

# **THE INTERNATIONALIZATION OF THE AUTOMOBILE INDUSTRY AND ITS EFFECTS ON THE U.S. AUTOMOBILE INDUSTRY**

**Report on Investigation  
No. 332-188 Under Section  
332 of the Tariff Act of 1930**



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**UNITED STATES INTERNATIONAL TRADE COMMISSION**

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## Preface

On August 6, 1984, the International Trade Commission, on its own motion in accordance with section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)), instituted investigation No. 332-188, "The Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry." <sup>1/</sup> This study examines the concepts of internationalization and the principal factors that led up to the internationalization of the world automobile industry, with particular emphasis on the U.S. automobile industry. It assesses both government policies and other factors, such as transportation costs, labor rates, and resource availability which influenced automobile manufacturers' decisions to procure outside the country of final assembly and to form joint ventures with foreign firms. Notice of the investigation and public hearing in connection therewith was given by posting copies of the notice of investigation at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of August 15, 1984 (49 F.R. 32694) (app. A).

An interim report was prepared in response to a request by the Subcommittee on Trade of the Committee on Ways and Means of the U.S. House of Representatives for information to assist in decisions regarding any extension of the automobile voluntary restraint agreement (VRA) with Japan. In its request, dated December 11, 1984 (see app. B for a copy of the requesting letter), the Subcommittee specifically asked that the Commission expedite investigation No. 332-188. However, because of the comprehensive coverage of the investigation, the Commission could not expedite completion of the formal section 332 report. Since the Subcommittee's primary interest was the impact of the VRA on the U.S. industry, the Commission agreed, instead, to provide a preliminary analysis of the VRA's impact, <sup>2/</sup> which has been incorporated in this report.

In the course of this investigation, the Commission collected data from questionnaires sent to the six principal U.S. based automobile producers and the top nine U.S. importers of automobiles. Responses were received from all producers and importers to whom questionnaires were sent. A public hearing was held in Detroit, Mich. on December 4, 1984, and testimony was received from two U.S. parts associations, one Canadian parts association, the principal automotive workers union, an import automobile dealers association, and other interested parties (app. C). Additionally, information was obtained from published sources, from interviews with corporate executives representing complete vehicle and parts producers, importers, and independent financial analysts, from the Commission's files, and from other sources.

The information and analysis in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under other statutory authority covering the same or similar matter.

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<sup>1/</sup> Commissioner Rohr did not participate in this investigation.

<sup>2/</sup> A Review of Recent Developments in the U.S. Automobile Industry Including an Assessment of the Japanese Voluntary Restraint Agreements (preliminary report to the Subcommittee on Trade, Committee on Ways and Means of the U.S. House of Representatives in connection with investigation No. 332-188), USITC Publication 1648, February 1985.



## C O N T E N T S

	<u>Page</u>
Preface-----	i
Executive Summary-----	vii
<b>Internationalization of the World Automobile Industry:</b>	
The concept of internationalization-----	1
The world car-----	3
Joint ventures-----	3
Offshore sourcing-----	4
<b>Factors Leading to the Internationalization of the World Automobile Industry:</b>	
Government policies worldwide-----	4
U.S.-Canadian Automotive Agreement-----	6
Automobile restraint agreements-----	7
Mexican auto decrees-----	10
Domestic content-----	13
H.R. 1050-----	14
Other government policies that have contributed to internationalization-----	15
Nongovernment policies-----	18
<b>Major world producers:</b>	
World production and trade overview-----	18
Profile of the U.S. industry and U.S. market-----	24
Production and shipments-----	25
U.S. trade-----	28
U.S. imports-----	29
U.S. exports and trade balance-----	32
Employment and wages-----	33
Hours worked per vehicle and Japanese cost advantage-----	37
Financial data:	
Profit and loss-----	39
Break-even analysis-----	41
Capital expenditures and research and development-----	42
Capacity changes-----	44
U.S. retail sales-----	45
Inventories-----	49
Retail prices-----	49
Pricing strategies-----	52
Product mix changes:	
Product mix of U.S. producers-----	54
Product mix of Japanese producers-----	56
<b>Factors Influencing the Internationalization of the U.S. Automobile Industry:</b>	
Government policies-----	61
United States-Canadian Automotive Agreement-----	61
Voluntary restraint agreements:	
Sales of Japanese imports-----	63
Prices of Japanese autos-----	65
Sales of U.S. autos-----	67
Domestic new-car prices and used-car prices-----	67
Consumer costs-----	68
Aggregate welfare effects-----	70
Employment effects-----	70

## CONTENTS

	<u>Page</u>
<b>Factors influencing the internationalization of the U.S. automobile industry--Continued</b>	
<b>Government policies--Continued</b>	
<b>Voluntary restraint agreements--Continued</b>	
Forecasts of future auto demand and imports-----	71
Effects of the VRA on the U.S. trade balance with Japan-----	74
Proposed domestic content legislation-----	75
Effect of proposed auto quota bill-----	75
Effects of the Mexican auto decrees-----	77
<b>Internationalization efforts and accomplishments by the U.S. industry-----</b>	<b>80</b>
U.S.-based joint ventures-----	81
U.S. subsidiaries abroad-----	83
Joint ventures abroad-----	84
Imports of automobiles-----	85
Small car development programs-----	86
<b>Changes in the U.S. Market and Industry Resulting from Internationalization Efforts-----</b>	<b>88</b>
<b>Foreign Industry Profiles, Government Policies, and Internationalization:</b>	
<b>Canada:</b>	
Industry profile-----	90
Government policies-----	91
Trade and internationalization-----	92
<b>Japan:</b>	
Industry profile-----	92
Government policies-----	95
Trade and internationalization-----	96
<b>Western Europe:</b>	
Industry profile-----	97
Government policies-----	99
Trade and internationalization-----	99
<b>Eastern Europe:</b>	
Industry profile-----	100
Government policies-----	103
Trade and internationalization-----	103
<b>Emerging nations-----</b>	<b>104</b>
<b>Mexico:</b>	
Industry profile-----	104
Government policies-----	106
Trade and internationalization-----	106
<b>Brazil:</b>	
Industry profile-----	107
Government policies-----	110
Trade and internationalization-----	111
<b>Korea:</b>	
Industry profile-----	111
Government policies-----	112
Trade and internationalization-----	116
<b>Taiwan:</b>	
Industry profile-----	117
Government policies-----	117
Trade and internationalization-----	119
<b>Appendix A. Notices of institution of investigation No. 332-188 and public hearing-----</b>	<b>121</b>

## CONTENTS

Page

Appendix B. Letter of December 11, 1984 from the Chairman, Subcommittee on Trade, House Committee on Ways and Means-----	125
Appendix C. Calendar of public hearing-----	127
Appendix D. The U.S.-Canadian Automotive Agreement: Background to its history and implementation-----	131
Appendix E. Text of 1981 Japanese voluntary restraint announcement-----	139
Appendix F. A survey of automotive trade restrictions maintained by selected countries-----	145
Appendix G. 1983 world automobile production by the thirty largest manufacturers-----	151
Appendix H. Trade data for motor-vehicle parts and accessories-----	153
Appendix I. Methodology used to determine the effects of the VRA-----	161
Appendix J. Potential for Japan to increase exports to the United States-----	167

## Figures

1. World automotive joint ventures-----	5
2. Automobiles: World production, by individual countries, 1983-----	20
3. Automobiles: World production, by geographical regions, 1983-----	21
4. Automobiles: U.S. production, by market categories, 1975-84-----	26
5. Automobiles: U.S. shipments, by market categories, 1975-84-----	27
6. Automobiles: U.S. imports, exports, and balances of trade, 1980-84--	34
7. Engines, transmissions, and transaxles: U.S. auto manufacturers' imports and exports, 1980-83-----	35
8. Capital expenditures, research and development expenditures, and total expenditures, 1975-84-----	43
9. Automobiles: U.S. import penetration, Japanese and total, 1957-84--	46
10. Automobiles: U.S. sales of domestically produced, imported, and total, 1957-84-----	47
11. Automobiles: U.S. inventories of domestic and Japanese models, by specified periods, 1978-85-----	50
12. Automobiles: Days' supply of domestic and Japanese models, by specified periods, 1978-85-----	51
13. Automobiles: U.S. retail sales of domestic vehicles, by market segments, 1975-83-----	57
14. Automobiles: U.S. sales mix of selected Japanese models, 1980 and 1984-----	59
15. Automobiles: Product mix distribution of selected Japanese models, 1980-84-----	60
16. Trade in new passenger autos with Canada, 1964-84-----	62
17. Automobiles: Indexes of U.S. consumer prices and used car prices, 1976-84-----	69
18. Automobiles: Production of Eastern Europe, by countries, 1983-----	102
19. Automobiles: Market in Mexico, by manufacturers, 1983-----	105
20. Automobiles: Brazilian production, by manufacturers, 1984-----	108
21. Automobiles: Korean production, by manufacturers, 1977-83-----	113

## CONTENTS

	<u>Page</u>
22. Automobiles: Korean market, by manufacturers, 1979-83-----	114
23. Automobiles: Market in Taiwan, by manufacturers, 1983-----	118

## Tables

1. Primary barriers affecting domestic automobile trade with specified areas of the world-----	16
2. Survey of automotive trade restrictions maintained by selected nations-----	16
3. Automobiles: Production, exports, imports for selected countries, 1983-----	19
4. Engines, transmissions, and transaxles: U.S. production, 1979-83-----	28
5. Engines, transmissions, and transaxles: U.S. imports, 1980-83-----	30
6. Factors for offshore sourcing from Canada-----	31
7. Factors for offshore sourcing from Japan-----	31
8. Factors for offshore sourcing from Mexico/Brazil-----	32
9. Engines, transmissions, and transaxles: U.S. exports, 1980-83-----	33
10. Average number of employees, total production and nonproduction workers employed in firms producing automobiles, 1979-83, and January-June 1984-----	36
11. Automobiles: U.S. retail sales, import retail sales, and total retail sales, 1979-84-----	45
12. Automobiles: Total U.S. import retail sales, domestic retail sales of Japanese autos, and domestic retail sales of all other import autos, 1979-84-----	48
13. Automobiles: Manufacturers' suggested retail prices of selected U.S. and Japanese automobiles, April 1981-April 1985-----	53
14. Actual sales of Japanese autos, new domestic autos, all autos, and Japanese prices in the United States and estimated levels that would have prevailed in the absence of the VRA, 1980-84-----	65
15. Automobiles: Sales in Canada, by manufacturers, 1983 and 1984-----	91
16. Automobiles: Domestic production in Japan, by manufacturers, 1983 and 1984-----	93
17. Automobiles: Japanese new car registrations, by manufacturers, 1983 and 1984-----	94
18. Automobiles: Japanese exports, by manufacturers, and by share of total, 1984-----	95
19. Automobiles: Western European production and market shares, by manufacturers, 1983 and 1984-----	97
20. Automobiles: New car shares of principal European markets for selected manufacturers, on the basis of total sales, January-September 1984-----	98
21. Automobiles: Eastern European production by the 6 principal manufacturers, 1982-83-----	101
22. Production and sales by Mexican automobile producers, 1983-----	106
23. Automobiles: Sales and market shares in Taiwan, by manufacturers, 1983-----	117

## Executive Summary

Internationalization has radically changed the worldwide automobile industry during the last decade. No longer are all automobiles designed, assembled with domestic components, and sold in the country of production or to close-by trading partners. Today, an automobile assembled in the United States could have a Japanese-built engine, a French transmission, a wiring-harness assembly from Mexico, electrical parts from Brazil, and a radio from Taiwan. In addition, this automobile may have been designed in the United States, but the same basic car may be produced and sold in West Germany, Australia, Brazil, and Japan. The world auto industry has also seen a significant increase in joint ventures between motor vehicle producers in different areas of the world. One major domestic producer, for example, now owns one-half of a Korean producer, about one third of a Japanese producer, and is assembling autos in the United States in a joint effort with yet another Japanese auto manufacturer.

The principal emphasis of this report is the U.S. automobile industry and how various trade policies have affected that industry. The report also analyzes the world auto industry, including a comprehensive discussion of each major auto-producing country/area and the emerging auto-producing nations (primarily Korea, Mexico, Brazil, and Taiwan).

During 1979-80, a significant shift occurred in the domestic and foreign shares of the U.S. auto market. Sales of domestic autos in the United States fell 21 percent from 8.0 million units in 1979 to 6.3 million units in 1980, beginning a 4-year downward trend. Industry employment followed, dropping from 929,000 workers in 1979 to 740,000 in 1980, or by 20.3 percent. Sales of autos imported from Japan, conversely, rose to 1.88 million units in 1980 from 1.75 million units in 1979. As a result of these developments, the U.S. auto industry began to implement a number of measures to improve U.S. sales and to recapture the market share lost to imports. These measures included retooling and redesigning existing production and assembly facilities, building new facilities, downsizing most autos (model lines), increasing productivity, cutting fixed and variable costs, using less expensive and lighter materials, and using computer-aided design and manufacturing techniques.

One of the primary developments that affected the U.S. auto industry during 1979-84 was the announcement by Japan that it would restrain exports of autos to the United States to provide the U.S. auto industry with a period of time to make necessary adjustments to improve competitiveness with imports. The Japanese renewed these voluntary restraints in each subsequent year, increasing the level from 1.68 million units in 1981-83 to 1.85 million units in 1984. On March 28, 1985, the Japanese Government announced that it would limit auto exports to the United States to 2.3 million units during April 1, 1985 through March 31, 1986, an increase of about 25 percent over the level for that period during 1983-84.

The major highlights of this report are provided below:

## 1. THE CONCEPT OF INTERNATIONALIZATION

- o While most automobile production was centered in the United States and Western Europe 25 years ago, Japan has now become a major force in the world automobile market; and Korea, Mexico, and Brazil are currently trying to develop an internationally competitive auto industry.

Japan's production of autos increased from about 150,000 units in 1960 to over 7 million units in 1984, making Japan second only to the United States. Also, newly industrialized countries, such as Korea, Brazil, and Mexico have developed into significant factors in the world automotive market.

Japan's auto industry was initially protected and encouraged by Government policies, such as high tariffs, policies limiting foreign investment, and financial incentives. As some of the barriers were removed, all three major U.S. companies became involved in joint ventures with some of the smaller Japanese companies. Just as Japan initially protected its auto industry, so have some of the emerging nations. Mexico, Korea, Brazil, and Taiwan (along with other countries) have enacted domestic content rules, export/import ratios, and other performance requirements that have promoted local production. In many of these countries, U.S. auto producers have established production facilities or have begun producing motor vehicles jointly with local manufacturers.

- o Internationalization of the auto industry has led to the world car.

Most major world automobile manufacturers not only export their autos to various areas of the world but also produce autos in more than the domestic market. Many times, the same basic auto is produced in more than one area of the world, giving rise to what is sometimes called the world car. This is particularly true for General Motors Corp. and Ford Motor Co. of the United States and Volkswagen of West Germany. Most Japanese producers tend to manufacture their cars in Japan and export them all over the world, but this trend is gradually changing. One Japanese auto company set up a production plant in the United States in 1982, and two others began assembly in the United States in 1984 and 1985.

- o In order to improve their international competitiveness, many world automobile producers have begun purchasing components and complete vehicles from foreign sources.

During the last 10 years, U.S. and European auto producers have increased their purchases of components from foreign sources. The Japanese, however, appear to purchase most of their components from Japanese companies, although they do purchase a significant amount of components from U.S.-based suppliers for their U.S. assembly operations.

U.S. manufacturers purchase many major components, such as engines and transaxles, from either wholly owned foreign subsidiaries or from foreign joint-venture operations. In 1980, domestic manufacturers imported 544,000 engines from foreign subsidiaries or joint-venture partners, and in 1984 they imported 2.2 million engines, or an increase of about 300 percent. Some of this increase can be attributed to purchasing of engines by U.S. subsidiaries of Japanese and West German manufacturers from foreign sources.

o Various government policies have contributed to the internationalization of the automobile industry.

One of the factors that led to the internationalization of the automobile industry was government policies, which influenced automakers to purchase more components and more assembled automobiles offshore and to make additional investments in foreign operations. The principal government policies that have affected the U.S. auto industry during the last 20 years are the U.S.-Canadian Automotive Agreement, the Japanese Voluntary Restraint Agreements (VRA), and the Mexican Automotive Decrees. The VRA restricted the number of assembled Japanese automobiles imported into the United States, causing an increase in the price of both imported and domestically produced models while also influencing Japanese auto manufacturers' decisions to invest in U.S. operations. The U.S.-Canadian Automotive Agreement increased automotive trade between the two countries, although the United States has experienced a trade deficit in automotive trade with Canada most years since 1969. The Mexican Automotive Decrees virtually eliminated the importation of assembled vehicles into Mexico and increased the number of Mexican motor-vehicle component imports (e.g., engines, transmissions, and so forth) to the United States. In addition, one bill proposed by the U.S. Congress would require a certain level of local content on both imported and U.S.-built autos, and another proposed bill would impose a quota on the number of imported motor vehicles.

## 2. DEVELOPMENTS IN THE WORLD AUTOMOBILE INDUSTRY, 1979-84

o Almost 30 million automobiles were produced in the world in 1983.

World production of passenger automobiles amounted to just under 30 million units in 1983, compared with 31.2 million units in 1978. The seven leading auto-producing countries (Japan, the United States, West Germany, France, Italy, the United Kingdom, and Canada) produced 24 million autos in 1983 (the latest year for which world production data are available), and Soviet Bloc and Latin American countries accounted for approximately 6 million autos in that year. The ratios of exports and imports to production, however, differ substantially among the seven leading auto-producing countries. Japan exported over 53 percent of its production in 1983, and its ratio of imports to production was less than 1 percent. The United States exported only 8 percent of its auto production in 1983, but its ratio of imports to production exceeded 50 percent. Both Canada and the United Kingdom had ratios of imports to production higher than the United States (77 Percent and 106 percent, respectively), and none of the other leading auto-producing countries exported less than 26 percent of their production.

- o North American automobile-producing countries lost some of their market share primarily to Japan during 1979-83.

The North American (United States and Canadian) share of total world market dropped from 30.7 percent in 1979 to 22.5 percent in 1982 and then climbed to 26.1 percent in 1983. Most of the decrease can be attributed to an increase in Japanese automobile production during 1979-83. Japan's share of the world market increased from 19.5 percent in 1979 to 25.1 percent in 1982 and then dropped slightly to 23.5 percent in 1983. The production share of Western European and all other countries remained relatively stable during 1979-83.

### 3. DEVELOPMENTS IN THE U.S. AUTOMOBILE INDUSTRY, 1979-84

- o U.S. auto production dropped from 8.4 million units in 1979 to 5.1 million units in 1982 but then rebounded to 7.8 million units in 1984.

After producing only 5.1 million autos in 1982, domestic production climbed to 6.7 million units in 1983 and then increased to 7.8 million units in 1984. The increase in production was due principally to the recovery of the U.S. and Canadian economies during the period, which resulted in increased employment and a general buying confidence of the U.S. and Canadian auto consumer.

After the rapid increase in the price of gasoline during 1979-80, market demand shifted from purchases of mostly larger autos toward purchases of smaller, more fuel-efficient models. As the price of gasoline leveled and the general economy improved in late 1982, many consumers switched from smaller domestic models (subcompact and compact) to larger models (intermediate, standard, and luxury).

Subcompact car production remained relatively constant during 1979-81 at about 1.5 million units before dropping to 920,000 units in 1982 and then increasing to about 1.2 million in 1984. Production of compact models declined from 2.5 million in 1979 to 1.8 million in 1983 and then rose to almost 2.3 million in 1984. Standard and luxury car production declined from 2.2 million in 1979 to a low of 1.0 million in 1982 and then increased to 1.9 million in 1984.

- o U.S. industry's capacity to produce autos declined between 1979 and 1984.

Capacity for the U.S. production of autos decreased from 10.1 million units in 1979 to 8.6 million in 1983 before rising to 9.0 million in 1984. Capacity utilization in the United States, however, increased from 68 percent in 1981, the first year of the VRA, to almost 87 percent in 1984. The industry capacity declined principally because of the permanent closings of many older, less efficient assembly plants, while other plants were temporarily shut down to facilitate retooling and renovation.

- o The U.S. auto industry employed 720,000 in 1984, down from 930,000 in 1979, but wage levels increased during the period.

Employment by the six domestic auto producers dropped each year during 1979-82, from 930,000 to 623,000 employees, respectively. Employment rebounded by mid-1984 (according to questionnaire data submitted to the Commission) by almost 100,000 employees; however, it is still almost 200,000 less than in 1979, the peak employment year. Employment trends in the U.S. auto industry generally followed industry production trends, declining from 1979 to 1982 and then increasing in both 1983 and 1984. Average hourly wages increased from \$10.52 in 1979 to \$15.33 during January-June 1984, and gross earnings increased from \$18.7 billion in 1979 to an estimated \$22.6 billion in 1984.

- o The industry has dramatically reduced many of its fixed and variable costs since 1979 and, in doing so, has substantially reduced its break-even level.

By cutting both the salaried and hourly work force and at the same time increasing productivity, the auto industry has managed to substantially reduce labor costs. In addition to employee reductions, the industry has lowered inventory carrying costs, reorganized major divisions to improve efficiency, closed many older plants, increased component outsourcing, and made significant gains in quality control.

Through these substantial cost reductions, the three major U.S. automakers greatly lowered their break-even points during 1980-84. General Motors' break-even level, based on worldwide vehicle sales, has fallen from 8.4 million units in 1980 to about 5.6 million units in 1984; Ford's North American operations' break-even point fell to 2.1 million units from 3.6 million units, and Chrysler's fell to 1.1 million units from 2.3 million units.

- o The Japanese enjoy an estimated \$1,000 to \$1,500 per auto cost advantage over U.S. producers.

There is a general consensus by auto analysts as to the existence of a production-cost advantage in favor of Japanese producers; however, the estimates of the advantage range between \$200 and \$2,000 per unit. According to a comparison of the Ohio-built Honda and a similar Honda built in Japan, the actual cost advantage of Japanese production is probably between \$1,000 and \$1,500 per auto. Most analysts attribute the cost advantage to such factors as lower wages and higher productivity of Japanese workers, better management, and the currency valuations of the dollar and the yen.

- o The four U.S.-based auto producers reported combined losses on U.S. operations of \$4.7 billion in 1980, but reported profits of almost \$10 billion in 1984.

Profits of the U.S. auto industry on U.S. operations jumped to \$9.8 billion in 1984 after losses of \$400 million in 1979, \$4.7 billion in 1980, \$2.3 billion in 1981, and \$553 million in 1982. During the period of the VRA,

1981-84, the four domestic auto companies registered total net profits of almost \$13.0 billion on their U.S. operations.

#### 4. CHANGES IN THE U.S. MARKET DURING 1979-84

- o U.S. consumption of autos dropped from 10.5 million units in 1979 to 7.6 million units in 1982 before rising to 10.7 million units in 1984.

U.S. consumption of automobiles generally followed the trend of the U.S. economy during 1979-84. U.S. consumption declined from 10.5 million units in 1979 to a low of 7.6 million units in 1982. As the U.S. economy began recovering in late 1982, consumption of new autos also increased, rising to 8.6 million in 1983 and 10.7 million in 1984.

While U.S. production and exports followed the trends of the U.S. economy, imports remained relatively stable during 1979-83. This caused an increase in the import-to-consumption ratio from 27.6 percent in 1979 to a high of 38.5 percent in 1982 (when U.S. production and exports were at their lowest levels). The import-to-consumption ratio then declined in each succeeding year, dropping to 36.6 percent in 1983 and 33.8 percent in 1984.

- o U.S. imports remained at about 3 million units during 1979-83, before rising to 3.6 million units in 1984.

U.S. imports fluctuated little during 1979-83 in large part because of the VRA, which held Japanese imports constant during the latter part of this period. However, in 1984, U.S. imports rose to 3.6 million units owing to increased demand for automobiles produced by U.S. subsidiaries in Canada and from West Germany, and an increase in the level of the Japanese VRA from 1.68 million units to 1.85 million units.

- o The product mix of U.S.-built autos has changed because of a change in consumer demand resulting from the price of gasoline and other economic factors, but the change in the product mix of imports from Japan is partially a result of the VRA.

As the price (in constant dollars) of gasoline dropped and the U.S. economy improved in late 1982, demand for larger U.S.-produced autos increased, causing a drop in demand for smaller, more fuel-efficient models. The compact segment of the domestic market registered the greatest decrease, dropping from 24 percent of the U.S.-built models in 1982 to 13.6 percent in 1983. The product mix of Japanese models also changed primarily because of the VRA. Since the demand for Japanese models was greater than the constrained supply, Japanese importers were able to sell more expensive models in place of the lower priced models.

- o U.S. retail prices of eight popular Japanese automobiles have increased from 17 percent to 35 percent since April 1, 1981.

The prices of smaller Japanese models increased by approximately 21 percent, but prices of the more luxurious models increased by an average of 33 percent during the VRA period. Imports from Japan moved upscale towards the more expensive models, and retail dealers frequently added on optional equipment and extra markups.

- o U.S. retail prices of domestic subcompacts increased from 5.8 percent to 8.5 percent during 1981-85, and those for domestic large models increased from 30.1 to 38.2 percent.

U.S. manufacturers' suggested retail prices of some popular U.S. subcompacts (Chevette, Escort, and Horizon) increased by an average of about 7.3 percent from April 1981 to April 1985, but retail prices of larger models increased during the same period by almost 34 percent. These price changes were due to the fact that the demand for small U.S.-produced autos declined, principally because of declining gasoline prices and a general upturn in the U.S. economy after 1982. The increased demand for larger cars (primarily because of lower gasoline prices) has allowed the industry to increase retail prices of these models at a more rapid rate than for smaller cars.

## 5. PROBABLE EFFECTS OF THE VRA

Estimates based on data gathered from published sources, producer questionnaires, and a public hearing were used to develop a hypothetical picture of the U.S. auto industry and market during 1981-84 in the absence of the VRA and forecasts of future demand for domestic and imported autos. Review of the results indicates that the VRA has most likely affected domestic and Japanese auto sales and prices in the U.S. market, U.S. employment levels, and U.S. consumer costs. Estimates of the effects of terminating the VRA indicate that sales of Japanese autos will increase from 2.3 million in 1985 to 2.9 million units in 1988.

- o The VRA is estimated to have increased prices of Japanese autos in the United States.

Transaction prices of Japanese automobiles sold in the United States in 1984 are estimated to have averaged \$1,300 more per auto as a result of the VRA than they otherwise would have been. The estimated VRA-induced price increase of Japanese autos in the United States rose from \$185 per auto in 1981 (the first year of the voluntary quota) to \$359 in 1982 and to \$831 more per auto by 1983. By restricting the supply of imported autos while demand was growing, the VRA appears to have resulted in higher prices each year for U.S. consumers of Japanese cars. Part of this increase originated with the Japanese selling more expensive models during the VRA.

- o The VRA may have caused increases in prices of both new domestic and used domestic and foreign autos in the United States.

Transaction prices of domestically produced new autos may have increased by about \$78 in 1981 and by almost \$660 in 1984 owing to the VRA. It is also likely that the VRA caused an increase in used-car prices of both domestic and Japanese models. Many buyers turned to the used car market because of reduced availability and higher prices of new Japanese autos.

- o The total estimated cost to the U.S. consumer as a result of the VRA during 1981-84 was \$15.7 billion.

The VRA cost U.S. consumers an additional \$835 million in 1981, \$1.65 billion in 1982, \$4.68 billion in 1983, and \$8.52 billion in 1984, for a combined total of \$15.7 billion during 1981-84, based on USITC estimates. The higher prices on Japanese autos alone increased consumer costs by about \$3.3 billion in 1984, and the remainder of the increase was because of the price increases on domestic autos.

- o It is estimated that an additional 1 million Japanese autos could have been sold in the United States in 1984 in the absence of the VRA.

Japan's share of the U.S. market would likely have been approximately 28 percent instead of the 18.4 percent actually recorded in 1984, had the VRA not been in effect. The Japanese were constrained to 1.68 million units during FY 1981-83, and 1.85 million during FY 1984, and it is estimated that consumers would have purchased as many as one million more Japanese autos in 1984 had they been available.

- o The VRA most likely resulted in an additional 44,000 U.S. jobs and additional sales of 618,000 domestically produced autos in 1984.

It is likely that the VRA added about 5,400 jobs to U.S. automobile industry employment in 1981, and by 1984, the VRA was responsible for a total of 44,000 additional jobs in the domestic industry. If the employment gains in the steel industry and in other supplier industries were added to these numbers, the gains in employment would be significantly higher. To the extent the VRA strengthened the U.S. dollar, it may have caused a loss of employment in exporting industries and in import-competing industries. This would tend to offset some job gains in the auto industry and its suppliers. The VRA also caused a gain in sales of domestically produced autos. It is believed that although the effect of the VRA was minimal in 1981 (an increase in sales of 75,000 domestic units), the estimated increase in retail sales of U.S. autos brought about by the VRA was approximately 620,000 units in 1984. This amount was about 8 percent higher than the level that would have prevailed absent the Japanese export restraints.

- o Although the inventory and days' supply of U.S.-built autos fluctuated during 1981-84, inventory and days' supply of Japanese imports remained extremely low.

Inventories of domestic autos held by U.S. dealers during 1981-84 were at their lowest point in January 1983 (1.1 million units), but generally increased through January 1985 (1.4 million units). Days' supply of domestic models peaked in January 1982 and generally remained at about 50 to 60 day levels through 1984. Inventories and days' supply of Japanese imports, however, remained below 30 days' supply from July 1983 to January 1985 (averaging about 150,000 units). Because the domestic industry was better able to control its level of dealer inventory to meet market conditions, the domestic inventory and days' supply did not drop significantly. The Japanese inventories, however, declined to less than a 30 days' supply after July 1983 owing to the restraints. The lower inventories caused shortages of most models and resulted in higher prices because demand exceeded supply. Auto dealers normally carry a 50 to 60 days' supply of autos in order to allow consumers a choice of auto models.

- o In the absence of the VRA, it is estimated that the U.S.-Japan trade deficit in autos would have been nearly \$2 billion greater in 1983 and almost \$4 billion higher in 1984.

The total U.S. merchandise trade deficit with Japan was \$19.3 billion in 1983 and \$33.9 billion in 1984. It appears that the total U.S. merchandise trade deficit with Japan might have been even greater if the auto restrictions had not been in effect. In the absence of the VRA, it is estimated that the deficit solely in auto trade would have been \$2 billion greater in 1983 and almost \$4 billion more in 1984.

- o Because of the relaxation of the VRA during 1985-88, it is estimated that U.S. retail sales of Japanese autos will increase from 2.3 million units in 1985 to 2.9 million units in 1988.

Total U.S. sales of automobiles for 1985 are estimated to be about 10.7 million units. The Japanese are expected to capture about 2.3 million of this total or about 21.4 percent of the U.S. market. U.S. sales are estimated to be at 11.2 million units by 1988, with the Japanese share increasing to 25.9 percent, or about 2.9 million units.

Assuming that the U.S. demand for passenger cars remains relatively strong between 1985 and 1988 and that sales of Japanese cars increase at only a moderate rate, U.S. automakers will continue to operate at a profitable level. In addition to the gradual increase in U.S. sales of Japanese autos, it is estimated that U.S. sales of European autos will also increase. Imports from Korea could increase rapidly once they are introduced into the United States, but they are unlikely to become a major source of U.S. auto imports during 1985-88 because of limited Korean production capacity.

- o The three major U.S. automakers have initiated new programs to produce internationally cost-competitive subcompact models for the U.S. market.

In addition to developing external sources of internationally competitive vehicle parts, subcompact cars, and advanced small car technologies, the three principal U.S. automakers have announced internal programs for the production of new subcompact models. These manufacturing projects involve revisions of the traditional product development practices, including changes in management structures and techniques, component materials, assembly procedures, and manufacturing processes.

## 6. EFFECTS OF OTHER GOVERNMENT POLICIES

- o The U.S.-Canadian Automotive Agreement has caused an expansion in the automotive trade between the United States and Canada.

An expansion in U.S.-Canadian automotive trade took place in the years that immediately followed implementation of the U.S.-Canadian Automotive Agreement. Imports of automobiles from Canada increased from 33,000 units in 1965 to an average of about 800,000 annually during 1970-78.

Trends in U.S. exports of automobiles to Canada have roughly paralleled trends in imports from Canada, rising rapidly during 1965-68, and averaging about 500,000 units during 1973-1981. The United States, however, has experienced a trade deficit in motor vehicles and parts with Canada in every year since 1968 except 1975.

- o The Mexican Auto Decrees have caused increased U.S. investment in Mexico and increased U.S. imports of complete motor vehicles and parts.

The major effect of the Mexican Auto Decrees has been to force U.S. motor vehicle companies to invest more heavily in Mexican facilities than they otherwise might have. All three major U.S.-based auto companies have established engine plants in Mexico and import these engines for use in automobiles assembled in the United States. In addition, two U.S. companies are currently importing complete motor vehicles from Mexico, and a third company has announced plans to build a Mexican assembly plant that will ultimately ship some of its output to the United States.

- o Two bills have been proposed by Congress that would restrict the number of motor vehicles that could be imported into the United States.

A domestic content bill that would affect the leading automobile importers has been introduced in the last three Congresses. The bill specifies that all automobiles and light trucks sold in the United States must have a specific percentage of U.S.-added value. This bill would not only limit the number of complete motor vehicles entering the United States, but it would also restrict the procurement of motor vehicle parts by domestic companies from foreign sources.

A domestic content law would eliminate serious import competition in the U.S. market while probably increasing domestic auto prices and auto industry employment significantly. However, local content requirements would also likely decrease export-related employment and further strengthen the U.S. dollar, thus aggravating the U.S. trade deficit.

The other bill that has been proposed in the current Congress (H.R. 1050) would limit imports of automobiles and light trucks to 15 percent of the U.S. market. This bill excludes any importer that imports fewer than 100,000 units and any Canadian company that is a subsidiary of a U.S. motor-vehicle manufacturer. If passed in its current form, the bill would affect six Japanese importers and one West German importer.

## 7. INTERNATIONALIZATION EFFORTS AND ACCOMPLISHMENTS BY THE U.S. INDUSTRY

- o There have been two major joint ventures involving two U.S. companies since 1979 which have resulted in U.S. production of automobiles.

In late 1980, Renault was authorized to purchase \$200 million worth of American Motors Corporation common stock, preferred stock, and warrants during 1981-82, in addition to the \$150 million that Renault had invested in AMC in 1980. In return, Renault was given access to AMC's retail auto dealers in the United States and an option to purchase up to 59 percent of AMC's stock. In September 1982, the first Renault-designed, U.S.-built model was introduced to the U.S. market and a year later a second model was introduced in the United States.

The other principal joint venture that has occurred since 1979 was between General Motors and Toyota. The two auto manufacturers formed a joint venture in 1984 to produce a Toyota-designed subcompact model in an idle GM assembly facility in California. The plant was completely renovated and a new stamping plant was built beside the existing assembly plant. The first automobile rolled off the assembly line in late 1984, and about 240,000 autos could be produced in the plant when capacity is reached.

In addition to two joint ventures in which U.S. production has begun, another joint venture between Chrysler and Mitsubishi was announced by Chrysler in early April of this year. The Chrysler spokesman said that the two auto companies would co-produce a Mitsubishi-designed subcompact model in a \$500 million plant located in a mid-western state. The model would replace Chrysler's current subcompact (Omni and Horizon) and the plant is expected to be in operation by 1988.

- o All three major U.S. automobile producers have entered into agreements with some of the smaller Japanese auto manufacturers.

All three major U.S. companies have a minority interest in at least one Japanese auto company. All three either are or have exported fully assembled automobiles or light trucks from these companies to the United States. In addition, one U.S. company owns approximately 5 percent of another Japanese company (from which it currently imports autos) and it also purchased a 50-percent interest in a Korean auto manufacturing company.

- o Three Japanese-owned auto producers have initiated U.S. auto assembly since 1982.

Honda, Toyota, and Nissan have all established assembly operations in the United States since 1982. Honda was the first Japanese auto company to begin production of automobiles in the United States, starting production in a completely new plant in 1982 in Ohio. The next Japanese company to assemble motor vehicles in the United States was Nissan. Initially, it assembled only lightweight pickup trucks in a new plant in Tennessee but now produces a small subcompact model. Toyota, in a joint venture with General Motors, began production of a subcompact car in an older GM-owned assembly plant in California in 1984. In addition, both Mazda and Mitsubishi have each announced plans to produce a Japanese-designed auto in the United States by 1988.

- o Under the current 2.3 million-unit Japanese restraint, the Corporate Average Fuel Economy (CAFE) standards could increase U.S. car prices and reduce model availability.

Increased sales of Japanese small cars resulting from the higher restraint level self-imposed by the Japanese probably would replace some U.S.-built small cars. This could result in higher CAFE ratings for U.S. automakers. A greater proportion of their sales would be in larger, less fuel-efficient autos, at least until production of planned new domestically manufactured small cars commences. The full-line auto producers, General Motors and Ford, could face additional CAFE penalties as much as \$100 million per year above the currently expected level of \$700 million.

To minimize penalty accruals in the short term and avoid violation of the standard in the longer term, Ford and GM probably would either raise the prices of performance and large cars (thus decreasing demand) or reduce their availability. It should be noted that the National Highway Traffic Safety Administration is currently considering a proposal to lower the CAFE standard by 1.5 mpg without which it can do without congressional approval under CAFE regulations.

## Internationalization of the World Automobile Industry

### The concept of internationalization

Twenty five years ago, automobile manufacturing was centered in Western Europe and the United States. The U.S. automobile industry was dominated by three firms, General Motors, Ford, and Chrysler. With the exception of the Volkswagen Beetle, there were few imports. The U.S. auto industry preferred to concentrate on large automobiles equipped with high-profit optional features such as automatic transmissions, large horsepower eight-cylinder engines, air conditioning, and power steering. The European market was dominated by much smaller, more fuel-efficient automobile models, and Japanese producers were yet to be a factor in the world market. Virtually all of Japanese auto production was of subcompact models.

During the next 10 years, however, Japanese auto manufacturers continued to rapidly increase production volumes, refine manufacturing methods, and develop the export expertise that would lead to international acceptance of Japanese cars. Passenger car production in Japan did not exceed the 100,000 unit level until 1960, when production reached 165,094 units.<sup>1/</sup> By 1970, Japanese automobile production had increased to 3,178,708 units.<sup>2/</sup> Japanese car exports to the United States rose from 942 units in 1960 to 232,671 units in 1970.<sup>3/</sup> By the end of the 1960's, Japan had joined Europe as a manufacturing center for the mass production of world-class subcompact automobiles.

After the first worldwide petroleum shortage of 1973-74 and the consequent rapid increase in gasoline prices, much of the trend in U.S. consumption moved toward smaller cars. This trend reversed itself somewhat in the late 1970's as consumers became accustomed to higher fuel prices and larger autos began to regain popularity. The second oil shock in 1980, along with other economic factors, changed not only the car-buying philosophy of the U.S. market, but of world markets as well. U.S. consumers began to purchase fuel-efficient Japanese imports in record numbers and found that they were not only more fuel efficient than most of Detroit's offerings, but that the quality of Japanese automobiles, in many cases, surpassed that of U.S. vehicles.<sup>4/</sup> At the same time, European consumers also began to buy more Japanese autos, primarily because of their perceived better quality and fuel efficiency. Thus, in less than 8 years (1973-80), Japan became a major auto-producing country, competing directly with the United States and Europe. In addition, the Japanese experience became a model for many developing countries, such as Mexico, Brazil, and Korea. These countries decided that they too wanted a share of the profitable world motor-vehicle market and began pressing for higher local content and stronger export incentives for those local firms producing automobiles.

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<sup>1/</sup> Japan Automobile Manufacturers Association, Motor Vehicle Statistics of Japan, 1984.

<sup>2/</sup> Ibid.

<sup>3/</sup> Motor Vehicle Manufacturers Association of the United States, World Motor Vehicle Data, 1980 Edition.

<sup>4/</sup> Various consumer surveys by J.D. Power and Associates have shown this to be the perception of U.S. auto consumers.

The groundswell of foreign governmental interest in developing successful domestic auto industries was followed by the enactment of legislation in numerous foreign locales to promote increased local production. As a result, major world auto producers faced increasing demands to join with indigenous producers in foreign markets in the production and assembly of automobiles or automotive components. General Motors Chairman, Roger B. Smith, speaking before an International Conference of Future Development in Technology said that "the most powerful force on the scene today is the rapid internationalization of the auto market". 1/ Former Ford Chairman Philip Caldwell stated, "We can no longer see the auto business as a national one. It is an international one and must be dealt with in that way." 2/

When speaking before U.S. auto dealers at the National Automobile Dealers Association in January 1985, Mr. Noel Phillips, President of Volkswagen of America, stated,

"The automotive industry the world over used to be a somewhat insulated nationalistic one, with quite clearly defined edges. The French largely drove French; the British, British cars, and, of course, most Americans drove American cars. Today our (U.S.) so-called domestic industry sees on the one hand Chrysler dealers selling Colts from Japan, Lincoln-Mercury bringing in Merkurs from West Germany and General Motors both importing Japanese vehicles and building cars in partnership with Toyota in California. On the other hand, Nissan and Honda are manufacturing in America, and Mazda has recently announced that it will do the same in Michigan. Renaults are built by American Motors while my own company, Volkswagen, produces Golfs and GTI's in Pennsylvania". 3/

Up until approximately 10 years ago, most automobiles were designed and produced entirely by the final assembler in the domestic market from locally produced components for sale in that market. Today, an automobile assembled in the United States, for example, may have a Japanese-built engine, a French-built transmission, a wiring-harness assembly from Mexico, electrical parts from Brazil, and a radio from Taiwan. The design of the body of the automobile might have been a joint effort between U.S. and European designers, and the engine may have been developed jointly by U.S. and Japanese engineers.

Automotive internationalization has two basic aspects: production and marketing. With respect to production, the procurement from foreign sources of parts used in the assembly process has rapidly increased; joint ventures (assembly, design, and so forth) between companies located in different countries have become much more prevalent; and domestic trade policies in many countries have caused the major world automobile manufacturers to set up production facilities in those countries. With respect to marketing, U.S.-designed automobiles have become much smaller and more fuel efficient,

1/ "Decline Seen in West's Auto Share," Automotive News, July 3, 1984.

2/ "Caldwell: Dump CAFE to Save U.S. Market for Family Cars," Automotive News, Sept. 24, 1984, p. 8.

3/ Matt Delorenzo, "A new meaning for domestic," Automotive News, Feb. 4, 1985, p. 8.

making them somewhat more competitive in the world markets, while Japanese-built automobiles, based on many years of experience in producing such cars, have become very competitive in the world markets. In the near future, some Third-World countries, such as Brazil and Korea, may also mass-produce cars competitive in the world market increasing even more the internationalization of the world auto industry. In addition, as discussed by Mr. Phillips, auto companies are also distributing cars produced by their foreign subsidiaries or jointly owned companies in both their home and third-country markets. 1/

The world car.--The internationalization of the auto industry is resulting in the development of the so-called world car. In the late 1970's, many analysts believed that rapid downsizing of U.S. producers' car fleets would yield a reduction in the number of major automobile manufacturers operating on a worldwide basis by the 1990's to about 9 or 10, supplemented by some low-volume specialty companies such as BMW or Mercedes-Benz. Each company would have an auto of its own design, but the same model would be produced in several of the company's plants throughout the world. 2/ Another early world-car concept entailed production of several models of the same basic car to similar specifications and with interchangeable components in several countries in order to achieve worldwide economies of scale. 3/

Since the late 1970's, the reality of the world car has been significantly altered from that of earlier visions. According to the OECD Observer, there is little evidence that production of a world car, as perceived in early 1980, will ever evolve, but rather that each area of the world will require a specialized vehicle. 4/ This tailor-made vehicle will, however, be similar in design in most countries and utilize many of the same major components that are designed for use in that particular automobile. Some components, however, will not be identical nor interchangeable, particularly the drive train and suspension components. Nonetheless, there would be limited modifications, for the most part, to the auto in each of the market areas, making it possible to spread tooling, research and development, and engineering expenses throughout all worldwide production operations. In short, this modified version of the world car concept seems most likely to evolve.

Joint ventures.--While the world car is basically an automobile assembled from an auto manufacturer's components produced in various areas around the world, the recent increase in joint ventures has occurred principally because established motor-vehicle manufacturers have sought access to another country's automobile market, distribution system, or technical expertise. For example, Renault purchased 46.6 percent of American Motors Corporation (AMC) so that it would have immediate access to AMC's dealer network, which in turn provided AMC with an infusion of needed assets so that it could introduce a Renault-designed subcompact for the North American market. Ford, General

1/ Ibid.

2/ Auto Situation: 1980, Subcommittee on Trade, Committee on Ways and Means, June 6, 1980, p. 72.

3/ "Internationalization Growing in Autos," Journal of Commerce, Jan. 17, 1980, p. 17.

4/ "Towards a World Auto Industry," OECD Observer, July 1980, p. 3.

Motors, and Chrysler have each purchased stock in Japanese auto manufacturers so that they could import subcompact automobiles and/or light trucks from these companies and establish joint assembly operations in a third country. Peugeot, Volvo, and Renault created a joint venture so that they could jointly design a new, six-cylinder engine to be used in their automobiles. 1/ General Motors and Toyota formed a joint venture in California to manufacture a Toyota-designed subcompact in an idle GM assembly plant. The joint venture saved GM about \$1.5 billion in development and tooling costs. 2/ Initially, almost 50 percent of the value of major components will be supplied by Toyota (engine, transaxle, and so forth). 3/

An overview of the major international automotive joint ventures (principally assembly and supplier operations) and the interrelationships of each foreign company to all other companies is presented in figure 1.

Offshore sourcing.--In order to improve their competitiveness, many world automobile producers began purchasing components for use in the final assembly of automobiles from foreign countries. Although foreign outsourcing is currently used, to some extent, by virtually all world auto producers, it is used much more extensively by U.S. manufacturers than by European and Japanese manufacturers.

According to a report published by The Economist, U.S. auto manufacturers employ foreign suppliers because they must find a means to lower their production costs, increase quality, reduce lead times for major components, and receive more reliable service. 4/ This outsourcing has "led to the development of intricate joint venture relationships and the evolution of the world-car concept, as even the largest companies have come to realize that the capital costs involved in the construction of new manufacturing facilities on a worldwide basis have become so vast as to be beyond their individual capabilities." 5/

#### Factors Leading to the Internationalization of the World Automobile Industry

Government policies worldwide.--The internationalization of the automobile industry has been caused by a combination of government trade policies such as multilateral agreements and performance requirements, government policies unrelated to trade, and business decisions by the automobile companies that were not influenced by foreign government policies.

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1/ 1983 Report on the Canadian Automobile Industry, Government of Canada, 1983, p. 51.

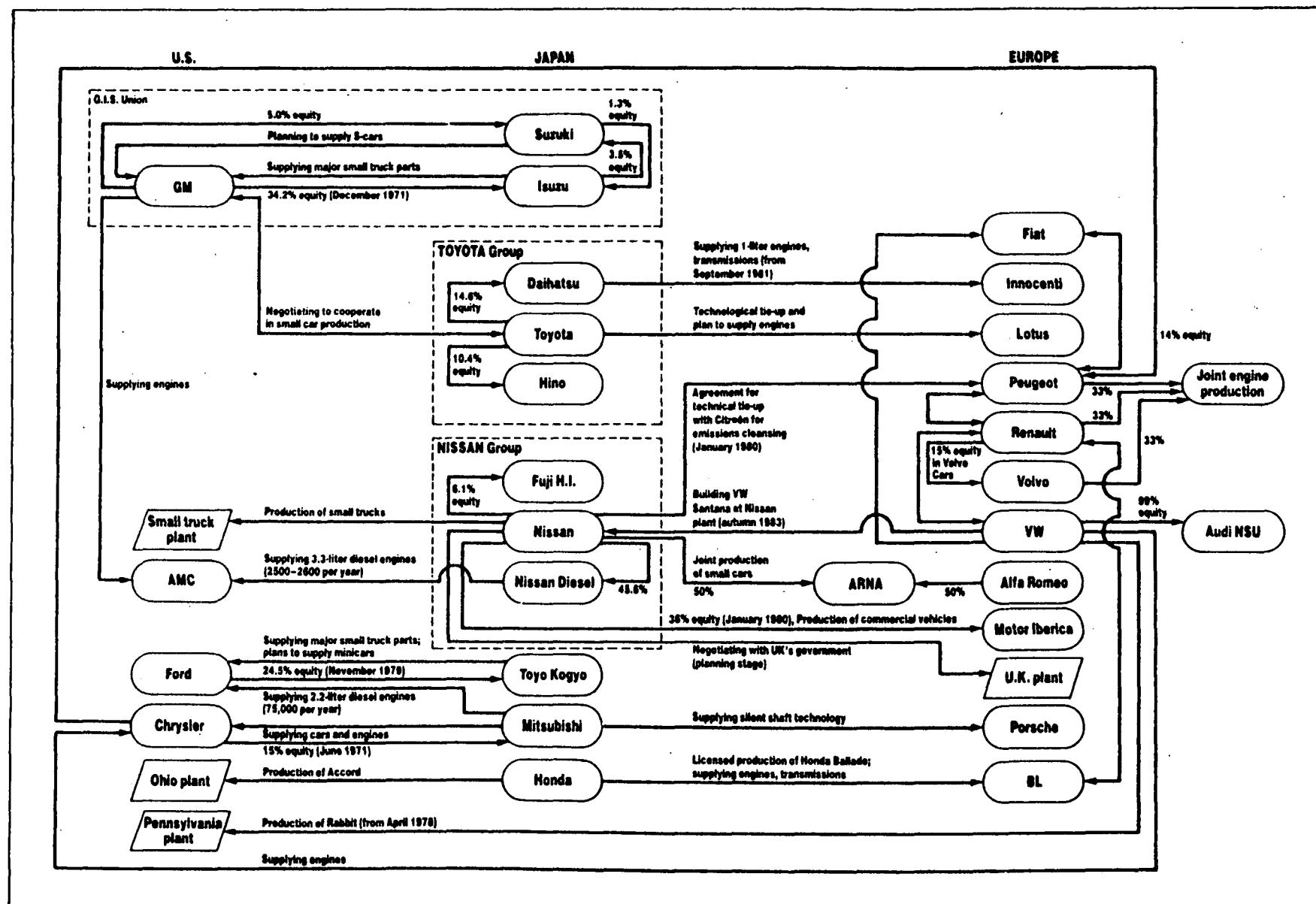
2/ A more detailed explanation of U.S. joint ventures will be presented later in this report and will cover joint assembly operations in the United States, and joint ventures by U.S. and foreign manufacturers outside the United States.

3/ "What Toyota Will Teach GM," Automotive Industries, May 1983, p. 16.

4/ Foreign Outsourcing by U.S. Auto Manufacturers, Special Report No. 151, The Economist, October 1983, p. 18.

5/ Ibid. For a comprehensive discussion on U.S. outsourcing, see the section of this report entitled, "Internationalization Efforts and Accomplishments by U.S. Industry."

Figure 1.--World automotive joint ventures.



Source: 1983 Report on the Canadian Automobile Industry, Government of Canada, 1983, p. 51.

Certain trade policies have affected the U.S. automotive industry by encouraging foreign investment in auto manufacturing facilities, primarily the U.S.-Canadian Automotive Trade Agreement of 1965 (the Automotive Products Trade Act (APTA)), and the Mexican Auto Decrees of 1962, 1972, 1977, and 1983. A major Japanese trade policy, the voluntary restraint agreements of 1981, 1982, 1983, and 1984, has probably contributed to Japanese automobile manufacturers' decisions to invest in U.S.-based automobile operations, as have similar export restraint announcements in other countries. In addition, various trade policies in countries other than Canada, Mexico, and Japan have led to joint ventures and other U.S. investment decisions to either establish facilities in foreign countries or purchase parts from these countries that are used in the assembly of U.S.-produced automobiles.

In addition to government trade policies, U.S. automobile manufacturers have based their foreign investment decisions on other factors such as labor and transportation costs, raw material and energy availability, financial incentives not related to trade policy, and other non-financial factors.

U.S. Canadian Automotive Agreement 1/.--Most motor vehicles and bodies and chassis of Canadian origin intended for original-equipment use enter the United States duty free. Such duty-free treatment is authorized by the Automotive Products Trade Act (APTA) of 1965, 2/ which implemented an agreement between the United States and Canada to accord duty-free treatment to specified motor-vehicles and original motor-vehicle equipment shipped between the two countries. 3/ A special waiver under the General Agreement on Tariffs and Trade (GATT) was sought and obtained by the United States in view of the preferential treatment to be accorded most Canadian motor vehicles and original-equipment parts. 4/

The U.S. obligation to accord duty-free treatment to imports from Canada applies in three situations. 5/ First, duty-free treatment applies to motor

1/ A more detailed explanation of the U.S.-Canadian Automotive Agreement appears at app. D.

2/ Public Law 80-283; 79 Stat. 1016 (1965).

3/ "Agreement Concerning Automotive Products Between the Government of the United States and the Government of Canada," signed Jan. 16, 1965.

4/ At the time of the signing of the agreement and the enactment of the bill implementing it, it was generally understood that the duty-free treatment limited to automotive products from Canada was inconsistent with the obligation of the United States under art. I of the GATT, i.e., to accord unconditional most-favored-nation treatment with respect to customs duties on the products of contracting parties to the agreement. However, under art. XXV(5), the Contracting Parties of the GATT may grant a waiver of this principle if there are exceptional circumstances warranting such an action. Such a waiver was sought by the United States, and upon consideration of (1) the exceptionally high degree of integration of the two markets and (2) the opportunities of increased rationalization of production given the "close similarity of market conditions in the two countries and the close relationship which exists and could be further developed in their production facilities of automotive products," (Basic Instruments and Selected Documents, 14th supp., July 1966), p. 37, waiver was granted by the Contracting Parties on Dec. 20, 1965.

