

INDUSTRY AND ENERGY DEPARTMENT WORKING PAPER  
INDUSTRY SERIES PAPER No. 39

# The U.S. Automotive Aftermarket:

## Opportunities and Constraints for Developing Country Suppliers

June 1990

FILE COPY

**THE U.S. AUTOMOTIVE AFTERMARKET:  
OPPORTUNITIES AND CONSTRAINTS  
FOR DEVELOPING COUNTRY SUPPLIERS**

**Antonia Bowring**

**June 1990**

**Industry Development Division  
Industry and Energy Department  
Policy, Research and External Affairs**

## GLOSSARY

<b>AM</b>	aftermarket
<b>APAA</b>	Automotive Parts and Accessories Association
<b>Big Three</b>	General Motors, Ford and Chrysler
<b>CAD</b>	computer-aided design
<b>car parc</b>	number of registered automobiles
<b>DC</b>	developing country *
<b>CIM</b>	computer-integrated manufacturing
<b>DIY</b>	do-it-yourself (e.g., do it yourself repairs)
<b>FT</b>	Financial Times (London)
<b>GM</b>	General Motors
<b>IAC</b>	industrially advanced country
<b>JAMA</b>	Japanese Automobile Manufacturers Association Inc.
<b>JV</b>	joint venture
<b>MEMA</b>	Motor and Equipment Manufacturers Association
<b>MI</b>	mechanic-installed
<b>MUV</b>	manufacturing unit value
<b>MVMA</b>	Motor Vehicle Manufacturers Association of the United States, Inc.
<b>OE</b>	original equipment
<b>OEM</b>	original equipment manufacturer (e.g., Ford, Renault, Toyota)
<b>OES</b>	original equipment service channel
<b>vehicle fleet</b>	number of vehicles registered (automobiles, light trucks and heavy duty trucks and buses)
<b>WD</b>	warehouse distributor

\* In this report, "developing countries" refers to the newly industrialized countries that export autoparts and accessories to the U.S. (Argentina, Brazil, Mexico, Hong Kong, India, Singapore, South Korea and Taiwan) and other developing countries (e.g., China, Indonesia, Malaysia, the Philippines and Thailand).

# TABLE OF CONTENTS

	Page No.
EXECUTIVE SUMMARY .....	i
I INTRODUCTION .....	1
II TRADE TRENDS IN THE AUTOMOTIVE INDUSTRY .....	4
A. Global Automotive Industry .....	4
B. U.S. Automotive Industry .....	11
III COMPETITIVE TRENDS IN GLOBAL AUTOMOTIVE INDUSTRY AND THEIR IMPLICATIONS .....	15
A. Growing Dominance of the Japanese Automotive Industry .....	15
B. Overcapacity .....	16
C. Product Changes .....	17
D. Changing Manufacturer-Supplier Relations .....	20
IV GLOBALIZATION OF THE AUTOMOTIVE INDUSTRY .....	26
V STRUCTURE OF THE U.S. AFTERMARKET AND DISTRIBUTION CHANNELS	29
A. Overview of the U.S. Aftermarket .....	29
B. Distribution Channels .....	33
VI SURVEY RESULTS: OVERSEAS SOURCING OF REPLACEMENT PARTS AND ACCESSORIES, AND MARKET ENTRY CONSIDERATIONS FOR THE U.S. AFTERMARKET .....	40
A. Reasons for Overseas Sourcing .....	40
B. Reasons for Not Sourcing Overseas .....	41
C. Products and Production Relations .....	43
D. Buyer-Supplier Relationships .....	46
E. Transportation and Distribution .....	48

---

The author would like to thank Hank Alessio of Eastern Consultants Inc., Earl Landesman of A.T. Kearney Inc., Bob Reck of the U.S. Department of Commerce, Nancy Barry (IENIN), and Yannis Karmokokias (IFC) for many helpful comments and advice. Bitu Hadjimichael assisted with the quantitative data. Anna Marie Maranon and Wilson Peiris provided word-processing expertise. Special thanks is extended to Stephanie Gerard for editorial assistance. The views expressed in this paper are those of the author and should not be attributed to the World Bank or its affiliates.

**Table of Contents (Contd.)**

	<b>Page No.</b>
<b>VII MARKET ENTRY: STRATEGIC CONSIDERATIONS FOR DEVELOPING COUNTRY SUPPLIERS .....</b>	<b>50</b>
<b>A. Market Entry Difficulties .....</b>	<b>50</b>
<b>B. Market Entry Channels .....</b>	<b>51</b>
<b>VIII CONCLUSIONS .....</b>	<b>56</b>

**ANNEXES**

- Annex Table A.1: World Passenger Car Fleet--Market Shares**
- Annex Table A.2: Leading Exporters of New Automobiles 1980-1988**
- Annex Table A.3: Automotive Component Exports--Leading Exporters, 1980-1988**
- Annex Table A.4: U.S. Volume Imports of New Automobiles--Major Suppliers, 1980-88**
- Annex Table A.5: U.S. Imports of Automotive Parts--Major Suppliers, 1985-1989**
- Annex Table A.6: Top Five Product Categories of Major Automotive Component Suppliers to the USA, 1989**

- Annex B.1 Improved Fuel Economy**
- Annex B.2 U.S. Clean Air Act Amendments**
- Annex B.3 O.E. Technological Changes and Their Impact on the Aftermarket**

**Annex C Size and Structure of the U.S. Aftermarket**

**Annex D Distribution Channels**

**Annex E Automotive Products Sourced from Developing Country Suppliers**

**Annex F Major Automotive Trade Shows in the U.S.**

**Annex G Automotive Aftermarket Associations in the U.S.**

**Annex H List of Firms Interviewed**

**BIBLIOGRAPHY**

## EXECUTIVE SUMMARY

i. This study provides an overview of the U.S. automotive aftermarket,<sup>1/</sup> which consists primarily of servicing vehicles in operation, installing replacement parts or additional accessories in vehicles after purchase, and purchasing components for do-it-yourself (DIY) work. This report assesses export opportunities and constraints for developing country suppliers in the U.S. aftermarket, with the principal focus on market entry considerations. Trade patterns are outlined, and key competitive trends in the global automotive industry and their implications for the U.S. aftermarket and developing country suppliers are highlighted.

### Automotive Trade Trends in the 1980s

ii. The global passenger car stock totaled approximately 396 million in 1988. In 1989, total world demand<sup>2/</sup> for new passenger cars was 29.2 million, a decrease of 6% from 1988. Total world demand is expected to grow at an average compounded rate of about 2.5% from 1989 to 1997.

iii. Global automobile exports totaled over 13.6 million units in 1988, growing at an average compounded rate of 4% during the 1980s. In 1988 the three largest exporters were Japan, West Germany and France: Japan exported more than 4.4 million units, while West Germany and France exported approximately 2.5 and 2.1 million units respectively. Of the major automobile suppliers, Korea had the most dramatic growth rate during the 1980s (44%).

iv. In 1988, world exports of automotive components totaled over \$57 billion. The U.S. was the largest supplier with exports of over \$11 billion; however, divergent growth rates were experienced by the leading automotive component suppliers in the 1980s.

v. U.S. imports of new automobiles fell to under 4.5 million units in 1988—with Japan supplying almost half—from a high of almost 4.7 million units in 1986. Most major automobile suppliers to the U.S. experienced negative annual compounded growth rates between 1985 to 1988. In the case of Japan, this drop is due primarily to the large increase in the number of Japanese cars now manufactured in the U.S. Korea's exports to the U.S., however, increased by an impressive 186% from 1985 to 1988.<sup>3/</sup>

vi. The U.S. imported almost \$34.5 billion in automotive components in 1989, with the top five countries accounting for 84%. Japan and Canada were the two largest suppliers—each accounting for more than \$10 billion; Mexico was third, at about \$4.3 billion; West Germany and Brazil were the fourth and fifth largest suppliers respectively. However, the major suppliers to the U.S. experienced widely varying annual compounded growth rates between 1985 and 1989. For instance, Japan and Spain saw their automotive component exports increase more than 14.5%, while Canada and France saw their exports drop by 6.3% and 4% respectively.

---

<sup>1/</sup> For the sake of brevity, the U.S. automotive aftermarket is referred to as the U.S. aftermarket throughout this report.

<sup>2/</sup> Excluding demand in socialist economies.

<sup>3/</sup> Preliminary figures for 1989 indicate a 35% drop in Korea's exports to the U.S. from its 1988 levels.

vii. Although U.S. automotive component imports from the ASEAN countries and China were much lower in value, they grew rapidly, ranging from 17% for Singapore to over 64% for Malaysia.<sup>4</sup> Thailand's export growth was a phenomenal 91%.

#### **Competitive Trends in the Global Automotive Industry and Their Implications**

viii. Four principal factors are responsible for fiercer global competition in the late 1980s.

- (i) **Growing dominance of the Japanese automotive industry.** Japan is the world's largest exporter of new automobiles. In 1988 it exported over 4.4 million new cars, almost a third of global exports. In addition, the Japanese automotive industry has increased its production activities in both the U.S. and Europe. Industry experts estimate that there are more than 200 Japanese component suppliers engaged in some form of automotive manufacturing in North America.<sup>5</sup>
- (ii) **Overcapacity in automobile manufacturing globally.** This is expected to reach some 9 million units by the early 1990s--over 20% more cars and trucks than consumers will demand. It is predicted that 60% of this excess capacity will be in North America. At present, North American overcapacity is estimated to be more than 4 million units a year--at least 80% held by General Motors, Ford and Chrysler.<sup>6</sup> U.S. overcapacity is often attributed to the increasing presence of "transplanted" Japanese automakers.
- (iii) **Product changes (product innovations, shorter product development cycles, new process technologies, and the influence of environmental concerns on product development).** Product changes in today's original equipment (OE) market will influence aftermarket needs in the 1990s and beyond. If car and component designs change often, more parts numbers have to be produced. Thus, distributors, repair outlets and service stations will have to carry more stock.

Parts proliferation, resulting from product changes, means that aftermarket manufacturers are likely to "cherry pick" the parts they will produce (the higher volume parts) and fill out their lines by buying-in other parts (usually low volume parts) from domestic or overseas suppliers. In addition, environmental concerns may bring about the use of higher quality parts in OE production, which could reduce the demand for certain replacement parts.

- (iv) **Changing original equipment (OE) manufacturer-supplier relations.** Relationships between automakers and their OE suppliers have changed. For OE suppliers this means:
  - broadening responsibilities for quality standards and cost reductions,
  - greater R&D responsibilities, and
  - a shift towards production of modular units, rather than single parts.

ix. Taking a lesson from the Japanese, single sourcing from outside firms is emerging as the industry optimum for U.S. automakers. The advantages of single sourcing include cost savings, increased logistical efficiency, easier quality control, and economies of scale at the supplier level. However, single

---

<sup>4/</sup> The ASEAN (Alliances of Southeast Asian Nations) countries include Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand.

<sup>5/</sup> Ward's Auto World, January, 1990.

<sup>6/</sup> Adjustment to the overcapacity issue has started to be addressed through plant shutdowns and plant conversions to new products.

sourcing requires more stable, long-term relations between the automaker and the component supplier. Automakers also require fewer suppliers, and this will result in increased reliance between both groups.

x. Changing manufacturer-supplier relationships also make it more difficult for developing country suppliers to penetrate the OE market. Most do not have the technological capabilities, organizational skills, or financial resources to produce high quality and technologically sophisticated parts. Changes in the OE market also are expected to result in higher quality and service standards in the U.S. aftermarket as the industry moves towards global quality standards.

#### **Globalization of the Automotive Industry**

xi. Increased competitive pressures are leading to greater internationalization in the automotive industry. Increased collaboration among players in the global industry reduces the risks and costs of competing in regional markets. The result is greater consolidation among automakers and automotive parts manufacturers in marketing, supply, collaboration and technology diffusion. The strongest links in the world industry are between Japanese and U.S. automakers, although both also are rapidly increasing their joint ventures in the European auto industry. Much attention also is focused now on investment opportunities in Eastern Europe and the Soviet Union.

xii. Joint ventures for research, production and marketing are particularly important for developing country producers who need to collaborate with foreign manufacturers to obtain technical expertise and to secure marketing outlets. At the same time, increased integration of the global auto industry makes it less and less viable for developing country suppliers to sustain independent automobile manufacturing industries. Automotive parts manufacturing--particularly for the aftermarket--is seen as a more realistic way for most developing countries to participate in the global industry.

#### **Overview of the U.S. Aftermarket**

xiii. In 1988, the U.S. aftermarket was estimated to be US\$106.7 billion in retail dollars. The total aftermarket can be disaggregated into four segments:

- automotive services (US\$44.0 billion)
- replacement parts (US\$36.5 billion)
- chemicals, tires and batteries (US\$17.8 billion)
- accessories (US\$8.4 billion).

xiv. Replacement parts and accessories markets are the focus of this report. The market for replacement parts is expected to grow 2.7% annually between 1988 and 1993, while the accessories sector is forecast to grow 2.9% on average.

xv. Factors influencing U.S. aftermarket growth include:

- demographic trends (e.g., population density, degree of urbanization, unemployment rates, personal income per capita);
- size and structure of the U.S. vehicle fleet;
- age of the vehicle population;
- growth segments of the vehicle population: import vehicles and light trucks;
- miles driven; and



- amount of equipment on new vehicles and consumer buying preferences (two important factors in accessory market growth).

#### **Distribution Channels**

xvi. The aftermarket distribution system comprises three primary channels:

- the "traditional" channel oriented toward the mechanic-installed market;
- the "retail" channel focused on the do-it-yourself (DIY) market; and
- the original equipment service (OES) channel where dealerships sell and install parts and accessories.

Two aftermarket distribution channels are particularly important for the final distribution of accessories: the professionally-installed market channel and the retail/do-it-yourself channel.

#### **Survey Results: Overseas Sourcing of Replacement Parts and Accessories, and Market Entry Considerations for the U.S. Aftermarket <sup>7/</sup>**

xvii. The most common reasons for sourcing overseas include:

- price
- parts proliferation
- development of import lines
- local unavailability of parts for imported cars
- strategic (e.g., overseas subsidiaries).

xviii. The most common reasons for not sourcing overseas include:

- poor quality
- poor communication
- stable supplier relationships and
- availability of parts/accessories in the domestic market
- transportation and distribution
- carrying costs and size of orders.

xix. **Product and production relationships.** The firms interviewed sourced diverse product categories:

- bearings, belts, hoses, springs and fasteners,
- ignition parts, filters, hard parts, and
- functional and non-functional accessory items.

---

<sup>7/</sup> Telephone interviews were conducted with manufacturers, importers, manufacturers' representatives, retail firms and specialty service outlets to obtain information about overseas sourcing of replacement parts and accessories for the U.S. aftermarket.

Not surprisingly, technologically sophisticated parts, parts for which brandname is important, and liability parts <sup>8/</sup> are the least likely to be sourced from developing countries.

xx. Approximately 40% of the firms interviewed primarily sourced individual parts, while another 40% sourced both full lines and individual parts. However, manufacturers were more likely to source individual parts than importers. This suggests that manufacturers outsource to "fill in lines", while importers are more likely to source complete lines.

xxi. Over 50% of the firms interviewed sourced most of their overseas parts and accessories from independent suppliers. However, manufacturers also sourced a significant amount from subsidiaries and, less so, from joint ventures.

xxii. Product support responsibilities of the buyers varied greatly. Of the firms interviewed, manufacturers generally provided more complete production support than did importers. Extensive production support arrangements generally took place between manufacturers and overseas suppliers who shared long-term, stable relationships. Many importers indicated that they cannot afford, nor do they have the resources, to develop more than a "buying relationship" with their overseas suppliers. Retailers importing accessories directly from abroad said overwhelmingly that they did not provide any technical support to suppliers.

xxiii. Manufacturers and importers gather product intelligence information from a number of sources. Salespeople are the most important source of information concerning product changes and modifications. Larger firms also rely on their research departments for design specifications. Developing country suppliers receive most of their product intelligence information from manufacturers and importers who buy their products.

xxiv. Buyers use various methods to determine the quality of parts and accessories purchased overseas. Some undertake extensive testing of both product samples and finished parts. Another quality indicator comes via firms the overseas manufacturer already is supplying. Many buyers also rely on brandname to define quality.

xxv. Manufacturers and importers search out suppliers through various means:

- publications, buyers' guides, telephone listings
- foreign trade missions and consulates in the U.S.
- at trade shows
- fact finding and purchasing trips abroad
- industry contacts and recommendations.

xxvi. Transportation and distribution. Firms that were interviewed complained about the unreliability of overseas deliveries and the longer lead times needed for overseas sourcing. Parts proliferation also has forced buyers to purchase smaller orders of some parts and accessories, and this has caused numerous transportation and distribution problems. In fact, small shipments often have to be consolidated. Responsibility for transportation and shipping varies greatly. In some cases buyers or the manufacturers themselves handle the arrangements, and in others cases agents take charge--particularly when the suppliers are small and/or inexperienced.

---

<sup>8/</sup> So-called liability parts are safety related, such as brake systems, master cylinders, certain engine parts, and fuel-related parts. Manufacturers and/or importers can be held liable in court if a part malfunctions and risks people's lives.

## **Market Entry: Strategic Considerations for Developing Country Suppliers**

**xxvii. Developing country suppliers face three important market entry constraints:**

- lack of export skills and strategy
- poor targeting of the correct aftermarket segment (e.g., domestic or import)
- lack of market information (e.g., size, structure and operation of the market, and major players competing in its market segment).

**xxviii. These difficulties make it likely that a developing country supplier will need to use a market entry channel to enter the U.S. automotive aftermarket. Before approaching a market entry channel, however, a supplier has to identify its own capabilities and make its products competitive.**

**xxix. Market entry channels. The major U.S. aftermarket entry points for a developing country supplier are via either importers or manufacturers. In some cases it also is possible to use direct relationships with a retailer for market entry, although this usually is restricted to the accessories segment of the market.<sup>9/</sup>**

**xxx. The main characteristics of manufacturer market entry channels are:**

- often operate with a longer time horizon
- have long-term, stable relationships with fewer suppliers
- demand high quality standards
- often outsource individual parts rather than full-lines
- may offer production support.

**xxxi. The main characteristics of importer market entry channels are:**

- often operate with a shorter time horizon
- are risk takers (e.g., will take chances on new supply sources)
- are driven by cost considerations
- have lower quality expectations
- provide fewer resources and less production support
- purchase in bulk.

**xxxii. The main characteristics of retailers as market entry channels are:**

- purchase large quantities but demand substantial cost concessions
- expect supplier to be responsible for all production support.

**xxxiii. Among the firms interviewed, there was wide variety of opinion about the best market entry channel for a developing country supplier. The issue remains unresolved, but several themes did emerge:**

- Entering the U.S. aftermarket via an importer probably is easier than via a manufacturer. This is probably the best strategy for smaller, less sophisticated developing country suppliers.
- Developing country suppliers with sophisticated manufacturing capabilities might be able to target a manufacturer as a market entry point. This is difficult, however, because of the high quality standards of manufacturers.

---

**9/ These following generalizations are not valid for all manufacturers, importers or retailers, given their large variations in size and resources.**

- **A market entry strategy based on links with a retailer is only relevant for the accessories market and is probably only possible for large, well-established developing country accessories suppliers.**
- **The decision on which market entry channel to target is determined mainly by the goods a developing country supplier produces and its productive capacity.**

### **Conclusions**

**xxiv.** Competitive pressures in the global automotive industry intensified in the 1980s, and this trend is expected to continue in the 1990s. The most important competitive trends in the U.S. aftermarket include: cost pressures, quality standards, the shift from DIY repairs to mechanic-installed (MI) work, the increased importance of the OES channel, greater emphasis on parts availability, and the increased service-oriented nature of the industry.

**xxv.** Developing country suppliers that want to export to the U.S. automotive aftermarket will probably need to use a market entry channel--a manufacturer, importer or retailer. The choice of market entry channel will depend on the supplier's goods and productive capacity.

**xxvi.** Two major export challenges facing developing country suppliers are (i) transportation and distribution arrangements, and (ii) quality standards for export parts and accessories.

**xxvii.** Further research--either by the World Bank or others--should explore strategies to overcome these constraints. These may include:

- **warehousing parts and accessories in the U.S. market to overcome buyers' hesitations about dealing with developing country suppliers**
- **establishing control centers in developing countries to improve the quality standards and quality control mechanisms for export automotive parts and accessories.**

# I. INTRODUCTION

**1.01** This report--part of a series of IENIN <sup>1/</sup> studies on global industrial subsectors--focuses on a segment of the automotive industry, the automotive aftermarket.<sup>2/</sup> The aftermarket consists primarily of servicing vehicles in operation, installing replacement parts or additional accessories in vehicles after purchase, and purchasing components for do-it-yourself (DIY) work. The focus of this report is on passenger automobile and light truck replacement parts, and accessories.

**1.02** The automotive industry has long been considered important to economic development in developing countries due to its strong backward linkages and its large share in the total consumption of selected inputs.<sup>3/</sup> Much research has explored opportunities for developing country producers to supply automotive components to original equipment manufacturers (OEMs), often at the expense of exploring export opportunities in the automotive aftermarket.

**1.03** This report has two primary aims:

- to provide a better understanding of the structure of the U.S. aftermarket and the major trends affecting it, and
- to assess export opportunities and constraints for developing country suppliers in the U.S. aftermarket, with the principal focus on market entry considerations.

**1.04** The main audience for this report is likely to be:

- developing country automotive component and accessory suppliers wanting to export to the U.S.,
- bank lending officers in developing countries, and
- non-specialists wanting to increase their knowledge of the U.S. aftermarket.

**1.05** This study is not intended to be a "how to export" guide. Rather, the aim is to highlight the key issues and trends related to market entry, based on secondary and primary research. In determining a market entry strategy for the U.S. aftermarket, it is necessary for a developing country supplier to consider factors specific to his product area, resource base, and target market segment. Moreover, this is a demand-based study since an examination of the production considerations facing developing country suppliers trying to export to the U.S. aftermarket was beyond the scope of the paper. Such an analysis, however, should be a supplier's first step before exploring U.S. aftermarket export opportunities.

---

**1/** Industry Development Division; Policy, Research and External Affairs; World Bank.

**2/** For the sake of brevity, the U.S. automotive aftermarket will be referred to as the U.S. aftermarket in this report.

**3/** Fischer, B., Herken-Kraver, J.C., Lucke, M., and Nunnekamp, P., Capital Intensive Industries in Newly Industrializing Countries: The Case of the Brazilian Automobile and Steel Industries, 1988.

## **Why the U.S. Aftermarket?**

**1.06** The U.S. aftermarket can be divided into three parts: passenger automobiles and light trucks; heavy duty trucks; and accessories. In 1988 the U.S. aftermarket had an estimated worth of over \$100 billion. Accessories are included because this sector has fewer product innovations, production technologies are often simpler than for hard parts, and transportation and distribution logistics are less important. This report does not examine the heavy-duty truck sector because it is dominated by OE component suppliers and has a very different type of distribution system.<sup>4/</sup>

**1.07** The U.S. aftermarket was chosen as the focus of this study because it was the most accessible and offers opportunities for developing country suppliers not available in the original equipment (OE) sector. Other factors were that:

- Changing OEM-supplier relations make it difficult for developing country suppliers to compete in the OE sector (See Section III)
- In some cases, quality levels in the aftermarket are lower (See Sections III and VI). Thus, the aftermarket provides opportunities to move up the learning curve by first producing simple, individual, replacement automotive parts and accessories. This should take place before attempting to produce sub-assemblies, more technologically sophisticated aftermarket parts, or products for the OEM market.
- The aftermarket has a more fragmented distribution system than the OE sector (See Section V), providing opportunities for newer and smaller suppliers.

These assertions are specific to the U.S. aftermarket. In fact, the structure of aftermarkets in other industrially advanced countries differ substantially from that of the U.S., and thus the opportunities and constraints for developing country suppliers also would vary.<sup>5/</sup>

**1.08** In addition, it should be stressed that the entry strategies for developing country suppliers discussed in the paper are only relevant for the short- to medium-term. The automotive industry is undergoing a process of rapid change and it is predicted that all sectors of the automotive industry will have global quality standards in place in the next eight to ten years.

**1.09** The U.S. aftermarket can be entered principally through three different market entry points:

- manufacturers
- importers and manufacturers' representatives
- retailers (mass merchandisers and specialty automotive parts chains).

**1.10** One of the main questions this report addresses is which market entry strategies are more effective for the replacement parts and the accessories aftermarket segments.

---

**4/** Re-manufactured parts also are not a focus: the majority of suppliers tend to be local since they rebuild used automotive parts.

**5/** For instance, the U.S. AM is less OE-driven than both the European and the Japanese aftermarkets.

## Information and Data Sources

1.11 Information sources for this report included extensive literature surveys of:

- consultancy reports,<sup>6/</sup>
- general automotive industry and aftermarket-focused magazines,<sup>7/</sup>
- newspapers, particularly the Financial Times (London), and
- automotive association publications and directories.<sup>8/</sup>

1.12 Statistical sources included the U.S. Department of Commerce, U.S. International Trade Commission, Comtrade Database (Geneva), and statistical publications.<sup>9/</sup>

1.13 Information from interviews forms the basis of Chapters VI and VII.<sup>10/</sup> Telephone interviews were conducted between March and May 1990 with aftermarket manufacturers, manufacturers' representatives, program distribution groups, importers, and retailers.<sup>11/</sup> All firms interviewed were American or international firms with U.S. operations. In addition, some of these interviews--as well as interviews with developing country suppliers, warehouse distributors and such--were conducted at the International Automotive Aftermarket Show in Las Vegas, April 4-6, 1990. Finally, interviews also were conducted with senior staff at the U.S. Department of Commerce and various automotive associations--both industry-wide groups and others specific to the aftermarket.<sup>12/</sup>

---

<sup>6/</sup> Primarily, A.T. Kearney Inc., Easton Consultants Inc., DesRosiers Automotive Consultants Inc., and Booz Allen and Hamilton Inc.

<sup>7/</sup> The most relevant publications were Automotive News, Motorage, Ward's Auto World, Aftermarket Business, Counterman, and Automotive Marketing Retail Aftermarket Guide.

<sup>8/</sup> MEMA, Market Analysis; JAMA, Forum; and various association newsletters.

<sup>9/</sup> These included Ward's Automotive Yearbook; Automotive International, World Automotive Market; MVMA's "Facts and Figures", and World Motor Vehicle Data.

<sup>10/</sup> In total, over 70 interviews were conducted.

<sup>11/</sup> A few of the people interviewed preferred to fill out a written questionnaire.

<sup>12/</sup> These included the Motor Vehicle Manufacturers Association (MVMA), the Motor Equipment Manufacturers Association (MEMA), Automotive Affiliated Representatives, Automotive Service Industry Association, Auto International Association, and Automotive Parts and Accessories Association.

## II. TRADE TRENDS IN THE AUTOMOTIVE INDUSTRY

### A. Global Automotive Industry

2.01 **World passenger car fleet.<sup>13/</sup>** The passenger car stocks of 108 countries--having grown at an average compounded rate of about 3% since 1980--totalled approximately 396 million cars in 1988 (Table 2.1).<sup>14/</sup>

**Table 2.1: WORLD PASSENGER CAR FLEET**

	1980	1988	Average Compounded Growth Rate (%)
			1980-88
North America	130,785,000	149,096,138	1.6
West. Europe	101,789,981	129,986,801	3.1
East. Europe	18,761,496	29,554,367	5.7
Far East	26,942,683	38,275,280	4.4
Japan	23,659,520	29,478,342	2.7
Australia & New Zealand	7,023,600	8,622,800	2.6
Other Developing Countries <sup>g/</sup>	29,580,000	40,340,692	3.9
<b>Total</b>	<b>314,882,763</b>	<b>395,876,082</b>	<b>2.9</b>

<sup>g/</sup> Includes Africa, the Caribbean, Central & South America, and the Middle East.

Source: World Automotive Market, various issues; MVMA; World Motor Vehicle Data, various editions.

2.02 North America accounted for about 37.6% of the total world automobile fleet, a drop of 4% since 1980. Western Europe had the next largest car parc in 1988 with almost 33% of the world total, an increase of only 0.5% since 1980. The passenger car stock of developing countries, which was 9.5% of the total in 1980, rose to 10.2% by 1988 (Figure 2.1, Table A.1).

2.03 Eastern Europe and Asia-Pacific had the fastest growing automobile stocks with growth rates of 5.7% and 4.4% respectively. Japan accounted for approximately 77% of Asia-Pacific's car parc in 1988, a drop of 11% from 1980.

