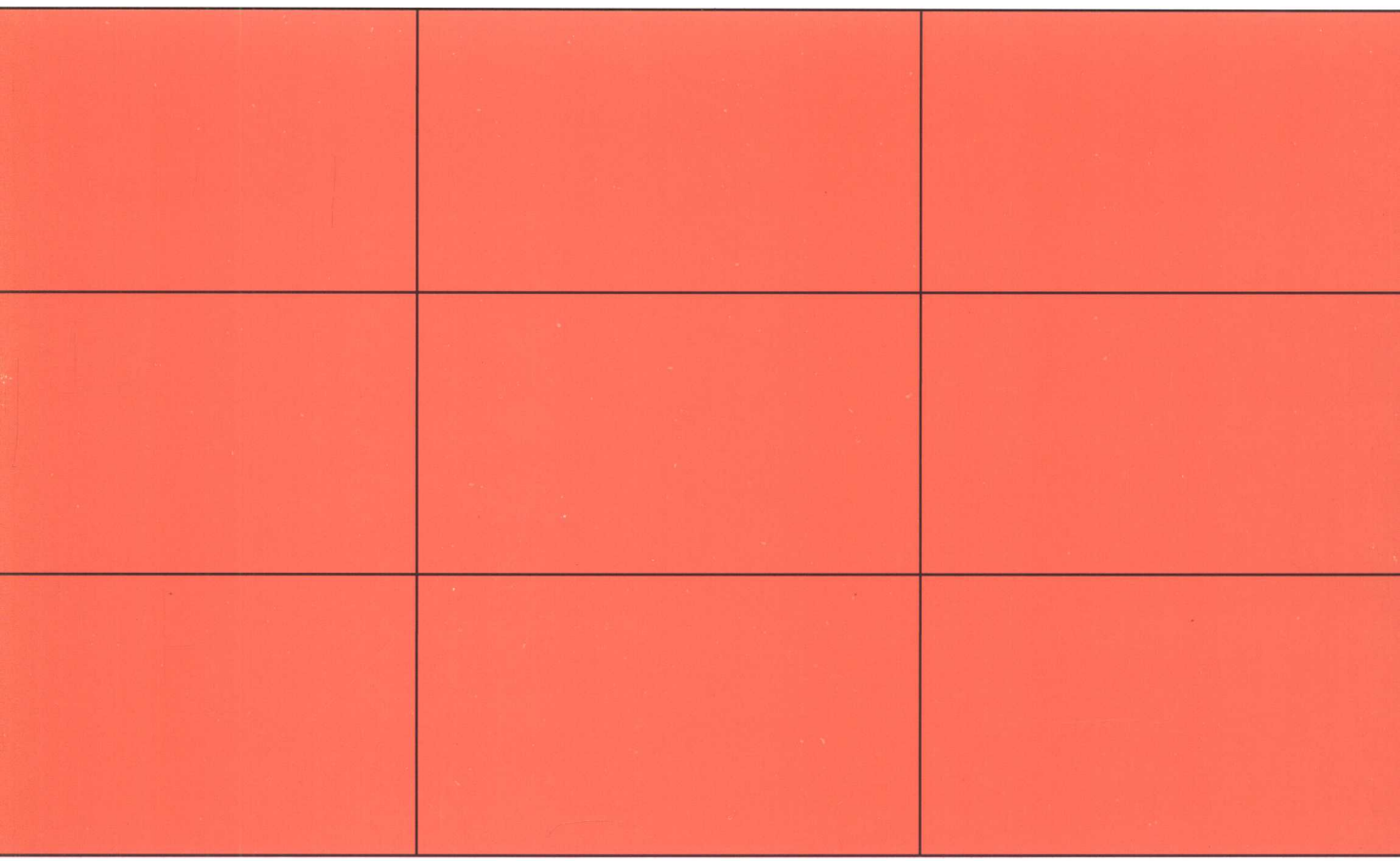
The Automobile Industry in Thailand



Final Paper

The Automobile Industry in Thailand

ASP-5 Sub-Programme on Liberalization of Trade and Investment

by

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Table of Contents

Page

List of Tables

Table **Page**

The Automobile Industry in Thailand

1. Introduction

The Thai automobile industry started in 1961. It has expanded rapidly since the latter half of the 1980s. The domestic sales of automobile increased from 87,000 vehicles in 1987, to 589,126 vehicles in 1996. In addition, most assembly firms expected that domestic demand will increase to about 800,000 to 1,000,000 vehicles by 2000 (JICA, 1995).

In this connection, several automobile assemblers have expanded their capacity, including a Toyota's new plant at the Gateway City, and a Honda's new plant at Rotchana, Ayutthaya (Table 5.2). Moreover, the US Big Three assemblers announced their plans to establish their production bases in Thailand in 1995-1996. It is expected that the US auto parts manufacturers would consider to establish local operations to support the Big Three.

The competition in the domestic market have also been intensified since the 1991 liberalization, and, recently, price competition for marketing was obvious especially in 1996. For example, Toyota began to lower the prices of Corolla at the beginning of 1996, followed by Mitsubishi (Lancer) and Honda City cars, and Soluna (the Asian car) of Toyota. As a result, the domestic prices of automobile have decreased significantly.

However, due to economic slowdown and the policy of the central bank to limit credits for hire purchasing, the domestic sales of automobile decreased significantly in 1997. Meanwhile, the export of automobiles and parts increased significantly during the same period. Since the slowdown of Thai economy is expected to continue in 1998, the investment of automobile industry in Thailand is expected to slow down.

This paper argued that the success of the Thai automotive industry was mainly due to the automotive industry development policy of government, relatively large and increasing domestic demand, relatively low labor cost and the appreciation of the yen and some establishment of automotive parts industry. However, its production have not been able to take full advantage of the economy of scale because of relatively small

and segmented domestic market. In addition, the domestic supporting industries, such as steel casting and forging, design and engineering services have neither been well-developed nor competitive.

1.1 Objectives

This paper is a part of the research project on "Manufacturing Sector Competitiveness in ASEAN ". Its overall objective is to assess whether industries and firms in ASEAN countries will have more competitiveness through the integration of production bases and markets. It is expected that the increased competition, economy of scale, and pooling of resources increase the productivity of ASEAN industries and firms. The project attempts to give suggestions of how AFTA should evolve, and predictions of what will happen due to AFTA.

Specifically, this paper is to assess the present state of the development of automobile industry in Thailand. The government policies relating to this industry are examined. It attempts to assess the current situation, performance and problems of both automobile assembly and auto parts industries. Moreover, it discusses the responses of the industry and firms to AFTA, BBC (and AICO), and Agreement on TRIMs of the GATTs.

1.2 Hypotheses

The hypotheses of this paper are as follows :

- The government policies have played a major role in the establishment and expansion of the automobile assembly and auto parts industries in Thailand.

- The size of domestic market which is the largest in the ASEAN, and growing domestic demand have been an important factor for the investment and expansion of this industry, especially the market of one-ton pickups.

- AFTA and BBC have been a minimal effect on the industry. The automobile industry is still on the sensitive list. However, the potential of integrated production bases and markets have induced the investment and expansion of this industry.

1.3 Research Method

This paper attempts to analyze the automobile industry in both industry level and firm level. At the industry level, it is mainly based on documentary research. It examines history, the government policy, the current development and performance of the industry.

At the firm level, it is based on the information from documents and interviews. The interviewees are from four automobile assembly firms and six auto parts firms. The list of interviewees is shown in Table 18.

2. Historical Development of Automobile Industry

Emerging of Thai Automobile Industry (1961)

Under the import substitution strategy, the Thai government enacted the 1960 Industrial Promotion Act to provide incentives for investment. In 1960, a number of Thai automobile importers received licenses and incentives for investing in automotive assembly. The first automotive assembly plant in Thailand, Anglo-Thai Motor Company, started to operate in 1961.

In the first year, the assembly plant assembled 310 passenger cars (with the names, Anglia and Cortina), and 215 trucks (with the name, Thames). Its market share was 12 percent, while the country sales of passenger and commercial cars were 3,934 (IFCT, 1986).

Under the 1962 Industrial Promotion Act (revised), the automobile assembly industry was granted valuable privileges, especially 50 percent reductions in tariffs and business taxes on completely knocked-down kits (CKD). In addition, the industry has been protected by high tariffs on completely built-up automobiles (CBU).

In 1962, the tariffs on CBU passenger cars, pickups, and trucks were 60, 40, and 20 percent respectively, while the tariffs on CKD passenger cars, pickups, and trucks were 30, 20, and 10 percent respectively. In the 1970, the government increased tariffs on CBU passenger cars to 80 percent, CBU pickups to 60 percent, CBU trucks to 40 percent, CKD passenger cars to 50 percent, CKD pickups to 40

percent, and CKD trucks to 20 percent in July, 1970. This is because the government wanted to improve the deficit of balance of payments and increase its revenue.

Assembly companies such as Siam Motor (a Thai company assembling Nissan and Datsun), Kannasut (a Thai company assembling Fiat and Chrysler), and Toyota (a Japanese company), complained and demanded that the government change the tariffs on CKDS back to the old levels, and threatened to stop their production and lay-off their workers. However, the Minister of Finance did not decrease the tariffs, but he decided to decrease the business taxes on the automobile industry by 5 percent (from 35 to 30 percent). With the strong position of the military government and the Minister of Finance, these companies had to give up (Patcharee, 1985, pp. 108-110).

After a decade of the industrial development, the number of assembly plants increased to 13. The number of domestic assembled passenger cars increased to 9,017, representing about 50 percent of the domestic passenger car market in 1971. Meanwhile, the domestic assembled commercial cars increased to 22.5 percent of the commercial car market. The combined market share of domestically produced passenger and commercial cars was 33.7 percent.

Beginning of Local Content Requirements (1971) and Auto Parts Industry

To promote the automobile industry actively, the government set the Automobile Industry Development Committee (AIDC) in 1969. This was the beginning of the active role of the government in this industry. First, AIDC limited the number of assembly plants and model series. In 1971, it set the minimum local content at 25 percent for the assembly industry. However, the local content requirements became effective three years later, on December 31, 1973. The minimum local content requirement for passenger cars assembly was 25 percent, for commercial cars with windshield was 20 percent, and for commercial cars without windshield was 15 percent.

This is the beginning of real establishment of auto parts industry in Thailand. During the period 1974-1977, the production of peripheral auto parts, such as starters, alternators, filters, exhaust pipes, radiators and safety glass increased rapidly. In

addition, the production of auto parts based on casting process such as brake drums, crankshaft pulleys and flywheels also increased (IFCT, 1993).

The production of small-pressed body parts also significantly increased. In early 1970s, Toyota Autobody, Sammitr Motors, Sri Thai Pressing, and CH. Autoparts were established. Other auto parts producers were Izumi Piston Manufacturing (diesel engine pistons), Siam Tectonic (ball joints), Sarong Industry and Union Plastic (plastic parts), and Ion Rubber, Pongpara Codan Rubber, and International Rubber Parts (rubber parts) (BOI, 1995).

Import Ban on Small CBU Cars and Rising Tariffs (1978)

Due to an increasing trade deficit, the government increased tariffs on CBU passenger cars from 80 to 150 percent and CKD passenger cars from 50 to 80 percent, and imposed an import ban on small CBU passenger cars (with engine size 2300 c.c. and smaller) in 1978. Patcharee (1993) pointed out that the ban was imposed because of successful lobbying by the assemblers and auto parts makers.

The automobile industrialists can be classified into two groups: assemblers and auto parts makers. The auto parts makers have organized into two groups: the Automotive Parts Industry Club and the Thai Automotive Parts Manufacturers' Association (TAPMA). The Automotive Parts Industry Club has been under the influence of assemblers and has opposed the increase of local contents, while TAPMA has supported the policy. In 1978, the TAPMA successfully lobbied the government to increase the local content requirement from 25 percent to 50 percent for passenger cars within 1983, and to 45 percent for commercial cars within 1984.

In 1978, the sale of passenger cars in domestic market decreased by 8.8 percent, while the sale of commercial cars dropped by 12.9 percent. On the other hand, the proportion of domestically produced cars increased to 94.1 percent of the sale of passenger cars.