5/ See headnote 2, pt. 6B, schedule 67, of the TSUSA.

vehicles, with the exceptions of vehicles such as electric trolley buses, three-wheeled vehicles, trailers, and motor vehicles specially constructed and equipped for special services and functions (for example, fire engines). Second, duty-free treatment applies to fabricated components for use as original equipment in the manufacture of the specified motor vehicles, but does not apply to replacement parts or accessories; in addition, tires and tubes are excluded. Third, the products of Canada specified in the agreement may not contain more than a certain percentage of "foreign content," that is content of materials produced in countries other than the United States or Canada. For any article, the measure of such foreign content is the percentage of the appraised customs value of the article upon entry into the United States accounted for by the aggregate value of such imported materials contained in the article. The maximum foreign content permitted is 50 percent for both motor vehicles and chassis and parts. This requirement provides that at least one-half the content of any article imported duty free under the agreement will be produced in either the United States or Canada. The remainder of the article's content may come from third countries and the article will still be entitled to duty-free treatment when imported into the United States. Consequently, original-equipment parts manufactured in third countries may be assembled into completed vehicles in Canada and imported into the United States, and no duty will be payable on these components as long as the maximum permissible foreign content (50 percent) is not exceeded.

Automobile restraint agreements.--Japanese automobile exports are currently restricted in virtually every major industrialized country of the world. Italy was the first major automobile-producing country to restrict Japanese autos. In 1969, the Italian and Japanese Governments negotiated a bilateral agreement in which each country could accept up to 1,000 assembled automobiles from each other and in 1976, this limit was increased to 2,200 units, where it remains today. 1/ The next country to negotiate a restraint agreement with Japan was the United Kingdom in 1975, when the British Government reached a "gentlemen's agreement" with Japan in which the Japanese agreed to limit exports of Japanese-produced automobiles to approximately 11 percent of the United Kingdom's auto market. 2/ In 1977, France imposed a 3-percent market-share on Japanese automobile imports. In 1980, concerned that the 3 percent may be exceeded, the French decided to implement delay tactics in customs clearance procedures on Japanese automobiles. 3/

West Germany negotiated an "informal promise" in 1981 from Japanese automobile manufacturers that they would limit the rate of increase in the number of Japanese automobiles exported to West Germany and would keep the Japanese share of the West German market at about 10 percent. 4/ Also in 1981, the Government of Belgium announced that the Japanese had agreed to keep automobile exports to Belgium in 1981 at approximately the 1980 level, and that the Japanese would review the restraint level at the end of March 1982 to see if it should continue for another year. 5/ Later in 1981, the Japanese

1/ Alan Altshuler, Martin Anderson, . . . op. cit. p. 231.

2/ Ibid., p. 33.

3/ William Chapman, "Europe Sends Warning to Tokyo," Washington Post, May 18, 1981.

4/ Ibid.

5/ Ibid.

announced that exports to the Netherlands would remain at the 1980 level. 1/ The only other major automobile-producing country that has neither a formal nor informal restraint agreement with the Japanese is Sweden. However, in 1983, Sweden's Foreign Trade Minister announced that his Government had "recently informed Japan that we shall be keeping under close scrutiny developments relative to auto imports from that country." 2/

In early June 1981, the Canadian Government and the Japanese Government agreed that approximately 174,000 automobiles would be exported from Japan to Canada during the period April 1, 1981, through March 31, 1982. 3/ This represented about 16.5 percent of the Canadian market and was about equal to imports of Japanese automobiles during the previous year. On June 11, 1984, the Canadian Trade Minister and the Regional Industrial Expansion Minister announced that Canada and Japan had reached an "understanding" that the Japanese would export no more than 166,000 automobiles to Canada during April 1984 to March 1985, which would equal approximately 18 percent of the Canadian automobile market. 4/ This was an increase of 13,000 units, or 8.5 percent, over the previous year's level. However, the Canadian Government stated that the agreement could be reviewed in January 1985 and the quota could be increased by as much as 6,000 units if Canadian auto sales were higher than predicted. 5/ Although the Japanese restraint agreement with Canada expired on March 31, 1985, the Canadian Government indicated that it would monitor imports of Japanese autos while continuing to negotiate a new agreement. 6/

During the late 1970's and early 1980's, the U.S. automobile market underwent a significant shift in the shares held by foreign and domestic producers, with the U.S. share dropping from 82.2 percent in 1978 to 71.2 percent in 1981. The American auto industry was experiencing record losses amounting to \$4 billion in 1980, and during 1979-80, employment fell from 929,214 to 740,191 workers. 7/ U.S. car sales decreased from 9.0 million units in 1978 to 6.0 million units in 1981. 8/ U.S. retail sales of Japanese autos, conversely, rose from 11.9 percent of new car sales in 1978 to 22.0 percent in 1981. 9/

In June 1980, the Ford Motor Co. and the United Auto Workers filed a joint petition for relief from imports under section 201 of the Trade Act of 1974 with the U.S. International Trade Commission. The petition claimed that the U.S. auto industry was being substantially injured by foreign car imports.

1/ Alan Altshuler, Martin Anderson, . . . op. cit., p. 33.

2/ Ibid. p. 228.

3/ Ibid.

4/ "Japan Quota Set," Ward's Automotive Reports, June 18, 1984, p. 199.

5/ Ward's Automotive Reports, June 15, 1984.

6/ Richard Johnson, "New Canadian VRA May Seek Investment," Automotive News, Apr. 15, 1985. p. 2.

7/ Aggregated from data submitted in response to Commission questionnaires used in connection with the Commission's ongoing investigation No. 332-188, The Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry.

8/ Sourced from data compiled from various issues of Automotive News.

9/ Ibid.

into the United States. On November 10, 1980, the Commission determined by a 3-2 vote that on-the-highway passenger automobiles were not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat of serious injury, to the domestic industry. The determination followed completion of an investigation, No. TA-201-44, conducted under section 201(a)(1) of the Trade Act of 1974.

By early 1981, legislation to restrict Japanese car imports to 1.6 million units was gaining broad support and the President stated that a veto of such a bill would be politically difficult. 1/ By April of that year, the Japanese Ministry of International Trade and Industry (MITI), following meetings with U.S. trade officials, presented a proposal for a voluntary restraint of 1.6 million to 1.7 million units annually to be enforced by MITI through administrative guidance. 2/ However, Japanese automakers were critical of the plan, stating that high demand for small cars and high U.S. wages were responsible for the U.S. auto industry slump. 3/ To complicate matters, the European Community contended that any restraint agreement with the United States should also apply to the European Community. 4/ By late April 1981, the MITI had reportedly presented its plan in meetings with several Japanese automakers who, in turn, rejected the proposal. 5/

Despite opposition from the Japanese automakers, the MITI announced a voluntary restraint agreement on Japanese auto exports to the United States on May 1, 1981 (see appendix E). The MITI stated that Japan's car exports to the United States would be reduced by 7.7 percent for the Japanese fiscal year of April 1, 1981, through March 31, 1982, from the previous fiscal year's level. 6/ The VRA, in effect, reduced Japan's U.S. car sales from the 1980 level of 1.82 million units to 1.68 million units. 7/ The MITI indicated a second year of restraint would be considered after observing 1981 U.S. market performance. 8/ At a later date, the Japanese announced that exports to the United States of vehicles such as four-wheel-drive station wagons and "jeep"-type vehicles would be limited to 82,500 units, and exports to Puerto Rico would not exceed 70,000 units. Thus, total Japanese exports of autos and the above types of vehicles to the United States for the Japanese fiscal year 1981 were set at 1,832,500 units. There were no changes in these restraint levels during the next 2 Japanese fiscal years (1982-83).

In November 1983, the Japanese Government announced that it would increase its voluntary export limit from 1.68 million to 1.85 million automobiles during its fiscal year 1984. In addition, it also announced that

1/ Jane Seaberry, "Japan Links Auto Cut to Concessions," Washington Post, Apr. 18, 1981.

2/ John Hartley, "Japanese Car Exports Stir Conflicting Views," Automotive News, Apr. 5, 1981, p. 27.

3/ Ibid.

4/ Ibid.

5/ Peter Behr, "Tokyo Said to Ask 7 Percent Auto-Export Cut," Washington Post, Apr. 22, 1981.

6/ "Measures Concerning The Export of Passenger Cars To The U.S.," Ministry of International Trade and Industry, May 1, 1981.

7/ "Japanese Agree To Auto Pact; Brock Optimistic," Washington Star, May 1, 1981.

8/ Ibid.

the four-wheel-drive and "jeep"-type vehicle limit would be increased to 90,848 units and exports to Puerto Rico would rise to 77,083 units. Thus, the total number of Japanese automobiles (excluding automobile trucks but including "jeep"-type vehicles and exports to Puerto Rico) exported to the United States during Japanese FY 1984 would increase from 1,832,500 to 2,017,931 units, or by 10 percent. 1/

On March 1, 1985, President Reagan announced that the United States would not ask the Japanese Government to renew the VRA for 1985. According to an Administration official, the domestic auto makers were now strong enough to compete with the Japanese, and "if the domestic manufacturers give the American public what it wants in the way of automobiles, the Japanese won't boost their sales here." 2/ On March 28, 1985, the Japanese Government told the Administration that it would limit annual auto exports to the United States to 2.3 million units. 3/ This represents an increase of about 25 percent over the previous year's quota of 1.85 million units.

Mexican auto decrees.--Prior to 1962, the Mexican motor-vehicle industry was an assembly operation for completely knocked down (CKD) vehicle kits imported primarily from the United States. 4/ Mexican content of automobiles at this time amounted to less than 15 percent. 5/ The first automobile decree was issued in 1962, followed by three other decrees--in 1972, 1977, and 1983. All four decrees had a central purpose: to establish a viable automobile industry in Mexico and eliminate imports of motor vehicles and of many components as well. 6/ In addition, the decrees rewarded companies that exported motor vehicles and penalized those companies that did not export a certain level of Mexican motor-vehicle production.

Mexico published the first Automotive Decree in August, 1962. The primary focus of the decree was to increase jobs in the Mexican auto industry and to promote local production of automotive components. In this regard, the 1962 auto decree stipulated the following: 7/

1. 60 percent of the value of the finished vehicle would be locally produced;
2. the drivetrain (engine, transmission, and transaxle) would be produced in Mexico;
3. the Mexican Government would establish production quotas;

1/ "Japan Sets New Limits on Car Exports," The Washington Post, Nov. 1, 1983.

2/ Stuart Auerbach, "Reagan Won't Ask Japan to Renew Quotas on Autos", Washington Post, Mar. 2, 1983, p. A1.

3/ Stuart Auerbach, "Japan Raises Ceiling on Auto Shipments to U.S. by 25 Pct.", Washington Post, Mar. 28, 1985, p. A1.

4/ Unpublished paper, Motor Vehicle Manufacturer's Association.

5/ Jack H. Parkinson", The Automotive Industry Decree: Tooling Up For More Exports", Business Mexico, 1978.

6/ "Mexico: Set for a Decade of Growth," Automotive Industries, March 1982, p. 48.

7/ Jack H. Parkinson, "The Automotive Industry Decree: Tooling Up For More Exports", Business Mexico, 1978.

4. Mexican automakers would be limited to three car lines and a total of seven models; and
5. each manufacturer complying with the above requirements would be given an initial quota consistent with past sales performance, and could obtain quota increases by reducing vehicle prices, increasing local content above 60 percent, or exporting Mexican parts and finished vehicles.

Originally, the decree gave auto companies 2 years to comply with its requirements; however, the decree subsequently became effective in late 1965 for model year 1966.

In October, 1972, a second automotive decree was issued to reinforce the earlier law. This decree mandated stronger penalties for local content requirement violations and provided export incentives in the form of indirect sales tax rebates. 1/ Moreover, the second decree established a schedule whereby all auto parts imports for use in production would have to be offset by exports on a dollar-for-dollar basis by 1979. 2/ Consequently, during the mid-1970's, as much of the world auto industry fell into a deep recession, the Mexican auto industry continued to grow dramatically. Passenger car sales increased from 178,191 units in 1973 to 231,108 units in 1975. 3/ Parts imports into Mexico continued to rise while worldwide demand for auto components, and thus for Mexican exports, declined significantly.

By 1977, the Government of Mexico acknowledged a need for a new automotive industry plan. The previous decrees had effectively eliminated imports of CKD's and finished vehicles and had promoted a supplier industry capable of meeting the local assembler's needs for major components, including engines and manual transmissions. Nonetheless, Mexico's trade deficit in automotive parts had deteriorated. 4/ Issued in June 1977, the third automotive decree, like its predecessor, reinforced the goals of the previous decrees by creating more stringent requirements. In essence, the Automotive Decree of 1977 continued the fine-tuning of Mexican automotive policies. The major points of the 1977 decree were: 5/

1. Export requirements: The decree mandated full compensation for all foreign exchange expenditures by 110 percent if the firm operated at minimum local content requirements or by 100 percent if the firm operated at "recommended" local content requirements by June 1981.

1/ Jack H. Parkinson, op. cit.

2/ Ibid.

3/ Motor Vehicle Manufacturers Association of the United States, World Motor Vehicle Data, 1981 edition.

4/ Jack H. Parkinson, op. cit.

5/ Unpublished paper, op. cit., pp. 4-7.

2. Local content requirements: Minimum local content requirements, based on material cost formula of 50 percent for passenger cars and 65 percent for commercial vehicles, were established. Recommended content levels for 1981 and beyond were 75 percent for cars and 85 percent for trucks. There was no need to meet recommended levels to qualify for duty and tax incentives, however, failure to reach these levels resulted in export requirements 13 percent greater than the value of knocked down material imports. Conversely, export requirements were 30 percent lower than knocked down material imports if recommended local content levels were met. Manufacturers with a majority of Mexican capital were placed under less restrictive export and local content requirements. <sup>1/</sup>

In addition to meeting mandatory content levels, certain components had to be procured from local producers. Imports of these components were possible only when local unavailability was demonstrated; furthermore, such imports were subject to import duty payment.

3. Product limitations: Authorization to import, manufacture, and install diesel engines on trucks was reserved for companies with majority local ownership, even though installation of diesel engines on cars was allowed for foreign-owned companies. Vehicle manufacturers wishing to produce more than one engine family had to export at least 60 percent of the total production of the additional engine family. The number of car-lines and models was not restricted, but prior Government authorization had to be secured to add and/or substitute car lines and models.
4. Parts manufacturers: Parts manufacturers had to have at least 60 percent local ownership. A component, in order to become mandatory for local sourcing, had to achieve at least an 80 percent local content level itself. A 60 percent overall local content requirement was placed on the supplier industry.
5. Other requirements: Price controls were ended for passenger cars but remained in effect on commercial vehicles. Direct production quotas were abolished, but production was indirectly limited by the firm's ability to export.

On September 13, 1983, a new decree was issued by the Mexican Government regarding rationalization of the Mexican motor-vehicle industry. <sup>2/</sup> Although the decree was announced by the Mexican Government in the fall of

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<sup>1/</sup> Manufacturers in which Mexican ownership was more than 50 percent.

<sup>2/</sup> "Mexico's rationalization is official," Automotive News, Sept. 24, 1984, p. 34.

1983, it did not become "official" until September 1984. According to the Minister of Commerce and Industrial Development, the publication of the regulations was the result of long and difficult consultations, plus consideration of industry viewpoints. 1/

A summary of the 1983 Mexican auto decree is as follows: 2/

1. Limits the number of car lines and models, as follows: 3/

Model year 1984:	3 lines, 7 models
Model year 1985:	2 lines, 5 models
Model year 1986:	2 lines, 5 models
Model year 1987:	1 line, 5 models

2. Increase in local content from 50 percent to 60 percent for automobiles, from 65 percent to 70 percent for light trucks, and from 80 percent to 90 percent for all other motor vehicles.
3. Stricter enforcement of export requirements.
4. The elimination of production of eight-cylinder engines by 1986.
5. A reduction in Mexican Government subsidies to the automotive sector.

Domestic content.--Two bills were introduced in the 98th Congress mandating a specific U.S. content in automobiles that are sold in the United States. Both imposed a specific amount of U.S. content to be included in every automobile assembled in the United States and a specific U.S. content in all imported automobiles once a certain import level was reached. The two bills (Senate bill S. 707 and House of Representatives bill H.R. 1234) were subtitled the "Fair Practices in Automotive Products Act," and the specified purpose of each bill was "to establish domestic content requirements for motor vehicles sold or distributed in interstate commerce in the United States." 4/

Both bills contained essentially two parts. The first part was the method by which the level of domestic content was to be determined and the second designated the penalty for not reaching the specified content levels. Both bills used the same method to determine the content ratios. Features of the two bills, as summarized by the Library of Congress, were as follows:

The minimum domestic content ratio would be not less than the higher of the domestic content ratio achieved by the vehicle manufacturer in the base model year reduced by 10 percent; or the following:

1/ Ibid.

2/ Unpublished paper by the U.S. Department of Commerce, October 1983.

3/ A line would be a particular make, such as Ford Mustang, and a model is a particular body style.

4/For all practical purposes, the two bills were identical.

<u>Number of vehicles sold:</u>	<u>Minimum domestic content:</u>
Not over 100,000	0 percent
Over 100,000 but not	The ratio determined by dividing the number of vehicles sold by 10,000
Over 900,000	90 percent

For the next two model years the ratio for between 100,000 and 900,000 units would be determined by dividing by 30,000 and 15,000, respectively. In other words, an automaker selling 400,000 cars and light trucks in the American market would be required to have U.S. content of 13.3 percent in the first year, 26.7 percent in the second year, and 40 percent thereafter.

The actual content ratio for a firm would typically be determined as follows:

Production costs of automotive products sold in the U.S. plus  
exports of automotive products minus  
customs value of all automotive products imported divided by  
production costs of autos sold in the U.S. 1/

The penalties would reduce imports of vehicles and parts by the percentage point difference between the actual and required content ratios. In other words, if the automaker were required to meet a 45 percent content ratio but actually achieved only 30 percent, its imports of vehicles and parts would be reduced by 15 percent in the following year. (The wording can also be interpreted to mean that allowable imports would be reduced by the percentage (not percentage points) by which the actual content ratio fell below that required. In the above example, such would be 33.3 instead of 14 percent, since the actual level of 30 is 33.3 percent less than the required level of 45 percent. 2/ The principal trade related bill introduced in the 99th Congress concerning motor vehicles thus far has been H.R. 1050.

H.R. 1050.--On February 7, 1985, Congressman John D. Dingell introduced before the House of Representatives H.R. 1050, or the "Made in America Act." The bill, if passed, would temporarily restrict the quantity of imported motor vehicles to 15 percent of the number of motor vehicles (domestic and foreign) sold in the United States during the prior year. This quota, however, appears to exclude motor vehicles imported by U.S.-based auto companies from their Canadian subsidiaries (see appendix G, p. 3, lines 10-21). The bill defines foreign manufacturers as those foreign companies that imported at least 100,000 new motor vehicles in the prior year, but excludes motor vehicles produced or assembled in the United States in Foreign Trade Zones. In addition, the bill defines a motor vehicle as "any three-wheeled or four-wheeled vehicle, propelled by a gasoline or a diesel engine, which is primarily for use on the public streets, roads, or highways (whether or not the vehicle has four-wheel drive or utility or multipurpose capability) and which is rated at 10,000 pounds gross weight or less."

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1/ Dick Nanto, "Automobile Domestic Content Requirements," The Library of Congress, Issue Brief No. IB82056, Aug. 17, 1983, p. 3.

2/ Ibid, p.4.

Other government policies that have contributed to internationalization.--Although the four government trade policies as discussed thus far have had their primary impact on U.S. manufacturers producing automobiles in the United States, there are other trade policies worldwide that have affected both their U.S. and foreign operations. The principal foreign government trade restrictions that affect U.S. auto producers are local content regulations, import restrictions, and export requirements. These restrictions, commonly called performance requirements, may be applied to both foreign-owned and domestically owned firms, or to foreign-owned firms only. Many times these restrictions are linked with various investment incentives, such as tax breaks, duty suspension or remission, and other investment or operating assistance. There are currently no performance requirements imposed on foreign-owned affiliates in the United States at either the Federal or State levels; however, there was a bill introduced in both the House of Representatives and the Senate that would impose local content requirements on automobiles sold in the United States. (See discussion of proposed local content legislation). There have also been investment incentives by individual States or communities that have encouraged automobile manufacturers to establish a production or assembly facility in a certain location. Nissan, Honda, Toyota, and Volkswagen were all provided various types of incentives to build their plants in Tennessee, Ohio, California, and Pennsylvania, respectively.

Based on information gathered from domestic automobile companies by the Commission, three areas of the world seemed to impose the most significant barriers to automotive trade. These three areas are Japan, Mexico, and South America (primarily Brazil and Argentina). Table 1 summarizes the primary types of barriers that these companies have encountered in Japan, Mexico, certain South American countries, and all other countries.

Table 1.--Primary barriers affecting domestic automobile trade with specified areas of the world

Barrier	Japan	Mexico	Certain South American countries 1/	All other countries
Licensing requirements-----	: Yes	: Yes	: Yes	: Yes.
Embargoes-----	: No	: Yes	: Yes	: Yes.
Exchange and other monetary or financial controls-----	: No	: Yes	: Yes	: Yes.
Local content requirements-----	: No	: Yes	: Yes	: Yes.
Nontariff charges on imports-----	: Yes	: No	: No	: No.
Law and practices that discourage imports-----	: Yes	: Yes	: Yes	: Yes.
Standards which discourage imports-----	: Yes	: No	: No	: Yes.
Administrative difficulties-----	: Yes	: No	: No	: Yes.
Exchange-rate disparities-----	: Yes	: No	: No	: Yes.
Export requirements-----	: No	: Yes	: Yes	: No.

1/ Primarily Brazil and Argentina.

Source: Derived from data submitted by domestic automobile companies in response to questionnaires of the U.S. International Trade Commission.

In addition to the data submitted by domestic companies, a summary of the automotive trade restrictions imposed by various nations in the world appears in table 2.

Table 2.--Survey of automotive trade restrictions maintained by selected nations 1/

Country	Local content requirements	Import restrictions 2/	Export requirements
Algeria-----	: No	: Yes	: No.
Argentina-----	: Yes	: Yes	: Yes.
Australia-----	: Yes	: Yes	: No.
Austria-----	: No	: Yes	: No.
Belgium-----	: No	: Yes	: No.
Bolivia-----	: Yes	: Yes	: No.
Brazil-----	: Yes	: Yes	: Yes.
Chile-----	: Yes	: Yes	: Yes.
Colombia-----	: Yes	: Yes	: Yes.
Denmark-----	: No	: No	: No.
Ecuador-----	: No	: Yes	: No.

See footnotes at end of table.

Table 2.--Survey of automotive trade restrictions maintained by selected nations--Continued

Country	: Local content : requirements	Import restrictions 2/	: Export requirements
:	:	:	:
Egypt-----	: Yes	: Yes	: No.
France-----	: No.	: Yes	: No.
Germany-----	: No	: No	: No.
Ghana-----	: No	: Yes	: No.
Greece-----	: Yes	: Yes	: No.
India-----	: Yes	: Yes	: No.
Indonesia-----	: Yes	: Yes	: No.
Israel-----	: No	: Yes	: No.
Italy-----	: No	: Yes	: No.
Japan-----	: No	: No	: No.
Kenya-----	: No	: Yes	: Yes.
Kuwait-----	: No	: No	: No.
Malaysia-----	: Yes	: Yes	: NA.
Mexico-----	: Yes	: Yes	: Yes.
Morocco-----	: Yes	: Yes	: No.
Netherlands-----	: No	: No	: No.
New Zealand-----	: No	: Yes	: No.
Nigeria-----	: Yes	: Yes	: No.
Norway-----	: No	: Yes	: No.
Pakistan-----	: Yes	: Yes	: Yes
Peru-----	: Yes	: Yes	: No.
Philippines-----	: Yes	: Yes	: Yes.
Portugal-----	: Yes	: Yes	: No.
Saudi Arabia-----	: No	: No	: No.
Singapore-----	: No	: Yes	: No.
South Africa-----	: Yes	: Yes	: No.
South Korea-----	: Yes	: Yes	: Yes.
Spain-----	: Yes	: Yes	: No.
Sweden-----	: No	: No	: No.
Switzerland-----	: No	: No	: No.
Taiwan-----	: Yes	: Yes	: No.
Tanzania-----	: No	: Yes	: No.
Thailand-----	: Yes	: Yes	: No.
Turkey-----	: Yes	: Yes	: Yes.
United Kingdom-----	: No	: Yes	: No.
Uruguay-----	: Yes	: Yes	: Yes.
Venezuela-----	: Yes	: Yes	: Yes.
Yugoslavia-----	: Yes	: Yes	: No.
:	:	:	:

1/ The measures cited are for new cars only.

2/ Import restrictions apply to non tariff measures maintained by a country that deal solely with imports. Tax measures that apply to both imports and domestically produced products are not included. For a more detailed survey of trade restrictions maintained by selected countries, see app. F.

Source: U.S. Department of Commerce.

Nongovernment policies.--Although government trade policies have definitely influenced U.S. investment in foreign countries and investment by foreign manufacturers in the United States, many other factors must be considered when evaluating investment decisions. These include, but are not limited to, local price advantages, proximity of suppliers, transportation costs to the United States, product quality, alternative sourcing, domestic capacity constraints, product not produced in domestic plants, lower wage rates, availability of natural resources for production, and exchange rates. 1/

#### Major World Producers

##### World production and trade overview 2/

In 1983, almost 30 million automobiles were produced in the world, representing an 11 percent increase over the 27 million that were produced in 1982. 3/ The United States, Canada, West Germany, France, Italy, the United Kingdom, and Japan accounted for 81.1 percent, or 24.3 million units, of total world production of automobiles in 1983, as shown in figure 2 and in the following tabulation (in thousands of units): 4/

<u>Country</u>	<u>1983 production</u> (1,000 units)	<u>Percent of total</u> <u>world production</u>
Japan-----	7,152	23.8
United States-----	6,821	22.7
West Germany-----	3,878	12.9
France-----	2,961	9.9
Italy-----	1,495	5.0
United Kingdom-----	1,045	3.5
Canada-----	968	<u>3.2</u>
Subtotal-----	24,320	81.1
All other-----	<u>5,674</u>	<u>18.9</u>
Total-----	29,994	100.0

The three leading areas of the world (Western Europe, North America, and Asia) represented 26.1 million units of production in 1983, or 89.1 percent of the total as shown in the following tabulation and in figure 3, based on data gathered from Automotive News (in thousands of units):

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1/ A discussion of many nongovernment policies that affect corporate decisions concerning offshore sourcing begins with the section entitled "U.S. Trade."

2/ A more detailed analysis of the major world producers is discussed in the various country profile sections that appear at the end of this report.

3/ Automotive News, 1984 Market Data Book, April 25, 1984, p. 4. Data for 1984 not yet available.

4/ Ibid.

<u>World area</u>	<u>1983 production (1,000 units)</u>	<u>Percent of total world production</u>
Western Europe-----	11,052	36.8
North America-----	7,789	26.0
Asia-----	<u>7,290</u>	<u>24.3</u>
Subtotal-----	26,131	87.1
Eastern Europe-----	2,239	7.5
Latin America-----	1,045	3.5
Australia-----	330	1.1
South Africa-----	249	0.8
Total-----	29,994	100.0

With respect to automobile trade in seven of the world's leading automobile producing countries, Japan produced over 7 million automobiles in 1983, exported almost 4 million units, or 53 percent, of its production, but imported only 37,000 automobiles. The world's second leading automobile-producing country, the United States, manufactured almost 7 million automobiles in 1983, imported 3.5 million automobiles, or 52 percent of its production, and exported only 8 percent of its production, or 538,000 units. As shown in table 3, the United Kingdom was the only country to import more automobiles than it produced, and Canada exported almost 90 percent of its production.

Table 3.--Automobiles: Production, exports, and imports for selected countries, 1983 <sup>1/</sup>

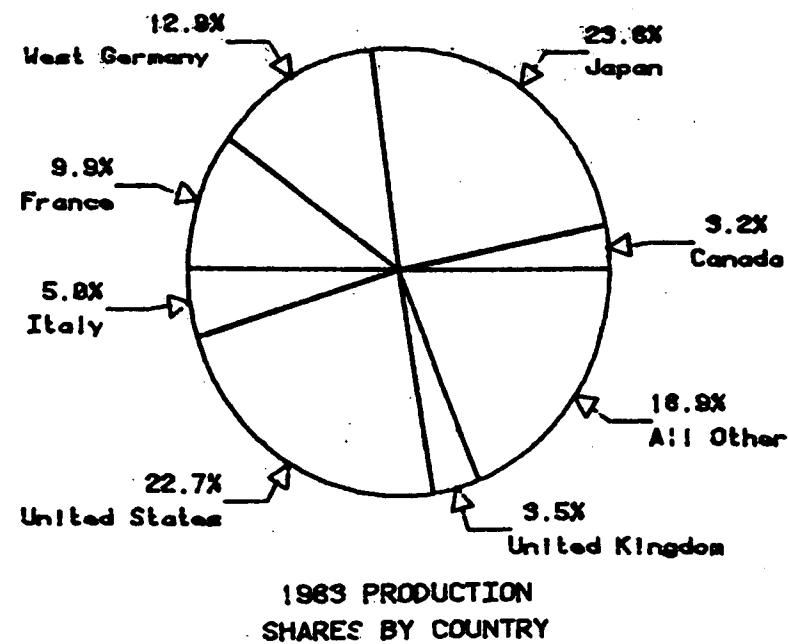
<u>Country</u>	<u>: Production</u>	<u>: Exports</u>	<u>: Imports</u>	<u>: Ratio of exports to production</u>	<u>: Ratio of imports to production</u>
Japan-----	7,152	3,806	37	53.2	0.5
United States-----	6,781	538	3,510	7.9	51.8
West Germany-----	3,878	3,189	1,056	56.4	27.2
France-----	2,961	1,614	962	54.5	32.5
Italy-----	1,396	492	651	35.2	46.6
United Kingdom-----	1,045	274	1,107	26.2	105.9
Canada-----	969	867	744	89.5	76.8

<sup>1/</sup> Production, export, and import data for 1983 are presented here because 1983-84 data are not available for all 7 countries.

Source: World Motor Vehicle Data, 1985 Edition, Motor Vehicle Manufacturers Association of the United States, Inc., p. 35.

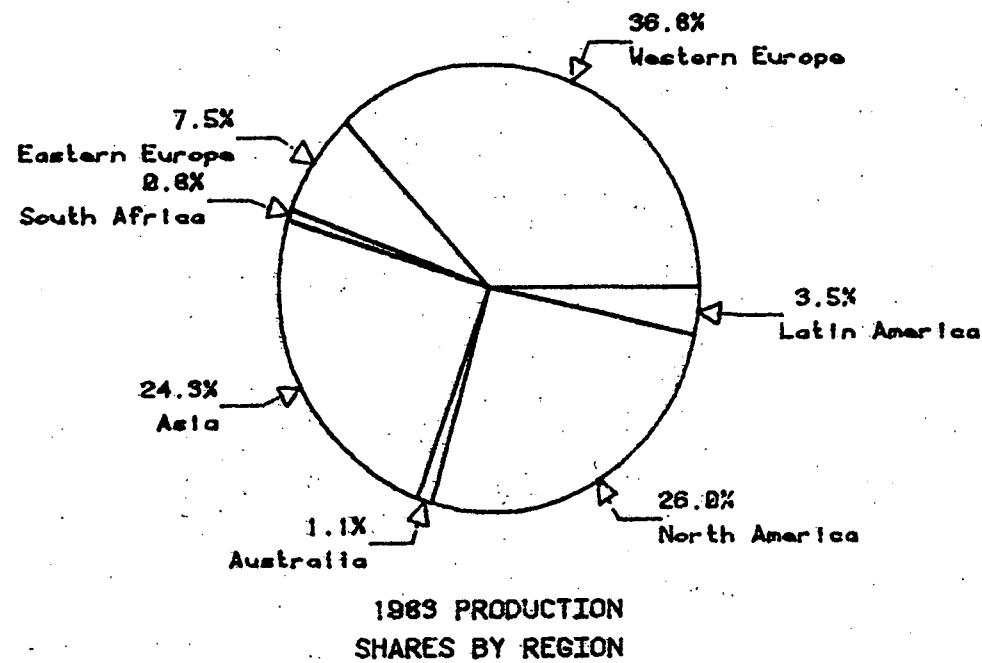
During 1979-83, world production of automobiles decreased from 31.6 million units in 1979 to a low of 27.4 million units in 1982 and then increased to 30.4 million units in 1983. Changes in production trends of the

Figure 2 .--Automobiles: World production, by individual countries, 1983.



Source: Automotive News.

Figure 3.--Automobiles: World production, by geographical regions, 1983.



Source: Automotive News.

principal automobile-producing areas vary, however, as shown in the following tabulation, extracted from Ward's Automotive Yearbooks, 1980-84 (in thousands of units):

World area	:	1979	:	1980	:	1981	:	1982	:	1983
Western Europe--1,000 units--:	12,071	:	11,108	:	10,513	:	11,059	:	11,913	
percent of total-----:	38.1	:	37.8	:	37.4	:	40.3	:	39.1	
North America---1,000 units--:	9,699	:	7,522	:	7,412	:	6,162	:	7,945	
percent of total-----:	30.7	:	25.6	:	26.4	:	22.5	:	26.1	
Japan-----1,000 units--:	6,176	:	7,038	:	6,974	:	6,887	:	7,152	
percent of total-----:	19.5	:	24.0	:	24.9	:	25.1	:	23.5	
All other----1,000 units--:	3,695	:	3,697	:	3,180	:	3,304	:	3,432	
percent of total-----:	11.7	:	12.6	:	11.3	:	12.1	:	11.3	
World total-1,000 units--:	31,641	:	29,365	:	28,079	:	27,412	:	30,442	
	:	:	:	:	:	:	:	:	:	

The North American (United States, Canada, and Mexico) share of total world production dropped from 30.7 percent in 1979 to 22.5 percent in 1982, and then climbed to 26.1 percent in 1983. The share held by Western Europe and all other areas except Japan, remained relatively stable during the 5-year period. Japan, however, increased its share of the world total from 19.5 percent in 1979 to a peak of 25.1 percent in 1982 and then its share declined to 23.5 percent in 1983. Japan, therefore, gained in its share primarily at the expense of North American producers during the North American economic downturn of 1980-82 and held its position after the recovery in late 1982 and 1983.

The world's 30 largest automobile manufacturers accounted for 95.5 percent of total world production in 1982, or 26.2 million units. 1/ For a complete listing of these companies, production data for 1982, and the percent held by each of the 30 companies, see appendix I. Of the top eight companies, two are headquartered in the United States, two in Japan, two in France, one in West Germany, and one in Italy. These eight companies, and their 1983 world production of all motor vehicles, are shown in the following tabulation, extracted from Automotive News (in thousands of units): 2/

<u>Company</u>	<u>1983 world production</u>
1. General Motors (U.S.)-----	7,769
2. Ford (U.S.)-----	4,934
3. Toyota (Japan)-----	3,272
4. Nissan (Japan)-----	2,515
5. Renault (France)-----	2,237
6. Volkswagen (West Germany)---	2,060
7. Peugeot S.A. (France)-----	1,736
8. Fiat (Italy)-----	<u>1,441</u>
Total-----	25,964

1/ Alan Altshuler, Martin Anderson, . . . , op. cit., p. 124.

2/ Data for automobiles only not available for 1984, data are for all motor vehicles.

The extent of the internationalization by each company becomes much more apparent when world production by each company is identified by country of production. In 1983, General Motors, the world's leading manufacturer, produced over 100,000 automobiles in each of six different countries, while Toyota and Nissan, the third and fourth leading manufacturers, produced virtually all of their automobiles in Japan, as shown on the following tabulation, extracted from Automotive News (in thousands of units):

<u>Firm/country</u>	<u>1983 production</u>
<b>General Motors Corporation:</b>	
United States-----	5,104
West Germany-----	954
Canada-----	802
Spain-----	246
Brazil-----	195
United Kingdom-----	178
All other-----	<u>290</u>
Total-----	7,769
<b>Ford Motor Co:</b>	
United States-----	2,479
West Germany-----	548
United Kingdom-----	416
Canada-----	407
Spain-----	228
Brazil-----	151
Australia-----	123
All other-----	<u>582</u>
Total-----	4,934
<b>Toyota:</b>	
Japan-----	3,272
All other-----	<u>1/</u>
Total-----	3,272
<b>Nissan:</b>	
Japan-----	2,515
All other-----	<u>1/</u>
Total-----	2,515
<b>Renault:</b>	
France-----	1,880
Spain-----	314
All other-----	<u>43</u>
Total-----	2,237
<b>Volkswagen:</b>	
West Germany-----	1,538
Brazil-----	341
United States-----	100
All other-----	<u>81</u>
Total-----	2,060

Firm/country1983 production--ContinuedPeugeot:

France-----	1,449
Spain-----	133
United Kingdom-----	125
All other-----	29
Total-----	1,736

1/ The number of automobiles assembled by Nissan and Toyota in countries other than Japan is not available. It is known, however, that the offshore production by both companies is relatively small.

The two leading world automobile manufacturers, General Motors and Ford, produced 35 percent and 50 percent, respectively, of their automobiles in foreign countries, while the number 3 and 4 world producers, Toyota and Nissan, produced few automobiles outside of Japan. Volkswagen, Renault, and Peugeot, the next largest world-auto producers, also assembled most of their autos in their home country.

#### Profile of the U.S. Industry and U.S. Market

The United States produced 4,192 automobiles in 1900, reached the one million mark in 1916, 1/ and in 1984 produced 7.4 million units. 2/ More than 3,000 makes of cars and trucks have been produced in the United States by approximately 1,500 manufacturers since 1900. Most of these manufacturers produced motor vehicles for less than 5 years, and very few survived the Great Depression. Names such as Auto Red Bug, Beech Creek, Kent's Pacemaker, and Silent Knight are now recognized only by the most avid car buffs.

Today, there are only three U.S. wholly owned automobile manufacturers: General Motors Corp. Ford Motor Co. and Chrysler Corp. In addition to these three companies, there are five other manufacturers in the United States that produce automobiles. Renault currently owns 46.6 percent of American Motors, and has an option to increase its holdings to 49.9 percent. 3/ Volkswagen of America, a wholly owned subsidiary of Volkswagen AG, West Germany, and Honda of America, a wholly owned subsidiary of Honda Motor Company, Japan, both produce a subcompact automobile in the United States. In late 1984, production of a subcompact model was initiated by New United Motors Manufacturing, Inc. (NUMMI), a joint venture between Toyota Motor Corporation of Japan and General Motors. In addition, Nissan Motor Manufacturing Corporation, U.S.A., a U.S. subsidiary of Nissan Motor Corporation, Ltd., of Japan, began production of a subcompact model in its Tennessee assembly plant in March 1985.

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1/ Motor Vehicle Manufacturers Association of the United States, Inc., Automobiles of America, Milestones, Pioneers, Roll Call, Highlights, Wayne State University Press, Detroit Michigan, 1974.

2/ MVMA Facts and Figures 1984, Motor Vehicle Manufacturers Association of The United States, Inc..

3/ "Sorting It All Out," Automotive Industries, May 1981, p. 38..

Production and shipments 1/

Total production of automobiles by the six domestic manufacturers 2/ declined from 8.4 million autos in 1979 to 5.1 million units in 1982 and then increased to 7.4 million units in 1984. Since the auto industry carries few vehicles in inventory, 3/ U.S. shipments of automobiles essentially follow the same trend as production. In most U.S. assembly plants, the automobiles are driven directly to either trucks or railcars at the end of the assembly line and shipped to the retail dealer. The similarity in production and shipment trends can be seen when comparing figure 4 (production) with figure 5 (shipments).

As shown in figure 4, production of compact models held the largest share (29.7 percent) of U.S. industry production in 1979 and subcompact models the lowest share (18.0 percent). 4/ Consumers were faced with rapidly rising gasoline prices in 1979, which boosted demand for smaller models; demand moved successively from standard to intermediate and then from intermediate to compact. However, as prices (in constant dollars) of gasoline began to drop and the U.S. economy began to improve in early 1983, consumers switched back to larger models and intermediate and standard/luxury shares of total production gained in both 1983 and 1984. During 1982-84, the intermediate and standard/luxury shares of production increased from 23.6 percent to 29.8 percent and from 20.4 percent to 24.8 percent, respectively. 5/

U.S. production of engines, transmissions, and transaxles reached the highest level in 1979, and then decreased in each year until 1983, when production increased slightly. Virtually all of these components are used in the assembly of new motor vehicles, since the engine, transmission, or transaxle are normally rebuilt rather than replaced when the component wears out. Table 4 depicts total U.S. production of engines, transmissions, and transaxles for 1979-83.

1/ The Commission received questionnaire data regarding U.S. production, imports, and exports of engines, transmissions, and transaxles from all domestic manufacturers. Data for all other parts, however, were not submitted by one major domestic manufacturer, thus primary data for all other parts are published on this report. Trade data, however, for all other motor-vehicle parts are available from official statistics of the U.S. Department of Commerce, and these data are compiled by specific category groupings by the U.S. International Trade Commission and are presented and discussed in this report.

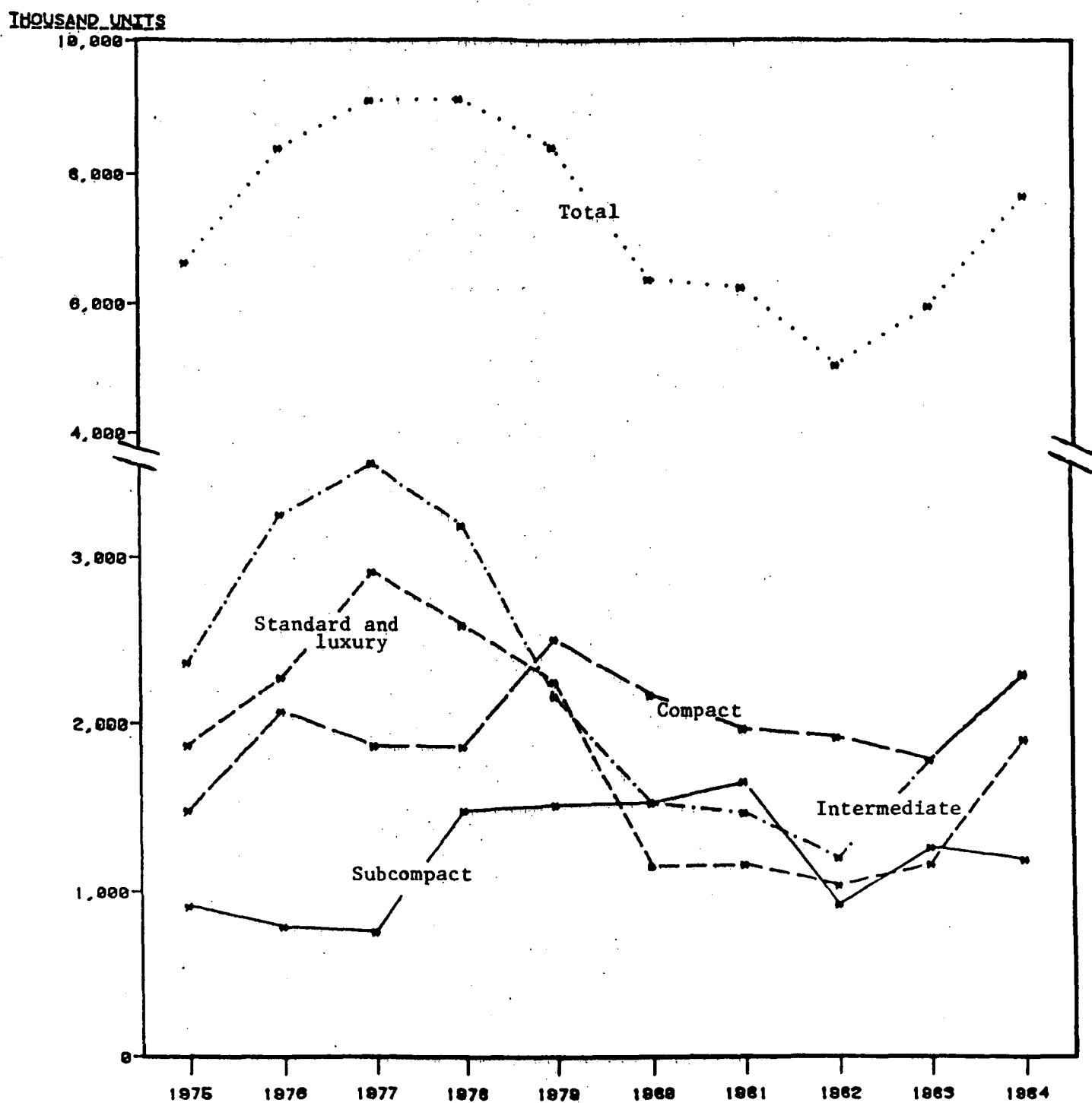
2/ The six U.S. manufacturers included in this report are General Motors, Ford, Chrysler, American Motors, Honda, and Volkswagen. New United Motors Manufacturing, Inc. (a joint venture between General Motors and Toyota Motor) produced only 20 automobiles in 1984, thus, data regarding its operation are not included in this report.

3/ Virtually all inventory is held by retail dealers.

4/ Figures compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

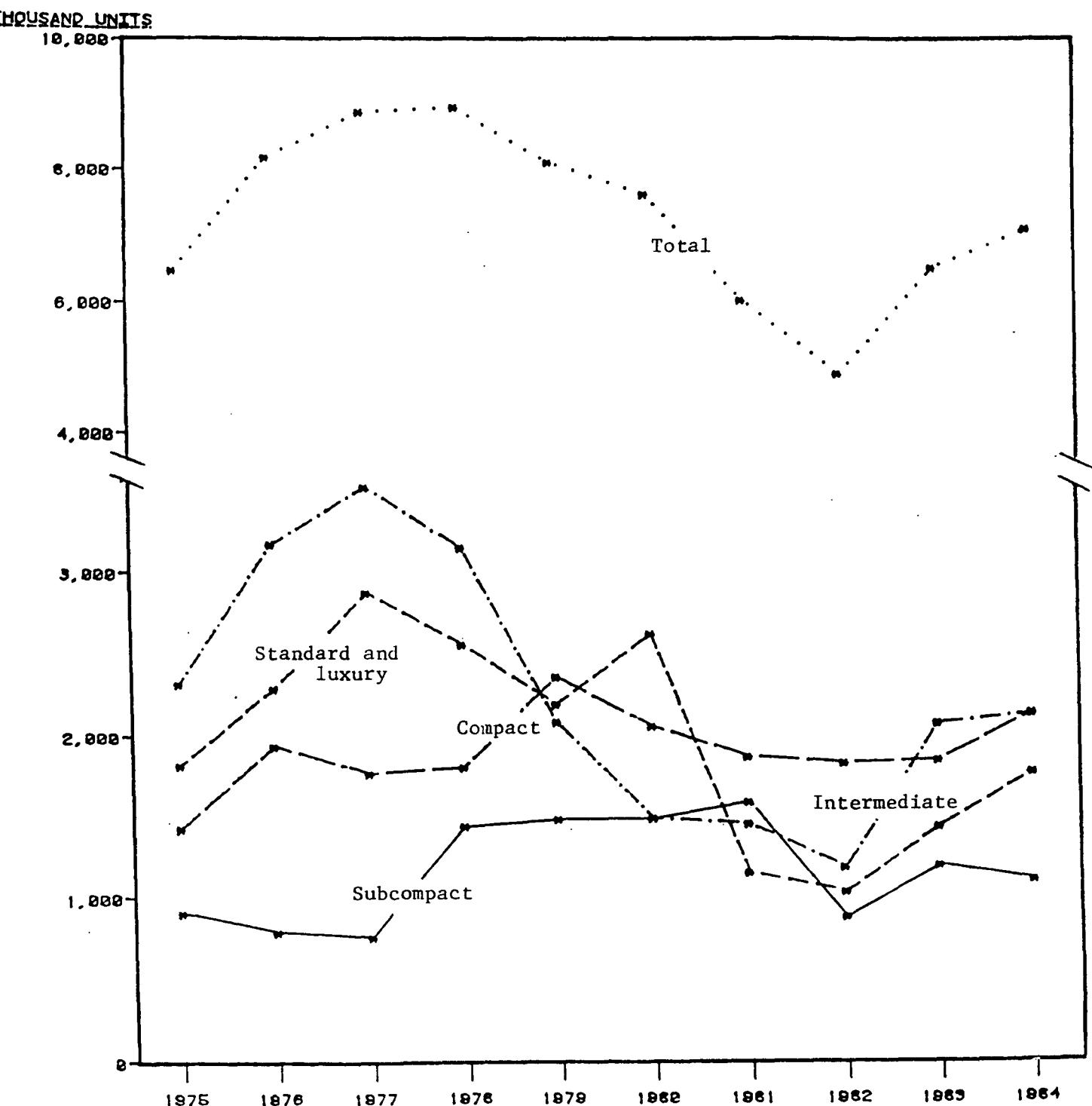
5/ Figures compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 4.--Automobiles: U.S. production, by market categories, 1975-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Figure 5.--Automobiles: U.S. shipments, by market categories, 1975-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 4.--Engines, transmissions, and transaxles: U.S. production  
1979-83

Item	1979	1980	1981	1982	1983
: -----1,000 units-----					
Engines-----:	10,494	8,642	8,306	6,704	7,493
Transmissions-----:	8,605	5,783	5,639	4,737	4,953
Transaxles-----:	2,136	1,955	2,427	2,062	2,563
:	:	:	:	:	:

Source: Compiled from data submitted by domestic manufacturers in response to questionnaires of the U.S. International Trade Commission.

In the past, U.S. production of engines, transmissions, and transaxles followed a similar trend to new-motor-vehicle production. More recently, however, the domestic industry has dramatically increased the number of engines, transmissions, and transaxles imported from either wholly owned foreign subsidiaries or foreign joint venture operations. The following tabulation, derived from questionnaire and Motor Vehicle Manufacturers Association data compares the trend in motor-vehicle production with that of engine production for 1979-83:

Item	1979	1980	1981	1982	1983
Motor-vehicle					
shipments 1/---1,000 units--:	11,423	8,032	7,955	6,928	9,129
Engines-----1,000 units--:	10,494	8,642	8,036	6,704	7,493
Ratio of engine shipments to auto shipments----percent--:	91.9	107.6	101.0	96.8	82.1
:	:	:	:	:	:

1/ Includes trucks.

#### U.S. trade

In 1979, the United States experienced a trade deficit in automobiles of approximately 2.1 million units. By 1984, the trade deficit in automobiles had risen to about 3.0 million units, or by almost 50 percent over that of 1979. The 1984 deficit can be attributed to an increase in demand for Japanese autos which accounted for an additional 353,000 units since 1979 and to an even more substantial increase in the deficit in auto trade with Canada. In 1979, the deficit in auto trade between the United States and Canada amounted to 83,000 units, but by 1984, this figure had increased to 480,000 units, or by almost 500 percent.

The United States experienced a trade surplus in motor-vehicle parts during 1980-82 and a trade deficit during 1983-84. 1/ The following

1/ For a listing of trade data for certain groupings of motor-vehicle parts and accessories for 1980-84, see app. H.

tabulation, derived from U.S. Department of Commerce statistics, shows the trade balance in motor-vehicle parts for 1980-84 (in thousands of dollars):

	<u>Imports</u>	<u>Exports</u>	<u>Trade balance</u>
1980-----	9,024	9,307	283
1981-----	8,447	11,262	2,815
1982-----	9,112	10,642	1,530
1983-----	12,597	11,045	-1,552
1984-----	16,981	13,836	-3,145

The trade balance in motor-vehicle parts went from a surplus to a deficit owing to two principal factors. First, Japanese-owned companies (Nissan and Honda) and one joint venture (GM-Toyota) have begun producing motor vehicles in the United States since 1980. Approximately 50 percent of the value of these vehicles is non-U.S. (principally Japanese), thus imports by these three manufacturers has led to increased parts imports. Second, all U.S.-owned companies have increased their imports of motor-vehicle parts from either wholly owned foreign subsidiaries or jointly owned or independent foreign parts suppliers.

U.S. imports.--U.S. imports of automobiles fluctuated very little between 1979 and 1983, remaining at about 3.0 million units each year. However, in 1984, imports of automobiles rose to about 3.6 million units, owing to an increase in the following:

1. The voluntary export restraint level by the Japanese in fiscal year 1984 (Apr. 1, 1984, through Mar. 31, 1985),
2. Demand for European luxury automobiles that were under no constraints, and
3. Demand for all market categories of automobiles produced in Canada by U.S. subsidiaries and exported to the United States.

The following tabulation, based on official statistics of the U.S. Department of Commerce, shows U.S. imports of automobiles from major sources during 1979-84 (in thousands of units): 1/

Source	: 1979 :	: 1980 :	: 1981 :	: 1982 :	: 1983 :	: 1984 :
:	:	:	:	:	:	:
Japan-----:	1,617 :	1,992 :	1,911 :	1,801 :	1,871 :	1,949
Canada-----:	677 :	595 :	564 :	702 :	835 :	1,073
West Germany-----:	395 :	338 :	234 :	260 :	240 :	335
All other-----:	217 :	188 :	147 :	163 :	188 :	202
Total-----:	2,906 :	3,113 :	2,856 :	2,926 :	3,134 :	3,559
:	:	:	:	:	:	:

1/ Excludes an estimated number of automobiles imported from U.S. foreign trade zones during 1980-84.

U.S. imports from Japan during 1981-84 changed only slightly owing to voluntary restraints placed on Japanese auto exports by the Japanese Government in April 1981. U.S. imports from West Germany generally declined during 1979-83 and increased in 1984, whereas imports from Canada and all other sources followed the general trend of the U.S. economy.

