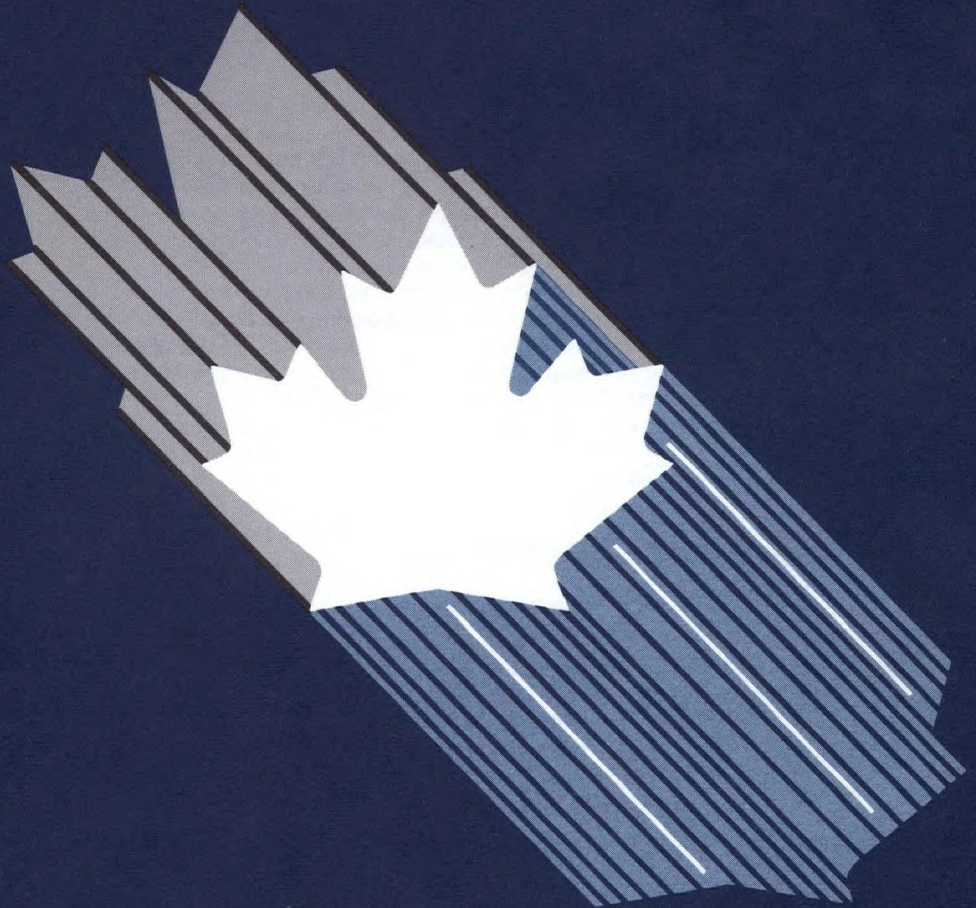


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I N D U S T R Y  
P R O F I L E



Industry, Science and  
Technology Canada

Industrie, Sciences et  
Technologie Canada

**Automotive Tires  
and Tubes**

Canada



# Regional Offices

## Newfoundland

Parsons Building  
90 O'Leary Avenue  
P.O. Box 8950  
ST. JOHN'S, Newfoundland  
A1B 3R9  
Tel: (709) 772-4053

## Prince Edward Island

Confederation Court Mall  
Suite 400  
134 Kent Street  
P.O. Box 1115  
CHARLOTTETOWN  
Prince Edward Island  
C1A 7M8  
Tel: (902) 566-7400

## Nova Scotia

1496 Lower Water Street  
P.O. Box 940, Station M  
HALIFAX, Nova Scotia  
B3J 2V9  
Tel: (902) 426-2018

## New Brunswick

770 Main Street  
P.O. Box 1210  
MONCTON  
New Brunswick  
E1C 8P9  
Tel: (506) 857-6400

## Quebec

Tour de la Bourse  
P.O. Box 247  
800, place Victoria  
Suite 3800  
MONTRÉAL, Quebec  
H4Z 1E8  
Tel: (514) 283-8185

## Ontario

Dominion Public Building  
4th Floor  
1 Front Street West  
TORONTO, Ontario  
M5J 1A4  
Tel: (416) 973-5000