New Local Content Requirements (1987)

In November, 1982, the Japanese Chamber of Commerce published a report on the "Localization Policy for Automobile Production," which supported the government NESDB's idea to freeze the local content requirement at 45 percent. In 1983, there was an agreement between the government and assemblers to freeze the requirement at 45 percent. However, the new Minister of Industry, Ob Vasurat, who was a businessman appointed to the office in September, 1983, required an increase of local contents to 70 percent in 1988, and 100 percent thereafter.

In 1986, the Minister of Industry was changed; the new Minister was an ex-technocrat and had a pro export-oriented industrialization strategy. Under the new Minister, the AIDC, the assemblers, and the auto parts makers agreed to set the local content at 47 percent in 1986, and froze it at 54 percent for passenger cars, 45 percent for heavy and light trucks, and 61 percent for pickups in 1987.

The Thai automobile industry has expanded rapidly since 1987, along with the high domestic economic growth. Its production growth rates were very high during the period of 1988 and 1990. The average growth rate was 46 percent. However, the prices of automobile were relatively high, and the production failed to meet the increased demand due to the limitation of capacity in the period.

Partially Liberalizing Automobile Industry (1991)

After the military coup seized power in February, 1991, the military group appointed Prime Minister Anan, who was a well-known businessman and ex-bureaucrat of the Ministry of Foreign Affairs. The government decided to liberalize the automobile industry in order to decrease domestic prices of automobiles and improve competitiveness in the industry. The Cabinet lifted the ban on the imports of CBU on April 9, 1991, and decreased the tariffs and business taxes on imported cars in July, 1991. The tariff for large CBU cars (over 2300 cc) decreased from 300 percent to 100 percent, for small CBU cars from 180 percent to 60 percent, and for CKD cars decreased from 112 percent to 20 percent.

The automobile assemblers were against the liberalization policy and threatened to cancel new investment projects and close automobile plants (Bangkok Post, August 9, 23, 1991). However, some of the CBU car importers supported the policy (Bangkok Post, July, 12, 1991). After the liberalization, the number of cars sold increased by 13-20 percent (Sombun, 1991).

The domestic assembled cars declined by 7.1 percent in 1991 due to the competition of imported cars. The share of CKD passenger cars was 98 percent of the passenger car market in the same year.. However, The domestic production has increased again since 1992. Meanwhile, the share of imported CBU cars in the domestic market has increased since the 1991 liberalization.

Export Promotion (1993)

Thailand's automobile industry has been domestic orientation. Domestic firms have been protected from international competition. However, the orientation has been changed to a more export orientation since 1993 (BOI, 1995).

In 1988, MMC Sittipol (Mitsubishi) was the first assembler to export. It signed an agreement with Chrysler Canada to export 100,000 Lancers to Canada by 1995. However, due to weak demand of the Canadian market, the actual export were less than half of the agreement. In 1993, Mitsubishi decided to move all of one-ton pickup assembly to Thailand, part of its production is for export to Japan, Europe and Southeast Asia.

In 1995, the Ministry of Industry announced "The Automobile Industry Export Promotion Project " for the period of 1996-2000. A plan for this project was prepared in 1996. Currently, Thailand's BOI grants incentives to automobile assemblers who produce cars for export, such as (1) exemption from import duties of auto parts and (2) exemption from corporate income tax of export for 8 years. Moreover, the government plans to lower the import duty on raw materials used in the manufacture of auto parts.

Because of Thailand's large domestic market size, the US Big Three auto assemblers planned to establish production bases here. In 1995, Chrysler Corporation

announced a plan to establish a plant for the production of Jeep Cherokees with the capacity of 2500 units per year. In the same year, Ford announced a plan to invest $ 470 millions for production of pickups with the capacity of 135,000 units per year, in cooperation with Mazda. Their production will begin in 1998 (Table 5.2).

In June, 1996, General Motors decided to invest $ 750 millions for production line with capacity 80,000-100,000 units per year at Rayong Industrial Estate, Thailand 's Eastern Seaboard. Its production will begin in June, 1998, with a number of BOI incentives such as (1) exemption from corporate income tax for export for 8 years, (2) $15 million support for the General Motors University, (3) exemption from the local content requirements for all assemblers in June, 1998, and so on.

In addition, the US auto parts makers have started to establish production bases in Thailand as well. For example, Dana Corporation, the US second largest auto parts makers began to produce propeller shafts for Nissan pickups in 1995.

3. The Current Government Policies

Currently, the automobile industry policy of Thai government is to protect domestic industry with high tariff rate. Moreover, the government has attempted to force automobile assemblers to source local parts in order to develop local auto parts industry and stimulate a transfer of technology.

3.1 Tariff Schedule and Excise Tax (Table 2)

The existing tariff schedules have been applied since July 1991. Currently, import tariff on small CBU passenger car (less than 2400 cc.) is 42 percent, large CBU passenger car 68.5 percent, light trucks 60 percent, and heavy trucks 40 percent. On the other hand, most CKD cars are imposed with 20 percent import tariff.

For the excise tax, both CKD and CBU passenger cars and double cab light trucks are imposed the same rates: 32.5 percent for cars with engines less than 2400 c.c., 38 percent for cars with engines 2400-3000 c.c., and 45 percent for cars with

engines bigger than 3000 c.c. To promote the production of pickups, the government does not impose an excise tax on them.

3.2 Local Content Requirement (Table 3)

The local content requirement became effective in 1974. The Automobile Industry Development Committee (AIDC) assigned point values to each type of part. The sum of points for 294 auto parts (including assembling process) is 100 points.

The minimum local content for all passenger cars has been at 54 points since 1987. The minimum local content for petrol pickups is at 60 points, diesel pickups at 72 points, and large trucks at 45 points. In addition, the local content requirement for a cab chassis is at 50 points, a windshield chassis at 62 points, and a bare chassis at 45 points.

To promote the production of engines, the AIDC requires assemblers to use locally produced engines for all pickups. Moreover, there is the local content requirement for diesel engines produced by companies with BOI privileges. Its minimum local content was 20 percent in 1989, and would be increased to 70 percent by June 1996. In addition, the local content requirement includes five compulsory parts, i.e., cylinder heads, cylinder blocks, camshafts, crankshafts, and connecting rods.

To implement the local content requirements, the Ministry of Industry allows the assemblers to import CKD kits of specific parts for specific models. The composition of each CKD unit is based on the assemblers' requests which conform to the local content requirements. Then, the Customs Department will impose 20 percent import tariff on these specific CKD kits.

The local content requirements have stimulated investment in local auto parts industry. The number of firms in the auto parts industry has increased rapidly. However, it is expected that Thailand will abandon all local content regulations by 2000, to comply with GATT regulations.

During the 1980s, the AIDC banned the establishment of new plants for passenger cars, and restricted the number of car models assembled locally in order to

achieve economies of scale. However, the regulations were abandoned in July 1991. The import ban of CBU large passenger cars also was abandoned in 1991.

3.3 Export Promotion Policy

The government has generally provided refund for import duty and VAT (Value added tax) on inputs used for export, or exemption from import duties of inputs and from corporate income tax of export for 8 years under the BOT scheme. Several government agencies have been involved in these concessions: the Board of Investment, the Ministry of Finance, and the Industrial Estate Authority of Thailand. These concessions have been provided for every industry, including the automobile industry.

4. The Present State of Development of the Industry

4.1 Production and Product Mix

The domestic automobile production increased rapidly since the latter half of the 1980s. The average growth rate of all cars production was 17 percent per year during the period of 1992-1995. In 1995, 525,636 vehicles were domestically assembled. They were 92 percent of total automobile sale in Thailand.

In 1995, 398,438 out of the 525,636 domestic assembled vehicles were commercial cars (Table 6). One-ton pickup has the largest share in both sale and production. In 1995, the production of one-ton pickup and smaller pickup were about 66 percent of total vehicle production in Thailand. Its average growth rate was 23 percent per year during the period of 1992-1995. This is because of high demand for the multi-purposed cars in the provincial areas and relatively low price of pickups, partly due to no excise tax.

The production of passenger cars was about 24 percent of the total vehicle production in Thailand. The production of passenger cars reached the peak of 144,449 in 1993. It decreased by 24 percent in 1994, because of a large stock of inventory from previous year and the decrease in demand for taxi. However, in 1995, the production increased by 15.8 percent, to 127,198 units of passenger cars.

Currently, the domestic automobile production slows down due to the slowdown in domestic sale. In 1996, the domestic automobile production increased by 6.4 percent. 75.2 percent of the domestic production were commercial cars and 24.8 percent were passenger cars (Table 6).

4.2 Industrial Structure

4.2.1 Auto Assembly Industrial Structure

Most of the cars in the domestic market are Japanese made. Japanese makers, namely, Toyota, Isuzu, Mitsubishi, Nissan and Honda had their share in the domestic market over 80 percent. Although the market shares of European and Korean vehicles have increased, they are still small. Toyota captured the largest share of passenger car market, about 28.9 percent in 1995. It also has the highest share in commercial car market, about 29.2 percent. In the domestic market of both passenger and commercial cars, Toyota has a share of 29.1 percent in 1995 (Table 11).

The concentration ratios of the Thai automobile industry are shown in Table 12. The top four company concentration ratio (CR4) of passenger cars was 75.7 percent in 1992, but decreased to 65.1 in 1995. In 1995, the top four of the passenger cars were Toyota (28.9%), Honda (16.8 %), Mitsubishi (11 %), and Nissan (8.4 %).

For commercial cars, CR4 was 86.70 percent in 1992, and gradually increased to 88.3 and 88.0 percent in 1994 and 1995, respectively. The top four of commercial cars in the 1995 domestic market were Toyota (29.2%), Isuzu (27.5%), Nissan (18.2%), and Mitsubishi (13.1%).

It is clear that the structure of Thai automobile industry is highly concentrated, particularly the commercial vehicle market, although the concentration ratio of the overall market has gradually declined. At present, Japanese assemblers are major players in Thailand's automobile industry. For example, in the first half of 1997, 92.1 percent of domestic sale are Japanese cars (Table 11.)

4.2.2 Auto Parts Industrial Structure

Auto parts industry consists of many industrial sub-sectors and processes such as metal working, rubber products, and electrical equipments. However, in terms of market, the auto parts producers can be divided into Original Equipment Manufacturing (OEM) companies and Replacement Equipment Manufacturing (REM) companies. Currently, there are 150 companies for OEM market and 200-250 companies for REM market (Higashi, 1995).

According to the estimation of JICA (1995), there were 374 auto parts firms in Thailand. 40 percent of them or 148 firms are primary suppliers. 30 percent of them or 124 firms are secondary or more down-stream suppliers, some of this group produce only OEM products, some produce both OEM and REM products. 76 firms or 20 percent of auto parts firms are REM suppliers. And 26 firms or 7 percent of auto parts firms are export-oriented suppliers.

Due to the small number of qualified auto parts firms, some firms have received orders from multiple assemblers. The majority of these firms have been members of more than one Japanese assembler's Cooperation clubs. Higashi (1995) pointed out that this was because the auto parts firms produce small amounts with many varieties. In addition, assemblers tend to purchase specific items from 2-3 suppliers in order to get auto parts with good quality, competitive prices and delivery certainty.

5. Performance

5.1 Growth in Production, Productivity, and Trade

The domestic automobile production has increased rapidly since the latter half of the 1980s. The average growth rate of all cars production was 17 percent per year during the period of 1992-1995. The average growth rates of commercial cars and passenger cars production were 18.3 percent and 16.3 percent, respectively in the same period.

Generally, the productivity of the automobile industry in Thailand has improved. Its value added per worker has increased. Specifically, the value added per worker at 1972 price of the automotive assembly industry increased from 173,300 baht per person in 1985, to 591,400 baht per person in 1990 (Table 8). Unfortunately, the updated data are not available.

According to JICA (1995)'s assessment of parts industries by process, Thailand have grade B^+ for die-casting, B^- for die-forging and foundry, grade C^+ for press work and rubber processing, grade C for plastic processing, and grade C^+ for the whole of parts industries. Grade B is for products on the upper to top level of technology in the ASEAN, and supplied as OEM parts. Grade C is for products on the middle level of technology in the ASEAN and supplied only for domestic market.

For the diesel engine, a major local producer claimed that its products can compete with the C.I.F. price of the imported CBU engine.