U.S. imports of engines increased from 544,020 units in 1980 to 2,183,842 units in 1983, or by over 300 percent, and U.S. imports of transmissions and transaxles increased from 956,598 units in 1980 to 1,475,183 units in 1983, or by more than 54 percent. Most of this increase can be attributed to increased offshore purchasing by the four U.S.-based automobile producers from their foreign subsidiaries in Mexico, Brazil, and France or joint venture operations in Japan. Table 5 shows the trend in U.S. imports of engines, transmissions, and transaxles during 1980-83.

Table 5.--Engines, transmissions, and transaxles: U.S. imports  
1980-83

Item	:	1980	:	1981	:	1982	:	1983
: -----1,000 units-----								
Engines-----	:	544	:	624	:	1,028	:	2,184
Transmissions-----	:	957	:	912	:	607	:	922
Transaxles-----	:	79	:	289	:	282	:	548
	:		:		:		:	

Source: Compiled from data submitted by domestic manufacturers in response to questionnaires of the U.S. International Trade Commission.

In connection with offshore sourcing of parts, the Commission asked each domestic auto manufacturer to indicate the principal reasons for purchasing engines from foreign sources. The companies rated certain factors according to importance for each country from which they purchased engines. The results of this survey for each principal source country or country-pair are summarized in tables 6, 7, and 8.

Table 6.--Factors for offshore sourcing from Canada

Item	: 5 (very important)	: 4	: 3	: 2	: 1 (not important)
Net price-----:	X	:	:	:	:
Proximity of supplier-----:		X	:	:	:
Transportation costs-----:			X	:	:
Performance requirements (import/export ratios, etc.)-----:					X
Quality of product-----:	X	:	:	:	
Alternative source-----:			X	:	:
Domestic capacity constraints-----:				X	:
Product not produced in domestic plants-----:				X	:

Source: Compiled from data submitted by domestic manufacturers in response to questionnaires of the U.S. International Trade Commission.

Table 7.--Factors for offshore sourcing from Japan

Item	: 5 (very important)	: 4	: 3	: 2	: 1 (not important)
Net price-----:	X	:	:	:	:
Proximity of supplier-----:		:	:	:	X
Transportation costs-----:			X	:	:
Performance requirements (import/export ratios, etc.)-----:					X
Quality of product-----:	X	:	:	:	
Alternative source-----:		:	:	X	:
Domestic capacity constraints-----:		X	:	:	
Product not produced in domestic plants-----:		X	:	:	

Source: Compiled from data submitted by domestic manufacturers in response to questionnaires of the U.S. International Trade Commission.

Table 8.--Factors for offshore sourcing from Mexico/Brazil

Item	5 (very important)	4	3	2	1 (not important)
Net price-----:	X	:	:	:	:
Proximity of supplier-----:	:	:	:	:	X
Transportation costs-----:	:	:	X	:	:
Performance requirements (import/export ratios, etc.)-----:	X	:	:	:	:
Quality of product-----:	X	:	:	:	:
Alternative source-----:	:	:	X	:	:
Domestic capacity constraints-----:	:	:	X	:	:
Product not produced in domestic plants-----:	:	:	:	X	:

Source: Compiled from data submitted by domestic manufacturers in response to questionnaires of the U.S. International Trade Commission.

Net price and quality of product were consistently cited as overriding factors in making a decision to purchase engines from the four countries. Performance requirements were a major factor in decisions to purchase from Mexico and Brazil, while they were of little consequence for Canada and Japan, two countries that do not have specific performance requirements. Midpoint rankings were given for "transportation costs," "product not produced in domestic plant," and "alternative source."

U.S. exports and trade balance.--U.S. exports of automobiles to Canada accounted for the majority of total U.S. exports. The following tabulation, based on official statistics of the U.S. Department of Commerce, reflects U.S. exports to principal markets during 1979-84 (in thousands of units):

Market	1979	1980	1981	1982	1983	1984
Canada-----:	594	508	470	333	523	587
Saudi Arabia-----:	31	22	14	11	11	3
Japan-----:	15	7	4	3	2	2
All other-----:	163	97	77	45	24	21
Total-----:	803	634	565	392	560	613

Figure 6 shows total U.S. imports and exports of automobiles during 1979-84 and the widening deficit in U.S. automobile trade during the period.

U.S. exports of engines, transmissions, and transaxles, however, did not follow the same trend as U.S. imports of these components, as shown in figure 7. U.S. exports of engines and transmissions remained relatively constant during 1980-83, and exports of transaxles increased each year during the corresponding period, as shown in table 9.

Table 9.--U.S. exports of engines, transmissions, and transaxles, 1980-83

Item	1980	1981	1982	1983
Engines-----:	877	949	892	854
Transmissions-----:	870	924	808	1,040
Transaxles-----:	2	21	65	153

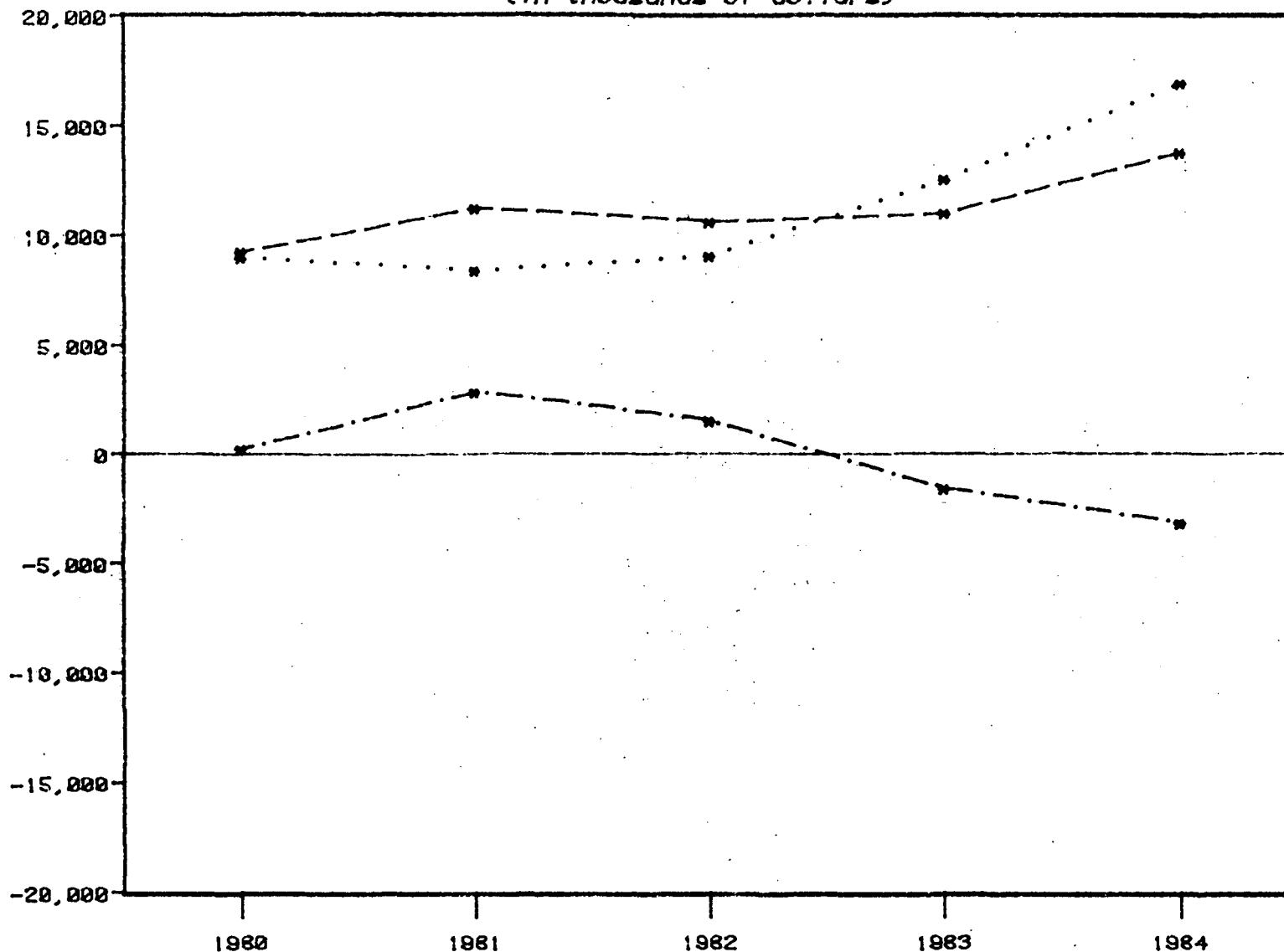
Source: Compiled from data submitted by domestic manufacturers in response to questionnaires of the U.S International Trade Commission.

#### Employment and wages

According to data submitted by the domestic automobile industry in response to questionnaires of the U.S. International Trade Commission, total employment by these firms dropped from 929,214 workers in 1979 to a low of 622,885 workers in 1982 and then increased to 720,448 workers during January-June 1984. Employment of production workers followed the same trend, and the ratio of total employment to production workers also remained relatively constant, as shown in table 10. As production of autos declined during 1979-82, employment in the industry dropped. However, as the economy recovered and demand for autos increased in 1983 and 1984, some workers were called back by the industry.

Figure 6 .--Automobiles: U.S. imports, exports, and balances of trade, 1980-84.

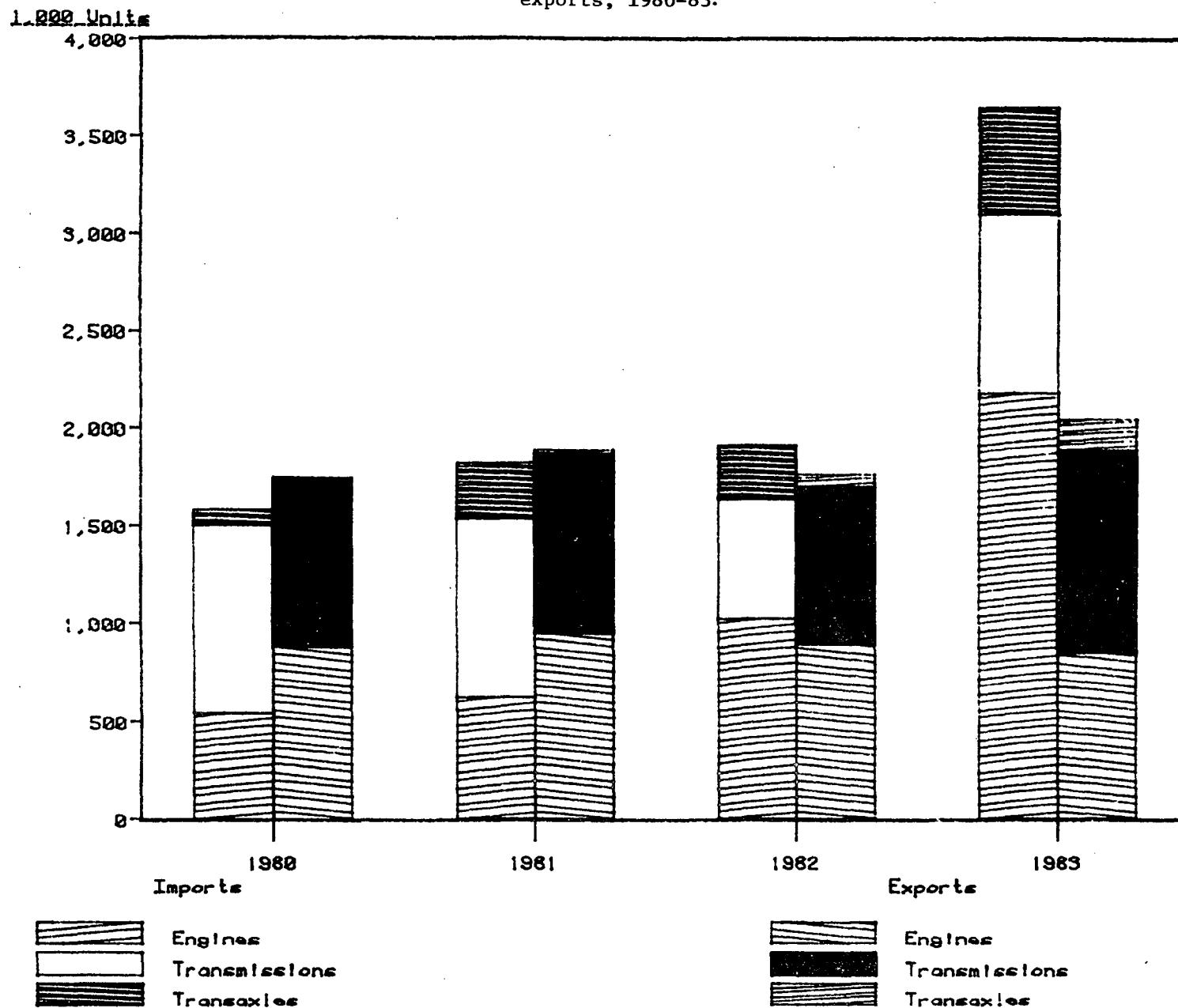
(In thousands of dollars)



- \* . . . \* Imports
- \* — — \* Exports
- \* - - - \* Balance of Trade

Source: U.S. Department of Commerce

Figure 7.--Engines, transmissions, and transaxles: U.S. auto manufacturers' imports and exports, 1980-83.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 10.--Average number of employees, total production and nonproduction workers employed in firms producing automobiles, 1979-83, and January-June 1984 1

Item	1979	1980	1981	1982	1983	Jan.-June 1984
Average number of employees:						
All employees-----	929,214	740,191	723,946	622,885	656,970	720,448
Production employees-----	779,121	609,315	602,264	509,195	543,849	605,065
Nonproduction employees-----	150,092	130,876	121,682	113,690	113,121	115,383
Ratio of production to total employees:						
percent--	83.8	82.3	83.2	81.7	82.8	83.4

1/ Includes significant numbers of employees engaged in the production of trucks and automotive parts.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Average hourly wages for the six domestic automobile producers increased from \$10.52 in 1979 to \$15.33 during January-June 1984, as shown in the following tabulation, based on Commission questionnaire responses:

<u>Period</u>	<u>Total wages paid to production workers (million dollars)</u>	<u>Hours worked (millions)</u>	<u>Average hourly wages</u>
1979-----	18,738	1,781	\$10.52
1980-----	15,874	1,363	11.64
1981-----	17,304	1,359	12.73
1982-----	14,995	1,127	13.31
1983-----	18,036	1,279	14.10
1984 (Jan.- June)-----	11,300	737	15.33

The Commission also requested data concerning employment in foreign subsidiaries of U.S. companies. According to information supplied by domestic automobile manufacturers, West Germany, the United Kingdom, Canada, Brazil, and Mexico account for the majority of the number of persons employed by domestic auto producers in non-U.S. operations. The following tabulation, derived from questionnaire data shows total non-U.S. employment of the four U.S.-based automobile producers for 1979-83:

Number of employees

1979-----	509,444
1980-----	475,834
1981-----	453,911
1982-----	441,269
1983-----	445,991

Hours worked per vehicle and Japanese cost advantage

Questionnaire data and data compiled from public sources indicate that hours worked per motor vehicle (autos and trucks) produced declined from 211.6 in 1979 to 199.2 in 1984, as shown in the following tabulation:

	<u>Hours worked</u> <u>(millions)</u>	<u>Motor vehicles</u> <u>produced</u> <u>(thousands)</u>	<u>Hours per motor</u> <u>vehicle</u>
1979-----	1,781	8,413	211.6
1980-----	1,363	6,377	213.7
1981-----	1,359	6,253	217.3
1982-----	1,127	5,072	222.2
1983-----	1,279	5,980	213.8
1984-----	1,474	7,400	199.2

An examination of other published research efforts that have attempted to quantify the number of hours required to produce a typical U.S. automobile (usually a subcompact or compact model) yielded results that were inconclusive and conflicting. Much of this disagreement stems from the varying definitions of the production process. In a highly vertically integrated operation, man-hour-per-vehicle calculations may include such nonassembly components as engine or drive train production. For a basic assembly operation, however, man-hours per unit might take into consideration only the time required to incorporate such items into the finished vehicle. In addition, much of the research to date has also attempted to compare the hours required to produce a U.S. automobile with the number of hours required to produce a Japanese-built automobile. A summary of the research results is as follows:

- o Yoshi Tsurumi, a Professor of International Business, Baruch College, estimated that in 1979, it took Mazda 47 labor hours to produce a subcompact in Japan, but Ford required 112 labor hours in the United States to produce a similar size automobile. 1/ In the same article, Tsurumi also cited a Chrysler Corp. press release that stated that Japanese manufacturers currently used 30 labor hours compared with 60 labor hours in the United States to produce a subcompact auto. 2/

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1/ Yoshi Tsurumi, Multinational Management, Ballinger, Cambridge, Mass., 1984, chap. 13.

2/ Ibid.

- o It is reported that General Motors currently requires 130 hours per subcompact car but expects to reduce the level to 70 to 75 hours per unit by 1988-90. 1/
- o A report to be released by Data Resources, Inc., estimates that approximately 60 hours are currently required to produce a Japanese subcompact, and almost 75 hours, for a larger, sporty model. 2/
- o A recent study released by the Massachusetts Institute of Technology reported that in 1970, Japanese automakers needed 250 hours to produce an auto compared with 200 hours for a typical U.S. producer. However, the Japanese can now produce an automobile with 35 percent fewer hours per car than U.S. producers, or approximately 140 hours per car, as opposed to 215 hours for U.S. cars. 3/
- o In 1981, James Harbour & Associates estimated that U.S. auto producers required about 150 hours per subcompact auto, but the Japanese producer needed only 80 hours. Harbour also estimated that the labor hours used by suppliers producing the components purchased outside of the auto manufacturer were about equal. 4/

It is apparent from the above-mentioned studies that there is considerable disagreement regarding the number of hours required by Japanese and U.S. producers to manufacture a "typical" subcompact automobile. All of the studies, however, report that the Japanese require fewer man-hours to produce an auto than U.S. producers. In addition, most of the studies indicate that fewer hours are required to produce an auto today than 4 to 5 years ago in both countries and that the gap between U.S. and Japanese producers appears to be narrowing. It should be noted, however, that any additional outsourcing (within the United States or in foreign countries) would tend to decrease the hours per vehicle, with no actual increase in U.S. productivity. It is known that additional outside purchasing occurred during 1979-84, but the degree to which that has occurred is unknown.

Similar to the dispute concerning the number of hours required to produce an automobile is that regarding the extent of the Japanese cost advantage over U.S.-built automobiles. According to many automobile analysts, the Japanese enjoy a landed cost advantage of approximately \$1,500 to \$2,000 per automobile when compared with a typical U.S.-built auto. 5/ One industry analyst believes that the Japanese enjoy a cost advantage of over \$2,000 per

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1/ Warren Brown, "GM Making Last Stab at Small Cars," Washington Post, Jan. 13, 1985, p. E1.

2/ Unpublished report, Data Resources, Inc., 1985.

3/ Robert Samuelson, GM's UAW contract: "Blue Smoke, Mirrors," Washington Post, Oct. 3, 1984.

4/ Anne Fisher, "Can Detroit Live Without Quotas?" Fortune, June 25, 1984, p. 20.

5/ "Small-car Future Rides on Saturn," Washington Post, Jan. 13, 1985, p. E1; "Brock, Auto-import Quotas to End," Washington Post, May 2, 1984, and "Japan's Cost Edge call Overstated," Automotive News, May 2, 1983, p. 12.

advantage attributed to the U.S.-Japanese currency imbalance. 1/ A professor at the City University of New York stated that the cost advantage of Japanese subcompacts over their American counterparts is rooted in the flexible manufacturing systems that Japanese auto firms have refined for over a decade. 2/

One of the most extensive studies comparing U.S. with Japanese costs estimated that the Japanese produced a subcompact model auto with 42 percent fewer hours than that required for a U.S. car and that the manufacturing cost advantage was approximately \$1,643 per unit. The wage difference was about \$550 per vehicle, and the cost to ship the auto to a U.S. port was about \$480 per unit, giving the Japanese an average U.S. landed cost advantage of \$1,708 per auto. 3/ This study concluded that the cost advantage was due primarily to superior management, rather than labor cost or superior technology.

Estimates at the lower end of the Japanese unit-cost advantage range between \$200 and \$1,500. 4/ The National Academy of Engineers cites management techniques, low absenteeism rates, and lower hourly wages (as much as \$500 per auto), as the three principal factors of the Japanese cost advantage. 5/

In a more focused study, Yoshihide Konda, an analyst at Daiwa Securities Co. of Japan, conducted research comparing the costs of the Honda Accord built in Honda's Marysville, Ohio plant and the Accord built in Japan. His study indicates that the U.S.-built Honda is about \$500 more expensive, but the Ohio Accords are still \$1,000 to \$1,500 less expensive to produce than similar sized U.S.-produced autos. 6/ Even though there is general agreement as to the existence of a cost advantage, there is not agreement as to the principal cause of the advantage.

#### Financial data

Profit and loss.--The six domestic producers of automobiles reported a net loss on U.S. operations each year during 1979-82 and net profits in 1983 and January-June 1984, according to questionnaire data submitted to the U.S. International Trade Commission (in millions of dollars):

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1/ Greg Johnson, "Detroit's Lead Isn't Long-Lived," Industry Week, Apr. 2, 1984, p. 15.

2/ Yoshi Tsurumi, How Not to Save the U.S. Auto Industry--Hidden Costs of Import Quotas on Japanese Cars, Baruch College, the City University of New York, 1984.

3/ Hobart Rowen, "Detroit Turns a Deaf Ear to What Consumers Are Saying," Washington Post, Nov. 6, 1983, p. G1.

4/ Anne Fisher, "Can Detroit Live Without Quotas?" Fortune, June 25, 1984, p. 20; Kenneth R. Mac Donald, "Japan's Cost Edge Called Overstated," Automotive News, May 2, 1983, p. 12.

5/ The Competitive Status of the U.S. Auto Industry, the National Academy of Engineers and the National Research Council, Nov. 1, 1984.

6/ Lance Ealey, "U.S.--Build Hondas, Nissans Retain Cost Edge," Automotive Industries, September 1984, p. 18.

Item	:	1979	:	1980	:	1981	:	1982	:	1983	:	1984	<u>1/</u>
	:		:		:		:		:				
Net sales-----	:	88,413	:	72,100	:	80,734	:	79,495	:	108,003	:	129,600	
Cost of goods sold-----	:	88,813	:	76,767	:	83,030	:	80,048	:	102,673	:	119,600	
Net profit or (loss)----	:	(400)	:	(4,667)	:	(2,296)	:	(553)	:	5,330	:	10,000	
	:		:		:		:		:				

1/ Estimated on the basis of January-June 1984 data submitted in response to questionnaires of the U.S. International Trade Commission and various trade publications.

The dramatic turnaround by the domestic industry (from a \$4.7 billion loss in 1980 to a \$10 billion profit in 1984) was caused by a combination of factors. The most important factor was the increase in production. Since the auto industry has very high fixed costs, once the break-even point is reached, the industry's profits increase at a rapid rate (see break-even analysis, p. 17). The industry also reduced its operating costs substantially, reducing both fixed and variable costs during 1980-84. The other major factor that affected profits was the VRA that limited the number of Japanese autos and allowed the auto industry to sell more units than if the VRA had not been in effect (see p. 50).

During the years the voluntary restraints were in effect, the domestic auto companies registered a total net profit of about \$12.9 billion on their U.S. operations. If profits in the January-March 1985 period are projected on the basis of January 1985 sales (which were 12 percent ahead of those in January 1984) assuming all other factors remain equal, then the domestic industry will generate at least an additional \$3 billion in profits by March 31, 1985, when the current voluntary restraint agreement expires.

Worldwide sales and profits and losses during 1979-84 reported by the four principal U.S. automakers (General Motors, Ford, Chrysler, and American Motors) indicate an earlier return to profitability than that experienced in the United States, as shown in the following tabulation, derived from data compiled by Automotive News (in millions of dollars):

Item	:	1979	:	1980	:	1981	:	1982	:	1983	:	1984	
	:		:		:		:		:				
Net sales-----	:	129,944	:	106,620	:	113,480	:	110,400	:	135,837	:	160,060	
Net profit or (loss)-----	:		:		:		:		:				
	:	3,036	:	(4,211)	:	(1,340)	:	321	:	6,151	:	9,820	
	:		:		:		:		:				

Instead of 4 consecutive years (1979-82) of losses, amounting to \$7.9 billion, as reported on U.S. operations, the four U.S.-based auto manufacturers reported 2 years of losses, totaling \$5.6 billion, on worldwide sales. In the 4 profitable years during 1979-84, the four major U.S. producers together registered total profits of \$20.4 billion for worldwide operations. This was due principally to the fact that General Motors and Ford operated profitably for most years in Europe, their major overseas market.

Break-even analysis.--An indicator of a company's ability to generate profits or losses may be found through break-even analysis. Inasmuch as such analysis involves determining the level of net sales required to cover a firm's fixed and variable expenses, the ultimate break-even point calculation is a subjective assessment. Variable expenses that fluctuate substantially with production scales, business cycles, and events in supplier industries are difficult to accurately assess. However, break-even calculations generally yield reasonable estimates and, when examined over a period of time, can provide insight into trends of operational profitability and potential corporate performance.

The three major U.S. automakers, General Motors, Ford, and Chrysler, which together account for over 90 percent of domestic production, have each substantially lowered their break-even point during 1979-84. 1/ According to one analysis, General Motors' break-even level, based on worldwide vehicle sales, fell from 8.4 million units in 1979-80 to about 6.7 million units in 1983. 2/ Similarly, the break-even level for Ford's North American vehicle operations declined from 3.6 million units in 1979-80 to 2.5 million units in 1983. 3/ Chrysler Corp. reportedly reduced its break-even level for its North American operations from 2.3 million units to 1.1 million units during the period 1979-80. 4/ The 1979 break-even requirement for Chrysler exceeded Chrysler's production capacity at the time. Another analysis indicated that GM's 1982 break-even point of 6.5 million units for its worldwide vehicle operations had been lowered to 5.6 million units by 1984, and Ford's North American vehicle operations break-even point declined from 3.1 million units in 1982 to 2.3 million units in 1983 and to 2.1 million units by 1984. 5/ This analysis noted that Chrysler's corporate restructuring came about more quickly than those of its larger domestic rivals, such that the corporation's break-even level has remained at about 1.2 million vehicles since 1982. 6/

One of the principal reasons for the drop in break-even points was that the industry was able to dramatically reduce some of its costs. For example, Ford Motor Co. reduced costs by a total of \$4 billion between 1979 and early 1984 by closing seven plants and reducing its payroll by 60,000 salaried and hourly employees. 7/ According to James Harbour, Ford, Chrysler, and General Motors have made substantial gains in quality control, or "trying to get

1/ In this section, break-even analyses for U.S. automotive operations alone were not available and most likely would have yielded misleading information. Given the extensive integration of U.S. and Canadian automotive facilities, break-even estimates for total North American operations indicate U.S. corporate situations more satisfactorily. However, the General Motors Corp. provides only financial data consolidating their worldwide operations, including Europe and Brazil, for public use. Nonetheless, the data do provide an indication of relative U.S. performance.

2/ David Healy, Cars-Analysis and Forecast, Drexel Burnham Lambert, Inc., November 1984.

3/ Ibid.

4/ Ibid.

5/ Harvey Heinbach, unpublished report, Merrill Lynch, Pierce, Fenner and Smith, Inc., 1984.

6/ Ibid.

7/ Peter Nulty, "Ford's Fragile Recovery," Fortune, Apr. 2, 1984, p. 42.

things right the first time." 1/ The Chrysler Corp. negotiated wage and benefit concessions from hourly workers in 1980 that amounted to a savings of about \$600 per car, 2/ and when the new General Motors and Ford labor contracts were negotiated in October 1984, the wage and benefit increases were moderate compared with previous contracts. The auto companies have also put pressure on suppliers to decrease prices and increase the level of quality of the parts that they supply the industry. 3/ In addition to these specific savings, the industry has decreased the amount of inventory it carries, increased outside purchasing (which reduces capital expenditures and research and development costs), increased productivity, and even reorganized major divisions of the corporation so that they are more cost effective and efficient. 4/ According to James Harbour, the "Big Three" (General Motors, Ford, and Chrysler) chopped more than \$10 billion out of their annual costs by "squeezing suppliers for millions of dollars, canceling or delaying at least a dozen new products, and closing enough plant space to house a small city." 5/

Capital expenditures and research and development.--Capital expenditures of the U.S. auto industry increased each year from 1979 to 1981, declined in both 1982 and 1983, and are estimated to have remained stable in 1984. Expenditures for research and development, however, increased each year, from \$3.4 billion in 1979 to \$4.1 billion in 1983. The following tabulation depicts both research and development and capital expenditures data during 1979-83, which was derived from data supplied by the industry in response to U.S. International Trade Commission questionnaires (in millions of dollars):

Item	:	1979	:	1980	:	1981	:	1982	:	1983
	:	:	:	:	:	:	:	:	:	
Capital expenditures-----:		6,888	:	7,311	:	7,761	:	6,795	:	5,125
Research and development-----:		3,414	:	3,418	:	3,554	:	3,600	:	4,034
Total-----:		10,302	:	10,729	:	11,315	:	10,395	:	9,159
	:	:	:	:	:	:	:	:	:	

As shown in figure 8, capital expenditures and research and development costs increased at a very rapid rate from 1975 to 1980 and then began to decline after 1981. Although data are not available for 1984, it is believed that capital expenditures in 1984 will probably be about the same or decrease slightly from those in 1983, and research and development costs will most likely increase modestly. Hence, capital expenditures declined each year following the initiation in 1981 of the voluntary restraints, and research and development expenditures increased each year.

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1/ "Detroit Turns a Deaf Ear to What Consumers Are Saying," Washington Post, Nov. 6, 1983.

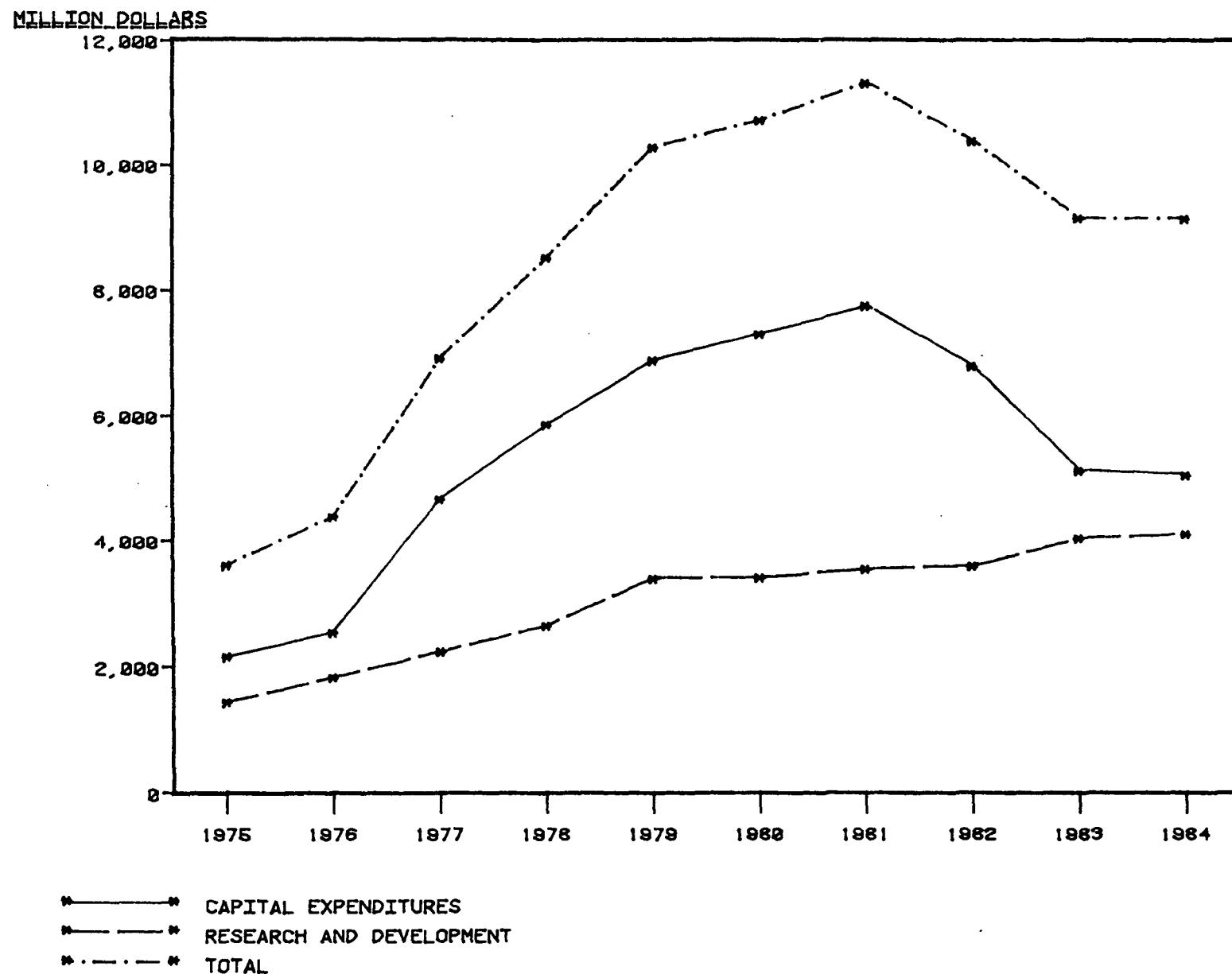
2/ "Ford Faces the Future: Cut Costs, Think Small," Washington Post, May 31, 1981.

3/ "Pressure on Auto Suppliers Increases As Detroit Prepares for Quota's End," Washington Post, May 31, 1984.

4/ Marjorie Sorge, "Smith: GM To Be Reshaped Giant by End of Decade," Automotive News, Feb. 13, 1984, p. 1.

5/ "Unions Bear Come-Back Burden," Washington Post, Dec. 25, 1983.

Figure 8.--Capital expenditures, research and development expenditures, and total expenditures, 1975-84.



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission, except 1984 which is partially estimated by the staff of the U.S. International Trade Commission.

One explanation for the decline in capital expenditures after 1981 is that much of the major retooling efforts by the industry occurred prior to 1982, when the industry redesigned many of its autos from rear-wheel-drive to front-wheel-drive, such as the subcompact Ford Escort/Lynx, the Chrysler Reliant/Aries, and the General Motors Cavalier, J-2000, and Cimarron. Also, although the domestic industry has introduced additional newly designed front-wheel-drive automobiles since 1982, much of the expense for capital investment was expended prior to 1982. In addition, heavy capital investment in the late 1970's and 1980-81 created a large debt burden for the domestic companies, increasing their debt-to-equity ratio by a substantial amount. Because of the high debt, it is likely that the companies were reluctant to continue increasing the debt and, therefore, did not make some of the capital investments that may have otherwise been made.

Much of the capital investment by the industry has been for either building new plants or completely redesigning older plants so that newly developed processes, such as robotized welding, computerized process controls, transfer lines, and overhead conveyors, can be utilized. In addition, the auto industry expended significant amounts of capital for the use of computer-aided design (CAD) and computer-aided manufacturing (CAM) systems during the last 5 years. Robots, which were formerly used primarily for major welding operations, are now being used for painting, materials-handling, and quality control procedures. The industry now operates with a much lower inventory level than in 1980 owing to direct computer linkups with suppliers and increased computer-monitored inventory within the assembly plant. New production processes, such as "evaporation casting," or "lost foam casting," have also decreased production costs. <sup>1/</sup> The increased usage of plastics, aluminum, and carbon fibers has not only reduced the weight of the average automobile, but in many cases the cost of producing it as well. Although it is not possible to quantify the cost savings of these new production methods and technological changes, there is no doubt that the savings because of these advancements have been significant.

#### Capacity changes

Capacity for the U.S. production of automobiles decreased from 10.1 million units in 1979 to 8.6 million units in 1983 and then rose to 9.0 million units in 1984. According to data supplied by the industry in response to U.S. International Trade Commission questionnaires, capacity utilization has been calculated, as shown in the following tabulation:

Item	:	1979	:	1980	:	1981	:	1982	:	1983	:	1984
Capacity	:	:	:	:	:	:	:	:	:	:	:	
U.S. production	1,000-	10,145	:	9,813	:	9,216	:	9,295	:	8,588	:	8,951
Capacity utilization rate	1,000-	8,413	:	6,377	:	6,253	:	5,072	:	5,980	:	7,773
percent--		82.9	:	65.0	:	67.8	:	54.6	:	69.6	:	86.8

<sup>1/</sup> Wards Automotive Yearbook, 1984, p. 25.

A number of financial analysts have forecasted domestic sales for 1985 at a level of between 7.6 million and 9.5 million units, with a composite average of 8.2 million units. 1/ If the composite figure of 8.2 million units is correct and domestic capacity remains relatively constant, then the capacity utilization rate for 1985 should approach 92 percent.

Although the industry produced fewer automobiles in 1984 compared with the number produced in 1979, the capacity-utilization rate increased almost by 4 percentage points because of the drop in total capacity. The three principal U.S. automakers all closed assembly plants during 1979-81 in order to reduce costs. They then either renovated or built completely new assembly plants during 1982-84 that are more productive than the older plants that were closed.

#### U.S. retail sales

Sales of imported automobiles were insignificant in the U.S. market until 1957, when retail sales approached 200,000 units. This number, however, represented only 3 percent of the U.S. market in 1957. Not until 1969 did import car sales reach the 1 million mark and, in 1977, sales of imports surpassed 2 million units. Total annual sales of domestically produced and imported automobiles are presented in figure 9, and import penetration ratios for all imports and Japanese imports are shown in figure 10.

U.S. retail sales of domestically produced automobiles dropped from 8.2 million units in 1979 to 5.8 million units in 1982 and then rose to almost 8.0 million units in 1984. 2/ U.S. sales of imported automobiles, however, remained almost constant during 1979-84, owing primarily to the Japanese voluntary export restraints. During the period under review, the ratio of U.S. imports to total retail sales peaked in 1982 at 27.8 percent and then declined to 23.3 percent in 1984, as shown in table 11.

Table 11.--Automobiles: U.S. retail sales, import retail sales, and total retail sales, 1979-84

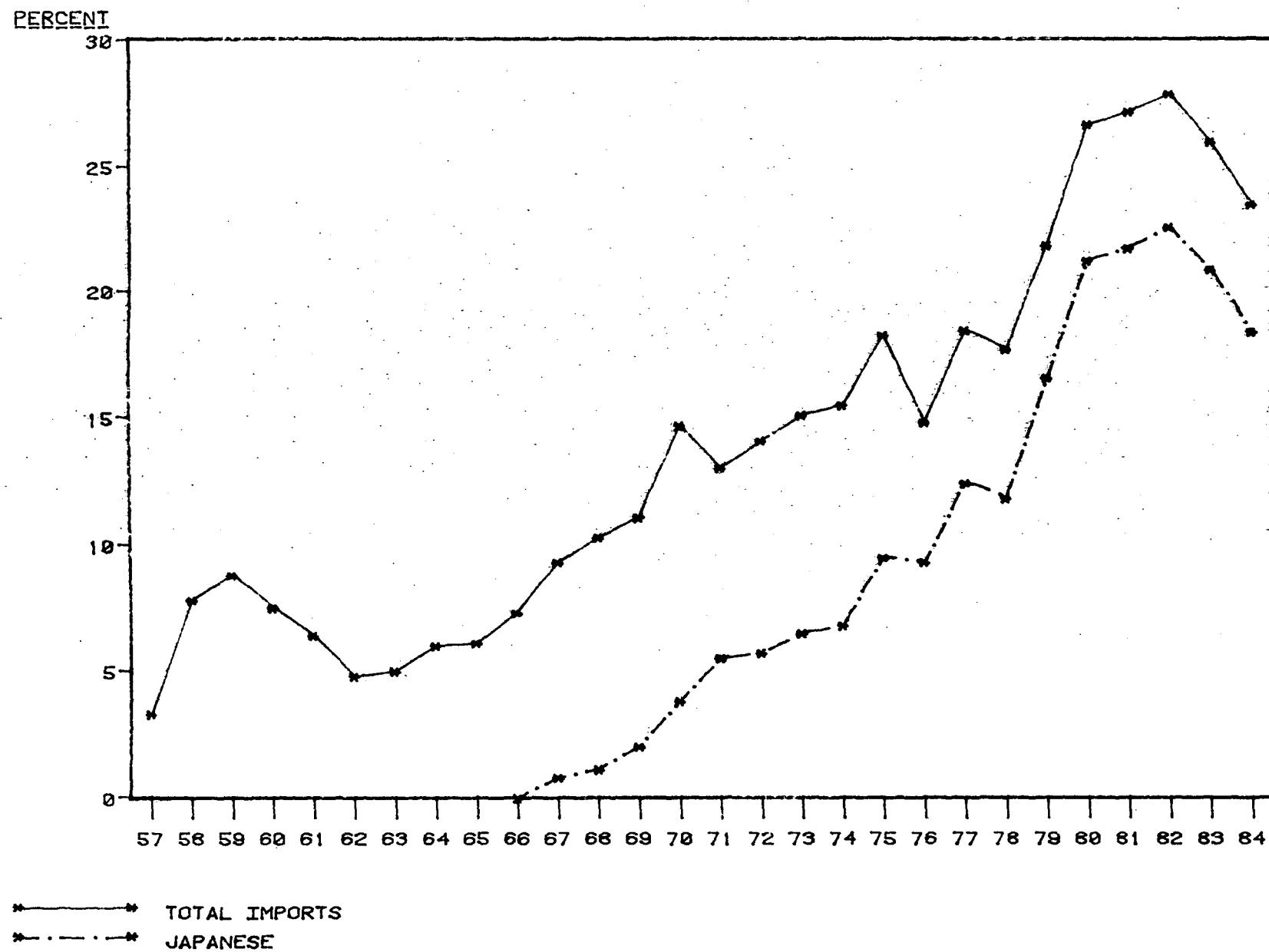
Year	Retail	Import	Total	Ratio of import sales to total sales
	domestic	retail	retail	Percent
	: ----- <u>1,000 units</u> -----			
1979	8,228	2,326	10,554	22.0
1980	6,578	2,395	8,973	26.7
1981	6,206	2,325	8,531	27.3
1982	5,757	2,221	7,978	27.8
1983	6,795	2,382	9,177	26.0
1984	7,952	2,435	10,387	23.4

Source: Automotive News.

1/ "Just How Good Will 1985 Be?," Automotive News, Jan. 14, 1985, p. E5.

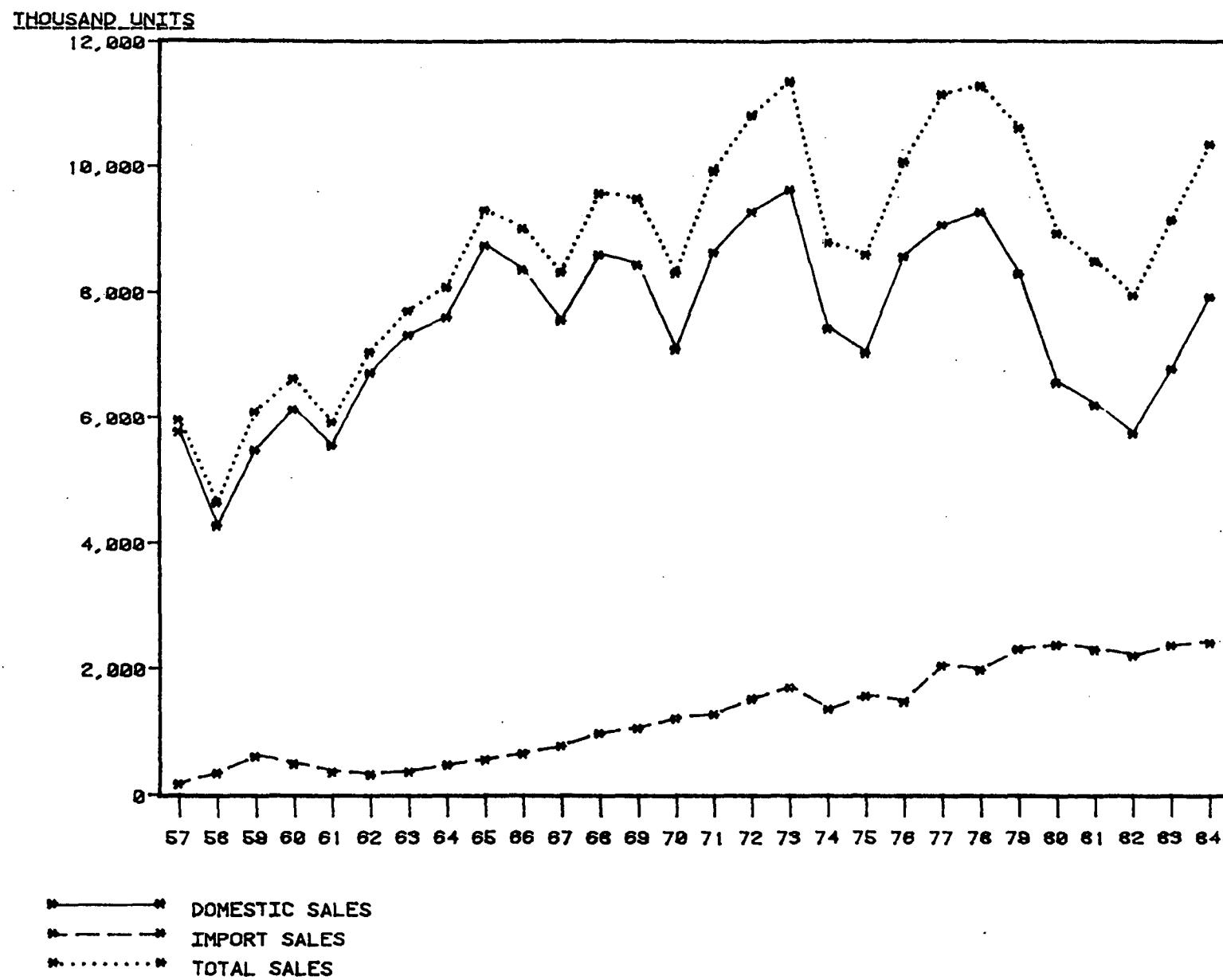
2/ U.S. retail sales of domestic automobiles include automobiles imported from Canada which were produced by subsidiaries of the four U.S.-based manufacturers.

Figure 9.--Automobiles: U.S. import penetration, Japanese and total, 1957-84.



Source: Automotive News.

Figure 10--Automobiles: U.S. sales of domestically produced, imported, and total, 1957-84.



Source: Automotive News.

U.S. sales of Japanese autos fluctuated by only a small margin after 1980 because of Japan's voluntary export restraints. U.S. retail sales of imports from all other countries (primarily West Germany, Sweden, and France) declined from 577,000 units in 1979 to 420,000 units in 1982 and then rose to 512,000 units in 1984, as shown in table 12.

Table 12.--Automobiles: Total U.S. import retail sales, domestic retail sales of Japanese autos, and domestic retail sales of all other import autos, 1979-84

Year	Total U.S.	Domestic import retail sales	Domestic sales of Japanese autos	Share of total: import retail sales account- ed for by Japanese autos	Domestic retail sales of all other import autos	Share of total sales accounted for by all other auto imports
	Thousands	Percent	Thousands	Percent		
1979-----:	2,326	1,749	75.2	577		24.
1980-----:	2,395	1,908	79.7	487		20.
1981-----:	2,325	1,859	80.0	466		20.
1982-----:	2,221	1,801	81.1	420		18.
1983-----:	2,382	1,916	80.4	466		19.
1984-----:	2,418	1,906	78.8	512		21.

Source: Automotive News.

Although sales of Japanese-built autos increased in 1983 and 1984, their share of the U.S. import market dropped from a peak of 81.1 percent in 1982 to 78.8 percent in 1984, or the lowest level since 1979. During the restraint period (1981-84), sales of non-Japanese imports dropped from 466,000 units in 1981 to 420,000 units in 1982 and then climbed to 512,000 units in 1984. During the same period, the non-Japanese import share of the U.S. import market increased from 18.9 percent in 1981 to 21.2 percent in 1984. The non-Japanese share of the U.S. import market for December 1984, the latest month for which data are available, climbed to 23.0 percent of the U.S. import market, and the Japanese share dropped to its lowest level since prior to the restraints.

Much of the European sales' increase in 1984 was in the lower price range of the European imports, such as Volvo, Saab, Volkswagen, and the lowest priced BMW's. 1/ Many of these autos compete not only with the upper priced domestic autos, but also with the larger Japanese autos, such as the Toyota Cressida, Nissan Maxima, and Mitsubishi Starion. The following tabulation, based on data derived from Ward's Automotive Reports, shows U.S. retail sales of selected European imports in 1982 and 1984:

---

1/ These models have suggested manufacturers' retail prices of between \$7,500 and \$22,000.

Make	1982	1984	Increase, 1984 over 1982
	<u>Units*</u>		<u>Percent</u>
Volkswagen-----:	67,456 :	101,419 :	50.3
Volvo-----:	71,568 :	97,915 :	36.8
BMW-----:	50,594 :	68,650 :	35.7
Saab-----:	18,179 :	32,768 :	80.3
Total-----:	207,797 :	300,752 :	44.7
	:	:	:

### Inventories

Retail dealers of both domestic and imported automobiles have traditionally tried to maintain an inventory of autos that will sustain sales for a 60-day period. This "benchmark" is a compromise between having an adequate selection of models with a variety of optional equipment in stock and an inventory stock that can be maintained while finance and insurance charges, storage area, and other overhead costs are kept at a reasonable level. As shown in figures 8 and 9, inventory and days' supply of domestic autos have fluctuated widely during 1979-84, but inventories and days' supply of Japanese autos peaked in January 1979 at 525,000 units and a 122-day supply. Since this time, inventories of Japanese automobiles have not climbed higher than 57 days. <sup>1/</sup> Since July 31, 1983, inventories of Japanese automobiles have remained below a 30-day supply. A 30-day supply of imported automobiles is considered to be no dealer stock, because the period of time between the U.S. Customs Service clearance at the port and delivery to the retail dealer is 1 to 3 weeks. Therefore, most imports of Japanese autos are sold by retail dealers soon after their arrival at the dealership.

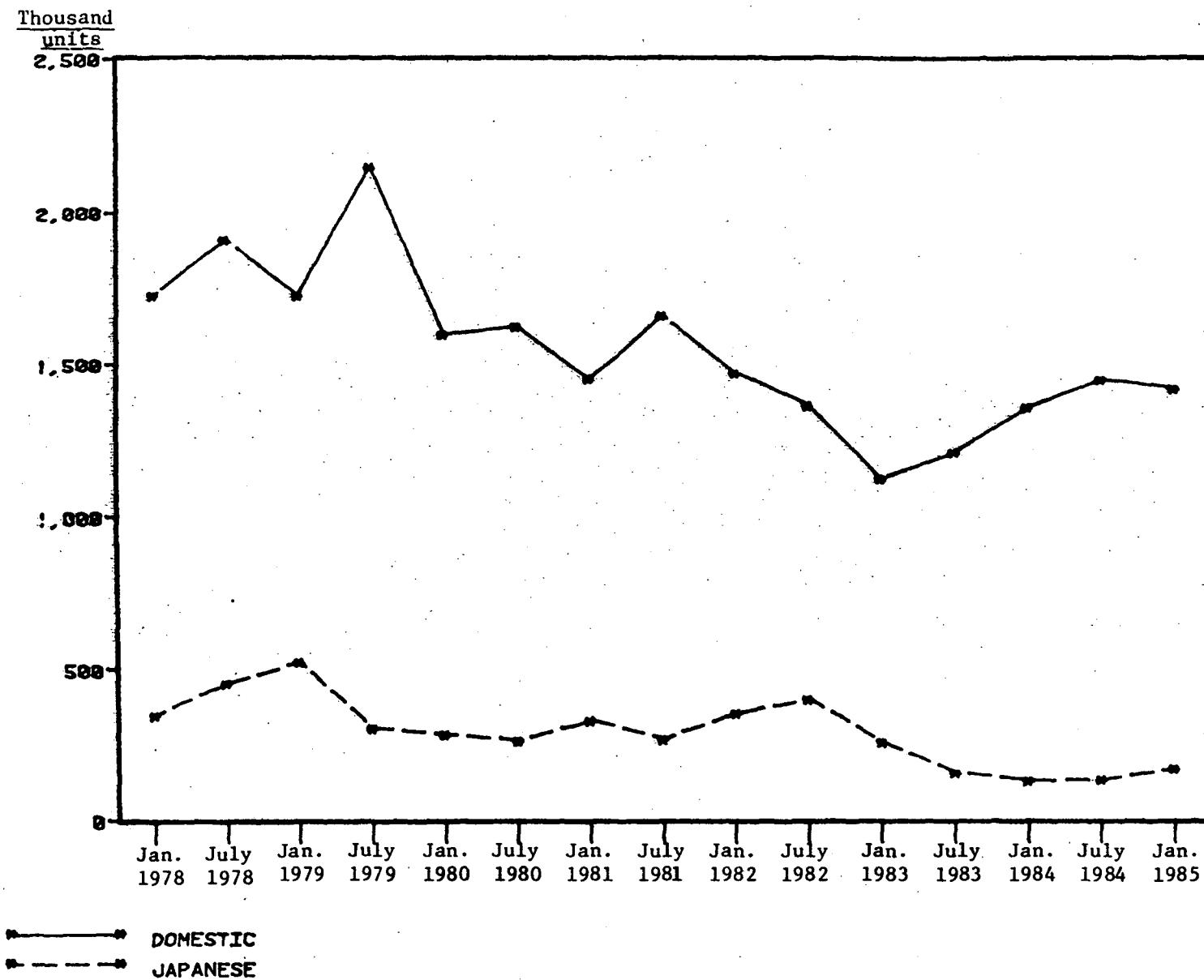
### Retail prices

Although the manufacturers' suggested retail prices of automobiles (the "sticker" price) are not usually the transaction price at the dealership (the ultimate cost of the auto to the consumer), such retail prices are a very good indication of trends in pricing. It is well known that some domestic automobiles are sold below the "sticker," or suggested price, and that during 1981-84, there were short-term, direct customer rebates and below market-rate financing. However, certain models, such as the newly designed Chevrolet Corvette and Pontiac Fiero, have commanded prices higher than suggested retail, and other models that were in high demand, but limited supply, have been sold at the suggested price.