2.04 **Vehicle demand--passenger cars.** Until 1986, North America accounted for 42% of world demand <sup>15/</sup> for new passenger cars, the largest share. From 1987 onwards, Europe has increased its share of total demand to approximately 40%, and the U.S. fell to 38.1%. Asia-Pacific has remained a distant third with about a 15% share of total demand since 1985 (Table 2.2).

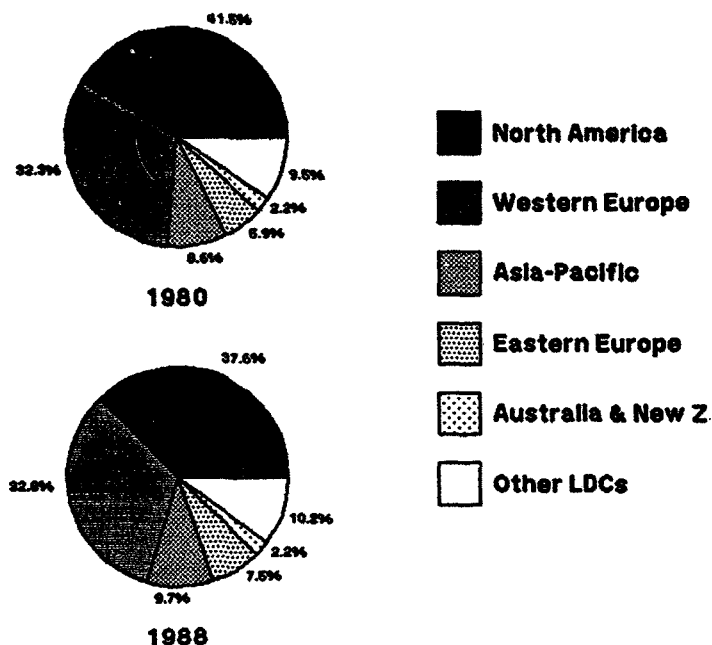
<sup>13/</sup> These figures are not represented to be exact. When reliable data was unavailable, an estimate was made upon the best evidence available.

<sup>14/</sup> Growth rates calculated over more than one year are real annual compounded rates.

<sup>15/</sup> Excluding socialist economies.



**Figure 2.1**  
**World Passenger Car Fleet**  
**Market Shares (%)**



Source: Compiled from Table A.1.

**Table 2.2: VEHICLE DEMAND--PASSENGER CARS <sup>a/</sup>**  
**(Market Share (%))**

	1985	1987	1989	1991	1993	1995	1997
<b>North America</b>	<b>42.0</b>	<b>38.1</b>	<b>38.0</b>	<b>36.2</b>	<b>35.3</b>	<b>34.9</b>	<b>34.6</b>
U.S.	38.2	34.4	34.9	32.7	32.0	31.4	31.3
Canada	3.8	3.7	3.1	3.5	3.3	3.5	3.4
<b>Europe</b>	<b>36.8</b>	<b>41.5</b>	<b>40.1</b>	<b>39.6</b>	<b>39.6</b>	<b>39.0</b>	<b>38.6</b>
Latin America <sup>b/</sup>	4.2	3.7	3.8	4.7	5.1	5.5	5.6
Mid-East	1.4	1.0	1.7	1.9	1.8	2.0	2.0
Africa	1.0	1.0	1.0	1.3	1.5	1.7	2.0
Asia-Pacific <sup>c/</sup>	14.6	14.7	15.4	16.4	16.6	16.9	17.2
<b>Total Cars</b>							

<sup>a/</sup> 1991-1997 are estimates.

<sup>b/</sup> Includes Mexico.

<sup>c/</sup> Includes Japan.

Source: 1989 Ward's Automotive Yearbook.

2.05 In 1989, total world demand for new passenger cars (excluding demand in socialist economies) was 29.2 million, a decrease of 6% from 1988. After almost no growth between 1985 and 1989, total demand is expected to grow at an average compounded rate of about 2.5% from 1989 to 1997 (Table 2.3).

**Table 2.3: VEHICLE DEMAND--PASSENGER CARS <sup>a/</sup>  
(millions)**

	1985	1987	1989	1991	1993	1995	1997	Average Compounded Growth Rates	
								1985-89	1989-97
North America	12.1	11.4	11.1	11.5	11.7	12.0	12.3	-2.2	1.3
U.S.	11.0	10.3	10.2	10.4	10.6	10.8	11.1	-1.9	1.1
Canada	1.1	1.1	0.9	1.1	1.1	1.2	1.2	-5.0	3.6
Europe	10.6	12.4	11.7	12.6	13.1	13.4	13.7	2.5	2.0
Latin America <sup>b/</sup>	1.2	1.1	1.1	1.5	1.7	1.9	2.0	-2.2	7.5
Mid-East	0.4	0.3	0.5	0.6	0.6	0.7	0.7	5.6	4.2
Africa	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.0	10.6
Asia-Pacific <sup>c/</sup>	4.2	4.4	4.5	5.2	5.5	5.8	6.1	1.7	3.8
Total Cars	28.8	29.9	29.2	31.8	33.1	34.4	35.5	0.3	2.4

<sup>a/</sup> 1991-1997 are estimates.

<sup>b/</sup> Includes Mexico.

<sup>c/</sup> Includes Japan.

Source: 1989 Ward's Automotive Yearbook.

2.06 Aggregate figures, however, do not highlight variations among regions. For example, demand in North America is expected to increase by an average compounded rate of 1.3% from 1990 to 1997, while demand in Europe and Asia-Pacific is expected to grow by 2% and 3.8% respectively. The highest growth rate, albeit from a very low initial level, is expected in Africa (8.1%).<sup>16/</sup>

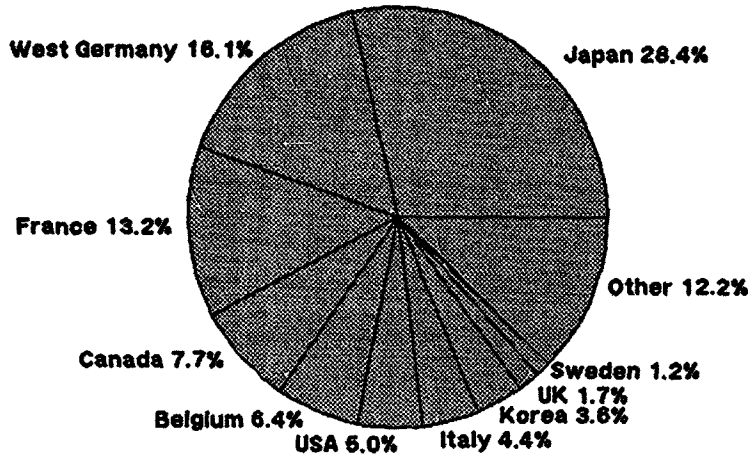
2.07 **Leading exporters of new automobiles.** In 1988 global automobile exports were over 13.6 million units. The top 10 exporting countries accounted for almost 88% of that total, a decrease of more than 4% since 1980 (Figure 2.2, Table A.2).

2.08 For the past decade, the average compounded growth rate of global automobile exports was 4% per annum. In 1988 the three largest automobile exporters were Japan, West Germany, and France: Japan exported more than 4.4 million units, while West Germany and France exported approximately 2.5 and 2.05 million units, respectively (Table 2.4).

2.09 Japan--the largest automobile exporter, accounting for 28.4% of total export volume in 1988--has seen its exports decline since 1986. This is primarily due to the fact that the Japanese firms have set up large-scale manufacturing operations in North America and more recently in Europe to circumvent the effects of exchange rate fluctuations and possible protectionist policies. American-made Japanese cars now account for nearly one out of every six U.S.-made cars, double the share in the previous year (Washington Post, June 6, 1990).

<sup>16/</sup> These figures do not include Eastern Europe and the U.S.S.R., but they are expected to be strong growth regions as well. For instance, industry experts predict car sales in Eastern Europe could double over the next decade from the current 2 million per year (FT, May 4, 1990).

**Figure 2.2**  
**Leading Exporters of New Automobiles in 1988**  
**Market Shares (%) of Volumes of Exports**



Source: Compiled from Table A.2.

**Table 2.4: LEADING EXPORTERS OF NEW AUTOMOBILES 1980-1988**  
**(Volume)**

Suppliers	1980	1983	1984	1985	1986	1987	1988	Annual Compounded Growth Rates (%)	
								1980-88	1985-88
Japan	3,101,990	3,806,396	3,961,455	4,413,993	4,554,138	4,481,512	4,414,755	4	0
West Germany	1,872,930	2,187,885	2,231,668	2,566,125	2,519,264	2,450,736	2,506,467	4	-1
U.S.A. g/	616,794	553,439	617,967	703,229	672,758	633,085	781,171	3	4
Canada g/	613,365	872,581	1,103,305	1,165,909	1,206,441	956,151	1,201,316	8	1
France	2,001,396	1,848,366	1,708,929	1,705,479	1,777,895	1,907,835	2,058,128	0	6
Italy	510,282	490,252	479,912	447,847	601,260	639,145	685,764	4	14
Korea	16,253	16,405	48,778	119,210	298,878	535,231	564,511	44	52
Belgium	839,362	930,607	796,024	924,795	970,399	1,087,498	992,184	2	2
U.K.	359,145	273,610	217,181	240,237	201,359	244,746	261,146	-4	3
Sweden	154,539	207,764	232,987	221,997	223,633	228,505	191,800	3	-5
Total	10,086,056	11,187,305	11,398,206	12,508,821	13,026,025	13,164,444	13,657,242	4	3
World Total	10,952,741	12,372,839	12,719,269	13,876,588	14,465,754	14,722,564	15,557,149	4	4

g/ Includes vehicle trade between U.S. and Canada.

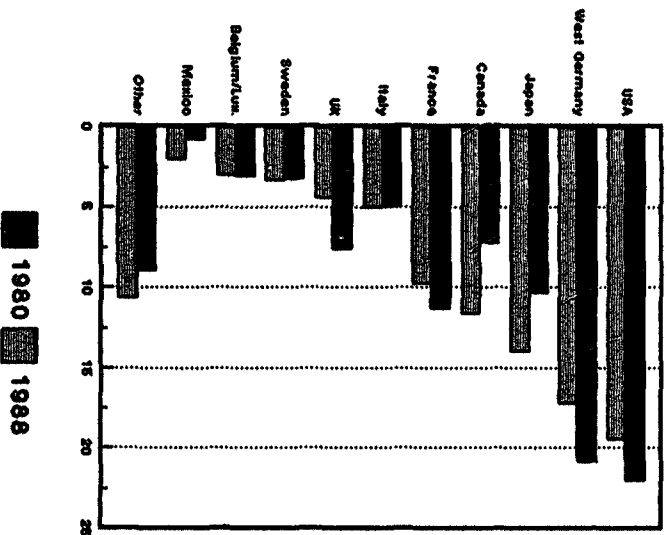
Source: Automobile International, World Automotive Market, Various Issues, Comtrade Database, Geneva; MVMA, World Motor Vehicle Data, 1989 Ed; MVMA, Facts and Figures, various editions.

2.10 Of the other major suppliers, Korea's automobile exports grew by about 44% (average compounded volume) between 1980 and 1988. Over the same time, France's exports stagnated and the U.K.'s fell by 4%. Nonetheless, France, the U.K., and Italy saw improved average compounded growth rates between 1985 and 1988 of 6%, 7% and 10% respectively. In comparison, Canada's export volume growth fell to 17% between 1985 to 1988.<sup>17</sup>

2.11 Major exporters of automotive components. In 1988, world exports of automotive components (both OE and aftermarket parts and accessories) totaled over \$57 billion, with the top five suppliers accounting for approximately 72%, roughly the same as in 1980 (Figure 2.3, Table A.3). In 1980 the fifth largest supplier was Great Britain, whereas Canada held that position in 1988.

2.12 The leading automotive component suppliers have experienced divergent growth rates in the 1980s, with many of them showing sharp declines in the latter half of the 1980s (Table 2.5).<sup>18</sup>

**Figure 2.3**  
**Leading Exporters of Automotive Components**  
**Market Shares (%) of Values of Exports**



Source: Compiled from Table A.3.

17/ Although Belgium is the fifth largest volume exporter, the majority of automobiles are only assembled in Belgium. Of the approximately 1 million new passenger automobiles that Belgium exported in 1987, less than 28 per cent (276,005) were produced there.

18/ Value tables have growth rates calculated on the bases of the nominal U.S. dollar values of traded automobiles or automotive components, deflated by the manufacturing unit value (MUUV) index. Growth rates calculated over more than one year are real annual compounded rates.

19/ Export tables based on comtrade data use c.i.f. import data, which are more reliable than f.o.b. export data.

Table 25: AUTOMOTIVE COMPONENT EXPORTS--LEADING EXPORTERS, 1980-1988  
(Current US\$000 cfr)

Suppliers	1980	1981	1982	1983	1984	1985	1986	1987	1988	1980-88	1985-88
Japan	3,019,084	2,783,911	2,718,688	3,473,913	4,190,164	4,848,139	6,232,619	8,147,982	7,912,247	8.5	5.4
West Germany	6,110,482	6,909,325	6,796,172	7,079,786	6,446,512	7,332,722	9,063,785	12,355,431	9,819,501	2.4	-1.2
USA	6,468,216	9,913,561	8,965,893	8,918,757	11,494,505	12,744,414	11,036,795	11,064,818	11,082,581	3.2	-15.6
Canada	2,119,970	2,822,163	2,662,157	3,896,320	5,035,888	5,633,534	5,600,483	5,917,944	6,618,324	10.7	-3.6
France	3,312,258	3,288,640	3,151,130	3,275,857	3,152,645	3,367,404	4,380,886	5,484,840	5,550,378	2.9	5.7
Italy	1,439,264	1,751,587	1,512,204	1,494,318	1,520,088	1,606,688	1,832,682	2,551,311	2,827,111	4.9	7.9
Mexico	207,793	240,767	262,058	377,054	538,031	638,519	797,096	938,469	1,132,310	17.7	8.1
Belgium/Lux.	902,809	806,164	768,320	761,989	781,873	875,544	1,230,840	1,602,746	1,692,471	4.3	11.0
Great Britain	2,244,875	2,633,162	2,093,738	1,929,175	1,865,454	1,962,665	2,087,952	2,523,145	2,525,355	-2.0	-2.6
Sweden	926,979	1,033,675	896,341	878,276	942,087	1,128,225	1,421,509	1,785,764	1,872,015	5.3	5.9
Total World	29,373,533	35,391,089	33,238,535	35,624,001	39,838,509	44,389,832	48,820,055	59,031,820	57,084,528	4.8	-2.6

Source: Comtrade Database, Geneva. Annual growth rates deflated using mrv index.

2.13 The U.S. was the largest components supplier, with exports of over \$11 billion in 1988, but this represented an annual compounded decline of about 15.5% since 1985.<sup>20/</sup> Canada experienced the second largest decline (-5.6%) during the same period, while the Benilux region and Mexico recorded strong annual compounded growth rates of 11% and 8%, respectively.

2.14 Major developing country exporters of automotive components. Of this group, Brazil, Taiwan, Korea, and Portugal were the top four exporters in 1988. Brazil exported close to \$560 million, and Taiwan close to \$360 million, while the other two both exported less than \$200 million (Table 2.6).

Table 2.6: AUTOMOTIVE COMPONENT EXPORTS OF SOUTHERN EUROPEAN & DEVELOPING COUNTRY SUPPLIERS, 1980-88  
(Current US\$000 cif)

Suppliers	1980	1981	1982	1983	1984	1985	1986	1987	1988	1980-88	Annual Compounded Growth Rates (%)
Argentina	9,513	24,257	10,685	6,171	9,688	13,813	49,933	65,195	45,091	15.9	28.5
Brazil	243,578	339,137	278,408	275,818	384,045	442,505	446,990	624,845	659,385	8.9	2.3
China	6,388	4,158	5,941	5,225	4,126	3,886	6,451	10,237	14,096	6.4	32.0
Colombia	10,582	20,283	11,081	5,402	5,315	5,410	2,823	2,749	2,923	-19.6	-31.5
Hong Kong	5,171	13,619	11,894	8,543	9,987	9,042	7,327	6,962	6,462	-0.7	-22.2
India	32,030	63,495	70,993	59,642	28,125	28,853	34,396	29,414	28,388	-5.0	-11.5
Korea	10,741	24,100	26,512	32,588	44,066	61,118	85,368	131,435	156,678	30.0	20.4
Malaysia	1,703	3,113	5,901	6,032	6,129	4,576	3,806	6,297	8,031	15.9	7.8
Morocco	6,936	6,735	6,253	6,026	7,265	7,854	10,454	15,636	19,162	9.2	18.8
Philippines	36,304	36,596	22,572	15,078	24,022	17,768	11,889	10,027	11,750	-17.6	-24.7
Portugal	11,132	12,828	24,507	42,661	45,015	58,126	75,726	136,167	140,139	28.2	18.4
Singapore	10,789	20,725	23,084	25,174	34,453	38,398	24,789	32,966	35,219	11.3	-13.8
Taiwan	41,260	65,862	89,584	105,055	186,363	185,968	275,218	361,302	357,715	23.5	10.8
Thailand	5,774	5,882	5,107	4,166	4,789	5,691	8,549	18,392	21,713	13.0	33.7
Tunisia	61	24	143	403	730	6,113	9,995	11,079	11,879	62.4	11.2
Turkey	1,796	7,437	8,455	15,817	44,827	46,549	10,711	24,544	38,760	34.9	-17.1

Source: Comtrade Database, Geneva. Annual growth rates deflated using muv index.

2.15 Southern European and developing country suppliers also experienced sharp differences in their growth rates in the 1980s. Tunisia, Turkey, Korea and Portugal had high average compounded growth rates between 1980 to 1988--ranging from about 28% for Portugal to 62% for Tunisia. Nonetheless, they all saw their growth rates fall substantially between 1985 and 1988. Tunisia showed the most dramatic decline, although it had a low initial export base. Thailand, China and Argentina recorded the highest average compounded growth rates between 1985 and 1988, with 33.7%, 32.0% and 28.5% respectively.

<sup>20/</sup> The majority of the U.S.'s automotive component exports go to Canada, where branch-plants assemble automobiles and re-export them back into the U.S.

## B. U.S. Automotive Industry

2.16 U.S. automobile imports. After reaching almost 4.7 million units in 1986, the number of imports fell to under 4.5 million units in 1988. Japan supplied almost half the new automobiles to the U.S. market in 1988. Canada was the second largest supplier, with almost 1.2 million automobiles, while Korea was a distant third with exports of 370,000 automobiles to the U.S. (Table 2.7).<sup>21/</sup>

Table 2.7: U.S. VOLUME IMPORTS OF NEW AUTOMOBILES--MAJOR SUPPLIERS, 1980-88 <sup>g/</sup>

Supplier	1980	1984	1985	1986	1987	1988	1980-88	Average Compounded Growth Rates (%) 1985-88
Japan	1,991,502	1,948,714	2,527,479	2,618,711	2,417,509	2,123,051	0.8	-5.8
Canada	594,770	1,073,425	1,144,770	1,162,226	926,927	1,191,357	8.7	1.3
Korea	1,720	3,312	1,391	142,803	329,172	370,186	67.1	186.1
West Germany	338,711	335,032	473,110	451,699	377,542	264,249	-3.1	-19.4
Sweden	61,496	114,854	142,640	148,700	138,565	108,006	7.0	-9.3
United Kingdom	32,517	19,833	24,447	27,506	50,059	31,636	-0.3	8.6
Belgium	38	8,359	9,717	9,302	17,284	16,391	75.8	17.4
France	47,386	37,788	40,114	10,869	26,707	15,990	-13.6	-30.7
Italy	46,899	8,582	8,784	11,829	8,648	6,053	-25.6	-12.4
Others	1,409	9,528	22,456	107,652	296,597	323,294	67.9	88.9
Total Imports	3,116,446	3,559,427	4,394,908	4,691,297	4,589,010	4,450,213		

<sup>g/</sup> Excludes estimated quantity of automobiles assembled in foreign trade zones.

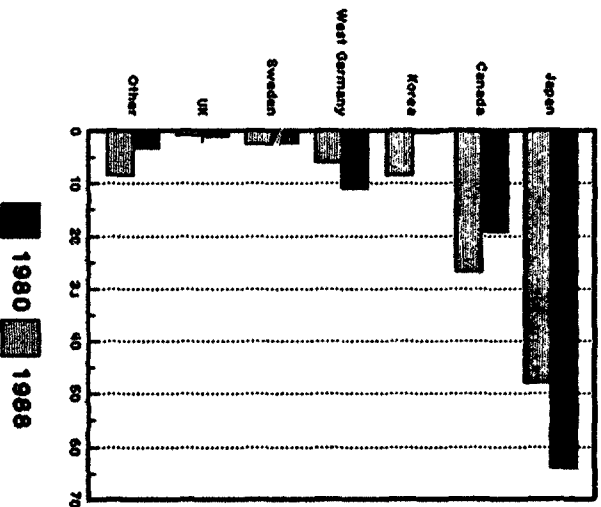
Source: World Automotive Market, various issues.

2.17 More than half the U.S.'s major automobile suppliers experienced negative annual compounded growth rates between 1985 and 1988. As previously mentioned, the fall in Japanese imports was primarily due to the increased production of Japanese automobiles in the U.S. Korean exports to the U.S. grew impressively by over 186% from 1985 to 1988, but preliminary 1989 figures indicate a fall of about 35% from 1988 levels.

2.18 Import market shares of some of the U.S.'s leading automobile suppliers changed dramatically between 1980 and 1988. Not surprisingly, Japan's share fell by just over 16%. Canada's market share rose almost 8%, while West Germany's fell by 5%. Korea and "others" recorded large increases in their import market shares, 8.2% and 7.3%, respectively (Figure 2.4; Table A.4).

<sup>21/</sup> Canadian automobile exports to the U.S. are manufactured by subsidiaries of the Big Three (GM, Ford and Chrysler), primarily situated in Ontario.

**Figure 2.4**  
**Major Suppliers of New Automobiles to the U.S.**  
**Market Shares (%) of Volume of Imports**



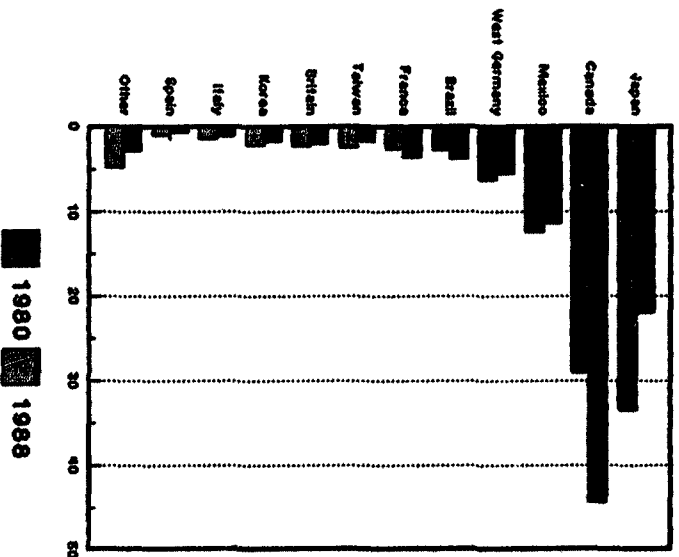
Source: Compiled from Table A.4.

2.19 U.S. imports of automotive parts. In 1989 the U.S. imported almost \$34.5 billion in automotive components, representing an annual compounded rise of about 4.1% since 1985. Japan and Canada were the two largest suppliers, each accounting for more than \$10 billion. Mexico was the third largest supplier at about \$4.3 billion. Japan's share was the largest at 33.5%, an increase of over 10% since 1985. Although Canada had an import market share of 29% in 1989, this represented a decrease of over 15% since 1985 (Figure 2.5, Table A.5).

2.20 The top five suppliers of automotive parts accounted for about 84% of total U.S. automotive parts imports in 1989, a decline of approximately 3% since 1985. Individually, however, the major suppliers to the U.S. experienced widely varying annual compounded growth rates. Japan and Spain both had the highest growth rates, with over 14.5%, while Taiwan's exports increased by just under 14%. At the same time, Canada saw its auto component exports fall by 6.3%, while exports from Brazil and France both fell by approximately 4% (Table 2.8).



**Figure 2.5**  
**Major Suppliers of Automotive Parts to the U.S.**  
**Market Shares (%) of Values of Imports**



Source: Compiled from Table A.8.

**Table 2.8** U.S. IMPORTS OF AUTOMOTIVE PARTS--MAJOR SUPPLIERS, 1985-1989  
 (CURRENT US\$000)

	1985	1986	1987	1988	1989	1985-89 Annual Compounded Growth Rate
Japan	4,638,828	6,374,928	7,784,971	9,401,261	11,566,410	14.7
Canada	9,317,541	9,338,551	9,821,760	10,800,763	10,017,402	-6.3
Mexico	2,382,049	2,596,411	3,271,479	4,114,262	4,288,514	6.6
West Germany	1,159,067	1,509,793	1,937,726	2,082,751	2,137,238	7.2
Brazil	786,797	896,384	1,122,540	1,204,433	926,478	-4.0
France	729,264	746,467	868,942	913,350	872,559	-3.9
Taiwan	326,807	398,243	488,871	515,448	789,279	13.6
British	418,243	482,528	569,535	665,649	764,449	7.0
South Korea	357,387	371,229	521,635	622,797	717,673	9.3
Italy	217,594	289,222	451,430	417,464	462,054	10.7
Spain	130,351	162,327	245,979	304,426	326,044	14.8
Others	21,048,557	23,805,752	27,927,430	32,083,911	34,485,285	17.2
Total Imports	21,048,557	23,805,752	27,927,430	32,083,911	34,485,285	4.1

Source: U.S. Department of Commerce Statistics; International Trade Services, Washington D.C.

2.21 In comparison, auto component exports from the ASEAN countries <sup>22/</sup> and China to the U.S. were much lower in value. However, they experienced rapid growth between 1985 and 1989, ranging from 17% for Singapore to over 64% for Malaysia. Thailand's export growth was a phenomenal 91% (Table 2.9).

**Table 2.9: U.S. IMPORTS OF AUTOMOTIVE PARTS--MAJOR EAST ASIAN SUPPLIERS, 1985-89  
(CURRENT US\$000)**

Supplier	1985	1986	1987	1988	1989	Annual Compounded Growth Rates (%)
						1985-89
Singapore	64,057	56,098	103,346	136,288	177,771	17.3
Philippines	9,768	19,759	38,611	46,589	135,055	57.5
Thailand	1,972	3,931	10,749	36,015	102,623	90.6
China	5,393	4,838	20,509	37,535	97,703	64.2
Malaysia	1,681	1,699	5,555	12,238	23,081	57.3

<sup>a/</sup> Annual growth rates deflated using muv index.

Source: U.S. International Trade Commission International Trade Services, data from U.S. Dept. of Commerce, Washington D.C.

2.22 **Major automotive component categories.** Major automotive component suppliers and developing country suppliers had substantial individual variation in the top five component groupings which they exported to the U.S. in 1989.

2.23 **U.S. imports of engines, and transmissions and parts--some of the most complex automotive parts--were dominated by IAC suppliers and Brazil.**

- Engines were the most important export category for Japan, Canada, West Germany and Brazil.
- Japan, West Germany, Brazil and the U.K. were the most important exporters of motor vehicle transmissions and parts.

2.24 **Developing countries were the main suppliers of ignition wiring sets--one of the most labor intensive automotive parts to produce. Mexico was the largest supplier. This also was the largest export category for Taiwan, Thailand and the Philippines.**

2.25 **Radio/tape player combinations came from a number of sources including Mexico, Japan, South Korea, Singapore, China and Malaysia. The dollar values of their exports varied greatly, however, from over \$8.5 million for Malaysia to almost \$524 million for Mexico (Table A.6).**

---

<sup>22/</sup> The ASEAN (Alliance of Southeast Asian Nations) countries include Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand.

### III. COMPETITIVE TRENDS IN THE GLOBAL AUTOMOTIVE INDUSTRY AND THEIR IMPLICATIONS

3.01 Fiercer competition in the global automotive industry in the 1980s resulted from micro- and macro-level factors. The three principle macro-level factors are:

- growing dominance of the Japanese automotive industry
- overcapacity in automobile manufacturing globally
- product changes

The most important micro-, or firm-level, factor is changing manufacturer-supplier relations.

#### A. Growing Dominance of the Japanese Automotive Industry

3.02 Japan is the world's largest exporter of new automobiles.<sup>23/</sup> In 1988 it exported over 4.4 million new cars, almost a third of total global exports. Moreover, Japan accounted for 23% of global automobile production in 1988, an increase of about 5% since 1975.