To study the comparative advantage of Thailand's overall automobile industry, Ratchani (1996) found that its ratio of Domestic Resource Cost (DRC) to Shadow Exchange Rate (SER) was about 1.1 in 1990, based on the 1990 Input-output Table of NESDB. In addition, based on secondary data of 1994, she found that the ratio of DRC to SER were 1.4 for the production of passenger cars, and 1.0 for pickups. However, based on her 1995 survey data, she found that the ratio of DRC to SER was 0.7-0.8 for pickups. She concluded that Thailand had a comparative advantage in the production of pickups. But it did not have a comparative advantage in the production of passenger cars yet.

Due to economic growth, the domestic sale of automobiles has grown faster than the growth of production. Thus, the value of imported cars, including CBU and CKD cars, has rapidly increased, especially after the 1991 liberalization of the automobile industry. Its average annual growth rate was 48.5 percent during the period of 1991-1994. Specifically, the quantity of imported new passenger cars increased 1,119 percent in 1992, 102 percent in 1993, and 22.3 percent in 1994.

On the other hand, the value of automotive export is small. In 1994, the export was only 13 percent of the value of automotive import. Moreover, the growth of export was slower than the growths of import and production.

However, due to economic slowdown and the tight monetary policy, the domestic sales of automobile decreased by 14.5 percent in the first half of 1997 (Table 10). Moreover, due to baht depreciation since July 2, 1997, new and 10 percent VAT (Value added tax) rate since August 16, 1997, and further economic slowdown, the domestic sales are expected to drop sharply in the second half of 1997. Meanwhile, the automobile exports, both automobile and auto parts, increased significantly in 1997 (Table 13) due to domestic excess supply and bath depreciation. In addition, the producers received VAT refund from the exports.

5.2 Factors Affecting the Production Growth and Trade

Major factors which have impacts on the production and trade of the automobile industry are as follows:

a) Government Policies

As discussed in section 3, the automobile assembly industry has been highly protected, especially by high tariff rates. Moreover, the BOI has granted several privileges to promote investment and export, such as tax holidays on imported machinery, imported raw materials, and corporate income tax for a certain period.

Particularly, the production and market of pickups have been encouraged by the government policy. Today, pickups has the largest share in the domestic market, partly due to the exemption from excise tax. Thailand is already the second largest market for pickups in the world, after the US (BOI, 1995).

For the auto parts industry, the government has imposed local content requirements to promote it. Prapapan (1993) found that the local content requirements induced auto parts makers to produce more OEM parts than REM parts.

b) Economic Growth

Thai economy has expanded rapidly since 1987. The average annual growth rate of GDP was over 8 percent during the period of 1990-1995. Thus, the purchasing power of consumers have increased drastically. The domestic demand (or sales) increased from 86,178 vehicles in 1985 to 304,062 in 1990 and 571,580 in 1995.

In addition, the growing domestic demand and shortage of supply in the automobile market partly forced the Thai government to liberalize the Thai automobile industry in 1991. As a consequence, the liberalization stimulated the growth of the industry further.

On the contrary, the economic slowdown in 1996-1997 has been a negative factor for the Thai automobile industry.

c) Appreciation of the Yen in the Second Half of 1980s

During the second half of 1980s, the appreciation of the yen, or the depreciation of the baht which mainly was based on the U.S. dollar, rapidly increased foreign direct investment (FDI) in Thailand, especially FDI from Japan and newly industrialized countries. These FDI were distributed to many sectors including automobile assembly, auto parts, and supporting industries. As a result, these industries grew rapidly during the period.

5.3 Factors Affecting Productivity

Generally, the productivity of automobile assembly and parts industries has improved. The value added per workers of the automobile industry has increased as shown in Table 8. The key factors contributing to the increased productivity of the automobile industry include:

a) Market Size and Economy of Scale

According to White (1982), the production of 200,000-250,000 vehicles per year is the minimum volume for each model's efficient production. The cost of production decreases by 17 percent, as the volume of production increases from 300,000 to 1,200,000. This is the result of economy of scale.

In 1995, the total domestic sales was 571,580 vehicles, composing of 163,371 passenger cars and 408,209 commercial cars. The total domestic production was 525,636 vehicles, they were 127,198 passenger cars and 398,438 commercial cars. Meanwhile, there are 15 automotive assemblers and over 20 different brand names. Most assemblers in Thailand produces less than 100,000 vehicles per year for each model.

The assembly of one-ton pickups has the largest volume. Perhaps only the pickup production of Toyota, Hilux, reached 100,000 units per year.

As the domestic production has expanded, the productivity of automobile assembly has improved. However, the production volume is still too small to take full advantage from the economy of scale.

b) Government Policy

The government policies are mainly to promote the investment and to protect the industry. There is no specific policy for improving the productivity of the industry.

However, the 1991 liberalization policy has increased the competition from international manufactures. Moreover, the government signed the AFTA agreement in 1992, and the Uruguay Round of the GATT in 1993. Thus, the government has to abandon the local content requirements within the year 2000. These policies stimulate the competition and improvement of the productivity.

c) Labor

Thailand has abundant labor, especially unskilled labor. The minimum wage rate, 157 Baht per day in 1996, is relatively low. However, the industry currently has shortage of engineers, technicians, and skilled labors. The industry needs several thousands more of engineers, technicians and skilled labors.

In order to ease the shortage of skilled labor, some auto assemblers have contributed to some local institutes to develop human resources for this industry. For example, Isuzu has contributed to Thammasat University. Recently, General Motors plans to establish GM university for its training program. The government agreed to give a $ 15 millions.support to the GM university

For the auto parts industry, Thailand has a comparative advantage in the production of labor intensive products, such as radiator, leaf spring and wiring harness. Prapapan (1993) found that these labor intensive auto parts industries had a higher capability in export than the capital intensive one. Specifically, for wiring harness, Thai Arrow Products Co. Ltd. has exported 75 percent of its products to the US and Europe.

6. Major Problems of the Industry

6.1 The Government Policy

a) There is some uncertainty in the government policy. Although, the main direction of the government policies has been to liberalize trade and investment of this industry since 1991. For example, the government recently agreed with General Motors, an American auto assembler, to abandon local content requirements for all assemblers in June 1998, 18 months ahead of the previous schedule under the Uruguay Round agreement. Those existing assemblers, who planned the investment and production based on the assumption that the local content requirement would be abandoned in 2000, have to revise their plans.

b) The government policy has been biased toward the production and sale of pickups by exempting excise tax. The reason may be because the pickup, multipurpose cars, are popular in provincial areas. The government thus wants to keep the price of pickups low for political reasons.

c) The government still protects the automobile industry with high tariff rates. The domestic industry is still not efficient enough to compete with imported cars. Thai consumers continue to take the burden from the protection.

6.2 Supporting Industry

BOI (1995) pointed out that the supporting industries, including metal working, electronics and machine tools, were less developed than the assembly and auto parts industry. Thailand's supporting industries need technological assistance. The forging and casting facilities are not sufficient to meet demand.

The small size of Thai market, the inequitable tariff structure, poor services of public technical institutions, and the insufficient support from auto assembly firms were cited as reasons for the under-development of the Thai supporting industry.

6.3 Shortage of Engineers

As above discussions, the Thai automobile industry needs several thousands more of experienced engineers, technicians, and skilled labor. However, due to the economic slowdown in 1996-1997, the demand for experienced engineers, technicians and skilled labor is expected to decrease slightly.

7. Responses of Firms to Internationalization

7.1 ASEAN Agreements

The ASEAN automobile market has grown rapidly. Both automobile production and sales in ASEAN expanded with an annual average growth rate of 14 percent during the period of 1985-1995 (Table 18). It is expected that the ASEAN automobile production will be 2,259,000 units and the sales will be 2,096,500 units in the year 2000.

The ASEAN countries have attempted to integrate ASEAN automobile industry. However, most assemblers did not take account of the CEPT scheme in their planning because automobile is still on the sensitive industry list. Each ASEAN country still wants to have its own automotive industry. Two of them, Malaysia and Indonesia have their national cars. Thus, the ASEAN countries protect their automotive industry by imposing high tariff rates on CBU cars.

To promote an intra-ASEAN trade of auto parts, ASEAN has the Brand to Brand Complement scheme (BBC). The scheme assigned specific parts production to different ASEAN countries to exploit comparative advantages and develop economies of scale. It allowed assemblers in each of the participating countries receiving local content accreditation and a 50 percent reduction in the import duty for imported components from ASEAN countries. Unfortunately, only Thailand, Malaysia and the Philippines have participated in the scheme. Toyota, Honda, Mitsubishi, Nissan, and Volvo started to trade under this scheme in 1992. But the Thai Customs Department began to implement the scheme only in 1994. Currently, Toyota (Thailand) imports steering linkages and shock absorbers from Malaysia and transmissions (Hilux) from the Philippines. Meanwhile, it exports press parts (Corolla floor panels) to the Philippines, and diesel engines (Hilux) to Malaysia and the Philippines(Table 19).

However, the BBC has some limitations. For example, the buyers must be the brand owner or the original equipment manufacturer. The automobile firms have to specify the model and series number when applying for the scheme. This scheme includes only the exchange of auto parts, not CBUs. Thus, the ASEAN agreed to have a new scheme, the ASEAN Industrial Co-operation Scheme in April, 1996. After the ASEAN Industrial Co-operation scheme (AICO) was signed in 1996, there is no more new approval under the BBC scheme. AICO will provide following privileges: (1) 0-5 percent import duty rates immediately, (2) local content accreditation, and (3) no restriction on the export of the AICO products for the participating countries. It is expected that this scheme will enhance intra-ASEAN trades of vehicles and auto parts. However, Noppadol (1996) noted that due to the similarity of the economic structure and "national car" projects, each ASEAN country had a policy which favors domestic sourcing rather than within the ASEAN sourcing. The policy tends to limit intra-ASEAN trade of auto parts.

Moreover, as the cooperation among the ASEAN countries increases, several assemblers have designed the ASEAN cars for the ASEAN market. For example, Toyota designed the Soluna model or AFC (Affordable Family car) as an ASEAN car. Honda designed and produced Honda City cars for this market in 1996.

7.2 TRIMs Agreement: Local Content Requirements

Under the Uruguay Round agreement, the Thai government will abandon the local content requirements in 2000. However, the government recently agreed with an American assembler, General Motors, to abandon the local content requirement of the automotive assembly in June 1998, 18 months ahead of the previous schedule. On the other hand, the existing Japanese assemblers disagreed with the plan to abandon the local content requirements ahead of the previous schedule because they made their plans based on the previous schedule, and the American assembler can compete against them easier under the new plan.

It is expected that the Thai auto parts industry will expand faster after the projects of GM and Ford begin to operate. This is owing to (1) the increase in automotive assembly firms induces more demand for auto parts, (2) Thailand's tariff structure is generally favored for local auto parts, and (3) the transportation of large auto parts, such as large plastic parts, are costly and easily to be damaged. Meanwhile, due to the abandon of local content requirements, the competition in the auto parts industry will generally increase. The domestic auto parts makers have to improve the efficiency of production in order to supply the products with good quality, competitive price, and delivery certainty. Some auto parts firms whose products can not compete against imported parts may have to shut down.

8. Concluding Remarks

Some concluding remarks on the Thai automobile industry can be drawn as follows:

(a) The Thai automotive industry has expanded rapidly since the latter half of the 1980s. Its success is due to the automotive industry development policy of government, relatively big and increasing domestic demand, relatively low labor cost and the appreciation of the yen, and an expansion of the auto parts industry.

The Thai government has protected the automobile industry with high tariff rates. The differential tariff rates between CBU cars and CKD cars have induced the

expansion of domestic auto assemblies. Moreover, the government has attempted to develop local auto parts industry by imposing local content requirement on auto assemblies. These policies have been a key factor for the development of the Thai automobile industry.

Due to the economic growth during 1987-1995, Thailand's good network of paved rural roads and a poor mass transit system in Bangkok (Nipon, 1996), the domestic automobile demand has significantly increased, especially during the period of 1992-1995. The Thai domestic automobile sale is the largest one in ASEAN. Thailand's relatively big and increasing domestic demand has been a key factor for being a regional production base of the automobile industry.

The appreciation of the yen after Plaza Accord in 1985 and Thailand's relatively low labor cost were major factors for Japanese investment in Thailand, especially during the end of 1980s and the first half of 1990s. Japanese automobile and auto parts firms increased significantly the investment in Thailand during the period.