Manufacturers' suggested retail prices for nine popular domestic autos and seven Japanese autos are shown in table 13, which compares retail prices as of April 1, 1985, with those of April 1, 1981, the date the original

<sup>1/</sup> Based on inventory and days' supply as of January 31 and July 31 of each year.

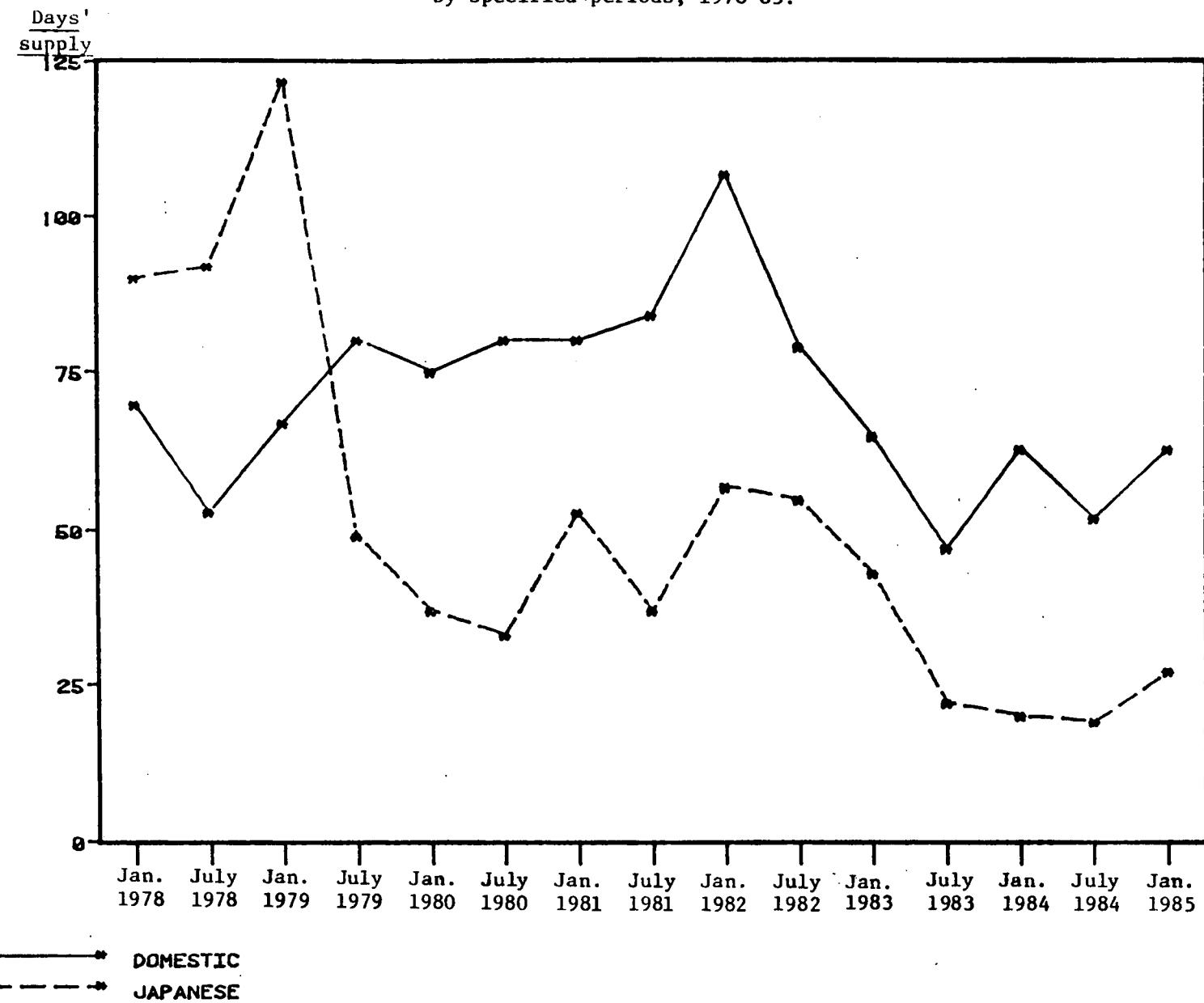
Figure 11.--Automobiles: U.S. inventories of domestic and Japanese models, by specified periods, 1978-85.



Source: Ward's Automotive Reports.

Note.--Japanese inventory data include trucks during 1978-82.

Figure 12.--Automobiles: Days' supply of domestic and Japanese models, by specified periods, 1978-85.



Source: Ward's Automotive Reports.

Note.--Japanese days' supply for 1978-82 includes light trucks.

Japanese import restraint level became effective. Although the suggested retail prices of domestic subcompacts (Chevette, Escort, and Turismo or Horizon) increased from 5.7 percent to 8.5 percent, prices of larger domestic autos, such as the Ford LTD, Chevrolet Impala, and Dodge 600, increased from 30.1 to 38.2 percent. Increases in the retail prices of compact/intermediate models ranged from 11.8 to 19.3 percent.

U.S. retail prices of all of the Japanese models shown in table 13 increased by at least 17 percent. The smaller Japanese models, such as the Honda Civic, Nissan Sentra, and Toyota Corolla, increased by approximately 21 percent, and the prices of the more luxurious models (Toyota Cressida and Nissan Maxima) rose by an average of 33 percent during April 1981-April 1985.

Most Japanese autos are currently selling for the suggested retail price, and in many sections of the United States they are selling for more than sticker price. Imports from Japan consist primarily of the more expensive models, and dealers frequently add on additional optional equipment, along with extra dealer charges (additional dealer profit or markup). The popular Honda Civic CRX, which lists for \$6,773, may cost customers of some U.S. dealerships as much as \$9,000. 1/ Additional dealer markups on a Nissan 300 ZX have been found to cost the purchasers \$1,000 in Houston and \$3,000 in New York City. 2/

In the Washington, DC, area, a Toyota Corolla had a factory suggested retail price of \$9,505, but a total cost of \$11,955, with the difference accounted for by "preparation and added dealer profit" of \$2,450. 3/ It is not unusual for every Japanese auto on the dealer's showroom floor to have "paint shield," or wax, costing over \$150, fabric shield for the car's interior for \$75, and rustproofing for more than \$200. 4/

#### Pricing strategies

As demand for U.S.-produced autos shifted from small, fuel-efficient models in 1980-82 to larger, more luxurious models in 1983-84, the pricing reflected this shift. U.S. consumers opted for the larger models in 1983-84 owing to the decline in the price of gasoline (in both real and constant dollars) and the U.S. economic recovery that started in late 1982 and continued throughout 1984. 5/ As discussed previously, the suggested retail prices of domestic subcompacts have increased very little since 1981, and the prices of larger U.S. models have increased significantly.

There are 3 apparent principal reasons for the small increases in prices of subcompact models: (1) In anticipation of the Japanese discontinuing the export restraint level in 1985, there will be increased price competition in

1/ "Can Detroit Live Without Quotas?," Fortune, June 25, 1984, p. 20.

2/ Anne McGrath, "Import Quotas: The Honda Dealer's Best Friend," Forbes, Dec. 5, 1983, p. 42.

3/ "Shopping for a Car: A Lesson in Quotas," Washington Post, Nov. 20, 1983.

4/ "Import quotas...," op. cit., p. 43.

5/ For complete discussion concerning shift in demand, see section regarding model mix changes.

Table 13.--Automobiles: Manufacturers' suggested retail prices of selected U.S. and Japanese automobiles, April 1981-April 1985 1/

Company, model, and options 2/	April 1, 1981		April 1, 1985		Percent change in optionally equipped model
	Base	Optionally equipped	Base	Optionally equipped	
	model 3/	model 3/	model 3/	model 3/	
General Motors:	:	:	:	:	:
Chevette CS, 2 door HB (PB, RWD, TG)-----	\$5,155	\$5,405	\$5,470	\$5,804	+7.4
Citation, 4 door HB (PB, RWD, TG, AT)-----	6,404	7,014	7,232	8,042	+14.7
Impala 4 door (AC)-----	7,322	8,037	9,709	10,459	+30.1
Ford:	:	:	:	:	:
Escort L 2 door HB (PB, RWD, TG)-----	5,556	5,857	5,876	6,196	+5.8
Tempo GL 4 door (RWD, AT, TG) 4/-----	6,421	6,953	7,160	7,773	+11.8
LTD Crown Victoria, 4 door (RWD, TG, ILG, AC)-----	8,519	10,102	11,627	13,966	+38.2
Chrysler:	:	:	:	:	:
Plymouth Turismo, 2 door HB (RWD)-----	5,938	6,188	6,584	6,716	+8.5
Reliant, 4 door (RWD, TG, R, AT)-----	5,980	6,680	7,039	7,969	+19.3
Dodge 600, 4 door (RWD, AC) 5/-----	6,672	7,502	9,081	9,986	+33.1
Toyota:	:	:	:	:	:
Corolla, Deluxe, 4 door (R)-----	5,688	5,793	6,938	7,163	+23.6
Cressida, 4 door-----	11,599	11,599	15,690	15,690	+35.3
Nissan (Datsun):	:	:	:	:	:
Sentra Deluxe 2 door 6/-----	5,369	5,494	6,649	6,649	+21.0
Stanza GL, 4 door (AT) 6/-----	6,839	7,749	9,549	10,049	+29.7
Maxima, 4 door-----	10,379	10,379	13,499	13,499	+30.1
Honda:	:	:	:	:	:
Civic 1300, 2 door HB (R)-----	4,599	4,694	5,399	5,495	+17.1
Accord, 4 door (R, AT)-----	7,645	7,950	8,845	9,338	+17.5

1/ Suggested retail prices do not include any dealer incentives, below-market financing, or rebates offered by manufacturers or importers.

2/ The following codes apply: PB = power brakes; RWD = rear window defroster; TG = tinted glass; HB = hatchback; AT = automatic transmission; AC = air-conditioning; R = radio; ILG = interior luxury group.

3/ Base models are 2-door or 2-door hatchback and 4-door or 4-door hatchback models. Optionally equipped models are base models that have been equipped with the options listed in parenthesis.

4/ Tempo replaced the Fairmont Futura.

5/ Dodge 600 replaced the Diplomat.

6/ Sentra replaced the 210; Stanza replaced the 510.

Source: Compiled from data supplied by U.S. manufacturers, Japanese importers, and Automotive News.

Note.--Some 1981, 1982, and 1983 models have been discontinued; these models have been replaced by comparable models.

the lower priced models, and domestic producers do not want to lower retail prices 1/; (2) domestic producers want to retain or increase their share of the first-time buyers segment and can accomplish this by keeping entry-level prices low 2/ and; (3) General Motors and Ford must sell a certain number of small, highly fuel-efficient small cars in order to avoid paying a penalty for not meeting Corporate Average Fuel Economy (CAFE) standards. 3/ (See p. 38 for further explanation). The substantial increases in prices of larger models are a result of an increase in consumer demand for these models. 4/ It is well known that auto manufacturers make more profit on their larger models, 5/ and it appears that as the demand for larger domestic autos increased, prices increased as well. 6/

The pricing strategy of the Japanese during 1981-84 was to export more expensive models and load the vehicles with more options. Since these models carry a higher margin, both the manufacturers and the dealers make a better profit. It is believed that the Japanese could charge even more for their autos because of the very low inventory carried by the dealers. 7/ By not raising prices, the Japanese are most likely foregoing higher short term profits in favor of maintaining a market presence. If the Japanese raised prices, their vehicles may be excluded from consideration by many customers who would wait for availability. 8/

#### Product mix changes

The mix of passenger cars available in the United States over the course of the VRA has changed in several respects. However, the impetus behind these product mix changes differs for U.S. and Japanese manufacturers. Therefore, these two segments of the American automobile market will be examined separately below.

Product mix of U.S. producers.--The North American automobile industry produces the widest range of passenger cars in the world in terms of vehicle size. Of the five basic classes composing the U.S.-built car market mix, intermediate class automobiles have held the largest share over the past 10 years except for 1982. 9/ As late as 1977, intermediate and full-size cars

1/ "Modest Rises Predicted for '85 Car Prices," Washington Post, Aug. 3, 1984.

2/ Thomas O'Grady, "Import Restraints Lead to Strategic Pricing by All," Automotive Industries, May, 1984, p. 54.

3/ Joseph Bohn, "A Tale of Auto Prices," Automotive News, Dec. 3, 1984, p. 20.

4/ Amal Nag, "Auto Makers Are Quietly Raising Prices Higher than First Promised," Wall Street Journal, Jan. 8, 1985.

5/ This applies to European and Japanese producers as well as U.S. producers.

6/ Ford Motor Company increased the suggested retail price of the popular LTD model by almost 40 percent during 1981-85 (see table 13).

7/ Thomas O'Grady, op. cit.

8/ Ibid.

9/ Ward's Automotive Yearbook, various editions. The five classes are subcompact, compact, intermediate, full-size, and luxury.

accounted for 32.5 and 24.9 percent, respectively, of the sales mix. 1/ At that time, despite the previous oil shock of 1973-74, subcompacts represented only 10.5 percent of the U.S. automobile sales mix. 2/ However, between 1978 and 1980, sales of domestically built subcompacts surged from 13.0 percent of the total mix to 25.4 percent. 3/ Correspondingly, the intermediate segment fell to 27.9 percent, and full-size units dropped to 16.3 percent. 4/

In terms of the production mix of U.S. auto companies, the doubling of the subcompact segment preceded the market by 1 year. Between 1977 and 1978, U.S. subcompact production increased from 762,000 to 1.5 million units, or by 94.5 percent. 5/ However, this shift was due not so much to concern over a possible second fuel shortage as it was in response to the Energy Policy and Conservation Act of 1974. This act created CAFE standards for the auto industry that set fuel economy requirements in average miles per gallon for domestic and imported new car fleets. Under the act, companies could be fined \$5 per one-tenth of a mile per gallon per vehicle for failure to meet the standards. The CAFE law set a standard of 20 miles per gallon by 1980, at a time when domestic fleet averages were about 12 or 13 miles per gallon. 6/ During 1977-78, larger cars grew in popularity again. Given the large investments the industry had made to meet the approaching CAFE standards, U.S. carmakers increased the subcompact segment of the production mix from 8.4 percent in 1977 to 16.2 percent the following year in an attempt to increase subcompact sales. 7/

When the Iranian Revolution caused oil shortages in 1979, the market shifted sharply towards small cars, particularly subcompacts, thus rendering compliance with CAFE standards a moot point. More importantly, the second energy crisis abruptly switched the subcompact market from a supply-push to a demand-pull orientation. U.S. automakers lacked the small car capacity to fully meet this surge in consumer demand. Therefore, consumers found Japanese cars to be an alternative source of fuel-efficient automobiles. 8/

During the course of the VRA (i.e., since 1981), the shares of U.S. sales represented by the various market classes have shifted substantially. Following the establishment of voluntary limits on Japanese car exports, the subcompact segment of the domestic car market mix increased from 26.8 percent in 1981 to a record high of 30.2 percent in 1982 before declining to 29.8 percent in 1983. 9/ The compact segment, after having remained relatively steady at about 25 percent since 1977, dropped from 24.5 percent in 1981 to 19.2 percent in 1982 and 13.6 percent by 1983. 10/ Intermediate class sales of U.S.-built cars had leveled out at 28 percent of the mix between 1979

1/ Ibid.

2/ Ibid.

3/ Ward's Automotive Yearbook, various editions.

4/ Ibid.

5/ Data submitted in response to questionnaires of the U.S. International Trade Commission.

6/ Francis Gawronski, "Bidwell looks at a changing industry," Automotive News, Oct. 5, 1981.

7/ Data submitted in response to United States International Trade Commission questionnaires.

8/ "Auto Situation: 1980," Subcommittee on Trade, Committee on Ways and Means, U.S. House of Representatives, June 6, 1980.

9/ Ward's Automotive Yearbook, various editions.

10/ Ibid.

and 1982. 1/ Responding to lower fuel prices, intermediates took 33.2 percent of the mix in 1983. 2/ Full-size cars have remained well below their historical levels but recovered slightly from a low of 15.3 percent in 1981 to 17.1 percent in 1983. These market shifts are summarized in figure 13.

The extent to which the Voluntary Restraint Agreement has affected the U.S. auto companies' product mix is uncertain. Fuel prices and consumer demand spurred the drive towards smaller cars more than any other factors. Following the leveling out of gasoline prices and the easing of consumer concerns in that area, the Federally mandated CAFE standards appear to have become the primary force behind any small car supply shifts. GM and Ford have repeatedly cited increased demand for larger cars as the reason behind their recent failures in meeting CAFE standards; Chrysler has suggested a gasoline tax as a way to maintain consumer interest in small cars through higher fuel prices. 3/ Nevertheless, inasmuch as CAFE standards have increased pressures for U.S. auto companies to build smaller cars, the VRA has probably limited the extent to which Japanese manufacturers have been able to dominate the subcompact market. In this regard, the VRA has almost certainly helped U.S. car makers to close in on the CAFE requirements. CAFE standards and U.S. auto company performances in meeting those standards are summarized in the following tabulation derived from data published in Automotive News (in miles per gallon): 4/

Item	:	1981	:	1982	:	1983	:	1984	:	1985
CAFE-required standard-----:		22.0	:	24.0	:	26.0	:	27.0	:	27.5
General Motors-----:		23.2	:	24.3	:	23.5	:	<u>1/</u> 24.8	:	<u>1/</u> 25.1
Ford Motor-----:		23.3	:	24.5	:	23.8	:	<u>1/</u> 25.3	:	<u>1/</u> 25.9
Chrysler-----:		26.4	:	27.0	:	27.0	:	<u>1/</u> 27.1	:	<u>2/</u>
American Motors-----:		22.5	:	24.0	:	33.5	:	<u>1/</u> 35.5	:	<u>2/</u>
	:		:		:		:		:	

1/ Estimated.

2/ Not available.

Product mix of Japanese producers.--Japanese cars sold in the U.S. market fall completely within the small car segment. Therefore, the Japanese product mix concerns subcompact and compact cars in addition to the high-performance sports cars and expensive small cars of the luxury class. In considering product mix shifts among Japanese manufacturers, this section examines the

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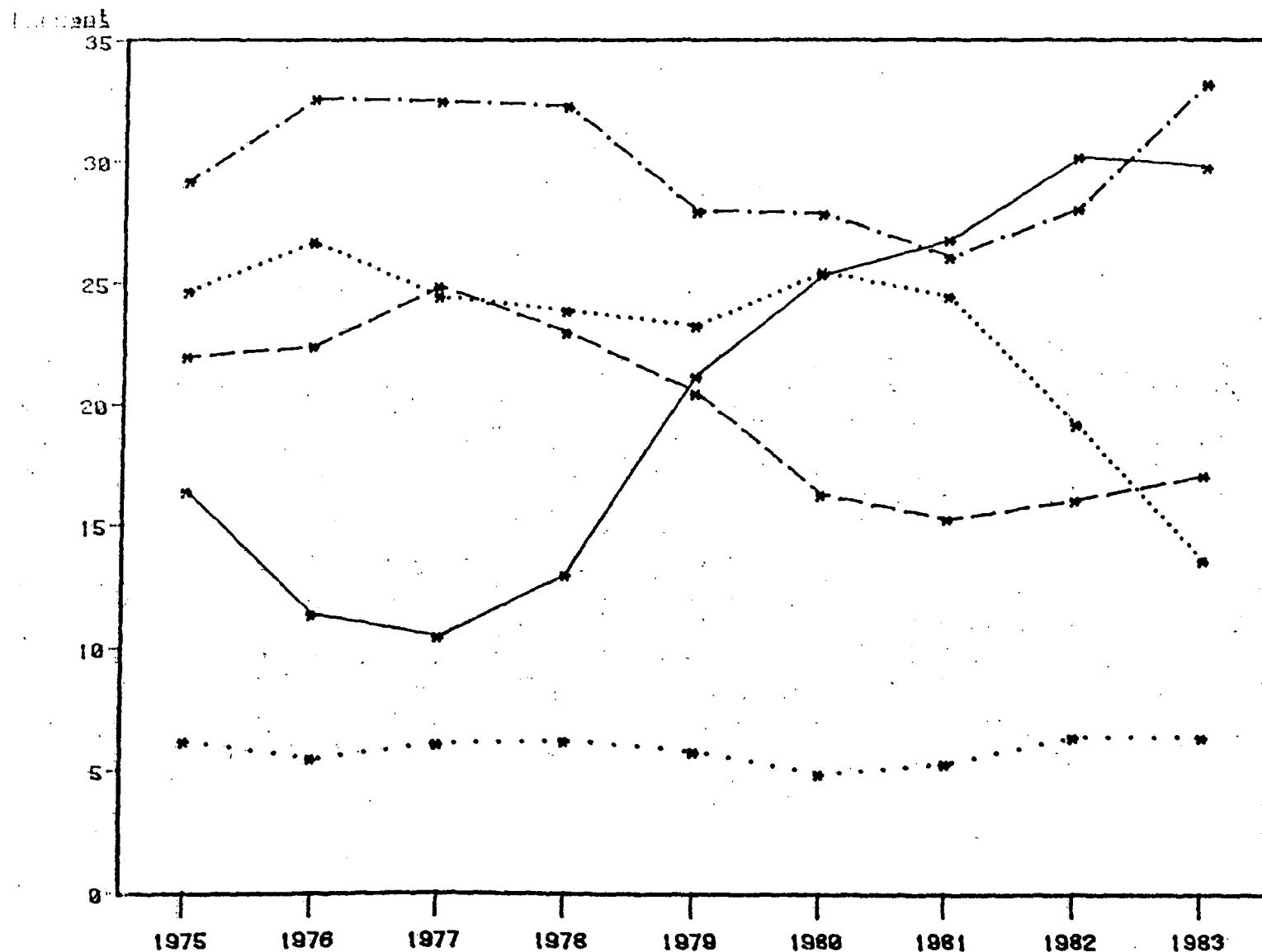
1/ Ibid.

2/ Ibid.

3/ Ibid.

4/ Helen Kahn, "Makers Face No Penalties For Missing CAFE Goals," Automotive News, July 25, 1983; Jake Kelderman, "Ford, GM Fail on '83 CAFE," Automotive News, July 9, 1984; Helen Kahn, "GM and Ford to Miss 1985 CAFE Figure," Automotive News, Jan. 7, 1985.

Figure 13.--Automobiles: U.S. retail sales of domestic vehicles,  
by market segments, 1975-83.



- \* Subcompact Segment  
···\* Compact Segment  
··—\* Intermediate Segment  
\*—\* Full-Size Segment  
\*...\* Luxury Segment
- Source: Ward's Automotive Reports

four Japanese auto companies selling in all three segments in the United States: Toyota, Nissan, Honda, and Mazda. 1/

Since 1980, the Japanese product mix for passenger-car sales in the U.S. has shifted away from the subcompact segment. Throughout the VRA period, the subcompact share declined steadily from a preagreement level of 66.8 percent in 1980 to 48.4 percent in 1984 2/ (fig. 11). During the same period, both the compact and luxury classes expanded. The compact share increased from 20.9 percent in 1980 to 33.4 percent in 1984. 3/ The largest increases in this segment occurred in 1983 and 1984, when compacts achieved 27.4- and 33.4-percent shares, respectively, from 20.9 percent in 1982. 4/ Honda Accords (produced both in Ohio and in Japan), led this drive, accounting for 2.2 percent of the 1983 increase and 5.4 percent of the 1984 rise. 5/ Luxury cars, including high-performance sports cars, increased from 12.3 percent in 1980 to an 18.2-percent share of the mix in 1984. 6/ The product mix distribution during 1980-84 is shown in figure 12.

The largest shift toward luxury models occurred in 1982. During that year, Toyota increased the share of its car sales above \$10,000 to 13 percent from 7 percent, and Nissan pushed its share over \$10,000 sales to 24 from 18 percent. 7/

A major factor behind this upscale swing was summarized by a Nissan board member, Shiro Ozawa: "It is getting harder to make money in small cars. Japanese companies must produce higher-priced, more luxurious cars." 8/ In this regard, compact models such as the Toyota Camry, which replaced the slow-selling Corona and the recently redesigned Mazda 626, are considered innovative entries designed to increase Japanese shares of this segment. 9/ Since the VRA has limited the total number of Japanese car exports to the United States, a certain portion of the decline in subcompacts has been due to this shifting of sales towards the more expensive compact and luxury segments. In light of this, the restraints probably had the effect of preventing the Japanese from maintaining their high levels of subcompact sales if they wished to make inroads into the higher end compact and luxury markets. In other words, the VRA has forced the Japanese into making a tradeoff between subcompact sales and sales in other segments of the American market.

1/ Classifications of these companies' models: Subcompact - Starlet, Tercel, Corolla, Celica, 210 series, 310 series, Sentra, 200SX, Civic, Civic CRX, GLC.. Compact - Corona, Camry, 510 series, Stanza, Accord, 626. Luxury - Cressida, 300ZX, 280ZX, Maxima, Celica Supra, Supra, Prelude, RX7.

2/ Based upon data from Automotive News Market Data Book, various issues, and Ward's Automotive Reports, Jan. 7, 1985.

3/ Data based upon Automotive News Market Data Book, various issues, and Ward's Automotive Reports, Jan. 7, 1985.

4/ Ibid.

5/ Ibid.

6/ Ibid.

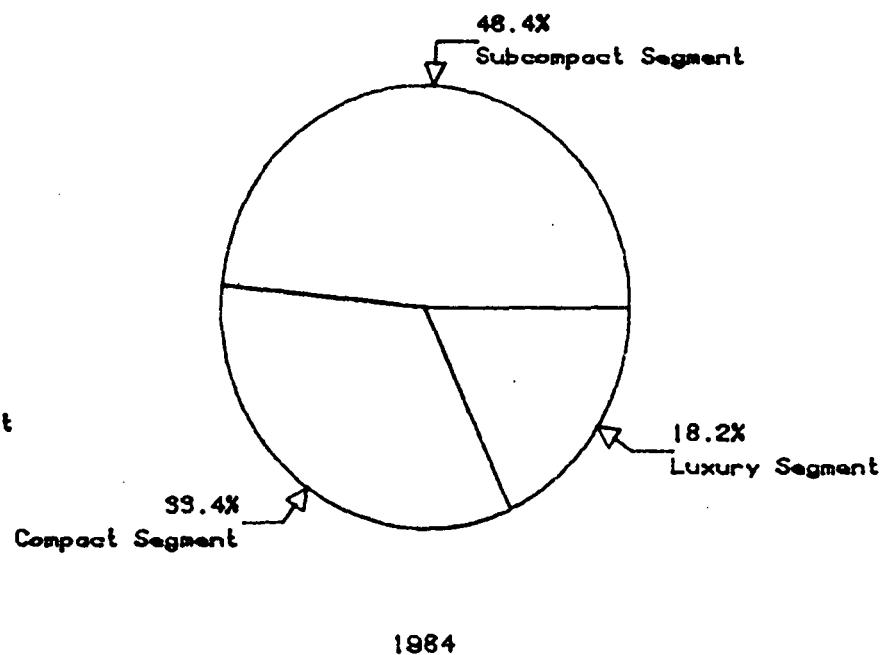
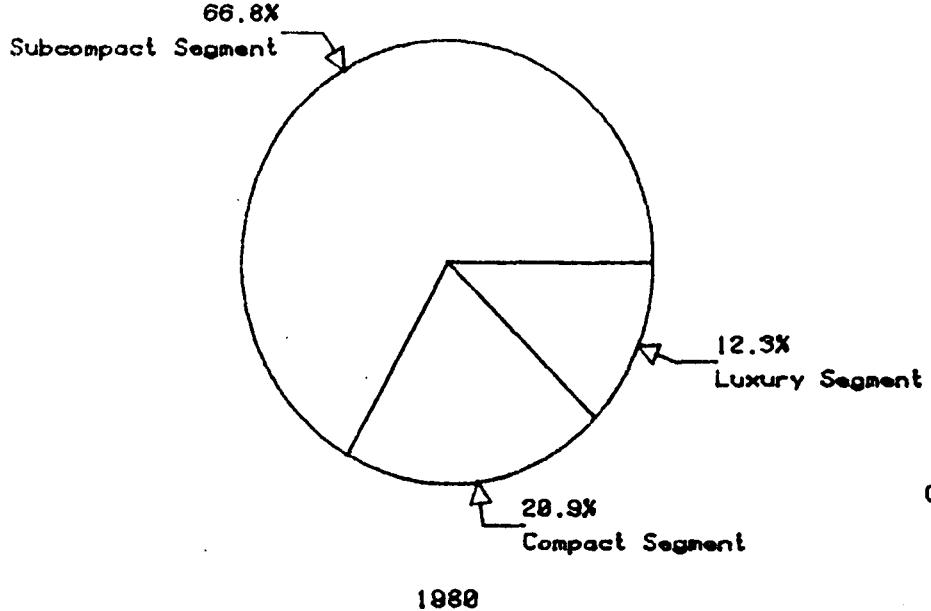
7/ Alan Binder, "Foreign Carmakers Adopt American Soil and Style," Ward's Automotive Yearbook, 1983, p. 139.

8/ Lawrence Minard, "Saab, Mercedes, Volvo, BMW, Jaquar, Watch Out!," Forbes, Sept. 10, 1984, p. 41.

9/ Amal Nag and Robert L. Simison, "With Three New Cars, the Japanese Outdo U.S., Move Into New Market," Wall Street Journal, May 17, 1983.

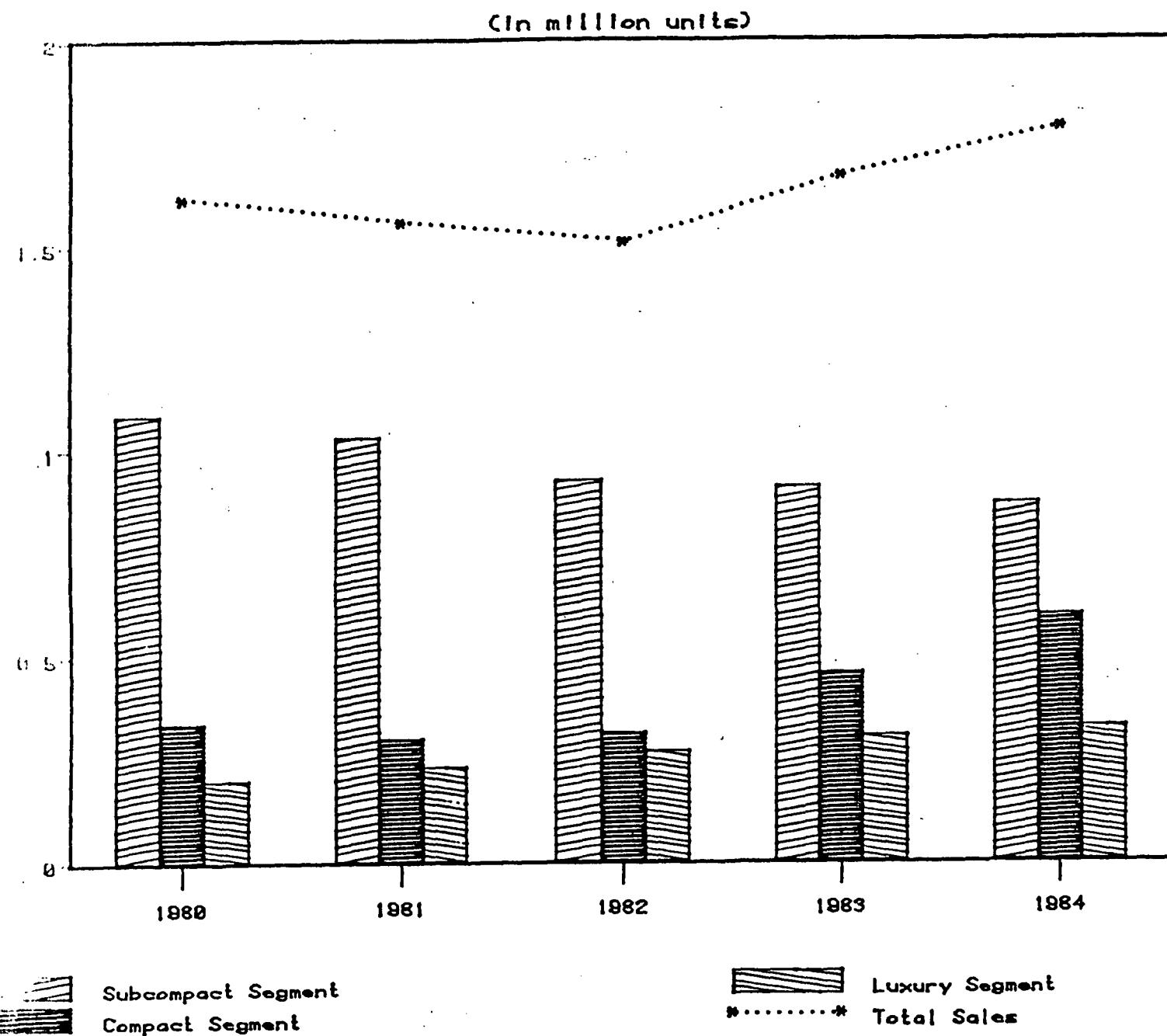
Figure 14.--Automobiles: U.S. sales mix of selected Japanese models, 1980 and 1984

59



Source: Automotive News.

Figure 15.--Automobiles: product mix distribution of selected Japanese models, 1980-84.



## Factors Influencing the Internationalization of the U.S. Automobile Industry

The principal government trade policies that have affected the U.S. auto industry are the U.S.-Canadian Automotive Agreement (APTA), the Japanese voluntary export restraints, and the Mexican auto decrees. Also, two bills before the U.S. Congress could have a substantial impact, if enacted, on the domestic and imported automobile market. A summary of these trade policies and other factors are discussed in the following sections.

### Government policies

The following provides a discussion of the economic effects of the APTA and the Japanese voluntary restraint announcements on U.S. consumers, in addition to exploring the potential effects of domestic content legislation and HR 1050. The Mexican auto decrees, which are concerned primarily with trade in motor vehicle parts, will be discussed separately at the end of the section.

The APTA, the voluntary restraint agreement (VRA) and legislation, all of which will be considered separately in the following subsections, differ sharply in their focus. The APTA was aimed at expanding automotive trade between the U.S. and Canada. The VRA was intended to afford protection for the U.S. industry by temporarily reducing imports from Japan. However, while the focus of the domestic content legislation is similar to that of the VRA, it represents a much more drastic form of protection which would have profound effects on future U.S. trade in passenger cars, the U.S. auto industry, and the U.S. consumer.

United States-Canadian Automotive Agreement.--An expansion in United States-Canadian trade in new passenger cars took place in the years that immediately followed implementation of the APTA. Imports from Canada climbed from 33,000 units in 1965 to more than 800,000 units annually during the period 1970-78. The sharp decline in these imports during 1979-82 was due to the effects of the recession in the United States. The significant increase in these imports in 1983, which is shown in figure 16, continued in 1984. During 1984, U.S. imports were up by more than 40 percent (in volume) over the level in the corresponding period of 1983. While the increased imports of passenger cars over the past 2 years were partly due to the U.S. economic recovery, the somewhat renewed appeal of larger cars that resulted from lower gasoline prices has also been a contributing factor.

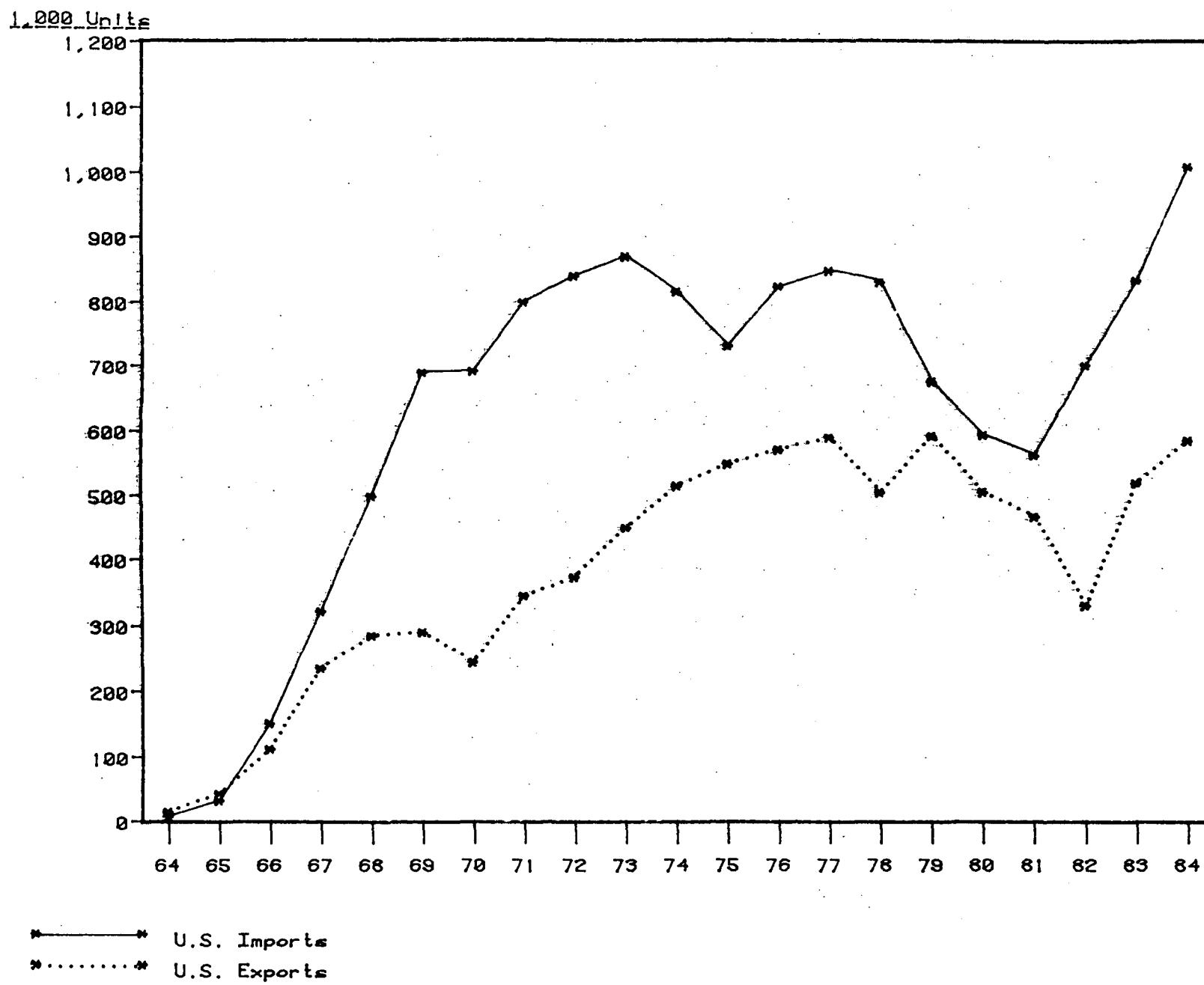
Trends in U.S. exports of autos to Canada have roughly paralleled trends in imports. They rose rapidly during the years following implementation of the APTA and then leveled off during the middle- and late-1970's. Fluctuations in these imports during more recent years have probably resulted largely from fluctuations in the Canadian economy.

The United States has consistently had a trade deficit in new passenger cars with Canada since the APTA was implemented. Between 1979 and 1984, the deficit increased from \$569 billion in 1979 to \$5.5 billion in 1984, as shown in the following tabulation compiled from official statistics of the U.S. Department of Commerce (in millions of dollars): 1/

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1/ U.S. APTA trade only.

Figure 16.--Trade in new passenger autos with Canada, 1964-84.



Source: Derived from official statistics of the U.S. Department of Commerce.

Year	:	Exports	:	Imports	:	Trade deficit
1979-----	:	3,282	:	3,857	:	575
1980-----	:	3,035	:	3,773	:	738
1981-----	:	3,154	:	4,249	:	1,095
1982-----	:	2,343	:	5,766	:	3,423
1983-----	:	3,856	:	7,241	:	3,385
1984-----	:	4,561	:	10,110	:	5,549
	:		:		:	

When trade in auto parts is considered, the U.S. trade deficit is smaller. During 1984, for example, imports of motor vehicle parts that entered the United States from Canada (APTA and replacement parts) amounted to \$8.7 billion, while U.S. exports of parts to Canada were valued at \$9.7 billion. Available data indicate that about 75 percent of the value of total U.S. exports of motor vehicle parts to Canada were subject to the terms of the APTA.

Voluntary restraint agreements.--If the VRA had not been in place during the past 3 years, it is most likely that sales of imported passenger cars from Japan would have reached higher levels and domestic sales and output would have been somewhat lower. However, quantifying the effects of the import restrictions on imports and the U.S. industry is difficult. The approach taken in this investigation was to estimate the prices and sales of Japanese imports, the prices and sales of U.S. producers, and the levels of other industry variables that would have prevailed with no restrictions. These estimates were then compared with actual values of the variables to measure the impact of the VRA, particularly the costs to consumers and the benefits to U.S. producers during 1981-84. Aggregate costs and benefits to the U.S. economy and the total employment effects of the VRA were also examined. The recent termination of the VRA on March 31, 1985 raised the question of whether Japanese imports are likely to increase rapidly in the future. This issue is considered at the end of the section. The major assumptions that underlie the estimates are set forth in the body of this section. The details of the methodology are described in app. I.

Sales of Japanese imports.--Sales of Japanese passenger cars in the United States increased rapidly throughout the 1970's, from less than 400,000 units at the beginning of the decade to nearly 1.9 million units in 1980. The continuing growth in annual sales of these small, imported autos during this period was due to their relatively low price, their growing reputation for quality and reliability, and their superior fuel efficiency. Their fuel efficiency became especially important in the late 1970's when the price of gasoline climbed from an average of 53 cents per gallon in 1978 to 88 cents in 1979 as a result of the oil shock stemming from the Iranian Revolution. U.S. sales of Japanese cars increased by over 30 percent, from a 1978 level of about 1.4 million units to nearly 1.9 million in 1979. As the price of gas rose further in 1980, sales of these fuel-efficient cars continued to increase. Between 1976 and 1980, the Japanese share of the U.S. auto market more than doubled, from 9.3 to 20.9 percent.

Although the Japanese market share would probably have continued to increase if there had been no VRA, it is unlikely that the rapid increase that occurred during the late 1970's would have continued. For one thing, the price of gasoline has declined significantly in real terms during the past 3 years, and this has led to a reduced demand for small cars. From 1976 through 1978, their market share declined as gas prices edged downward. The demand for small cars recovered between 1979 and 1981 as a result of the rapid escalation in gasoline prices. By 1981, small cars accounted for more than one-half of all U.S. sales, but as fuel prices declined during the next three years, the demand for small cars fell significantly. In 1983, such cars accounted for only 43 percent of total U.S. sales, and this share increased slightly to about 45 percent in 1984 as the price of gasoline continued to decrease. Since most Japanese imports are compacts or subcompacts, it is likely that the growth in their sales would have slowed significantly during 1981-84 without the import restriction.

In addition to the effects of falling gasoline prices on the demand for small cars, the U.S. auto industry introduced many new models during the early 1980's that competed more effectively with Japanese cars than had previous domestic products. During the late 1970's, the domestic industry offered only a limited variety of subcompact cars. Although some of these models, such as the Ford Pinto, the Chevrolet Chevette, the Dodge Omni, and the Plymouth Horizon, competed with Japanese autos, some were relatively outdated technologically and probably did not appeal to the buyers who were seeking a highly fuel-efficient subcompact with front wheel drive. Before 1980, the Omni, Horizon, and Volkswagen Rabbit were the only small domestic autos that offered front-wheel drive. However, beginning with the General Motors X cars (Citation, Phoenix, Omega, and Skylark) that were introduced early in 1979 and the Chrysler K cars (Reliant and Aries) that became available late in 1980, the domestic industry has brought forth many new fuel-efficient, front-wheel-drive autos, such as the Ford Escort, the Mercury Lynx, the AMC Alliance/Encore, and the General Motors J cars, that have been designed to compete with popular Japanese models. In addition, most larger models were downsized and significantly redesigned. This increased domestic competition probably moderated the growth in demand for Japanese cars.

Although the sharp increases that were recorded in the 1970's in sales of Japanese cars probably would not have continued, it is still likely that growth would have occurred. On the basis of long-term trends, the Commission staff has estimated that the Japanese share of the U.S. market would have increased steadily from about 21 percent in 1980 to approximately 28 percent in 1984 had there been no import restrictions. Because of the decline in total demand for U.S. autos that resulted from the recession in 1981-82, it is unlikely that actual sales of Japanese cars would have increased significantly in those years absent the VRA. It is estimated that sales of Japanese cars would only have been 103,000 units higher than their actual level in 1981 and only 195,000 units higher in 1982, had there been no restrictions (table 14). However, as the U.S. demand for autos recovered in 1983-84, it is likely that imports of Japanese autos would have been significantly higher in the absence of the restrictions. By 1984, they most likely would have climbed to over 2.9 million units--an amount that is nearly 1 million higher than their actual level.

Table 14.--Actual sales of Japanese autos, new domestic autos, all autos, and Japanese prices in the United States and estimated levels that would have prevailed in the absence of the VRA, 1980-84

Item	1980	1981	1982	1983	1984
Sales of Japanese autos:					
Actual-----1,000 units--:	1,882	1,845	1,774	1,861	1,950
Estimated-----do----:	-	1,948	1,969	2,435	2,948
Difference-----do---:		-103	-195	-574	-998
Percentage difference-----:		-5.6	-11.0	-30.8	-51.2
Sales of domestic autos:					
Actual-----1,000 units--:	6,578	6,203	5,757	6,795	7,960
Estimated-----do----:	-	6,128	5,629	6,436	7,342
Difference-----do---:		+75	+128	+359	+618
Percentage difference-----:		+1.2	+2.2	+5.3	+7.8
Total sales of autos: 1/					
Actual-----1,000 units--:	8,975	8,529	7,978	9,181	10,400
Estimated-----do----:	-	8,551	8,035	9,372	10,743
Difference-----do---:		-22	-57	-191	-343
Percentage difference-----:		-0.3	-0.7	-2.1	-3.3
Price of Japanese autos:					
Actual-----per unit--:\$6,709	\$7,292	\$7,539	\$8,317	\$9,300	
Estimated-----do----:	-	7,107	7,180	7,486	7,962
Difference-----do---:		+185	+359	+831	+1,338
Percentage difference-----:		+2.5	+4.8	+10.0	+14.4

1/ Includes sales of autos from Japan and all other import sources.

Source: Compiled from official statistics of the U.S. Department of Commerce, Automotive News, and from estimates of the U.S. International Trade Commission.

Prices of Japanese autos.--By restricting the supply of imported autos in the face of a growing demand, the VRA has probably resulted in higher prices for U.S. consumers. As shown in table 14, the average transaction price for Japanese autos increased from \$6,709 in 1980 to \$9,300 in 1984, or by 39 percent over the 4-year period. Some increase in this price would probably have occurred whether the VRA had been in effect or not, because the general economic recovery and lower gasoline prices have resulted in increased sales of larger cars equipped with more options. This is true of imports from Japan as well as domestic autos and imports from other sources. But it is still likely that prices of all Japanese models have increased as a result of the VRA. The estimated effect of the VRA on the average price of Japanese autos was developed by taking into account the difference between actual sales of Japanese autos and sales levels that would have occurred without the VRA.

1/

1/ It was assumed that the price elasticity of demand for Japanese imports is -2. The empirical basis for this assumption is discussed in app. I.

The results show that the price effects of the VRA have increased during the past 3 years as the restrictive effect of the VRA has intensified. During 1981, the VRA added only \$185 to the price of a Japanese auto, but by 1982, it was adding more than \$350. In 1983, the costs of these restrictions increased to over \$800, and in 1984, they exceeded \$1,300.

Other evidence indicates that the price of imports from Japan would have been significantly lower during 1984 if the restrictions had not been in effect. DRI has recently estimated minimum retail prices of Japanese autos in the United States that would be required to guarantee adequate returns to dealers, marketing subsidiaries of Japanese manufacturers, and the manufacturers themselves. In arriving at these minimum prices, DRI developed estimates of the unit costs (material, labor, capital, and overhead costs incurred in Japanese manufacturing and assembly operations) along with shipping charges, tariffs, and markups by Japanese manufacturers, their U.S. marketing subsidiaries, and U.S. dealers. A comparison of these minimum prices with actual retail list prices of representative autos indicates that the potential for price reductions is substantial. The estimates for 1984, which are presented in the following tabulation, show that the prices of Japanese subcompacts could be lowered by as much as 21 percent, the price of compacts by as much as 29 percent, and prices of sporty cars and intermediates (which account for only a small percentage of U.S. sales) by as much as 39 and 43 percent, respectively. The data provided by DRI in the following tabulation indicate that average price of all Japanese autos sold in the United States could have been lowered by as much as 30 percent in 1984 if the VRA had not been in effect:

<u>Item</u>	<u>Subcompact</u>	<u>Compact</u>	<u>Sport</u>	<u>Intermediate</u>
Potential retail price-----	\$5,032	\$5,874	\$6,140	\$6,512
Suggested retail price 1/-----	\$6,349	\$8,299	\$9,995	\$11,399
Price reduction potential-percent-----	20	29	39	43

1/ The subcompact is the Sentra, deluxe 2-door sedan; the compact is the Stanza, XE 2-door Hatchback; the sporty car is the Prelude, 2-door coupe; and the intermediate is the Maxima sedan.

However, if the VRA had been terminated in early 1984, it is unlikely that prices would have declined by an amount this large. The absence of the restriction and the intensified competition among Japanese suppliers would have resulted in reduced prices and increased sales of Japanese autos. However, in attempting to meet the greatly increased demand for these autos, it is likely that the unit costs would have increased because of limitations in their distribution networks in the United States and possible bottlenecks at the manufacturers' levels. Bottlenecks that would have arisen from efforts to supply a greatly increased quantity of autos to the U.S. market in a short

period of time. 1/ As a result, the minimum prices that would have been required to ensure an adequate return to dealers, Japanese manufacturers and their U.S. subsidiaries, would probably have been somewhat higher than the amounts estimated by DRI. For example, if the demand curve and the supply curve for Japanese autos each had had an elasticity of about two, the average transaction price would have been about 15 percent lower in 1984 without the VRA. This result is similar to the Commission staff's estimate.

Sales of U.S. autos.--The VRA probably resulted in some increases in sales of U.S. autos during 1981-84. However, it is unlikely that all of the potential buyers of Japanese cars who were discouraged by the quota bought new domestic models. Some probably purchased used cars, and others bought imports from other countries or decided to keep their existing autos. These considerations are reflected in the estimates of the effects of the VRA on domestic sales that are presented in table 14. During 1981, the impact on domestic sales was probably minimal. In 1982, it amounted to slightly over 100,000 units on total sales of 5.8 million units. During 1983, it boosted domestic sales by about 5 percent, and in 1984, it raised domestic sales over 600,000 units, an amount that was about 8 percent higher than the level that would have prevailed without the agreement.

Domestic new-car prices and used-car prices.--Evidence as to whether the VRA has resulted in higher prices for new domestic autos is mixed. Data published by the U.S. Department of Labor show that prices of domestic autos have not increased as rapidly as the Consumer Price Index (CPI) for all goods during the period since the agreement went into effect. From April-June 1981 through the end of 1984, the CPI for all items rose by approximately 17 percent, but the CPI for autos advanced by only about 12 percent. Therefore, it could be argued that the restrictions on imports have simply diverted additional sales to U.S. producers without any increase in domestic prices.

Although the Bureau of Labor Statistics (BLS) data show that domestic auto prices have not advanced very rapidly during the last few years, there are indications that the price increases would have been even smaller if the import restrictions had not been in effect. During 1983, the auto industry earned record profits of \$6.2 billion, and in 1984, almost \$10 billion. 2/ Much of the increase in profits was due to an upturn in demand that was badly needed in this highly cyclical industry. The return on equity was significantly higher than for all manufacturing in 1983, and this differential probably increased in 1984. 3/

Econometric research offers evidence that increased imports have a negative effect on U.S. auto prices. Regression estimates (which are described in app. I) indicate that a 4-percent increase in the import share of the market would result in a 1-percent decline in the domestic price of

1/ For a discussion of Japanese capacity, see app. J.

2/ Compiled from various issues of Automotive News.

3/ According to Federal Trade Commission data, the return on equity in all motor vehicle production in 1983 was 16.5 percent, compared with 10.1 percent for all manufacturing. Separate data for passenger car production are not available.

autos. By combining these estimates with estimates of the import share of the market that would have resulted in the absence of the VRA, it was possible to determine the effects of the restrictions on the average transaction prices of U.S. autos during 1981-84. The estimates in the following tabulation indicate that the effects were relatively small during 1981 and 1982 when the U.S. market for autos was depressed. However, by 1983, the VRA was adding more than \$400 to the cost of a domestic auto, and by 1984, this amount had increased to over \$600.

	<u>Actual 1/</u>	<u>Estimated</u>	<u>Difference</u>
1981-----	\$8,929	\$8,851	\$78
1982-----	9,889	9,719	170
1983-----	10,504	10,078	426
1984-----	10,998	10,329	659

1/ Transaction price data were provided by the U.S. Department of Commerce.