3.03 Although Japanese automobile exports to the U.S. have fallen in recent years--from over 2.6 million units in 1986 to about 2.1 million units in 1988--this is a result of the increased number of Japanese auto manufacturing and component supplier "transplants" set up in North America in anticipation of stiffer U.S import restrictions and to minimize exchange rate effects.<sup>24/</sup> Industry experts estimate that there are over 200 Japanese suppliers in North America engaged in some form of automotive manufacturing (Ward's Auto World, Jan. 1990) (See Box 3.1).

3.04 In fact, the leading Japanese carmakers increased their share of the U.S. market in 1989, largely because of growing output from their American transplants (FT, Jan. 8, 1990).<sup>25/</sup> In 1989, the Honda Accord became the first foreign car to be the best-selling single model in the U.S. car market.<sup>26/</sup> By 1995, the Japanese are likely to control as much as 35% of U.S. car sales--up from about 28% in 1988 and from only 8% in 1970 (Fortune, June 20, 1988).

---

<sup>23/</sup> The top four Japanese automobile exporters (by volume) in 1989 were Toyota (1,139,680), Nissan (895,610), Honda (681,418), and Mazda (639,121) (Japanese Automobile Manufacturers Association Inc.).

<sup>24/</sup> Reports indicate that the transplants' products are not displacing other imports, but Detroit-made vehicles: one study estimates that for every three cars made by the transplants, two displace Big Three cars and only one displaces an import (Fortune, 23 October, 1989).

<sup>25/</sup> Japanese transplants in the U.S. (including joint ventures with U.S. automakers) had a combined production capacity of 1,590,000 vehicles per annum in 1989. By 1992 this is expected to rise to 2,150,000 vehicles (Japanese Automobile Manufacturers Association, Inc.).

<sup>26/</sup> Honda sold 362,707 Accords, the majority built at its assembly plant in Ohio, outperforming its nearest rivals the Ford Taurus and the Ford Escort (Financial Times, "Uncertainty plagues U.S. vehicle makers", Kevin Done, Jan. 8, 1990).

**Box 3.1: JAPANESE TRANSPLANTS IN THE U.S.:  
IMPLICATIONS FOR U.S. SUPPLIERS**

By and large, the Japanese auto manufacturing transplants in North America have not benefited U.S. parts suppliers. Instead, Japanese parts suppliers have set up around the transplants to service them, replicating their manufacturer-supplier systems in Japan. These are based on quick delivery of parts, little inventory, and the close interaction between manufacturer and supplier.<sup>1/</sup>

The growing presence of transplanted Japanese suppliers in the U.S. is likely to accelerate the auto parts industry shakeout that is already in progress.<sup>2/</sup> Major Japanese automotive parts and accessories suppliers operating in the U.S. include Nippondenso (electrical parts), Akebono Brake, Calsonic (electronics), and NGK Sparkplugs. If this trend continues, by 1992 there would be nearly 400 Japanese-affiliated plants in the U.S. battling for business that traditionally has gone mainly to U.S. companies (FT Survey, World Automotive Components, June 8, 1989).<sup>3/</sup>

Japanese car manufacturing transplants are under some pressure from the U.S. government to purchase more components from American suppliers.<sup>4/</sup> However, the Japanese managers complain that U.S. companies (with exceptions) do not provide quality parts nor know the rules by which the Japanese operate. To overcome this, many U.S.-based suppliers are establishing linkages, either through joint ventures or licensing agreements, with established Japanese companies (Wards Auto World, 1988).

Similar problems exist for U.S. manufacturers who want to supply replacement parts and accessories to the Japanese car segment of the U.S. aftermarket. They find the rigorous quality requirements difficult and claim their capabilities cannot be demonstrated since the Japanese automotive AM is dominated by Japanese OE suppliers.

On the positive side, the tough new competition has forced many U.S. companies to raise their standards and cut costs. Since automotive suppliers are organized in a hierarchical system, suppliers at the top can meet stringent requirements only with better performance from their own suppliers. In this way, demands from quality-conscious Japanese automobile manufacturers ripple down the automotive supplier infrastructure (Forbes, June 26, 1989).

---

1/ The U.S. Federal Trade Commission is investigating the activities of Japanese car manufacturers in the U.S. following complaints from the U.S. industry that the Japanese have entered into exclusive relations with parts suppliers. There is concern that Japanese car manufacturers have equity interests in components suppliers that hold their prices down to keep out competition (FT, May 4, 1990).

2/ The APAA estimates that there are currently between 2,000 and 2,500 companies that solely or primarily supply auto parts in the U.S., a reduction of some 500 since 1980 (Forbes, June 26, 1989).

3/ According to industry analysts, the \$6 billion investment by Japanese vehicle-makers in North American assembly operations is being nearly matched by their Japanese suppliers. Depending on which projections are used, Japanese transplant business in the U.S. could lead to a shake-out of 112,000 to 195,000 jobs held by American workers.

4/ Most Japanese automakers in the U.S. boast of buying 60% or more of their needs from American sources. Those figures, however, include the transplanted suppliers. Honda, for example, says it buys \$1.3 billion to \$1.4 billion of parts and materials from 150 "U.S." sources. But it concedes that one-third of those 150 are Japanese companies. Moreover, studies have shown that most of the contracts won by domestic suppliers have been for simple, generic parts with low engineering content (Forbes, June 26, 1989).

3.05 Japan's exports to Europe increased rapidly in the 1980s as well, particularly to Britain and West Germany, where import restrictions have not been as rigid as in such countries as Italy and France.<sup>27</sup> At present, Japanese automobiles hold about 10% of the overall European Community market (FT, Feb. 5, 1990).

3.06 However, the establishment in 1992 of a Europe without internal borders will provide a challenge to Japanese automakers. A Community-wide agreement restricting Japanese imports is expected at least until the year 2000; but, there is great disunity among EC members over the rate and duration of these controls. Such factors, in turn, are propelling the Japanese automotive industry to build plants in Europe, an even more politically sensitive issue for the EC than import levels.

3.07 The Japanese auto industry also has influenced how competition in the global auto industry takes place. To compete better against the Japanese, other auto industries are trying to emulate Japanese manufacturer-supplier relationships, their emphasis on and ability to produce quality products, and their speed of innovation. (These issues are discussed in more detail in Section D.)

## **B. Overcapacity**

3.08 Overcapacity will be a dominant trend in the global auto industry in the 1990s, causing an intensification of competition throughout the industry. Excess automotive capacity worldwide is expected to reach some 9 million units by the early 1990s--over 20% more cars and trucks than consumers will demand (FT Survey, World Car Industry, Sept 13, 1989). It is predicted that 60% of this excess capacity will be in North America (FT, Jan 8, 1990).

3.09 At present, North American overcapacity is estimated to be more than 4 million units a year--at least 80% held by The "Big Three" (General Motors, Ford and Chrysler).<sup>28</sup> This overcapacity usually is attributed to the increasing presence of Japanese (and to a lesser extent Korean) transplants. Nonetheless, the U.S. auto market also displays characteristics of a saturated mature market. Growth has slowed considerably: for instance, throughout the 1970s automobile retail sales grew by about 3%, whereas in the 1980s growth was less than 2% on average (MVMA, Facts and Figures 1989).

3.10 Western Europe, where the market is about 10% larger than that of the U.S., has an estimated surplus capacity of 1-2 million units. In 1989, new car sales in Europe exceeded 13.4 million, a record level for the fifth year in a row. This marks the longest period of sustained growth enjoyed by the Western European car industry (FT, March 30, 1990).<sup>29</sup> Nonetheless, excess capacity is expected to increase substantially in the 1990s, and the growing number of Japanese transplants is an important factor behind this trend.

---

<sup>27/</sup> West Germany has no import restrictions on Japanese vehicles and has lost 15% of its domestic market to Japan (Business Month, Feb. 1988, John Griffiths). In Denmark and Ireland, which have no car industries and no import curbs, the Japanese account for about 30% of sales. In France Japanese cars are "voluntarily" limited to 3% of the market and a treaty with Italy limits imported Japanese cars to under 3,000 per year (FT, Feb. 9, 1990).

<sup>28/</sup> Adjustment to the overcapacity issue has started to be addressed through plant shutdowns and plant conversions to new products.

<sup>29/</sup> New car sales continued to run at a record level in the first quarter of 1990. At 3.7 million, sales were 1.8% higher than a year earlier (FT, April 14, 1990).

**Box 3.2: THE U.S. BIG THREE: FALLING MARKET SHARE**<sup>1/</sup>

U.S. auto industry sales (cars and light trucks) fell by nearly 6% in 1989, to total less than 15 million vehicles for the first time since 1985 (FT, Jan. 8, 1990). It is not expected that 1990 will be a better year, with auto sales projected to decline from 14.5 million in 1989 to some 14.1 million in 1990 (Fortune, Jan 15, 1990).<sup>2/</sup>

Japanese carmakers' share of the U.S. retail sales of new automobiles has increased throughout the 1980s, rising by a compounded annual growth rate of about 5% between 1980 and 1989. Top-selling Honda accounted for 7.9% of the market in 1989, against 7.3% in 1988. Toyota's share of U.S. automobile sales rose from 6.5% in 1988 to 7.3% in 1989, while Nissan increased to 5.2% from 4.5% (FT, Jan. 8, 1990).

In comparison, the Big Three have experienced a steady decline in their market shares throughout the 1980s. Although General Motors commands the largest share of the North American auto market, it has suffered almost continuous erosion of its position, in spite of huge capital investments. Its market share fell from 36.2% in 1988 to 34.8% in 1989, while Chrysler's share fell from 11.3% to 10.3%. Ford was the only company that managed to capture a bigger slice of the declining market in 1989, boosting its share slightly to 22.1% from 21.7% in 1988.<sup>3/</sup> Figures for the first three months of 1990 show a slight rise in GM's market share, while Ford's stagnated.<sup>4/</sup>

The declining market shares of the Big Three indicate changes in the size and structure of the U.S. car parc, which in turn influences demand for replacement parts and accessories in the aftermarket. More imported autos mean that a greater variety of replacement parts and accessories are required to satisfy AM demands.

---

<sup>1/</sup> General Motors (GM), Ford and Chrysler.

<sup>2/</sup> A 6% decrease in total U.S. auto retail sales amounts to roughly 800,000 lost unit sales and approximately \$7.5-8 billion in lost revenues (New York Times, June 20, 1990).

<sup>3/</sup> In 1989 GM's car sales volume fell 10.1% to 3.44 million. Ford's car sales declined 4% to 2.18 million and Chrysler's car sales dropped 13.8% to 1.02 million (FT, January 8, 1990).

<sup>4/</sup> General Motors reported that it had gained market share compared to the first quarter of 1989, with 35.2% of the auto market, up 0.7%. Ford saw its market share dip from 22.3% to 21.8% for the same periods (FT, May 4, 1990).

**3.11** In 1988, Nissan set up the first Japanese transplant facility in Europe (U.K.), and other Japanese manufacturers have established or are planning to establish European facilities as well.<sup>29</sup> Japan's automakers also show much interest in Eastern Europe, with various negotiations underway already (Chapter IV discusses this in more detail).

**3.12** It is predicted that overcapacity will lead to "unprecedented structural change" in the global auto industry. Although market forces will ultimately bring production back into balance with demand, the process will be painful, requiring a grinding shake-out of excess capacity and the possible demise of some carmakers. With the reduced number of automakers, competition ultimately will be limited, which will drive prices up in the long run. In the meantime, consumers are already benefiting from lower pre-shakeout prices and marketing moves such as discounts and cash rebates.

## **C. Product Changes**

**3.13** Increased competition also arises from product changes, including:

- product innovations
- shorter product development cycle
- new process technologies, and
- influence of environmental concerns on product development.

**3.14** **Product Innovations.** The two most important product innovations are the increased use of electronics in automobiles and the replacement of steel with plastic.

**3.15** GM has estimated that the average value of the electronics in a car will rise from about \$500 in 1988 to more than \$1,200 by 1995 (Motor Industry Survey: Economist, Oct 15, 1988). Today's typical car embodies 25 electronically controlled subsystems, with more than 300 anticipated by 1997. Computers will control the entire driving process, from the pistons to the wheels (Automotive News, Aug. 23, 1989). Component suppliers are predicted to be the main source of electronic inputs for car manufacturers. This will require these suppliers to invest heavily in R&D to keep abreast of technological innovation.

**3.16** Of particular relevance for developing countries is the replacement of traditional electrical wire harnesses with multiplex systems composed of fiber optics. After the mid-1990s, demand for harnesses in the OE market will diminish, and demand in the aftermarket eventually will follow (Karmokolias, 1989:14).<sup>30</sup> Other less complex parts, such as carburetors, are being replaced by technologically sophisticated parts, in this case fuel injection systems, the production of which is beyond the capabilities of many developing country suppliers at this point.

---

**30/** Toyota plans to build both engine and assembly plants in the U.K. Honda, the third largest Japanese car-maker, has a fully operational engine plant in southern England and has plans for an assembly plant. Mazda is studying its first entry into European production through a joint venture with Ford, which holds 25% of the Mazda equity, and Japan's Mitsubishi Motor has also announced that it is conducting a feasibility study on European assembly (FT Survey, World Car Industry, Sept 13, 1989).

**31/** Mazda already plans to introduce a simple multiplex system consisting of two fiber-optic wires that can transmit and receive signal volumes equivalent to that handled by 6,000 wire looms.

**3.17** Based on an expected surge in the use of plastics in three major areas--exterior body panels, bumper systems, and window glazing--1990 automobile models contain 290 lbs. of plastic, about 10% of the average automobile's total body weight, rising to about 30% by 1995 (Automotive News, Aug. 23, 1989).<sup>32/</sup> Nonetheless, technical problems relating to the structural integrity of plastic, and environmental issues arising from the disposal of plastic automobile bodies, must be resolved before a completely plastic car can become a viable standard (Karmakolias, 1989:15).

**3.18** **Product development cycle.** The Japanese have demonstrated their ability to introduce new products more quickly than U.S. and European car manufacturers--an enormous competitive advantage in an over-crowded market.

**3.19** Japan's traditional advantage in the production of compact cars has steadily declined as the yen has strengthened.<sup>33/</sup> The Japanese have compensated for this by reducing the product development cycle so as to introduce new models more quickly. They also have extended their product line to costlier vehicles with more features. These are models where price is less of a factor (Fortune, June 20, 1988).

**3.20** The Japanese appear set to make speed of product innovation the competitive benchmark in the world car market in the 1990s. Currently they can produce a new car, from initial design to market delivery, in about four years--three years at Honda--versus five years for U.S. carmakers (down from seven in the early 1980s). Moreover, the Japanese development cycle absorbs half the person-hours required in the West, due to lean, multi-functional design development teams that interact closely with manufacturing and production engineering (FT, Jan. 15, 1990).

**3.21** **Process technologies.** Reduction of the product development cycle has been made possible largely by drastic changes at both the design and production stages--such as the introduction of computer-aided design (CAD), and engineering and computer-integrated manufacturing (CIM).

**3.22** Flexibility on the assembly line also contributes to the production of different models with little or no retooling. Flexibility has come from the increased use of robots and flexible automation, the use of plastics, and new management techniques that allow workers on the plant floor greater initiative and responsibility for production decisions (Karmakolias, 1989: 16). Robots are used by most automotive companies in IACs, and the degree of robotized activities will increase. Producers will need to keep pace with this trend to remain competitive.

**3.23** Although appropriately managed robots and flexible automation save labor, they are most valuable in bringing overall flexibility to the production line. Flexible manufacturing enables Japanese car models to be redesigned completely every four years, with production run output as low as 500,000. By contrast, in most of the Western car industry, higher unit costs dictate product lives of 10 years and volumes of about 2 million (FT, January 15, 1990).

**3.24** **Environmental concerns.** Improvements in fuel emissions and fuel economy will dominate environmental concerns in the 1990s. Government legislation, primarily in IACs, is expected to become more forceful, increasing the competition among manufacturers and parts suppliers as they try to develop

---

**32/** The main advantage of plastic is that it weighs less than sheet steel and can be molded into complex shapes without bonding or welding. Retooling can be accomplished much faster and at a cost of about 20% of retooling costs for conventional metal parts, allowing manufacturers to produce different models more frequently (Karmakolias, 1989).

**33/** It is expected that the price gap between Japanese and U.S. compact models will shrink from \$1,967 per car in 1987 to around \$1,000 in 1990.



more fuel-efficient cars.<sup>34/</sup> The Clean Air Act Amendments, which are expected to be passed into law before the end of 1990, are one example of such legislation.<sup>35/</sup>

3.25 The financial implications of these environmental concerns remain unclear. A survey to determine the impact on OEMs and suppliers indicates that manufacturers differ as to whether revenues and earnings will drop or increase. All agree, however, that their capital expenditures will rise (A.T. Kearney, October, 1989, World Bank Presentation).

#### **Implications for the Aftermarket**

3.26 Product changes in today's OE market will increasingly influence aftermarket needs during the 1990s and beyond.

3.27 **Parts proliferation.** A sharp increase in parts proliferation in the 1980s is one of the most important competitive trends resulting from rapid technological change and product innovation. Japanese cars are closely associated with parts proliferation in the 1980s, although the Big Three also now modify their parts more frequently. Component and accessory manufacturers, particularly those supplying the Japanese automakers, are under great pressure to keep pace with frequent design changes and modifications and to reduce the costs of their products.<sup>36/</sup>

3.28 Parts proliferation has profound implications for the aftermarket. Although opportunities exist since more parts are needed, breaking into the Japanese supply chain has proven extremely difficult. In addition, tooling-up costs are expensive, so many aftermarket manufacturers "cherry pick" the parts they will produce (the higher volume parts) and fill out their lines by buying-in the other parts (usually low volume parts). An aftermarket supplier also may buy-in other low volume parts, such as those for older domestic cars from the 1960s and 1970s.

3.29 Parts for imported cars also create special problems for U.S. manufacturers or distributors, since such parts cannot be purchased domestically. In terms of manufacturing them locally, U.S. manufacturers are at a disadvantage since they rarely obtain design specifications from the foreign automaker or its OE supplier.

3.30 Furthermore, parts proliferation affects inventory operations since keeping track of an ever-expanding list of parts numbers is difficult, as is determining the amount of parts inventory to keep in stock. For these reasons, many aftermarket manufacturers, distributors, and jobbers are turning to computerized inventory systems.

---

<sup>34/</sup> Annex B.1 describes the most likely changes in these areas.

<sup>35/</sup> The Clean Air Act Amendments are described in more detail in Annex B.2.

<sup>36/</sup> Some industry observers think the Japanese deliberately introduce frequent parts modifications to maintain control of their components business. For example, a Toyota model, which is made in three different locations-- Canada, U.S. and Japan--might have one of seven different variations of radiator installed in it. Others, however, believe the Japanese are constantly trying to improve the design and efficiency of their auto components because of their extreme reliance on export markets.

3.31 However, parts proliferation could present opportunities for some developing country suppliers<sup>37/</sup> to produce low-volume parts for which domestic manufacturers do not want to tool up. But since these are often high quality import parts, with a high technology content, most developing country firms do not have the capabilities to produce them. Parts proliferation also intensifies developing country firms' problems of keeping up with product changes. This is much more difficult to accomplish without a constant market presence or without contact with OE suppliers or automakers.

3.32 **Capital investment.** Larger capital investments in production also may be necessary to keep aftermarket suppliers abreast of technological innovations. Nonetheless, technological innovation is much less an issue in the accessories aftermarket, which is more customer- and market-driven.

3.33 **High quality O.E. parts.** The use of higher quality parts in OE production also may reduce demand for certain replacement parts, reducing aftermarket profits across the board.<sup>38/</sup> (Annex B.3 lists other technological changes in today's OE market that will have an impact on the aftermarket.)

#### **D. Changing Manufacturer-Supplier Relations**

3.34 A fundamental shift in relations between automakers and their suppliers has been one of the most important factors leading to increased competitiveness in the 1980s.

##### **Characteristics of Changing Manufacturer-Supplier Relations**

3.35 **First, parts suppliers' responsibilities are broadening.** Automakers are pressing for lower costs while placing heavier burdens on parts makers. The latter are expected to raise quality, ensure zero defects, and deliver on a just-in-time basis. In addition, the Big Three have asked suppliers to cut costs by 5% annually for the next five years (1990-95).

3.36 **Second, and closely related, parts suppliers have greater R&D responsibilities and are expected to make substantial financial and capital investments in R&D.** Suppliers also are expected to involve themselves in the design and innovation of new models right from the beginning. Furthermore, they are expected to keep abreast of new technological developments and continually look for ways to manufacture products more efficiently.

3.37 **Third, suppliers are shifting toward production of modular units (modules) rather than single parts.** Manufacturers are increasingly interested in sourcing a built-up module from one supplier rather than purchasing parts from numerous suppliers for in-house assembly. The module arrives at a car assembly plant tested and ready to be fitted. This has many advantages for the automaker, including reduced need for storage space for parts and simplification of production processes since fewer parts are involved. Car seats, for example, are increasingly delivered as modules; windows are another part that are highly suitable for modular outsourcing (IEEE Spectrum, Oct., 1987).

---

<sup>37/</sup> For the sake of simplicity, in this report "developing countries" refers to the newly industrialized countries that export to the U.S. (Brazil, Taiwan, Hong Kong, India, Mexico, Singapore, South Korea, and Argentina), and other developing countries (such as China, Thailand, Indonesia, Malaysia, and the Philippines).

<sup>38/</sup> According to Easton Consultants, Japanese cars--which have a high quality reputation--consume an average of 21 percent fewer dollars in maintenance and repair parts (excluding body parts) than domestic vehicles.

## **Implications of Changing Manufacturer-Supplier Relations for U.S. Parts Suppliers**

**3.38** One aspect of the changing manufacturer-supplier relationship is that U.S. manufacturers have attempted to replicate Japanese manufacturer-supplier relations, considered more effective in terms of cost, quality, delivery and general competitiveness.

**3.39** Increased outsourcing from single suppliers. Taking a lesson from the Japanese, single sourcing from outside firms is emerging as the industry optimum for U.S. automakers.<sup>39/</sup> Until the late 1970s, however, U.S. automakers preferred to source parts internally to boost profit margins. Parts sourced from outside were often "double-" or "triple-sourced" to ensure availability of supplies. Suppliers also fought for business strictly on a price basis, with contracts rarely covering more than one year.

**3.40** Advantages of outsourcing from single suppliers include increased logistical efficiency, easier quality assurance and control, and economies of scale at the supplier level. The cost of auto parts also is a strong financial incentive for increased outsourcing, since many suppliers have proven their ability to control capital costs more easily than highly integrated large auto manufacturers (Industry Week, 1988, Jan 4).<sup>40/</sup> Moreover, parts makers tend to specialize in product sectors, making it is easier for them to remain at the forefront of technological developments. They also can recoup R&D costs by selling their products to more than one manufacturer.

**3.41** Outsourcing from single suppliers will necessitate longer, more stable relationships with more specialized firms. Automakers will require fewer parts suppliers, which will result in increased reliance between automakers and suppliers. Until recently, Detroit had been unwilling to accept the loss of control and the increased dependence on suppliers that their sharing of responsibilities entails (Ibid).

**3.42** The cost of increased R&D responsibilities and the economies of scale necessary to supply components to large automakers can be realized only by large supplier firms. Thus, it is suggested that by the end of the decade the component business may be dominated by 50 specialty companies. Supporting them will be a network of second- and third-tier subcontractors, many of which are currently supplying directly to vehicle producers (Economist, Oct. 15, 1988) (Figure 3.1).<sup>41/</sup>

**3.43** Higher quality and service standards also will be expected in the U.S. aftermarket as a result of changes in the OE market. Industry experts predict a consolidation in the aftermarket since many independent suppliers do not have the financial resources nor the economies of scale to produce parts to meet the global quality standards which the aftermarket will eventually demand.

**3.44** Changing manufacturer-supplier relations also make it more difficult for developing country suppliers to penetrate the OE market. Most do not have the technological capabilities, organizational skills, or financial resources to produce high quality and technologically sophisticated parts. A reduction in the number of suppliers reduces even further the chances of developing country firms to become first-tier suppliers. However, opportunities may still exist for them as second- or third-tier subcontractors. For instance, they could supply sub-components (e.g., molded plastic and rubber parts, and metal stampings) used in the production of certain automotive parts and sub-assemblies.

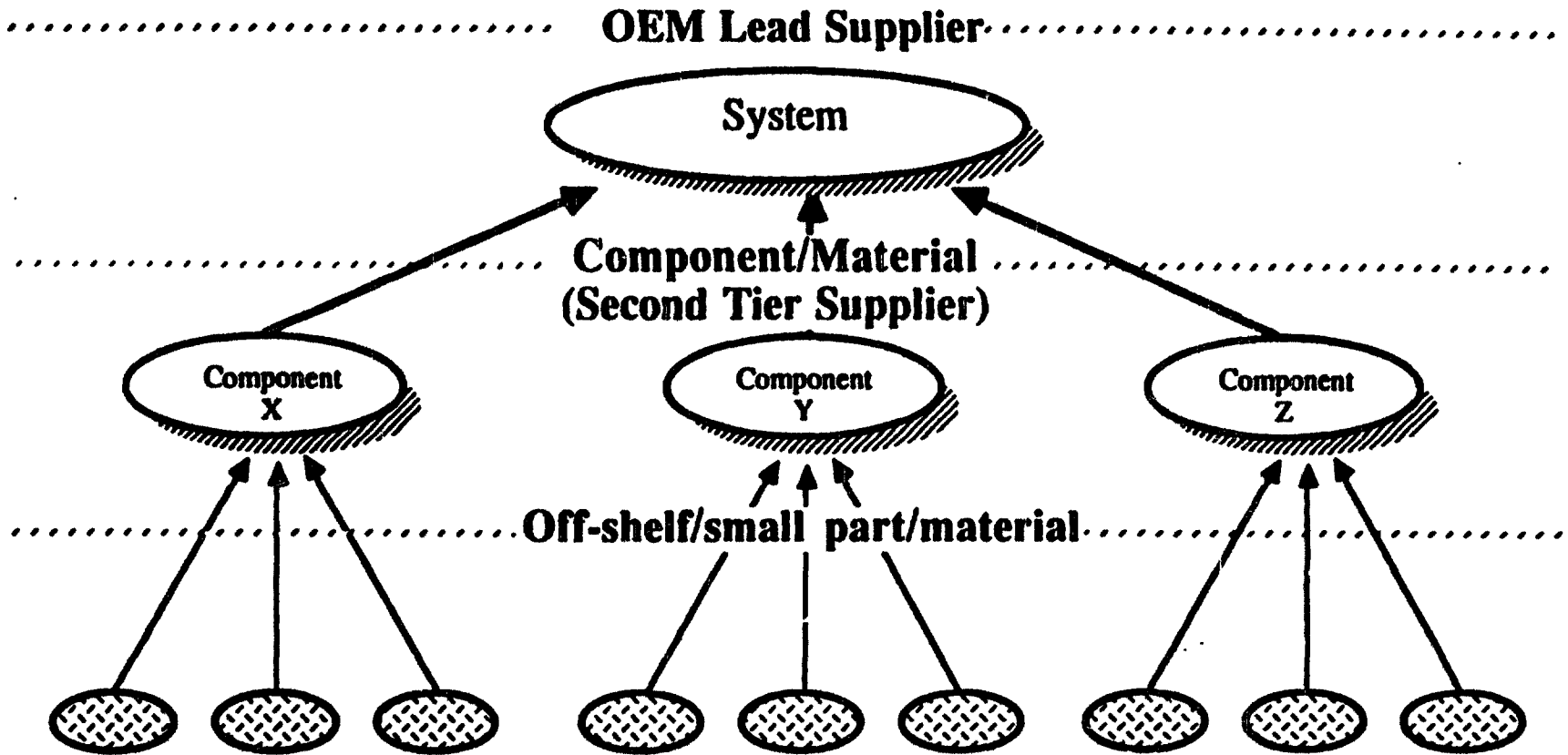
---

**39/** For instance, Ford operations in North America trimmed their first tier suppliers (those supplying directly to vehicle manufacturers) by 70% between 1985 and 1989 (Karmokolias, 1989: 17).

**40/** More than 30,000 different parts go into the assembly of an automobile, and components and materials represent the largest part of the ex-factory cost of a car, often as much as 50-60 per cent (compared with about 20 per cent for direct labor costs and the remainder for other overheads) (Economist, 15 Oct., 1988).

**41/** Several world-class component companies already have specialist expertise, such as West Germany's Bosch and Britain's GKN in electronics, and the U.S's Eaton in transmissions.

**Figure 3.1: MULTI-TIER SUPPLIER NETWORK**



**Box 3.3: GM: TWO SIDES OF A GIANT**

As problems plaguing GM's North American operations approach crisis proportions, GM is experiencing a dramatic revival in its European business--long considered a secondary priority by GM headquarters in Detroit. In 1988, GM sold only 1.5 million cars in Europe (versus 3.44 million in the U.S.), but the European division earned an estimated \$2 billion, or half of GM's estimated total company earnings and almost all the company's total profits from auto manufacturing (New York Times, Feb. 3, 1990).