Nipon (1996) argued that the Thai auto parts firms were the best developed in ASEAN which influenced the GM's decision to locate its assembly plant in Thailand. He pointed out that Thailand's local content requirement measures provided a certain market for the local auto parts firms. Due to the extensive negotiations between the government officials, the assemblers and local auto parts firms, the Thai local content program is relatively flexible, it allowed local auto parts firms to begin with the labor-intensive and raw material-intensive parts and move to major parts such as brake drum and diesel engine. The success of the local content program was partly due to the political influence of the local parts firms, such as Siam Nawaloha Foundry, a subsidiary of the Siam Cement group, and their association, the Thai Automotive Parts Manufactures Association.

(b) With the largest domestic market and production in ASEAN, the productivity of Thailand's automobile industry has improved significantly, especially with the production of pickups and auto parts. The success in the productivity improvement has been a reason for the expansion of production and export of this industry, vice versa.

For the parts industry, JICA (1995) ranked the products of die-casting, die-forging and foundry in Thailand as the products on the upper to top level of technology in the ASEAN, and the products of presswork, rubber processing, and plastic processing as the ones on the middle level of technology in the ASEAN.

In 1997, the Thai automobile industry had a big change, the export of vehicles and auto parts increased dramatically. It is partly due to the slowdown in the domestic sale and the big expansion of automobile assembly. In addition, some producers have planned to use Thailand as a production base for export.

(c) The ASEAN Cooperation on Automotive Industry

Each ASEAN Country (except Brunei) wants to have its own automotive industry, both assembly and auto parts production. Two ASEAN countries have their national car programs. Therefore, the ASEAN countries protect the automotive industry with high tariff rates. In addition, the automobile is still on the sensitive industry list having high tariff rates under the CEPT scheme (Table 17). As a result, most assemblers did not take account of the CEPT scheme in their planning. It seems that ASEAN Free Trade Agreement does not have much impact on the intra- ASEAN trade of CBU cars.

With the BBC scheme and the AICO scheme, it is expected that the intra-ASEAN trade of auto parts will increase. Currently, there are some networks of automotive production in ASEAN (Table 19) due to these schemes. However, each ASEAN country has a policy which favors domestic sourcing and tends to limit intra-ASEAN trade of autoparts. It seems that some policies of ASEAN countries hinders the development of networks of automotive production.

With the possibility of further economic integration in ASEAN, the ASEAN Free Trade Area will provide a better market opportunity in the near future for automobile industry. If ASEAN can include all automobile and auto parts items into the CEPT tariff reduction program, the intra-ASEAN of automobile and auto parts will expand significantly, and the ASEAN automotive industry will be more competitive in the world market.

(d) Technology Transfer

All auto assemblers in Thailand are multinational companies (MNCs) or their joint-ventures. Most of them are Japanese MNCs. All of them are reluctant to transfer technology to local partners. However, due to local content requirements, those MNCs have transferred partly technology to local auto parts firms. It seems that local firms have more opportunities in the auto parts industry.

It is important that the government can encourage or pressure the MNCs to transfer technology to local firms, especially local auto parts firms, and to contribute to the local universities in engineer study. The government need a comprehensive plan to deal with the technology transfer.

(e) Consumers' Burden

The automobile industry has been protected with high tariff and non-tariff measures over last four decades. Thai consumers have to bear a heavy burden during the period, although the domestic prices of automobile have declined since the 1991 liberalization.

At present, the Thai automobile industry have expand rapidly. The auto assemblers have planned to produce for export. Moreover, the productivity of the industry have increased over time. Thus, the government should consider to lower the protection further in order to increase the competition and to decrease the burden of consumers.

Table 1 Summary of Major Automobile Industry Policies

Year	Policies
1960	The 1960 Industrial Promotion Act which provided incentives for the automotive assembly plants.
1962	The 1962 Industrial Promotion Act which granted privileges, especially 50 percent reduction in tariffs and business taxes on CKD kits.
1970	Tariffs were increased. Tariffs on CBU passenger cars 80 percent, CBU pickups 60 percent, CBU trucks 40 percent, CKD passenger cars 50 percent, CKD pickups 40 percent, and CKD trucks 20 percent.
1974	The local content requirements became effective.
1978	(1) Import ban on small CBU cars (below 2300 cc.). (2) Tariffs were increased. Tariffs on CBU passenger cars 150 percent, CKD passenger car 80 percent.
1987	The local content requirements were set at 54 percent for passenger cars, 45 percent for large and medium trucks, and 60 percent for petrol pickups, and 72 percent for diesel pickups.
1991	(1) The import ban of small cars was abandoned. (2) Tariffs were decreased. Tariffs on large CBU passenger cars (over 2300 cc.) 100 percent, small CBU passenger cars and CBU pickups 60 percent, CBU large and medium trucks 40 percent, CBU chasis with engine 30 percent, CKD kits of all cars 20 percent, and CKD chasis with engine 10 percent. (3) The restriction of the number of car models was abandoned.
1995	The Ministry of Industry announced " The Automobile Industry Export Promotion Project" for the period of 1996-2000.

Table 2 Vehicle Taxation Schedule

		Chesis with engine Chesis with windshield						Heavy trucks, special purpose trucks w/cab & complete		Light truck w/cab & complete GVW<4 tons		Double cab light trucks				Passenger car (various types ≤ 10 seats)					
Tariff No.		CKD					CBU	CKD	CBU	CKD	CBU	CKD			CBU						
		87.06					87.06	87.04 87.05	87.04 87.05	87.04	87.04	87.04			87.04			87.02			87.02
Import Duty		* Large Truck	** SP	*** P-up	**** Passenger Car		ALL												≤2400	>2400	>3000
Surcharge		10% -	20% -	20% -	20% -		30% -	20% -	40% -	20% -	60% -	20% -			60% -			20% -	42% -	68.50% -	68.50% -
Total Import Duty		10%	20%	20%	20%		30%	20%	40%	20%	60%	20%			60%			20%	42%	68.50%	68.50%
Upon Import	Excise Tax	-	-	-	-		-	-	-	-	-	-			≤2400 32.50%	>2400 38%	>3000 45%	-	32.50%	38%	45%
	VAT	10%	10%	10%	10%		10%	10%	10%	10%	10%	10%			10%			10%	10%	10%	10%
Upon Sale	Excise Tax	-	-	-	≤2400 32.50%	>2400 38%	>3000 45%	-	-	-	-	≤2400 32.50%	>2400 38%	>3000 45%	-			≤2400 32.50%	>2400 38%	>3000 45%	-	-	-
	VAT	10%	10%	10%	10%		10%	10%	10%	10%	10%	10%			10%			10%	10%	10%	10%

Remarks :

Import Duty = (C.I.F. price x import duty rate)
Excise Tax = (Landed price x excise tax rate)
Interior Tax = {Landed price x excise tax rate x ([0.1] x excise tax rate}
VAT = {Landed price x excise tax rate x ([0.1] x excise tax rate} x 10%
New VAT rate has been implemented since August 16, 1997.

* = Included heavy trucks, buses, glass vans, and truck tractors
** = Special purpose trucks
*** = Includes pick-ups, blind vans, jeeps, station wagons, and double cab pick-ups
**** = Includes passenger cars and other vehicles

Table 2 Vehicle Taxation Schedule(Continued)

		Chesis with engine Chesis with windshield								Blind Van		Jeep & Station Wagon				Off-Road			Bus		Truck Tractor	
Tariff No.		CKD				CBU				CKD	CBU	CKD	CBU			CKD	CBU		CKD	CBU	CKD	CBU
		87.02				87.02				87.04	87.04	87.03	87.03						87.02	87.02	87.01	87.01
Import Duty		10 Seats			>10S	10 Seats			>10S				≤2400	>2400	>3000		≤2400	>2400				
		20%			20%	40%			40%	20%	60%	20%	42%	68.50%	68.50%	20%	42%	68.50%	20%	40%	30%	30%
Surcharge		-			-	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		20%			20%	40%			40%	20%	60%	20%	42%	68.50%	68.50%	20%	42%	68.50%	20%	40%	30%	30%
Raw material (Import)	Excise Tax	-			-	≤2400 32.50%	>2400 38%	>3000 45%	-	-	-	-	32.50%	38%	45%	-	27%	27%	-	-	-	-
	VAT	10%			10%	10%			10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
After assembly (Sale)	Excise Tax	≤2400 32.50%	>2400 38%	>3000 45%	-	-			-	-	-	-	-	-	-	27%	-	-	-	-	-	-
	VAT	10%	10%	10%	10%	10%			10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

Source : *BOI(1995).*

Table 3 Local Content Requirements, 1994.

Vehicle Type	Points Requiement
Passenger Cars	54
Pick-Up Trucks	
Petrol	60
Diesel	72
Large Trucks	45

Local Content Assignment for Passenger Cars By Major Groups of Components/Parts

Group of Components	# of Sub-Groups	# of components	Assigned Points
Base Engine	5	31	15.3
Ancillary Engine Components	7	29	7
Electrical Components	3	16	4
Wiring System	2	6	2
Exhaust System	3	4	2
Fuel System	3	7	2
General Components	2	4	10
Panels & Soft Trim	4	24	4.25
Seats	3	5	5
Glass	2	5	2.5
Lamps	3	6	1
Suspension System	2	9	3.5
Brake System	7	27	3.1
Clutch	3	10	1.9
Body Parts	7	41	23
Other Body Parts	2	5	1.45
Transmission	4	22	4.3
Steering System	6	11	2.95
Final Drive	4	20	3.75
Instrument Panel	2	12	1
TOTAL	**74**	**294**	**100**

Source : *BOI(1995).*

Table 4 Summary of Automotive Assemblers in Thailand

Assembler	Started assembly	Passenger car	Commercial car
1. Anglo Thai Motor	1961	Anglia, Consule, Cortina	Tames
2. Thonburi Panich	1961		Mercedes-Benz
3. Kannasoot General Assembly	1962	Fiat, Ford	Land Rover
4. Siam Motors & Nissan	1963	Datsun, Nissan	van & pick-up truck
5. Thon Buri Automotive Assembly	1963	Benz	bus
6. Toyota Motor Thailand	1964		van & pick-up truck
7. Toyota Motor Thailand	1975	Toyota	
8. Sahapattana Motor	1966	Mitsubishi	
9. Prince Motor Thailand	1965	Alpha, Subaru	Datsun, Nissan
10. Isuzu Motor (Thailand)	1966		bus & truck
11. Thai Hino Industry	1966		bus & truck
12. MMC Sittipol	1966	Mitsubishi	Mitsubishi
13. Amulkamated Engineering	1968		truck
14. Thai Pradit Motor Assembly	1968		Universal
15. Nai Lert	1968		bus
16. Banchan General Assembly	1972	Folk, Opel, Ostin, Suzuki	Daihatsu
17. Thai Rung Union Cars	1973		Isuzu
18. YMC Assembly	1975	BMW, Citroen, Peugeot, Lancia	
19. Sukosol & Mazda Motor Industry	1975	Masda	Masda
20. Thai Swedish Assembly	1976	Volvo, Renault	Volvo
21. Siam Motor Industry	1977		Datsun, Nissan
22. Siam Fuji Car	1980		Nissan
23. Siam General Assembly	1980		Nissan
24. Honda Car Manuf. Assembly	1993		Honda

Note : * = have been terminated

Source : *1. Automotive Industry Section, Thai Industry Association*

2. Industrial Economic Study Division, Ministry of Industry in Thailand

Table 5.1 Existing Automotive Assemblers in Thailand (1995)

Assembly	Started Assembly	Capacity(Units/year)	Category	Maker
1. Bangchan General Assembly	1972	43,200	P,PU	Honda,Hyundai,Daihutzu,Holden, Opel
2. Honda Cars (Thailand)	1993	15,000	P	Honda
3. Isuzu Engine Manufacture (Thailand)	1966	100,000	PU,B	Isuzu
4. MMC Sittipol	1966	100,000	P,PU,T,B	Mitsubishi
5. Motor and Lee Seng	-	200	B	Daewoo
6. Siam Motors & Nissan	1962	48,000	P,PU	Nissan
7. Siam Nissan Automotive	1973	70,000	P,T,B	Nissan
8. Siam V.M.C. Yarn Yon	-	6,000	T	VMC
9. Sukosol & Mazda Motor Industry	1975	29,000	P,PU	Mazda
10. Thai Hino Industry	1967	21,600	T,B	Hino
11. Thai Rung Union Cars	1986	6,500	T,V	TR
12. Thai Swedish Assembly	1976	6,600	P	Volvo,Renault
13. Thonburi Automotive Assembly	1963	3,400	P,B	Benz
14. Toyota Motor Thailand	1964	150,000	P,PU	Toyota
15. YMC Assembly	1973	14,000	P	BMW,Peugeot,Citroen
Total capacity		613,500		