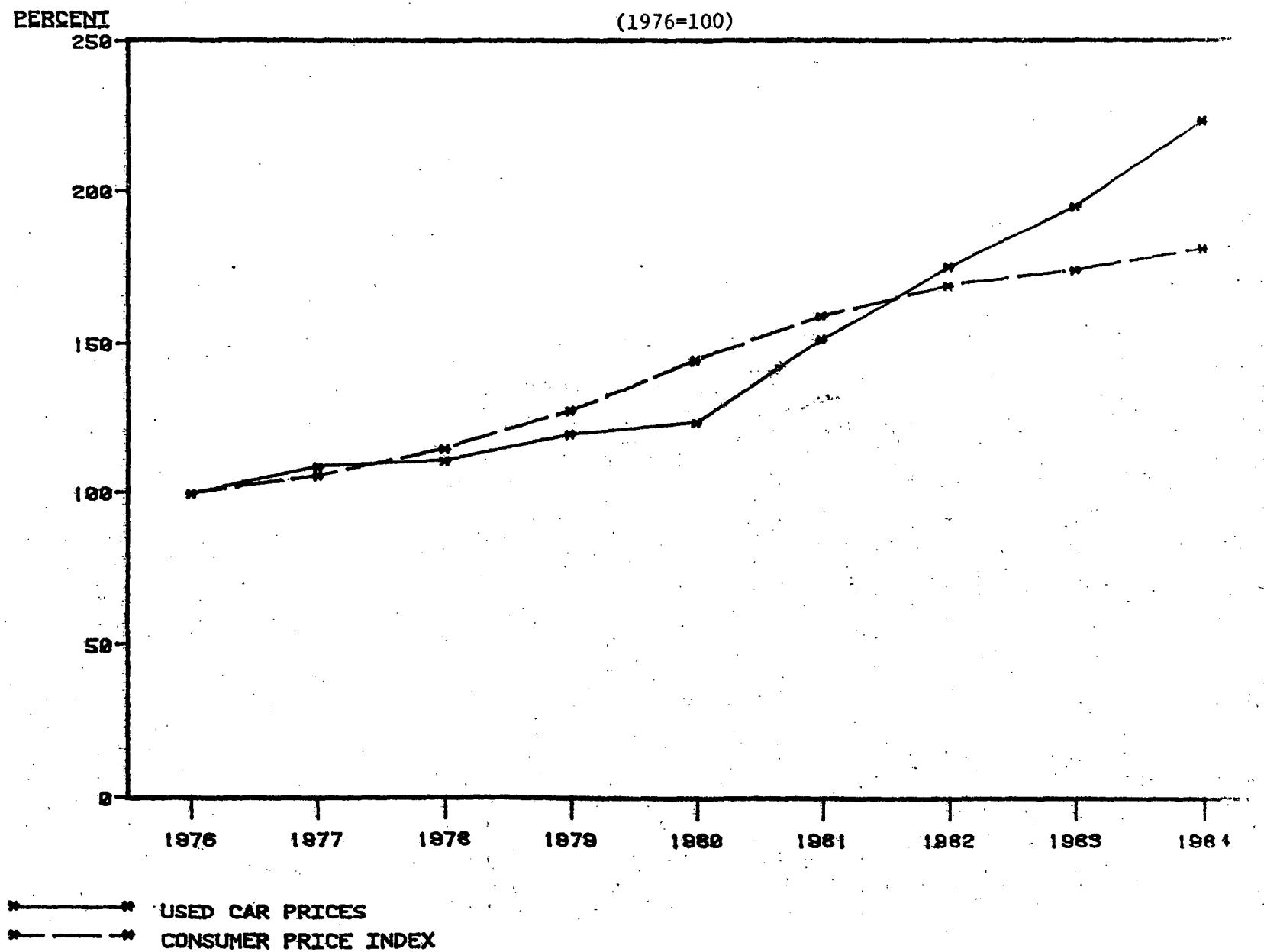
As shown in figure 17, the BLS index of used-car prices climbed rapidly during the past 4 years--far outpacing advances in the prices of new autos and the CPI for all items. From 1976 through 1980, the index increased by only 24 percent, but from 1981 through 1984, it nearly doubled, rising by 81 percent during this 4-year period. Though the economic effects of import restrictions on used-car prices cannot be readily quantified, the sharp increase in these prices that has occurred since the VRA has been in effect is striking. Although many factors may have contributed to these higher used-car prices, 1/ it is likely that they were partly due to an increase in demand on the part of buyers who turned to the used-car market because of the VRA-induced dearth and consequent higher prices of low-end Japanese autos. It is likely that higher prices of new domestic autos were also a contributing factor.

Consumer costs.--Estimates show that consumer costs from the VRA grew substantially from 1981 through 1984. The higher prices on Japanese autos alone raised the consumer costs from \$351 million in 1981 to \$1.8 billion in 1983, and by 1984, these costs had reached \$3.3 billion. The effects of the import restrictions on prices of new domestic autos imposed even more substantial costs. As shown in the following tabulation, the combined costs of the restrictions on both imported and domestic autos reached \$4.7 billion in 1983 and then climbed to \$8.5 billion in 1984 (in millions of dollars):

	<u>Increased costs of Japanese autos</u>	<u>Increased costs of all autos</u>
1981-----	351	835
1982-----	672	1,650
1983-----	1,785	4,680
1984-----	3,270	8,516

1/ For example, a change in demand for larger, more expensive models due to the decline in the price of gasoline and general recovery of the U.S. economy beginning in early 1983.

Figure 17.--Automobiles: Indexes of U.S. consumer prices and used car prices, 1976-84.



Source: Bureau of Economic Analysis, U.S. Department of Commerce.

These estimates are a measure of the costs to consumers who are actual or potential buyers of autos, and they do not take the exchange rate effects of the VRA into account. Therefore, they do not provide a complete measure of the aggregate welfare effect of the import restriction. The aggregate effect is discussed below.

Aggregate welfare effects.--The VRA has tended to strengthen the dollar by limiting the supply of U.S. currency that would otherwise have entered the foreign exchange market for purchases of Japanese autos. When compared to other factors such as the massive inflows of foreign capital that have resulted from high U.S. interest rates and the strong recovery of the U.S. economy, the contribution of the VRA to the rapid dollar appreciation of recent years has been very small. Nevertheless, if the impact of this appreciation were summed across all categories of traded goods, the total effect would probably be significant.

While U.S. consumers have benefited from lower prices for imported goods because of the appreciation resulting from the VRA, exporting industries have experienced a loss of revenue because the stronger dollar has made their products less competitive in world markets. The net welfare gain depends upon how much the benefits to consumers outweigh the costs to exporters. This depends, in turn, upon the aggregate demand and supply elasticities of U.S. exports and imports, aggregate trade flows and the effect of the VRA on the value of U.S. imports of autos.

The Commission estimates of the exchange rate effects of the VRA show that benefits to consumers exceeded costs to exporters by about \$150 million in 1983 and by about \$400 million in 1984. <sup>1/</sup> While these amounts are substantial, they are still small in relation to the total consumer costs of the VRA.

Employment effects.--Increases in U.S. sales and output resulting from the VRA have increased employment in the auto industry during 1981-84. In the first 2 years, these employment effects were probably small. As shown in the following tabulation, it is estimated that the VRA added only 5,400 jobs to total industry employment in 1981, but by 1984, this number increased to 44,100:

#### Additional auto industry jobs resulting from VRA

##### Additional jobs

1981-----	5,400
1982-----	9,100
1983-----	25,600
1984-----	44,100

If the indirect employment gains for original equipment parts manufacturers, the steel industry and other supplier industries are added to these numbers, the gains in employment would be significantly larger. However, such calculations are misleading, because they ignore the exchange rate effects of the VRA.

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<sup>1/</sup> The methodology used in making these estimates is described in app. I.

Since it is likely that the VRA has resulted in a stronger dollar, it is also likely that job losses in exporting industries and in import competing industries have offset to some extent the gains to the auto industry and its suppliers. A 1982 study by the U.S. Department of Labor indicates that the exchange rate effect can be significant. 1/

The Labor Department study examined the total U.S. employment impact of proposed local content legislation that would eventually have reduced annual U.S. auto imports by about 2.5 million units--a reduction more than twice as great as the estimated decline in Japanese auto imports in 1984 due to the VRA. It was estimated that this would have boosted domestic auto output by nearly 2 million units and would have created 111,000 additional jobs in the auto industry. Using 1979 input-output coefficients from the Bureau of Labor Statistics, it was further determined that this would have resulted in the gain of 192,000 jobs in supplier industries. But because of the exchange rate appreciation, about 319,000 jobs would have been lost in exporting industries and in import competing industries. Subtracting the total losses from the total gains resulted in a relatively small net job loss for the U.S. economy of about 15,000 jobs.

The report considered employment effects across all sectors of the U.S. economy. In addition to the auto and parts industries, it found that iron and steel foundries would benefit, as would producers of basic steel products, metal stampings, fabricated textile products and glass. However, significant job losses were found for import competing industries producing apparel, leather, footwear and electronic components. Job losses were also estimated for exporting industries producing food products and grain, aircraft, computers and motor vehicles. The Labor Department study raises doubt as to whether the VRA or similar forms of import restrictions on autos would lead to significant net employment gains for the U.S. economy.

Forecasts of future auto demand and imports.--The termination of the VRA on March 31, 1985, raises the question of how the U.S. auto industry is likely to fare during the next few years now that the tight restrictions on imports of Japanese autos have been relaxed. This will depend significantly upon the future level of total U.S. demand for passenger cars and the growth in sales of Japanese autos in the United States.

Although forecasts of total sales of passenger cars in the United States should be closely tied to forecasts of the annual rate of growth in the economy, it is clear that many other factors are likely to affect demand. DRI has attempted to systematically incorporate these factors into its econometric model of the total U.S. demand for passenger cars. In addition to real disposable income and the unemployment rate, which depend upon the overall health of the U.S. economy, the model also takes the price of new autos into account and other influences, such as the average age of the stock of existing autos, the real price of gasoline and the interest rate on consumer installment loans. Since DRI's auto model is linked to its model of the U.S. economy, forecasts of auto demand are heavily tied to its macroeconomic forecasts.

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1/ This study, prepared in August 1982, is entitled "The Effects of the Local Content Requirement Bill (H.R. 5133) on Domestic Job Opportunities."

Forecasts from the DRI auto model shown in the following tabulation point to a slow, irregular growth in the total U.S. demand for autos during the 1985-88 period (in millions of units):

	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Total U.S. sales 1/-----	10.65	10.55	10.95	11.20
Imports from Japan 2/-----	2.30	2.42	2.65	2.87

1/ DRI forecast.

2/ USITC estimate.

Sales are projected to reach 10.65 million units in 1985, a 2-percent increase from the 10.4 million units recorded in 1984. DRI expects sales to decrease slightly to 10.55 million units in the following year and then to increase moderately in 1986 and 1987.

These auto forecasts are based partly upon a DRI macroeconomic scenario that predicts that the U.S. economy will grow slowly during 1985 but that the pace will pick up during the following 3 years. Real GNP is projected to increase at an annual rate of only 2.1 percent in 1985 but is forecasted to rise at annual rates of 3 percent or more during each of the next 3 years. 1/ Because of the slow growth in the economy, unemployment is projected to edge up to 7.7 percent in the current year. The job situation is expected to improve during 1986 and the following years, but the unemployment rate is expected to remain above 7.0 percent throughout the forecast period.

Even if continuing moderate growth in the U.S. economy sustains the total demand for autos at a fairly high level, the question arises as to whether domestic producers will be likely to lose a large part of their market share to Japanese competition now that the VRA has ended. Because of their significant production cost advantages of \$1,000 to \$1,500 per vehicle, it would appear that Japanese producers could greatly increase their sales in the U.S. market if imports were completely unrestricted. But it is likely that some degree of restriction will continue. On March 28, 1985, the Japanese Government announced that it would limit exports of passenger cars to the United States to 2.3 million units during the next Japanese fiscal year. While this is an increase of more than 24 percent from the level recorded in the previous year, it is probably slightly less than the Japanese auto companies would be capable of supplying in a completely free market. 2/

Although any forecast of growth in sales of Japanese autos is subject to a wide margin of error, a completely unrestricted expansion in market share seems improbable. If imports of these autos increase to 2.3 million units in 1985, it is likely that sales will rise to about the same level in the current year. Assuming that the Japanese market share increases at the annual rate recorded during the 1967-80 period over the next 3 years, sales of these autos

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1/ These estimates for 1985 are more pessimistic than the projections provided by most economic forecasters. However, growth in real GNP amounted to only 1.3 percent during the first quarter of 1985.

2/ See app. J.

would rise to 2.9 million units by 1988. If the Japanese Government continues to impose restrictions on imports, these estimates could easily be too high.

Assuming that the U.S. demand for passenger cars remains relatively strong between 1985 and 1988 and that sales of Japanese cars increase at only a moderate rate, U.S. automakers should continue to operate profitably. Domestic sales during most of the years in this period will probably be less than the 7.9 million units recorded in 1984, but they are unlikely to fall below an annual level of 7 million units. In 1983, the industry earned profits of \$5.3 billion on sales of only 6.8 million units.<sup>1/</sup> Import competition from sources other than Japan is not expected to pose a serious problem for U.S. producers. Sales of European imports will probably continue to increase, but they are unlikely to capture additional sales at the expense of the domestic industry. Imports from Korea could increase rapidly once they are introduced into the U.S. market, but they are unlikely to become a major U.S. source of auto imports during 1985-88 because of limited Korean production capacity.

Even if the U.S. economy enters a recession during the next few years and this results in a sharp decline in the demand for autos, the impact on the auto industry is likely to be less severe than it was in 1979-82. This is due to the fact that U.S. producers have significantly lowered their break-even points and thus, are able to operate profitably at lower levels of sales and output than in earlier years.

An increase in the sales of Japanese automobiles most likely will impede U.S. automakers' attempts to comply with the Corporate Average Fuel Economy (CAFE) standards set by the Federal Government at 27.5 mpg for 1985 and beyond. As discussed earlier, general market demand for automobiles has shifted towards larger and higher performance vehicles because of both a decline in the importance of high fuel efficiency to many consumers as well as the re-entrance of large car buyers into the market. General Motors has predicted a 25.1 mpg CAFE figure for 1985 while Ford expects to reach 25.9 mpg. Without the ability to carry back expected fuel efficiency credits for surpassing CAFE standards in the future, GM and Ford together would probably be fined at least \$700 million for 1985 non-compliance based on 1984 sales. With a Japanese restraint of 2.3 million units, another \$100 million could be added, because Japanese sales would replace some U.S. small-car sales thereby skewing U.S. automakers' CAFE ratings toward lower mpg figures.

On February 22, 1985, Ford announced pricing actions designed "to help in its efforts to achieve government mandated fuel economy standards and to respond to continued cost pressures."<sup>2/</sup> While maintaining current prices on its more fuel-efficient small cars, Ford raised the prices of its large cars an average 1.7 percent.<sup>3/</sup> Moreover, below-market-rate financing was instituted for the next 28 days on two of Ford's popular small models.<sup>4/</sup> On

<sup>1/</sup> Profits on U.S. operations only, based on data supplied by domestic manufacturers in response to questionnaires of the U.S. International Trade Commission.

<sup>2/</sup> "Ford Raises Prices," Ward's Automotive Reports, Feb. 25, 1985.

<sup>3/</sup> Ibid.

<sup>4/</sup> "Ford Raises Prices," op. cit.

March 1, 1985, General Motors petitioned the National Highway Traffic and Safety Administration (NHTSA) to lower the CAFE for 1986 and beyond to 26.0 mpg. <sup>1/</sup> The Energy Policy and Conservation Act, which created CAFE, permits NHTSA to lower the requirements by 1.5 mpg. In the petition, General Motors stated:

The method of obtaining the greatest assurance that sales mix will not be disadvantageous from a CAFE standpoint is simply to stop producing larger, less fuel-efficient, family-size cars. An alternative is to raise the price of those cars to such a prohibitive level as to discourage sufficient numbers of consumers from buying them.

Hence, under a 2.3-million unit Japanese restraint or under a no-restraint scenario, the market-distorting effects of CAFE standards will increase such that, barring administrative or congressional action to lower the present requirements, consumers will pay significantly higher prices for large cars as well as high performance models, or, possibly, the availability of these vehicles will be limited.

Effects of the VRA on the U.S. trade balance with Japan.--It is estimated that the VRA resulted in a substantial reduction in both the volume and value of imports of passenger cars from Japan in 1983 and 1984, as shown in the following tabulation:

Year	Actual		Estimated	
	Quantity	Value	Quantity	Value
	<u>1,000</u> <u>units</u>	<u>Billion</u> <u>dollars</u>	<u>1,000</u> <u>units</u>	<u>Billion</u> <u>dollars</u>
1981-----	1,911	9.5	2,018	9.8
1982-----	1,801	9.6	1,999	10.2
1983-----	1,871	10.8	2,447	12.7
1984-----	1,970	12.5	2,978	16.4

In the absence of the VRA, it is estimated that U.S. imports of Japanese autos would have reached \$12.7 billion in 1983 instead of an actual level of \$10.8 billion; in 1984, such imports would have risen to \$16.4 billion, compared with an actual level of \$12.5 billion. Thus, with no restriction on Japanese imports, it is estimated that the U.S. trade deficit in autos would have been nearly \$2 billion higher in 1983 and almost \$4 billion higher in 1984. However, the effects of the VRA on the total trade deficit with Japan (\$19.3 billion in 1983 and \$33.9 billion in 1984) are not readily calculable, owing to

<sup>1/</sup> "Petition of General Motors Corporation to Amend Passenger Automobile Corporate Average Fuel Economy Standard for 1986 and Later Model Years," Mar. 1, 1985.

a variety of short run factors that are difficult to quantify. For example, to the extent that the VRA has increased the value of the dollar vis-a-vis the yen, it has resulted in reduced exports to Japan, while leading to increased imports of items other than autos to the United States. Also, assuming that the VRA has induced Japanese auto manufacturers to locate in the United States <sup>1/</sup>, it has further tended to strengthen the dollar, leading to an even greater decline in exports and increases in imports.

Proposed domestic content legislation.--It is likely that the enactment of domestic content legislation would have many of the economic effects that have been estimated for the Voluntary Restraint Agreement, but because of the extreme restrictions on imports, the impact would probably be much greater. The implementation of these measures would virtually eliminate serious import competition in the U.S. market. It would place the domestic industry in the same situation that existed in the 1950's, with three large firms dominating sales and output--at least in the short run. This could change over the long term if Japanese and other foreign producers establish additional facilities in the United States. But it is far from certain that they will do so.

Because of the elimination of competition from imports, which have long accounted for well over 20 percent of the U.S. market, prices of domestic autos would be almost certain to increase significantly. Increased competition from foreign firms locating in the U.S. could eventually soften the initial price effects resulting from this legislation. But prices would still be higher than the levels that would prevail with free trade.

Since most Japanese autos are priced to compete in the lower and middle ranges of the U.S. markets, the impact of the higher prices would probably fall most heavily on customers for models in these market segments. Large-size, high-priced domestic makes and European imports do not compete closely with most Japanese imports, and therefore, prices of these models would not be as significantly affected by the legislation.

The evidence discussed in the last section raises doubt that domestic content legislation would result in any permanent overall gains in U.S. employment. While the import restrictions would result in large employment gains in the auto industry and its suppliers, it would likely have negative effects on employment in exporting industries and import competing industries.

Effect of proposed auto quota bill 2/.--If enacted in its present form, H.R. 1050, or the "Made in America Act", would not limit the number of automobiles or trucks imported by domestic manufacturers (General Motors, Ford, Chrysler, and American Motors) from their Canadian subsidiaries. The Act would also not limit the number of automobiles or light trucks assembled by foreign-owned automobile companies if the motor vehicles were assembled in the United States. <sup>3/</sup> In addition, since only vehicles that have a gross

1/ For information regarding foreign investment in the United States, see Changes in the U.S. market and industry resulting from internationalization efforts, pg. .

2/ For explanation of H.R. 1050, see page 14.

3/ Currently, Honda, Volkswagen, Nissan, and Toyota (in a joint venture with General Motors) assemble automobiles and/or light trucks in Foreign Trade Zones in the United States.

vehicle weight (GVW) rating of less than 10,000 pounds (automobiles and light weight trucks) would be affected by H.R. 1050, medium-and heavyweight trucks and buses (all of which are rated over 10,000 pounds GVW) would be exempt.

The bill also excludes any importer that imports fewer than 100,000 units per year. As shown in the following tabulation, based on 1984 sales data derived from Wards Automotive Reports, all but one European importer would be excluded from the proposed quotas (in units):

<u>Company</u>	<u>Country</u>	<u>1984 U.S. retail sales</u>
Volkswagen/Audi-----	West Germany	171,639
Volvo-----	Sweden	97,915
Mercedes/Benz-----	West Germany	76,051
BMW-----	West Germany	68,650
Saab-----	Sweden	32,768
Peugeot-----	France	19,870
Porsche-----	West Germany	18,850
Jaguar-----	United Kingdom	18,044
Renault-----	France	12,243
Alfa Romeo-----	Italy	3,604
Ferrari-----	Italy	568

However, all Japanese importers except Isuzu and Suzuki would be affected by the proposed bill, as shown in the following tabulation, based on U.S. retail sales for 1984 from Ward's Automotive Reports, (in units):

<u>Company</u>	<u>Automobiles</u>	<u>Trucks</u>	<u>Total</u>
Toyota-----	557,979	264,178	822,157
Nissan-----	485,298	108,562	593,860
Honda 1/-----	374,819	0	374,819
Mazda-----	169,666	119,127	288,793
Mitsubishi 2/-----	130,822	68,911	199,733
Subaru-----	157,383	0	157,383
Isuzu 3/-----	19,310	45,379	64,689
Suzuki 4/-----	10,927	0	10,927
Total-----	1,906,204	606,157	2,512,361

1/ Excludes U.S.-produced Hondas.

2/ Includes Mitsubishi sold by Chrysler Corp.

3/ Distributed by General Motors which has announced plans to import 80-100,000 units per year.

4/ Distributed by General Motors which has announced plans to import 200,000 units per year.

Since virtually all Canadian motor vehicles are imported from U.S. subsidiaries and all imports from the European Community except Volkswagen do not exceed the 100,000 limit, the bill would primarily affect imports of automobiles and lightweight trucks from Japan. As shown in the preceding tabulations, six Japanese companies and one West German company imported more than 100,000 motor vehicles in 1984. Thus, the seven leading importers would all be affected to some degree by the proposed bill, as shown in the following tabulation (in units):

<u>Company</u>	<u>Total 1984 U.S. retail sales</u>	<u>Total number affected if proposed bill enacted</u>
Toyota-----	822,157	722,157
Nissan-----	593,860	493,860
Honda-----	374,819	274,819
Mazda-----	288,793	188,793
Mitsubishi-----	199,733	99,733
Volkswagen/Audi--	171,639	71,639
Subaru-----	157,383	57,383
Total-----	2,608,384	1,908,384

The proposed bill would become effective only if the import penetration ratio exceeded 15 percent of total motor vehicle sales in a given year. However, beginning in 1974, imports of automobiles have exceeded this level every year as shown in the following tabulation, extracted from Automotive News:

	<u>Total U.S. retail sales of imported automobiles (1,000 units)</u>	<u>Import penetration ratio (percent)</u>
1974-----	1,409	18.9
1975-----	1,580	16.4
1976-----	1,499	16.5
1977-----	2,069	17.2
1978-----	1,977	19.1
1979-----	2,321	22.0
1980-----	2,395	26.7
1981-----	2,325	27.3
1982-----	2,221	27.8
1983-----	2,382	26.0
1984-----	2,435	23.4

Effects of the Mexican auto decrees.--This section examines the effects on the United States and Mexican automobile industries of the four most recent Mexican auto decrees. The section of this report that covers worldwide government policies documents the history behind the various auto decrees, and a later chapter contains specific information on the structure of the Mexican auto industry itself. 1/

Effective August 1962, the first Automotive Integration Decree was intended to stimulate local manufacturing and to create additional jobs in the Mexican auto industry through a 60-percent local content requirement coupled with government-supervised production quotas. 2/ The initial effect of the 1962 decree was to eliminate 7 of the 17 auto assemblers operating in Mexico at that time. 3/ The Government accepted the manufacturing proposals of the

1/ See "Government Policies," p. 13 and "Emerging Nations," p. 140.

2/ Jack H. Parkinson, "The Automotive Industry Decree: Tooling Up For More Exports," Business Mexico, 1978.

3/ John D. Sevier, "Review and Prospects For The Automotive Industry," Business Mexico, 1978.

other 10. Each of these companies agreed to produce 60-percent Mexican content cars by 1964. This deadline was later extended so that the requirements became effective during the fall of 1965 in time for the 1966 model production runs. 1/ Prior to 1962, the automotive components industry of Mexico consisted of tire, battery, and paint suppliers in addition to a few miscellaneous parts makers. 2/ These companies together accounted for roughly 15 percent of the local content in passenger cars. 3/ By 1972, companies in Mexico were manufacturing engines, axles, manual transmissions, drive shafts, and small stampings. Despite the expansion of production facilities, rudimentary data indicate that the 60-percent local content goal of the first decree was never reached and was most likely under 50 percent. 4/ Nonetheless, employment among vehicle assembly operations increased from 7,072 workers in 1960 to 23,220 by 1970. 5/

By 1972, 2 of the 10 car manufacturers accepted into the 1962 auto program had ceased operations. Representaciones Delta (Mercedes-DKW) never really got off the ground, and Fàbrica Nacional de Automoviles produced only 2,489 Borgward-model cars between 1968 and 1970. 6/

The 1972 automotive decree attempted to reinforce the 60-percent local content goal through more stringent penalties for failure to meet required content levels. Moreover, the second decree provided tax incentives for auto-parts exports and phased in a program to require all imported parts used in production/assembly to be offset by equivalent exports by 1979. In addition, as part of the Government's general policy of Mexicanization of major industries, the 1972 decree specified that all parts suppliers must be 60-percent Mexican owned.

Economic conditions in Mexico and particularly in other automobile-producing countries dampened much of the potential effects of the second decree. While the Mexican automobile market boomed between 1970 and 1975, the automobile industries of the other major producing countries slumped into a deep recession. The lack of foreign demand effectively prevented utilization of export incentives, and the Mexican industry continued to require advanced componentry and luxury accessories unavailable in Mexico. As a result, Mexico's trade deficit situation continued to worsen. The 1972 decree did, however, uphold Mexico's policy of protection and promotion of the indigenous components industry.

In June 1977, the Government of Mexico issued the third automotive decree. The Decree for the Development of the Mexican Automotive Industry focused primarily on improving the foreign trade position of Mexico's automotive sector. 7/ However, the decree also explicitly favored Mexican

1/ Ibid.

2/ Jack H. Parkinson, Supra.

3/ Ibid.

4/ Jack H. Parkinson, op. cit.

5/ "L'Industria Automotores Mexico," Secretaria de Programacion y Presupuesto, 1982.

6/ John D. Sevier, op. cit.

7/ Jack H. Parkinson, op. cit.

majority-owned companies. 1/ The new decree, as with those before, established minimum local content requirements. A new formula that reflected total production costs rather than only parts and raw materials costs would require 50-percent Mexican content by 1978, with recommended levels reaching 75 percent by 1981. 2/ The decree also banned the importation of certain parts listed as "national components of mandatory incorporation." 3/

Initially, the time schedule for meeting the decree's requirements proved infeasible; so the Government frequently took a flexible stance towards its provisions. 4/ However, by November 1981, the Government had hardened its position and began to strictly enforce the decree. 5/ The Mexican Government required approval of all production, export, and import schedules planned by the auto and parts makers. Moreover, licenses were required for all imports, thereby enabling Mexico to closely regulate, or restrict, parts trade. Given the new emphasis being placed on the decree, the vehicle makers announced capital investment plans for 1980-83 of some \$1.6 billion. 6/ Much of this money went into engine-manufacturing facilities. By 1983, Mexico was exporting nearly 500,000 gasoline-powered car engines to the United States, compared with about 49,000 units in 1980. During this same period, U.S. imports of motor vehicle parts and accessories increased 188 percent, from \$419 million in 1981 to \$1.21 billion in 1983. 7/ This increase allowed Mexico to surpass West Germany as the third largest source of U.S. parts imports. 8/ In view of the success with which the Government was promoting Mexican content and exportation, one U.S. automotive-parts-industry association commented in 1983, that "Mexico seems intent on developing an internationally competitive parts industry rather than an auto industry." 9/

By August of 1982, however, Mexico's balance-of-payments deficit had reached crisis proportions. Unable to obtain enough foreign exchange to service its \$80 billion in foreign debt, the Government of Mexico responded with several major actions, including a devaluation of the peso, nationalization of the banking system, institution of tight exchange controls, and across-the-board import licensing requirements. 10/ In addition, a fourth auto decree, the Decree for the Rational Restructuring of the Automotive Industry, was issued in September 1983, and was aimed at ensuring a positive

1/ John D. Sevier, op. cit.

2/ Decree for the Development of the Automotive Industry, Department of State translation from the Diario Official of June 20, 1977.

3/ These parts were, according to Mexican Government, produced by Mexican producers in sufficient quantity and quality so that they were not allowed to be imported and had to be sourced from Mexican manufacturers.

4/ U.S. Department of Commerce, unpublished paper.

5/ Ibid.

6/ Ibid.

7/ Data compiled by the U.S. International Trade Commission using official statistics of the U.S. Department of Commerce.

8/ Canada is the leading source, followed by Japan.

9/ "Special Report: Local Content Legislation and the Auto Industry," Motor and Equipment Manufacturers Association, Feb. 25, 1983.

10/ An extensive discussion of these measures is provided in Foreign Industrial Targeting and its Effects on U.S. Industries Phase III; Brazil, Canada, the Republic of Korea, Mexico, and Taiwan, USITC Publication 1632, January 1984.

automotive balance of trade and a strengthening of the overall situation in the industry. By this time, the Mexican auto industry was down to six car makers: Volkswagen de Mexico, General Motors de Mexico, Ford de Mexico, Chrysler de Mexico, Nissan Mexicana, and Vehicles Automotores Mexicanos (VAM). International Harvester fell victim to the world recession and problems in its U.S. operations, and Diesel Nacional, which had been producing Renault cars under license, merged its auto production into VAM, of which American Motors Corporation was the minority partner.

The major apparent effect of the fourth auto decree has been the promotion of Mexican car production not only for the local market, but for export to the United States. In September 1984, Chrysler de Mexico announced plans to invest most of its \$67 million trade surplus from 1983 in the expansion of Mexican operations. 1/ Moreover, Chrysler de Mexico began exporting passenger cars to the United States during 1984. 2/ In an agreement to speed up the export of El Caminos and Caballeros, the Mexican National Railways System worked out a faster transportation system with General Motors de Mexico, and General Motors plans to export 25,000 of these vehicles to the United States in 1985. 3/

In January 1984, Ford de Mexico announced a \$500 million project to build Mazda-designed subcompacts for export to the United States. 4/ The Hermosillo facility will reportedly produce 130,000 units by 1987 and employ 3,000 workers. 5/ A Ford executive cited the September 1983 auto decree as "a major reason" for the decision to build a new plant in Mexico. 6/ In late 1984, 21 Mexican banks, headed by the National Bank of Mexico, announced a \$100 million loan to Ford for construction of the facility. 7/ Given the plans of Mexican companies, U.S. imports of autos from Mexico could easily reach 180,000 to 200,000 units by 1987.

#### Internationalization Efforts and Accomplishments by the U.S. Industry

The U.S. automobile industry first invested overseas in the 1920's and has generally increased its foreign investments since that time. During the last 5 years, certain developing countries, including Mexico, Brazil, Korea, and Taiwan, have received an increasing share of U.S. automobile foreign investment, compared with developed countries like West Germany and the United Kingdom. There have been two major joint ventures in the United States since 1980 between a U.S.-based auto producer and a foreign-based auto producer, and

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1/ "Chrysler Mexico Spending Put at \$66 Million for '84," Automotive News, Sept. 24, 1984.

2/ "No Complaints About Mexican K-Cars", Automotive News, Oct. 1, 1984.

3/ "El Caminos, Caballeros Shipped From GM-Mexico," Automotive News, Dec. 3, 1984.

4/ "Ford to Build Mazdas in Mexico For U.S. Sale," Automotive News, Jan. 16, 1984.

5/ "Ford to Build Small Cars in Mexico For Sale in U.S., Canada," Ward's Automotive Reports, Jan. 16, 1984.

6/ William Orme, "Ford Motor Will Build New Plant in Mexico," The Washington Post, Jan. 11, 1984.

7/ "21 Banks Lend \$100 Million to Ford Plant in Mexico," Automotive News, Nov. 19, 1984.

one or two more are possible within the next 2 years. 1/ In addition, all four major U.S.-based automobile manufacturers have entered into joint ventures with foreign producers since 1970, although only two of these joint ventures resulted in the production of an automobile in the United States. 2/ All four companies have imported from their joint venture operations completed vehicles (automobiles or light trucks) and major components for use in U.S. assembly (engines and transaxles). The three principal U.S. auto producers have each also developed internal programs for the production of internationally competitive models for the U.S. market.

#### U.S.-based joint ventures

In late 1980, Renault of France acquired 46.6 percent of American Motors Corp., with an option to purchase a controlling interest in the company. In return for access to AMC dealers in the United States, Renault would provide capital to AMC and also jointly design a car to be produced in the United States at an AMC production facility. 3/ The agreement authorized Renault to purchase \$200 million worth of AMC common stock, preferred stock, and warrants during 1981-82. This was in addition to the \$150 million already invested in AMC by Renault, which AMC was to use to finance the Renault-designed auto that AMC would build in its Kenosha, Wis., assembly plant. 4/ American Motors Corporation shareholders authorized up to 59-percent ownership of AMC by Renault, but the French-Government-owned firm stated that its ownership would not exceed 50 percent. 5/ In addition to the infusion of capital, the agreement also authorized three more Renault nominees to the AMC Board of Directors, in addition to the two Renault members who were already on the Board of Directors. 6/ Not only did the joint venture allow Renault to distribute French-produced automobiles at AMC dealerships in the United States and Canada, but it also opened Renault distributorships in other countries to U.S.- and Canadian-built AMC automobiles and Jeep vehicles.

On June 14, 1982, production of the Renault-designed Alliance began at the AMC Wisconsin assembly plant. 7/ The Alliance was the result of a 2-1/2 year joint effort that cost an estimated \$200 million. 8/ The model was introduced as a 1983 model with a suggested base retail price of about \$6,000. During the first model year (1983), American Motors produced 142,205 Alliances. 9/ In September 1983, AMC introduced a new model, the Renault Encore, which was produced in its Wisconsin assembly plant and based on the Alliance design.

1/ Chrysler has held preliminary talks with both Volkswagen and Mitsubishi and Ford has discussed joint U.S. operations with Mazda.

2/ The General Motors/Toyota joint venture and the American Motors/Renault joint venture resulted in U.S. production.

3/ The Competitive Status of the U.S. Auto Industry: A Study of the Influences of Technology in Determining International Industrial Competitive Advantage, Prepared by the Automotive Panel, Committee on Technology and International Economic Trade Issues the Office of Foreign Secretary, National Academy of Engineering, National Academy Press, Washington, DC 1982, p. 64.

4/ Ward's Automotive Yearbook, 1981, p. 213.

5/ Ibid.

6/ Ibid.

7/ Ibid., p. 203.

8/ Ibid., p. 205.

9/ Automotive News 1984 Market Data Book, p. 16.

The other principal joint venture that occurred during the last 5 years was the signing of a memorandum in 1983 between General Motors Corporation, the largest automobile producer in the world, and Toyota Motor Corporation, the third largest automobile producer in the world, to jointly produce a Japanese-designed subcompact in an idled GM assembly plant in Fremont, California. The agreement called for the production of approximately 200,000 units per year, with initial production to begin in late 1984. 1/ At the time of the announcement, GM indicated that the automobile would have a minimum of 50 percent U.S. content, that only one model would be produced in the plant, and that the agreement would expire in 12 years. 2/ On April 12, 1985, General Motors and Toyota agreed to shorten the planned joint venture from 12 years to 8 years. 3/

According to General Motors, a new stamping plant that cost \$20 million was built beside the existing assembly plant. All body panels are to be stamped at this facility, which has five separate press lines. 4/ The assembly plant itself covers almost 3 million square feet and currently employs about 1,050. 5/ When the second shift is added, employment should total approximately 2,500 persons, many of which will be former General Motors production workers. 6/

Soon after the joint venture was announced, Chrysler claimed that not only was the venture in violation of U.S. antitrust laws, but also the operation would eliminate approximately 50,000 U.S. assembly and supplier jobs. 7/ After a lengthy investigation by the U.S. Federal Trade Commission (FTC), the staff of the FTC recommended approval of the joint venture. The recommendations by the FTC's Bureau of Competition stated that there were potential problems arising from the joint venture and recommended that it be carefully monitored. 8/ On February 22, 1984, GM and Toyota created a new firm called the New United Motors Manufacturing, Inc. (NUMMI). 9/ On April 11, 1984, the FTC approved the GM-Toyota joint venture by a 3-to-2 vote. 10/ The agreement between GM and Toyota does not actually require joint production, according to the FTC's final decision. Toyota may either build 250,000 (the limit imposed by the FTC) of its own cars in the California plant, or GM could import up to 250,000 autos from Toyota of Japan. 11/ Thus,

1/ "GM-Toyota Venture Needs Much Work to Wrap Up Details," Automotive News, Feb. 28, 1983, p. 1.

2/ Ibid.

3/ John Burgess, "Joint Auto Pact Set," The Washington Post, Apr. 16, 1985, p. D1.

4/ Matt De Lorenzo, "Nova Takes a Bow on Coast as New GM-Toyota Car," Automotive News, Dec. 24, 1984, p. 2.

5/ Kathleen Hamilton "Only 3,100 Cars Due for Nova Intro," Automotive News, Feb. 18, 1985, p. 2.

6/

7/ "GM-Toyota Auto to Bow as a 1985 Model," Automotive News, Feb. 21, 1983, p. 1.

8/ "FTC Staff Recommends That Agency Approve GM-Toyota Plan, The Washington Post, Dec. 2, 1984, p. A7.

9/ "FTC Gives Final Approval to GM, Toyota Venture," The Washington Post, Apr. 12, 1984.

10/ Ibid.

11/ "Joint Car Output Not Necessary in GM-Toyota Deal," The Washington Post, May 31, 1984.

any combination (imports, joint production, or sole production by Toyota) is possible.

The first automobile produced by NUMMI rolled off the assembly line in early December 1984, 1/ and a total of 20 models were assembled in 1984 at the facility. 2/ As of April 8, 1985, NUMMI production was up to 250 units per week, and a total of 265 units were produced in 1985. 3/ Current production schedules call for 40,000 autos to be built in 1985, 125,000 in 1986, and 240,000 in 1987 when full capacity will be reached with the utilization of two shifts at the Fremont plant. 4/ The model that is being produced is a front-wheel drive, four cylinder subcompact called the Nova. This model is based on an automobile already built and distributed by Toyota in Japan, but not currently exported to the United States. According to a NUMMI spokesman, only a four-door model will be produced initially, with a two-door hatchback added later in 1985. 5/

Mitsubishi Motors Corp. and Chrysler Corp. announced April 15, 1985, that they would enter into a joint venture agreement to produce automobiles in the United States. 6/ The companies would contribute \$250 million each and the auto would be designed principally by Mitsubishi. The new plant would begin production in 1988, employ approximately 2,500 workers when operating at capacity, and probably would be located in a Midwestern State. 7/ Mitsubishi also announced that Chrysler's ownership share will rise to 20 percent of Mitsubishi and eventually to 24 percent. 8/

#### U.S. subsidiaries abroad

Both Ford and General Motors opened assembly plants in Europe in the 1920's. By 1929, Ford Motor Company was assembling automobiles in 21 countries and General Motors was assembling automobiles in 16 countries. 9/ Both companies, however, would have preferred to have exported to many of these countries in lieu of establishing overseas facilities. After World War I, however, most European countries agreed that their home markets needed to be protected and enacted or "recommended" a high local content level. In 1931, Ford opened a fully integrated manufacturing complex in England, and General Motors purchased two established automobile manufacturers in Britain (Vauxhall in 1925) and West Germany (Adam Opel in 1929). 10/ However, when both companies tried to purchase facilities or build plants in France and Italy, permission by the governments was denied. 11/ Since the 1930's, many of the automobile production plants built outside of the United States have been established because of domestic content or other

1/ Warren Brown, "GM-Toyota Car Rolls, Dec. 4," The Washington Post Nov. 24, 1984.

2/ "U.S. Car Production," Automotive News, Jan. 7, 1985, p. 54.

3/ "U.S. Car Production," Automotive News, Apr. 8, 1985, p. 51.

4/ Matt De Lorenzo, op. cit.

5/ Ibid.

6/ John Burgess, "Joint Auto Pact Set." The Washington Post, Apr. 16, 1985. p. D1.

7/ Ibid.

8/ Ibid., p. D2.

9/ Alan Altshuler, Martin Anderson, op. cit., p. 16.

10/ Alan Altshuler, Martin Anderson, op. cit., p. 16.

11/ Ibid.

performance requirements imposed by foreign governments (see Government Policy section of this report). General Motors currently has production or assembly operations in approximately 30 countries, Ford in about 20 countries, Chrysler in 3 countries, and AMC in 2 countries.

#### Joint ventures abroad

All three major U.S. automobile producers (General Motors, Ford, and Chrysler) have entered into agreements with some of the smaller Japanese auto manufacturers. General Motors Corporation owns approximately 34 percent of Isuzu Motors and 5 percent of Suzuki Motors, and Ford Motor Company owns 25 percent of Mazda Motors (formerly Toyo Kogyo). 1/ The Chrysler Corporation, under its joint venture agreement with Mitsubishi, will increase its holding in the Japanese automaker from 15 percent to 24 percent by mid-1986. 2/ In addition, GM owns 50 percent of Daewoo Motors in Korea, and Chrysler owns 15 percent of Peugeot in France. 3/ The following tabulation, compiled from various sources, lists the principal foreign companies that are joint venture partners with the four U.S.-based companies:

<u>U.S. company</u>	<u>Foreign company</u>	<u>Country</u>
<b>General Motors-----</b>	Isuzu	Japan
	Suzuki	Japan
	Toyota	Japan
	Daewoo	South Korea
	Hindustan	India
	Hua Tung	Taiwan
<b>Ford-----</b>	BMW	West Germany
	Hyundai	South Korea
	Otosan	Turkey
	Fiat	Italy
	Renault	France
	Mazda	Japan
	Lio Ho	Taiwan
<b>Chrysler-----</b>	Mitsubishi	Japan
	Peugeot	France
	Maserati	Italy
<b>American Motors-----</b>	VAM	Mexico
	Renault	France
	Mahindra	India
	Beijing Jeep	Peoples Republic of China

1/ Automotive News, various issues.

2/ John Hartley, "Chrysler, Mitsubishi Make it Official," Automotive News, Apr. 22, 1985.

3/ Steven Lohr, "Gains For South Korean Autos," The New York Times, Oct. 10, 1983; and Paul Lienert, "Chrysler Sells European Firms to Peugeot," Automotive News, Aug. 14, 1978, p. 1.

Imports of automobiles

Since 1964, all four U.S.-based automobile producers have imported automobiles from Canada, Mexico, the EC, and/or Japan. Ford Motor Co. imported 1,832 automobiles from Canada in 1964, and 1,625 autos in 1965. 1/ In 1965, Chrysler began importing automobiles from Canada, and by 1966, General Motors and AMC began to export autos from their Canadian assembly plants to the United States. 2/ In addition to imports from Canada, all four U.S.-based companies have from time to time imported fully assembled automobiles from the EC, Japan, or Mexico.

General Motors imported automobiles from its West German subsidiary, Adam Opel, from the early 1960's until 1976, when it began importing an "Opel" model from Isuzu of Japan. 3/ In 1979, General Motors ceased importation of the Isuzu-built Opel and did not import autos from any country except Canada until 1984, when it began importing small subcompacts from Suzuki and Isuzu of Japan. General Motors also plans to import a luxury auto, either partially or completely assembled, from Italy in the next 2 years and a subcompact model from Daewoo of South Korea.

Ford Motor Co. has imported autos from Canada, West Germany, Italy, and the United Kingdom since 1965. All of these were imported from Ford-owned subsidiaries, except for an expensive sports car, the Ford Pantera, which was assembled in Italy. The Pantera was a joint venture between Ford and DeTomaso of Italy, and in 1974, Ford purchased DeTomaso and also discontinued the U.S. importation of Panteras by 1975. 4/ Ford also imported two subcompact models from the United Kingdom and West Germany but discontinued importation of both models by 1981. 5/ Early in 1984, Ford announced a \$500 million project to build a subcompact car in Mexico. 6/ By 1987, Ford expects to be shipping over 100,000 of the Mazda-designed vehicles to the United States and Canada. 7/ In mid-1984, Ford announced its intention to import a new line of automobiles from its West German subsidiary. These cars will be marketed through the Lincoln-Mercury division under the Merkur nameplate. The first model sold by the new franchise will be the XR4Ti, a derivative of the Ford Sierra being sold in Europe. 8/ In 1986, the XR4Ti should be joined by a four-passenger car due to replace the Granada in Europe later this year. 9/ Ford has also confirmed plans to import a small number of mini-cars from Kia Industrial of Korea. 10/

1/ Data from Motor Vehicle Manufacturers of America, Inc.

2/ Ibid.

3/ Data compiled from various annual issues of Wards Automotive Reports.

4/ Henry Rasmussen, Panteras for the Road, Motor Books International, Osclola, Wis., 1982.

5/ The U.S. Auto Industry: U.S. Factors Sales, Imports, Exports, Apparent Consumption, Suggested Retail Prices, and Trade Balances with Selected Countries for Motor Vehicles 1964-83, USITC Publication 1585, September 1984.

6/ "Ford to Build Mazdas in Mexico For U.S. Sale," Automotive News, Jan. 16, 1984.

7/ Ibid.

8/ Richard Johnson, "L-M, Ford Europe Plan Merkur Future," Automotive News, Feb. 11, 1985.

9/ Ibid.

10/ Michell Krebs, "Ford Plans to Import Korean Minis for 1988," Automotive News, May 13, 1985, p. 8.

Chrysler Corporation has imported automobiles from either the United Kingdom, France, Mexico, or Japan, as well as Canada, since 1965. All of the imports from the United Kingdom, France, and Japan have been subcompact models, and only one model, a compact, has been imported from Mexico. All of the Chrysler imports from the EC, Canada, and Mexico have been from wholly owned subsidiaries, and its imports from Japan were from Mitsubishi, of which Chrysler owns approximately 15 percent. Chrysler announced in late February 1985, that it intended to import an additional 200,000 Mitsubishi automobiles from Japan and that it was canceling plans to build a new auto-assembly plant in Indiana. <sup>1/</sup> In addition, a Chrysler vice president also stated that the company has a "team now out looking for joint ventures on major components or even new cars to be built in Asia." <sup>2/</sup>

The fourth largest U.S.-based automobile producer, AMC, has imported automobiles from its wholly owned Canadian subsidiary and from its joint-venture partner, Renault of France. All of AMC's imports from France have been subcompact models.

#### Small car development programs

In addition to developing external sources for internationally competitive vehicle parts, subcompact cars, and advanced small car technologies, the three principal U.S. automakers have announced internal programs for the production of new subcompact models. These manufacturing projects involve revisions of the traditional product development practices, including changes in management structures and techniques, changes in component materials used, and advanced assembly and manufacturing procedures. The auto companies have stated that these small car projects will permit efficient and profitable manufacture of subcompact automobiles. Furthermore, these programs are expected ultimately to improve the production of all types of passenger cars.

The General Motors Saturn Project, has evolved into a separate independent subsidiary. <sup>3/</sup> The Saturn program involved close cooperation between GM management and the United Auto Workers. Thus, the Saturn Corporation will not only use new production and manufacturing processes, and component materials and designs, but also the company will test new employee work rules and labor management techniques. Comments of Saturn Corporation officials indicate that the \$5 billion project will begin production of a front-wheel-drive subcompact for the 1989 model year, but that new models will be added perhaps pushing production volumes into the one-million-units-per-year range.

At the time of General Motors' announcement of its Saturn Corporation subsidiary, the Chrysler Corporation was developing its Concept 90 program. Concept 90, now known as the Liberty Project, had originally been thought to be several years behind the General Motors program. However, recent comments by Chrysler officials indicate a Liberty vehicle debut is likely prior to

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<sup>1/</sup> Barry Stauro, "Is there life after Iacocca?," Forbes, Apr. 8, 1985, p. 78.

<sup>2/</sup> Ibid.

<sup>3/</sup> John Holusha, "GM Starts a New Car Subsidiary," The New York Times, Jan. 9, 1985, p. D1.

Saturn's introduction. 1/ The Liberty will be assembled using a number of component modules similar to the assembly-line practice used in Japan. This process utilizes component systems produced off the assembly line which are then attached to or plugged into the vehicle as it moves through production. The component systems will include a cooling system module, a front hood module with integral grille and head lamp assemblies, a control module located in the steering column, and a molded, one-piece rear hatch. 2/ Chrysler describes the Liberty concept as an "inverted designed process," which first establishes the best manufacturing process to use and then works backwards through engineering to design. 3/ The project has relied heavily on some 40 suppliers for new engineering technology. 4/

The Ford Motor Company's Alpha Project, like GM's Saturn, involves closer cooperation between Ford and the UAW, including most likely increased flexibility in work rules. According to Ford officials, the program intends to study all facets of the company's business in an effort to create a cost-competitive small car with a minimum of off-shore sourcing. 5/ At present, the company has revealed little technical data regarding the Alpha design, except that Ford will make use of its expertise in advanced aerodynamics. Ford is currently preparing to introduce its Sable and Taurus front-wheel-drive models. These cars, involving a \$3 billion investment, are the latest development in Ford's research into advanced aerodynamic styling, following the previous introductions of a redesigned Thunderbird and the Tempo/Topaz lines. 6/ The Alpha may ultimately result in an aerodynamic successor to the Escort, designed for a greater uniformity of styling throughout the world, in other words, a second-generation world car.

Thus, the General Motors Saturn Project will incorporate novel manufacturing processes and composite technologies within a streamlined management and labor framework in building a new subcompact auto in the United States. The Chrysler Liberty Project, in contrast, will utilize existing technologies to redefine its assembly procedures with significant use of its suppliers' design and engineering expertise. Statements by Chrysler's Chairman announcing cutbacks in the company's U.S. production capacity may mean that the Liberty will utilize U.S.-built component modules, but will be assembled off-shore. 7/

Conversely, the Alpha Project intends to maintain U.S. assembly jobs and build upon Ford's experience in aerodynamics. However, cost considerations and recent statements by Ford officials indicate that the Alpha may incorporate a substantial degree of foreign-sourced components. 8/

1/ Edward Lapham, "Chrysler Liberty Car Project is Gunning for GM's Saturn," Automotive News, Mar. 18, 1985, p. 1.

2/ Edward Lapham, "Chrysler Liberty Car. . .," op. cit.

3/ Ibid.

4/ Ibid.

5/ Marjorie Sorge, UAW to Form Group for Ford Alpha Work," Automotive News, Apr. 18, 1985, p. 3.

6/ Marjorie Sorge, "Ford, UAW to Team on Alpha Small Car," Automotive News, Oct. 22, 1984.

7/ Dan McCosh, "Competitor For Saturn is Chrysler Project," Automotive News Mar. 11, 1985, p. 2.

8/ Ibid., and Richard Johnson, "VRA Death May Send 1988 Escort Offshore," Automotive News, Mar. 11, 1985, p. 2.

**Changes in the U.S. Market and Industry Resulting From  
Internationalization Efforts**

The U.S. automobile industry has changed substantially during the last 5 years due to internationalization efforts of both domestic and foreign auto producers. As previously discussed, U.S. manufacturers at one time imported mostly subcompact automobiles from foreign countries (other than Canada) either to fill out their product lines or to compete with the rising Japanese auto challenge.

There has also been considerable investment in the United States by foreign-owned automobile companies. In addition to the AMC-Renault and GM-Toyota joint ventures, one West German and three Japanese companies have begun production of automobiles in the United States since 1978. Volkswagen began production of the subcompact, West German-designed Rabbit in 1978 in a plant once owned, but never completed, by Chrysler. The plant, located close to Pittsburgh, Pa., has the capacity to build about 200,000-250,000 automobiles and light trucks per year. Starting with the 1985 model year, Volkswagen replaced the Rabbit model with a newly designed Golf model, which is currently being assembled in many other countries as well.

Honda purchased 200 acres of land in the central part of Ohio near Columbus in 1981. The plant's first automobile, the Honda Accord, rolled off the assembly line in late 1982, and Honda has since produced over 200,000 units at this plant. 1/ Honda's initial investment at this plant totaled \$250 million, but the company recently announced a \$240 million capacity expansion project. The expansion will permit Honda to produce 150,000 Civics in addition to the current capacity for 150,000 Accord models. 2/ Also, Honda produces heavyweight motorcycles in a plant adjacent to the auto assembly plant, and is supplied seats and exhaust systems for use in auto assembly from two Japanese-owned facilities nearby. By 1987, total Honda employment is expected to be 2,300 workers.

Nissan Motor Co. of Japan announced in May 1980, that it intended to assemble lightweight pickup trucks in the United States at a new plant located in Smyrna, Tennessee. The initial investment, including start-up costs, amounted to \$660 million. 3/ After experiencing success with the light truck operations, Nissan announced in 1984 that it would assemble Sentra-model subcompact automobiles at Smyrna beginning in mid 1985. 4/ The plant is expected to produce 100,000 cars and 140,000 light trucks annually by 1988. The plant will employ an additional 1,200 workers, making the total Smyrna employment about 3,500 employees. The expansion has cost Nissan about \$85 million.

In addition to the existing facilities mentioned above, two other Japanese companies have announced investment plans in the United States. On

1/ Warren Brown "First U.S.-Built Honda Rolls Off Line," Washington Post, Nov. 2, 1982 and Ward's Automotive Reports.

2/ Barbara Weiss, "Honda Brings Its Style to Marysville," American Metal Market, Oct. 8, 1984.