GM operations on both sides of the Atlantic suffered large financial losses early in the 1980s and underwent massive reorganizations in the mid-1980s. Their different restructuring efforts say a lot about the success of the European operations and the continuing decline of those in North America.

First, investments in technologically sophisticated production equipment were different. While GM U.S. overinvested in automation, GM Europe relied on other ways of improving efficiency since it did not have the same access to capital funding. Today its European operations have some high tech elements but generally are far less technically advanced than plants in North America.

Second, GM in North America dismantled its huge, autonomous divisions, Fisher Body and GM Assembly. GM created in their place two integrated divisions--Buick-Oldsmobile-Cadillac (BOC) and Chevrolet-Pontiac-GM of Canada (CPC). This may have made financial sense, but it diminished what automakers call "brand character" by centralizing design and engineering operations. In GM's classic structure, Oldsmobile designed, built and marketed autos that were distinct from the other car divisions' products. Now Oldsmobile no longer builds its own cars and contributes little to the design and engineering. For all practical purposes, Oldsmobile is only a marketing division whose purpose is to sell cars made by BOC. According to one industry specialist, one of the most poignant things lost in the reorganization was the loyalty of individuals to Brands. "People miss being part of Olds and Buick, and it shows" (Time Magazine, Feb. 19, 1990).

Meanwhile in Europe, GM's development of the successful Opel Vectra/Vauxhall Cavalier model was the result of a vastly different reorganization.<sup>1/</sup> Traditionally, the European division was very much West German-led and its different production sites lacked coordination. The first goal of the restructuring was to broaden the division's character, thus corporate headquarters moved to Zurich in 1986. Subsequently, headquarters was able to coax the diverse GM Europe factions into sharing parts and services.<sup>2/</sup> Engineering and design staff remained in West Germany, but GM decentralized the marketing divisions. This allowed marketing management and staff to stay in closer contact with their customers. The reorganization of GM Europe was very gradual and its sensitivity to the different European nationalities was evident in the decision to avoid excessively centralized organization.

Thus, while GM's European manufacturing has been earning a profit of \$1,200 a car, the North American automaking operations have been losing money. Moreover, while GM Europe boosted its market share from 8.4% in 1980 to 10.5% in 1988, to over 11% in 1989, the domestic company's portion of the U.S. car market fell from 46% to 35%, between 1980 to 1988.

The 1980s provided a harsh competitive environment for automakers and proved that "bigger is not necessarily better." GM's more successful experience in Europe compared to its North American operations calls attention not only to the difference in organization and the divergent strategies, but also to the utterly dissimilar corporate cultures.

---

<sup>1/</sup> The Vectra Cavalier is now selling at the rate of 630,000 cars a year, making it the best-selling GM car in the world.

<sup>2/</sup> GM Europe's 200-employee corporate staff in Zurich is known for moving with great speed notably in its agreement in December 1989 to acquire 50% control of the Swedish carmaker Saab for \$600 million.

## **IV. GLOBALIZATION OF THE AUTOMOTIVE INDUSTRY**

**4.01** The macro- and micro-level factors discussed in the previous chapter have contributed to the increased internationalization of the automotive industry. The growing domination of the Japanese automotive industry, increased competition between automobile manufacturers, rapid product innovation and parts proliferation, and changing manufacturer-supplier relations are creating a new global order for the entire automotive industry.

**4.02** This means that the global competitive environment will require greater consolidation among automakers in marketing, supply, collaboration, and internationalization of technology. Some predict there will be only five global companies by the end of the century--GM, Toyota, Ford, Honda and Nissan, with Fiat of Italy a possible sixth (Business Month, February, 1988).

**4.03** Almost all major vehicle and component manufacturers already have adopted a global perspective in their competitive strategies. For example, auto component companies such as GKN and Lucas of the U.K., Bosch Inc. of West Germany, and Champion Spark Plugs of the U.S. are international companies. Their development of long-term relationships with international vehicle manufacturers means their investment decisions are driven by international factors rather than domestic market factors only. (FT, Nov. 7, 1989).

**4.04** Globalization of the component sector includes the growing capacity of Japanese manufacturing in North America and Southeast Asia, and the already large presence of American component manufacturers in Mexico.

**4.05** Increased collaboration among players in the global auto industry reduces the risks and costs of competing in different regional markets. The strongest links in the world industry are between Japanese and U.S. automakers. Each of the major producers in the respective country has strategic agreements with its foreign counterparts. In some cases, U.S. companies have equity holdings in Japanese producers.<sup>42/</sup>

**4.06** Both U.S. and Japanese firms are expected to increase their joint ventures in the European auto industry during the 1990s. Until now, U.S. involvement (with the exception of Chrysler) has tended to be through wholly-owned subsidiaries.

**4.07** Examples of recent U.S. and Japanese joint venture involvement in Europe include:

- GM taking a 50 per cent stake in Saab, the Swedish auto and aerospace group, in a US\$600 million deal in 1989;
- Volvo and Mitsubishi negotiating joint venture car production in Western Europe; and

---

**42/** Examples include: Ford holds a 25% equity stake in Mazda of Japan. In the U.S., Mazda operates an assembly plant producing cars for sale under both the Ford and Mazda badges, while Chrysler and Mitsubishi have a joint venture, Diamond Star, which also produces cars for both sales networks. General Motors has a 41.6% stake in Isuzu, as well as a small holding in Suzuki. General Motors and Toyota, respectively the largest U.S. and Japanese vehicle makers, have been running a joint venture in the U.S.--NUMMI, New United Motor Manufacturing--since the early 1980s, assembling Toyota-designed cars, in Fremont, California, for the two companies' U.S. sales networks (F.T. World Car Industry Survey, Sept. 13, 1989).

- Volkswagen and Ford planning to develop a new vehicle for the European market (announced in late 1989).
- Unipart, a British parts and distribution group, announcing joint venture with a Japanese company to manufacture catalytic converter systems to curb car exhaust emissions (FT, June 12, 1990).

This vehicle is being designed to compete in the multi-purpose vehicle market, considered to be one of the fastest-growing market segments of the European car market in the 1990s (FT, Dec. 18, 1989).

4.08 Automakers also are focusing their attention on Eastern Europe since experts predict car sales could double over the next decade from the current 2 million per annum.<sup>43/</sup> Eastern Europe also provides a convenient base from which to export both vehicles and components to the rest of Europe. There is the added advantage of a skilled labor force and relatively low wage costs in the short run.

4.09 Recent interest in Eastern Europe includes the following negotiations and agreements.

- No less than eight car groups (e.g., GM, Ford, Toyota and Nissan inter alia) are engaged in joint venture discussions with Skoda, the Czechoslovak carmaker (FT, May 4, 1990).
- GM announced in early 1990 a \$150 million joint venture with Raba, the Hungarian automotive engineering group, to build 200,000 engines and to assemble 30,000 cars a year (FT, July 17, 1990).
- Ford is to invest \$80 million in an automotive components plant in Hungary. The components (automotive ignition coils and fuel pumps) will be exported to Ford vehicle assembly plants in Western Europe. The deal also will allow Ford to increase its vehicle exports from Western Europe to Hungary (Ibid).
- Nissan recently announced plans to set up 36 car dealerships in East Germany, making it the first Japanese car company to market its vehicles there. The new dealership network also will play an important role in servicing the vehicles of West German Nissan owners travelling to the East (FT, June 22, 1990).

The Soviet Union also is generating interest as an investment site. Fiat recently signed a \$1.4 billion joint venture to build an automobile factory in the Soviet Union which will produce 300,000 cars per year before the end of the decade. This is similar to arrangements Fiat already has in Yugoslavia and Poland.

#### **Developing Country Producers**

4.10 Joint ventures for research, production, and marketing are particularly important for developing country producers who need to collaborate with foreign manufacturers to obtain technical expertise and to secure marketing outlets. Examples of joint ventures in developing countries include:

- Autolatina in South America, a joint venture between Ford and Volkswagen and one of the largest joint ventures in the world auto industry;
- Samsung, South Korea's largest conglomerate, is starting to produce trucks with Nissan Diesel of Japan supplying the technology (FT, June 26, 1990).

---

<sup>43/</sup> In the long run, car sales could reach 7 million per year if car population densities reach Western levels (FT, March 6, 1990).

- Suzuki's 40 per cent stake in Maruti Motors of India; and
- Toyota's plans, in collaboration with a Pakistani conglomerate, to begin vehicle production in Pakistan by 1993 (FT, May 1, 1990).

4.11 Such arrangements also can increase technology transfer to developing countries. However, developing countries must be able to provide the infrastructure, administrative procedures, and business practices necessary for the successful transfer of modern technology. Maruti, for instance, will become the sole supplier of Suzuki small cars to Europe after 1992 but Suzuki hesitated to commit itself to this plan until recently, in part because of the variable quality of components manufactured in India. Maruti hopes its export expansion will enable it to force its suppliers to upgrade the quality of their products (FT, May 18, 1990).<sup>44</sup>

4.12 The increased integration of the global automotive industry also makes it less and less viable for developing country suppliers to sustain independent automobile manufacturing industries. Auto parts manufacturing is seen as a more realistic way for most developing countries to participate in the global industry. To be successful, component suppliers will probably have to "hook up" with one of the 50 to 100 international firms likely to dominate the market by the end of the 1990s.

4.13 As mentioned, increasing competition and rationalization also is expected to take place in the aftermarket. It is predicted that there will be fewer first-tier suppliers specializing in well-defined product sectors and operating on an international basis. In turn, this implies that second- and third-tier suppliers also would have to maintain international quality standards.

---

<sup>44/</sup> This agreement also provides Maruti with a crucial lever in persuading the Indian government to allow it to double production capacity to 250,000 cars a year.



## V. STRUCTURE OF THE U.S. AFTERMARKET AND DISTRIBUTION CHANNELS

### A. Overview of the U.S. Aftermarket <sup>45/</sup>

#### Size and Structure <sup>46/</sup>

5.01 In 1988, the U.S. aftermarket was estimated to be US\$106.7 billion in retail dollars. The total aftermarket can be disaggregated into four segments:

- automotive services (US\$44 billion)
- replacement parts (US\$36.5 billion)
- chemicals, tires and batteries (US\$17.8 billion), and
- accessories (US\$8.4 billion).

5.02 The total aftermarket grew by an annual rate of 1.1% from 1983 to 1988 and is forecast to increase on average by 2.5% annually from 1988 to 1993. The market for replacement parts had an annual growth rate of 0.8% during the same period, and this growth is expected to rise to 2.7% annually between 1988 and 1993 (Table 5.1).

**Table 5.1: MARKET SIZE AND STRUCTURE**

	Current Dollar Market (\$US Millions)				
	Total Aftermarket	Service Excl. Parts	Replacement Parts	Chemicals, Tires & Batteries	Accessories
1983	84,900	33,500	29,500	15,300	6,600
1988	106,700	44,000	36,500	17,800	8,400
1993 <sup>g/</sup>	143,700	61,000	49,500	21,700	11,500
% per Year 1983-88	4.7%	5.6%	4.4%	3.1%	4.9%
% per Year 1988-93 <sup>g/</sup>	6.1%	6.8%	6.3%	4.0%	6.5%
% per Year 1983-93 <sup>g/</sup>	5.4%	6.2%	5.3%	3.6%	5.7%

<sup>g/</sup> Estimates.

Source: DesRosiers Automotive Research Inc.

<sup>45/</sup> Unless otherwise indicated, information in this section is primarily drawn from Canadian Automotive Aftermarket: Strategic Market Analysis of Export Opportunities to the U.S., DesRosiers Automotive Research, 1989; Trends and Opportunities in the North American Automotive Aftermarket, 1989; General Vision of the Mexican Autoparts Restructuring Program, Booz Allen and Hamilton, 1987; "The Automotive Replacement Parts Industry", unpublished student paper, Yale, 1987.

<sup>46/</sup> As previously stated, replacement parts and accessories markets are the focus of this

**5.03** The market for aftermarket automotive accessories showed strong growth from 1983 to 1988, rising by 1.4% per annum. This growth is expected to continue, averaging 2.9% from 1988 to 1993 (Table 5.1).

#### **Factors Influencing Aftermarket Growth**

**5.04** In addition to the factors discussed in Section III, several other variables influence AM demand for replacement parts and accessories.

**5.05** Demographic trends. With a population of approximately 240 million people, the U.S. is one of the largest single autoparts markets. Demographic trends influencing the structure of the aftermarket include:

- population density
- degree of urbanization
- unemployment rates, and
- personal income per capita.

Demographic variables help a supplier determine the demand for certain products in certain markets. For instance, in a highly urbanized area such as southern California, demand for replacement parts for compact and sub-compact imported cars is much greater than in the mid-west where mid-size domestic cars and light trucks are more prevalent (Purchasing, May 26, 1988). (Table B.1 presents the most recent demographic data for the nine census regions in the continental U.S.)

**5.06** Vehicle fleet.<sup>47/</sup> In 1987, 176.2 million vehicles were registered in the U.S., and the number of vehicles is growing by approximately 2.5% annually.<sup>48/</sup> Passenger cars accounted for the largest portion of vehicles in operation--about 77%, or 135.4 million units; light trucks accounted for approximately 19% of vehicles in operation, or 33.3 million vehicles (Table 5.2).<sup>49/</sup>

**5.07** Age of vehicle population. This is another important factor influencing aftermarket demand for replacement parts. The average age of passenger cars in operation rose significantly from the early 1970s to 1987, from 5.7 years to 7.6 years. The average age of trucks (8.0 years in 1987) increased more slowly in the same time period (Table C.3).

**5.08** With the exception of certain maintenance services that are performed routinely over the life of a vehicle, such as oil changes and tune ups, the prime aftermarket repair years are for four to 10-year-old automobiles. Newer vehicles are covered by manufacturers' warranties, while older ones tend to be driven less and their owners less likely to pay for major repairs.

---

**47/** Annex C examines the U.S. vehicle fleet in greater detail.

**48/** Vehicles registered include those for business use and those primarily for personal use. In 1987, total vehicles registered also included 7.4 million heavy-duty trucks and buses, representing 4.2% of the total vehicle fleet.

**49/** Regional market descriptions are discussed in Annex C.

**Table 5.2: FACTORS INFLUENCING MARKET GROWTH**

United States Motor Vehicle Registrations by Census Division - 1987

Census Division	Automobiles		Light Trucks		Total Motor Vehicles
	Number	(%)	Number	(%) g/	Number
<b>UNITED STATES</b>	135,431,112	76.9	33,330,055	18.9	176,191,339
New England	8,136,776	86.6	1,027,141	10.9	9,397,012
Middle Atlantic	19,180,730	86.2	2,360,572	10.6	22,259,881
East North Central	23,714,096	79.8	4,692,376	15.8	29,704,108
South Atlantic	24,814,561	77.4	6,193,101	19.3	32,077,768
Pacific	20,432,953	76.2	4,976,240	18.5	26,828,204
East South Central	8,778,687	74.1	2,594,646	21.9	11,844,189
West North Central	10,111,541	71.3	3,177,998	22.4	14,176,942
Mountain	7,017,019	68.3	2,812,797	27.4	10,278,331
West South Central	13,244,749	67.5	5,495,184	28.0	19,624,904

g/ These percentages do not total 100% as heavy trucks are not included.

Source: U.S. Department of Transportation, Federal Highway Administration, 1987.

**5.09** Imported vehicles constitute the largest and fastest growing segment for the U.S. aftermarket. By 1988, imports represented 35% of the new car market versus less than 20% in 1979. The aftermarket for imported car and light truck parts is growing more than three times faster than the aftermarket for domestic vehicles. In terms of retail sales, a recent study projects that aftermarket import sales will rise from \$13.5 billion in 1987 to \$22.7 billion in 1993.<sup>50/</sup>

**5.10** Nonetheless, penetrating the import aftermarket is extremely difficult. Owners of foreign cars tend to return to their car dealership for service rather than to the traditional aftermarket service centers.<sup>51/</sup> This makes access to this import market harder for suppliers lacking strong linkages with the vehicles manufacturers.<sup>52/</sup> Imported car dealerships usually buy OEM quality parts directly from the vehicle manufacturers.

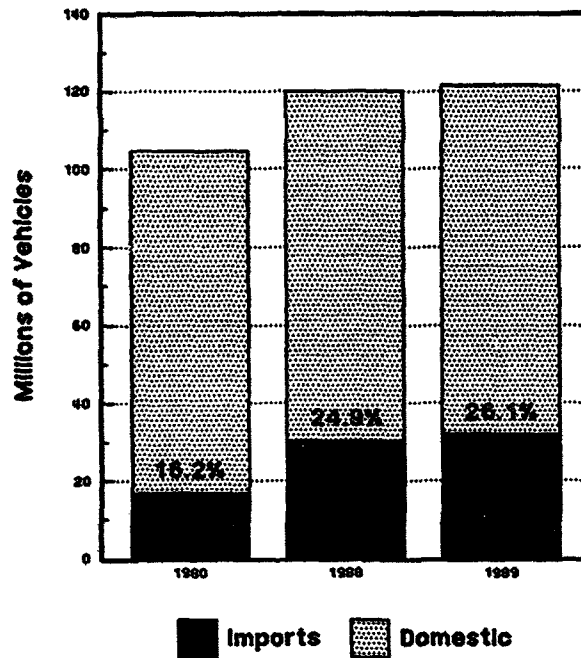
**5.11** In 1989, 32,048,180 imported cars were in operation in the U.S., an increase of 4.6% from 1988. In 1989, imports accounted for 26.1% of total automobiles in operation, a rise of 10% since 1980 (Figure 5.1).

<sup>50/</sup> Frost and Sullivan, "The Import Car Aftermarket", 1989.

<sup>51/</sup> The AM distribution structure is described in Section IV, Part B.

<sup>52/</sup> Within most parts and service categories, foreign car owners return to the dealership between 35 and 50% of the time versus 10 and 15% for domestic car owners.

**Figure 5.1**  
**Imported Passenger Cars in Operation in the U.S.**



Source: NAMA, "Facts and Figures," 1990.

5.12 **Market growth segment: light trucks.** Light trucks account for over 30% of new vehicle sales, compared with about 20% five years ago, but their numbers across regions vary greatly (Table C.2).<sup>53</sup> They also require more maintenance than passenger cars since they are driven more miles each year, usually under harsher conditions.

5.13 The light truck market segment is dominated by domestic manufacturers,<sup>54</sup> and a greater percentage of domestic vehicle owners rely on the traditional aftermarket for service compared to owners of imports. This suggests that small, less sophisticated suppliers might have better access to the light truck aftermarket segment than to other aftermarket growth segments (i.e., the import car parc in general). Moreover, market research reveals that owners of light trucks are big users of accessories,<sup>55</sup> indicating an area of significant opportunity to accessory suppliers.

---

<sup>53/</sup> Markets in the industrial northeast and along the eastern seaboard have low proportions of light trucks, ranging from 10.6% to 15.8%. In comparison, the "heartland" regions--the Great Plains, Rocky Mountains and south central states--are characterized by the highest relative concentrations of light trucks registered, with percentages ranging between 21.9% and 28.0%.

<sup>54/</sup> Approximately 85% of light trucks are purchased from the Big Three versus about 65% of passenger cars.

<sup>55/</sup> Items such as exterior lighting packages, step bumpers, truck bed liners, roll bars, interior seating, and many other items are very popular with light truck owners.

**5.14 Miles driven.** A common misperception is that as new vehicle sales decrease, aftermarket activity is driven up. The aftermarket actually is more responsive to miles driven: vehicles require more maintenance the more they are driven, but during slow economic times (i.e., when new vehicles sales are down) consumers, collectively, drive less. Therefore, the aftermarket declines in response.

**5.15** It is projected that in 1990, American drivers will drive over 1.5 trillion miles, versus the 1978 figure of 1.1 trillion. Between 1978 and 1990 the annual projected increase averages 2.8%; between 1983 and 1990 the figure is projected as 3.8% (Table C.5).<sup>56</sup>

#### **Equipment and Buying Preferences**

**5.16** Two factors that influence accessories market growth are (a) the amount of equipment installed on new vehicles and (b) consumer buying preferences.

**5.17 Equipment on new vehicles:** The past decade has seen the disappearance of the "stripped down vehicle"<sup>57</sup> and a rising level of factory-installed equipment that comes as standard features on new cars. The Japanese carmakers inspired this trend by offering well-equipped economy cars at a time when their U.S. counterparts offered only minimally equipped models.<sup>58</sup> For example, 85-90% of all domestic passenger cars sold today have air conditioning, in comparison to only 23% in 1965.

**5.18** On the one hand, more equipment on new vehicles leaving the factory may limit opportunities in the accessories aftermarket for the sale of equipment that used to be owner-installed. On the other hand, the accessories market continues to grow as manufacturers develop new products and market niches. Moreover, as standard equipment lists grow and options lists shrink, consumers search for new ways to "personalize" their vehicles.

**5.19 Consumer buying.** The market for appearance/trim (non-mechanical) accessories is more fashion-driven than other segments of the aftermarket and thus more volatile. This underscores the need for accessories manufacturers to have accurate market information so they can react quickly to changes in the OE market and consumer tastes. Such market information also helps a manufacturer know when an accessory is becoming less popular and thus coming to the end of its product life cycle.

#### **B. Distribution Channels**

**5.20** The aftermarket distribution system is difficult to segment since it is highly complex, with many players overlapping; nonetheless, it comprises three primary channels:

- the "traditional" channel oriented toward the mechanic-installed market,
- the "retail" channel focused on the do-it-yourself market, and
- the original equipment service (OES) channel where dealerships sell and install parts and accessories.

Figure 5.2 illustrates these channels.

---

**56/** Total annual mileage is relatively inelastic in relation to gasoline prices. In 1979 and 1980, when the price of gasoline at the pump was increasing at annual rates of 30% to 40%, the number of miles driven was declining at a rate of just over 1%. In 1986, when retail fuel prices declined by well over 20%, the number of miles driven increased by only 2.2%.

**57/** For example, one with extremely spartan interior and exterior trim and with a bare minimum of standard equipment and convenience/comfort features.

**58/** Almost all new cars have AM-FM stereo radios, and many economy cars have contoured individual seats with plush surfaces, padded steering wheels, and the like.

END USERS      INSTALLERS/  
POINT OF PURCHASE      DISTRIBUTORS      SUPPLIERS

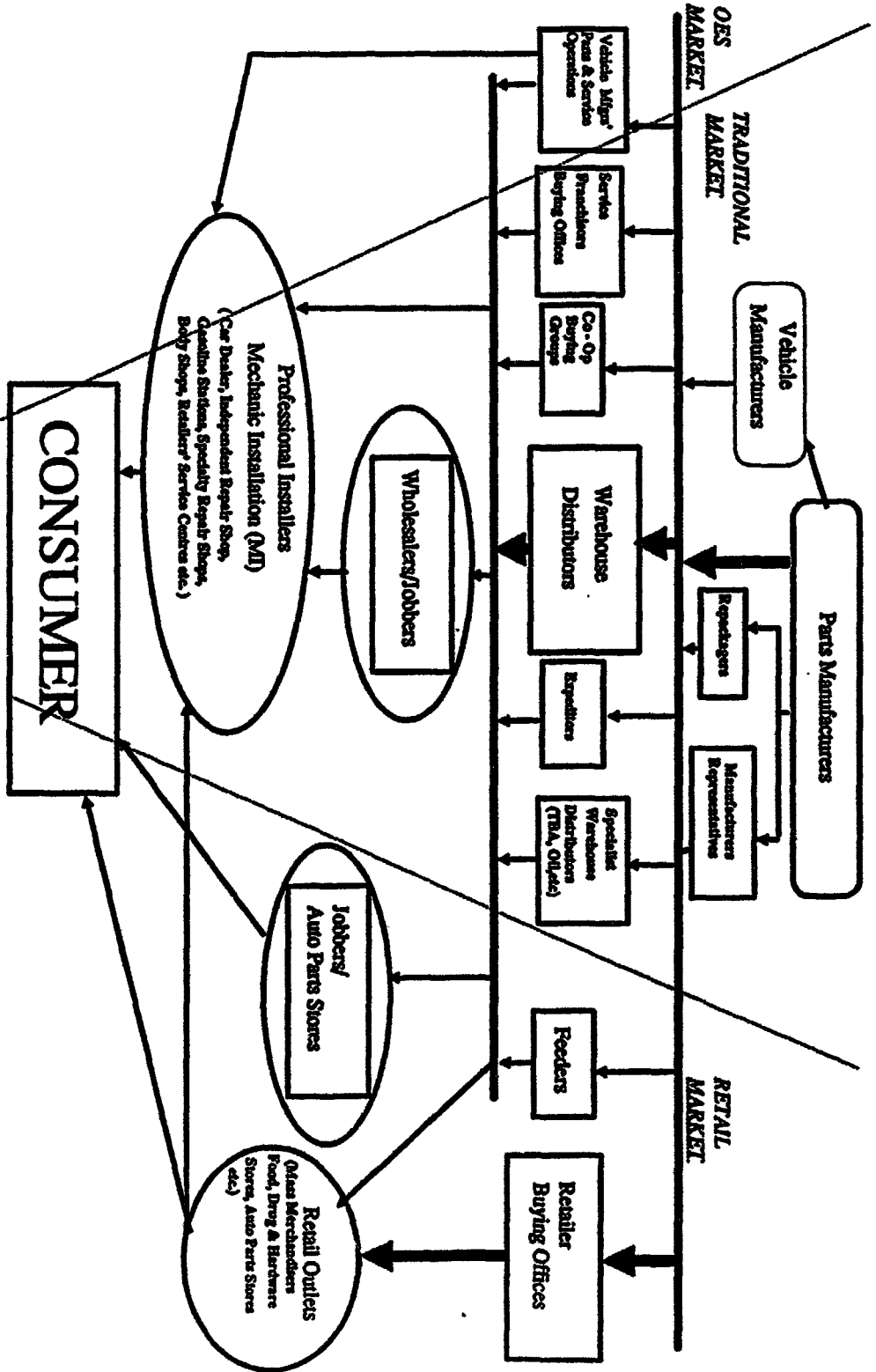


Figure 5.2: DISTRIBUTION CHANNELS IN THE U.S. AFTERMARKET

Source: DelRosiers Automotive Research Inc.

**5.21 Traditional distribution channels.** A manufacturer relies on various distribution channels in bringing a product to market. A manufacturer may sell directly or go through a manufacturer's representative,<sup>59</sup> but the most important product flow is from the manufacturer directly to the warehouse distributor (WD). In addition, the manufacturer may sell either to the buying office of a service franchiser<sup>60</sup> or to an expeditor.<sup>61</sup> Smaller manufacturers commonly use manufacturers' agents, but some WDs resist dealing with them, due to the additional cost involved.

**5.22** Warehouse distributors act as intermediaries in the distribution system. Their traditional role has been to buy in volume from a variety of manufacturers, inventory the parts, and sell small batches to jobbers as required. Industry sources estimate that approximately 900 WDs are currently operating in the U.S., a decline of at least 10% since 1980 (Automotive Aftermarket News, April 1989).

**5.23** The great majority of warehouse distributors are small, single-location companies with annual sales of less than US\$10 million. A smaller group of WDs are medium-sized companies that operate multiple locations. These companies, of which there are fewer than 20 significant players, have sales in the US\$10 to \$100 million range. The final group of WDs--program distribution groups--comprises a handful of players, with sales in excess of US\$100 million. The most powerful of these include NAPA, APS and CarQuest, Inc.

**5.24** Program distribution groups were formed by the WDs to increase their economies of scale and offer increased service to their jobbers. WDs associated with program distribution are members in a consolidated buying group and marketing agency. Although the WD usually still deals directly with manufacturers, he is able to enjoy distribution price levels and to benefit from various other services, including group advertising and, in some cases, private label branding. In 1988, 46% of WDs in the U.S. were members of program distribution groups.<sup>62</sup> (A list of the largest program distribution groups is provided in Annex D).

**5.25** Below the warehouse distributor is the jobber, whose role is to provide almost instant availability of parts to the installer. Currently, there are estimated to be 26,000 jobber stores, a drop of approximately 4,000 since 1980. The decline in the number of jobbers reflects the competitive environment in which they operate as well as their changing customer base. Jobbers today compete intensely in the do-it-yourself (DIY) market with retail automotive specialty stores. Approximately half the jobbers now deal solely with the mechanic-installed (MI) market, and half with both the MI market and the DIY market (Market Analysis, MEMA, July/Aug. 1988). Moreover, approximately 40% of jobbers are affiliated with program distribution, through an agreement with a WD or through actual ownership by the WD. Jobbers associated with a program distribution group generally buy between 70% and 100% of their parts through

---

**59/** A manufacturer's representative is a third party acting as an intermediary for those manufacturers with limited marketing resources and knowledge of the U.S. AM.