## Manitoba

330 Portage Avenue  
Room 608  
P.O. Box 981  
WINNIPEG, Manitoba  
R3C 2V2  
Tel: (204) 983-4090

## Saskatchewan

105 - 21st Street East  
6th Floor  
SASKATOON, Saskatchewan  
S7K 0B3  
Tel: (306) 975-4400

## Alberta

Cornerpoint Building  
Suite 505  
10179 - 105th Street  
EDMONTON, Alberta  
T5J 3S3  
Tel: (403) 420-2944

## British Columbia

Scotia Tower  
9th Floor, Suite 900  
P.O. Box 11610  
650 West Georgia St.  
VANCOUVER, British Columbia  
V6B 5H8  
Tel: (604) 666-0434

## Yukon

108 Lambert Street  
Suite 301  
WHITEHORSE, Yukon  
Y1A 1Z2  
Tel: (403) 668-4655

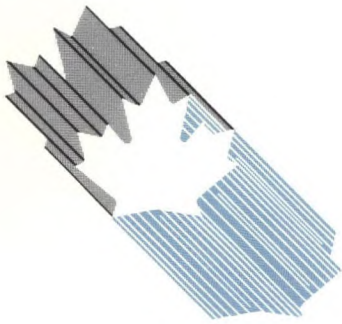
## Northwest Territories

Precambrian Building  
P.O. Bag 6100  
YELLOWKNIFE  
Northwest Territories  
X1A 1C0  
Tel: (403) 920-8568

*For additional copies of this profile contact:*

*Business Centre  
Communications Branch  
Industry, Science and  
Technology Canada  
235 Queen Street  
Ottawa, Ontario  
K1A 0H5*

*Tel: (613) 995-5771*



I N D U S T R Y

P R O F I L E

**AUTOMOTIVE TIRES  
AND TUBES**

DEPARTMENT OF REGIONAL  
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1988

JAN 25 1989

**FOREWORD**

In a rapidly changing global trade environment, the international competitiveness of Canadian industry is the key to survival and growth. This Industry Profile is one of a series of papers which assess, in a summary form, the current competitiveness of Canada's industrial sectors, taking into account technological and other key factors, and changes anticipated under the Canada-U.S. Free Trade Agreement. Industry participants were consulted in the preparation of the papers.

The series is being published as steps are being taken to create the new Department of Industry, Science and Technology from the consolidation of the Department of Regional Industrial Expansion and the Ministry of State for Science and Technology. It is my intention that the series will be updated on a regular basis and continue to be a product of the new department. I sincerely hope that these profiles will be informative to those interested in Canadian industrial development and serve as a basis for discussion of industrial trends, prospects and strategic directions.

Minister

Canada

**Introduction**

In broad terms, the automotive industry in Canada includes the manufacturers of motor vehicles (passenger cars, trucks, buses and specialty vehicles), motor vehicle parts and tires and tubes and buses original equipment. The assembly of motor vehicles as well as in the aftermarket. Automotive production is directly linked to many other key industries in Canada: iron and steel, fabricated metals, aluminum alloys, rubber, plastics, textiles, glass and chemicals.

In 1986, this wide range of automotive activities accounted for some 16 percent of total Canadian shipments of manufactured products, and approximately 44 percent of the total of manufactured exports (fabricated materials and end products) to the United States. In 1986, automotive shipments reached almost \$41 billion\*, composed of \$25.1 billion in automobile, truck and bus assembly, \$12.2 billion in parts, \$1.8 billion\* in specialty vehicles and in excess of \$1.8 billion\* in tires and tubes. In the same year, total employment reached some 148 800\* persons with 49 800 engaged in automobile, truck and bus assembly, 16 600\* in specialty vehicle production, 68 400 in parts production and an estimated 14 000\* in the manufacture of tires and tubes.

In addition to automotive tires and tubes, profiles have been prepared covering:

- Automotive Parts
- Buses
- Light Motor Vehicles
- On- and Off-highway Medium/Heavy-duty Trucks
- Specialty Vehicles

**1. Structure and Performance**

**Structure**

The Canadian tire industry is composed of five major companies, all foreign-owned, and two smaller, Canadian-owned companies. Industry shipments totalled \$1.85 billion in 1986, including a wide variety of tires for passenger cars, light and heavy trucks, and buses. Production is now heavily oriented to radial tires, following closure of bias-ply facilities during the 1980s. Tires are produced either for use by vehicle assemblers (i.e., original equipment market) or for the replacement market (i.e., aftermarket). Approximately 30 percent of Canadian production is sold for original equipment use, with 70 percent sold in the aftermarket.