Notes : Abbreviations for category: P=Passenger car; PU=Pick-up truck;
T=Truck; B=Bus; V=Van

Source: *The office of Industrial Economics, Ministry of Industry in Thailand*

Table 5.2 Capacity Expansion

(Number of units)

	Production capacity	Investment	Details
Toyota	240,000 (1998)	8.1 billion bahts (approx. 34 billion yens)	*Expansion of Samrong plant (100,000 ----> 150,000 units)- specialize in Hilux production. *Construction of the new Gateway plant (50,000 units)- specialize in passenger car production.
Honda	60,000 (1998)	10 billion yens	*A new plant established in Ayutthaya. Production at existing Bangchang General Assembly and Honda Cars Thailand plants to be transferred to new plant after start-up (April 1996)
Nissan	120,000 (1997)	Approx. 10 billion yens	*Capacity expansion of existing plants. Installment of painting facillities at Siam Motors & Nissan and press facilities at Siam Nissan Automobile.
Isuzu	20,000 (1998)	Approx. 10 billion yens	*Considering construction of a second plant around 1998
Mitsubishi	230,000 (2000)	7.6 billion bahts (approx. 32 billion yens)	*Will establish a new plant in Leam Chabang to produce one-ton pickup trucks (L200 Strada) for export to Europe, Australia, Japan, etc. Will halt production in Japan and switch to reverse importing from Thailand
Ford-Mazda	135,000 (1998)	Approx. 47 billion yens	*Will establish a new one-ton pickup truck plant in the Eastern Seaboard in the Rayong industrial development zone. Production will be transferred from the existing plant after start-up in 1998. Will halt production of one-ton pickup trucks in Japan and source them from Thailand instead.
GM	100,000 (1998)	US$ 750 million	*Will establish a new passenger car plant in the eastern Seaboard in the Rayong industrail development zone. Production will center on the Opel Astra, and 80% of the annual output will be exported to Southeast Asia, Japan and Australia.
Mercedes Benz	14,000	1.8 billion bahts (7.56 billion yens)	
Total	1,099,000		

Source: *Nipon Poapongsakorn (1996)*

Table 6 The Automobile Production in Thailand

(Units)

CATEGORY	1990	1991	1992	1993	1994	1995	1996
Passenger car							
under1,200 cc.	45	35	-	-	-	1,326	1,852
1,201-1,500 cc.	28,097	33,114	59,110	65,698	56,435	52,285	55,217
1,501-1,800 cc.	16,991	20,929	18,592	52,358	30,019	49,936	54,640
1,801-2,000 cc.	22,669	15,698	20,677	15,269	5,335	5,930	10,995
2,001 cc. up	5,964	7,162	6,186	11,124	18,041	17,721	15,875
Total	73,766	76,938	104,565	144,449	109,830	127,198	138,579
Growth Rate (%)		4.3	35.9	38.1	(24.0)	15.8	8.9
Commercial cars							
Jeep, Micro bus	-	374	1,944	1,770	1,738	1,625	3,639
Bus							
10 tons	-	-	-	418	255	56	-
10 tons up	593	1,382	1,406	428	891	1,670	609
Truck							
Pick up (<=1 ton)	185,726	180,458	193,894	218,903	287,284	346,790	369,913
under 5 tons	2,353	1,927	1,340	1,630	1,772	1,612	3,775
5-10 tons	10,370	8,707	11,165	12,086	12,087	15,822	14,137
10 tons up	32,035	13,329	13,644	13,177	20,144	30,863	28,776
Total	231,077	206,177	223,393	248,412	324,171	398,438	420,849
Growth Rate (%)		(10.8)	8.4	11.2	30.5	60.4	5.6
Total All Category	304,843	283,115	327,958	419,861	434,001	525,636	559,428
Growth Rate (%)		(7.1)	15.8	28.0	3.4	21.1	6.4

Source: *Federation of Thai Industries.*

Table 7 Ratios of CBU Passenger cars to CKD Passenger cars.

Year	CBU	CKD	CBU:CKD
1961	3,232	310	91:9
1962	3,730	908	80:20
1963	7,279	1,817	80:20
1964	7,200	3,987	64:36
1965	6,507	4,408	60:40
1966	10,086	4,998	67:33
1967	17,105	6,211	73:27
1968	20,689	7,209	74:26
1969	18,266	6,110	75:25
1970	15,224	6,604	70:30
1971	8,991	9,017	50:50
1972	7,248	11,630	38:62
1973	12,780	17,935	42:58
1974	12,363	16,911	42:58
1975	786	15,562	34:66
1976	5,366	15,848	25:75
1977	7,287	18,564	27:72
1978	2,583	21,869	11:89
1979	1,166	21,017	5:95
1980	1,381	23,611	6:94
1981-1990	-	-	-
1991	1,831	76,938	2:98
1992	22,326	104,565	18:82
1993	45,195	144,449	24:76
1994	55,294	109,830	33:67
1995	36,173	127,198	22:78

Source : *1. Siriboon Naothinsuk and Benjarat Noppakhun (1981).*
2. Federation of Thai Industries.
3. BOI(1995).

Table 8 Value Added Per Worker of Automobile Industry in Thailand at 1972 Prices (New Series).

('000 baht /person)

Major Industry Group	1985	1986	1987	1988	1989	1990
Tyres & tubes	147.5	151.7	176.5	206.3	232.3	260.5
Growth Rate(%)	-	2.8	16.3	16.9	12.6	12.1
Assembly of automobiles	173.3	191.0	259.2	436.4	499.0	591.4
Growth Rate(%)	-	10.2	35.7	68.4	14.3	18.5
Mfg. of auto-parts	14.0	11.2	15.6	21.2	33.0	44.3
Growth Rate(%)	-	(19.6)	38.4	36.6	55.5	34.0
Total	101.2	106.4	137.0	207.2	238.1	279.4
Growth Rate(%)	-	5.1	28.8	51.2	14.9	17.4

Source :*NESDB and Department of Industrial Works.*

Table 9 The Accumulated Number of Workers in Automobile Industry of Thailand,at the end of each year.

(persons)

Major Industry Group	1985	1986	1987	1988*	1989	1990	1991	1992	1993	1994
Tyres & tubes	7,121	7,186	7,268	7,337	7,392	7,701	8,181	8,789	9,207	9,537
Assembly of automobiles	11,370	11,662	11,844	12,343	13,158	14,670	15,586	17,209	17,634	18,018
Mfg. of auto-parts	13,161	13,799	14,271	15,183	16,534	18,847	21,269	24,966	25,721	26,354
Total	31,652	32,647	33,383	34,863	37,084	41,218	45,036	50,964	52,562	53,909

Note: The number of worker in 1988 is an averaged number of 1987-1989
Source : *Department of Industrial Works.*

Table 10 Vehicle Sales by Category

(Units)

CATEGORY	1990	1991	1992	1993	1994	1995	1996	1997 (Jan-June)
Passenger car	**65,864**	**66,779**	**121,488**	**174,162**	**155,670**	**163,371**	**172,730**	**87,767**
Growth Rate (%)		1.4	81.9	43.4	(10.6)	4.9	5.7	n.a.
Commercial cars								
Truck								
Pick up (<=1 ton)	167,613	155,366	182,958	224,388	258,094	323,813	327,663	130,936
under 5 tons	n.a.	n.a.	n.a.	2,854	3,172	n.a.	n.a.	n.a.
5-10 tons	16,100	10,870	n.a.	12,722	14,187	n.a.	n.a.	n.a.
10 tons up	29,313	12,812	n.a.	20,139	23,149	n.a.	n.a.	n.a.
Jeep&Van	6,612	7,491	n.a.	10,566	12,431	n.a.	n.a.	n.a.
Buses	833	1,371	n.a.	419	839	n.a.	n.a.	n.a.
Others	17,727	13,871	58,541	11,211	18,241	n.a.	n.a.	n.a.
Total of Commercial cars	238,198	201,781	241,499	282,299	330,113	408,209	416,396	160,418
Growth Rate (%)		(15.3)	19.7	16.9	16.9	23.7	2.0	n.a.
Total All Category	304,062	268,560	362,987	456,461	485,783	571,580	589,126	248,185
Growth Rate (%)		(11.7)	35.2	25.8	6.4	17.7	3.1	(14.5)

Source :*Toyota Motor (Thailand) Co.,Ltd*.

Table 11 Domestic Sale and Market Share

1995

(Units)

Brand name	Passenger vehicles		Commercial vehicles		Total	
	Volumn	Share (%)	Volumn	Share (%)	Volumn	Share (%)
Toyota	47,288	28.9	118,998	29.2	166,286	29.1
Honda	27,439	16.8	-	-	27,439	4.8
Mitsubishi	18,007	11.0	53,419	13.1	71,426	12.5
Nissan	13,653	8.4	74,395	18.2	88,048	15.4
Benz	13,048	8.0	-	-	13,048	2.3
Hundai	7,266	4.4	-	-	7,266	1.3
Volvo	5,385	3.3	-	-	5,385	0.9
Isuzu	-	-	112,370	27.5	112,370	19.7
Mazda	-	-	20,107	4.9	20,107	3.5
Hino	-	-	13,838	3.4	13,838	2.4
Other	31,285	19.1	15,082	3.7	46,367	8.1
Total	163,371	100.0	408,209	100.0	571,580	100.0

1997 (Jan-June)

(Units)

Brand name	Total	
	Volume	Share (%)
Toyota	77,556	31.2
Isuzu	54,084	21.8
Nissan	31,240	12.6
Mitsubishi	25,246	10.2
Honda	23,034	9.3
Mazda	9,216	3.9
Other Japanese	7,839	3.2
Total Japanese cars	228,661	92.1
Hundai	2,201	0.9
Kia	687	0.3
Daewoo	630	0.3
Benz	3,224	1.3
Chrysler	2,416	1.0
Ford	2,129	0.9
Folk	1,991	0.8
Volvo	1,630	0.7
BMW	1,499	0.6
Opel	643	0.3
Other	2,468	1.0
Total of European and Korian cars	19,518	7.9
Grand Total	248,185	100.0

Source :*Toyota Motor (Thailand) Co.,Ltd.*

Table 12 Sale Concentration of the Top Manufacturers

Concentration Ratios	1992	1993	1994	1995
Passenger vehicles				
CR4	75.7	73.5	69.3	65.1
CR5	80.3	79.9	73.9	73.1
Commercial vehicles				
CR4	86.7	87.5	88.3	88.0
CR5	93.2	94.4	93.9	92.9
Total vehicles				
CR4	77.6	74.9	74.7	76.7
CR5	83.3	82.5	81.3	81.5

Source : *Calculated from sales.*

Table 13 Automotive Exports of Thailand

(value : million of baht)

Products	1992	1993	1994	1995	1996	1997 (Jan-June)
1. Passenger car	384.8	662.5	327.5	398.4	257.4	201.5
2. Commercial cars	194.2	829.5	520.7	2,026.1	4,733.6	4,733.9
2.1 Buses	24.3	2.8	4.8	4.6	5.8	0.0
2.2 Jeep and station-wagons	1.1	6.2	3.7	6.1	4.6	1.2
2.3 Dumpers	5.7	127.0	47.8	27.1	48.5	33.8
2.4 Trucks, Van and pick-up and othe	163.1	693.5	464.4	1,988.3	4,674.7	4,698.9
Total of 1-2	**579.0**	**1,492.0**	**848.2**	**2,424.5**	**4,991.0**	**4,935.4**
3. Chassis fitted with engines	0.0	630.9	1.6	3.3	4.9	0.9
4. Bodies (including cabs)	3.6	6.4	11.2	23.8	18.8	5.7
5. Parts and accessories	1,261.8	4,621.4	9,616.1	3,461.5	3,128.5	3,151.2
Total of 3-5	**1,265.4**	**5,258.7**	**9,628.9**	**3,488.6**	**3,152.2**	**3,157.8**
Total 1-5	**1,844.4**	**6,750.7**	**10,477.1**	**5,913.1**	**8,143.2**	**8,093.2**
Growth Rate (%)	-	**266.0**	**55.2**	**(43.6)**	**37.7**	-