3/ "Nissan's U.S. Car Output Slated to Begin March 26," Automotive News, Jan. 14, 1985.

4/ "Nissan to Build Sentra at Smyrna," Ward's Automotive Reports, May 14, 1984.

November 30, 1984, the Mazda Motor Corporation announced plans to invest \$450 million in an assembly plant in Flat Rock, Michigan. 1/ The new facility, expected to assemble up to 240,000 cars annually by model year 1988, will be constructed on the site of an abandoned Ford Motor Company casting plant and will employ some 3,500 workers. 2/ Ford, which owns 25 percent of Mazda, will reportedly receive 50 to 60 percent of production for its dealerships. 3/

Another internationalization trend that has greatly affected U.S. production of automobiles is outsourcing by the four primary domestic automobile producers. In 1983, GM, Ford, Chrysler, and AMC together imported approximately 2.2 million engines and 1.5 million transmissions and transaxles. 4/ In addition to these major components, the companies are believed to have substantially increased their imports of wiring harnesses, radios, stampings, and many other parts that only 5 years ago were produced in the United States.

The following developments exemplify the effects that the internationalization of the world automobile industry is having on the U.S. industry and U.S. retail market:

1. increased investment in the United States by foreign-owned automobile producers;
2. increased outsourcing by U.S.-based automobile producers of both complete automobiles and original-equipment components used in the assembly of new automobiles;
3. rationalization of automobile production between the United States and Canada, and, to an increasing degree, between the United States and Mexico;
4. an increase in joint ventures between U.S. and foreign-based automobile manufacturers;
5. the development of a world car, although not the type of vehicle as previously envisioned by many automobile analysts;
6. increased selection of automobile makes and models for U.S. consumers; and
7. a net decrease in U.S. employment caused by increased outsourcing of components and assembled motor vehicles and increased productivity by U.S. workers.

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1/ "Mazda to Build U.S. Plant," Ward's Automotive Reports, Dec. 3, 1984.

2/ Ibid.

3/ Al Wrigley, Tsukasa Furukawa, "Mazda Plans Assembly Plant on Ford Site in Flat Rock," American Metal Market, Dec. 3, 1984.

4/ Based on data submitted by the domestic producers in response to questionnaires of the U.S. International Trade Commission.

**Foreign Industry Profiles, Government Policies,  
and Internationalization**

Canada

Industry profile.--The Canadian auto industry, heavily integrated with that of the U.S., consists almost exclusively of U.S. auto company subsidiaries. General Motors, Ford, Chrysler, and American Motors control 99 percent of Canadian auto production, with most of the remaining production coming from the Swedish auto maker, Volvo. 1/ In 1984, the Canadian auto industry, which employs about 115,600 workers, manufactured 1,022,729 passenger cars. 2/ These autos were mostly mid- to full-size cars that have increased in popularity with U.S. consumers recently as fuel prices have declined. The 1984 figure marks the tenth time since 1921 that Canadian car output exceeded 1 million units in a single year, although the 1984 total still fell short of the 1973 record of 1,227,432 cars. The following tabulation, extracted from Automotive News, compares the Canadian carmakers' production in 1983 and 1984:

Manufacturer	Production	
	1984	1983
	(Units)	
General Motors-----:	546,004 :	538,639
Ford-----:	443,305 :	272,565
American Motors-----:	22,982 :	29,551
Volvo-----:	10,438 :	10,378
Chrysler <u>1/-</u> -----:	0 :	104,365
Total-----:	1,022,729 :	955,498

1/ Chrysler produced vans and light trucks in Canada during 1984.

In addition to lower U.S. gas prices and a highly favorable exchange rate, labor rates some \$9.00 an hour below U.S. rates have contributed to making Canadian exports to the United States attractive. 1984 passenger-car exports to the United States reached 1,073,390 units compared with 835,665 units in 1983. 3/

The Canadian new-car market in 1984 was 964,357 units, a 14.5 percent rise from the 1983 level of 841,939 units. 4/ This increase, part of an overall economic upswing in Canada, included the remarkable entry of the Korean Hyundai Pony, which captured the number 4 spot among imports during its first year. Table 15 summarizes Canadian car sales and market shares.

1/ During 1984, Chrysler produced only vans and light trucks in Canada.

2/ Ward's Automotive Reports, Jan. 7, 1985.

3/ Excludes estimated quantity of automobiles assembled in Foreign Trade Zones.

4/ Ward's Automotive Reports, January 21, 1985.

Table 15.--Automobiles: Sales in Canada, by manufacturers,  
1983 and 1984

Manufacturer	Sales			
	1983		1984	
	Quantity	: Percent of total	Quantity	: Percent of total
	<u>Units</u>		<u>Units</u>	
General Motors-----	362,696	: 37.6	322,743	: 38.3
Ford-----	162,452	: 16.8	128,034	: 15.2
Chrysler-----	158,673	: 16.5	132,098	: 15.7
Honda-----	53,183	: 5.5	54,212	: 6.4
Toyota-----	49,463	: 5.1	51,282	: 6.1
Nissan-----	28,383	: 2.9	32,771	: 3.9
Hyundai-----	25,123	: 2.6	19	: 0.0
Volkswagen-----	23,637	: 2.5	19,613	: 2.3
American Motors 1/-	21,724	: 2.3	20,200	: 2.4
Mazda-----	19,560	: 2.0	20,294	: 2.4
Renault-----	11,359	: 1.2	13,321	: 1.6
Volvo-----	8,517	: 0.9	8,454	: 1.0
Subaru-----	8,210	: 0.9	8,758	: 1.0
Chrysler/Mitsubishi-----	7,171	: 0.7	10,613	: 1.3
Audi-----	6,855	: 0.7	4,656	: 0.6
PDMC (Lada)-----	5,034	: 0.5	6,622	: 0.8
BMW-----	3,551	: 0.4	3,338	: 0.4
Mercedes-----	3,101	: 0.3	2,929	: 0.3
Innocenti-----	1,581	: 0.2	0	: 0.0
All others-----	4,083	: 0.4	1,982	: 0.2
Total-----	964,357	: 100.0	841,939	: 100.0

1/ Includes U.S. built Renaults.

Source: Ward's Automotive Reports.

Note.--Because of rounding, market shares may not equal 100.0.

Government policies.--The centerpiece of Canadian Government policies in the automotive area has most certainly been the APTA (examined thoroughly in this report under the section entitled U.S.-Canadian Automotive agreement's). The APTA's net effect has been to dramatically boost trade in automotive goods between the United States and Canada.

Another Canadian policy that has promoted investment in that country has been a state-subsidized health care program. This has kept the Canadian automakers hourly compensation rates at around \$U.S.12 to \$13 against U.S. rates (which incorporate company insurance plans) of \$21. 1/ Moreover, Canadian workers have been more interested in wage increases than job security and profit sharing in recent negotiations with management.

1/ "Canadian GM Deal Highlights Divisions with U.S. Workers," Financial Times, Oct. 31, 1984; C\$1.00 = U.S.\$0.76.

A 1983 study performed by Canadian auto and parts makers and labor union representatives has recommended, among other things, a higher Government-required Canadian content level in finished vehicles than the current level. 1/ Given the current boom in production and favorable auto trade balance with the U.S., pressures to pursue the study's recommendations have eased.

The Canadian Government also offers tariff reductions for auto imports from companies that agree to buy components from Canadian manufacturers. The level of duty remission corresponds with the size of the procurement commitment. In 1981, the Canadian Government reached a duty remission understanding with Volkswagenwerk AG of West Germany. The proposed agreement would have decreased the Canadian tariff on VW cars from the United States and Europe in exchange for the German company's opening of a parts-production plant in Canada to serve VW's American facilities (Westmoreland, PA and proposed Sterling Heights, MI) and to increase its purchases from independent Canadian suppliers. The arrangement has been delayed because of poor VW performance in the American market. Although the Michigan plant was subsequently scrapped, construction of the Canadian facility went as planned. 2/

Trade and internationalization.--Inasmuch as internationalization involves the integration of production facilities across national boundaries, the United States and Canadian automobile industries probably represent the highest degree of internationalization ever achieved by any two nations. However, in a historical sense, this bilateral integration grew more from the proximity of Detroit, Michigan to Windsor, Ontario than to any set strategy of the U.S. automakers to expand into Canada. The APTA itself represented more of post facto recognition of this integration than a desire to promote such integration.

However, after a history of near-total American domination of Canadian production, several Japanese auto companies are interested in beginning production there. Honda is building a \$76 million assembly plant in Ontario and Toyota is presently studying a similar move. In addition, General Motors and Japan's Suzuki Motor Company are discussing a joint venture to build Japanese-designed subcompacts in Canada. 3/

Regardless of the aforementioned projects, Canada will remain heavily dependent on the U.S. market for exports. In 1982, Canadian automotive exports reached \$13.4 billion and close to 95 percent, or \$12.7 billion went to the United States. Of Canada's exports of passenger cars, 97 percent, or \$5.8 billion, went to American destinations. These percentages may decline slightly in the future, but the U.S. will remain Canada's prime market.

#### Japan

Industry profile.--Japan was the second largest automobile-producing country in the world in 1984, some 700,000 units per year behind the United

1/ "An Automotive Strategy for Canada: Report of the Federal Task Force on the Canadian Motor Vehicle and Automotive Parts Industries," May 1983.

2/ "Seventeenth Annual Report of the President to the Congress on the Operation of the Automotive Trade Act of 1965," U.S. Department of Commerce.

3/ "Canada's Lucky Car Industry," New York Times, Oct. 17, 1984.

States. The nine manufacturers operating passenger-car-production facilities in Japan assembled 7,073,173 automobiles in 1984, down 1.1 percent from 1983. 1/ The two largest firms, the Toyota Motor Co. and the Nissan Motor Co., accounted for 60.2 percent of Japan's auto output. The next two largest producers, the Honda Motor Co. and the Mazda Motor Corp., represented 11.9 and 10.8 percent, respectively, of total production in 1984. Production in 1983 and 1984 are compared in the following table.

Table 16.--Automobiles: Domestic production in Japan, by manufacturers, 1983 and 1984

Manufacturer	Domestic production		Percentage change 1984 from 1983
	1984	1983	
----- <u>Units</u> -----			
Toyota-----:	2,413,133 :	2,380,753 :	1.4
Nissan-----:	1,846,407 :	1,858,782 :	-0.7
Honda-----:	843,807 :	857,686 :	-1.6
Mazda-----:	764,309 :	861,580 :	-11.3
Mitsubishi-----:	547,838 :	523,754 :	4.6
Fuji (Subaru)-----:	242,680 :	230,462 :	5.3
Suzuki-----:	164,058 :	137,528 :	19.3
Daihatsu-----:	162,405 :	185,159 :	-12.3
Isuzu-----:	88,536 :	116,184 :	-23.8
Total-----:	7,073,173 :	7,151,888 :	-1.1

Source: Japan Automobile Manufacturers Association.

New passenger-car registrations in Japan in 1984 totaled 3,095,554 units, down 1.3 percent from 1983. 2/ Again, Toyota and Nissan dominated new car sales with 67.2 percent of the market. The following table summarizes car registrations and market shares, by manufacturers.

1/ The Japan Automobile Manufacturers Association.

2/ Ibid.

Table 17.--Automobiles: Japanese new car registrations, by manufacturers, 1983 and 1984

Manufacturer	New car registration		Market share 1/	
	1984	1983	1984	1983
	<u>Percent</u>			
Toyota-----:	1,247,546	1,274,842	39.8	41.2
Nissan-----:	833,103	804,872	26.6	26.0
Honda-----:	245,117	246,136	7.8	8.0
Mazda-----:	244,535	215,205	7.8	7.0
Mitsubishi-----:	189,356	198,448	6.0	6.4
Suzuki-----:	90,969	77,324	2.9	2.5
Fuji (Subaru)-----:	79,680	88,190	2.5	2.8
Daihatsu-----:	112,214	107,279	3.6	3.5
Isuzu-----:	57,807	41,276	1.8	1.3
Imports-----:	35,283	41,982	1.1	1.4
Total-----:	3,135,610	3,095,554	100.0	100.0

1/ Because of rounding, figures may not equal 100.0

Source: Japan Automobile Manufacturers Association, Japan Automobile Dealers Association, and Japan Mini-Vehicle Association.

The Japanese auto industry relies heavily upon exports to maintain the high production volumes and capacity utilization levels necessary for efficient operation. In 1984, Japanese auto companies exported 3,980,619 passenger cars, up 4.6 percent from 1983. 1/ Toyota and Nissan accounted for 53.0 percent of this export figure, and Honda contributed 15.7 percent. Japanese passenger-car exports, by manufacturer, are highlighted in table 18.

1/ "More Cars Sell in Home Price War," Financial Times of London, Oct. 16, 1984.

Table 18.--Automobiles: Japanese exports, by manufacturers, and by share of total, 1984

Company	1984	1984
	car exports	share of total Japanese car exports 1/
	Units	Percent
Toyota Motor Company-----:	1,100,353 :	27.6
Nissan Motor Company-----:	1,011,920 :	25.4
Honda Motor Company-----:	625,020 :	15.7
Mazda Motor Corporation-----:	561,999 :	14.1
Mitsubishi Motors-----:	343,987 :	8.6
Fuji Heavy Industries-----:	128,624 :	3.2
Suzuki Motors-----:	90,347 :	2.3
Isuzu Motors-----:	59,539 :	1.5
Daihatsu Motors-----:	58,830 :	1.5
Total-----:	3,980,619 :	100.0
	:	:

1/ Figures do not equal 100 percent due to rounding.

Source: Japan Automobile Manufacturers Association.

Government policies.--During the 1960's the Japanese Government, particularly the Ministry of International Trade and Industry (MITI), attempted to merge several of Japan's smaller auto producers into larger companies. The goal of this policy was to create a few giant car makers with maximal production efficiencies, but just as important, with sufficiently strong capital structures to withstand the expected influx of foreign investment into Japan. The MITI program, however, met with strong resistance from Japanese auto companies. The only major merger achieved was that of Prince Motors, Ltd., the third largest automaker, with the Nissan Motor Company, Japan's number two automaker in 1966, primarily because Prince had been incurring large losses reportedly due to ineffective management. 1/

Until the initiation of the 1981 Voluntary Restraint Announcement (VRA) regarding auto exports to the United States and the subsequent arrangements made with European countries, the Government of Japan avoided major direct interventions in the nation's auto industry. However, increasingly tense and difficult relations with the United States in the late 1970's led Japan to agree to limit passenger car exports to America in 1981 to 1.68 million units through the VRA. The VRA was subsequently renewed in 1982 and 1983 and in 1984, the VRA was authorized for a fourth year, but with a 1.85 million-unit export limit. On March 1, 1985, the United States announced that it would not seek a fifth year of restraint and on March 27, 1985, the Japanese Government announced that it would limit exports to the United States to 2.3 million in FY 1985. The net effects of the VRA have been the subject of much controversy. Nonetheless, the VRA has not resulted in improved Government-industry relations

1/ The Japanese Auto Industry and the U.S. Market, C.S. Chang, 1981, Praeger Publishers, New York, N.Y., "Chapter 4: The Development of the Industry 1955-71."

between MITI and Japanese car companies, particularly since many Japanese auto executives feel they could control another 2 percent of the U.S. market without restraints. 1/

Trade and Internationalization.--As discussed elsewhere in this report, a substantial number of Japanese cars, amounting to more than half of total production, are shipped outside Japan. As restrictions have limited Japanese exports, the country's vehicle export levels have remained relatively steady over the past several years. However, motor vehicle parts trade has grown steadily, averaging annual growth rates in exports of over 35 percent. 2/ Japan exported \$5.8 billion in automotive parts during 1983, up 26.6 percent over 1982. 3/ By far the largest market was the United States, where \$2.1 billion (or 35 percent of the total) worth of parts were shipped. This growth in parts exports has been due to the acceptance of Japanese vehicles in the United States and other nations and the establishment of Japanese motor vehicle production plants outside Japan.

Japan's unprecedented success in exporting its automobiles around the world has caused alarm in its most fruitful markets--the United States and Western Europe. Lost sales to Japanese imports were translated into lost jobs and lost production in American and European auto-producing countries. As tensions mounted, Japan was put under great pressure to reduce its exports to these areas, and in some cases, import quotas were applied. Therefore, several Japanese companies began initiating programs to contribute to the economies of their major markets through local production. Japanese manufacturers presently have assembly and manufacturing operations in the United States and in the European Community. 4/

The trend toward manufacturing in the United States and Europe has trickled down to Japanese parts manufacturers as well. Worried over the prospect of local content laws, as well as buoyed by the successes of the Japanese auto makers' operations, component manufacturers have set up to supply original equipment.

Supplier activities around Honda of America's Ohio auto plant provide an example of Japan's foreign investment trend. Bellemar Parts Industries, Inc., Stanley Electric Company, and Eaton Auto Products all are, or will be shortly, supplying auto parts to Honda's operations. Bellemar, located in Marysville, Ohio, is 80-percent owned by American Honda and 20-percent owned by Tokyo Seat and Sankei Giken Kogyo Company. Stanley Electric is a \$5.5 million venture of Stanley Electric in Tokyo, and the \$2.5 million Eaton plant is wholly owned by the Nihon Plast Company of Japan. 5/ Given that these Japanese operations and Japan's internationalization efforts worldwide are still relatively young, the net effect of their activities remains to be seen.

1/ "Japan Raises Ceiling on Auto Shipments to U.S. by 25 Pct.,"  
The Washington Post, Mar. 28, 1985, p. A1.

2/ "Market Changes as U.S. Sales Recover," Financial Times of London, Oct. 16, 1981, p. I.

3/ "Customs Clearance Statistics," Ministry of Finance.

4/ See "U.S.-based joint ventures," p. 81, and Changes in the U.S. market and industry resulting from internationalization efforts," p. 87.

5/ "Japanese/U.S. Auto Part Firms Emerge Near Honda Ohio Plant," American Metal Market/Metalworking News, Oct. 8, 1984.

## Western Europe

Industry profile.--With 1983 production at 10.6 million units, Western European companies produce more than one-third of the world's passenger cars. 1/ Moreover, with 1983 sales at 10.5 million units, Europe offers a diverse, yet concentrated market. 2/ However, unlike the United States and Japan, two similarly large markets dominated by two or three automakers, Western Europe supports six major companies, none of which controls a substantially higher proportion of the overall market than the others. These companies, which together comprised 72.1 percent of the market in 1983, were separated by 1.9 percentage points from first to sixth. 3/ Table 19 summarizes the production volumes of the six leading European automobile producers in 1983 and their market shares for 1983-84.

Table 19.--Automobiles: Western European production and market shares, by manufacturers, 1983 and 1984

Source	1983	1983	1984
	Production	Market share	Market share
	Units	Percent	
Regie National des Usines	:	:	:
Renault <u>1/-</u>	1,922,577	12.6	11.0
Ford, Europe	1,340,000	12.5	12.9
Fiat group <u>2/-</u>	1,115,196	12.0	12.9
Peugeot, S.A. <u>3/-</u>	1,608,191	11.7	11.2
General Motors of Europe <u>4/-</u>	1,275,387	11.4	11.3
Volkswagenwerk, AG <u>5/-</u>	1,330,998	11.9	11.6
	:	:	:

1/ Includes Renault France and FASA-Renault (Spain).

2/ Includes Fiat, AutoBianchi, Lancia, and Ferrari.

3/ Includes Peugeot-Citroen-Talbot France, Talbot Spain, and Talbot/Dodge in Great Britain.

4/ Includes General Motors, Opel, and Vauxhall.

5/ Includes Volkswagenwerk and Audi NSU Auto U.

Source: Wards Automotive Reports and Automotive News.

Despite the large number of auto companies, individual companies clearly control large shares of their home markets. Thus, Renault and Peugeot S.A. control 72 percent of the French market, VW-Audi and Adam Opel (General Motors) 47 percent of the West German market, Fiat 55 percent of the Italian market and BL and Ford nearly 50 percent of the United Kingdom market. 4/ Regardless of this home market strength, these companies still depend to a significant degree on exports to the rest of Europe (and in some cases, the United States) for efficient production. Table 20 summarizes market shares by country.

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1/ Financial Times of London estimate.

2/ Ibid.

3/ Industry estimates.

4/ Motor Vehicle Manufacturers Association of the U.S., Financial Times of London: European Survey.

Table 20.--Automobiles: New car shares of principal European markets for selected manufacturers, on the basis of total sales, January-September 1984

Country and new registrations in units	Manufacturer						
	Ford	Fiat	VW-Audi	GM	PSA	Renault	Japanese
West Germany:	:	:	:	:	:	:	:
1,868,900-----:	12.1	4.6	27.3	16.6	4.1	3.8	12.4
United Kingdom:	:	:	:	:	:	:	:
1,440,000-----:	28.5	2.8	5.5	16.5	5.4	3.4	10.7
France:	:	:	:	:	:	:	:
1,284,800-----:	7.9	5.9	5.3	4.2	32.6	31.3	2.9
Italy:	:	:	:	:	:	:	:
1,257,700-----:	4.3	54.7	5.3	3.3	6.7	9.0	.2
Spain:	:	:	:	:	:	:	:
407,200-----:	14.2	1.1	5.3	8.8	19.8	29.3	.7
Total:	:	:	:	:	:	:	:
7,903,100 1/-:	13.1	12.8	11.8	11.2	11.2	10.8	10.4

1/ Total for all Western European markets.

Source: Automotive News.

However, this industry structure combined with the recent European recession has contributed to the present 2.3 million units of overcapacity in the EC market. 1/ This overcapacity has led to concerns over plant closings, increased interest in intra-community joint ventures, and increasing distress over import competition. Ford Europe has indicated it might close a European facility, while concommitantly discussing greater collaboration with Fiat to improve economies of scale. 2/ Peugeot is looking for \$222 million in aid from the French Government, and Renault has undergone a sudden executive change, following \$1.03 billion in losses in 1984. 3/ Volkswagen is looking to the acquisition of SEAT as a relatively cost-efficient method of increasing its European-market share. 4/ Reports that Honda would establish car-production facilities near Swindon in the U.K. brought protests from British Members of Parliament sensitive to the present over capacity. 5/ As discussed later in this report, the European Community is also concerned about rising imports of Ford and Fiat models and possibly in the near future, GM and VW models from Brazil, which compete directly with European-made cars. As stated in a recent report, the West European auto industry is "at an unstable

1/ "Overcapacity in European Car Plants Equals 2.3 million Units Annually," Wards Automotive Reports, Apr. 1, 1985, p. 98.

2/ "Ford May Have to Close One European Plant," Financial Times, Feb. 22, 1985, p. 1; "Fiat, Ford Discuss Cooperation," Wards Automotive Reports, Mar. 18, 1985, p. 86.

3/ Peugeot Wants State Aid," Wards' Automotive Reports, Dec. 10, 1984, p. 398; Paul Betts, "Pechiney Chief to Lead Renault as Hanon Quits," Financial Times, Feb. 22, 1985, p. 1.

4/ "VW and SEAT to Merge," Ward's Automotive Reports, Mar. 25, 1985, p. 94

5/ "Honda U.K. Plant Rumored," Ward's Automotive Reports, Mar. 18, 1985, p. 86.

"juncture" with problems of overcapacity as well as emissions control and price harmonization to address. 1/

Government policies.--This industry structure contains an inherent danger as individual countries seek to promote as well as regulate their automobile industries. The current West German initiative to develop emissions standards similar to the United States could force all European automakers to develop catalytic-converter-equipped vehicles that could, in turn, completely alter the European automotive infrastructure. 2/ Spanish efforts to promote car exports have been criticized by other European countries resentful of Spain's 36.7 percent tariff wall. 3/ However, Spain's recent admittance into the European Community will require the lowering of this duty to the EC-wide 10.6 percent level. Beyond parochial interests such as these, which spill over national boundaries, European Community initiatives, such as the proposed vehicle pricing harmonization plan can affect auto sales. This initiative would require that car-model prices in the EC not fall beyond a 12-percent price band, i.e., that the difference between the lowest price and the highest price a certain model sells for in the Common Market could not exceed 12 percent of the lower price. 4/

In addition to European Community policies and individual country initiatives that develop into pan-European concerns, each country has its own import or export programs. In 1981, West Germany reached an understanding with Japan that the latter's car exports to West Germany would not exceed around 11 percent of the German market. Similarly, the Japanese have kept their share of Great Britain's market below 10 or 11 percent. France, notable in its use of non-tariff barriers, initially restricted Japan to 2.0 percent of the market but later raised that figure to 3.0 percent. Moreover, the socialist Government in France controls Renault and must approve plant closings and lay-offs for all auto companies there. The French Government recently replaced Renault's chairman after 2 years of losses. Italy maintains strict import certification rules and in 1976, imposed a 2,200 unit import quota on Japanese cars.

Trade and internationalization.--This section reviews the primary investments of the six major European automakers, new entries by Japan, and a Spanish car company developing international plans.

Two U.S. automobile manufacturers build cars in Europe. Ford Europe has plant locations in Great Britain, West Germany, and Spain. General Motors produces passenger cars in Great Britain under the Vauxhall name and in West Germany under Adam Opel, and both names are used in Spain. Chrysler operated in the United Kingdom, France, and Spain until 1978. 5/

In 1978, Peugeot, SA (PSA) purchased Chrysler's European operations. Thus, the Peugeot group, which included Peugeot and Citroën, expanded to comprise Talbot in France, Spain, and Great Britain as well as Dodge in Great

1/ "DRI World Autos Forecast Report," February 1985.

2/ "Cautious forecasts after the troubles," Financial Times, Oct. 16, 1984.

3/ "Export drives stepped up by all-Spanish car," Ibid.

4/ 1984 Ward's Automotive Yearbook.

5/ "Chrysler Sells European Firms to Peugeot," Automotive News, Aug. 14, 1978, p. 1.

Britain. Renault owns facilities in France and Spain, but has also expanded outside of Europe. Renault purchased 46.6 percent of American Motors of the United States in 1981 and has a minority interest in Vehiculos Automotres de Mexico along with AMC. Renault also has ties in Eastern Europe.

Fiat builds automobiles in Italy and Brazil. Until 1980, the company had a minority stake in SEAT, but a scaling back of operations prompted Fiat's withdrawal. 1/ Like Renault, Fiat is tied to Eastern European auto operations. Late in 1984, Fiat also began discussions with Ford to improve European economies of scale through greater cooperation. 2/

The Volkswagen-Audi group dominates West German production. VW is also the number one automaker in Mexico and the number four auto company in Brazil. The German carmaker also operates an assembly facility in Westmoreland, Pennsylvania. Volkswagen now has plans to take control of SEAT, state-controlled since the Fiat divestiture. 3/ SEAT assembly of VW Passats had helped Volkswagen to take 5 percent of the Spanish market.

Nissan Motor Company of Japan has invested \$62 million in a British facility to produce 24,000 newly designed Sentras. Nissan is also reportedly considering a second investment of \$375 million to expand production to 100,000 units by 1990. Another Japanese automaker, Honda, is apparently considering a plan to build engines and eventually, cars in Great Britain. 4/ Furthermore, Suzuki of Japan has been discussing a mini-car producing joint venture with Bedford Comercial Vehicles, a General Motors subsidiary in the United Kingdom. 5/ All together, Japanese imports account for about 10 percent of European market sales.

#### Eastern Europe 6/

Industry profile.--Publicly available sources of data for many Eastern European countries are limited. This profile will highlight the Eastern bloc auto industry using the latest available figures. Production in the Soviet Union and Eastern Europe developed into its present form primarily following the second world war. During the 1960's, this region grew into a major auto producing area. Between 1963 and 1973, Eastern European auto production grew at more than twice the world rate. During the 1950's and early 1960's, the Council for Mutual Economic Cooperation (COMECON) promoted the specialization of automobile production in certain countries. This effectively precluded Hungary and Bulgaria from car production, but attempts to close East German production failed and regional specialization by the 1970's had given way to greater competition.

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1/ "Who'll Take Over an Ailing SEAT," Automotive News, Sept. 8, 1980, p. 20.

2/ "Fiat, Ford Discuss Cooperation," Ward's Automotive Reports, Mar. 18, 1985, p. 86.

3/ "VW and SEAT to Merge," Ward's Automotive Reports, Mar. 25, 1985, p. 94.

4/ "Honda U.K. Plant Rumored," Ward's Automotive Reports, Mar. 18, 1985, p. 86.

5/ "Suzuki, Bedford Discuss Joint Production," Ward's Automotive Reports, Apr. 8, 1985, p. 110.

6/ Information in this section based upon Gerald Bloomfield, The World Automotive Industry, Chapter 10, 1978, unless otherwise noted.

The Eastern block produced 2,266,049 passenger cars in 1983. 1/ Figure 18 illustrates the production percentages represented by each country. Seven auto groups accounted for 83.3 percent of East European car production. Table 21 presents their individual performances.

Table 21.--Automobiles: Eastern European production by the 6 principal manufacturers, 1982-83 1/

Manufacturer	Production	
	1983	1982
	<u>Units</u>	
VAZ (USSR)	780,000	800,000
FSO (Pol.)	250,515	238,389
AZLK/ZIMA (USSR)	200,000	205,000
East Germany <u>2/</u>	188,300	183,000
ZAZ (USSR)	145,000	180,000
AZNP (Czechoslovakia)	177,505	173,517
ZCZ (Yugoslavia)	145,448	153,644

1/ Eastern Europe: U.S.S.R., Bulgaria, Romania, Hungary, Czechoslovakia, Yugoslavia, East Germany, Poland.

2/ Represents output of Zwickau (Trabant) and Eisenach (Wartburg) facilities.

Sources: Motor Vehicle Manufacturers Association, Automotive News, Ward's Automotive Reports, and Gerald Bloomfield, The World Automotive Industry.

As shown in figure 18, the U.S.S.R. clearly dominates COMECON passenger car production. The major Soviet automaker, VAZ, produces cars under the Zhiguli nameplate. Built at a large production facility in Tolyatt, 550 miles east of Moscow, Zhiguli's are sold as Lada's in Western Europe and Canada. The Moskvich, the second leading car produced in the Soviet Union, is built by AZLK in Moscow and at the ZIMA enterprise in Izhvesk, 620 miles northeast of Moscow. The smallest and most inexpensive Soviet car is the Zaporezhets made by ZAZ in the Ukraine, midway between Odessa and Karkov.

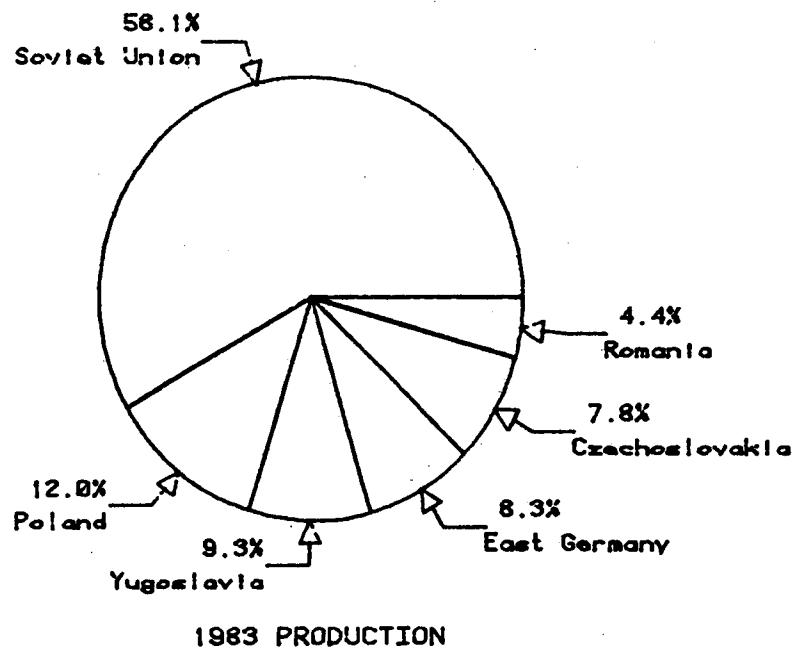
Other major COMECON auto producers outside the Soviet Union include Fabryka Samochodow Osbowych (FSO) of Poland, Trabant/Wartburg in East Germany, Automobilove Zavody Narodni Podnik (AZNP) in Czechoslovakia, and Zavodi Crvena Zastava (ZCZ) in Yugoslavia. FSO produces the Polski, Polonez, and Syrena makes. 2/ Trabant and Wartburg are the models produced in Zwickau and Eisenach, respectively. AZNP produces the Skoda models that sell in Canada as well as Europe. Lately, ZCZ manufactures the Yugo, which should debut in the United States in May 1985. Yugo America, Inc. has plans to import 35,000 units in 1985 and 76,000 units in 1986. 3/

1/ World Data Book, Motor Vehicle Manufacturers Association, 1985.

2/ World Data Book, Motor Vehicle Manufacturers Association, 1985.

3/ Colleen Belli, "The New Price Leaders," Automotive News, Mar. 11, 1985.

Figure 18.--Automobiles: Production of Eastern Europe, by countries, 1983.



Source: Motor Vehicle Manufacturers Association.

The passenger cars of Eastern Europe are all based upon technologies licensed from Western automakers. This dependence on foreign technology, particularly within the context of East-West trade, has ensured that COMECON automobiles lag at least one generation behind their Western counterparts. However, Eastern block countries apparently believe that a substantial market exists in the West for what have been characterized as "brand-new used cars," i.e., extremely low-priced, no-frills vehicles. 1/ Hence, the rear wheel drive Skoda 120GLS employs a rear-mounted four-cylinder pushrod engine with an aluminum block and iron cylinder head, but sells in Canada for \$3,414. 2/ Similarly, Yugo America has announced that it will sell the Yugo for under \$4,000. 3/

Government policies.--Eastern European countries all function with centrally planned economies such that all automotive enterprises are state-owned. Government control of worker wages and product prices has created an automobile market unattractive to Western automakers even if the Eastern bloc countries were in a position to buy Western-made cars. Because of a chronic lack of foreign exchange, Eastern European countries generally purchase Western designs and technology through buy-back arrangements. However, these arrangements have not as yet proven particularly successful. Citroën of France's PSA group signed an agreement with Romania to develop an automobile joint venture. 4/ The pact stipulated that Romanian production would be used to pay for Citroën technology and design. The initial products were unable to meet PSA's minimum standards. However, last year, the Romanian Oltcit began selling as the Citroën Axle in Western Europe. 5/ The difficulties of PSA has caused Western companies to critically reassess the merits of such buy-back arrangements.

Trade and internationalization.--As mentioned earlier, virtually every East European automaker enjoys technical tie-ups with Western manufacturers. Fiat has the most widespread influence, providing aid to VAZ in the Soviet Union, Zastava in Yugoslavia, and FSO in Poland. Thus, the Lada, Yugo, and Polski models are all based on Fiat designs. Renault engineers were largely responsible for the Moskvich plants and models between 1967 and 1971. In addition, Renault is working out arrangements to provide \$33 million in technical and engineering assistance in the design and production of a new Moskvitch model car. 6/ The roots of the East German industry lie with the pre-war BMW plant at Eisenach and the Auto-Union plant at Zwickau. Auto-Union later merged with NSU to become Audi. The Czechoslovakian Skoda uses technology similar to the VW Beetle, while Romania uses both PSA and Renault licenses. Because of these arrangements, Western Europe receives the lion's share of COMECON exports West. Nonetheless, Eastern European cars still account for less than 2 percent of the Western European market. 7/

1/ Altshuler, Roos, The Future of the Automobile, MIT Press, 1984, p. 38.

2/ Rich Ceppos, "The Great White Northmobiles," Car and Driver, March 1985.

3/ Colleen Belli, Supra.

4/ Altshuler, Roos, The Future of the Automobile, MIT Press, 1984, p. 179.

5/ Anne Hope, "Romanian-Built Oltcit on Sale in W. Europe," Automotive News, Aug. 27, 1984.

6/ "Renault Aid to Soviets," Ward's Automotive Reports, Dec. 10, 1984, p. 398.

7/ Automotive News.

### Emerging nations

After years of existing as relatively insignificant factors in world automobile production, a few developing nations now possess indigenous vehicle industries capable of having a significant international impact. In some cases, auto companies in these countries appear on the verge of challenging the current world leaders for a share of the global market. The most likely of these newly-industrializing countries (NIC's) to develop a world-class car before the end of this century are Korea, Taiwan, Brazil, and Mexico. The governments of these three nations each consider auto industry development strategic to positive economic growth and a solution to their staggering debt problems. The basic labor rates in these auto industries is substantially below the industrialized world average, however, most importantly, the motor vehicle industries of Korea, Taiwan, Brazil, and Mexico all have access to advanced technology from major world automotive producers.

The following section of this report overviews automobile production in these countries. Each country possesses characteristics that enhance and detract from its ability to compete internationally. However, these four countries are expected to have increasingly influential roles in international auto trade, whether as component suppliers or vehicle manufacturers. Moreover, it is likely that at least one automobile manufacturer from among these countries will break into the small circle of volume manufacturers of world-class passenger cars.

### Mexico

Industry profile.--Six companies presently manufacture passenger cars in Mexico. Five of these companies are foreign-owned, while the sixth is primarily state-owned, with minority participation by the American Motors Corporation of the U.S. and its affiliate (which owns 46.6 percent of AMC) Regie Nationale des Usines Renault of France.

Total passenger car production in Mexico reached 207,137 units in 1983 compared with 300,579 units in 1982 and domestic sales for 1983 were 192,052 units, compared with 286,761 units in 1982. 1/ Volkswagen de Mexico accounted for 37.6 percent of total production and 38.4 percent of sales. Production and domestic sales levels are in table 21, and market shares are reviewed in figure 19.

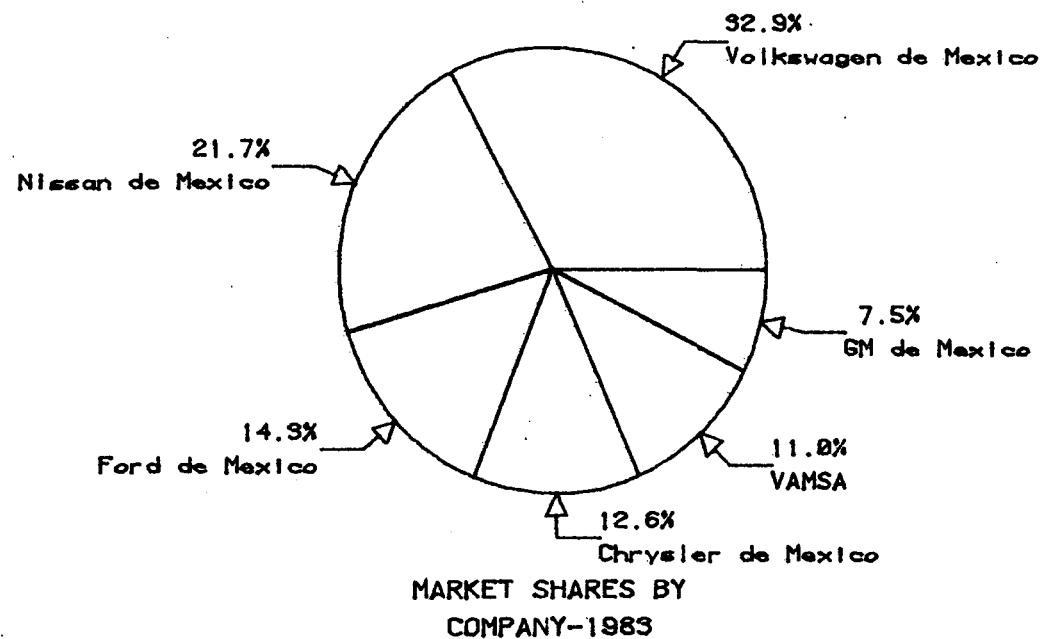
With the exception of VW de Mexico, auto manufacturers exported virtually no passenger cars in 1982. 2/ VW shipped 13,582 units from Mexico, mostly to West Germany. In 1983, however, Volkswagen de Mexico exports reached 18,455 units while Chrysler car exports shot up over 300 percent from a 1982 year-end total of 504 units, to 2,198 cars in 1983. Nissan increased its exports from one passenger car in 1982 to 85 units in 1983. 3/ In 1982, Volkswagen accounted for 96.0 percent of Mexican auto exports and for 88.9 percent in

1/ Association Mexicana de la Industria Automotriz.

2/ World Motor Vehicle Data, 1983 Edition, Motor Vehicle Manufacturers Association, December 1983.

3/ Various issues of Automotive News.

Figure 19.--Automobiles: Market in Mexico, by manufacturers, 1983.



Source: Asociacion Mexicana de la Industria Automotriz .

1983. It is believed that these export surges came in response to Government pressures exerted under the 1983 Mexican Auto Decree, discussed in detail elsewhere in this report.

Employment within the motor vehicle sector in Mexico stood at 26,440 in 1983, down significantly from 1982's 35,000 level. With the current surge in foreign investment and Mexico's \$2.55 hourly compensation rate, employment should surpass 1982 levels by late 1985. <sup>1/</sup>

Table 22.--Production and sales by Mexican automobile producers, 1983

Company	Production	Domestic sales
	<u>Units</u>	
Volkswagen de Mexico, S.A-----:	78,089 :	63,195
Nissan de Mexico, S.A-----:	40,541 :	41,743
Ford de Mexico, S.A-----:	26,851 :	27,553
Chrysler de Mexico, S.A-----:	26,203 :	24,166
<b>Vehiculos Automotres</b> : Mexicana, S.A <sup>1/</sup> -----:	20,457 :	21,033
General Motors de Mexico, S.A-----:	14,996 :	14,362
<b>Total</b> -----:	207,137 :	192,052

<sup>1/</sup> 1983 figures combine the figures of VAM and Diesel Nacional, the Renault joint venture. These two companies merged in 1983.

Source: Asociacion Mexicana de la Industria Automotriz.

Government policies.--The Mexican Auto Decrees of 1962, 1972, 1977, and 1983 are discussed in detail elsewhere in this report and therefore will not be examined here; however, it should be noted that such arrangements have dramatically altered the complexion of the Mexican auto industry. The primary concern of the Mexican Government has been to ensure positive trade flows. As the economic and foreign debt problems of Mexico have worsened, the Government has stressed exports and production efficiencies to a greater degree.

Trade and internationalization.--Because of its labor structure and proximity to the United States, Mexico has traditionally been of interest to American auto companies. Every major U.S. auto manufacturer is involved with Mexican car manufacturing. Until recently, these Mexican operations existed solely to supply the Mexican and Latin American markets or to provide some low-technology parts to U.S. auto assemblers.

Now, however, U. S. automobile manufacturers see Mexico as a source of inexpensive parts as well as a sizeable future market for finished vehicles. Therefore, the U.S. automakers have invested billions of dollars in competitive production facilities in Mexico. It is estimated that Mexico

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<sup>1/</sup> "The Motor Vehicle Industry in Mexico," Motor Vehicle Manufacturers Association, December 1983.

shipped approximately 700,000 engines to foreign countries during 1984, the largest proportion of which went to the United States. Moreover, for the first time, Mexican-assembled vehicles will be exported to the United States in significant numbers. During the first 8 months of 1984, Chrysler exported over 3,000 K-cars to U.S. dealers. 1/ General Motors began exporting the El Camino and Caballeros small trucks in 1984. 2/ Ford announced in January 1984 that it will invest \$500 million in an assembly facility in Hermosillo, Mexico to build a car designed by the Mazda Motor Corporation of Japan. The plant will eventually supply 100,000 cars annually to the United States and Canada according to announced plans. 3/ Ford's chairman commented in September 1984 that the new facility will replace a similar Ford plant being shut down in Portugal. 4/ In addition, Nissan Mexicana plans to invest \$99 million in expansion projects between 1985 and 1987. 5/ Some of this new production of parts will be shipped to the United States.

In 1984, Mexico was the third largest exporter of motor vehicle parts and accessories to the United States. Mexico shipped over \$1.6 billion in parts to the U.S. that year, compared with a mere \$272.3 million in 1980. Mexican shipments to the U.S. fell just under \$1.4 billion in 1984. It should be noted that U.S. shipments to Mexico increased 78.3 percent during 1984 in keeping with the parts requirements of Mexico's expanding production base.

### Brazil

Industry profile.--The automobile industry of Brazil comprises nine companies, four of which control 99.9 percent of Brazilian auto production. Two U.S. companies, Ford and General Motors, compete directly in all segments of the passenger car market with two European firms, Volkswagen and Fiat. These companies also export vehicles and parts (most notably engines) to more than 50 countries, including the United States and Western European nations. 6/ Conspicuously absent in Brazilian auto production are the Japanese automakers. Toyota do Brasil, the only Japanese interest, produces about 130 cars annually. Since Brazil does not import automobiles, the domestic market effectively belongs to the four major domestic producers. Figure 20 highlights the car market.

The Brazilian auto industry was set back about 10 years in terms of output during the 1981 recession, in which demand plunged some 40 percent. 7/ Industry employment fell from 138,000 in 1980 to 88,000 in 1982. Auto

1/ "No Complaints About Mexican K-Cars," Automotive News, Oct. 1, 1984.

2/ "El Caminos, Caballeros shipped from GM-Mexico," Autmotive News, Dec. 3, 1984, p. 4.

3/ "Ford to Build Small Cars in Mexico For Sale in U.S., Canada," Ward's Automotive Reports, Jan. 16, 1984.

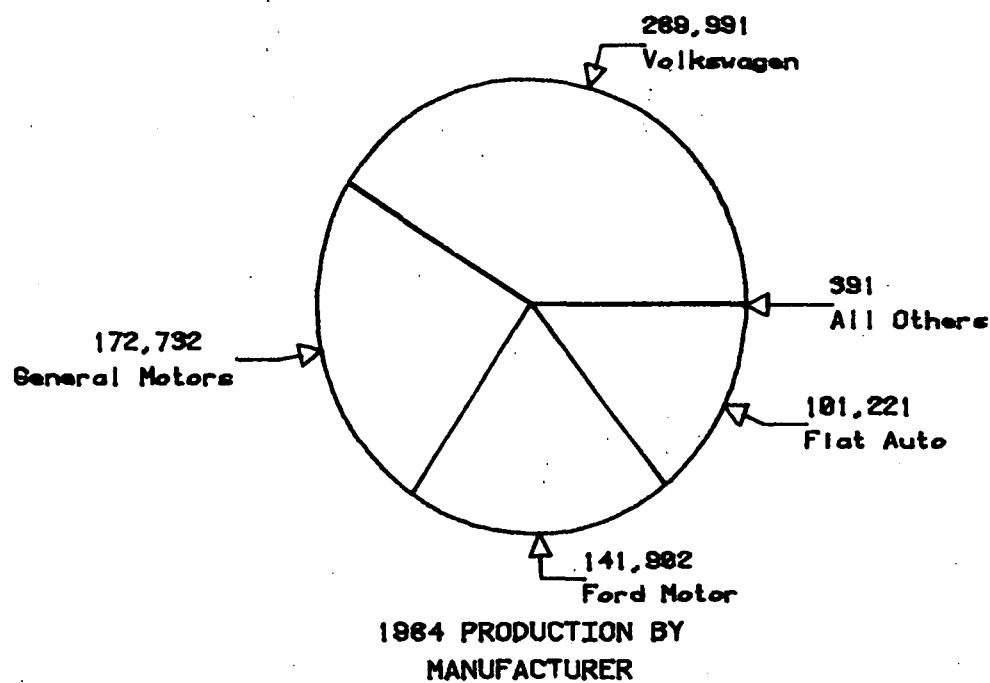
4/ Speech given during "Future of the Automobile" Conference, MIT, Sept. 19, 1984.

5/ "Nissan Slates \$99 million for Expansion in Mexico," Automotive News, Apr. 1, 1985, p. 8.

6/ "Faith and exports save the day," Financial Times, Nov. 5, 1984, "Brazil Automotive Age, Aiming for the World Market," The Washington Post, July 12, 1983.

7/ Ibid.

Figure 20.--Automobiles: Brazilian production, by manufacturers, 1984.



Source: Automotive News.

production between 1980 and 1981 fell from 1,048,692 to 691,084 units. 1/ Domestic vehicle sales over the same period dropped from 979,545 to 580,559 units. 2/

However, during 1983, auto production rebounded to over 772,133 units, led by Volkswagen's 43 percent rise in production. 3/ Automobile production during 1984 had been expected to reach around 765,000 units, however a series of "popcorn strikes" in December as well as the reimposition of price controls and stronger economic austerity measures suppressed production to 706,237 units. 4/ Domestic car sales were hard pressed under Brazil's economic policies and should finish 1984 at around 511,000 units, down substantially from 1983's 629,000 unit level. 5/ With foreign debt in the area of \$100 billion, Brazil places considerable emphasis on exports. Now, with the domestic market somewhat constricted, Brazilian automakers are looking even harder at exports to bolster production economies. Auto exports for 1984 were up 16.4 percent over 1983, from 168,674 to 196,298 units. 6/ Employment has recovered from the 1981 recession to 129,482 workers in 1984, up 8.7 percent from 119,078 in 1983. 7/

Brazil's export drive, however, may run into major difficulties in Europe. All four major Brazilian automakers have developed internationally competitive car models. Volkswagen is developing a new model to fit between the Beetle, produced in Brazil since 1959, and the Gol, a South American version of the Golf with an air-cooled engine. 8/ The president of VW do Brasil has stated that substantial numbers of the new car are destined for Europe, while VW officials in West Germany insist it will not be sold there. 9/ Ford Escorts shipped from Brazil have quickly sold out, selling for about seven percent less than their German-made counterparts. 10/ Ford do Brasil reportedly is planning several new versions of the Escort for export and is redesigning aspects of the car to ensure a greater uniformity between North and South American and European versions. 11/ Fiat do Brasil expects to export some 75,000 Uno's in addition to the Fiat 147 and Panorama models. A significant portion of these exports should end up in Europe. 12/ Even GM, which has enjoyed success with the Chevrolet Monza in Brazil, has begun winter

1/ "The Brazilian Motor Vehicle Industry," Department of State "Airgram," Aug. 31, 1982.

2/ Motor Vehicle Manufacturers Association of the U.S.

3/ Knut Mober, Richard Feast, "Brazilians Are Export Experts," Automotive News, Jan. 21, 1985.

4/ Automotive News.

5/ "Brazil: Pull Out of Recession," Financial Times, Nov. 16, 1984 and ITC estimate.

6/ John de Denghy, "Brazil's Vehicle Sales Dip For Year", Automotive News, Mar. 4, 1985.

7/ Ibid.

8/ "VW Beetle Soldiers on in Brazil," Automotive News, Nov. 26, 1984, and "Brazilians Are Export Experts", Automotive News, Jan. 21, 1985.

9/ Ibid.

10/ Ibid.

11/ Ibid.

12/ "Fiat of Brazil to Export More Diesels and Cars," Automotive News, Nov. 19, 1984.

testing its Brazilian product in Scandanavia. 1/ The car is already sold in Iceland and will likely join its German-made counterpart, the Opel Ascona, in Scandinavia this fall. 2/ In all, this export activity netted Brazil \$1.2 billion in 1984. One Ford do Brasil official has acknowledged that with Brazil's strong push into Europe, there could be repercussions. 3/ Given Europe's estimated 2.3 million units of over-capacity and hinting by Ford Europe's chairman of plant closings there, such repercussions are likely. 4/

Government policies.--Following World War II, Brazil began importing industrial products, causing a balance of payments crisis in the early 1950's. 5/ In 1952, Brazil banned imports of automotive parts where local sources were available. President Kubitschek furthered the promotion of the Brazilian auto industry in 1956 by including domestic content requirements and vehicle production schedules, as well as the creation of the Executive Group for the Automotive Industry (GEIA), in his economic plans. GEIA helped establish import, exchange, and fiscal benefits for meeting these requirements.

The two major Brazilian Government programs have been the Fiscal Benefits for Special Exports Program (BEFIEIX) and National Alcohol Program (PROALCOOL) to promote alcohol-powered car use. 6/ As mentioned earlier, the Government has reimposed price controls on automobiles. The controls, which had been instituted in February 1983, were lifted last year. Import tariffs ranging from 185 to 205 percent ad valorem are maintained with exceptions, and the Government has not been reluctant to intervene in the sometimes stormy labor relations of the auto industry.

Although Brazil maintains high tariff barriers and local content requirements averaging about 90 percent, the BEFIEIX program provides significant exemptions from such regulations. BEFIEIX is a program whereby individual companies may receive substantial tax benefits and duty reductions by agreeing to export a predetermined value of production. These programs, which generally run about 10 years, allow import duty and industrial product tax reductions of 70 to 80 percent on machinery and capital goods imports and 50 percent on imports of components, raw materials, and intermediate goods. Complete exemptions may be available for companies with favorable balance of payments figures year-to-year. 7/ This program has helped maintain steadily increasing export volumes even during the 1981 recession. Its importance has risen as Brazil's international debt crisis has deepened.

Also important for balance of trade as well as environmental reasons has been the PROALCOOL program. PROALCOOL was instituted to decrease Brazil's

1/ "Brazilians Are Export Experts," op. cit.

2/ Ibid.

3/ Ibid.

4/ Kevin Done, "Ford May Have to Close One European Car Plant," Financial Times, Jan. 22, 1985, "Ford Cut in European Capacity," Ward's Automotive Reports, Feb. 11, 1985.

5/ John de Denghy, "Tracing Brazil's Auto History," Automotive News, Nov. 26, 1984, p. 62.

6/ "The Brazilian Motor Vehicle Industry," Department of State Airgram, Aug. 31, 1982.