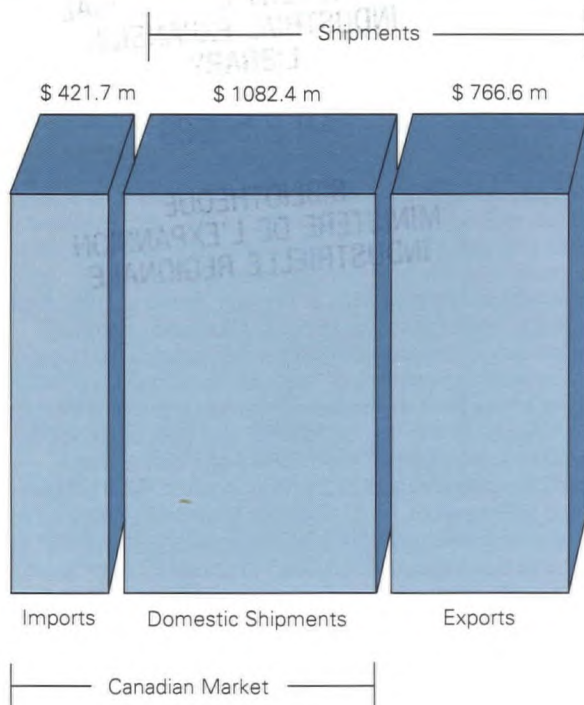
\* ITC estimate



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**Imports, Exports and Domestic Shipments 1986**

Employment totalled 14 000 in 1986, but has subsequently fallen to 10 000, following two plant closures in 1987 and 1988. Employment is more evenly distributed regionally than in the rest of the automotive industry, with major facilities in Nova Scotia, Quebec and Ontario. Imports in 1986 equalled \$422 million, primarily from the United States and Asia. Exports, primarily destined for the United States as part of intra-corporate trade, equalled \$767 million. Directly traded tires are sold for use in the replacement market. Tires sold for original equipment use are also traded, but as part of assembled vehicles. Approximately \$500 million worth of tires on assembled vehicles are included in export statistics for assembled vehicles.

Major companies are Goodyear Canada Inc. (American), Uniroyal-Goodrich Canada Inc. (American), General Tire Canada Limited (German), Michelin Tires Canada Ltd. (French) and Firestone Canada Inc. (owned by Bridgestone of Japan). United Tire & Rubber Co. Ltd. and Trent Rubber Services 1978 Ltd. are smaller, Canadian-owned companies.

The industry uses large volumes of natural and artificial rubber, carbon black, special fabrics and other chemicals. While there is no source of natural rubber in Canada, most other materials are available from Canadian sources. The industries supplying the materials are discussed in separate Industry Profiles.

## Performance

Given the domination of the tire industry by multinational corporations, and Canada's reliance on the North American market, the performance of the Canadian tire industry can only be understood in the context of global trends, particularly as they affect the North American market.

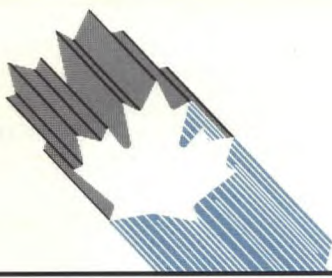
The 1980s has been a period of adjustment for the world tire industry, caused primarily by technological change and the challenge of new competitors. Widespread acceptance of the radial tire has made bias-ply capacity obsolete. The radial tire offers at least double the mileage and tire life of the bias-ply tire, resulting in an increase in the replacement cycle from two to at least four years. At the same time, Asian producers have entered the North American market with both assembled vehicles and tires, gaining more than a 30-percent share of the new car market, and almost 10 percent of the tire market. Vehicle imports reduce demand for original equipment tires, while tire imports primarily affect the replacement market.