Source : *Customs Department.*

Table 14 Automotive Imports of Thailand

(value : million of baht)

Products	1992	1993	1994	1995	1996	1997 (Jan-June)
1. Passenger car	22,669.8	37,445.4	38,694.6	38,441.2	28,322.9	9,399.5
2. Commercial cars	6,384.5	2,970.6	3,764.6	5,013.2	8,895.8	2,731.1
2.1 Buses	433.9	57.8	856.9	811.4	1,713.0	819.0
2.2 Jeep and station-wagons	129.8	267.4	210.7	324.2	909.3	214.0
2.3 Dumpers	14.7	392.0	72.8	458.6	672.5	150.6
2.4 Trucks, Van and pick-up and other	5,806.1	2,253.4	2,624.2	3,419.0	5,601.0	1,547.5
Total of 1-2	**29,054.3**	**40,416.0**	**42,459.2**	**43,454.4**	**37,218.7**	**12,130.6**
3. Chassis fitted with engines	12,987.0	15,331.8	21,804.0	32,826.3	27,453.4	10,343.8
4. Bodies (including cabs)	225.0	228.9	172.2	270.4	375.3	223.5
5. Parts and accessories	13,108.6	23,562.5	27,732.6	42,164.5	49,780.3	21,875.8
Total of 3-5	**26,320.6**	**39,123.2**	**49,708.7**	**81,261.2**	**77,609.0**	**32,443.1**
Total 1-5	**55,374.9**	**79,539.2**	**92,167.9**	**124,715.6**	**114,827.7**	**44,573.7**
Growth Rate (%)	-	**43.6**	**15.9**	**35.3**	**(7.9)**	-

Source : *Customs Department.*

Table15 Imported New Passenger Cars : 1992-1994

Brand	1991 (cars)	1992 (cars)	1993 (cars)	Annualized 1994(cars)	Market Share 1991(%)	Market share 1994(%)
European Cars						
Mercedes Benz	825	5,734	9,038	10,260	45.1	18.6
BMW	62	501	675	122	3.4	0.2
Saab	-	309	711	1,183	0.0	2.1
Audi	-	438	1,405	29	0.0	0.1
Ford	-	250	298	821	0.0	1.5
Citroen	80	109	957	70	4.4	0.1
Peugeot	9	93	4	266	0.5	0.5
Opel	13	174	1,825	492	0.7	0.9
Lotus	3	101	16	34	0.2	0.1
Jaguar	7	82	103	214	0.4	0.4
Renault	-	68	34	2	0.0	0.0
Volkswagen	19	35	88	17	1.0	0.0
Porsche	6	53	26	86	0.3	0.2
Maserati	12	22	9	86	0.7	0.2
Ferrari	6	23	5	17	0.3	0.0
Range Rover	5	77	438	2,052	0.3	3.7
Rolls-Rover	2	8	2	14	0.1	0.0
Daimler	3	22	20	24	0.2	0.0
Chevrolet	3	6	4	2	0.2	0.0
Volvo	-	11	260	425	0.0	0.8
European	5	49	356	679	0.3	1.2
Total European	**1,060**	**8,165**	**16,274**	**16,895**	**57.9**	**30.6**
Japanese Cars						
Toyota	221	1,318	2,658	1,793	12.1	3.2
Nissan	227	1,092	2,051	434	12.4	0.8
Mazda	19	2,437	2,644	4,013	1.0	7.3
Honda	65	351	385	3,977	3.5	7.2
Mitsubishi	14	2,211	5,778	3,302	0.8	6.0
Daihatsu	8	533	1,461	96	0.4	0.2
Ford	7	264	2,004	362	0.4	0.7
Suzuki	2	377	1,214	648	0.1	1.2
Isuzu	-	9	64	734	0.0	1.3
Subaru	-	77	341	1,706	0.0	3.1
Total Japanese	**563**	**8,669**	**18,600**	**17,065**	**30.7**	**30.9**
Korean Cars						
Hyundai	208	5,336	7,619	11,585	11.4	21.0
Daewoo	-	n.a.	1,705	7,140	0.0	12.9
Ford	-	156	997	2,609	0.0	4.7
Total Korean	**208**	**5,492**	**10,321**	**21,334**	**11.4**	**38.6**
Grand Total	**1,831**	**22,326**	**45,195**	**55,294**	**100.0**	**100.0**
Growth Rate (%)	-	**1,119.3**	**102.4**	**22.3**		

Source : *BOI(1995).*

Table 16 Thai Exports of Automotive Parts and Components in 1994

(Total Export and Export to ASEAN)

Unit: Million Baht

HS Code	Description	Total Exports	Indonesia	Malaysia	Phillipines	Singapore
4011.101-007	Radial of a kind used on motor car (including station wagon and racing car)	326.23	1.05	4.79	3.25	18.70
4011.109-008	Other pneumatic tyres,of rubber, of a kind used on motor car (including station wagon and racing car)	452.94	-	39.83	1.41	19.07
7007.110-006	Toughened safety glass, of size and shape suitable for incoporating in vehicles, aircraft, spacecraft, or vessels	21.82	-	1.66	0.03	1.12
7007.210-008	Laminated safety glass, of size and shape suitable for incoporating in vehicles, aircraft, spacecraft, or vessels	49.30	-	25.28	-	8.10
7009.100-006	Rear-view mirrors for vehicles	56.76	0.32	2.49	0.92	0.91
8482.100-006	Ball bearing	4,913.00	0.02	15.22	-	1,028.57
8483.100-001	Transmission shafts(including camshaft and crankshaft) and cranks	73.07	3.13	2.46	-	38.31
8483.400-007	Gears and gearing, other than toothed wheels, chain sprockets and other transmission elements present separately, ball screws,gear boxes and other speed changer including converters	21.70	0.60	2.24	0.10	4.68
8483.500-009	Flywheels and pulleys, including pulley blocks	35.79	0.01	0.29	0.22	0.85
8483.600-101	Clutches	12.83	-	0.34	-	0.22
8483.600-202	Shaft couplings (inciuding universal joints)	45.10	0.09	0.06	4.54	2.70
8507.100-006	Lead-acid electric accumulators of a kind used for stering pision engines	498.32	-	0.17	-	15.29
8511.200-002	Lignition magnetos, magneto-dynamos, magnetic flywheels	115.65	-	-	-	3.21
8511.300-004	Distributors, ignition coils	831.19	-	34.18	0.03	222.65
8511.900-005	Parts of electrical ignition or starting equipment of a kine used for sparking-ignition or compression ignition internal combustion engines	2,032.82	25.80	217.14	-	766.46
8512.200-008	Other lighting or visual signalling equipment of a kind used for cycle or motor vehicles	2,157.78	6.48	133.59	6.84	1,117.22
8512.300-100	Horns and sirens of a kind used for cycles or motor vehicles	180.36	-	3.02	0.50	23.72
8512.400-001	Windscreen wipers, defrosters and demister used forcycle or motor vehicles	103.45	-	0.50	-	99.61
8527.210-003	Radio-broadcast receivers not capable of operating without an external source of power , combined eith sound recording or reproducing apparatus, of a kind used in motor vehicle	67.76	-	-	-	45.00
8539.100-009	Sealed beam lamps units	34.74	-	0.42	-	5.31
8544.300-002	Ignition wiring sets and other wiring sets of a kind used in vehicles, aircraft or ships	6,967.01	39.57	12.70	23.64	109.37
8703.222-002	Passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 1,000 cc but not exceeding 1,500cc	0.60	-	-	-	-
8703.229-007	Other passenger cars, of a cylinder capacity exceeding 1,000 cc. but not exceeding 1,500cc	221.32	-	-	-	0.18
8703.232-003	Passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 1,500 cc but not exceeding 3,000cc	0.43	-	-	-	-
8703.239-008	Other passenger cars, of a cylinder capacity exceeding 1,500 cc. but not exceeding 3,000cc	73.50	-	14.70	-	4.59
8703.242-004	Passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 3,000cc	2.74	-	-	-	-
8703.249-009	Other passenger cars, of a cylinder capacity exceeding 3,000 cc.	12.92	-	1.18	-	1.55
8703.322-004	Passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 1,500 cc but not exceeding 2,500cc	0.24	-	-	-	-
8703.329-009	Other passenger car , of a cylinder capacity exceeding 1,500cc but not exceeding 2,500 cc	1.62	-	-	-	-
8703.339-004	Other passenger car , of a cylinder capacity exceeding 2,500cc	0.58	-	-	-	-
8703.900-000	Other motor cars and vehicles principally designed for the transport of persons (other than those of heading no. 87.02) including station wagon and racing car	10.59	0.50	-	-	4.64
8704.100-001	Dumpers with compression ignition external combustion pision engine (diesel or semi diesel) designed for off highway used	47.75	-	-	-	-
8704.211-000	Van and pickup trucks which G.V.W.not exceeding 5 tons	447.77	-	-	-	-
8704.219-001	Other van and pickup trucks which G.V.W.not exceeding 5 tons	1,297.55	-	-	-	-
8704.220-005	Van and pickup trucks which G.V.W. exceeding 5 tons but not exceeding 20 tonnes	18.94	-	-	-	-
8704.230-006	Van and pickup trucks with sparking ignition external combustion piston engine: G.V.W. exceeding 20 tonnes	26.74	-	-	-	-
8704.311-002	Van and pickup trucks which G.V.W.not exceeding 5 tons	16.63	-	-	-	-
8704.319-003	Other van and pickup trucks which G.V.W.not exceeding 5 tons	0.04	-	-	-	-
8704.901-002	Van and pickup trucks which G.V.W. exceeding 5 tons	0.41	-	-	-	-
8704.909-003	Other van and pickup trucks which G.V.W. exceeding 5 tons	5.57	-	-	-	5.24
8706.000-000	Chassis fitted with engines, bodies (including cabs) for the motor vehicles of headings no.87.01 to 87.05	1.63	0.07	-	-	-
8707.100-008	Chassis fitted with engines and bodies (including cabs) for the motor vehicles of headings no.87.03	2.47	-	-	-	0.87

Table 16 Thai Exports of Automotive Parts and Components in 1994

(Total Export and Export to ASEAN)

Unit: Million Baht

HS Code	Description	Total Exports	Indonesia	Malaysia	Phillipines	Singapore
8707.900.002	Other Chassis fitted with engines and bodies (including cabs) for the motor vehicles of headings no.87.01 to 87.05	8.69	0.11	0.44	0.01	0.84
8708.100-003	Bumpers and parts thereof : other parts and accessories of bodies (including cabs)	20.44	0.10	2.04	0.36	0.38
8708.210-006	Safety seat belts of the motor vehicles of headings no. 87.01 to 87.05	1,187.03	-	-	-	849.50
8708.290-003	Other parts and accessories of the motor vehicles of headings no. 87.01 to 87.05	571.26	-	43.64	35.29	310.92
8708.310-008	Mounted brake linings; brake and servo-brakes and parts thereof	45.39	-	0.10	-	9.30
8708.390-005	Other mounted brake linings	467.96	0.29	9.26	1.03	173.85
8708.400-009	Gear boxes	19.47	14.67	0.27	-	0.46
8708.500-000	Drive-axles with differential, whether or not provided with other transmission component	99.93	-	0.02	0.18	3.35
8708.600-002	Non-driving axles and parts there of	1,352.85	0.03	0.05	-	1,345.98
8708.700-004	Road wheels and parts and accessories there of	165.71	0.08	28.05	0.06	92.40
8708.800-006	Suspensions shock-absorbers	906.62	0.62	2.36	2.33	869.85
8708.910-009	Radiators and other parts and accessories	564.73	0.01	6.51	0.16	8.31
8708.920-004	Silencers and exhaust pipes	12.40	0.06	0.52	-	1.27
8708.930-000	Clutches and parts thereof	3,686.42	-	3.69	2.00	2,185.27
8708.940-001	Steering wheel, steering columns and steering boxes	47.51	-	13.90	-	30.44
8708.990-006	Other parts and accessories	472.36	0.74	91.66	4.02	83.22
9026.200-009	Instruments and apparatus for measuring or checking pressure	159.26	-	-	0.23	13.66
9029.200-106	Speed indicators	30.22	-	5.87	-	-
9401.200-000	Seats of a kind used for motor vehicles	13.32	-	-	-	0.40
	Total	**31,019.23**	**94.35**	**720.65**	**87.14**	**9,527.54**