7/ Ibid.

reliance on oil imports, following energy shortages in the 1970's, by developing ethanol and methanol fuels from sugar cane. With subsidies given to alcohol producers and a retail price set at less than two-thirds the price of gasoline, the program has been an outstanding success. 1/ Over 1.5 million vehicles on Brazilian roads are alcohol-fueled, accounting for 18.7 percent of the country's cars in use. The cars, however, have little potential outside Brazil at present, so Brazilian automakers produce gasoline- and alcohol-powered cars in a 50-50 mix. 2/ During the first 9 months of 1984, alcohol-powered vehicles captured 84 percent of domestic sales. 3/

The Brazilian Government has intervened recently in labor disputes, primarily caused by resentment toward economic austerity programs imposed in response to International Monetary Fund (IMF) demands. The IMF refused to release a portion of a promised loan in May 1984 until Brazil took measures to ensure fulfillment of its debt payment and restructuring obligations. The Government also intervened when violent strikes against automotive companies in March of 1979 paralyzed the Sao Paulo area's companies. Following weeks of protest marches, mass demonstration, the dismissal of union officials, and street clashes with military forces, the strike was broken. Government intervention ended in 1981. 4/

Trade and internationalization.--Although the United States imported virtually no Brazilian automobiles in 1983, automotive-parts imports continued to climb. Between 1980 and 1983, motor vehicle parts imports from Brazil rose over 90 percent from \$222.4 million to \$424.1 million. Given quality improvements in engine and transmission facilities of U.S. companies in Brazil as well as Brazil's critical need to enhance exports, U.S. imports of Brazilian parts rose 37 percent to \$583 million in 1984.

U.S. automakers have made substantial investments in engine and drive train facilities in Brazil, which are turning out internationally competitive systems. In satisfying Brazilian export requirements, much of this output ends up in U.S.-assembled automobiles. An estimated \$350 million per year is being invested by Brazilian auto companies in plants and equipment, including robotics, indicating their intention to remain competitive. A \$4.00-per-hour wage rate combined with a strong dollar and devalued cruzeiro has prompted cost-sensitive car manufacturers in the U.S. and Europe to view Brazilian operations as a vital part of their strategies for competing with their Japanese rivals. 5/

#### Korea

Industry profile.--Of the six manufacturers of motor vehicles operating in Korea at present, only two produce passenger automobiles in significant

1/ "Faith and exports save the day," Financial Times, November 5, 1984.

2/ "The Motor Vehicle Industry in Brazil," Motor Vehicle Manufacturers Association of the U.S., February 1984, and Automotive News.

3/ John De Denghy, "Tracing Brazil's Auto History," Automotive News, Nov. 26, 1984.

4/ The Brazilian Motor Vehicle Industry, "Department of State Airgram, Aug. 31, 1982.

5/ "Car Makers View Brazil as Base for Competition With Japan," Washington Post, July 12, 1983.

volumes. While Hyundai Motor Company and Daewoo together account for virtually all of Korea's car production, Hyundai dominates the relationship with a 74.4 percent production share and currently is the only auto company authorized to export cars. 1/ Korea's total passenger car output in 1984 reached 162,400 units, accounting for 62 percent of the vehicle production mix. 2/ Korean auto production was up 33.1 percent over 1983's output of 121,987 units. A total of 48,000 passenger cars were exported during 1984, compared with 16,405 units in 1983. 3/ Led by the Hyundai Pony, these exports sell primarily in Latin America, the Middle East, and Africa, and especially Canada, where Hyundai sold 25,123 Ponys in 1984. 4/ European sales, which represent twenty percent of Korean auto exports, were concentrated in Belgium and the United Kingdom. Early in 1984, Hyundai began shipping three versions of the Pony to Canada. By yearend, the Pony had captured 2.6 percent of the market and ranked seventh in total sales. Hyundai had originally forecast 5,000 unit sales. 5/ Figure 21 highlights Korean auto production while figure 22 overviews the auto market.

Although no Korean manufacturer currently exports passenger cars to the United States, both Hyundai and Daewoo have developed plans to do so. Hyundai, making use of its licensing arrangements with the Ford Motor Company of the United States and Mitsubishi Motor Corporation of Japan, plans to manufacture an advanced front-wheel drive model similar to the Mitsubishi Colt at its new Ulsan, Korea facility early in 1985. This car, named the Pony Excel, will replace the Pony and about 100,000 units should reach American dealers in 1985. Hyundai hopes to export 150,000 units by 1986. Daewoo, 50-percent-owned by General Motors of the United States, will rely on its partner's technology and expertise in developing a new automobile. Daewoo and GM agreed in September of 1983 to set up a new \$420 million facility with a 200,000 unit annual capacity. 6/ General Motors will receive some 100,000 of these front-wheel drive (fwd) subcompacts, although this does not guarantee that these vehicles are destined for the United States. 7/ Should these plans come to a successful result, Korean passenger-car exports should reach 400,000 units by the early 1990's.

Government policies.--The Government of the Republic of Korea has pursued several policies that have substantially affected the nature of that country's auto industry. High tariff barriers, strict local content rules, and Government objectives have resulted in a small number of companies producing vehicles incorporating a high degree of Korean parts and labor, while domestic tax regulations have retarded the growth of motorization.

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1/ "Korean Auto Industry Gears Up For Exports," Department of State Airgram, May 9, 1984.

2/ John Hartley, "Korean Auto Industry Gears For Boom Times," Automotive News, Mar. 4, 1985.

3/ Ibid; Note 1, Supra.

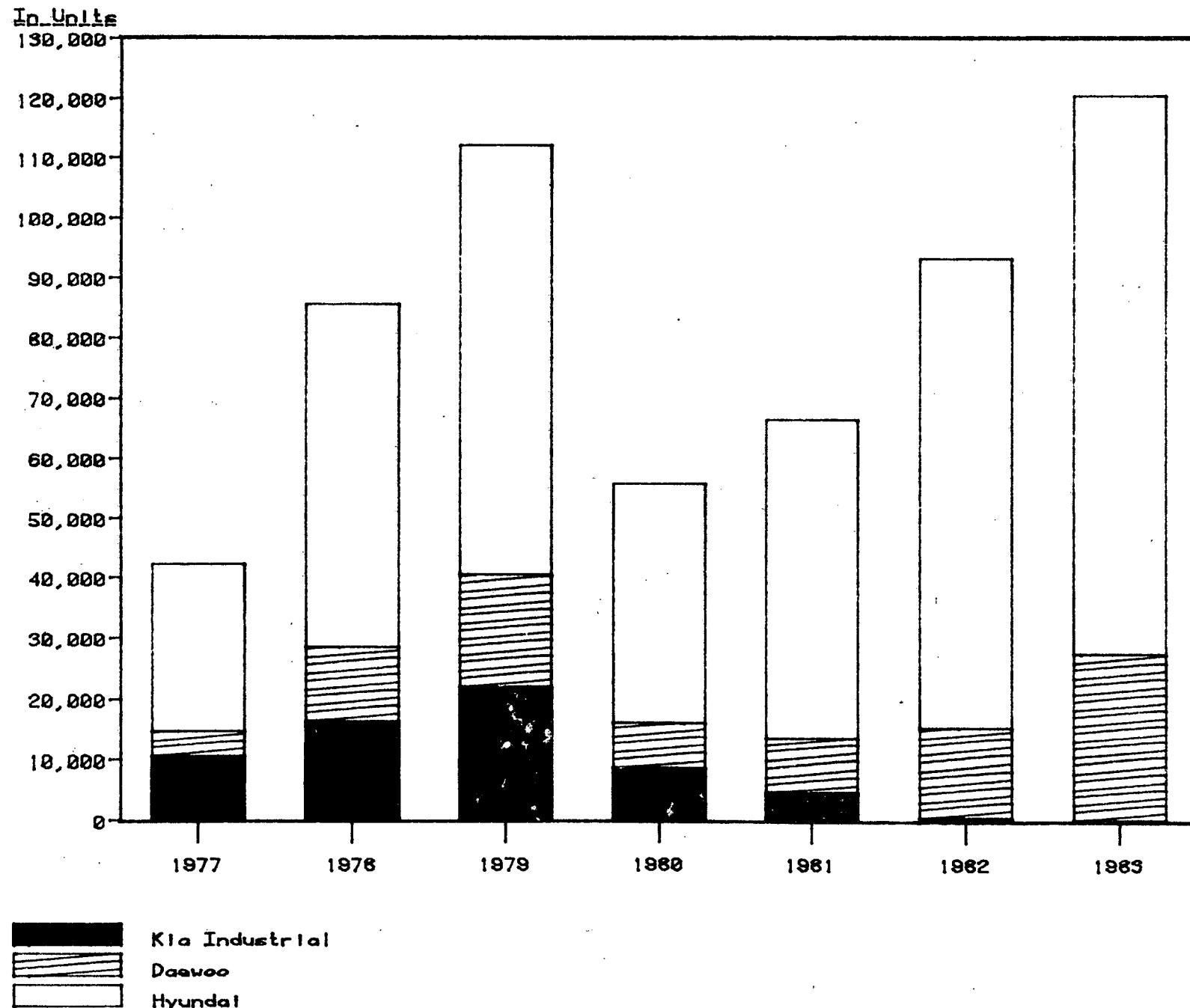
4/ "Korean Auto and Auto Parts Directory 1982-83," Korea Auto Industries Coop. Association, Ward's Automotive Reports.

5/ "Hyundai Begins Auto Exports to Canada Market," Asian Wall Street Journal, Jan. 9, 1984.

6/ "Korean expanding its auto industry," Automotive News, Oct. 8, 1984.

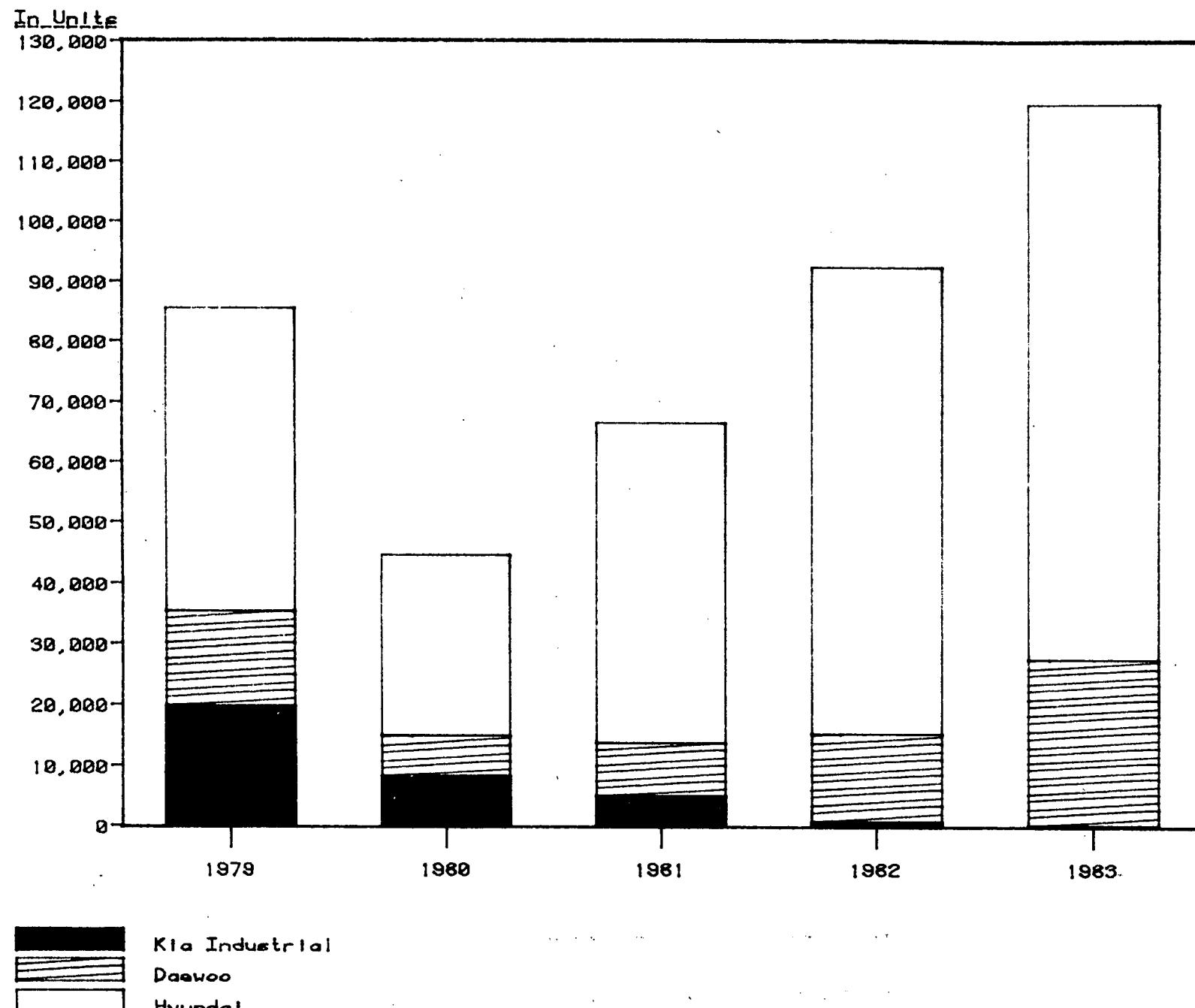
7/ Ibid.

Figure 21.--Automobiles: Korean production, by manufacturers, 1977-83.



Source: Korean Automobile Industries Cooperative Association

Figure 22.--Automobiles: Korean market , by manufacturers, 1979-83.



Inasmuch as motor vehicle parts manufacturing provides the foundation for vehicle production, government policies covering parts companies set the pattern for the entire automobile industry. In Korea's case, the motor vehicle parts industry has been heavily protected behind high tariff barriers and fostered by a protected domestic market and financial and technical help. In addition, little government support has been lent to joint ventures with foreign firms. These policies have yielded a parts industry composed of small manufacturers producing limited, low technology product lines. 1/

With Korean-parts content ranging between 80 and 99 percent for passenger cars, the protected nature of the parts industry and its subsequent lack of innovative research and development has led to the manufacture of Korean automobiles based upon outdated technologies, with inferior performance compared with those of world leaders. To counter this, the Korean Government is considering steps to improve parts manufacturing. These steps will likely include a nationally supported program of technical assistance in both managerial and engineering areas, promotion of exports, and incentives to encourage product development and increased competition. Greater Korean Government attention is now being paid to the benefits of joint ventures. Currently, 12 Korean firms are participating in 13 joint ventures, and all the major U.S. car makers have expressed an interest in procuring various Korean-made components.

In August of 1980, the Korean Government announced plans to realign ownership in the motor vehicle industry. The Government plan intended to promote increased economies of scale, lower costs, and thereby increase international competitiveness by combining the country's car-production facilities under one management. Kia Industries, then assembling Peugeot KD's on a small scale, agreed to cease its auto operation. Hyundai, however, balked at a merger with Daewoo, citing the latter's heavy involvement with General Motors. Given this resistance, the Government revised its plan to include two separate auto makers.

Korean motor-vehicle manufacturers have also suffered from the lack of a strong domestic market in which to sell their products. The Government of Korea's auto-related tax policies serve to dramatically increase both the purchase price of a new passenger car as well as the cost of operating a car. The average tax burden on a new automobile is roughly 44 percent of the price of the car. This compares with 20 percent in Japan and 5 percent in the United States. Gasoline taxes are even more severe. A 100 percent special consumption tax is levied on top of a 10 percent value-added tax collectively pushing the total wholesale price of gas up 120 percent over the refinery price. Distribution fees can push the price up an additional 10 to 20 percent. These taxes raise Korean gasoline prices to around \$3.80 per gallon. Total annual operating costs, including car and license fees, are about 36 percent higher in Korea than in Japan and 73 percent higher than in Malaysia. This has resulted in slow growth in vehicle sales. Currently, there are roughly 127 people for every car in Korea compared with 13 cars per capita worldwide. The Korean Government has been examining domestic tax revisions to spur auto sales and promote auto production to take advantage of this market potential. However, the World Bank has been skeptical of such

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1/ "Korean Auto Industry Gears Up For Exports," Department of State Airgram, May 9, 1984.

plans and has reached a temporary agreement with Korean officials to delay any major tax cuts until a thorough economic study of the proposals can be made.

Trade and internationalization.--Korea has traditionally expressed little interest in foreign investment within its companies. The primary automotive joint venture is the equal equity arrangement in Daewoo Motors between the Daewoo Group and General Motors. Originally called Saehan Motors, the venture was managed by GM. The company lost massive amounts of money during 1980-1982, handicapped by Daewoo's reluctance to supply top-flight managerial talent as well as the Korean Government's lack of support given to the company through the recession. By late 1982, General Motors, responding to pressure from the Daewoo Group and the Korean Government to give Daewoo 51 percent of the venture and management control, reorganized the operation. Retaining 50 percent ownership, GM gave Daewoo managerial control and left itself the option to reduce its participation to 34 percent after 2 years.

The largest Korean automaker, Hyundai, is intent upon remaining as completely Korean as possible. However, the Mitsubishi Motor Corporation of Japan has a 10 percent interest in the company and the Hyundai Cortina was produced under license from Ford. Hyundai, the only significant automobile exporter, shipped 48,000 passenger cars overseas in 1984.

Korea has forecast vehicle exports in 1987 of some 250,000 units. 1/ Industry analysts, however, believe that inferior technology will hinder worldwide acceptance of Korean automobiles. In this regard, interest in joint ventures among parts manufacturers has increased. Most recently, the Chrysler Corporation has explored purchasing components from the Samsung Industrial Group, 2/ and the Delco Remy Division of General Motors and Daewoo Precision Industries, Ltd. have agreed to build a new facility at Nongong to supply electrical components to Daewoo Motors. 3/ GM and Daewoo Motors have also signed a contract to build 167,000 fwd cars annually, 4/ and Chrysler had reportedly been considering an agreement where Samsung would produce a small subcompact to replace the Plymouth Horizon and Dodge Omni models. However, in the latter case, the Korean Government has prohibited a Samsung auto production venture in favor of reinstating Kia Industrial as an automaker. Moreover, Hyundai is using more advanced Mitsubishi technologies in its front wheel drive Excel currently being introduced.

Korean parts trade with the United States has grown rapidly over the past several years, although no Korean vehicles are currently exported here. During the 1980-1984 period, U.S. imports of motor vehicle parts and accessories from Korea rose 231.5 percent from \$104.7 million to \$347.1 million. Despite this tremendous increase, Korean parts imports presently represent only 2 percent of total U.S. parts imports.

1/ "Korean Auto Industry Gears Up. . .," op. cit.

2/ "Korean Cars for U.S. Could Reach 500,000 by the Late 1980's," Ward's Automotive Reports, Aug. 27, 1984.

3/ "Daewoo and GM Division Announce Joint Venture," Journal of Commerce, Oct. 30, 1984.

4/ "Daewoo and GM in \$60 million car parts venture," Financial Times, Oct. 30, 1984.

Taiwan

Industry profile.--Like South Korea, the Republic of China has the potential to become a center for automobile production. Taiwanese initiatives by Ford, Chrysler, and Mitsubishi among others indicates an acknowledgement by auto industry leaders of this potential.

Presently, six companies manufacture passenger cars in Taiwan. The top two producers controlled 69.4 percent of the domestic market during 1983. 1/ The number one automaker in Taiwan, Yue Loong Motor Company, established operations in 1953. 2/ Yue Loong is the licensee of the Japanese automaker, Nissan. 3/ The number two Taiwanese car company, established in 1972, is a 70/30 percent joint venture between Ford Motor Company and Lio Ho Automobile Industrial Corp. 4/ Table 22 and figure 23 highlight the Taiwanese automobile market.

Table 23.--Automobiles: Sales and market shares in Taiwan, by manufacturers, 1983

Manufacturer	1983		Market share <u>1/</u>
	Sales	Units	
	Units	Percent	
Yue Loong-----:	41,380	:	37.5
Ford Lio Ho-----:	35,187	:	28.7
San Yang-----:	14,305	:	12.2
China Motor-----:	8,700	:	7.9
San Fu-----:	5,575	:	5.0
Yue Tian-----:	5,259	:	4.8
Total-----:	110,405	:	100.0
	:	:	

1/ Because of rounding, figures do not equal 100.0.

Source: Motor Vehicle Manufacturers Association.

Taiwan exported 55 of their automobiles in 1983, so production closely parallels sales. During 1983, the Taiwan auto industry operated at roughly half of total car production capacity, estimated to be 220,000 units.

Government policies.--The Government of the Republic of China has always sought to promote a strong indigenous auto industry. Initially, Taiwan enforced high tariffs, including a 75 percent duty on passenger cars, and a 60 percent domestic content requirement. 5/ The government controlled car

1/ World Data Book, Motor Vehicle Manufacturers Association, 1985.

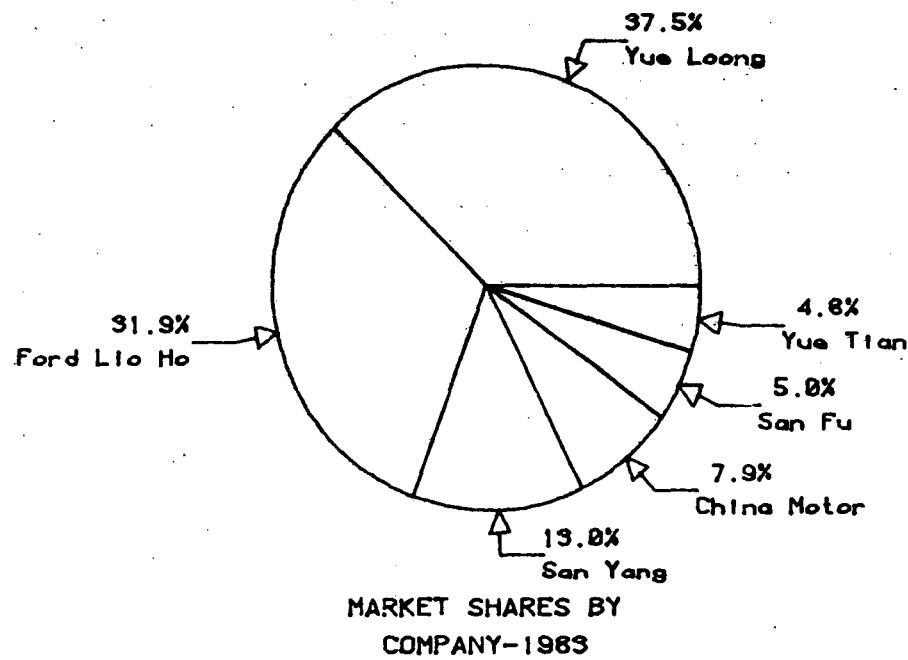
2/ Donald H. Shapiro, "Taiwan Invests To Step Up the Industry," Automotive Industries, January 1982.

3/ Nancy I. Phillips, "Inside the Auto Industry in Taiwan," Automotive News, Aug. 14, 1978.

4/ Richard Johnson, "Ford Plans to Expand in Taiwan," Automotive News, Nov. 26, 1984.

5/ Nancy I. Phillips, Supra.

Figure 23.--Automobiles: Market in Taiwan, by manufacturers, 1983.



Source: Motor Vehicle Manufacturers Association.

imports through numerical limits and a bidding system. Companies without adequate reserves of foreign exchange were thus banned from bringing in foreign cars. The large companies were able to import to some extent; in 1978, Yue Loong, for example, had plans to import 4,000 cars. 1/ In 1978, the Government changed the domestic-to-import content ratio to 70/30. 2/ In 1979, Taiwan agreed to lift the import ban on U.S.-made automobiles, effectively targeting the restriction on the Japanese. In 1980, Taiwan began soliciting bids from foreign automakers to develop a modern, high-volume production facility. 3/ Taiwan especially sought to promote vehicle exports. 4/ At the time, Nissan, having had a licensing arrangement with Yue Loong since 1958, was believed to be the leading candidate; however, Toyota eventually became the Government's choice. 5/ The joint venture proposed a \$265 million engine and assembly plant with the annual car output reaching 300,000 units. 6/ The venture ran aground when the Government insisted on a guaranteed 50 percent export-to-production ratio. 7/ Toyota opposed this requirement as well as a proposal for a clear schedule of Japanese technology transfer to Taiwan. 8/ In September 1984, after some 20 months of discussion, Taiwan canceled the proposed deal and began seeking a new suitor for their production plan. 9/ Almost immediately, Ford Lio Ho proposed a \$35-40 million expansion. 10/ By mid-November, the Government of Taiwan had approved this new proposal. 11/

Early in 1985, the Taiwan Government's Council for Economic Planning and Development announced a new 6-year auto industry development plan. 12/ Pending executive Yvan (Cabinet) approval, the plan would reduce local content requirements for cars to 50 percent by 1990 while exempting exports completely. The import duty would fall from 65 percent to 30 percent by 1991. Moreover, companies exporting more than 30 percent of production would be permitted to import parts and materials for re-export in finished goods duty free. The plan also proposed a review of the Japanese import ban in 1991.

Trade and internationalization.--The Ford Lio Ho expansion has brought the Taiwan industry to the brink of international competition after a history of importing technology primarily from Japan. In addition to Ford Lio Ho and the Yue Loong-Nissan tie-up, San Yang produces mini-cars under a Honda license, San Fu makes Subaru light trucks and Renault sedans, Yue Tian cooperates with Peugeot, and China Motor, a sister company of Yue Loong, began producing Towny subcompacts with Mitsubishi in April 1985. 13/ However, for

1/ Ibid.

2/ Ibid.

3/ "Japanese eyeing Taiwan, not U.S.," Automotive News, Mar. 17, 1980.

4/ Ibid.

5/ John Hartley, "Toyota Haggling on China Venture," Automotive News, Aug. 20, 1984.

6/ Ibid.

7/ Ibid.

8/ "Taiwan Cancels Proposed Deal With Toyota," American Metal Market, Oct. 1, 1984.

9/ Ibid.

10/ "Taiwan Trades in Toyota For a Ford," The Economist, Sept. 1, 1984.

11/ "Ford Joint Venture in Taiwan to Expand Car Output Capacity," Ward's Automotive Reports, Nov. 19, 1984.

12/ "Taiwan Restructures Auto Industry," Automotive News, Jan. 14, 1985.

13/ Donald H. Shapiro, op. cit.; "MMC in Taiwanese Venture," Wards Automotive Reports, Jan. 28, 1985.

the time being, the focus is on Ford Lio Ho. The expansion will increase Ford Lio Ho's production from the present 40,000 units annually to 90,000 by May 1986. 1/ The company plans to export some 30,000 cars. Ford Motor's vice president, Asia-Pacific and Latin American Automotive Operations said "there is the potential of some coming to the U.S.," although no decision on where to export the Ford Lio Ho output has yet been made. 2/ Another destination may be Australia, where Ford ships Taiwan-built engines and recently passed General Motors-Holden as the market leader. 3/ In recent years, U.S. motor vehicle parts imports from Taiwan have increased steadily from \$108.8 million in 1980 to \$329.3 million in 1984. However, most of these parts have been accessory or replacement items not used in U.S. motor-vehicle production.

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1/ Richard Johnson, "Ford Plans to Expand in Taiwan," Automotive News, Nov. 26, 1984.

2/ Dan McCosh, "Ford From Taiwan May Come to U.S.," Automotive News, Dec. 10, 1984.

3/ Ibid; "Taiwan Trades in Toyota For a Ford," The Economist, Sept. 1, 1984.

**APPENDIX A**

**NOTICES OF INSTITUTION OF INVESTIGATION NO. 332-188  
AND PUBLIC HEARING**

20436, not later than noon, November 28, 1984.

#### Written Submissions

Interested person are invited to submit written statements concerning the investigation. Written statements should be received by the close of business on November 30, 1984. Commercial or financial information which a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of § 201.6 of the Commission's *Rules of Practice and Procedure* (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. All submissions should be addressed to the Secretary at the Commission's office in Washington, D.C.

Issued: August 9, 1984.

By order of the Commission.

Kenneth R. Mason,

Secretary.

[FIR Doc. 84-21707 Filed 8-14-84; 8:45 am]

BILLING CODE 7020-02-M

[332-188]

#### The Internationalization of the Automobile Industry and Its Effects on the U.S. Automobile Industry

**AGENCY:** United States International Trade Commission.

**ACTION:** Institution of an investigation under section 332(b) of the Tariff Act of 1930 (19 U.S.C. 1332(b)) for the purpose of presenting information on the internationalization of the world automobile industry and its effects on the U.S. automobile industry.

**EFFECTIVE DATE:** August 6, 1984.

#### FOR FURTHER INFORMATION CONTACT:

Mr. Jim McElroy of Ms. Deborah Ladomirak, Machinery and Equipment Division, Office of Industries, United States International Trade Commission, Washington, D.C. 20436 (telephone 202-523-0258 and 202-523-0131, respectively).

Background and scope of investigation: The Commission instituted the investigation on its own motion in recognition of the changes that are occurring in world automotive component production and automotive assembly operations and how those changes are affecting the U.S. automobile industry.

This study will provide a broad overview of the current and historical relationships between automobile producers throughout the world and the effects the growing internationalization have had on the U.S. automobile industry, including the U.S. automobile worker.

The Commission expects to complete its study by April 1985.

#### Public Hearing

A public hearing in connection with the investigation will be held in Detroit, Michigan, beginning at 10:00 a.m., e.s.t., on December 4, 1984, to be continued on December 5, 1984, if required. At least 60 days prior to the hearing, a Federal Register notice will be posted giving the exact location in Detroit, Michigan. All persons shall have the right to appear by counsel or in person, to present information, and to be heard. Requests to appear at the public hearing should be filed with the Secretary, United States International Trade Commission, 701 E Street NW., Washington, D.C.

[332-188]

**The Internationalization of the  
Automobile Industry and Its Effects on  
the U.S. Automobile Industry**

**AGENCY:** International Trade  
Commission.

**ACTION:** Place of public hearing.

**SUMMARY:** Notice is hereby given that the public hearing in this matter will be held beginning on Tuesday, December 4, 1984 (to be continued on December 5, 1984, if required), in Detroit, Michigan, at the Westin Hotel, located in the Renaissance Center, beginning at 10:00 a.m.

Notice of the investigation and hearing was published in the Federal Register of August 15, 1984 (49 FR 32694).

Issued: September 21, 1984.

By order of the Commission.

**Kenneth R. Mason,**  
*Secretary.*

[FR Doc. M-20230 Filed 10-2-84; 8:45 am]  
**BILLING CODE 7020-02-M**



**APPENDIX B**

**Letter of December 11, 1984 from the Chairman, Subcommittee on Trade,  
House Committee on Ways and Means**

BAR ROSENKOWSKI, ILL.  
JAMES R. JONES, OREG.  
ED JENNINGS, GA.  
THOMAS J. DOWNEY, N.Y.  
DON J. PEASE, OHIO  
BENT HANCOCK, TEX.  
CECIL (KEE) HESTEL, HAWAII  
MARTY RUSSO, ILL.

GUY VANDER JAGT, MICH.  
BILL ARCHER, TEX.  
BILL FRENZEL, MINN.  
RICHARD T. SCHULZE, PA.  
PHILIP M. CRANE, ILL.

EX OFFICIO:  
BARBER B. CONABLE, JR., N.Y.

## COMMITTEE ON WAYS AND MEANS

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C. 20515

## SUBCOMMITTEE ON TRADE

JOHN J. SALMON, CHIEF COUNSEL  
A. L. SINGLETOR, MINORITY CHIEF OF STAFF  
RUFUS YERIA, SUBCOMMITTEE STAFF DIRECTOR

December 11, 1984

The Honorable Paula Stern  
Chairwoman  
U.S. International Trade Commission  
701 E Street, N.W.  
Washington, D.C. 20436

Dear Madam Chairwoman:

It is our understanding that the ITC has initiated a 332 investigation on the internationalization of the automobile industry and its impact on prices, production, and employment in the U.S. auto industry. Among the factors to be studied is the impact of the voluntary restraint agreement (VRA) with Japan on the U.S. industry.

Because we believe the VRA has an enormous impact on consumers in the United States and on producers in both countries, we feel that Congress and the Administration should have access to your findings in order to make an informed decision on any extension of the VRA.

Accordingly, we are requesting that the Commission expedite this investigation and, if possible, be in a position to present preliminary findings to the Subcommittee by early February. We appreciate your cooperation.

If you have any questions, please contact Joanna Shelton on the Subcommittee staff (225-3943).

Sincerely,

Sam M. Gibbons  
Chairman

Bill Frenzel  
Member of Congress

**APPENDIX C**

**Calendar of Public Hearing**

**CALENDAR OF PUBLIC HEARING**

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject : The Internationalization of the Automobile Industry and Its Effects

Inv. No. : 332-188

Date and time: December 4, 1984 - 10:00 a.m.

Sessions were held at the Westin Hotel located in the Renaissance Center, Detroit, Michigan

**WITNESS AND ORGANIZATION**

International Union, United Automobile, Aerospace and Agricultural Implement Workers of America--UAW, Washington, D.C.

Owen F. Bieber, President

Lee Price, International Economist

Don Stillman, Director, Governmental and International Affairs

Automotive Parts & Accessories Association, Lanham, Maryland

Robert McMinn, Senior Vice President,  
Planning/Development

Lee Kadrich, Managing Director, Government Affairs and International Trade

Halfpenney, Hahn & Roche--Counsel  
Chicago, Illinois  
on behalf of

The Automotive Service Industry Association

Harold T. Halfpenny) --OF COUNSEL  
Lewis Marchese )

Patton, Boggs and Blow--Counsel  
Washington, D.C.  
on behalf of

American International Automobile Dealers Association

Robert M. McElwaine, President

Bart S. Fisher--OF COUNSEL

Industrial Technology Institute and The  
University of Michigan, Ann Arbor, Michigan

Michael S. Flynn, Associate Researcher

Automotive Parts Manufacturers Association,  
Toronto, Ontario

Patrick J. Lavell, President

The Public Research Institute, Alexandria, Virginia

Louis Jacobson, Economist



**APPENDIX D**

**THE U.S.-CANADIAN AUTOMOTIVE AGREEMENT: BACKGROUND TO ITS HISTORY  
AND IMPLEMENTATION**

**The United States-Canadian Automotive Agreement: Background to its history and implementation**

The United States motor-vehicle market was dominated during the period prior to the 1965 agreement by the consumption of United States-Canadian-type vehicles 1/, the vast majority of which were produced in the United States. This market grew by approximately 27 percent from 1960 to 1964, reflecting, primarily, increases in both the population of the United States and per capita registration of motor vehicle during the period as well as low unemployment and rising discretionary income.

The Big Four motor-vehicle manufacturers, 2/ in turn, dominated motor-vehicle production in the United States during the 1960-64 period, much as they do today, though trucks and buses were produced by 17 companies other than the Big Four. While the number of U.S.-produced motor vehicles grew by only 18 percent from 1960 to 1964, U.S. consumption did not keep pace with production, and much of the growth in U.S. output was absorbed by increased consumption in Canada.

Unlike the U.S. market, the Canadian motor-vehicle market was quite different during 1960-64. Consumption of U.S.-Canadian-type vehicles accounted for only 74 percent of Canadian consumption with the remainder accounted for by imports. In addition, Canadian per capita registration of automobiles in 1960 was much lower than that of the United States. 3/ Compared with the United States, the population of Canada was expected to rise at a faster rate, with immigration largely contributing to this growth. All these factors indicated that there was a much greater potential for growth in the consumption of United States-Canadian-type vehicles in Canada than in the United States. In accordance with this potential, Canadian consumption of United States-Canadian-type vehicles grew by 63 percent during the period 1960-64. While this extraordinary growth in the U.S.-Canadian-type motor-vehicle market in Canada could not be expected to continue indefinitely, it was expected that it would continue to grow at a rate considerably faster than that of the U.S. market after 1964.

Canadian production of motor vehicles was dominated by the Canadian affiliates of the major U.S. motor-vehicle manufacturers, and such production of motor vehicles grew proportionately with Canadian consumption of such vehicles during 1960-64, by increasing 69 percent. However, it was clear that as the Canadian market for such vehicles continued to grow, the demand for imports would also grow, and this would result in a proportionate increase in

1/ The term "U.S.-Canadian-type vehicles" is used to describe vehicles that are produced in the United States and those that are produced in Canada, which are identical. The vehicles are identical because the auto industries of the two countries are closely tied by subsidiary relationships.

2/ The Big Four automakers in the United States are the General Motors Corp., the Ford Motor Co., the Chrysler Corp., and the American Motors Corp.

3/ Per capita registration of motor vehicles in the United States was 34 units per hundred persons and in Canada it was 23 units per hundred persons.

Note... Much of the information contained in this appendix was extracted from The United States-Canadian Automotive Agreement: Its History, Terms, and Impact, USITC investigation 332-76, January 1976.

the Canadian automotive trade deficit 1/ unless corrective measures were taken by the Canadian Government.

By 1960, Canada was the only remaining export market of major significance for motor vehicles produced in the United States, and conversely, the United States was the only significant export market for motor vehicles produced in Canada. 2/ It became the policy of Canada to seek measures to increase its proportion of U.S.-Canadian production in order to equal its share of U.S.-Canadian consumption. In order to accomplish this goal, Canada would, in effect, have to increase production to equal Canada's consumption.

The United States had a decreasing trade surplus in motor vehicles with Canada during period 1960-64, with the bulk of this trade being in passenger automobiles. However, as important as trade in motor vehicles was during this period, trade in original-equipment parts for use in the production of motor vehicles in each country was the major factor in automotive trade imbalances between the United States and Canada. The United States enjoyed a steadily increasing surplus in original-equipment-parts trade during 1960-64, which by 1964, amounted to approximately 95 percent of the total surplus enjoyed by the United States in automotive trade with Canada. Thus, the relatively low-volume production of automotive parts in Canada became a matter of growing concern in Canada. It would not be sufficient, however, from a balance of trade perspective, for Canada to achieve its proportionate share of motor-vehicle assembly. They also would have to increase their production of motor-vehicle parts, so that the total added value in Canada in the production of motor vehicles and original-equipment parts would better approximate the total value of motor vehicles consumed in Canada. Only then would the Canadian balance in automotive trade satisfy the Canadian Government.

Prior to 1965, the extent and nature of the trade between the United States and Canada in motor vehicles and parts, and the production in Canada of motor vehicles and parts was greatly influenced by the tariff structures of the two countries. The Canadian tariff schedule for motor vehicles and parts was designed to encourage the manufacture of motor vehicles and parts in Canada, and did so in several ways. First, the basic most-favored-nation tariff rates of Canada were quite high for completed motor vehicles (17.5 percent ad valorem) and parts (17.5-25 percent ad valorem). A manufacturer in Canada would enjoy a substantial competitive advantage, in terms of pricing, over an importer of motor vehicles and parts. Second, for a large number of articles generally used in the production of motor vehicles, the basic tariff rate would not apply, and the articles would be entitled to duty-free entry if the articles were of a class or kind not made in Canada and were imported by a Canadian producer of motor vehicles meeting a certain Canadian content requirement in the production of motor vehicles. Accordingly, the Canadian Government prior to the APTA had a tariff structure

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1/ The proportionate increase in the Canadian automotive trade deficit resulted from the fact that a certain proportion of parts produced in the United States went into the production of motor vehicles in Canada and fewer motor vehicles were produced annually in Canada than were sold in Canada during 1960-64.

2/ This was especially true of passenger automobiles.

that used the duty-free treatment of certain original-equipment parts as an incentive to encourage a certain level of motor-vehicle production in Canada that was effectively keyed to Canadian consumption by the high rates of duty on completed motor vehicles and original-equipment parts imported into Canada.

Prior to the APTA, the content requirement in Canada's tariff structure sought to ensure a certain percentage of Canadian content in Canadian production of motor vehicles intended for consumption in Canada. 1/ Once the Canadian content requirement was met, producers of motor vehicles in Canada were then free to import the remainder of their components from the United States. However, as the Canadian market in motor vehicles grew during 1960-64, the amount of U.S. original-equipment parts imported by Canadian producers also grew proportionately, thus increasing Canada's trade deficit in automotive-products trade with the United States.

At the same time, the Canadian motor-vehicle industry could not competitively export motor vehicles to the United States because of the lower economies of scale and relative inefficiency of the Canadian industry, coupled with the duty of 6.5 percent ad valorem imposed by the United States on imported vehicles in 1964. The inability of Canada to offset its increasing deficit in automotive trade with the United States led to the adoption of an export incentive plan in Canada.

The duty-remission plan adopted by Canada in November 1962, and expanded a year later, provided that duties would be remitted on imports of motor vehicles and original-equipment parts to the extent that the manufacturer importing such articles increased the Canadian content of its exports of all automotive products over that achieved in a base period. This plan did contribute to increased exports of Canadian automotive products to the United States, and this led to the filing of a countervailing duty complaint against the plan by an independent U.S. parts manufacturer.

The full impact of the duty-remission plan upon automotive trade between the two countries was not immediately apparent. Net direct investment expenditures on plant and equipment in Canada by the Canadian affiliates of the Big Four increased substantially after the duty-remission plan became effective. However, it required several years to realize increased production as a result of increased net direct investment expenditures in the motor-vehicle industry. Before the impact of the duty-remission plan on automotive trade between the two countries could be fully assessed, the United States-Canadian APTA agreement was signed by President Johnson and Prime Minister Pearson on January 16, 1965. Fundamentally, the U.S.-Canadian automotive products trade agreement obligates each of the contracting parties to accord duty-free treatment to imports from the other party of specified motor vehicles and parts for use as original equipment in the manufacture of such motor vehicles. 2/

1/ This percentage was 40, 50, or 60 percent, depending on the size of the manufacturer.

2/ The Government of Canada implemented the agreement in Canada through two Orders in Council Establishing Duty-Free Treatment (P.C. 1965-99 and P.C. 1965-100, The Motor Vehicles Tariff Orders of 1965) and simultaneously terminated the duty-remission plan. (Canada has since initiated another duty-remission plan which covers imports of certain non-APTA vehicles.) The Government of the United States implemented the agreement with the signing of the Automotive Products Trade Act of 1965 on Oct. 21, 1965, applying duty-free treatment retroactive to Jan. 18, 1965.

The obligation of the United States to accord duty-free treatment to imports from Canada applies to specified automotive products. First, duty-free treatment applies to motor vehicles, with the exception of certain "special purpose" vehicles, such as electric buses, three-wheeled vehicles, and motor vehicles specially constructed and equipped for special services and functions (e.g., fire engines). Second, duty-free treatment applies to parts (fabricated components) for use as original equipment in the manufacture of the specified motor vehicles, but does not apply to replacement parts. In addition, trailers, tires, and tubes are specifically excluded. Third, the products of Canada specified in the agreement must meet a requirement that they contain no more than a certain percentage of "foreign" content to qualify for duty-free treatment under the agreement. This "foreign" content is the content of materials produced in non-North American countries (i.e., in other than the United States or Canada). For any article, the measure of such "foreign" content will be the percentage of the appraised customs value of the article upon entry into the United States accounted for by the aggregate value of such imported materials contained in the article. The maximum permitted "foreign" content for specified articles is as follows:

Motor vehicles----- 50%

(From Jan. 18, 1965, to  
Jan. 1, 1968, this  
figure was 60%)

Chassis and parts----- 50%

This requirement, in effect, guarantees that at least half of the content of any article imported duty free under the agreement will be produced in either the United States or Canada. The remainder of the content may come from third countries whereupon the article will still be entitled to duty-free treatment when imported into the United States. Consequently, original-equipment parts manufactured in third countries may be assembled into completed vehicles in Canada and imported into the United States, and no duty will be payable on these components, either to Canada or to the United States, as long as the maximum permissible "foreign" content (50 percent) is not exceeded. However, original-equipment parts imported into the United States from third countries are not entitled to duty-free entry.

Like the obligation of the United States, the obligation of Canada under the agreement to accord duty-free treatment to imports from the United States applies to specified motor vehicles and original-equipment parts, which excludes "special-purpose" motor vehicles, replacement parts, trailers, tires, and tubes. Although the agreement does not contain specific content requirements that motor vehicles or original-equipment parts would have to meet to qualify for duty-free entry into Canada, it does restrict duty-free entry to motor vehicles and original-equipment parts imported into Canada by qualified manufacturers of motor vehicles in Canada.

In order to qualify for the right of duty-free entry into Canada for a given class of motor vehicles and original-equipment parts, a Canadian manufacturer of motor vehicles of that class must meet three criteria set forth in the agreement:

- (1) the Canadian manufacturer must have produced motor vehicles of that class 1/ in each "quarter" of the base year 2/ and in any subsequent model year,
- (2) the ratio of the net sales value of the vehicles of that class produced 3/ by the manufacturer in Canada to the net sales value of all vehicles of that class sold by the manufacturer for consumption in Canada must be at least equal to its corresponding ratio for the base year (but no less than 75 to 100); and
- (3) the "Canadian value added" in the production of vehicles of that class in Canada must be at least equal to its level for the base year.

Although these criteria had the effect of limiting duty-free entry rights to manufacturers already established in Canada prior to the agreement, the Canadian Government did reserve the right to designate "non-qualified" manufacturers of a class of motor vehicles as entitled to the right to duty-free entry under the agreement, and the Government of Canada has exercised this right with several "non-qualified" producers. However, in order to be entitled to duty-free entry under the agreement, "non-qualifying" manufacturers must generally establish production of motor vehicles of that class in Canada and meet conditions similar to those enumerated in (2) and (3) above. Consequently, a U.S. manufacturer must qualify for each class of motor vehicle the manufacturer intends to import into Canada under the agreement, and if he fails to do so, the manufacturer must obtain a special designation of entitlement to duty-free treatment in the importation of motor vehicles of that class or original-equipment parts.

These restrictions in the agreement itself are not transitional and have not been phased out by the Canadian Government. The consultations that took place in 1968 between the Governments of the United States and Canada did not lead to any change in either the terms or the status of the restrictions. However, the economic effect of (3) above has become increasingly less significant for the major Canadian motor-vehicle manufacturers as the market in Canada has grown, and, at least for the established Canadian motor-vehicle manufacturers, it is of relatively minor economic importance today.

The collateral commitments made in 1965 by the Canadian motor-vehicle manufacturers to the Government of Canada in the "letters of

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1/ There are three classes of motor vehicles, namely, passenger automobiles, buses, and special commercial vehicles.

2/ The "base year" is the 1964 model year, which covers the period Aug. 1, 1963 - July 31, 1964.

3/ Including vehicles destined for exportation.

"undertaking" involve essentially two different commitments made to the Government of Canada by Canadian motor-vehicle manufacturers to increase the production in Canada of motor vehicles and original-equipment parts, whether for consumption in Canada or for export to the United States. Each Canadian manufacturer committed its corporation to the following:

- (1) to increase in each current model year the "Canadian value added" in its production in Canada of motor vehicles and original-equipment parts over the amount achieved in the base year by a certain percentage 1/ of the growth in the market for the current model year for each class of vehicles sold by the manufacturer for consumption in Canada. Growth in the market is measured by the difference between the cost to the Canadian manufacturer of vehicles sold in Canada during the model year and the cost to the manufacturer of vehicles sold in Canada during the base year, and
- (2) to increase the dollar value of "Canadian value added" in the production of vehicles and original-equipment parts over and above both the amount achieved in the base year and the amount of the increase achieved pursuant to (1) above by a certain stated amounted 2/ during the 1968 model year, and to maintain that amount in each model year thereafter.

These commitments made to the Government of Canada in 1965 by the Canadian motor-vehicle manufacturers in their "letters of undertaking" are currently operative and are regarded as binding by the Canadian motor-vehicle manufacturers. Contrary to the statements made by the U.S. Department of Commerce in its annual reports to the President and to the Congress on the Operation of the Automotive Products Trade Act of 1965--that the letters of undertaking expired on July 31, 1968--the letters of undertaking did not expire on that or any subsequent date. Canadian auto manufacturers continue to comply with these commitments and continue to report their compliance to the Government of Canada.

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1/ For automobiles, the percentage was 60 percent, and for commercial vehicles (trucks) and buses, 50 percent.

2/ For the Canadian affiliates of the Big Four motor-vehicle manufacturers, the combined figure was U.S. \$222 million.



**APPENDIX E**

**TEXT OF 1981 JAPANESE VOLUNTARY RESTRAINT ANNOUNCEMENT**

Measures concerning the export of passenger cars to the U.S.

(Provisional Translation by MITI)

May 1st, 1981

Ministry of International  
Trade and Industry

1. The Government of Japan (GOJ) fully recognizes that the U.S. government has formulated an auto recovery program and is implementing the de-regulatory part of that program in order to cope with the difficulty that the U.S. auto industry is facing, and that the U.S. auto industry and the auto workers union will jointly make every effort to renovate the U.S. auto industry as put forth in the various statements they have made to date.

GOJ, assuming that these efforts will be made in the U.S. and in light of the general situation, has decided to take the measures referred to in paragraph 3 below as very temporary and exceptional measures in order to maintain the free trade system and to develop further the good economic relations between Japan and the U.S.

2. Concerning the auto-issue between Japan and the U.S., Japan has been cooperating with the U.S. in line with the so-called "auto package" agreed to in May of last year, which contained the elimination, in principle, of Japanese import duties on auto parts, the promotion of investment into the U.S., etc. These measures are steadily being

- 2 -

implemented.

Various kinds of cooperation, including joint-venture-relationships, have also been made between Japanese auto companies and the U.S. "Big 3" auto makers, such as the agreement on new cooperative measures by Mitsubishi Motors and Chrysler, and the negotiation of production cooperation between Toyota and Ford.

In addition, specifically regarding auto exports to the U.S., the GOJ, recognizing the severe circumstance the U.S. industry is facing, has since last autumn, taken such measures as the forecast of auto exports to the U.S. done in a judicious manner.

The following measures to be considered are newly introduced in accordance with the purpose of paragraph 1 above and with the understanding that they will keep Japanese exports in line with auto exports into the U.S. from third countries.

3. GOJ will take the following measures during the maximum period of three years from April 1981 through March 1984, based on the understanding that the next three years are crucial for the U.S. auto industry to recover.

(1) GOJ will obtain monthly reports, during the three-year-period through March 1984, from each company on its passenger car (JAMA classification basis) exports to the U.S. (as defined to be exported to the fifty states and the District of Columbia) under its authority

- 3 -

in the Foreign Exchange and Foreign Trade Control Law to introduce and implement a new monitoring system on passenger car exports to the U.S.

- (2) During the first year (from April 1981 through March 1982), MITI will restrain the volume of passenger cars to be exported from Japan to the U.S. by MITI directives issued to individual companies as an administrative measure. The total volume of passenger cars to be exported to the U.S. will be 1.68 million units.
- (3) During the second year (from April 1982 through March 1983), MITI will restrain the volume of passenger cars to be exported to the U.S. in the same manner. The total volume to be exported to the U.S. in the second year will be the sum of the export ceiling for the first year and the volume obtained by multiplying the estimated increment of the U.S. car market by 16.5%.
- (4) In order to guarantee the implementation of the measures mentioned in (2) and (3) above, MITI will promptly make the export of passenger cars to the U.S. subject to export licensing, under its authority in the Foreign Exchange and Foreign Trade Control Law, should any such necessity arise.
- (5) During the third year (from April 1983 through March 1984), MITI will monitor the trend of passenger car exports to the U.S. through the measure mentioned in (1) above. At the end of the second year,

- 4 -

MITI will study, considering the trend of the U.S. car market, whether these export restraint measures should be continued in the third year.

(6) The measures mentioned above shall in any event, expire by March 1984. Further, separate measures will also be taken with regard to the export of passenger cars to Puerto Rico and the export of vans (classified under "commercial vehicle" in Japan Automobile Manufacturers Association, Inc. (JAMA) statistics but as "passenger car" in the U.S.) to Puerto Rico and the United States.

4. The GOJ expects that the interested parties in the U.S. will appreciate the measures taken above and will take a cautious attitude toward protectionist moves in the U.S. The GOJ also understands that the U.S. antitrust authority has established the view that the above measures will not raise any problems as to antitrust questions in the U.S. Japan sincerely expects that the U.S. auto industry and the vital U.S. economy will recover through the efforts of the U.S. itself.



**APPENDIX F**

**A SURVEY OF AUTOMOTIVE TRADE RESTRICTIONS MAINTAINED BY SELECTED COUNTRIES**

Industrialized Countries Surveyed

Australia: A local content requirement of 85 percent is in effect. However, under the Export Facilitation Scheme, due to commence on March 1, 1982, Australian car manufacturers would be allowed to credit exports against local content requirements. These credits will increase from 5 percent in 1982 to 6.25 percent in 1983 and 7.5 percent in 1984 and can be used to import components duty free. The effect would be to reduce the local content requirement to 75 percent by 1984. Australia maintains a quota limiting imports of assembled vehicles to 20 percent of the existing market. There are import tariffs of 35-57.2 percent depending on stage of assembly. No export incentives exist. General Motors, Ford, Chrysler, Toyota and Nissan produce vehicles in Australia.

Austria: No local content regulations or export requirements are in effect in Austria. The automobile import duty is 20 percent. The value added tax (VAT) on automobiles is 10 percent. Steyr-Daimler-Puch (S-D-P) produces mopeds, trucks, busses and tractors. General Motors will shortly begin production of automobile engines and transmissions. S-D-P and BMW will soon produce diesel automobile engines.

Belgium: No local content regulations or export requirements are maintained by Belgium. There are reportedly quantitative restrictions on imports from Japan, Taiwan, South Korea, Indochina, and Eastern European countries. The import tariff on automobiles is the EC's 10.9 percent common external tariff. A 25 percent value added tax is levied on all automobiles sold in Belgium. Ford, GM, British Leyland, Peugeot-Citroen, and Volvo assemble cars and trucks, while Renault and Volkswagen assemble only automobiles in Belgium.

Canada: U.S.-Canadian auto trade is conducted under the terms of the Automotive Parts Trade Agreement (APTA). This trade is duty free. Canada has a 14.2 percent import duty on imports of non-U.S. cars and trucks and has safety and emission requirements similar to the United States. There are no local content requirements or quantitative restrictions. Chrysler, GM, Ford, AMC and Volvo have manufacturing facilities in Canada.

Denmark: There are no restrictions on automobile imports except the 10.9 percent EC common external tariff. A 20.25 percent VAT is levied.

France: There are no local content regulations or export requirements. Imports of Japanese automobiles have never risen to over 3 percent of the market and the French government has announced that it does not want them to exceed this level. The EC's 10.9 percent automobile tariff applies. There is a 33.3 percent VAT. General Motors and Ford produce components in France.