**60/** Service franchisers (e.g., Midas) are companies that either franchise or own specialist AM installation chains. The largest ones deal directly with the parts manufacturer rather than purchase through a warehouse distributor.

**61/** Expeditors are companies that buy from the manufacturer or from an independent repackager and sell directly to the installer (usually car dealers). They often deal in repackaged products and are relatively few in number across the United States.

**62/** WDs who do not belong to program distribution groups are referred to as independents.

the group distribution network.<sup>63/</sup> Below the jobber is the installer, the final group of players in the traditional distribution channel.<sup>64/</sup>

**5.26** Various trends are evident along the WD-jobber-installer distribution path.

- First, the sector is undergoing significant consolidation and rationalization, which is most evident from the growth of large program distribution groups. This pattern is predicted to continue, indicating that the number of independent WDs and jobbers will also continue to decrease.
- Second, there is an emerging pattern of WD specialization, particularly for small and medium-sized players. With growing parts proliferation and the increased range of services now demanded from a WD, a number of these firms target specific product areas or market niches. Although still too early to determine the significance of this trend, it may result in manufacturers dealing with fewer WDs to achieve market coverage.

**5.27** Finally, specialty repair outlets and chains are increasing their market share while the number of independent service stations is declining. Specialty repair operations have established their market presence by focusing on a particular repair or maintenance service such as muffler replacement or tune-ups. They offer faster service at a lower cost, and as they have expanded and offered more repair services, their market share has increased at the expense of the independent service sector, e.g., independent auto repair centers, service stations and garages (Motorage, Oct., 1989).

#### **Retail Distribution Channels**

**5.28** Retail distribution channels focus on the DIY market. In entering this market the manufacturer (or his/her agent) has the choice of selling either to a warehouse distributor, a feeder, or the buying office of a mass merchandiser or other automotive retail outlet.

**5.29** Many WDs concentrate on supplying retail-oriented jobbers and non-jobber automotive parts stores, but the majority of WDs and retail jobbers also sell to the mechanic-installed market.

**5.30** Feeders are companies that act as intermediaries between manufacturers and retailers of automotive products (usually mass merchandisers or outlets that do not sell automotive products exclusively). They often buy on a shipment basis from the manufacturer and sell in the required volume to individual retail outlets or small retail chains.

**5.31** Large automotive specialty chains (e.g., Northern Automotive Corp., Pep Boys, and Western Auto Supply Co.) and major mass merchandisers (e.g., Sears, K-Mart, and Wal-Mart) offer significant markets to parts manufacturers, but they place very high demands on suppliers in terms of price, payment and delivery terms, and service.<sup>65/</sup> These retail players purchase some products directly from manufacturers--including overseas manufacturers--through in-house buying offices. Chain outlets also may source from local jobbers for low-value, low-turnover goods.

---

**63/** There are a few isolated cases of jobbers forming collective buying groups to by-pass WDs and deal directly with the manufacturer, but these groups have not proven successful in the U.S.

**64/** The various types of installers are not examined in detail since the focus of this report is opportunities for DC manufacturers, and manufacturers rarely deal directly with the installer.

**65/** Annex D lists major mass merchandisers and the largest automotive specialty chain stores.



5.32 By the end of 1990 a reduction in the overall quantity of aftermarket retail and service outlets is anticipated. The market share of mass merchandisers is expected to continue falling, while auto specialty retailers are likely to experience a slowdown from the rapid growth of the late 1970s and first half of the 1980s (Table 5.3). The growth of the DIY market in the 1960s and 1970s appears to have peaked, and the strongest growth segment now is specialty repair shops and franchises. However, discount auto retail chains continue to record strong market growth. Increasing technological complexity of many automobiles and the aging of the large U.S. population segment--which was responsible for the earlier increase in DIY repairs--are two of the main factors behind the decline of the DIY market.

**Table 5.3: AUTOMOTIVE AFTERMARKET OUTLETS**  
(Retail & Service)

	Number of Outlets			% Change From	
	1976	1986	1990	1976	1986
Service stations offering repair service	150,000	90,000	80,000	-4.8	-2.9
General repair service	85,000	75,000	65,000	-2.1	-3.6
Car dealers	27,500	22,000	20,000	-2.4	-3.6
Jobbers	30,500	28,000	26,000	-1.2	-1.9
Mass merchandisers	8,500	7,000	6,500	-2.1	-1.9
Auto specialty retail stores	5,000	9,000	10,000	5.3	2.6
Tire stores	17,000	15,000	14,000	-1.5	-1.7
Muffler shops	2,000	4,600	5,000	7.0	2.1
Other specialized repair shops (i.e. lube, tune-up, car dealing specialists)	48,000	61,000	70,000	2.9	3.4
<b>Total</b>	<b>871,000</b>	<b>311,600</b>	<b>297,500</b>	<b>-1.7</b>	<b>-1.2</b>

a/ 1990 figures are estimates.

Source: A.T. Kearney, Inc.

### Original Equipment Service Channel

5.33 New car dealerships sell and install aftermarket goods, generally brand-name products purchased from vehicle manufacturer parts divisions or from manufacturers certified by the vehicle manufacturers. The importance of the OES channel is likely to gain importance due to a number of reasons:

- longer vehicle warranties mean customers returning to their dealership over a longer time period;
- the growing import fleet--a market subsector with high dealer loyalty;
- increased technological sophistication of vehicles, which dealerships are better equipped to deal with through their linkages to vehicle manufacturers; and
- increased emphasis on the OES as a competition point by vehicle manufacturers trying to increase customer loyalty.

This channel offers opportunities since it is closely associated with the imported car market--the leading market growth sector in the U.S. Nonetheless, as previously discussed, the import OES channel is difficult to enter since it is OE-driven and maintains extremely high quality standards.

#### Distribution Channels for Auto Accessories

5.34 Approximately 60% of auto accessories are sold through aftermarket distribution channels that focus primarily on replacement parts. Two channels are particularly important for the final distribution of accessories (Figure 5.3).

5.35 Professionally-installed market channels. The primary channel for accessories aimed at the professionally installed market is the expeditors. These account for approximately 20-25% of all accessory sales in the U.S. As explained, expeditors usually purchase products directly from the manufacturer and sell to new car dealers.<sup>66</sup> Some expeditors also have begun to establish their own retail points of installation so they can sell directly to the consumer.

5.36 Within this channel are the specialty WDs. Their success is due to two main factors:

- the poor range of accessories offered by many of the larger, generalist WDs, which has led many jobbers to look elsewhere for their accessories supply; and
- the ability of the specialty WDs to by-pass a stage in the distribution system. They often sell directly to a large installer, eliminating the jobber margin.

Although the great majority of specialty WDs are single-location operations with limited sales volume, there are a number of larger players.<sup>67</sup> In addition, the consolidation of WDs through program distribution groups has led to gaps in accessory coverage that specialty WDs are well placed to handle.

5.37 Retail/do-it-yourself channel. Industry sources estimate that 60% to 70% of sales in the total accessories market is primarily through retail outlets. Automotive specialty chain stores, such as Western Auto and Chief Auto, offer the most significant market, accounting for 70% to 80% of accessory retail sales. While such large chains offer significant opportunities for accessories manufacturers, they also are very aggressive in their pricing, volume, and marketing support demands.

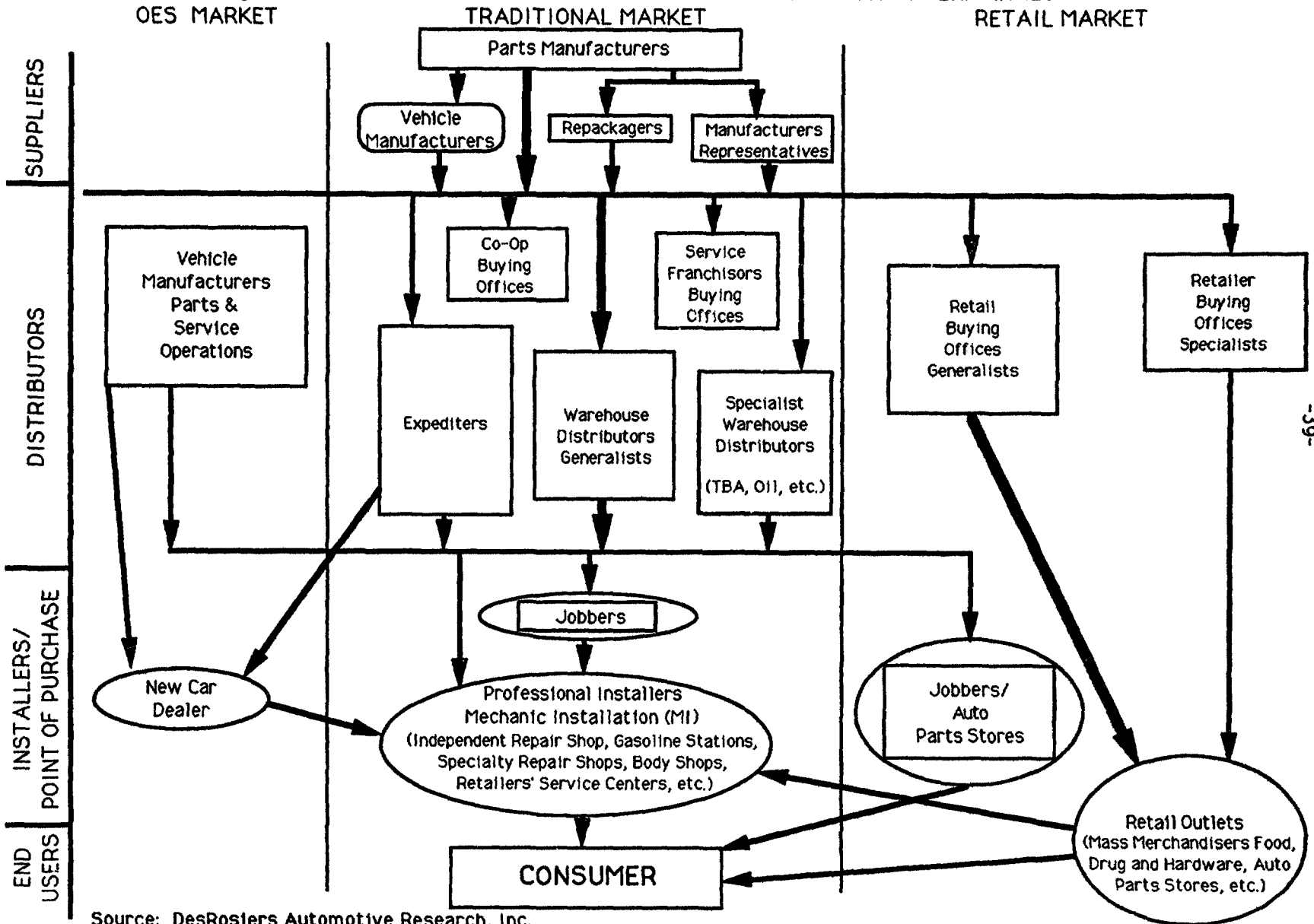
5.38 A smaller and more specialized accessories retail market in the U.S. is offered by the specialty performance chains (i.e., Super Shops), which are regionally based and focus specifically on the accessories-only market. Furthermore, the growing market for professional installation of accessories has led many of the generalist auto chains and specialty accessory chains to establish their own service bays.

---

66/ In the majority of cases the expeditor will install the product for the dealer--expeditors are experienced at installation of specific goods and offer the car dealer lower labor rates than those demanded by fully qualified dealership mechanics. Expeditors often focus on a particular product group such as electronics (including lighting), striping/molding, or soft-cover goods.

67/ These include Keystone of Exeter, Pennsylvania; American Performance of New York, New York, and Competition Specialty of Kent, Washington.

**Figure 5.3: ACCESORIES DISTRIBUTION CHANNELS IN U.S. AFTERMARKET**



Source: DesRosiers Automotive Research, Inc.

## **VI. SURVEY RESULTS: OVERSEAS SOURCING OF REPLACEMENT PARTS AND ACCESSORIES, AND MARKET ENTRY CONSIDERATIONS FOR THE U.S. AFTERMARKET**

6.01 Telephone interviews were conducted with manufacturers, importers, and manufacturers' representatives to obtain information about overseas sourcing of replacement parts and accessories for the U.S. aftermarket. Additional information about accessories was obtained from interviews with retail firms and specialty service outlets. These results form the basis of this section.<sup>68</sup>

### **A. Reasons for Overseas Sourcing**

6.02 **Price.** Cost is the main reason for sourcing abroad, assuming that the necessary quality standards also can be met. Both manufacturers and importers <sup>69</sup> think in terms of total cost, and thus build distribution, transportation, and agent fees into their cost calculations. The majority reported that they need a minimum of 20% to 25% total cost savings in order to consider buying from, or changing to, an overseas supplier.

6.03 **Unavailability of parts for imported cars.** Some parts and accessories for imported cars--usually low-volume Japanese and luxury European models--are not available from domestic sources. They often are purchased abroad from the OE supplier or, occasionally, from parts suppliers in third countries.

6.04 **Parts proliferation.** For manufacturers, parts proliferation means increased tooling costs and low-volume production runs. It also creates serious issues related to inventory control and associated management costs. For these reasons, many manufacturers "cherry pick" the parts they will produce (usually the highest volume parts) and "buy-in" the rest. Moreover some firms that offer full lines purchase low-volume parts overseas to fill out a line, even if it creates a loss on certain individual part numbers.

6.05 Parts proliferation offers opportunities to overseas suppliers <sup>70</sup> if they are able to develop a niche market entry strategy based on the production of out-sourced part numbers. But opportunities for developing country suppliers might be limited because many of these parts are low-volume, highly sophisticated, and with a high technology content. Thus they require the supplier to have flexible manufacturing capabilities.

6.06 Parts proliferation for most types of accessories is driven not by technological changes nor a growing import fleet, but by changing fashions and consumer tastes. Thus, suppliers have to be able to

---

<sup>68/</sup> Results from these interviews cannot be considered statistically significant nor necessarily representative of the aftermarket as a whole. Nonetheless, it is hoped that they point to significant trends about U.S. aftermarket sourcing arrangements, how they are formed and the motivations behind them. Manufacturers and importers often are collectively considered as "buyers," but they are discussed separately when important differences in their behavior are highlighted. A complete list of firms interviewed is found in Annex H.

<sup>69/</sup> Since most of the manufacturers' representatives interviewed perform similar functions to importers, they are considered part of this group for the purposes of the report.

<sup>70/</sup> "Overseas supplier" refers to any foreign manufacturer (European, Japanese, or from a developing country).

distinguish between fads and longer-term trends to avoid investing heavily in products with limited life cycles.<sup>71/</sup>

**6.07 Subsidiaries.** Some international manufacturers have subsidiaries in other countries from which they purchase parts and/or accessories. Apart from maquiladora <sup>72/</sup> enterprises in Mexico, most of these subsidiaries primarily serve the market in which they are located. They will sell excess stock or produce special orders for their U.S. parents/divisions if they have excess capacity from time to time. For instance, the U.S. division of an international automotive lighting firm has a subsidiary in Mexico from which it regularly buys lighting parts, although it demands higher quality control standards than those set for the Mexican market. If the U.S. division manufactures a new product at its Mexican subsidiary, tooling is developed and tested in the firm's European headquarters first before being deployed to Mexico.

**6.08 Development of import lines.** Certain manufacturers found they were losing business to imports and began to produce their own "import" lines in conjunction with overseas suppliers. For instance, a manufacturer of automotive service equipment now offers dual lines: a somewhat expensive domestic-made one and an imported line that is price competitive with the better quality imports. This company deals exclusively with a Taiwanese supplier to which it provides all design specifications and full engineering support.

## **B. Reasons for Not Sourcing Overseas**

**6.09 Availability in the domestic market.** Manufacturers would prefer to source parts domestically if possible, that is, if the parts are available. It is easier to communicate with the local supplier and to monitor quality, and transportation and distribution can be simplified.

**6.10 Communication** is one of the biggest problems for manufacturers and importers that source overseas. They emphasized that it was critical for overseas suppliers to provide basic communication support services. At a minimum, they expect at least one English-speaking person in the firm. Agents often act as communicators for smaller firms that lack experience with international trade.<sup>73/</sup> Several importers repined in the interviews that dealing with large developing country suppliers was often difficult because the feeling was "that you needed them more than they needed you". For instance, one importer compared its relationship with a Spanish supplier of brake parts to its relationship with large Korean manufacturers. It had good communications with the Spanish supplier, who kept the U.S. firm up to date on the status of its production orders. The Spanish supplier also periodically informed the U.S. importer (rapidly, by fax) whenever it started producing new part numbers that might interest the importer. In contrast, the U.S. firm had to "pry" production information from the large Korean suppliers. It also had great difficulty assessing those suppliers' ability to produce parts that the U.S. firm might want to purchase.

**6.11 Stable supplier relationships.** Long-term, stable relationships with domestic suppliers are greatly valued by manufacturers, and most would not change them without good reason. For instance, most U.S. manufacturers would not purchase individual parts numbers from overseas suppliers—even with considerable cost savings—if this type of transaction jeopardized their relationships with their traditional full-line suppliers at home. If major cost differences exist between the overseas lines and the domestically-

---

<sup>71/</sup> One important area in which automotive fashion is constantly undergoing changes is color (both interior and exterior). Many observers foresee a trend towards bold "fun colors" in the 1990s, in contrast to the conservative hues that dominated in the 1980s.

<sup>72/</sup> The maquiladora is an in-bond sector, located along the Mexican-U.S. border, which assembles and exports products using imported parts.

<sup>73/</sup> See Section D for a more detailed discussion of the role of agents.

supplied line, the manufacturer will approach the current supplier to find out why. From there, a new price might be offered by the supplier, or the differences in the prices might be explained on the basis of higher quality or better delivery on the part of the domestic company, among many possible reasons.

6.12 **Quality.** A common complaint is that overseas suppliers too often cannot meet the quality standards necessary for the U.S. aftermarket. Many manufacturers and importers will not source so-called "liability parts" from developing countries--parts that are safety related, such as brake systems, master cylinders, certain engine parts, and fuel-related parts, for which high quality is critical. This is because manufacturers and/or importers can be held liable in court if a part malfunctions and risks people's lives. Liability parts are sourced domestically because many overseas suppliers cannot get the "broad form vendor coverage" (liability insurance) that buyers require from suppliers of liability parts.

6.13 **Transportation and distribution.** Cost is not the only issue important in overseas sourcing; the ready availability of parts is also crucial. But overseas transportation and distribution logistics are a constraining factor in parts delivery. Many manufacturers consider these factors more complex, because of the uncertainty, than domestic sourcing arrangements.<sup>74</sup>

6.14 **Lack of information.** Importers claim they would rely more on overseas sourcing if they had better information about potential suppliers and their capabilities.<sup>75</sup> Manufacturers reported the same lack of information but to a lesser extent. Both groups also indicated the importance of potential suppliers providing them with price lists that use or are comparable to U.S. part numbers.

6.15 **Country reputation.** Many manufacturers and importers are reluctant to source from developing countries because their customers hold strong biases against products from these countries, citing alleged low quality. This is particularly true for more sophisticated parts and expensive accessories. For instance, one specialty importer sourced fenders for a European luxury car from a Mexican manufacturer. Although the importer himself was satisfied with the quality of the fenders, he discontinued the arrangement since his customers were skeptical about US\$5,000 luxury car parts "made in Mexico". Moreover, the corporate headquarters of some manufacturers reported that one of the largest obstacles to overseas sourcing is the bias of their own buyers. Many buyers support an unofficial "buy American" policy, which is based partly on their belief that overseas suppliers offer inadequate quality and that overseas sourcing is logistically difficult and unreliable.

6.16 **Carrying costs.** Complicated payment arrangements are a disincentive for U.S. companies to source abroad. For example, domestic suppliers in the U.S. carry a buyer's purchasing costs for 60 days, whereas overseas suppliers generally have to be paid with a 60 day letter of credit before a shipment is sent. If 30 days transport time is factored in for dealing with an overseas supplier, a U.S. buyer has money tied up for a minimum of 90 days before delivery of goods.

6.17 **Size of orders.** The increasing problem of parts proliferation means that U.S. buyers are requesting smaller orders. But, smaller importers and manufacturers complain that many overseas suppliers will not deal with them because the orders are not large enough to make production feasible--and the production capabilities of many developing country suppliers are not geared to low-volume production.

6.18 **Program distribution groups.** These groups may represent potential opportunities for overseas suppliers since the major program distribution groups source virtually nothing from overseas suppliers directly--all their imported parts and accessories are purchased through importers or manufacturers. The main reasons for these groups' not sourcing overseas directly, which emerged from the interviews, were:

---

<sup>74</sup> These issues are discussed in greater detail in Section E.

<sup>75</sup> See Section D for further discussion of this point.

- lack of overseas contacts,
- transport and distribution difficulties, and
- lack of sales support by overseas suppliers.

Most program distribution groups said they were not set up to deal directly with overseas suppliers. They acknowledged, however, that if at least one of the groups started direct importing, the others would feel pressured to follow.

### **C. Products and Production Relationships**

#### **Products Typically Sourced/Not Sourced from Developing Countries <sup>76/</sup>**

6.19 Not surprisingly, technologically sophisticated parts are least likely to be sourced from developing countries, as are parts for which brandname is important. This is particularly so for liability parts (see Part B above), which typically are not sourced from developing countries. In any case, manufacturers and importers source various parts from developing countries based on many considerations, primarily the manufacturer's area of specialization. Some of the most frequently mentioned products thus sourced are:

- bearings, belts, hoses, springs and fasteners,
- stampings and castings,
- suspension systems,
- various engine parts, and
- functional accessory items, such as wiper blades and horns.<sup>77/</sup>

Many importers source diverse product categories—from single-order fashion accessories (e.g., novelty key chains) to imported and domestic hard parts (e.g., shocks, suspension, internal engine components). Some of the most frequently mentioned products are:

- bearings, belts, hoses, springs and fasteners,
- ignition parts, filters, hard parts, and
- accessory items, both functional and non-functional.<sup>78/</sup>

#### **Full Lines Versus Individual Parts**

6.20 Approximately 40% of the firms interviewed primarily sourced individual parts, while another 40% sourced both full lines and individual parts.<sup>79/</sup> However, there are differences between the sourcing arrangements of the manufacturers and importers: manufacturers were more likely to source individual parts than importers, who tended to source both full lines and individual parts.

---

<sup>76/</sup> This is not intended to be an exhaustive list of products sourced from DCs by manufacturers and importers. It only indicates some of the products sourced by the firms interviewed.

<sup>77/</sup> A complete list of products sourced in developing countries by the manufacturers interviewed is found in Annex E.

<sup>78/</sup> A full list of the products sourced by the importers interviewed is in Annex E.

<sup>79/</sup> These figures are not meant to be representative of the aftermarket as a whole; rather, they reflect the selection of firms interviewed.

**Table 6.1: SOURCING: FULL LINES VS. INDIVIDUAL PARTS (%)**

	Full Lines	Individual Parts	Both
Manufacturers	15	30	10
Importers	5	10	30
Total	20	40	40

Source: Sample of 42 firm interviews, March 1990-May 1990.

6.21 Though not conclusive, these figures support the argument that manufacturers tend to "buy-in" individual part numbers to "fill in" lines they themselves already produce. The figures also suggest that importers are more likely to source complete lines--many said this is simpler than sourcing individual part numbers and assembling the complete lines themselves.

**Types of Production Relationships**

6.22 Over 50% of the firms interviewed sourced most of their overseas parts and accessories from independent suppliers. However, manufacturers also sourced a significant amount from subsidiaries and, less so, from joint ventures (see table below for the types of production arrangements). Nonetheless, as previously mentioned, most of the subsidiary operations in developing countries (apart from the maquiladora in Mexico) focus on the domestic market of the country in which they are located, exporting only selected products, or exporting when they have excess capacity, to the U.S. aftermarket subsidiary.

**Table 6.2: TYPES OF PRODUCTION RELATIONSHIPS (%)**

	J.V.	Subsidiary	Independent	Other g/
Manufacturers	13	23	27	10
Importers	-	-	27	-
Total	13	23	54	10

g/ Primarily equity arrangements.

Source: Sample of 42 firm interviews, March 1990-May 1990.

6.23 In general, large multinational manufacturers accounted for most sourcing arrangements with subsidiaries and joint ventures, while smaller manufacturers and importers dealt with independent firms. The large international manufacturers were most likely to confine their dealings with independent firms to non-affiliated suppliers--primarily in Japan and often OE suppliers--to source low-volume, technologically sophisticated parts not available elsewhere.

**Production Support Responsibilities of the Buyer and Supplier**

6.24 Technical support provided by buyers to parts manufacturers (e.g., engineering, product design specifications) varies greatly. Of the firms interviewed, manufacturers generally provided more complete production support than did importers, with developing country suppliers acting as final assemblers in some cases. But in some cases manufacturers provided no engineering support, expecting the overseas producer to take full responsibility.



6.25 Extensive production support arrangements generally took place between manufacturers and overseas suppliers who shared long-term, stable relationships. For instance, a U.S. manufacturer of service equipment has been sourcing its imported line of such equipment exclusively from the same Taiwanese supplier for almost a decade. In fact, this manufacturer re-designed its products so they could be more easily adapted to production in Taiwan. The company also provides all designs and extensive engineering support to the Taiwanese supplier. An engineer from the U.S. visits the Taiwan operation every few months; if a new product is being introduced, the engineer remains to oversee the initial production phase, even if this takes several months. If dissatisfied with the quality of some of the parts from Taiwan, the U.S. manufacturer even ships sub-components to the Taiwanese supplier for a better product.

6.26 Based on the interviews, importers appear less likely to provide complete production support. Many indicated that they deal with numerous suppliers and cannot afford to, nor do they have the resources, to develop more than a "buying relationship" with their overseas suppliers. In some cases they provide design specifications and samples of products to be copied.<sup>80</sup> However, importers were more likely to pass on technical information if they wanted a supplier to produce specific part numbers or lines not available for purchase elsewhere. For instance, one importer encouraged its most important Korean supplier to develop a new line of rotors, and it supplied the Korean firm with much of the technological information for tooling up. There were also examples of importers assisting their overseas suppliers with the financial costs of producing new products.

6.27 Retailers (mass merchandisers and automotive specialty retail chains) that import accessories directly from developing country suppliers reported overwhelmingly that they did not supply any technical support at all to suppliers. Many indicated that their operations were not set up for that sort of interaction.

6.28 The production support expected from a developing country supplier, on the other hand, depends on the supplier's size and sophistication. For instance, large developing country manufacturers may have to provide catalog services, technical support and so on, but smaller developing country firms may have to supply only the finished product in bulk, which is then packaged by the buyer after its arrival in the U.S.

#### **Product Intelligence Information**

6.29 In the past, product intelligence was not an issue in the aftermarket, since manufacturers had a "time cushion" of at least four to five years before the introduction of new OE parts or part number modifications affected the aftermarket. This is no longer the case. The rapid decrease in the time needed to take a car from the design stage to production, combined with annual modifications to some part numbers, mean that product intelligence is now important in the aftermarket. Both manufacturers and importers have complained that one of their biggest challenges is keeping up to date on new Japanese car parts and part number modifications. In addition, the Big Three U.S. firms are introducing more frequent changes to their part numbers.

6.30 Information about new products and modifications to part numbers comes from a variety of sources. Salespeople are the most important source of information about new products and part number modifications as well as being sounding boards for consumer feedback. Smaller firms depend on their sales force and other industry contacts (e.g., auto repair outlets and OE parts suppliers) for product information. Larger firms rely on their research departments, which purchase new part numbers and copy them, and also may purchase design specifications for some products. In addition, some large manufacturers have engineering and design offices near the major automakers in Detroit.

---

<sup>80/</sup> A common response was that Oriental suppliers are good copiers but not creative inventors of new products.

6.31 In contrast, developing country suppliers receive most of their information from manufacturers and importers who buy their products. Some developing country firms may initiate the production of different parts and accessories themselves through attendance at industry shows and through local contacts. Taiwanese and Korean firms, for instance, get much product information from their domestic automotive industries.

6.32 A number of manufacturing firms suggested that overseas suppliers could be of assistance to them by keeping abreast of new developments in the product lines which they produce for the buyers. For instance, a few manufacturers and importers felt that their Japanese suppliers were more up to date on product changes than they themselves were. Buyers also thought that developing country suppliers producing parts for the Japanese automotive manufacturers--particularly in Taiwan, Korea, and some of the ASEAN countries--should use that contact to get better product information.