These trends have had three major effects. The first has been the closure of facilities producing bias-ply tires, as demand for bias tires disappeared. More than 25 tire plants have closed in North America from 1976 to 1987. The United States International Trade Commission considers a number of additional tire plants in North America to be vulnerable to closure.

Second, volume of production and profitability have been low in the industry throughout the 1980s. Total dollar value of North American production has increased only about 15 percent from the recession levels of the 1980s, compared to a 110-percent increase in the production of other automotive parts. Volume of shipments remained stable in the United States from 1984 to 1986, while value of production actually declined more than five percent during this period, reflecting price competition. The volume of shipments increased in Canada during this period, as older Canadian plants continued to produce bias products, but dropped in 1987 and is expected to show further declines in 1988, following two plant closures. Return on sales by North American producers has been modest, averaging less than four percent in the United States, and under one percent in Canada.

The third consequence of technological change and global adjustment in the tire industry has been to raise the stakes of competition. Only those producers who are able to make massive investments in automated radial production facilities, and, in most cases, to forge links with foreign producers, will be able to compete in the long term. The tire industry is highly capital intensive with investment of \$400 million to \$500 million required to establish a new plant.





During the last two years, five major world tire producers have emerged, including two Japanese companies, one French, one German and one American. Sumitomo of Japan acquired Dunlop's American and European plants in 1986. Bridgestone, Japan's leading tire producer, has acquired Firestone. Continental GummisWerke A.G. of the Federal Republic of Germany acquired the tire operations of General Tire in 1986, and has subsequently announced a co-operative agreement with Yokohama and Toyo of Japan. Goodyear survived a hostile takeover attempt in 1987, causing the company to divest its diversified operations and to increase its focus on tire manufacturing. Michelin has maintained its position as a global competitor during this period, building on a strong investment base. Smaller tire producers have also undergone restructuring during this period; for example, the merging of the tire divisions of Uniroyal and B.F. Goodrich.

Canadian performance in this period has been mixed. Production increased significantly during the 1980s, from \$1.25 billion in 1981 to \$1.85 billion in 1986, in contrast to flatter production in the United States. However, production dropped in 1987 to \$1.65 billion, and is expected to drop again in 1988, reflecting closure of the Goodyear Toronto and Firestone Hamilton plants.

## 2. Strengths and Weaknesses

### Structural Factors

Production of tires in Canada has historically been encouraged by a high tariff barrier, and is dominated by branch plants of multinational corporations. With the exception of the Michelin operations in Nova Scotia, the industry has been characterized by small-scale operations, with short production runs and inadequate investment in new equipment and technology. To a great extent, trade is restricted to intra-company transfers, largely to the United States. All parents of Canadian tire companies, whether European, Japanese or American, have major facilities in the United States.

The strategy of U.S. parent companies, which have dominated the industry until very recently, has been to take advantage of fully paid for Canadian facilities and lower Canadian wage rates to offset the lower productivity and efficiency of Canadian operations. This reduced productivity results from smaller production runs, production of more labour-intensive lines and use of older machinery. While feasible in a time of static technology, this strategy is no longer viable. Michelin has been the clear exception to this situation. The company established fully rationalized world-class operations in Nova Scotia in the 1970s, and has subsequently updated the facilities with new generations of automated tire-making equipment. Goodyear's recent decision to build a new world-class facility in Napanee, Ontario, also indicates a change in strategy.

A comparison between production costs of a tire in a typical Canadian facility and those of a world-class automated American facility reveals the competitive weaknesses of the Canadian industry. The cost of producing a tire is divided almost equally between raw material costs and conversion costs. Raw material costs are almost identical in Canada and the United States, as rubber, the primary input, is an internationally traded commodity priced in American dollars.

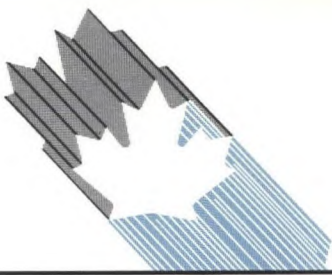
Conversion costs account for the remaining manufacturing costs, including labour, equipment and plant cost, research and development and waste. Conversion cost is thus a function of the cost of labour, productivity, level of investment in plant and equipment, and efficiency. Overall conversion costs are approximately 15 percent higher in Canada than in the United States. Penalties associated with shorter production runs and use of older equipment, such as longer processing time and higher scrap rates, more than offset advantages from lower wage rates, and lower charges for fixed equipment and research and development.