Germany: There are no local content, export requirements, or quantitative limitations. Germany applies the EC's 10.9 percent common external tariff on automobiles and has a 13 percent VAT. Germany maintains rigid safety and emissions standards. In addition, there is a graduated motor vehicle tax based on horsepower. General Motors and Ford have manufacturing/assembly plants.

Italy: No local content regulations or export requirements exist. Italy applies the EC's 10.9 percent common external tariff on automobiles. Italy has formal quantitative restrictions on vehicle imports from certain Far Eastern (1980 allotment from Japan is 2,200 cars) and Eastern European countries. In addition, Italy's strict safety standards make certification of imported automobiles difficult to obtain. The automobile import duty is 10.9 percent. A VAT varying from 18-35 percent depending on engine size is applicable to all automobile sales.

Japan: Japan maintains no local content requirements or quantitative restrictions or import duties on automobiles. There is a 15 or 20 percent commodity tax levied on automobiles depending on engine size and on overall auto dimensions, and an annual automobile tax which also increases by engine size. The mechanical safety and environmental modifications required to comply with Japanese stringent vehicle regulations have discouraged imports. Additional disadvantages to American automobiles include the higher dealer margins and a complicated multi-layered distribution system.

Netherlands: The Dutch vehicle manufacturing industry is relatively small. DAF a Dutch firm, manufactures commercial and military vehicles. Volvo produces passenger cars and there are a number of smaller Dutch bus and trailer manufacturers. The tariff on automobiles is 10.9 percent for imports of automobiles from the U.S. into the EC. There is an 18 percent value-added tax. Additionally, manufacturers or importers of passenger cars have to pay a special consumption tax of 16 or 17 percent. Imports are not subject to any special import licenses or quantitative restrictions.

New Zealand: There are no specific regulations dictating the amount of local content in automobiles assembled in this country. However, an import licensing system mandates the use of local components. Tariffs for completely built up autos (CBA) are: 55 percent for general tariff; 20 percent for Australia and the U.K.; and 22.3 percent to 55 percent for Canada depending on the level of Commonwealth country content. Import tariffs for completely knocked down (CKD) units are: 45 percent general tariff rate; preferential rates of 6.25 percent for Australia and the U.K., and 13.75 percent to 45 percent for Canada depending on the level of Commonwealth country content. Certain Australian CKD autos are duty free and certain CBA autos are subject to a 10 percent duty under terms of the New Zealand Australian Free Trade Association. Licenses are required to import CKD cars but are, in effect, obtained automatically by assemblers. Licenses for CBA units are strictly controlled and currently maintained at a level of approximately 4 to 5 percent of the total annual sales of 65,000 to 70,000 units. Ford, General Motors, Chrysler, Toyota, British Leyland, Honda, Mazda, Skoda, Subaru, Datsun, Mitsubishi, and Talbot (Peugeot) have local assembly plants.

Norway: There are no local content regulations or vehicle import restrictions. Automobile import tariffs are 7.6 percent with an additional vehicle tax varying from 68-153 percent of the vehicle value. There is no automobile production in Norway.

Spain: Local content requirement for vehicles assembled in Spain is 55 percent. There are no import quotas. The import tariff for non-EC/EFTA source vehicles is 58 percent with a compensatory import tax of 13 percent. Luxury tax varies between 17.6-35 percent depending on horsepower of vehicle. Fiat, Renault, Citroen, Peugeot, Ford, General Motors have assembly operations in Spain.

Sweden: There are no local content regulations. There is a 9 percent CIF import tariff on passenger cars and a 20.63 percent VAT on the duty paid value. There are apparently nonrestrictive import licenses, as well as stringent safety and emission standards. Swedish producers receive a rebate of all duties paid on imported components incorporated in a car which is exported. Only Saab and Volvo manufacture in Sweden.

Switzerland: Tariffs on passenger vehicles imported into Switzerland from the U.S. range from Swiss Francs 79.62 to 134.50 per 100 kilograms gross. Swiss impose duties on weight rather than on value. Substantially lower tariffs have been accorded to EC and EFTA suppliers. In addition, a turnover tax of 8.4 percent ad valorem is levied. No quantitative import restrictions are maintained; however, at time of registration of an imported vehicle in Switzerland, the U.S. made product must conform with the Swiss Regulations on Construction and Equipment of Motor Vehicles, amendments to which became effective on January 1, 1980. The objectives of the amendments are to reduce gradually noise level limits by October 1, 1982 and 1986, respectively. Swiss-made trucks and jeeps are manufactured and assembled at Arbon in the Canton of Thurgau.

United Kingdom: There are no local content regulations or export requirements. The import tariff on automobiles is the EC's common external tariff of 10.9 percent. It has been publicly reported that imports from Japan are voluntarily limited by the Japanese manufacturers to approximately 10 percent of the market. British Leyland, Ford, GM, and Peugeot-Citroen manufacture in the U.K. In addition there are numerous small, specialty firms. Current plans are for British Leyland to manufacture Honda designed automobiles in the near future.

#### Developing Countries Surveyed

##### The Andean Pact's Automotive Program

In 1977 the five Andean Pact members (Bolivia, Colombia, Ecuador, Peru, Venezuela) signed an agreement calling for the production of vehicles based on local componentry, with local content eventually reaching 70 percent. According to the Pact's schedule, the program will be in effect by the end of 1983. However, due to disagreements by Pact members as to who would produce certain types of vehicles and, even more importantly, key components such as engines, progress in implementing the program has been slow.

A Common External Tariff is to give protection against non-pact vehicles, 115 percent in the case of passenger cars similar to those to be produced in the Andean region and 155 percent for cars other than those produced there.

The following companies have signed agreements to participate in the program: General Motors, Volkswagen, and Fiat; other companies that are considering participating are: Ford, Renault, Mack Trucks, Nissan, Pegaso, and Volvo. In addition to these general provisions, member countries have the following specific rules:

Bolivia: There are no vehicle manufacturing or assembly operations in Bolivia.

Colombia: A 33 percent local content regulation is maintained on firms which assemble automobiles from imported components. Imported automobiles are assessed a 150 percent duty, a 35 percent sales tax, a 5 percent export promotion fee, a 1.5 percent export diversification fund tax, and a 1 percent consular invoice fee. There are no quantitative restrictions, but import licenses are used to restrict imports. Renault produces passenger cars. GM produces automobiles, trucks and van chassis. Fiat produces cars, trucks and buses.

Ecuador: There are presently no local content restrictions or export requirements in Ecuador. Import duties on automobiles range from 100 percent to 190 percent depending on price; on trucks and vans duties are 80 percent or 100 percent depending on type and capacity; and on four wheel drive vehicles they are 60 percent or 70 percent depending on price. In addition, an import surcharge of 30 percent on the c.i.f. value is applied to all motor vehicle imports except trucks. On all items, importation requirements call for a 1 percent service charge and a 50 percent prior deposit, both on the c.i.f. value. Importers are required to prepay 80 percent of the import duties before the import license is received. This license is issued by the Ministry of Industries, Commerce and Integration. In addition to the overall quota, each automotive dealer or distributor is assigned an individual quota. This is computed on the basis of past imports, and therefore, it varies for each distributor/dealer. Newly established dealers are assigned a quota of \$40,000 per each six months.

Ecuador has begun to implement its ANCOM (Andean Common Market) assigned rights to manufacture: (1) light passenger cars and engines of 1050-1500 cc. motor size, and (2) light trucks and transmissions of 3.0-4.6 metric tons capacity. The Ecuadorean Government and Volkswagen signed a contract in December 1978 for the production of a passenger car. General Motors is carrying out feasibility studies for the production of light trucks.

Peru: Local content regulations require 10-35 percent local content depending on vehicle type. Although built up vehicle imports have been prohibited to date, reports are that import licenses will be obtainable in 1980. Import tariffs are 60 percent on trucks and 155 percent on automobiles. There is a 14.4 percent manufacturers tax. Exports are encouraged by rebating the import duties paid on imported components in the exported vehicle. Chrysler, Volkswagen, and Nissan assemble cars and trucks. Toyota assembles cars and Volvo assembles trucks.

Venezuela: Local content regulations call for annual increases from 48 percent currently to 90 percent in 1985. Imports are restricted to vehicle types produced locally. The tariff on imports is 120 percent on Venezuelan Government reference price. Export requirements are based on a percent of the value of national automobile production and in some instances they are quantitative requirements written into the assembler's contract. In addition to three local firms, Renault and Volkswagen assemble cars; Fiat, GM, and Ford assemble cars and trucks; Mack and International assemble trucks; and AM General and Toyota assemble jeeps.

According to press reports, the Venezuelan Economic Cabinet approved a new automobile import policy on April 24, 1980. Now prohibited is the importation of 8-cylinder models (except by the government). All other models not produced in the country could be imported without license upon payment of ad valorem duty of 120 percent and a specific duty of 100 Bolivars per kilo. Models similar to those produced in Venezuela would pay an ad valorem duty of 120 percent only. Vans and 9-11 passenger vehicles would pay 175 percent ad valorem and 100 Bolivars per kilogram specific duties. Effective date of this new measure will presumably depend on publication of corresponding decree in the official gazette with new list of reference prices for 1980. Last year this took place on June 1st.

#### Other Developing Countries

Algeria: There are no automobile manufacturing assembly operations in Algeria. Unspecified quantitative restrictions on automobiles are in effect. Import duties on automobiles range from 40-50 percent.

Argentina: Local content regulations exist for all vehicles as follows: passenger - 93 percent in 1980, reduced to 88 percent in 1982; commercial - from 93-90 percent in 1980, reduced to 75-88 percent in 1982. Import tariffs on vehicles are 95 percent on cars (declining to 55 percent in 1982) and 65 percent on trucks (declining to 45 percent in 1982). Minimum import prices are \$4 per cubic centimeter engine displacement plus 15 percent freight on cars. Export requirements apply only to intercompany parts shipments. Under this requirement exports must be 3 times the import level. Ford, Volkswagen, Fiat-Peugeot, Mercedes-Benz, and Saab have manufacturing facilities in Argentina.

Brazil: Local content regulations are in effect but are now individually negotiated with each firm with factors such as the individual firms balance of payments being taken into account.

Export incentives in the form of reduced import tariffs on parts are granted (under GATT these are being phased out). Imports of automobiles are currently embargoed. Normally, import tariffs on passenger cars are from 185 percent to 205 percent. In addition there is a system of minimum import values based on the car's weight. Passenger cars are produced in Brazil by Ford, GM, Volkswagen, Toyota, Puma and Fiat. Trucks are manufactured by Ford, Chrysler, GM, Mercedes, Fiat, Saab, Volvo, and Toyota.

Chile: Local content regulations requiring 30 percent of assembled cost for automobile manufacturers are in force. Exports are not required unless local content is less than 30 percent. In this case the local assemblers must export sufficient products to reach 30 percent of local production costs. Import tariffs on automobiles range from 10-80 percent depending on engine displacement. The 80 percent tariff will be reduced each year to reach a final rate of 10 percent in 1985. There is a 100 percent consumption tax if an automobile's CIF value plus duty, plus a 20 percent VAT exceeds \$12,000. This consumption tax only applies to the amount over \$12,000. There are no quantitative restrictions. GM assembles automobiles and trucks. Citroen, Fiat and Peugeot-Renault assemble automobiles.

Egypt: Local content regulations vary by contract with each assembler. Fiat has a joint venture for automobiles with 30 percent to 40 percent local content required and AMC jeeps are assembled with a 15-20 percent local content. There are no export requirements. Import duties vary from 85 percent to 200 percent depending on engine size and number of cylinders. Individuals are allowed to import only one car every two years and the importation of right hand drive cars is forbidden. Payment of import duties must be made in hard currency.

Ghana: There are no local content regulations or export requirements in Ghana. A purchase tax which varies from 5 percent to 100 percent based on the car's value encourages local production. Commercial vehicles assembled in Ghana do not pay this tax. Under the vehicle standardization policy in effect since October 3, 1979, only vehicles - passenger cars, pick-ups, cross country vehicles, and buses - manufactured by approved manufacturers may be imported. The list includes Peugeot, Datsun, Volkswagen, Renault, Mazda, and Mack Truck. Cars for diplomats and Ghanaian officials are exempt from this requirement. Renault and Toyo Roko assemble cars. Nissan, Toyota, and Vauxhall assemble cars and buses. British Leyland, Ford, and Mercedes-Benz assemble buses and trucks. Chrysler, Deutz, Hino, M.A.N., and Mack assemble trucks. Neoplan assembles buses. Import tariffs range from 15 to 75 percent.

Greece: The value added component requirement imposed on local motor vehicle assembly is a minimum of 25 percent without mandatory upward escalation. Tariffs on imports from non-EEC countries range from 10 to 20.7 percent. In November 1979, a voluntary system designed to restrain imports was adopted providing for a reduction of 20 percent in car imports. Bus imports require an import license. The issuance of licenses is, at times, delayed or withheld. A pre-import cash deposit of 56 percent for buses and 28 percent for passenger automobiles is also required. The deposits are retained by the government for two months.

India: Local content regulations exist only for the domestic Indian automobile producers. There is no investment by foreign automobile manufacturers. Exports are encouraged by cash subsidies and import replenishment licenses. Import tariffs on other vehicles vary from 100-140 percent depending on type and axle weight. Import licenses are generally not issued for passenger cars and those for commercial vehicles are issued on a limited basis.

Indonesia: Progressively stringent local content regulations are being instituted in the motor vehicle industry although lags in component manufacture are slowing implementation. While the Government hoped to achieve full local manufacture of components for the most popular types of passenger and light commercial vehicles by 1984, it has extended this deadline until an unspecified date for components not yet manufactured in Indonesia or not manufactured in sufficient quantity. Presently all passenger vehicles, and all commercial vehicles imported into Java and Sumatra, are to be imported completely knocked-down. Import tariffs on built-up passenger vehicles range from 30 percent plus a 10 percent sales tax on jeeps to 200 percent plus a 20 percent sales tax on passenger cars. There are no export requirements or quantitative restrictions. Local assembly plants produce the following makes of passenger cars: Suzuki, Datsun, Hino, Landrover, Holden, Isuzu, Volkswagen, Mercedes, Mitsubishi, Renault, Peugeot, Alfa Romeo, BMW, Dodge, Fiat, Tata, Steyr, Citroen, Berliet, Moskvitch, Suharu, Volvo, Ford, Toyota, Honda, Chevrolet, Bedford, Morris, Daihatsu, and Mercedes-Benz.

Israel: There are no local content or export requirements maintained by Israel. Import duties are from 40 percent plus 2.50 shekels per kilogram for automobiles with engines 1,800 cc and less and 52 percent plus 1.25 shekels per kilogram for cars with engines 1,801 cc and larger. In addition, there is a purchase tax based on engine size which ranges from 85 percent to 150 percent plus a 5-7 percent import price uplift. These are assessed on a cascade basis. There are quantitative requirements attached to import licenses which are only granted to approved importers. Three Israeli firms assemble Ford cars: Ford, Dodge, Reo and Mack Trucks and AMC Jeeps. One local firm produces its own brand of trucks and passenger cars.

Kenya: No local content regulations exist but components manufactured locally may not be imported. Commercial and certain other vehicles are permitted to be imported only completely knocked-down. There are no export requirements. An import license accompanied by a 100 percent refundable prior import deposit is required. Import duties (CIF) on assembled passenger cars (other than public service-type vehicles) range from 40 percent for cars with an engine capacity not exceeding 1,200 cc, 75 percent for cars with a 1,751-2,000 cc engine capacity, to 150 percent with an engine capacity exceeding 2,250 cc. The duty on non-public service passenger cars, unassembled, for assembly into complete vehicles by an authorized assembler is 25 percent. Importers have been directed to seek 90-180 days credit overseas. The four authorized assemblers are Leyland Kenya Limited, General Motors Limited, Associated Vehicle Assemblers Limited and Fiat Kenya Limited. GM assembles Isuzu and Bedford trucks, British Leyland assembles trucks, Landrovers, Volkswagen microbuses and Mitsubishi light buses. Associated Vehicles assembles Datsun cars and buses, Peugeot trucks, Toyota trucks, Ford trucks, and Volvo trucks.

Import protection is accorded to local producers of the following automotive components: sealers, adhesives, batteries, tires, tubes, paints, flat glass, canvas, soft trim, upholstery, insulation, radiators, exhaust systems, leaf springs, spare wheel carriers, seat frames, wiring harnesses and brake linings.

Kuwait: There are no general restrictions on vehicle imports. A 4 percent ad valorem import tariff is in effect.

Malaysia: Under the ASEAN Automotive Federation (AAF) scheme for complementary ASEAN production, Malaysia will produce timing chains for cars; and spokes, nipples, and roller chains for motorcycles. Trade preferences by other ASEAN members would be granted these parts. Probably no further accreditation of additional capacity for the same product would be allowed until the ASEAN Committee on Industry, Minerals, and Energy determined that the market had expanded sufficiently to warrant further accreditation of similar projects.

Mexico: Local content regulations requiring 70 percent for passenger cars and 80 percent for trucks exist with a planned 5 percentage point increase of both in 1981. Imports of components are required to be offset by exports. Vehicle import duties range from 75 to 100 percent ad valorem. Vehicle imports are not allowed with the exception of a special customs zone near the U.S. border. Exceptions are usually only made if there is a shortfall in domestic supply. Chrysler, Volkswagen, Ford, GM and Nissan manufacture/assemble cars and trucks. American Motors produces cars and jeeps. Renault produces cars.

Morocco: Local content regulations requiring 40-50 percent levels are in effect. All vehicle imports are restricted. All assembly operations are in part or totally Moroccan-owned. Through this system, Fiat, Opel, Simca, and Renault automobiles are assembled in Morocco. Berliet, Volvo, Bedford, Ford, DAF, Landrover, and Jeep utility, and industrial vehicles are assembled.

Nigeria: A 30 percent local content regulation is imposed after three years of assembly. Vehicle imports are restricted by import licenses and passenger vehicles with engines over 2,500 cc are prohibited. Passenger vehicles with smaller engines face duties of 50 to 250 percent. Volkswagen manufactures/assembles cars and minibuses. Peugeot manufactures/assembles cars. British Leyland manufactures/assembles trucks and Landrovers. Steyr manufactures/assembles trucks. Mercedes and Fiat will shortly begin to manufacture trucks and Nissan will start manufacturing automobiles.

Pakistan: There are no local content regulations as such but current use of locally produced components is encouraged by regulation and is reported to range from 25-60 percent of value depending on vehicle type. Projected use of local products is reported to be about 80 percent by 1985. Exports and imports are controlled. Commercial vehicle imports are prohibited. Imports of built up passenger vehicles are dutiable (75-150 percent ad valorem) depending on engine size. A state-owned corporation has a monopoly over the automobile industry. It has assembly arrangements with AMC (jeeps), Chrysler (trucks), GM (Isuzu trucks) Vauxhall (trucks and buses), Ford (minibuses), Suzuki (vans and pickups), Nissan (trucks), Toyo Kogyo (buses), Sumitomo (trucks), and Hino (trucks). This monopoly (PACO) controls the import of both completely knocked down and completely built up vehicles. Completely built up imports are limited to those being brought in by returning expatriate Pakistanis (6 months or more continuous stay overseas).

Philippines: The current local content regulations requirement is 62.5 percent. The import tariff rate varies from 30-72 percent for completely knocked down vehicles to 100 percent for assembled vehicles. There are three local automobile companies. One assembles Mitsubishi products and one assembles Volkswagens. The other assembles its own vehicles (the Tamaraw utility vehicle, a mini crusier military vehicle and various trucks). Ford has a body stamping plant and automobile assembly facilities. GM assembles cars and trucks, and manufactures transmissions.

Portugal: Local content regulations for vehicles assembled in Portugal are 22 percent in 1980 declining to zero in 1985. Current import quotas for completely knocked down and completely built up vehicles are scheduled to end in January 1985. Import duties for non-EC/EFTA source vehicles is approximately 4.5 U.S. cents per kilogram. Import quotas are scheduled to be phased out by 1985. GM, Ford, Renault, Citroen, Alfa Romeo, British Leyland, Peugeot, Talbot, Audi, BMW, Mercedes, Volkswagen, Toyota, Nissan, Mazda, Subaru, Honda, and Daihatsu have assembly operations in Portugal.

Saudi Arabia: There are no local content regulations or import restrictions. The import tariff is 3 percent of CIF value. Mercedes assembles trucks. A Saudi firm assembles buses using American-made chassis. The Saudi Arabian Government provides a subsidy to the National Company for Car Manufacturing, located in Jidda, in the form of an interest-free loan.

Singapore: There are no local content regulations or quantitative restrictions on vehicle imports. Import tariffs are 45 percent. There is a 150 percent additional registration fee, a \$1,000 base registration fee for private and rental cars (\$5,000 on company cars), and scaled road taxes. Mercedes, Ford, British Leyland and Volvo produce cars. Nissan produces vans.

South Africa: Passenger cars must contain 66 percent by weight local content. Starting in 1980, the local content regulations have been extended to light goods vehicles (approximately up to 2,800 pounds). The 1980 and 1981 requirements for these are 50 percent by weight. By 1982 these too must meet the requirement of 66 percent. Import licenses are required, but are granted to meet the full and reasonable requirements of components and subassemblies for passenger and light goods vehicles covered by a currently valid manufacturing program approved by the Minister of Economics. There are no export requirements. Fully manufactured cars may be imported without a license, but the duty is 100 percent. Excise tax for cars with less than 66 percent local content is 95 percent. For those with 66 percent local content, the excise duty per Rand value is a maximum of 13 Rand cents. There are excise duty decreases for percentages of local content achieved beyond the minimum 66 percent.

Nissan, Fiat, Ford, GM, British Leyland, Mercedes, Volkswagen, Sigma, and UDCC produce automobiles and trucks. Alfa Romeo, BMW, and Peugeot produce autos. Toyota South Africa produces its own brand of autos and trucks and assembles Renault autos and trucks.

South Korea: There are four auto manufacturing companies in Korea - Kia, Hyundai, Saehan, and Shin Jin. The first three companies also manufacture buses, and two - Hyundai and Saehan - manufacture trucks.

The tariff rate for automobiles is 80 percent.

Automobiles and auto components are on the "Restricted List", meaning prior approval of the Auto Trade Association is required before an import license can be issued. With regard to 100 percent foreign-made cars, the Association will issue import licenses depending on the "supply and demand situation" in Korea; however, such licenses are rarely approved.

Local content requirements are set by the Korean government for domestic manufacture and assembly of all cars, trucks, and buses. Those for cars, effective January 1, 1980, are as follows:

<u>Maker</u>	<u>Type of vehicle</u>	<u>Local content requirement (Percent)</u>
Kia	Brisa	94
-	Brisa II	92
-	Fiat 132	62
-	Peugeot 404	20
Hyundai	Pony	93
-	Cortina Mark IV	62
-	Granada	21
Saehan (Cars)	Gemini	88
Shin Jin	Rekord	65
-	Jeep (J-5)	73
	Diesel Jeep	91

There are no specific export requirements per se for Korean auto manufacturers, although there are export targets and some moral pressure to meet those targets. According to the Korean auto industry association, however, there is one stipulation imposed on Hyundai and Kia: In order to obtain permission to import one knocked down Ford Granada or Peugeot 604 for local assembly and sale, the companies must export five domestically manufactured passenger cars.

Taiwan: Current local content requirement for vehicles is as follows: automobiles (including sedans, wagons and jeeps of 3.5 tons and below): 70 percent with proviso that manufacturer must produce one of the following components: (1) engine, (2) piston, connecting rod, and piston pin, (3) crankshaft, (4) axle transmission, (5) spring, (6) cylinder valve. Light motor vehicles (including truck, pick-up, and station wagon of 3.5 tons and below): 70 percent with proviso similar to sedans. Import duties on automobiles are from 55 percent to 75 percent depending on type.

Tanzania: No local content regulations exist. Imports are limited almost entirely to the government. Import tariffs vary from 40-100 percent depending on engine size. Except for trucks, the only automobile assembly operation is by British Leyland.

Thailand: Local content regulations requiring 35 percent local sourcing by August 1980 increasing annually to 50 percent in 1983 are in effect. Imports of built up passenger cars are prohibited. Duties of 150 percent are levied together with a 40 percent business tax on imported automobiles. Toyota, Nissan, Isuzu, and Ford produce cars, trucks and buses. Hino produces trucks and buses. Fiat, British Leyland and Volvo produce cars and buses. Mitsubishi, Mazda, Daihatsu, Subaru, GM, Volkswagen, Peugeot, Renault, BMW, Alfa Romeo, Citroen, Lancia, and Audi produce cars.

Turkey: Local content regulations are contained in the "Assembly Industry Regulation" enforced by the Turkish Ministry of Industry and Technology. Locally produced items are not permitted to be imported. Therefore, importation of automobiles is not permitted except under special circumstances. Import tariffs are 175 percent. Automobiles are produced under license from Ford (the Reliant Motor Company of U.K.), Fiat and Renault.

Uruguay: Local content regulations are in effect requiring local content of 25-32 percent of vehicle weight. Imports of automobiles are prohibited. Export regulations require the export of 40-105 percent (depending on vehicle type) of the import value of the completely knocked down kits the assembler imports. Peugeot-Citroen, Renault, Volkswagen, BMW, Ford, GM, and Fiat assemble automobiles in Uruguay.

Yugoslavia: Local content regulations require 50 percent local content to avoid imposition of higher sales taxes. Imports from other countries are only permitted by authorized dealers. Import tax on vehicles is 17 percent ad valorem and the duty is 25 percent. Authorized dealers are required to export goods totaling 30 percent of the value of each imported automobile. Quotas are maintained on imports from the USSR, East Germany, and Czechoslovakia and may be paid for in local currency. Other imports must be paid for in hard currency. Fiats, Ladas, Volkswagens, Audis, and Citroens are manufactured locally.

APPENDIX G

1983 WORLD AUTOMOBILE PRODUCTION BY THE THIRTY LARGEST MANUFACTURERS

## Worldwide production by the 30 largest automakers, 1/ 1983

Company	: 1983 production 2/ : : (1,000 units) :	: Share of 1983 : world production 3/ : : (Percent) :
General Motors (U.S.)-----:	7,769 :	23.9
Ford (U.S.)-----:	4,934 :	15.2
Toyota (Japan)-----:	2,381 :	7.3
Renault (France)-----:	1,923 :	5.9
Nissan (Japan)-----:	1,859 :	5.7
Volkswagen-Audi (West Germany)-----:	1,802 :	5.5
PSA (France)-----:	1,608 :	4.9
Fiat (Italy)-----:	1,231 :	3.8
Chrysler (U.S.)-----:	1,008 :	3.1
Honda (Japan)-----:	913 :	2.8
Mazda (Japan)-----:	862 :	2.7
VAZ (U.S.S.R.)-----:	780 :	2.4
Mitsubishi (Japan)-----:	542 :	1.6
Daimler-Benz (West Germany)-----:	483 :	1.5
BL (Great Britain)-----:	440 :	1.4
BMW (West Germany)-----:	408 :	1.3
Volvo (Sweden)-----:	365 :	1.1
FSO (Poland)-----:	251 :	0.8
American Motors (U.S.)-----:	232 :	0.7
Fuji (Japan)-----:	230 :	0.7
SEAT (Spain)-----:	223 :	0.7
Alfa Romeo (Italy)-----:	207 :	0.6
AZLK/ZIMA (U.S.S.R.)-----:	200 :	0.6
Trabant/Wartburg (East Germany)-----:	188 :	0.6
Daihatsu (Japan)-----:	185 :	0.6
Skoda AZNP (Czechoslovakia)-----:	178 :	0.5
Zastava (Yugoslavia)-----:	145 :	0.4
ZAZ (U.S.S.R.)-----:	145 :	0.4
Suzuki (Japan)-----:	138 :	0.4
GAZ (U.S.S.R.)-----:	125 :	0.4
Total-----:	31,737 :	97.5
-----:	-----:	-----:

1/ Parent country in parenthesis.

2/ Includes operations of majority-owned subsidiaries, hence General Motors includes GM de Mexico, do Brasil, GM-Holden, GM Europe (Opel, Vauxhall), etc.

3/ Estimated to be 32.5 million passenger cars.

Source: Automotive News, Ward's Automotive Reports, Motor Vehicle Manufacturers Association, various publications.

**APPENDIX H**

**TRADE DATA FOR MOTOR-VEHICLE  
PARTS AND ACCESSORIES**

Trade data on U.S. imports and exports for motor-vehicle parts and accessories 1/

Commodity area	1982 (1)	1983 (2)	1984 (3)	Percent Change from (2) to (3) (4)
<b>Motor vehicle parts and accessories</b>	:	:	:	:
Imports:				
Value (1,000 dollars)-----	9,110,446	12,597,206	16,980,573	35
Exports:				
Value (1,000 dollars)-----	10,641,744	11,045,087	13,836,159	25
<b>Bodies and chassis for motor vehicles</b>	:	:	:	
Imports:				
Quantity (units)-----	45,094	67,600	60,353	-11
Value (1,000 dollars)-----	497,275	752,689	894,994	19
Exports:				
Quantity (units)-----	69,158	72,039	78,801	9
Value (1,000 dollars)-----	349,975	465,057	544,974	17
<b>Motor vehicle parts provided for in tsus items 692.32 and 692.33</b>	:	:	:	
Imports:				
Value (1,000 dollars)-----	3,550,177	4,918,135	6,968,435	42
Exports:				
Value (1,000 dollars)-----	6,663,116	6,752,689	8,695,803	29
<b>Motor vehicle body stampings, bumpers, and wheels</b>	:	:	:	
Imports:				
Value (1,000 dollars)-----	376,946	510,707	723,997	42
Exports:				
Value (1,000 dollars)-----	1,164,680	1,251,657	1,599,413	28
<b>Motor vehicle hubcaps and wheel covers, radiators, mufflers, and tailpipes</b>	:	:	:	
Imports:				
Value (1,000 dollars)-----	187,707	247,977	303,319	22
Exports:				
Value (1,000 dollars)-----	96,106	108,073	150,678	39
<b>Motor vehicle brakes and parts thereof, transmissions, and shock absorbers</b>	:	:	:	
Imports:				
Value (1,000 dollars)-----	843,324	1,178,240	1,604,611	36
Exports:				
Value (1,000 dollars)-----	1,314,181	1,353,376	1,681,890	24
<b>Other motor vehicle parts, n.s.p.f., provided for in tsus items 692.32 and 692.33</b>	:	:	:	
Imports:				
Value (1,000 dollars)-----	2,142,198	2,981,209	4,336,507	45
Exports:				
Value (1,000 dollars)-----	4,088,147	4,039,581	5,263,821	30

1/ Import values are based on Customs value; export values are based on f.a.s. value, U.S. port of export.

2/ Separate data on U.S. exports are not collected in terms of items covered by the United States-Canadian Automotive Products Agreement (APTA).

## Trade data on U.S. imports and exports for motor-vehicle parts and accessories

Commodity area	1982	1983	1984	Percent
				(4)
Motor vehicle engines and parts				
Imports:				
Value (1,000 dollars)-----	1,666,896	2,441,106	3,261,363	34
Exports:				
Value (1,000 dollars)-----	1,968,593	2,093,462	2,441,915	17
Radios, tape players, tape recorders, combinations, and parts thereof				
Imports:				
Value (1,000 dollars)-----	747,323	1,105,244	1,257,428	14
Exports:				
Value (1,000 dollars)-----	83,574	84,639	105,633	25
Electrical starting and ignition equipment and parts thereof				
Imports:				
Value (1,000 dollars)-----	375,096	482,248	690,249	43
Exports:				
Value (1,000 dollars)-----	458,790	514,626	670,768	30
Electric lighting and signaling equipment and parts thereof				
Imports:				
Value (1,000 dollars)-----	59,839	79,017	101,549	29
Exports:				
Value (1,000 dollars)-----	106,011	122,130	151,569	24
Miscellaneous electrical articles and parts thereof				
Imports:				
Value (1,000 dollars)-----	61,197	82,697	114,934	39
Exports:				
Value (1,000 dollars)-----	19,469	20,301	25,657	26
Pneumatic tires and tubes				
Imports:				
Quantity (units)-----	27,212,540	33,927,364	43,710,100	29
Value (1,000 dollars)-----	1,055,607	1,190,066	1,572,247	32
Exports:				
Quantity (units)-----	6,874,901	5,788,409	7,425,812	28
Value (1,000 dollars)-----	249,391	199,346	258,846	30
Ball and roller bearings and parts thereof				
Imports:				
Value (1,000 dollars)-----	46,569	49,687	69,950	41
Exports:				
Value (1,000 dollars)-----	13,636	10,997	14,268	30

Trade data on U.S. imports and exports for motor-vehicle parts and accessories

Commodity area	1982 (1)	1983 (2)	1984 (3)	Percent Change from (2) to (3) (4)	
Glass products					
Imports:					
Value (1,000 dollars)-----	106,693	135,543	190,370		40
Exports:					
Value (1,000 dollars)-----	125,879	129,403	161,846		25
Springs and leaves for springs					
Imports:					
Value (1,000 dollars)-----	118,969	155,014	222,530		44
Exports:					
Value (1,000 dollars)-----	43,588	43,409	54,149		25
Pumps for liquids and parts thereof					
Imports:					
Value (1,000 dollars)-----	92,424	101,042	152,826		51
Exports:					
Value (1,000 dollars)-----	63,894	52,394	67,064		28
Air pumps, vacuum pumps, air or gas compressors, fans and blowers and parts thereof					
Imports:					
Value (1,000 dollars)-----	84,937	110,021	162,543		48
Exports:					
Value (1,000 dollars)-----	7,010	6,349	8,840		39
Air conditioning machines, refrigerating equipment, and parts thereof					
Imports:					
Value (1,000 dollars)-----	17,140	92,957	134,547		45
Exports:					
Value (1,000 dollars)-----	268,899	328,705	385,215		17
Furniture designed for automotive use					
Imports:					
Value (1,000 dollars)-----	241,601	362,064	481,202		33
Exports:					
Value (1,000 dollars)-----	50,259	44,639	66,913		50
Jacks and parts thereof					
Imports:					
Value (1,000 dollars)-----	71,087	95,026	88,779		-7
Exports:					
Value (1,000 dollars)-----	18,250	12,000	14,345		20
Measuring, testing, and controlling instruments and parts thereof					
Imports:					
Value (1,000 dollars)-----	54,258	78,811	114,986		46
Exports:					
Value (1,000 dollars)-----	1,917	1,901	1,960		3

Trade data on U.S. imports and exports for motor-vehicle parts and accessories

Commodity area	1982	1983	1984	Percent
				Change from (2) to (3)
	(1)	(2)	(3)	(4)
Floor coverings				
Imports:				
Value (1,000 dollars)-----	8,786	15,050	25,396	69
Exports:				
Value (1,000 dollars)-----	28,791	29,129	28,698	-1
Miscellaneous automotive parts and accessories, n.s.p.f.				
Imports:				
Value (1,000 dollars)-----	254,564	350,780	476,735	36
Exports:				
Value (1,000 dollars)-----	120,693	133,904	137,686	3
Motor vehicle parts and accessories-apt				
Imports:				
Value (1,000 dollars)-----	3,720,170	5,681,972	7,445,851	31
Bodies and chassis for motor vehicles				
Imports:				
Quantity (units)-----	20,511	49,293	32,388	-34
Value (1,000 dollars)-----	329,064	590,642	544,491	-8
Motor vehicle parts provided for in tsus item 692.33				
Imports:				
Value (1,000 dollars)-----	1,825,758	2,791,045	3,780,774	35
Motor vehicle body stampings, bumpers, and wheels				
Imports:				
Value (1,000 dollars)-----	136,268	214,427	320,362	49
Motor vehicle hubcaps and wheel covers, radiators, mufflers, and tailpipes				
Imports:				
Value (1,000 dollars)-----	78,818	108,749	132,984	22
Motor vehicle brakes and parts thereof, transmissions, and shock absorbers				
Imports:				
Value (1,000 dollars)-----	378,814	625,006	877,685	40
Other motor vehicle parts, n.s.p.f., provided for in tsus item 692.33				
Imports:				
Value (1,000 dollars)-----	1,231,857	1,842,861	2,449,742	33
Motor vehicle engines and parts				
Imports:				
Value (1,000 dollars)-----	786,030	1,209,953	1,642,138	36

Trade data on U.S. imports and exports for motor-vehicle parts and accessories

Commodity area	1982	1983	1984	Percent Change from (2) to (3)			
				(1)	(2)	(3)	(4)
Radios, tape players, tape recorders, combinations, and parts thereof	:	:	:	:	:	:	:
Imports:							
Value (1,000 dollars)-----	32,685	64,722	96,805				50
Electrical starting and ignition equipment and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	61,564	52,501	73,067				39
Electric lighting and signaling equipment and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	17,368	29,135	36,119				24
Miscellaneous electrical articles and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	37,267	50,238	66,289				32
Ball and roller bearings and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	24,926	35,036	38,083				9
Glass products	:	:	:				
Imports:							
Value (1,000 dollars)-----	43,711	44,965	61,051				36
Springs and leaves for springs	:	:	:				
Imports:							
Value (1,000 dollars)-----	77,242	101,927	138,289				36
Pumps for liquids and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	27,202	37,412	47,160				26
Air pumps, vacuum pumps, air or gas compressors, fans and blowers and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	14,454	25,537	39,604				55
Air conditioning machines, refrigerating equipment, and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	3,358	5,558	8,227				48
Furniture designed for automotive use	:	:	:				
Imports:							
Value (1,000 dollars)-----	185,369	268,951	379,538				41
Jacks and parts thereof	:	:	:				
Imports:							
Value (1,000 dollars)-----	12,710	19,233	20,854				8

Trade data on U.S. imports and exports for motor-vehicle parts and accessories

Commodity area	1982	1983	1984	Percent Change from (2) to (3) (4)			
				(1)	(2)	(3)	(4)
Measuring, testing, and controlling instruments and parts thereof	:	:	:	:	:	:	:
Imports:	:	:	:	:	:	:	:
Value (1,000 dollars)-----	30,500	51,053	71,595				40
Floor coverings	:	:	:	:	:	:	:
Imports:	:	:	:	:	:	:	:
Value (1,000 dollars)-----	8,786	15,050	25,396				69
Miscellaneous automotive parts and accessories, n.s.p.f.	:	:	:	:	:	:	:
Imports:	:	:	:	:	:	:	:
Value (1,000 dollars)-----	202,167	289,007	376,362				30



**APPENDIX I**

**METHODOLOGY USED TO DETERMINE THE EFFECTS OF THE VRA**

### Methodology Used to Determine the Effects of the VRA

This appendix describes the method used to estimate the sales and price levels for Japanese and domestic autos that would have prevailed in the absence of the VRA and to estimate the consumer costs and aggregate welfare and employment effects of the import restriction. Little attempt was made to perform original econometric research. Instead, the findings of a variety of other studies of the auto industry were used to supply the needed econometric estimates.

#### Sales of Japanese autos

Estimates of sales of Japanese imports that would have occurred in the absence of the VRA for the years 1981-84 were based on the past trend in the growth of the Japanese share of the U.S. market. This trend was estimated from Japanese market share data for 1967-80. The overall fit of the trend equation was very close: the  $R^2$  value was .97. Estimates of what the Japanese market share would have been without the VRA were calculated by increasing the 1980 base value for each of the years 1981-84 using the estimated (logarithmic) time trend. The estimates of sales of Japanese autos were then computed by multiplying the estimated share each year by total U.S. sales of autos in that year.

#### Prices of Japanese autos

The price elasticity of the U.S. import demand for Japanese autos is a key determinant of the effect of the VRA on prices of imports from Japan. Although evidence indicates that this elasticity is fairly high, actual estimates have varied widely. A comprehensive econometric study of the auto industry prepared by Eric J. Toder of Charles River Associates in 1978 entitled Trade Policy and the U.S. Automobile Industry developed estimates of the elasticity of substitution between all imports and competing domestic output under a variety of model specifications using annual data for the 1960-74 period. In most cases these estimated substitution elasticities ranged between -1.5 and -2.5. The import demand elasticity is lower than the substitution elasticity. However, the elasticity of demand for imports from Japan should be higher than the overall import demand elasticity.

More recent research has produced divergent results. In a 1983 study, Hiraki and Yoshi Tsurumi concluded that the price elasticity of demand for Japanese autos was very high during the early 1970's, when these imports were still gaining acceptance in the U.S. market, but that it declined significantly from the middle 1970's onward as nonprice factors such as reliability, workmanship, and ease of maintenance exerted an increasing influence on demand. <sup>1/</sup> Using quarterly data from 1971 through the first quarter of 1980, they estimated an average value of -2.7 for the early period, and an average of -.9 for the years from 1978 onward. Two economists with the Federal Reserve Bank of Cleveland estimated this price elasticity to be -1.3 over the period 1977-82. <sup>2/</sup>

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<sup>1/</sup> Hiroki and Yoshi Tsurumi, "U.S.-Japan Automobile Trade: A Bayesian Test of a Product Life Cycle," Journal of Econometrics, 1983, pp. 193-210.

<sup>2/</sup> Michael F. Bryan and Owen F. Humpage, "Voluntary Export Restraints: The Cost of Building Walls" Economic Review, summer 1984, pp. 17-35.

DRI believes that the demand for Japanese autos is much more price sensitive than either of these recent studies have indicated. Their conclusions are not based upon regression results, since, in their view a meaningful econometric analysis of the demand for Japanese imports is not possible because of the complications posed by the Voluntary Restraint Agreements in effect during much of the period since 1978. <sup>1/</sup> By observing the results of marketing campaigns aimed at promoting sales of Japanese autos in the United States, they have concluded that the share elasticity for subcompacts, which account for the bulk of all Japanese sales, is about -5 and that the share elasticity for compacts is about -3. Again, these share elasticities are higher than the corresponding import demand elasticities.

The DRI elasticity estimates do not appear to be appropriate for use in determining the economic effects of the VRA. For one thing, their segmented study of the auto market implies that the cross elasticities of demand between different size classes of autos is zero, an assumption that does not seem realistic. If the share elasticity for subcompacts is -5, this indicates that a large increase in the price of Japanese subcompacts would induce buyers to significantly increase their purchases of domestic subcompacts, but it does not allow for the possibility that some buyers might switch to Japanese or domestic compacts or even intermediates.

In addition, DRI's high elasticities are not consistent with their estimates of Japanese price reduction potential, which was discussed above. If the retail price reduction potential was 30 percent in 1984, as their estimates show, this suggests that the price could have been as much as 30 percent lower last year if the VRA had not been in effect. If DRI's high share elasticities apply to most Japanese autos, this suggests that in the absence of the VRA, Japan could have captured as much as 40 percent or more of the U.S. auto market in 1984 with free trade. If this is true, all of the economic effects of the VRA, including the consumer costs, would have been far greater than the staff estimates have shown. However, as discussed earlier, the decline in the real price of gasoline between 1981 and 1984, and the introduction of a wide range of new domestic models during this period, make it doubtful that the Japanese share of the U.S. market could have increased that rapidly during those years.

In view of the broad range of estimates of the price elasticity of demand for Japanese autos that have been developed in other studies, it is difficult to choose a single representative estimate. For the purpose of this investigation, the staff assumed that the elasticity is -2. This value is higher than the actual estimates of this elasticity, but it appears to be near the middle of the actual estimates and those implied by estimates of substitution or share elasticities. This assumed value is also consistent with other evidence that the demand for Japanese autos is fairly price sensitive.

The effect of the VRA on prices of Japanese autos in each year was estimated as the amount of the price increase that would have been needed to reduce the sales of Japanese imports from the estimated free-market level to

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<sup>1/</sup> According to DRI, the Japanese instituted a Voluntary Restraint Agreement in 1978, though it was not widely publicized. Trade statistics do show that Japanese imports declined in that year. This import restriction was relaxed in 1979 and imports rose sharply.

the actual level. During 1984, free-market sales of Japanese autos were estimated to be 2.95 million units, but actual sales totaled only 1.95 million units. Thus, the VRA resulted in a 34-percent decline in sales from their free-market level. If the price elasticity of demand for Japanese autos in the United States is -2, a 17-percent increase in price would have been required to reduce sales of these imports by 34 percent. The actual average transaction price for all Japanese autos sold in the United States in 1984 was \$9,300. This price is 17 percent greater than \$7,962, the price that we estimate would have prevailed absent the VRA.

A potential problem with this methodology is that it does not allow for the possibility that the VRA resulted in a change in the mix of Japanese autos sold in the United States during 1981-84. The evidence in the report does show that sales of larger Japanese autos equipped with more options increased during the VRA period, and sales of smaller, stripped-down models declined. If the VRA induced Japanese suppliers to upgrade their product mix during the VRA period in order to earn larger profits on each sale in the United States, then the estimates of the price increase on Japanese cars resulting from the VRA is overstated. However, the effect of this upgrading on our estimates is fairly small. Instead of 17 percent of \$9,300, the estimate of the effect of the VRA would be 17 percent of a smaller number, namely the price of auto imports from Japan absent any upgrading done in response to the VRA, but not absent any upgrading that would have occurred anyway. There is evidence that the shift toward larger, more expensive Japanese cars would have occurred even if a free market had existed during this period. Sales of larger domestic models, loaded with options also increased during 1981-84 and sales of smaller, cheaper cars declined.

#### Sales of domestic autos

Estimates of the effects of the import restriction on the demand for Japanese autos are based on the hypothesis that the VRA resulted in increased sales of domestic autos and of imports from sources other than Japan but that these increases were smaller than the decline in sales of Japanese autos. This assumption is reasonable, since potential buyers of Japanese cars who were discouraged by the quota had the option of either buying a used car or keeping their existing car instead of buying a new domestic make or an import from Europe. Ideally, these increases in sales could have been calculated from the cross-elasticity of demand for imports. However, good regression estimates of this cross-elasticity are not available. Therefore, the estimates were performed using a methodology developed by Rousslang and Parker. 1/

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1/ In the Spring 1985 issue of the Journal of Policy Modeling, Robert Feenstra argued that most of the increase in the price of Japanese cars between 1981 and 1984 was due to quality improvements. However, he also noted that the yen depreciated significantly during this period. Therefore, he argued that the price of Japanese autos should have declined during 1981-84 despite the quality improvements. Donald Rousslang and Stephen Parker, "Cross-Price Elasticities of U.S. Import Demand," The Review of Economics and Statistics, August 1984, pp. 518-523.

### Prices of domestic autos

Whether the VRA resulted in a higher price of domestic autos depends fundamentally upon the competitive structure of the U.S. industry. If perfect competition prevails, an increase in demand for U.S. autos caused by the VRA would only result in a higher price if the domestic supply curve sloped upward. If unit production costs are constant, then the supply curve is perfectly elastic and a rightward shift of the demand curve would have no effect on the U.S. price. But if the industry is imperfectly competitive, an increase in demand would lead to a higher price whether unit costs are constant or not. With an increase in demand, firms would equate marginal cost to marginal revenue at a higher price. Whereas no attempt has been made in this report to characterize the nature of costs or competition within the auto industry, empirical evidence does indicate that a reduction in the import share of the U.S. market would result in higher domestic auto prices.

The effect of the VRA on domestic prices of autos was estimated by comparing the actual foreign share of the U.S. market with the estimated share (using the method described above) and then applying the regression results of the Charles Rivers study. <sup>1/</sup> These results show that a 4-percent reduction in the import share of the market results in a 1-percent increase in the domestic price. Thus, the price effects on domestic autos were determined for each year by calculating the percentage reductions in the total import share of the U.S. market that resulted from the VRA and then dividing by four to get the percentage increase in domestic prices.

### Employment, consumer cost, and net welfare

Estimates of the effect of the VRA on employment in the auto industry were based on the assumption that an increase in output of 14 autos during a given year results in the creation of one additional job in the auto industry. <sup>2/</sup> It was further assumed that annual increases in sales resulted in equivalent increases in production.

Separate consumer costs of the VRA were calculated for the price increases on Japanese autos and on U.S. autos. Consumer costs from the increase in prices of Japanese autos were computed by first multiplying the increase in the Japanese price by the quantity sold during each year. An additional cost is then added to account for U.S. consumers who were priced out of the market for Japanese autos. This cost is equal to one-half the price increase multiplied by the reduction in sales of Japanese autos caused by the VRA. A similar calculation is used to determine the consumer cost of any increase in the price of domestic output that resulted from the VRA.

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<sup>1/</sup> The log linear regressions that were presented in the Charles River study related a hedonic price index of domestic autos to total costs of U.S. autos and the foreign share of the U.S. market using annual data from 1960 to 1974. The cost and foreign share variables were both consistently significant at the 99-percent confidence level, and the equations were relatively free of auto-correlation. The R<sup>2</sup> value ranged from 0.58 to 0.80.

<sup>2/</sup> This rule of thumb was described in an August 1983 issue brief that was prepared by the Congressional Research Service of the Library of Congress. Robert Crandall seems to have used a similar approach in his recent study of the effects of the VRA that was published in the summer 1984 issue of The Brookings Review.

The net welfare effect of the VRA was calculated by subtracting the net gain caused by the effect of the VRA on the dollar exchange rate. This net gain can be determined from the following three equations. 1/

$$(1) \quad TT_m = V_m [1 - (1+r) [-e_m / (e_m + n_m)]] \\ \times [1 + (1+r) [e_m n_m / (e_m + n_m)]] / 2$$

$$(2) \quad TT_x = V_x [1 - (1+r) [-n_x / (e_x + n_x)]] \\ \times [1 + (1+r) [-e_x n_x / (e_x + n_x)]] / 2$$

$$(3) \quad W = TT_m - TT_x$$

In these expressions  $TT_m$  represents the gains to consumers resulting from the exchange-rate appreciation,  $TT_x$  represents the cost to exporting industries, and  $W$  is the net welfare effect. The aggregate price elasticities of demand and supply for U.S. imports are represented by  $n_m$  and  $e_m$ , respectively, and  $n_x$  and  $e_x$  are the demand and supply elasticities for U.S. exports. The terms  $V_m$  and  $V_x$  represent the aggregate values of U.S. imports and exports and  $r$  is the percentage appreciation of the dollar resulting from the VRA. The value of  $r$  can be approximated by the following equation.

$$(4) \quad r = B / [V_m e_m (n_m - 1) / (e_m + n_m) + \\ V_x n_x (e_x + 1) / (e_x + n_x)]$$

Where  $B$  represents the reduction in the value of U.S. imports caused by the VRA.

The values of  $V$  and  $W$  depend upon the aggregate elasticity estimates, the value of  $B$ , and aggregate U.S. trade flows. A frequently cited study 2/ estimated a value of 6.1 for  $e_m$ , a value of 4.5 for  $e_x$ , a range of values from 1.5 to 2.7 for  $n_x$ , and a range of values from 5.1 to 9.9 for  $n_x$ . The values of  $B$ , which are reported on page 90 in the text, amounted to \$1.9 billion in 1983 and \$3.9 billion in 1984. In 1983 aggregate exports amounted to \$201 billion, and imports reached \$268 billion. In 1984 exports were valued at \$218 billion, and imports were valued at \$338 billion.

Substituting these numbers into the four equations gives estimates of the net gains from the terms of trade effects of \$150 million in 1983 and \$400 million in 1984. These estimates assumed values of 2.1 for  $n_m$  and 7.5 for  $n_x$ . These elasticities represent the medians of the ranges of values reported above.

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1/ These expressions were developed from standard welfare triangles. The rather lengthy derivations are presented in a recent USITC working paper entitled "Calculating the Consumer and Net Welfare Costs of Import Relief," that was prepared by Donald Rousslang and John Suomela.

2/ See John E. Floyd, "The Overvaluation of the Dollar," American Economic Review, vol. 55, 1965, pp. 95-107.

**APPENDIX J**

**POTENTIAL FOR JAPAN TO INCREASE EXPORTS TO  
THE UNITED STATES**

Potential for Japan to increase exports to the United States

Several estimates have been put forward attempting to estimate the potential for Japanese automakers to increase automobile exports to the United States. These estimates have varied to such a degree that a closer look at production capacities and export opportunities is warranted.

Based upon available data concerning capacity utilization rates at various Japanese production sites, the highest unit production rates thus far achieved in any given year by each Japanese automaker, and a reasonable estimate of the potential for Japanese automakers to divert exports from other markets to the United States, Japan could possibly export some 2.64 million passenger cars to the United States at present in the absence of any restraint mechanism. The figure represents an increase of 790,000 units, or 43 percent, over the 1984 quota level of 1.85 million units.

The 2.64 million unit export potential figure was developed from a calculation of maximum Japanese production capacity beyond 1984 production results and an estimate of the potential for export diversion. Maximum production capacity was figured by determining the record production performances of each Japanese company while allowing a 5-percent margin for error. In addition, recent production at two new facilities operated by Suzuki and Isuzu at well below capacity was also incorporated. Thus, maximum capacity was determined to be 7,660,611 units, including 7,445,611 units based on past performance plus the margin for error and 215,000 additional units of capacity. Since Japan produced 7,073,173 cars in 1984, this maximum capacity suggests that 588,000 additional units could have been produced for export. Japan exported a record number of 3,980,619 passenger cars in 1984. It is believed that a maximum of 5 percent of export production could be diverted to the United States, resulting in a potential 199,031 unit increase. Consequently, with an estimated 588,000 units of additional capacity and a possible 200,000 units diverted to the United States from elsewhere, Japanese auto exports could rise by 788,000 units. However, a more reasonable figure would tend to be significantly lower than this maximum. The ability of the Japanese-car U.S.-dealer network to accommodate the increase is questionable, particularly given Daihatsu's lack of any U.S. dealer experience and the present distribution system which was developed to accomodate a lower number of cars. Moreover, Japanese auto companies might find their non-U.S. dealers opposing any diversion of cars from their markets. Because of these factors, total car exports to the U.S. of 2.4-2.5 million units probably would be more reasonable in the absence of restraints.