### Quality Requirements

6.33 Buyers use various methods to determine the quality of parts and accessories purchased overseas. Some buyers undertake extensive testing of both product samples and finished parts. Manufacturers indicated that quality evaluation is crucial since their name is "on the box" and their reputation is damaged by poor quality. Quality evaluation also is important because of liability considerations. Testing usually does not take place for all products, however. For manufacturers buying from their overseas subsidiaries, quality control is a less important issue since parent companies expect, and rely on, standardized quality from all their subsidiaries.

6.34 A common quality indicator comes via firms the overseas manufacturer already is supplying. For instance, if the firm being supplied is a certified OE supplier for the local market (e.g., a supplier to Hyundai in Korea or Volkswagen in Brazil), this indicates quality and prestige to many prospective buyers.<sup>81/</sup> Many buyers also rely on brandname to define quality, while others take long-term relationships with suppliers as a good indicator.

### D. Buyer-Supplier Relationships

6.35 Buyer-supplier relationships are established through a variety of means. Buyers search out suppliers through publications, buyers' guides, telephone listings, etc.<sup>82/</sup> Foreign trade missions and consulates in the U.S. are another important source for U.S. firms looking for information about companies already doing business in the U.S. market. Most firms indicated they felt more comfortable with companies that already had good reputations and references. Buyers also attend trade shows and make "fact finding" and purchasing trips abroad.<sup>83/</sup> Trade shows allow buyers and suppliers to make formal and informal contacts and, equally important, to reaffirm their ongoing relationships. They further offer suppliers an opportunity to present buyers with samples of new part numbers and accessories.

---

<sup>81/</sup> One firm indicated that supplying to the local OE was not necessarily an indication of quality. This firm expected overseas suppliers to provide their own technical support, and had found in many cases that firms producing for the local OE are "captive" suppliers. In other words, just putting the parts together, but all the engineering support came from the OE manufacturer.

<sup>82/</sup> Most manufacturers and importers subscribe to various publications in which suppliers advertise. For instance, Taiwan has an automotive industry newspaper in which many autoparts suppliers advertise. Other publications consulted by buyers include Asian Sourcing, Purchasing, Purchasing World, Japan Automotive Guide, and directories of manufacturers published by different overseas governments (e.g., the Korean Business Directory).

<sup>83/</sup> Annex F provides a list of key automotive trade shows in the U.S.

### **Box 6.1: HOW TO APPROACH A BUYER**

The firms interviewed indicated several effective ways for developing country suppliers to approach buyers:

**By letter.** Buyers suggest a letter from the potential supplier as a first step. They caution that poorly written letters often are disregarded--the feeling being that it would be hard to communicate with a supplier who cannot present a coherent, grammatically correct letter in English. A letter should contain the following information:

- part numbers the supplier currently produces,
- up-to-date prices for the parts, and
- list of supplier's present clients.

Buyers do not advise sending catalogues at this stage. They will request catalogues if there is any interest in working with a new supplier.

In general, manufacturers indicated that they prefer to receive individual letters directly targeted to their firms rather than form letters. In contrast, importers seemed interested in receiving as much information as possible from as many suppliers as possible and were less concerned about letter format. One importer suggested that developing country suppliers targeting importers should mail their company brochure to as many import firms as possible. The brochure should contain a concise profile of the firm and cover such areas as the firm's history, its products and technological capabilities, and what its involvement is in its domestic market.

**Trade shows.** Another common means for initial contact with buyers is through trade shows. Several important automotive parts shows take place in the U.S. each year (a list is supplied in Annex E). Developing country suppliers/exhibitors report that they are able to make numerous contacts with buyers, which they follow up afterwards. In addition, these trade exhibitions give suppliers an idea of current product and production trends in the U.S. aftermarket.

**In person.** Some manufacturers indicated they did not make important sourcing decisions without meeting suppliers in person. This is because their relationships with overseas suppliers often involve large investments of time and resources, and they need to be confident about the company's management.

#### **What can developing country governments do?**

Most firms interviewed believed developing country governments are most effective at facilitating buyer-supplier relations indirectly. For instance, buyers stressed that the political stability of a country was an important consideration, particularly if they were giving significant financial and/or technical support to suppliers. They also wanted to see reduced duties and export regulations in many developing countries. Firms also offered more concrete suggestions for developing country governments:

- Help establish and fund overseas trade missions, making sure they have complete and current information on home firms. Many of the firms interviewed thought that trade missions already offered important services but needed to offer more information and that trade missions should encourage more manufacturers to list with them.
- Be more accommodating to foreign firms that are planning buying trips to their countries. For instance, governments could set up contact meetings for the buyers in a central location, rather than the buyer having to travel all over the country.
- Create export incentives such as tax credits or direct rebates to reward firms that export.
- Educate buyers about the country by advertising in trade and financial publications, such as the ones commonly read by buyers (e.g., Purchasing and Purchasing World).

6.36 In addition, industry contacts and recommendations play an important role in identifying potential suppliers. In fact, interviews did not uncover any one most effective way to establish buyer-supplier links. Buyers differed a great deal in their methods of locating suppliers, some preferring to search out suppliers themselves, others encouraging suppliers to contact them, and others depending on both methods. Firms indicated that the effectiveness of strategies depended on individual situations and a firm's needs at different times.

6.37 Other buyers, however, indicated they had little time to search out suppliers and relied instead on suppliers contacting them.<sup>84/</sup> For instance, one large manufacturer reported receiving an enormous number of requests from suppliers. This firm sends potential suppliers its catalogue, asking them to quote for 10 or 12 parts. If the overseas supplier is cost effective, its samples will be evaluated; if the U.S. manufacturer is satisfied with the results, the supplier becomes a quoting vendor (i.e., it may bid for the manufacturer's overseas production orders).

#### **Length of Time Before Arrival of the First Parts Shipment**

6.38 The time that elapses between initial buyer-supplier contact and the availability of the first parts shipment in the U.S. varies from as little as a few months to as long as a few years. In general, manufacturers and importers that offered the least production support to suppliers and those with less rigorous quality testing standards reported the shortest time lags. For manufacturers that provided overseas suppliers all the product design specifications, offered substantial production support, and demanded strict quality control standards, time lags of one to three years were not unusual.

#### **Role of Agents <sup>85/</sup>**

6.39 Agents' various functions range from liaison roles in the final market to complete responsibility for a buyer's overseas production arrangements. The size and sophistication of the overseas supplier often determine an agent's functions. Agents most frequently handle overseas transportation and distribution arrangements for U.S. firms (see below), particularly when products from different suppliers are consolidated at a central point for on-shipment to the U.S. Agents sometimes perform quality inspections as well. Many large overseas suppliers also have agents in the U.S. Their liaison role responds to U.S. firms' preference for dealing with local agents when a problem arises rather than long-distance with the overseas manufacturers.

6.40 Some firms have developed long-term relationships with their agents, rather than with overseas suppliers, finding such arrangements convenient because "the agent does...the leg work...to get the best deal." These agents take full responsibility for all aspects of production and transportation, having the authority to change suppliers and frequently doing so when they locate more cost-effective suppliers. Agents usually work on commission--receiving 3%-5% of the cost of the goods, with their commission fees built into the buyer's total costs.

6.41 In contrast, many buyers said they prefer dealing directly with overseas suppliers if possible, but indicated the need for agents, particularly when dealing with small or inexperienced suppliers.

---

<sup>84/</sup> Letters and faxes are the most common methods for contacting manufacturers and importers.

<sup>85/</sup> This section briefly examines the different intermediary roles of an agent/trading company as they pertain to buyer-supplier relationships. A detailed discussion of the functions of agents and trading companies is beyond the scope of this paper.

## **E. Transportation and Distribution**

**6.42** Firms complained about the unreliability of overseas deliveries. They believe many developing country suppliers do not understand that the aftermarket is a service-oriented business and that customers cannot/do not wait. On-time delivery is particularly important for buyers of non-unique products (e.g., wide-application replacement parts such as hoses and belts, and many standard non-functional accessories). For them late delivery means a lost sale and probably the loss of the customer, since such products can be purchased easily from numerous rival sources.

**6.43** **Lead time.** Many buyers considered this factor the next biggest problem after communication. The longer lead times needed for overseas sourcing make it more difficult to reduce inventories and carrying costs at home. For this reason, relatively short transport times make Mexican suppliers attractive to some North American buyers. A few firms also mentioned that a shipment delayed from Mexico is much easier to deal with than one coming from Asia.

**6.44** To offset the potential for delayed delivery, manufacturers and importers use computerized forecasting systems to determine which parts and accessories to order early. The system also keeps track of current inventory. However, only two of the firms interviewed had electronic hookups with independent overseas suppliers. It is an expensive investment that requires a long-term relationship with a supplier to make it cost effective.

**6.45** **Volume of overseas purchases.** To reduce inventory costs associated with parts proliferation, firms often carry smaller volumes of a wider variety of parts and accessories. This presents numerous transportation and distribution problems, nonetheless, particularly for smaller buyers. Firms want to purchase smaller volumes of goods, but consolidation of the orders into complete container loads, therefore, has to be arranged. Too often, developing country suppliers are unwilling to turn out small and infrequent orders (see Section B) despite many buyers' belief in a "vast potential for overseas manufacturers willing to supply smaller orders."

**6.46** **Responsibility for transportation and shipping varies greatly, in some cases with buyers handling arrangements and in others with agents taking charge--particularly when the suppliers are small and/or inexperienced.** Many times overseas manufacturers themselves are responsible for the shipment of their goods to the U.S. These large suppliers are more likely to handle their own transportation and distribution if large volumes of goods are involved.

**6.47** **Trade issues.** Firms interviewed criticized the customs process in many developing countries and the associated bureaucracy. Some indicated that U.S. customs procedures also can add to shipping delays. But in general, most believed that the U.S. is less restrictive about automotive parts imports than it was at one time. Buyers also reported that problems with counterfeit parts were a far more serious issue in the 1970s and early 1980s than currently--Taiwan was singled out as one of the worst offenders, although not in recent years.

## **VII. MARKET ENTRY: STRATEGIC CONSIDERATIONS FOR DEVELOPING COUNTRY SUPPLIERS**

7.01 This overview of market entry considerations for the U.S. automotive aftermarket is not intended to be a "how to export" guide. Rather, the aim is to highlight the key issues and trends related to market entry that emerged from the interviews. In determining a market entry strategy for the U.S. aftermarket, it is necessary for a developing country supplier to consider those factors specific to the supplier's product area, resource base, and target market segment.

### **A. Market Entry Difficulties**

#### **Targeting the Correct Aftermarket Segment: Domestic vs. Import**

7.02 Little consensus exists among the firms interviewed whether a developing country supplier's export strategy should target the import or domestic U.S. aftermarket segment. The import aftermarket is the fastest growing segment but, as previously discussed, it is difficult to penetrate because it is OE-driven and has very high quality standards.

7.03 Some analysts recommend production of parts and accessories for the domestic aftermarket segment as a way for developing country suppliers to lay a foundation for later expansion. The domestic aftermarket is a larger market segment and characterized by more standardized products that developing country suppliers are more likely to produce. Nevertheless, U.S. parts have become high quality and are modified more often. In fact, it is predicted that distinctions between the import and domestic aftermarkets will increasingly fade.

7.04 Regardless of the aftermarket segment targeted, however, firms interviewed believe that developing country suppliers have to identify their niche carefully within a chosen market segment. Firms commonly emphasized that a supplier should produce relatively few high-quality parts, rather than many of mediocre quality. In addition, at least in the short to medium term, they foresee developing country suppliers having the most success producing and exporting high-volume application products (e.g., hoses, belts, filters, and stampings), rather than more sophisticated parts with high technology content.

#### **Lack of Export Skills**

7.05 One of the main reasons developing country suppliers do not commonly export directly to the U.S. market is because they lack the necessary experience, resources and information--buyers complained that many developing country suppliers do not have an "export mentality". Problems with transportation and distribution were often mentioned in this context as well. Some buyers claimed, for instance, that many developing country suppliers do not grasp that the huge size of the U.S. market means that coordination of transportation and distribution is crucial. Products have to be delivered on time because manufacturers and importers cannot afford delays or have goods held up in transit. Transportation and distribution delays represent lost sales to buyers--this is particularly serious for mass-produced, standardized parts and accessories that a developing country supplier's U.S. clients can easily purchase from other sources.

#### **Lack of Market Information**

7.06 As a first step, a developing country supplier should have a broad understanding of the market it is targeting for export, including such characteristics as:

- size,
- structure and operation of the market, and
- major players competing in its market segment.

U.S. automotive aftermarket associations--such as Automotive International Association, Automotive Parts and Accessories Association, and Automotive Affiliated Representatives--are useful resources for developing country suppliers. Some of these associations also have their own research departments which carry out marketing studies that would be affordable to developing country suppliers.<sup>86/</sup>

7.07            Nonetheless, general market information does not replace the specific product and market intelligence needed to target an export market. Without such information it is particularly difficult for a developing country supplier to keep up to date on the introduction of new products and the continual modifications to existing parts numbers. Moreover, it is also difficult to know the quantities of parts or accessories to produce and to which firms they should be sold. Market intelligence also is important in the accessories market because it is an extremely fashion-conscious segment of the U.S. aftermarket. For all these reasons, it is difficult for developing country suppliers to enter the U.S. aftermarket alone.

7.08            To obtain precise market intelligence a developing country supplier needs a constant presence in the U.S. market. This may mean having a direct employee or an agent in the U.S.--the latter an option only for large and successful suppliers. A supplier may also form relationships with some other market entry channel that will provide information. A market entry channel's usual function, however, is for the purchase or sale of a developing country supplier's products.

#### **Assessment of Capabilities**

7.09            Before a market entry channel is approached, however, a supplier has to identify its own capabilities--what it already produces successfully and where further potential lies. It also has to do whatever is necessary to make its products competitive. Most U.S. firms interviewed were not impressed by a manufacturer's claims that it could and would produce anything a firm ordered. Buyers--particularly manufacturers--prefer a supplier to have an area of specialization and a track record before approaching the U.S. market.

### **B. Market Entry Channels**

7.10            A developing country supplier can enter the U.S. aftermarket through several different channels. These include:

- direct exporting: the supplier takes responsibility for all marketing and export functions,
- using a manufacturer's representative, local agent or trading company to sell and distribute products, and
- establishing relations with a manufacturer, importer or retailer.

In simplified terms, the major U.S. aftermarket entry points for a developing country supplier are via either importers or manufacturers. In some cases it is also possible to use direct relationships with a retailer for market entry, although this usually is restricted to the accessories segment of the market. In other cases, developing country suppliers are represented by manufacturers' representatives or they export via an agent or trading company. These latter function as importers, or as intermediaries when the final market entry point is another importer or manufacturer. As previously discussed, direct exporting is not a realistic option for the vast majority of developing country suppliers because they lack the financial, organizational and human resources, and the marketing knowledge required.

---

<sup>86/</sup>        Annex G provides a complete list of the major U.S. automotive aftermarket associations.

## **"Advantages" and "Disadvantages" of Different Market Entry Channels**

7.11 The different characteristics of manufacturers, importers and retailers as market entry points are highlighted in Table 7.1. For the sake of clarity, the table is presented in terms of "advantages" and "disadvantages," but it should be understood that these are very subjective classifications.<sup>87/</sup> Evaluation of a market entry channel greatly depends on the supplier's needs and capabilities. For instance, a small, inexperienced developing country supplier may find a manufacturer's high quality standards a disadvantage, whereas a more sophisticated developing country supplier would view them positively.

7.12 Some of the differences between manufacturers and importers can be a function of their size primarily. For instance, it is more likely that a large importer would give production support to a developing country supplier than that a small manufacturer would do so. In addition, for large firms, decisions about which market entry point to use may be changed when and if necessary. For instance, a supplier may start out working with an importer and later switch to a manufacturer or retailer.

### **Manufacturers: Advantages and Disadvantages**

7.13 Firms indicated that the trend is towards limiting the number of their overseas suppliers and developing long-term, stable relationships with fewer of them. Manufacturers generally prefer long-term relationships because of their need to be confident about the quality of the parts they buy-in, since these products usually are sold under the manufacturer's brandname. Long-term buyer-supplier relationships also have advantages for suppliers because they offer stability and the possibility of technology transfer.

7.14 The demand for high quality standards from overseas suppliers could be a disadvantage for an inexperienced developing country supplier, as mentioned. But a more sophisticated developing country supplier's high quality standards might give the supplier an advantage in establishing relations with an overseas manufacturer.

7.15 For a manufacturer, however, choosing a valued overseas supplier can be a long and risky process since the manufacturer may invest much time and money over many years toward forming such a relationship. The search for high quality often demands a lengthy evaluation process of suppliers' products: testing of samples and engineering evaluations, among other things. As mentioned earlier, the time period from the first contact to the first delivery of a parts shipment can take as long as several years. Only those D.C. suppliers already involved in large-scale exporting or production for the local market can afford to wait that long for a contract.

7.16 Manufacturers also appear to outsource individual parts more frequently than they do for full lines (see Table 5.1). This can be an advantage to a supplier that does not produce full lines, but often the parts and accessories a manufacturer buys-in to "fill in a line" are low volume, high quality applications. As previously indicated in Section VI many developing country suppliers do not have the ability or the flexible production systems to tool up for low volume orders of technologically-complex parts.

7.17 Manufacturers indicated they are more likely to provide production support to suppliers with which they have closely linked interests and long-term relationships. In particular, a supplier may have to make a substantial investment to tool up for production of a new part number, something the supplier would undertake only if it had built up a connection with a particular manufacturer over time. Manufacturers, nonetheless, may expect their overseas suppliers to make large capital investments to ensure high quality production standards. They also put the same pressure on overseas suppliers as on domestic suppliers to continually improve quality and cut costs.

---

<sup>87/</sup> The enormous differences among manufacturers and among importers also should be kept in mind. For instance, some large importers act more like manufacturers and visa versa.



**Table 7.1: MANUFACTURERS AND IMPORTERS: ADVANTAGES AND DISADVANTAGES AS MARKET ENTRY CHANNELS FOR THE U.S. AUTOMOTIVE AFTERMARKET g/**

	Advantages	Disadvantages
<b><u>Manufacturer</u></b>	<ul style="list-style-type: none"> <li>- possibility of longer term, more stable buyer-supplier relations (longer time horizon)</li> <li>- tend to buy individual parts</li> <li>- possibility of production support (design specifications, engineering)</li> <li>- knows the market</li> <li>- knows how to sell</li> <li>- source of market intelligence</li> <li>- supplier does not need a sales force</li> </ul>	<ul style="list-style-type: none"> <li>- potentially long time lag between first contact and first shipment of goods</li> <li>- high quality requirements</li> <li>- how to find/contact manufacturers</li> <li>- hesitancy with overseas producers</li> <li>- price sensitivity--20-25% cost savings needed</li> <li>- capital investment costs (higher because quality has to be higher)</li> <li>- size of orders</li> <li>- supplier may only assembly (few backward linkages)</li> </ul>
<b><u>Importer</u></b>	<ul style="list-style-type: none"> <li>- risk taker-will try new suppliers</li> <li>- constantly looking for new suppliers</li> <li>- lower quality standards in some cases</li> <li>- shorter time lag between first contact and delivery of first shipment of goods.</li> <li>- familiarity of dealing with overseas suppliers</li> <li>- know market</li> <li>- know how to sell</li> <li>- source of market information</li> </ul>	<ul style="list-style-type: none"> <li>- less stable buyer-supplier relations (shorter time horizon)</li> <li>- less commitment to supplier</li> <li>- price sensitivity-20-25% cost saving needed</li> <li>- lack of resources-i.e., less production support</li> <li>- often only buying relations</li> <li>- size of orders</li> <li>- lack of information re. suppliers</li> </ul>
<b><u>Retailer</u></b>	<ul style="list-style-type: none"> <li>- bypass other distribution intermediaries</li> <li>- opportunities for large export orders</li> <li>- primarily relevant for accessories</li> </ul>	<ul style="list-style-type: none"> <li>- size of orders - too large for many developing country suppliers</li> <li>- cost compensation from suppliers</li> <li>- offers little production support</li> <li>- supplier often has transportation and distribution, and packaging responsibilities</li> </ul>

g/ This table is based on information from firm interviews conducted between March and May 1990. These points are generalizations and their relevance will vary from case to case.

**Importers: Advantages and Disadvantages**

7.18 That importers operate under shorter time horizons than manufacturers can be both an advantage and disadvantage for developing country suppliers. Importers generally are greater risk takers than manufacturers and more willing to take chances on new supply sources. For instance, an importer may try a single order from a new supplier to test the quality of the goods and their market potential. This represents an export opportunity for developing country suppliers.

7.19 A shorter time horizon, however, means that importers also are more driven by cost considerations. The implication is that importers are less committed to individual suppliers and will quickly change to more cost-effective producers. In many cases, importers target market segments where competition is primarily on a cost basis, rather than a quality basis. This is an advantage for developing country suppliers trying to enter the U.S. aftermarket for the first time, since quality expectations are lower in the highly cost competitive aftermarket segments. In addition, often there are less rigorous quality testing procedures, which mean a shorter time lag for the supplier between first contact with a buyer and the commencement of production.

7.20 Many importers have fewer resources, (financial, technical and human) although as previously discussed, this is more a function of size than anything else. Nonetheless, fewer resources mean that importers are less likely to offer production support to a developing country supplier. Often, there is no production support (nor market information), and the relationship between the importer and the supplier is largely a purchasing arrangement.

7.21 However, importers often want to purchase large quantities from developing country suppliers, which they ship in bulk to the U.S and package themselves to sell in the domestic market. This is an advantage for developing country suppliers that have production systems set up to produce large amounts of standardized products. Parts proliferation also has brought many complications to overseas sourcing arrangements. Importers--particularly the smaller firms--that want to purchase smaller orders of some parts encounter difficulties: suppliers not set up for low volume orders, finding it too much effort for the cost.

#### **Retailers: Advantages and Disadvantages**

7.22 Some large retailers (mass merchandisers and specialty automotive retail chains) buy-in accessories from developing country suppliers.<sup>88/</sup> The advantages for developing country suppliers dealing directly with such retailers is that they by-pass intermediaries and that the retailers generally purchase large quantities. However, retailers often demand substantial cost concessions (discounts) from their overseas suppliers because of the large quantities they purchase. In addition, most retailers limit their relationships with overseas suppliers to "buying arrangements". In other words, the supplier is responsible for all production support. This can include packaging, as well as transportation and distribution.

#### **Which is the Best Market Entry Channel for a Developing Country Supplier?**

7.23 Among firms interviewed, there was wide variation of opinion about the best market entry strategy for developing country suppliers. The issue remains unresolved in this research since there are numerous factors to be considered that are beyond the scope of this paper. Nonetheless, several themes emerge that have implications for developing country suppliers and the market entry channels they choose to target:

- Entering the U.S. aftermarket via an importer is probably easier than via a manufacturer. This is probably the best strategy for smaller, less sophisticated developing country suppliers that turn out mass produced, standardized parts or accessories. Importers are more willing to take risks with new suppliers, but the downside of this is that relationships with importers often lack long-term security.
- Developing country suppliers with sophisticated manufacturing capabilities might be able to target a manufacturer as a market entry point. Although entry via a manufacturer is difficult--particularly because of their higher quality standards--the supplier may have the opportunity of getting into a more stable and longer-term relationship, which thus provides an advantage.

---

<sup>88/</sup> Retailers do not directly outsource replacement parts since inventory carrying costs are too high and it is generally considered far more difficult and complex than buying-in accessories.

- **A market entry strategy based on links with a retailer is only relevant for the accessories market and is probably only possible for large, well-established developing country accessories suppliers.<sup>89/</sup> Retailers are very demanding buyers: they expect discounts for purchasing large volumes, and they usually provide little or no production support.**
- **The decision of which market entry channel to target is determined mainly by the goods a developing country supplier produces and its productive capacity. For instance, if a supplier turns out only low-quality mass-produced goods, that supplier probably has little choice but to approach importers. This is not to say, however, that a developing country supplier cannot change its market entry strategy over time.**

---

**<sup>89/</sup> This has to be qualified, however, since retailers sometimes buy single shipments of accessories, which might not necessarily be large purchases.**

## VIII. CONCLUSIONS

**8.01** Competitive pressures in the global automotive industry intensified in the 1980s and this trend is expected to continue in the 1990s. The most important competitive trends in the U.S. aftermarket include: cost pressures, quality standards, greater emphasis on parts availability, and the service-oriented nature of the industry.

**8.02** Significant export opportunities exist in the U.S. aftermarket for developing country suppliers. However, developing country producers probably need to use a market entry channel—a manufacturer, importer or retailer—since they lack the export skills, and market and product information to enter individually. The choice of a market entry channel will depend on the suppliers goods and productive capacity.

**8.03** Two of the major export challenges—or constraints—facing developing country suppliers are:

- transportation and distribution arrangements, and
- quality standards for export parts and accessories.

### **Warehousing of Parts and Accessories in the U.S. Market**

**8.04** If developing country suppliers warehoused their products in the U.S., buyers' (e.g., program distribution groups and manufacturers) hesitations about dealing with developing country suppliers would be reduced. Essentially, warehousing would decrease the risks for buyers; for example, buyers could expect:

- less difficulty with overseas transportation and distribution,
- lower inventory carrying costs,
- elimination of letters of credit requirement as the means of payment, and
- purchase of smaller quantities, which would mean more frequent orders.

**8.05** Some firms believe local warehousing to be one of the best strategies for developing country firms trying to enter the U.S. automotive aftermarket, although the strategy increases suppliers' risks. In any case, it seems a particularly effective way to target program distribution groups, since they tend to avoid sourcing directly from overseas suppliers because of the complexity of transportation and distribution logistics (Section VI, Part B).

**8.06** For the vast majority of individual developing country suppliers, however, warehousing in the U.S. is too expensive. There also would be various logistical problems which would include determining the inventory levels to be maintained in the U.S. Thus, warehousing would have to be undertaken by groups of automotive suppliers, such as the members of an automotive parts association. Some analysts also suggest that a local warehousing strategy could involve market intelligence functions, although that would require more extensive financing.

**8.07** However, a number of firms interviewed indicated their willingness to help absorb part of the suppliers' shipping and warehousing costs. Some went so far as to say they would be willing to pay a 5% premium if a supplier maintained a two-month inventory supply in the U.S. In their opinion, the higher costs would be offset by better accessibility and shorter delivery time.

**8.08** A few developing country suppliers have had success with a warehousing strategy in the U.S. market. For instance, a Brazilian supplier of pistons, Metal Leve S.A., opened warehousing operations in the South-Western U.S. as an extension of its aftermarket strategy and was able to make OEM connections. Other examples include an Indian firm that produces engine mounts, and a Chinese-American joint venture that produces numerous sub-components and accessories in China. Both have seen their market shares in the U.S. grow rapidly since they began local warehousing of their products.

**8.09** As is apparent, local warehousing in the U.S. would not be a low-cost market entry strategy. Nonetheless, local warehousing is a strategy that deserves further attention.

#### **Quality Control Centers**

**8.10** Many developing country suppliers have difficulty determining if their products meet acceptable quality standards since they lack sufficient quality control mechanisms. Moreover, it is difficult for developing country suppliers to get product liability coverage (see Section VI, Part B) because of the absence of proper testing and compliance with quality standards.

**8.11** The establishment of independent quality control centers could benefit developing country suppliers in the following ways:

- reduce quality biases against their products,
- facilitate the insurance of "liability parts," and
- help establish relations with buyers who also lack their own quality testing procedures.

Such a center would also have to be established through an organization, such as an automotive parts producer association, since most firms cannot afford to undertake this individually.

**8.12** A strategy of using independent quality-control centers to reduce quality perception problems and to certify products for liability coverage is not a new idea, but it deserves serious consideration.

**8.13** Autoparts producers in developing countries face many challenges, given the enormous--and rapid--changes taking place in the global automotive industry. Developing country suppliers have to develop more innovative and aggressive export strategies if they are to take advantage of opportunities in the U.S. automotive aftermarket. This involves improving market knowledge, manufacturing products of appropriate quality standards, and forming strategic relationships with manufacturers, importers or retailers.

Annex Table A.1: WORLD PASSENGER CAR FLEET--MARKET SHARES (%)

	1980	1988
North America	41.5	37.6
West. Europe	32.3	32.8
East. Europe	5.9	7.5
Asia-Pacific	8.6	9.7
Australia & New Zealand	2.2	2.2
Other Developing Countries <i>g/</i>	9.5	10.2

*g/* Includes Africa, the Caribbean, Central & South America, and the Middle East.

Source: World Automotive Market, various issues; MVMA, World Motor Vehicle Data, various editions.