Source : Thai Customs Department. *Foreign Trade Statistics of Thailand 1994.*

Table 17 Tariff of The Automotive Industry

(%)

HS Code	CEPT Code	Description	Until 31/12/1996	Since 1/1/1997	CEPT
4011.101		radial tyres	32	30	
4011.101-007		radial of a kind used on motor car (including station wagon and racing car)			
4011.109		other tyres	32	30	
4011.109-008		other pneumatic tyres,of rubber, of a kind used on motor car (including station wagon and racing car)			
7007.11		of size and shape suitable for incoporating in vehicles,aircraft, spacecraft or vessels	40	30	
7007.110-006		Toughened safety glass, of size and shape suitable for incoporating in vehicles, aircraft, spacecraft, or vessels			
7007.21		of size and shape suitable for incoporating in vehicles,aircraft, spacecraft or vessels	40	30	
7007.210-008		Laminated safety glass, of size and shape suitable for incoporating in vehicles, aircraft, spacecraft, or vessels			
7009.10		Rear-view mirrors for vehicles	45	30	
7009.100-006		Rear-view mirrors for vehicles			
8482.10		ball bearing	10	10	
8482.100-006	8482.10.000	ball bearing			5
8483.10		others			
8483.100-001	8483.10.091	transmission shafts(including camshaft and crankshaft) and cranks	15	10	5
8483.40		others			
8483.400-007	8483.40.091	gears and gearing, other than toothed wheels, chain sprockets and other transmission elements present separately , ball screws, gear boxes and other speed changer including converters	15	10	5
8483.50		others	10	10	
8483.500-009	8483.50.091	flywheels and pulleys, including pulley blocks			5
8483.60		others	10	10	
8483.600-101	8483.60.099	clutches			10
8483.600-202	8483.60.091	shaft couplings (inciuding universal joints)			5
8507.10		lead-acid electric accumulators of a kind used for starting pision engines	40	20	
8507.100-006	8507.10.000	lead-acid electric accumulators of a kind used for starting pision engines			20
8511.20		lignition magnetos, magneto-dynamos, magnetic flywheels	20	20	
8511.200-002	8511.20.001	lignition magnetos, magneto-dynamos, magnetic flywheels			15
8511.30		distributors, ignition coils	40	20	
8511.300-004	8511.30.000	distributors, ignition coils			15
8511.90		Parts of electrical ignition or starting equipment of a kind used for sparking-ignition or compression ignition internal combustion engines	17	20	
8511.900-005		Parts of electrical ignition or starting equipment of a kind used for sparking-ignition or compression ignition internal combustion engines			
8512.20		other lighting or visual signalling equipment of a kind used for cycles or motor vehicles	20	20	
8512.200-008	8512.20.000	other lighting or visual signalling equipment of a kind used for cycles or motor vehicles			20
8512.30		horns and sirens of a kind used for cycles or motor vehicles	20	20	
8512.300-100	8512.30.001	horns and sirens of a kind used for cycles or motor vehicles			15
8512.40		windscreen wipers, defrosters and demister used for cycles or motor vehicles	20	20	
8512.400-001	8512.40.001	windscreen wipers, defrosters and demister used for cycles or motor vehicles			15

Table 17 Tariff of The Automotive Industry

(%)

HS Code	CEPT Code	Description	Until 31/12/1996	Since 1/1/1997	CEPT
8527.21		combined either sound recording or reproducing apparatus	25	20	
8527.210-003		radio-broadcast receivers not capable of operating without an external source of power , combined either sound recording or reproducing apparatus, of a kind used in motor vehicle			
8539.10		sealed beam lamps units	27	20	
8539.100-009	8539.10.001	sealed beam lamps units			15
8544.30		Ignition wiring sets and other wiring sets of a kind used in vehicles, aircraft or ships	30	20	
8544.300-002	8544.30.000	Ignition wiring sets and other wiring sets of a kind used in vehicles, aircraft or ships			25
8703.222		passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles	42	42	
8703.222-002	8703.22.291	passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 1,000 cc but not exceeding 1,500cc			20
8703.229		others	42	42	
8703.229-007		other passenger cars, of a cylinder capacity exceeding 1,000 cc but not exceeding 1,500cc			
8703.232		of cylinder capacity not exceeding 2,400cc	42	42	
8703.232-003		passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 1,500 cc but not exceeding 3,000cc			
8703.239		of cylinder capacity not exceeding 2,400cc	42	42	
8703.239-008		other passenger cars, of a cylinder capacity exceeding 1,500 cc but not exceeding 3,000cc			
8703.242		passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles	68.5	68.5	
8703.242-004	8703.24.291	passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 3,000cc			20
8703.249		others	68.5	68.5	
8703.249-009		other passenger cars, of a cylinder capacity exceeding 3,000 cc			
8703.322		of cylinder capacity not exceeding 2,400cc	42	42	
8703.322-004	8703.33.291	passenger car of jeep type with either hard or flexible top including station-wagon type, and similar vehicles, of cylinder capacity exceeding 1,500 cc but not exceeding 2,500cc			20
8703.329		of cylinder capacity not exceeding 2,400cc	42	42	
8703.329-009		other passenger car , of a cylinder capacity exceeding 1,500cc but not exceeding 2,500 cc			
8703.339		others	68.5	68.5	
8703.339-004		other passenger car , of a cylinder capacity exceeding 2,500cc			
8703.90		of cylinder capacity not exceeding 2,400cc	68.5	68.5	
8703.900-000		other motor cars and vehicles principally designed for the transport of persons (other than those of heading no. 87.02) including station wagon and racing car			
8704.10		dumpers with compression ignition external combustion pision engine (diesel or semi diesel) designed for off highway used	5	5	
8704.100-001		dumpers with compression ignition external combustion pision engine (diesel or semi diesel) designed for off highway used			
8704.211		van and pickup trucks ,and similar vehicles	60	60	
8704.211-000	8704.21.910	van and pickup trucks which G.V.W.not exceeding 5 tonnes			20
8704.219-001	8704.21.910	other van and pickup trucks which G.V.W.not exceeding 5 tonnes			20
8704.220-005		van and pickup trucks which G.V.W. exceeding			

Table 17 Tariff of The Automotive Industry

(%)

HS Code	CEPT Code	Description	Until 31/12/1996	Since 1/1/1997	CEPT
		5 tonnes but not exceeding 20 tonnes			
8704.230-006	8704.23.099	van and pickup trucks with sparking ignition external combustion piston engine: G.V.W. exceeding 20 tonnes			25
8704.311		van and pickup trucks ,and similar vehicles	60	60	
8704.311-002		van and pickup trucks which G.V.W.not exceeding 5 tonnes			
8704.319-003	8704.31.910	other van and pickup trucks which G.V.W.not exceeding 5 tonnes			20
8704.901		van and pickup trucks ,and similar vehicles	60	60	
8704.901-002		van and pickup trucks which G.V.W. exceeding 5 tonnes			
8704.909-003	8704.90.999	other van and pickup trucks which G.V.W. exceeding 5 tonnes			25
8706.00		Chassis fitted with engines, bodies (including cabs) for the motor vehicles of headings no.87.01 to 87.05	30	30	
8706.000-000		Chassis fitted with engines, bodies (including cabs) for the motor vehicles of headings no.87.01 to 87.05			
8707.100-008		Chassis fitted with engines and bodies (including cabs) for the motor vehicles of headings no.87.03			
8707.900.002		other Chassis fitted with engines and bodies (including cabs) for the motor vehicles of headings no.87.01 to 87.05			
8708.10		Bumpers and parts thereof : other parts and accessories of bodies (including cabs)	35	35	
8708.100-003	8708.10.010	Bumpers and parts thereof : other parts and accessories of bodies (including cabs)			25
8708.21		Safety seat belts of the motor vehicles of headings no. 87.01 to 87.05	35	35	
8708.210-006	8708.21.020	Safety seat belts of the motor vehicles of headings no. 87.01 to 87.05			25
8708.29		Other parts and accessories of the motor vehicles of headings no. 87.01 to 87.05	35	35	
8708.290-003	8708.29.020	Other parts and accessories of the motor vehicles of headings no. 87.01 to 87.05			25
8708.31		Mounted brake linings; brake and servo-brakes and parts thereof	35	35	
8708.310-008	8708.31.020	Mounted brake linings; brake and servo-brakes and parts thereof			25
8708.39		Other mounted brake linings	35	35	
8708.390-005		Other mounted brake linings			
8708.40		Gear boxes	35	35	
8708.400-009	8708.40.020	Gear boxes			25
8708.35		Drive-axles with differential, whether or not provided with other transmission component	35	35	
8708.500-000	8708.50.020	Drive-axles with differential, whether or not provided with other transmission component			25
8708.60		Non-driving axles and parts there of	35	35	
8708.600-002	8708.60.020	Non-driving axles and parts there of			25
8708.70		Road wheels and parts and accessories there of	35	35	
8708.700-004	8708.70.030	Road wheels and parts and accessories there of			25
8708.80		Suspensions shock-absorbers	35	35	
8708.800-006	8708.80.020	Suspensions shock-absorbers			25
8708.91		Radiators and other parts and accessories	35	35	
8708.910-009	8708.91.020	Radiators and other parts and accessories			25
8708.92		Silencers and exhaust pipes	35	35	
8708.920-004	8708.92.020	Silencers and exhaust pipes			25
8708.93		Clutches and parts thereof	35	35	
8708.930-000	8708.94.020	Clutches and parts thereof			25
8708.94		Steering wheel, steering columns and steering boxes	35	35	
8708.940-001	8708.94.020	Steering wheel, steering columns and steering boxes			25
8708.99		Other parts and accessories	35	35	
8708.990-006	8708.99.020	Other parts and accessories			25

Table 17 Tariff of The Automotive Industry

(%)

HS Code	CEPT Code	Description	Until 31/12/1996	Since 1/1/1997	CEPT
9026.20		Instruments and apparatus for measuring or checking prssure	5	5	
9026.200-009	9026.20.000	Instruments and apparatus for measuring or checking prssure			5
9029.20		Speed indicators	10	10	
9029.200-106	9029.20.002	Speed indicators			5
9401.20		seats of a kind used for motor vehicles	40	20	
9401.200-000		seats of a kind used for motor vehicles			

Source : *Thai Customs Department, Finance Ministry*

Table 18.1 ASEAN Automotive Production

(Units,%)

	1985	1990	1993	1995	Annual av. Growth (85-95)	2000*
Indonesia	139,438	270,526	203,588	387,541	10.8	610,000
Malaysia	105,470	191,530	180,407	309,102	11.4	395,000
Thailand	81,790	242,735	419,861	482,793	19.4	964,000
Philippines	7,200	58,808	80,920	124,916	33.0	290,000
Subtotal	333,898	763,649	884,776	1,304,352	14.6	2,259,000
World	42,246,192	50,414,473	48,748,328	51,701,000	1.1	59,176,000

Note : * Forecasts of KERI

Source : *Jong Dae Lee (1996)*

Table 18.2 ASEAN Automotive Sales

(Units,%)

	1985	1990	1993	1995	Annual av. Growth (85-95)	2000*
Indonesia	144,314	275,009	214,295	384,449	10.3	608,000
Malaysia	106,988	186,390	154,401	285,792	10.3	385,000
Thailand	86,178	304,056	456,461	571,580	20.8	785,000
Philippines	6,935	57,865	83,811	128,162	33.9	215,000
Singapore	19,847	35,725	43,109	42,340	7.9	46,000
Brunei	8,300	7,288	7,090	7,000	-1.7	7,500
Vietnam	n.a.	1,530	7,500	13,800	55.3	50,000
Subtotal	372,562	867,863	966,667	1,433,123	14.4	2,096,500
World	40,524,063	46,503,363	44,253,063	47,076,768	1.5	54,766,500

Note : *Forecasts of KERI

Source : *Jong Dae Lee (1996)*

Table 19 Auto Parts Networks in ASEAN

	THAILAND	PHILIPPINES	MALAYSIA	INDONESIA
TOYOTA	• 2,400 cc. diesel engines • floor panels	• transmissions	• steering parts • radiators • shock absorbers	• 1,800 cc. petrol engines
HONDA	• press parts	• intake manifolds	• bumpers • dashboards	• aluminium
MITSUBISHI	• bumpers • intake manifolds	• transmissions	• doors • steering parts	
NISSAN	• engine camshafts • large interior panels • interior plastic trim	• medium-size panel	• steering parts • hoods	

Source : *Chackchai Panichapat (1996)*

Table 20 The List of Interviewee (Oct. 1995-Feb.1996)

A) Automotive Assembly

- President : Honda Cars Manufacturing (Thailand) Co., Ltd.
- Director : Toyota Motor Thailand Co.,Ltd.
- Assistant General Manager Marketing & Planning Division, MMC SITIPOL Co., Ltd. (Mitsubishi)
- Deputy Plant Manager : Isuzu Motors Company (Thailand) Limited.