The average production of a plant in Canada has been in the order of 13 500 tires a day in certain plants, compared to 40 000 to 50 000 at a scale American plant. Average processing time per tire is 80 percent higher in Canada than in the United States (17 minutes compared to less than 10). Scrap rates in older Canadian plants are almost 300 percent higher than in the United States, reflecting shorter production runs and wastage associated with frequent machinery changes. Variable equipment overhead is almost 50 percent higher in a typical Canadian plant than in an American plant, reflecting higher maintenance costs associated with older plants and more frequent equipment changeovers.

These higher costs are partially offset by lower fixed costs, due to less investment in new equipment. In addition, a lower share of research and development costs may be attributed to the subsidiary, depending on company policy. Longer processing times are also somewhat offset by lower wage rates in Canada, largely due to the value of the Canadian dollar. Thus, despite processing times being 80 percent in excess of such times in the United States, labour cost per tire in Canada is only 50 percent higher.

In total, when all material and conversion costs, including labour, are considered, the cost of producing a typical Canadian tire is within five percent of the cost of producing a tire at a world-class American facility. It is evident, however, that Canadian operations incur significant cost penalties because of the lack of modern equipment and efficient production runs.





### Trade-related Factors

The Canadian tariff is 10.7 percent for both tires and tubes, while American tariffs are 4.0 percent for tires and 2.9 percent for tubes; European Community (E.C.) tariffs are 5.8 percent for both tires and tubes, and the Japanese tariffs are 5.8 to 6.5 percent for tires and 6.5 percent for tubes. These tariffs apply primarily to trade in replacement tires. Tires mounted on finished vehicles traded by qualified Auto Pact manufacturers enter Canada and the United States duty-free.

There are no non-tariff barriers in the tire industry in Canada and the United States. However, exports of tires to countries within the European Community (E.C.) are limited by the use of different sizes and standards of tires in Europe. Access to the Japanese market is hindered by testing and local distribution procedures. Foreign subsidiaries in Canada are generally limited by their parent-company policy to exporting to the United States.

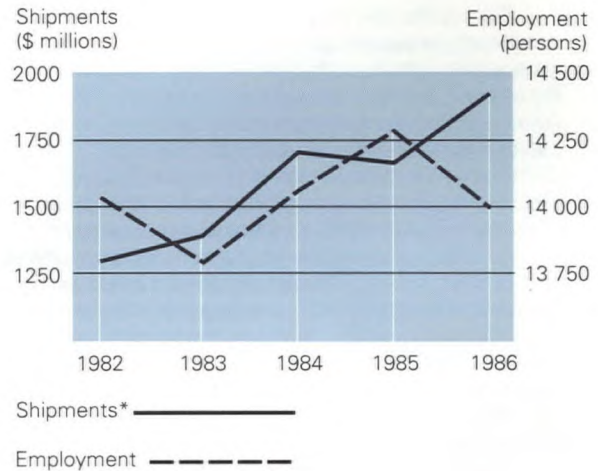
Under the Canada-U.S. Free Trade Agreement (FTA), bilateral tariffs on vehicles, original equipment parts and tires will be phased out over 10 years. Tariffs on aftermarket parts will be phased out over five years. Canadian provisions of the Auto Pact remain unchanged, although only those companies listed in the FTA will be able to participate. Companies participating in Canada must continue to meet Auto Pact performance requirements to retain eligibility for duty-free imports from third countries after bilateral tariffs are phased out.

Under the FTA, vehicles, parts and tires exported to the United States will be required to meet a new 50-percent North American rule-of-origin which is higher than the current U.S. Auto Pact requirements. This will encourage increased parts sourcing and provide opportunities for North American parts suppliers.

### Technological Factors

The tire industry has experienced fundamental changes in both product and process technology in the last 20 years. For these reasons, the radial tire has almost totally displaced the bias tire. Radial tires are made of polyester, nylon or rayon, with belts of steel, fibreglass and rayon. Considerable investment in research and technology is required to develop new compounds with improved traction, stability and reduced heat buildup and rolling resistance. This research is conducted by the head offices of parent companies, and not by Canadian operations.