Annex Table A.2: LEADING EXPORTERS OF NEW AUTOMOBILES 1980-1988  
(Market Shares (%) of Volumes of Exports)

Suppliers	1980	1983	1984	1985	1986	1987	1988
Japan	28.3	30.8	31.1	31.8	31.5	30.4	28.4
West Germany	17.1	17.7	17.5	18.5	17.4	16.6	16.1
U.S.A. <i>g/</i>	5.6	4.5	4.9	5.1	4.7	4.3	5.0
Canada <i>g/</i>	5.6	7.1	8.7	8.4	8.3	6.5	7.7
France	18.3	14.9	13.4	12.3	12.3	13.0	13.2
Italy	4.7	4.0	3.8	3.2	4.2	4.3	4.4
Korea	0.1	0.1	0.4	0.9	2.1	3.6	3.6
Belgium	7.7	7.5	6.3	6.7	6.7	7.4	6.4
U.K.	3.3	2.2	1.7	1.7	1.4	1.7	1.7
Sweden	1.4	1.7	1.8	1.6	1.5	1.6	1.2
Total	92.1	90.4	89.6	90.1	90.0	89.4	87.8

*g/* Includes vehicle trade between U.S. and Canada.

Source: Automobile International, World Automotive Market, Various Issues, Comtrade Database, Geneva; MVMA, World Motor Vehicle Data, 1989 Ed. MVMA, Facts and Figures, various editions.

**Annex Table A.3: AUTOMOTIVE COMPONENT EXPORTS -- LEADING EXPORTERS, 1980-1988**  
(Market Shares (%) of Values of Exports)

Suppliers	1980	1981	1982	1983	1984	1985	1986	1987	1988
Japan	10.3	7.9	8.2	9.8	10.5	10.9	12.8	13.8	13.9
West Germany	20.8	19.5	20.4	19.9	16.2	16.5	18.6	20.9	17.2
USA	22.0	28.0	26.7	25.0	28.9	28.7	22.6	18.7	19.4
Canada	7.2	8.0	8.0	10.9	12.6	12.7	11.5	10.0	11.6
France	11.3	9.3	9.5	9.2	7.9	7.6	9.0	9.3	9.7
Italy	4.9	4.9	4.5	4.2	3.8	3.6	3.8	4.3	5.0
Mexico	0.7	0.7	0.8	1.1	1.4	1.4	1.6	1.6	2.0
Belgium/Lux.	3.1	2.3	2.3	2.1	2.0	2.0	2.5	2.7	3.0
Great Britain	7.6	7.4	6.3	5.4	4.7	4.4	4.3	4.3	4.4
Sweden	3.2	2.9	2.7	2.5	2.4	2.5	2.9	3.0	3.3
Above Total	91.1	90.9	89.4	90.1	90.3	90.4	89.5	88.7	89.4

Source: Compiled from Comtrade Database, Geneva.

**Annex Table A.4: U.S. VOLUME IMPORTS OF NEW AUTOMOBILES g/--MAJOR SUPPLIERS, 1980-88**  
Market Shares (%) of Volume of Imports

Supplier	1980	1984	1985	1986	1987	1988
Japan	63.9	54.7	57.5	55.8	52.7	47.7
Canada	19.1	30.2	26.0	24.8	20.2	26.8
Korea	0.1	0.1	0.0	3.0	7.2	8.3
West Germany	10.9	9.4	10.8	9.6	8.2	5.9
Sweden	2.0	3.2	3.2	3.2	3.0	2.4
Great Britain	1.0	0.6	0.6	0.6	1.1	0.7
Belgium	0.0	0.2	0.2	0.2	0.4	0.4
France	1.5	1.1	0.9	0.2	0.6	0.4
Italy	1.5	0.2	0.2	0.3	0.2	0.1
Others	0.0	0.3	0.5	2.3	6.5	7.3

g/ Excludes estimated quantity of automobiles assembled in foreign trade zones.

Source: World Automotive Market, various issues, MVMA Motor Vehicle Facts and Figures, various issues  
Comtrade Database, Geneva.

**Annex Table A.5: U.S. IMPORTS OF AUTOMOTIVE PARTS--MAJOR SUPPLIERS, 1985-1989**  
**Market Shares (%) of Values of Imports**

	1985	1986	1987	1988	1989
Japan	22.0	26.8	27.9	29.3	33.5
Canada	44.3	39.2	35.2	33.7	29.0
Mexico	11.3	10.9	11.7	12.8	12.4
West Germany	5.5	6.3	6.9	6.5	6.2
Brazil	3.7	3.8	4.0	3.8	2.7
France	3.5	3.1	3.1	2.8	2.5
Taiwan	1.6	1.7	1.8	1.6	2.3
Britain	2.0	2.0	2.0	2.1	2.2
South Korea	1.7	1.6	1.9	1.9	2.1
Italy	1.0	1.2	1.6	1.3	1.3
Spain	0.6	0.7	0.9	0.9	0.9
Others	2.8	2.7	3.0	3.2	4.7

Source: Compiled from the U.S. Department of Commerce Statistics, and International Trade Services, Washington D.C., Annual growth rates deflated using *muv* index.



**Annex Table A.6: TOP FIVE PRODUCT CATEGORIES OF MAJOR AUTOMOTIVE COMPONENT SUPPLIERS TO THE USA, 1989 <sup>a/</sup>**  
**(Current US\$000 -- Customs Value)**

Japan

Piston-Type/Spark-Ignition Engines	1,680,026
MV <sup>b/</sup> Transmissions & Parts	1,632,652
Radio-Tape Player Combinations	414,515
Electrical Ignition & Starter Equipment	388,390
Air or Gas Compressors & Parts	380,481
Misc. Parts & Accessories <sup>c/</sup>	1,746,263

Canada

Piston-Type/Spark-Ignition Engines	703,509
MV Chassis Fitted with Engines	644,208
MV Brakes & Parts	582,390
Furniture for Automotive Use	510,377
Parts of Piston-Type/Spark Ignition Engines	414,882
Misc. Parts & Accessories	3,734,753

Mexico

Ignition Wiring Sets	918,135
Piston-Type/Spark-Ignition Engines	659,721
Radio-Tape Player Combinations	523,990
MV Safety Seat Belts	363,725
Furniture for Automotive Use	294,936
Misc. Parts & Accessories	369,545

West Germany

Piston-Type/Spark-Ignition Engines	296,092
MV Brakes & Parts	182,570
MV Transmission & Parts	130,091
Measure, Test & Control Instruments	115,369
Taps, Cocks & Valves	104,694
Misc. Parts & Accessories	320,583

Brazil

Piston-Type/Spark-Ignition Engines	191,741
MV Brakes and Parts	67,567
Compression-Ignition Engines	138,233
New Passenger Auto Tires	57,332
MV Transmission & Parts	55,774
Misc. Parts & Accessories	57,738

Taiwan

Ignition Wiring Sets	91,107
Fasteners for MV Use	90,426
MV Wheels & Parts	58,044
MV Body Stampings	39,830
Measure, Test & Control Instruments	33,127
Misc. Parts & Accessories	74,984

United Kingdom

Measure, Test & Control Instruments	74,507
MV Transmissions & Parts	71,927
Fuel Injection Pumps & Parts	60,355
New Passenger Auto Tires	44,626
New Truck & Bus Tires	44,384
Misc. Parts & Accessories	143,362

Annex Table A.6: (Contd.)

<u>South Korea</u>	
Radio-Tape Player Combinations	192,426
New Truck & Bus Tires	91,592
New Passenger Auto Tires	80,931
Electrical Ignition & Starter Equipment	32,237
CB Transceivers	11,130
Misc. Parts & Accessories	47,447
<u>Singapore</u>	
Radio-Tape Player Combinations	81,247
Balls Bearings	22,273
Electric Motors, Generators & Parts	9,552
Electric Sound or Visual Signal Equip.	7,774
Other Radios, Etc.	7,554
Misc. Parts & Accessories	12,136
<u>Philippines</u>	
Ignition Wiring Sets	74,654
Electric Sound or Visual Signal Equip.	32,812
CB Transceivers	21,030
MV Radiators	1,229
Measure, Test & Control Instruments	1,105
Misc. Parts & Accessories	395
<u>Thailand</u>	
Ignition Wiring Sets	64,008
MV Radiators	6,883
CB Transceivers	5,560
Electric Motors, Generators & Parts	3,535
New Truck & Bus Tires	3,088
Misc. Parts & Accessories	532
<u>China</u>	
Radio-Tape Player Combinations	25,890
Fasteners for MV Use	10,720
Jacks, Hoists, Winches & Parts	9,054
Roller Bearings	8,385
MV Mirrors	6,228
Misc. Parts & Accessories	2,675
<u>Malaysia</u>	
Radio-Tape Player Combinations	8,594
Electric Sound or Visual Signal Equip.	6,602
Measure, Test & Control Instruments	2,947
Trailers & Parts	1,167
Electrical Lighting & Signal Equip.	905
Misc. Parts & Accessories	254

a/ General Imports include imports into U.S. customs and bonded warehouses.  
 b/ MV - motor vehicle.  
 c/ Basket of miscellaneous "other" MV parts and accessories; MV bodies, and chassis not fitted with engines.

Source: Compiled from official statistics of the U.S. Dept. of Commerce.

## **IMPROVED FUEL ECONOMY**

1. **To improve fuel economy, changes to vehicle design are most probable. These include:**
  - **downsizing the automobile,**
  - **reducing the weight of the car,**
  - **improving the aerodynamics, and**
  - **improving the design of the powertrain/driveline.**
  
2. **Efforts to reduce vehicle emissions focus on the engine. Studies estimate:**
  - **19% improvement from the use of fuel injection systems,**
  - **15% from the introduction of electronic engine controls,**
  - **8% from improved combustion chamber design, and**
  - **6% from improved ignition systems design.**
  
3. **Reduction of vehicle weight and friction is the other major opportunity for decreasing vehicle emissions (A.T. Kearney, Oct. 1989, World Bank Presentation on the Global Automotive Industry).**

## **U.S. CLEAN AIR ACT AMENDMENTS**

1. One aspect of the Clean Air Act is to reduce automobile tailpipe emissions (e.g. carbon dioxide, hydrocarbons, and nitogens of oxide) which contribute significantly to urban pollution. The principle means for reducing such pollution will be through the expansion of mandatory emissions control systems in new automobiles.

2. The Clean Air Act Amendments of 1990 have been approved in both houses--although differences are still to be worked out--and are expected to be passed into law by the end of 1990. There is agreement in both houses that automobile manufacturers will have to double their pre-sales certification of emissions controls to 100,000 miles, and increase the warranties on emissions control parts to 8 years (or 80,000 miles). What has yet to be decided are the recall policies for emissions control parts and the precise limits of automobile manufacturers' expanded responsibilities for the in-use performance of emissions control parts.

3. The long term implications of the Act are that manufacturers will have more responsibility for the durability of both emissions control parts and support parts for these systems. The AM will be significantly effected since automakers will be motivated to increase the quality of OE parts that they use to manufacture cars. Thus, these new automobiles will require less maintenance and servicing over their lifetimes.

## **O.E. TECHNOLOGICAL CHANGES AND THEIR IMPACT ON THE AFTERMARKET <sup>1/</sup>**

1. **Other technological changes in today's OE market will increasingly influence AM needs during the 1990s and beyond.**
2. **Front-wheel drive.** The dominance of front-wheel drive vehicles is already being felt in the AM, in the form of growing demand for front-drive-specific components, such as CV-joints, and declining demand for rear-drive-specific components, such as universal joints, differentials, and driveshafts.
3. **Increased complexity of engines.** Electronic fuel injection places greater demands on the skill of manufacturers and technicians. The increasing use of multivalve-per-cylinder engines, such as in imported vehicles, is expected to become widespread in U.S. domestic cars by the mid-1990s.
4. **Advances in braking technology.** Front-disc brakes became almost universal on U.S. cars in the 1970s. This resulted in a boom in demand for disc-brake pads and a corresponding collapse in the market for drum-brake shoes and linings. The most significant development of the 1980s has been the widespread adoption of electronic antilock braking systems (ABS). The electronic circuitry that controls ABS will pose a further challenge to AM suppliers and for skill training at service outlets as significant numbers of ABS-equipped cars appear at service outlets in the early 1990s.
5. **Chassis refinements.** There has been a shift away from traditional solid axle rear suspensions to fully independent suspensions. This means that traditional recirculating ball and worm-and-roller steering gears largely have been replaced by more technologically sophisticated rack and pinion steering.
6. **Accessories:** Vehicle technology is not a major factor in exterior or interior trim products, which are essentially fashion-driven, but it is a factor primarily with power-enhancing accessories. Manufacturers of these types of accessories have had to keep track of far-ranging changes in powertrain technologies since the early 1980s. Although process technologies for appearance/trim accessories have traditionally been labor intensive, increased competition has led some players to invest heavily in automated systems for the cutting of fabrics and more efficient molding processes.

---

<sup>1/</sup> Most of the information in Appendix B.3 comes from two reports prepared by DesRosiers Automotive Research, Canadian Automotive Aftermarket: Strategic Market Analysis of Export Opportunities to the U.S.; and Trends and Opportunities in the North American Automotive Aftermarket.

## SIZE AND STRUCTURE OF THE U.S. AFTERMARKET

### A. Demographic Trends

**Table C.1: SIZE AND STRUCTURE OF THE U.S. MARKET, 1987**

	Population			Unemployment Rate (%)	Personal Income Per Capita (Current \$)
	Total Millions	% Change 1980-87	In Metro Areas (%)		
New England	12.8	25.0%	80.6	3.3	18,579
Middle Atlantic	37.4	11.0%	90.6	4.9	17,595
East North Central	41.9	-10.0%	77.3	7.2	15,212
West North Central	17.6	2.2%	56.2	5.5	14,792
South Atlantic	41.7	8.8%	73.7	5.1	15,040
East South Central	15.3	3.1%	55.6	8.0	11,985
West South Central	26.9	11.6%	72.6	8.8	13,100
Mountain	13.2	12.5%	65.8	7.2	13,769
Pacific	36.5	10.2%	90.5	6.0	17,206
<b>UNITED STATES</b>	<b>243.3</b>	<b>5.4%</b>	<b>76.9</b>	<b>6.2</b>	<b>15,481</b>

Source: U.S. Bureau of the Census, 1989 Statistical Abstract.

### B. Vehicle Fleet

1. **Regional markets.** The South Atlantic, East North Central and Pacific census regions account for the largest concentrations of registrations. Approximately 18% of vehicles in operation are registered in the heavily populated South Atlantic region. The East North Central region, which has the highest concentration of population, has the second highest percentage of vehicles in operation at 16.9%, followed by the Pacific region with 15.2%. California offers many opportunities for AM suppliers since it has the world's highest per capita concentration of vehicles and has a large number of well-preserved older cars.

**Table C.2: SIZE OF MOTOR VEHICLE FLEET BY CENSUS DIVISION**

	Passenger Cars % by Region	Lights Trucks % by Region	All Vehicles % by Region
New England	6.0	3.0	5.3
Middle Atlantic	14.2	7.1	12.6
East North Central	17.5	14.1	16.9
South Atlantic	18.3	18.6	18.2
Pacific	15.1	14.9	15.2
East South Central	6.5	7.8	6.7
West North Central	7.5	9.5	8.0
Mountain	5.2	8.4	5.8
West South Central	9.8	16.5	11.1
Total	100.0	100.0	100.0

Source: U.S. Department of Transportation, Federal Highway Administration, 1988

### Age of Vehicle Population

**Table C.3: AVERAGE AGE OF VEHICLES IN OPERATION IN THE UNITED STATES**

Year	Passenger Car	Trucks
1989	7.6	7.9
1988	7.6	7.9
1987	7.6	8.0
1986	7.6	8.0
1985	7.6	8.1
1984	7.5	8.2
1983	7.4	8.1
1982	7.2	7.8
1981	6.9	7.5
1980	6.6	7.1
1979	6.4	6.9
1978	6.3	6.9
1977	6.2	6.9
1976	6.2	7.0
1975	6.0	6.9
1974	5.7	7.0
1973	5.7	6.9
1972	5.7	7.2
1971	5.7	7.4

Source: MVMA Motor Vehicle Facts & Figures '90.

2. Close to 50% of passenger cars are in their prime AM repair years versus 41.1% for trucks. 12% of trucks over 16 years old--primarily heavy-duty trucks--are on the road in the U.S., representing a large AM. Approximately a quarter of the vehicles are 1 to 3 years old, which is high compared to historical levels and indicates strong AM growth over the next 3 to 5 years as these vehicles reach their prime AM service years.

Table C.4: VEHICLES IN USE BY AGE - 1988

Age in Years	Passenger Cars Percent	Trucks Percent
1-3 years	23.8	24.6
4-10 years	48.9	41.1
11-16 years	20.3	22.3
16+ years	7.0	12.0
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>

Source: MVMA, Motor Vehicle Facts and Figures '90.

3. Miles driven. The ~~rate~~ for miles driven by gasoline powered cars in the U.S. has increased in each year since 1980, and the trend is expected to continue through 1990.

Table C.5: TOTAL MILES TRAVELED--GASOLINE POWERED CARS  
(billions of miles)

1978	1,077.5
1980	1,081.8
1983	1,149.7
1984	1,252.8
1985	1,315.4
1986	1,343.5
1987	1,378.3
1988	1,416.3
1989	1,457.9
1990 <sup>a/</sup>	1,501.6
<b>Average Annual Percent Change</b>	
1978-91 <sup>a/</sup>	2.8%
1983-90 <sup>a/</sup>	3.8%

<sup>a/</sup> Estimates.

Sources: U.S. Energy Information Administration, 1990.



## DISTRIBUTION CHANNELS

### Major Program Distribution Groups

**ALL PRO INC.**  
208 East Three Hatch St.  
POB 697  
Andalusia, AL 36420  
(205) 222-2414  
Fax: (205) 222-7925  
Members: 25  
States Covered: 25  
Signed Jobbers: 700 plus  
Contact: Mark Wiggins

**APA MANAGEMENT GROUP  
(AUTOMOTIVE PARTS ASSOCIATE)**  
5801 Outlook Dr.  
Mission, KS 66202  
(913) 384-4300  
Fax: (913) 384-4278  
Members: 37  
States Covered: 34  
Signed Jobbers: 1232  
Contact: Vince P. Gay, Joe Buehler

**APS INC. (BIG A AUTO PARTS)**  
3000 Pawnee St.  
Houston, TX 77054  
(713) 741-2470  
Members: 30  
States Covered: 48  
Signed Jobbers: 1511  
Contact: Rick Henricks

**AUTOMOTIVE PARTS PROFESSIONALS,  
INC. (APPI)**  
7240 W. 98th Terr. Bldg 8, Suite. 125  
Overland Park, KS 66212  
(913) 381-0833  
Fax: (913) 381-0316  
Members: 26  
States Covered: 23  
Signed Jobbers: 250  
Contact: Robert Luna

**AUTO VALUE MARKETING, INC.**  
6025 Lee Highway, Suite. 324  
Chattanooga, TN 37421  
(615) 894-3084  
Fax: (615) 894-0157  
Members: 30  
States Covered: 35  
Signed Jobbers: 1255  
Contact: Al Brunner

**BUMPER TO BUMPER PROGRAM, INC.**  
BNA Corporate Center, Bldg. 200  
Ste. 508  
Nashville, TN 37217  
(615) 361-7914  
Fax: (615) 367-9495  
Members: 24  
States Covered: 28  
Signed Jobbers: 1170  
Contact: Dick Vettors

**CARQUEST**  
580 White Plains Rd.  
Tarrytown, NY 10591  
(914) 332-1515  
Fax: (914) 332-3504  
Members: 16  
States Covered: 50  
Signed Jobbers: 2300 plus  
Contact: Daniel M. Bock

**FEDERATED AUTO PARTS  
STORES DISTRIBUTORS, INC.**  
POB 2248  
Staunton, VA 24401  
(703) 885-8460  
Fax: (703) 885-7612  
Members: 100  
States Covered: 48  
Signed Jobbers: 2200  
Contact: Rusty Bishop

**IWDA (INDEPENDENT WAREHOUSE DISTRIBUTORS ASSOC.)/ ROAD PRO**  
9810 FM 1960 By Pass, Suite 125  
Humble, TX 77338  
(713) 446-1493  
Fax: (713) 446-4260  
Members: 73  
States Covered: 29  
Signed Jobbers: 700  
Contact: Gary Piper

**AUTO PRIDE MARKETING**  
(Formerly IWDI)  
182 Winchester Ave.  
New Haven, CT 06511  
(203) 865-0324  
Fax: (203) 865-1819  
Members: 94  
States Covered: 24  
Signed Jobbers: 504  
Contact: Bill Burns

**NAPA (NATIONAL AUTOMOTIVE PARTS ASSOC.)**  
2999 Circle 75 Pkwy.  
Atlanta, GA 30339  
(404) 956-2200  
Fax: (404) 956-2212  
Members: 75  
States Covered: 50  
Signed Jobbers: 6600  
Contact: Steve Handschuh

**PARTS PLUS (AAAD)**  
POB 40672  
Memphis, TN 38174  
(901) 682-9090  
Fax: (901) 682-9098  
Members: 39  
States Covered: 50  
Signed Jobbers: 2500  
Contact: Marvin Almy, Joe Matlock

**PRONTO AUTOPARTS**  
220 E. Jefferson  
POB 1300  
Springfield, IL 62705  
(217) 544-7489  
Fax: (217) 544-7489  
Members: 158  
States Covered: 50  
Signed Jobbers: 1200 plus  
Contact: William Maggs

**Major Automotive Specialty Chains**

**ADAP INC. (subsidiary of RITE AID CORP)**  
660 Bodwell St.  
Avon, MA 02322  
(508) 587-8400  
Fax: (508) 584-8772  
Stores: 75  
Total Chain Sales: \$65,000,000  
States Covered: 4  
Contact: Wayne Yodzio, Buyer

**ADVANCE, INC.**  
1342 Eighth Street SW  
Roanoke, VA 24015  
(703) 345-4911  
Fax: (703) 344-1104  
Stores: 135  
Total Chain Sales: \$65,000,000 (est.)  
States Covered: 4  
Contact: Bob Pickle, Buyer

**AUTO ZONE INC.**  
3030 Poplar Avenue  
Memphis, TN 38111  
(901) 325-4600  
Fax: (901) 324-4655, ext. 2218  
Stores: 460  
Total Chain Sales: \$440,000,000 (est.)  
States Covered: 16  
Contact: Leonard McCoy, VP-Merchandising

**CHIEF AUTO PARTS**  
15303 Dallas Parkway, Suite 800  
Dallas, TX 75248  
(214) 404-1114  
Fax: (214) 991-7657  
Stores: 480  
Total Chain Sales: \$290,000,000 (est.)  
States Covered: 9  
Contact: Kent Stickley, VP-Marketing

**NORTHERN AUTOMOTIVE CORP.**  
(Chain Names: Check/Shuck's/Dragen/Auto Works/U Save/Crown)  
645 E. Missouri Ave., Suite 400  
Phoenix, AZ 85012  
(602) 265-9200  
Fax: (602) 274-2831  
Stores: 876  
Total Chain Sales: \$690,000,000 (est.)  
States Covered: 25  
Contact: Randy Wright, VP-Merchandising

**PARTS INC.**

601 S. Dudley Street  
Memphis, TN 38104  
(901) 523-7711  
Stores: 48 (DIY); 150 (Dealer); 1250 (Program Distributor)  
Total Chain Sales: \$125,000,000 (est.)  
States Covered: 18  
Contact: Bob McCallister,  
VP-Product Purchasing

**PEP BOYS**

3111 W. Allegheny Avenue  
Philadelphia, PA 19132  
(215) 229-9000  
Stores: 275  
Total Chain Sales: \$655,000,000  
States Covered: 15  
Contact: Samuel W. McGarvey, Senior VP-  
Merchandising

**TRAK AUTO CORP (Dart Group)**

3300 75th Avenue  
Landover, MD 20785  
(301) 731-1200  
Stores: 300  
Total Chain Sales: \$250,000,000  
States Covered: 5  
Contact: Gil Smith, Buyer

**WESTERN AUTO SUPPLY CO. (Sears)**

2107 Grand Avenue  
Kansas City, MO 64108  
(816) 346-4000  
Fax: (816) 346-4606  
Stores: 1910 (323 are owned; 1398 associates)  
Total Chain Sales: \$1.01 billion (1988)  
States Covered: 19 states  
Contact: Jim Wright, VP-Automotive

**Major Mass Merchandizers and Discount Chains**

**CALDOR**

20 Glover Ave.  
Norwalk, CT 06852  
(203) 846-1641  
Stores: 115  
Total Chain Sales: \$1.4 billion (est.)  
Contact: Gino Lupinacci, Auto Buyer/Mds.  
Mgr.

**FRED MEYER INC.**

POB 42121  
Portland, OR 97242  
(503) 232-8844  
Stores: 97  
Total Chain Sales: \$1.6 billion  
Contact: Glenn Meehan, Auto Buyer/Mds.  
Mgr.

**K-MART CORP.**

3100 W. Big Beaver Rd.  
Troy, MI 48084  
(313) 643-1000  
Stores: 3,942  
Total Chain Sales: \$23.8 billion  
Contact: J. Carpenter, R. Schanbacher, Auto  
Buyers

**PRICE CO.**

POB 85466  
San Diego, CA 92138  
(619) 581-4600  
Stores: 38  
Total Chain Sales: \$3.2 billion  
Contact: Mark Hale, Auto Buyer

**SEARS ROEBUCK & CO.**

Sears Tower  
Chicago, IL 60684  
(312) 875-2500  
Fax: (312) 875-7523  
Stores: 850 (800 company owned service centers)  
Total Chain Sales: \$48,000,000 (est.)  
Contact: Gene Stroner Auto Buyer/Mds.  
Manager:

**WAL-MART STORES, INC.**

POB 116  
Bentonville, AR 72712  
(501) 273-4000  
Stores: 1,188  
Total Chain Sales: \$11.9 billion (est.)  
Contact: S. Nothelsen, Auto Buyer/Mds. Mgr.

**ZAYRE CORP.**  
**770 Cochituate Rd.**  
**Framingham, MA 01701**  
**(617) 620-5000**  
**Fax: (508) 620-5551**  
**Stores: 387 (108 company-owned auto service**  
**centers)**  
**Total Chain Sales: \$5.3 billion (est.)**  
**Contact: P. Bass, Auto Buyer/Mds. Mgr.**

---

**Note:** Total sales figures for  
automotive speciality chains,  
mass merchandizers and  
discount chains are from 1988.

**Sources:** Automotive Marketing Retail  
Aftermarket Guide, 1989;  
DesRosiers Automotive  
Research, Inc.; A.T. Kearney,  
Inc.

## **AUTOMOTIVE PRODUCTS SOURCED FROM DEVELOPING COUNTRY SUPPLIERS**

These are some of the parts and accessories most frequently mentioned by the firms interviewed.

### **Manufacturers.**

- engine components, in some cases finished products to fill out lines
- chassis parts
- stampings and castings
- belts and hoses
- springs, bearings, oil seals, fasteners, lift supports, wheel studs
- heating cores for air conditioners
- shock absorbers
- clamps
- filters
- wire and cable products
- automotive service equipment and tools
- functional accessories (e.g., wipers, wiper blades, horns, lights)
- electrical accessories

### **Importers.**

- engine parts
- belts and hoses
- stampings and castings
- motor and transmission mounts
- suspension systems
- clutches, bearings, ignition parts
- brake drums, and rotor and brake disk pads
- fans
- functional (e.g., lights, windshield wipers) and non-functional accessories (e.g., body trims, wheel accessories, novelty items)
- electrical accessories

Many importers indicated that they purchase a huge variety of hard parts (and in some cases accessories also) and could not specify single products as being more important than others.

**MAJOR AUTOMOTIVE TRADE SHOWS IN THE U.S.**

	Parts for traditional warehouse distributors and wholesalers				
	APAA	SEMA/AI	Chicago	Vegas	Eastern Location
<b>Focus</b>	Replacement parts and accessories for a retail/mass merchandiser emphasis	Specialty performance products and accessories for retail and specialty installers	International manufacturer's emphasis	Western U.S. manufacturer's emphasis	Eastern U.S. manufacturer's emphasis
<b>Sponsor(s)</b>	<ul style="list-style-type: none"> <li>● Automotive Parts and Accessories Association (APAA)</li> </ul>	<ul style="list-style-type: none"> <li>● Specialty Equipment Manufacturers Association (SEMA)</li> <li>● Auto Inter-nacional (AI)</li> </ul>	<ul style="list-style-type: none"> <li>● Motor and Equipment Manufacturers Association (MEMA)</li> <li>● Automotive Service Industries Association (ASIA)</li> </ul>	<ul style="list-style-type: none"> <li>● Motor and Equipment Manufacturers Association (MEMA)</li> <li>● Automotive Service Industries Association (ASIA)</li> <li>● Pacific Auto-motive Show (PAS)</li> </ul>	<ul style="list-style-type: none"> <li>● Motor and Equipment Manufacturers Association (MEMA)</li> <li>● Automotive Service Industries Association (ASIA)</li> </ul>
<b>When</b>	Yearly--August	Yearly--November	Odd years--Spring	Even years--Spring	Even years--Spring
<b>Number of exhibitors (companies)</b>	930	1,100	750	750	650
<b>Total exhibit space</b>	265,000 sq. ft.	750,000 sq. ft.	220,000 sq. ft.	250,000 sq. ft.	140,000 sq. ft.
<b>Number of attendees</b>	29,000	14,000	31,000	30,000	24,000
<b>First show</b>	1969	1981	1960	n/a	1971

Source: DeaRosiers Automotive Research Inc.