B) Components

- Manager Director, Goodyear (Thailand) Ltd. (Product : tyre).
- Vice President (Business Development) : Dana Asia Pacific. Managing Director : Spicer Asia Thailand. (Products : drives shaft, propeller shaft).
- General Manager Marketing Division Foreign Trade, and General Manager General Division : Thai Arrow Products Co., Ltd. (Product : wining harness).
- Factory Manager : Thai Vehicle Industry Co., Ltd. (Products : chassis and parts).
- Plant Manager : Thai Engineering Product Co., Ltd. (Products : brake drum, disc brake, etc.)
- Deputy Manager Directors : Siam Toyota Manufacturing Co., Ltd. (Product : diesel engine)

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Appendix

Lists of Appendix

Page

Appendix

A.1 Automobile Assembly Firms

Toyota Motor Thailand Co., Ltd.

Toyota Motor Thailand Co,. Ltd. (TMT), currently the largest automobile assembly firm in Thailand, was established and received the license and incentives for the automobile assembly in 1962. It began to assemble passenger cars with the production 300 Units per month in 1964, and pick-up trucks in 1968.

TMT has held the largest market share since 1969. Its market share was 26% in 1994. In terms of production, It began to operate the second assembly plant in 1975, the third in 1990, and the fourth at the Gateway City Industrial Estate in 1996. Currently, its annual production capacity is 200,000 Units, with 150,000 Units at South Samrong plants and 50,000 Units at Gateway plant.

After the increase in local content requirement, TMT set up Toyota Auto body Thailand Co., Ltd. to produce the auto body in 1978. In 1987, the Japanese Toyota Motor Corporation, jointing venture with Siam Cement Co., (a Thai construction material conglomerate) set up Siam Toyota Manufacturing Co., Ltd. to assemble diesel engines for pick-up trucks. Moreover, TMT holds a 10 percent equity in the Siam Cement's affiliates, i.e., Siam Nawaloha Foundry Co., Ltd. which produces iron and steel casting parts, and Thai Engineering Products Co., Ltd. which produces drum brake and some other auto parts.

Currently, TMT has used local parts over the minimum requirements. Moreover, it sets the goal of using local content 65% , according to the interviewee. In terms of local procurement, TMT procures 45% of local parts from its two local affiliates, Siam Toyota Motor Thailand and Toyota Auto Body Thailand. Only 9 percent of its local procurements are from 28 purely indigenous firms (Noppadol, 1995). In addition, it procures transmissions from Toyota Auto Parts Philippines through the Brand-to-Brand Complementation (BBC) scheme. Meanwhile, under the scheme, it exports wiper motor to Philippines, and engines 2L-11 to Malaysia.

TMT began to export jig and dies for auto body making to Japan, Taiwan, Malaysia and Indonesia in 1986. Then, it began to join ASEAN BBC scheme in 1991. It has exported pick-up trucks (Hilux) to Laos, Pakistan and Cambodia since 1992. Currently, its exports are over 1.5 billion baht per year.

To maintain a good relationship with part suppliers, TMT founded the Toyota Cooperation Club in 1982. Currently, the club has 59 members, 24 Japanese joint ventures and 35 local firms. The club has both professional and social activities such as Quality Control Cycle presentation contest and golf tournament. It helps not only to spread TMT's information to members, and also to improve the quality of suppliers' products and their cost competitiveness.

Honda

Honda is a relatively new comer for automobile industry in Thailand. Honda Cars Thailand Co., Ltd. was established in 1983. Its share owners are Honda Motor Co., Ltd. (20%), Asian Honda Motor Co., Ltd. (20%), Bangkok First Tokai Co., Ltd. (9%), Pong Sarasin (20%), Bureau of the Crown Property (10%).

In 1984, its sale was 786 Units, about 2.5% of total passenger cars sales. Its passenger cars market share increased to 22 %, with the sale of 10,470 Units in 1989. The number of its passenger cars sale increased to 29,300 in 1994. However, in term of market share, its share gradually decreased to 14.6% in 1994, according to its report. Currently, its main products are Honda Civic (1590 c.c.) and Honda Accord (2156 c.c.).

In terms of production, it began to assembly passenger cars at Bangchan General Assembly Co., Ltd. in 1984. It has owned 34% share of Bangchan General Assembly since 1987. In addition, it bought Minburi Factory by auction in 1989, and began to assembly at Minburi Factory in 1992. Then, Honda Cars Manufacturing Thailand Co., Ltd. was established in the mid 1992. Currently, the Capacity of Honda Cars Manufacturing Thailand is 32,000 Units per year. It will move its assembly line to the Rotchana Industrial Estate in April 1996.

Isuzu Motors Thailand Co., Ltd. (IMT)

Mitsubishi Co., (Thailand) Ltd. began to sell imported Isuzu diesel trucks in 1957. It received the license and incentives for assembling "Isuzu" trucks in 1962. It began to produce heavy trucks in 1963, with 124 units in the first year, and started to produce light trucks in 1964.

In 1966, Isuzu Motors Co., (Thailand) Ltd. (share holders : Tri Petch Isuzu Sales 46.9 percent, Isuzu Motors 47.9 percent, Three Thai individuals 5.2%) was established. It has assembled all "Isuzu" commercial cars since 1966. In 1974, it began to produce the one ton pick-up truck which is the most popular truck in Thailand. Currently, it has the largest share in the Commercial cars market, with about 30% in 1994. In 1995, it produced 100,522 units of one-ton pick-ups, 8522 units of heavy trucks and bus, and 9954 units of light trucks.

Currently, IMT has five co-operative companies. The first is Tri Petch Isuzu Sales Co., Ltd. (shareholders : Mitsubishi Corporation 30 percent, Isuzu Motors 19 percent, local firms and dealers 51 percent) which was established in 1974. It takes care the marketing and sale of Isuzu. The second is Isuzu engine manufacturing Co., (Thailand) Ltd. which was established in 1987. It assembles diesel engines for pick-up trucks. It also cooperates with Toyota and Nissan for the engine production. The third is Thai Rung Union Cars Co., Ltd. which produces wooden and steel rear body, and double cab. The forth is the International Auto Works Co., Ltd. which was established in 1992, for modifying the auto body. The fifth is the International Die Making Co., Ltd.

As other Japanese automobile firms, IMT has its own parts supplier club, "Isuzu Cooperation Cub". Currently, it has 64 members. In terms of local content, it has used local parts 60-70%. Moreover, it has exported rear body to Kenya, and some auto pants such as body parts to Japan. However, Isuzu does not involve in the BBC scheme.

In the near future, IMT will also assembly automobile for GM. American GM holds some equity share of IMT's parent company in Japan.

A.2 Automobile Part Firms

The Diesel Engine Producer : Siam Toyota Manufacturing Co., Ltd.

In 1987, the Board of Investment granted promotional privileges to Siam Toyota Manufacturing Co., Ltd., Isuzu Engine Manufacturing (Thailand) Co., Ltd., Thai Automotive Industry Co., Ltd. (Nissan) , and Yontrakit Industry for manufacturing diesel engines. The first three firms began to manufacture the engines in 1989. In addition, MSC Engine Manufacturing Co., Ltd. (Mitsubishi), a non-promoted firm, also began to manufacture the engines in the same year. Meanwhile, the Ministry of Industry began to impose the automobile assembly firms to use local engines for all pick up in 1989.

These engine assembly firms are subject to 20% local content requirement in 1989, 40% in 1994, and 70% in 1998. Moreover, the local content requirement includes five compulsory parts, i.e., Cylinder heads, Cylinder blocks, Camshafts, crankshafts, and connecting rods.

Under the BOI's coordination, three promoted firms agreed to supply engine components for each other. Siam Toyota Manufacturing Co., Ltd. has supplied cylinder blocks to the other two firms since the mid 1995. Isuzu Engine Manufacturing Co., Ltd. will begin to supply connecting rods in July 1996, and Thai Automotive Industry Co., Ltd. (Nissan) will begin to supply cylinder head in July 1997. (Noppadol, 1995)

Siam Toyota Manufacturing (STM). Its shareholders are Toyota Motor Corporation (TMT's parent company, holds 40%), Siam Cement Co., Ltd. (40%) , Nippon Denso Thailand Co., Ltd. (10%) and The Industrial Finance Corporation of Thailand (10%). STM currently produces diesel engines for Toyota Hilux pickups 100,000 units per year. It supplies 90,000 units per year for domestic market and 10,000 units per year (engines) for oversea market. It is exporting engines and other parts to Portugal, Malaysia, New Zealand and Laos.

In terms of local content, It has gradually increased local content, i.e., 20% in 1989, 30% in 1990, 40% in 1991, 50% in 1992, and 60% in 1994. It is expected that

the local content will increase to 70% in the very near future. Currently, 20% of parts is in house parts, 40% of parts is imported, and the rest is supplied by local producers. Among 40 local suppliers, there are three affiliates of Siam Cement, the Siam Nawaloha Foundry Co., Ltd., the Nawaloha Industry Co., Ltd., and Thai Engineering Products Co., Ltd., and Nippon Denso Thailand.

According to interviewee, STM can compete against the C.I.F. price of the imported CBU engines. Its yield ratio is over 99%. In terms of efficiency of assembly line, it decreased man-hour per unit from 2 in 1989 to 1.3 man-hour per unit in 1995. In terms of technology, it has paid royalties and technical assistant fee to Japanese Toyota for hardware, software and training.

To compete in the world market or the F.O.B. price of imported engines, STM faces some difficulties. First, the volume of production is too small to take advantage of economy of scale. Second, the cost of fund or the interest rate is high. Third, there are high tariffs on raw material and intermediate products. In addition, the R&D capability in Thailand generally is insufficient.

Drum Brake : Thai Engineering Product Co., Ltd. (TEP)

In Thailand there are three firms producing drum brake. TEP, established in 1985, is the largest producers. Its market share is 50-60%. It supplies drum brake for Toyota, Isuzu and Nissan. The second largest firm producing drum brake is Somboon Mallcable Iron, and the smallest one is Siam Machinery.

Initially, TEP was wholly owned by Siam Cement Co., Ltd. It was established to increase the value added of the products of the Siam Nawaloha Foundry Co., Ltd.. Then, Siam Cement decreased its equity share to 40% and let TEP's customers to hold some share. Other TEP's share holders are Toyota Motor Thailand Co., Ltd. (10%), The Siam Kubota Industry Co., Ltd. Thai Suzuki Motor Co., Ltd.

As Thailand's typical auto parts firms which producing many varieties, TEP produces casted iron & forged steel parts of automobile (drum brake, disc rotor, etc.), parts of automotive engine (flywheel, pulley crank shaft, etc.), and aluminum die casting & machining parts of automotive engine. In addition, It produces parts for

motorcycle engine and agricultural engine. Currently, its production for automobile and automotive engine parts are 65%, for motorcycle engine parts 20%, for agricultural engine parts 15%, and for export 5%.

Currently, its capacity for machined finishing of casted iron & steel forging 35,000 tons per year, and for aluminum pressure die casting, gravity die casting and machining 6,000 tons per year.

According to interviewee, TEP can compete against imported products, in terms of price and quality. Its defect ratio is about one percent. In term of technology, it has received technical assistance from Japanese firms.