 Japan FDI in Thailand and Philippines

Year	Japanese Investment		Total Foreign Investment	
	Philippines	Thailand	Philippines	Thailand
1987	29	966	167	1,948
1988	96	3,034	473	6,239
1989	158	3,526	805	7,996
1990	306	2,704	962	14,119
1991	208	1,754	787	4,972
Total	797	11,984	3,194	35,271

Source: Table 4.1 of Kunio p. 49

Note: The investment figures in national currencies were converted by the exchange rates of respective years.