AUTOMOTIVE AFTERMARKET ASSOCIATIONS IN THE UNITED STATES

Name	Address	Telephone number	Year established	Membership information	Other information
Automotive Affiliated Representatives (AAR)	111 East Wacker Dr. #600 Chicago, Illinois 60601	(312) 644-6610	1934	<ul style="list-style-type: none"> <li>• 350 to 400 manufacturers representatives of 260 firms</li> <li>• 15 manufacturers of aftermarket products</li> </ul>	<ul style="list-style-type: none"> <li>• Publish monthly newsletter, AAR News</li> </ul>
Auto International Association (AIA)	1575 South Valley Vista Dr. Diamond Bar, California 91765-4173	(714) 396-0289	1983	<ul style="list-style-type: none"> <li>• Over 350 members consisting of manufacturers/importers distributors/retailers, subcontractors, and manufacturers' representatives supporting the import automotive aftermarket products industry</li> </ul>	<ul style="list-style-type: none"> <li>• Conducts annual seminars</li> <li>• Compiles statistics</li> <li>• Publishes bimonthly newsletter</li> </ul>
Automotive Industries Council (AIC)	29200 Southfield Road Southfield, Missouri 48076	(313) 559-5922	1972	<ul style="list-style-type: none"> <li>• Over 700 members consisting of vehicle manufacturers, parts companies, installers and associations</li> </ul>	<ul style="list-style-type: none"> <li>• Provide public relations function for the aftermarket players</li> <li>• Publish monthly newsletter entitled News Focus</li> <li>• Has other research literature available</li> </ul>
Automotive Market Research Council (AMRC)	222 Cedar Lane Teaneck, New Jersey 07666	(201) 567-6158	1966	<ul style="list-style-type: none"> <li>• Association of vehicle manufacturers and suppliers</li> </ul>	<ul style="list-style-type: none"> <li>• Newsletter published bi-monthly</li> <li>• Annual closed meeting</li> <li>• Marketing personnel from vehicle manufacturers</li> </ul>

AUTOMOTIVE AFTERMARKET ASSOCIATIONS IN THE UNITED STATES

Name	Address	Telephone number	Year established	Membership information	Other information
Automotive Parts and Accessories Association (APAA)	5100 Forbes Blvd. Lanham, Maryland 20706	(301) 459-9110	1967	<ul style="list-style-type: none"> <li>Over 1,400 manufacturers</li> </ul>	<ul style="list-style-type: none"> <li>Publish APAA Report, Government Affairs Reporter and Monitor monthly</li> <li>Have large trade show every year in Chicago attracting primarily the retail distribution players</li> </ul>
Automotive Parts Rebuilders Association (APRA)	6849 Old Dominion Dr. Suite 252 McLean, Virginia 22101	(703) 790-1050	1947	<ul style="list-style-type: none"> <li>Membership of 1,400 includes rebuilders, manufacturers representatives, manufacturers suppliers and core suppliers</li> </ul>	<ul style="list-style-type: none"> <li>Have a large annual trade show each fall called the Big R Show (location of show varies--was in Toronto, Oct. 13-16, 1989)</li> </ul>
Automotive Service Industries Association (ASIA)	444 N. Michigan Ave Chicago, Illinois 60611	(312) 836-1300	1924	<ul style="list-style-type: none"> <li>5,500 jobber/retailers</li> <li>800 manufacturers</li> <li>700 warehouse distributors</li> <li>400 manufacturers representatives</li> </ul>	<ul style="list-style-type: none"> <li>Have large annual trade show in spring: over 6,000 exhibitors, 3,000 buyers and 2,000 manufacturers representatives attend in Chicago called Big I show (co-sponsored by MEMA)</li> </ul>
Automotive Warehouse Distributors Association (AWDA)	9140 Ward Parkway Kansas City, MO 64114	(816) 444-3500	1948	<ul style="list-style-type: none"> <li>330 branch warehouses</li> <li>270 main warehouses</li> <li>240 manufacturers</li> </ul>	<ul style="list-style-type: none"> <li>Have annual conference for members only, where one on one meetings are set up between manufacturers and distributors</li> <li>Mid-year meeting held in conjunction with Big I Show</li> <li>Publish AWDA newsletter monthly, complete other publications, have accredited industry specific "university" courses</li> </ul>



**AUTOMOTIVE AFTERMARKET ASSOCIATIONS IN THE UNITED STATES**

<b>Name</b>	<b>Address</b>	<b>Telephone number</b>	<b>Year established</b>	<b>Membership information</b>	<b>Other information</b>
<b>Motor and Equipment Manufacturers Association (MEMA)</b>	300 Sylvan Ave. Englewood Cliffs, New Jersey 07632	(201) 568-9500	1904	• 700 to 800 manufacturers	• Cosponsor Big I show with ASIA
<b>Motor Vehicle Manufacturers Association (MVMA)</b>	300 New Center Bldg. Detroit, Michigan 49202	(313) 872-4311	1913	• 11 companies	• Publish Motor Vehicle Facts and Figures, and World Motor Vehicle Data annually
<b>National Automotive Radiator Service Association (NARSA)</b>	P.O. Box 267 Harleysville, Pennsylvania 19438	(215) 256-4246	1953	• Membership includes manufacturers and radiator shops	• Publish Automotive Cooling Journal monthly • National trade show in March/April of every year
<b>Specialty Equipment Market Association (SEMA)</b>	11540 E. Slauson Ave Whittier, California 90606	(213) 692-9402	1963	• Membership includes 1,800 supplying performance motor vehicle parts and accessories	• Publish SEMA news monthly • Annual SEMA/AI trade show in Spring

Source: DesRosiers Automotive Research Inc.; Encyclopedia of Associations, 24th ed., 1990.

## LIST OF FIRMS INTERVIEWED

### Manufacturers

#### Allied-Signal

A. Teixeira  
105 Pawtucket Avenue  
East Providence, Rhode Island 02916  
(401) 434-7000

#### Auto Electric Suppliers

Norm Rubin, Director of Sales  
9041 S.W. 94th Avenue  
Miami, Florida 33143  
(305) 667-0010

#### Dayco Products, Inc.

Ray L. Gilbert, Group Vice President  
1 Prestige Place  
Dayton, Ohio 45401-1004  
(513) 226-5787

#### Dorman Products

Tony Smith, Manager of Product Development  
1 Dorman Drive  
Warsaw, Kentucky 41095  
(606) 567-7000

#### East Coast Starter Drive

Murphy Levy, President  
1000 S.W. 12th Ave.  
Pompano Beach, Florida 33069  
(305) 946-1030

#### Echlin, Inc.

Jim Leahy, Director of Purchasing  
100 Double Beach Road  
Branford, Connecticut 06405  
(203) 481-5751

#### Federal Mogul

Chuck Pohlbel, Purchasing Manager,  
Distribution Logistics Operations  
26555 Northwestern Highway  
Southfield, Missouri 48034  
(313) 354-7070

#### The Gates Rubber Company

Tom Fahey, Director of Business Development,  
International Division  
990 South Broadway  
P.O. Box 5887  
Denver, Colorado 80217  
(303) 744-4695

#### Hanna Rubber Products

Stephen Lee, President  
5660 Rickenbacker Rd.  
Bell, California 90201  
(213) 266-4040

#### Hein-Werner

Reine Leigel, Senior Vice President-Technology  
1005 Perkins Avenue  
Waukesha, Wisconsin 53186  
(414) 542-6611

#### Hella, Inc., USA

Mitch L. Williams, President  
42 Jackson Drive  
P.O. Box 1064  
Cramford, New Jersey 07016  
(201) 272-1400

#### Kadna Rubber Co.

Sandy Richman, Sales Manager  
RWP Mid-Atlantic  
1520 Spruce St., #901  
Philadelphia, Pennsylvania 19102  
(215) 482-9367

#### Moog Automotive, Inc.

Rob Martens, Commodity Manager  
6565 Wells Avenue  
St. Louis, Missouri 63133  
(314) 385-3400  
Fax: (314) 381-6746

#### TRW, Inc. - Automotive Aftermarket Division

David Paczos, Product Sourcing Manager  
8001 E. Pleasant Valley Road  
Cleveland, Ohio 44131  
(216) 447-8145

**ANNEX H**

**Wells Manufacturing Corp.**  
Mr. Zehelki, Purchasing Manager  
26 S. Broche Street  
Fond du Lac, Wisconsin 54935  
(414) 922-5900

**Wittek Industries**  
(EC Manufacturing)  
Tom Milligan, Vice President of Sales and Marketing  
26911 Northwestern Highway  
South Atrium Suite 300  
Southfield, Missouri 48034  
(313) 262-1466

Five manufacturers do not wish their names released.

**Importers**

**Automotive Supply Co., Inc.**  
Robert Corbett, President  
14403 Ramona Ave., Unit B  
Chino, California 91710-5742  
(714) 597-4489

**Beck/Arnley Worldparts**  
Ira Davis, Vice President of Product Marketing  
1020 Space Park South  
Nashville, Tennessee 37222  
(615) 834-8080  
Fax: (615) 361-7370

**Electrodyne, Inc.**  
Jim Covone, Director of Marketing  
4750 Eisenhower Avenue  
P.O. Box 9670  
Alexandria, Virginia 22304-9670  
(703) 823-0202  
Fax: (703) 823-0842

**Far Hsing Enterprise Company, Ltd.**  
(Division of Yun San Corporation)  
Daniel Yang  
No. 48 An Kang Road  
Nei-Hu, Taipei, Taiwan, R.O.C.  
7913151-4 LINE

**Grant Brothers Sales, Ltd.**  
Michael Grant, President  
790 Arrow Road  
Weston, Ontario M9M 2Y5  
(416) 743-7240  
Fax: (416) 743-4146

**Honor Trading, Ltd.**  
(a member of WAGAN group)  
Albert Lin, Vice President - Regional Manager  
3589 Yale Way  
Hayward, California 94538  
(415) 490-9221

**IAP, Inc.**  
Barry Davis, National Sales Manager  
26 Englehard Avenue  
Avenel, New Jersey 07001-2295  
(201) 815-0100  
Fax: (201) 815-0440

**ITM Automotive Parts, Inc.**  
Robert E. Tye, Vice President for Product Marketing  
13140 Alondra Boulevard  
Cerrito, California 90701  
(213) 926-6582  
Fax: (213) 926-6151

**National Automotive Trading Corporation of China**  
Li Su, Representative  
4000 Town Center, Suite 220  
Southfield, Michigan 48975  
(313) 352-6870

**On Time Development, Inc.**  
Wendy Tseng; Dean Dimov  
56-70 58th Street  
Maspeth, New York 11378  
(718) 417-5177

**Speedway Division of Kern N. Bend Industries, Inc.**  
John Kern, President  
750 East Edna Place  
Covina, California 91723  
(818) 915-3431

**VERA**

**John Wiltshire, Former Director of Purchasing**  
100 Springfield Avenue  
Piscataway, New Jersey 08855-0218  
(201) 981-0030  
Fax: (201) 981-1933

Four importers do not wish their names released.

**Manufacturers' Representatives & Distributors**

**Appollo Warehousing**  
Don Cash, President  
1073 East Artesia Boulevard  
Carson, California 90746  
(213) 774-8181

**Impart Distribution, Inc.**  
Taranbir Kaur  
8306 Patuxent Range Road, Suite 108  
Jessup, Maryland 20794  
(301) 490-0010

**Karrand Companies, Inc.**  
David Rognlien, Chairman  
17601 South Figueroa Street  
Gardena, California 90243  
(213) 532-2250

**Kayes Company, Inc.**  
Tom Gilliam, President  
1890 Northwest Blvd., Suite 14  
Columbus, Ohio 43212  
(614)481-8811  
Fax: (614) 488-6829

**Matsui Universal Joint Corporation, US**  
Operations  
Jess G. Oria, Manager  
4426 Rose Garden  
Toledo, Ohio 43623  
(419) 841-1688

**Program Distribution Groups**

**APS Inc. (Big A Auto Parts)**  
Mike Preston, Vice President, Market  
Development  
3000 Pawnee St.  
Houston, Texas 77054  
(713) 741-2470

**CarQuest**  
Dan Bock, President  
580 White Plains Rd.  
Tarrytown, New York 10591  
(914) 332-1515  
Fax: (914) 332-3504

**Federated Auto Parts Distributors Inc.**  
Rusty Bishop, Vice President, General Manager  
P.O. Box 2248  
Staunton, Virginia 24401  
(703) 885-8460  
Fax: (703) 885-7612

**IWDA (Independent Warehouse Distribution  
Association/Road Pro**  
Gary Piper, Jr.  
9810 FM 1960 By Pass, Suite 125  
Humble, Texas 77338  
(713) 446-1493  
Fax: (713) 446-4260

**Napa (National Automotive Parts Assoc.)**  
Buyer, Purchasing Dept.  
2999 Circle 75 Parkway  
Atlanta, Georgia 30339  
(404) 956-2200  
Fax: (404) 956-2212

**Parts Plus Inc.**  
Marvin Almy, President  
5050 Poplar Ave., Suite 2020  
Memphis, Tennessee 38174  
(901) 682-9090

**Specialty Repair Chains**

**AAMCO**

Buyer, Purchasing  
1 Presidential Boulevard  
Bala Cynwyd, Pennsylvania 19004  
(215) 668-2900

**Midas International Corp.**

Jim Wagner, Supervisor - Inventory Services  
225 N. Michigan Avenue  
Chicago, Illinois 60601  
(312) 565-7500  
Fax: (312) 565-7881

**PAC Manufacturing (Precision Tune)**

Glen Masingill, President and General Manager  
7055 South Major Drive  
Beaumont, Texas 77705  
(409) 842-5790

**Trak Auto Corp.**

Gil Smith, Buyer  
3300 75th Avenue  
Landover, Maryland 20785  
(301) 731-1200

**Western Auto Supply Co. (Sears)**

Jack Funk, Merchandize Manager  
2107 Grand Avenue  
Kansas City, Montana 64108  
(816) 346-4000  
Fax: (816) 346-4606

**Sears Roebuck & Co.**

Jack Lavin, Buyer - Auto Parts Division  
Sears Tower  
Chicago, Illinois  
(312) 875-2500  
Fax: (312) 875-7523

**Retailers**

**ADAP Inc.**

Wayne Yodzio, Buyer  
660 Bodwell St.  
Avon, Mass. 02322  
(508) 587-8400  
Fax: (508) 584-8772

**Advance, Inc.**

Greg Hain, Buyer  
1342 Eighth Street SW  
Roanoke, Virginia 24015  
(703) 345-4911  
Fax: (703) 344-1104

**Chief Auto Parts, Inc.**

Fred Sutter, Merchandizing Manager  
15303 Dallas Parkway, Suite 800  
Dallas, Texas 75248  
(214) 404-1114  
Fax: (214) 991-7657

**Northern Automotive Corp.**

Mike Stefano, Buyer  
645 E. Missouri Ave., Suite 400  
Phoenix, Arizona 85012  
(602) 265-9200  
Fax: (602) 274-2831

## BIBLIOGRAPHY

A.T. Kearney Inc., various unpublished reports.

A.T. Kearney Inc. (1989), "Global Automotive Industry", presentation to the World Bank, October 29.

Aftermarket Business, Edgell Communications Inc., Cleveland, various articles.

APAA, (1989), U.S.A. News for the International Automotive Aftermarket Industry, Fall.

Arvin, L. (1988), "The battle of the parts", Jobber Retailer, December.

Auto Merchandising News, Mortimer Communications, Inc., Fairfield CT, various articles.

Automotive Aftermarket News, Detroit, various articles.

Automotive Industries, Chilton Co., Radnor PA, various articles.

Automotive Marketing, Chilton Co., Radnor PA, various articles.

Automotive Marketing Retail Aftermarket Guide, Chilton Co., Radnor PA, various articles.

Automotive News, Detroit, various articles.

Automotive Week, Wayne NJ, various articles.

Automotive Parts International, Washington D.C., various articles.

Autos-Auto Parts, Standard and Poor's Industry Surveys, various articles.

Avery, S. (1988), "Auto replacement parts makers could use a break", Purchasing, May 26.

Booz Allen and Hamilton Inc. (1989), "Automotive Industry Development Issues, presentation for IFC", Washington D.C., April 24.

Booz Allen and Hamilton Inc. (1987), "General Vision of the Autoparts Restructuring Program", Mexico.

Business Week, McGraw-Hill, New York, various articles.

Consultants for Trade and Industry, (1989), "European Auto Industry's Investment Outlook in LDCs", International Finance Corporation, (unpublished), June.

Counterman, Babcox Publications Inc., Akron OH, various articles.

Cram et. al. (1987), "Industry Analysis: The Automotive Parts Aftermarket", unpublished Yale student paper.

DesRosiers Automotive Research Inc. (1989), "Canadian Automotive Aftermarket: Accessories Industry", Toronto.

DesRosiers Automotive Research Inc. (1990), "Canadian Automotive Aftermarket: Strategic Market Analysis of Export Opportunities to the U.S." (accessories), Toronto.

DesRosiers Automotive Research Inc. (1989), "Canadian Automotive Aftermarket: Strategic Market Analysis of Export Opportunities to the U.S." (replacement parts), Toronto.

DesRosiers Automotive Research Inc. (1989), "Canadian Automotive Aftermarket Analysis - Manufacturing Capabilities", Toronto.

Dettrey, J. (1989), "State of the Industry", Jobber Executive, October.

Dowse et. al. (1987), "The Automotive Replacement Parts Industry", unpublished Yale student paper.

Easton Consultants Inc. (1988), "U.S. Manufacturers of Replacement Automotive Parts and their Involvement with Imported Vehicle Applications", Stamford.

Easton Consultants Inc. (1989), "Market Projections: Fundamental, Technical, or Pray for the Good Old Days", Stamford.

Economist, London, various articles.

Economist Intelligence Unit, (1984), "Productivity and Opportunity: the next 10 years for the auto industry", London.

Financial Times, "World Car Industry", Financial Times Survey, 1988, 1989.

Financial Times, "World Automotive Components Industry", Financial Times Annual Survey, 1988, 1989, 1990.

Financial Times, London, various articles.

Financial Times, "Executive Cars", Financial Times Survey, 1990.

Financial Times, "The Motor Industry", Financial Times Survey, 1987, 1988, 1989.

Fisher, B., Herken-Kraver, J.C., Lucke, M., and Nunnekamp, P. (1988), Capital Intensive Industries in Newly Industrializing Countries: The Case of the Brazilian Automobile and Steel Industries, New York.

Flynn, M. (1987), "Out-sourcing rediscovered", IEEE Spectrum, October.

Forbes, Forbes Inc., New York, various articles.

"Foreign Cars, But U.S. Replacement Parts", (1989), The Battery Man, May.

Fortune, Time Inc., Chicago, various articles.

Frost and Sullivan, (1989), "The Import Car Aftermarket", New York.

Globe and Mail, Toronto, various articles.

Griffiths, J. (1988), "The Bleak Future", Business Month, February.

Hoffman, K. and Kaplinsky, R. (1988), Driving Force: The Global Restructuring of Technology, Labor, and Investment in the Automobile and Component Industries, Boulder.

Japan Economic Journal, Tokyo, various articles.

Jobber Retailer, various articles.

Jobber Topics, Irving-Cloud, Lincolnwood, IL, various articles.

Jobber and Warehouse Executive, Hunter Publishing Co., Des Plaines, IL, various articles.

Karmakolias, Y. (1989), "Investment Opportunities in the Automotive Industries in Developing Countries", International Finance Corporation Discussion Paper No. 7.

Moskal, B. (1988), "Doing it all yourself and ensuring worldclass 'underperformance'", Industry Week, January 4.

Motor/Age, (1989), "The State of the Service Aftermarket," Part 1, Chilton Publications, Radnor PA, September.

Motor/Age, Chilton Publications, Radnor PA, various articles

Motor Trend, Petersen Publishing Company, Los Angeles, various articles.

New York Times, New York, various articles.

O'Brien, P. (1989), The Automotive Industry in the Developing Countries: Risks and Opportunities in the 1990s, Economist Intelligence Unit Special Report No. 1175, London.

O'Brien, P. (1988), "International Structural Change in the Automotive Industry: A North-South Perspective", International Employment Policies, Working Paper No. 17, Vienna.

O'Brien, P. (1989), "The Prospects For Collaboration in Trade and Production Between Developed and Developing Countries in the Automotive Industry", draft, Geneva.

Parts and Accessories, Meyers Publishing, Van Nuys CA, various articles.

Time Magazine, New York, various articles.

Trends and Opportunities in the North American Automotive Aftermarket, (1989), conference report, Toronto, November 21 and Montreal, November 22, 1989.

U.S. Department of Commerce, International Trade Administration. (1985), A Competitive Assessment of the U.S. Automotive Parts Industry and the U.S. Aftermarket for Japanese Cars and Light Trucks, Washington D.C.

Ward's Auto World, various articles.



## **Statistical References**

**Automobile International, World Automotive Market, annual publication, various issues.**

**MEMA, Market Analysis, bi-monthly publication, various issues.**

**MVMA, Information Handbook, U.S. Exports and Imports of Motor Vehicles and Automotive Parts, 1989 ed., Detroit.**

**MVMA, World Motor Vehicle Data, annual publication, Detroit, various issues.**

**MVMA, Facts and Figures, annual publication, Detroit, various issues.**

**U.S. Bureau of the Census, Statistical Abstract of the United States, 1989, annual publication.**

**United Nations, Department of International Economic and Social Affairs Statistical Office, International Trade Statistics Yearbook - 1987 (1989), Vols. I & II, New York.**

**Ward's Automotive Yearbook, annual publication, Detroit, various issues.**

**INDUSTRY SERIES PAPERS**

- No. 1 Japanese Direct Foreign Investment: Patterns and Implications for Developing Countries, February 1989.
- No. 2 Emerging Patterns of International Competition in Selected Industrial Product Groups, February 1989.
- No. 3 Changing Firm Boundaries: Analysis of Technology-Sharing Alliances, February 1989.
- No. 4 Technological Advance and Organizational Innovation in the Engineering Industry, March 1989.
- No. 5 Export Catalyst in Low-Income Countries, November 1989.
- No. 6 Overview of Japanese Industrial Technology Development, March 1989.
- No. 7 Reform of Ownership and Control Mechanisms in Hungary and China, April 1989.
- No. 8 The Computer Industry in Industrialized Economies: Lessons for the Newly Industrializing, February 1989.
- No. 9 Institutions and Dynamic Comparative Advantage Electronics Industry in South Korea and Taiwan, June 1989.
- No. 10 New Environments for Intellectual Property, June 1989.
- No. 11 Managing Entry Into International Markets: Lessons From the East Asian Experience, June 1989.
- No. 12 Impact of Technological Change on Industrial Prospects for the LDCs, June 1989.
- No. 13 The Protection of Intellectual Property Rights and Industrial Technology Development in Brazil, September 1989.
- No. 14 Regional Integration and Economic Development, November 1989.
- No. 15 Specialization, Technical Change and Competitiveness in the Brazilian Electronics Industry, November 1989.

**INDUSTRY SERIES PAPERS cont'd**

- No. 16      **Small Trading Companies and a Successful Export Response: Lessons From Hong Kong, December 1989.**
- No. 17      **Flowers: Global Subsector Study, December 1989.**
- No. 18      **The Shrimp Industry: Global Subsector Study, December 1989.**
- No. 19      **Garments: Global Subsector Study, December 1989.**
- No. 20      **World Bank Lending for Small and Medium Enterprises: Fifteen Years of Experience, December 1989.**
- No. 21      **Reputation in Manufactured Goods Trade, December 1989.**
- No. 22      **Foreign Direct Investment From the Newly Industrialized Economies, December 1989.**
- No. 23      **Buyer-Seller Links for Export Development, March 1990.**
- No. 24      **Technology Strategy & Policy for Industrial Competitiveness: A Case Study of Thailand, February 1990.**
- No. 25      **Investment, Productivity and Comparative Advantage, April 1990.**
- No. 26      **Cost Reduction, Product Development and the Real Exchange Rate, April 1990.**
- No. 27      **Overcoming Policy Endogeneity: Strategic Role for Domestic Competition in Industrial Policy Reform, April 1990.**
- No. 28      **Conditionality in Adjustment Lending FY80-89: The ALCID Database, May 1990.**
- No. 29      **International Competitiveness: Determinants and Indicators, March 1990.**
- No. 30      **FY89 Sector Review Industry, Trade and Finance, November 1989.**
- No. 31      **The Design of Adjustment Lending for Industry: Review of Current Practice, June 1990.**

**INDUSTRY SERIES PAPERS** *cont'd*

- No. 32      **National Systems Supporting Technical Advance in Industry: The Brazilian Experience, June 26, 1990.**
- No. 33      **Ghana's Small Enterprise Sector: Survey of Adjustment Response and Constraints, June 1990.**
- No. 34      **Footwear: Global Subsector Study, June 1990.**
- No. 35      **Tightening the Soft Budget Constraint in Reforming Socialist Economies, May 1990.**
- No. 36      **Free Trade Zones in Export Strategies, June 1990.**
- No. 37      **Electronics Development Strategy: The Role of Government, June 1990**
- No. 38      **Export Finance in the Philippines: Opportunities and Constraints for Developing Country Suppliers, June 1990.**
- No. 39      **The U.S. Automotive Aftermarket: Opportunities and Constraints for Developing Country Suppliers, June 1990**

**Note:**      **For extra copies of these papers please contact Miss Wendy Young on extension 33618, Room S-4101**

**ENERGY SERIES PAPERS**

- No. 1 Energy Issues in the Developing World, February 1988.
- No. 2 Review of World Bank Lending for Electric Power, March 1988.
- No. 3 Some Considerations in Collecting Data on Household Energy Consumption, March 1988.
- No. 4 Improving Power System Efficiency in the Developing Countries through Performance Contracting, May 1988.
- No. 5 Impact of Lower Oil Prices on Renewable Energy Technologies, May 1988.
- No. 6 A Comparison of Lamps for Domestic Lighting in Developing Countries, June 1988.
- No. 7 Recent World Bank Activities in Energy (Revised October 1989).
- No. 8 A Visual Overview of the World Oil Markets, July 1988.
- No. 9 Current International Gas Trades and Prices, November 1988.
- No. 10 Promoting Investment for Natural Gas Exploration and Production in Developing Countries, January 1988.
- No. 11 Technology Survey Report on Electric Power Systems, February 1989.
- No. 12 Recent Developments in the U.S. Power Sector and Their Relevance for the Developing Countries, February 1989.
- No. 13 Domestic Energy Pricing Policies, April 1989.
- No. 14 Financing of the Energy Sector in Developing Countries, April 1989.
- No. 15 The Future Role of Hydropower in Developing Countries, April 1989.
- No. 16 Fuelwood Stumpage: Considerations for Developing Country Energy Planning, June 1989.
- No. 17 Incorporating Risk and Uncertainty in Power System Planning, June 1989.
- No. 18 Review and Evaluation of Historic Electricity Forecasting Experience, (1960-1985), June 1989.

**ENERGY SERIES PAPERS cont'd**

- No. 19 Woodfuel Supply and Environmental Management, July 1989.
- No. 20 The Malawi Charcoal Project - Experience and Lessons, January 1990.
- No. 21 Capital Expenditures for Electric Power in the Developing Countries in the 1990s, February, 1990.
- No. 22 A Review of Regulation of the Power Sectors in Developing Countries, February 1990.
- No. 23 Summary Data Sheets of 1987 Power and Commercial Energy Statistics for 100 Developing Countries, March 1990.
- No. 24 A Review of the Treatment of Environmental Aspects of Bank Energy Projects, March 1990.
- No. 25 The Status of Liquefied Natural Gas Worldwide, March 1990.
- No. 26 Population Growth, Wood Fuels, and Resource Problems in Sub-Saharan Africa, March 1990.
- No. 27 The Status of Nuclear Power Technology - An Update, April 1990.
- No. 28 Decommissioning of Nuclear Power Facilities, April 1990.

**Note:** For extra copies of these papers please call Ms. Mary Fernandez on extension 33637.