Process technology has also been transformed, not only to produce the radial tire, but also to improve quality, timeliness and flexibility of production through automation and robotics. State-of-the-art tire manufacturing equipment can cost \$200 to \$300 million. With the exception of Michelin, Canadian plants lack modern automated tire assembly equipment, having traditionally received used equipment from American plants.



### Total Shipments and Employment

\* Based on industry-supplied data.

Some advances are being made in flexible manufacturing which could reduce the need for very large production runs to achieve economies of scale. Flexible manufacturing would be ideal for Canadian plants, which are accustomed to small production runs.

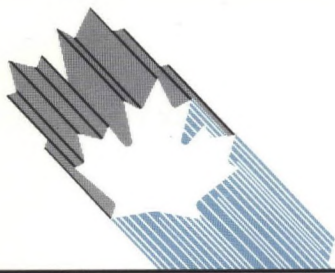
### Other Factors

In 1986, the federal government entered into a Memorandum of Understanding (MOU) with all tire and tube manufacturers in Canada, in which all parties agreed to work together to address structural and technological problems facing the industry. Recently, in response to industry's request, the government has agreed to make duty remission on imported tires available to all producers that modernize and restructure operations on a North American basis.

## 3. Evolving Environment

Technological change and the emergence of new competitors have resulted in an unsettled period of adjustment for tire producers during the 1980s. The companies which have survived this period are strong competitors, committed to the industry in the long term. Four of the five industry leaders have a presence in Canada: Michelin, Goodyear, and more recently, Continental GummisWerke through the acquisition of General, and Bridgestone through the acquisition of Firestone.

In the more competitive global tire industry, Canadian operations can no longer compete solely on the basis of low overheads, arising from low capital expenditures and lower relative labour costs. Manufacturers are faced with a decision either to make major investments in Canadian facilities or to withdraw from production in the medium term.



When considering investment decisions, manufacturers must consider total market demand, return on investment and availability of funds. Demand does exist in North America for additional world-class radial tire production, particularly to service the Asian-owned assembly plants established in North America. In Canada alone, these plants will add 450 000 units of production annually, equivalent to approximately two million units of tires. Long-term industry players must continue to invest in new facilities if they are to maintain their position. Investment decisions made in the next two to three years by corporate boards are critical to the future of the Canadian tire industry. Companies are beginning to respond to the challenge, and in mid-1988, Goodyear announced construction of a new state-of-the-art tire facility in Napanee, Ontario, while Michelin announced that it would continue to invest in its Nova Scotia facilities.

The Canada-U.S. Free Trade Agreement (FTA) provides for the elimination of tariffs in the tire industry over 10 years. Automotive products must meet a new rule of origin of 50-percent North American value-added to be eligible for the preferential treatment. This requirement will represent a significant incentive for assemblers manufacturing in North America to purchase and install North American-produced tires.

## **4. Competitiveness Assessment**

With the exception of Michelin, many companies have been operating in older plants with less efficient production. Multinational corporations now face a basic decision whether to invest in Canadian operations or to withdraw from manufacturing in Canada in the medium term. Goodyear's decision to open a new plant in Napanee, Ontario, and the decision by Michelin to modernize and expand its facilities in Nova Scotia represent a significant addition to world-class capability in Canada.

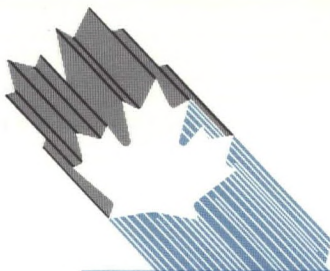
For those companies which have either already invested, or can do so in the future, the FTA is expected to have a positive impact.

For further information concerning the subject matter contained in this profile, contact:

Surface, Transportation and Machinery Branch  
Industry, Science and Technology Canada  
Attention: Automotive Tires and Tubes  
235 Queen Street  
Ottawa, Ontario  
K1A 0H5

(613) 954-3730





**PRINCIPAL STATISTICS**

**SIC(s) COVERED: 1511**

	1982	1983	1984	1985	1986
Establishments	13	14	14	13	13
Employment	14 025	13 772	14 078	14 281	14 000
Shipments* (\$ millions)	1 288	1 371	1 697	1 653	1 849
Investment (\$ millions) — — 1982 to 1986	550 (cumulative)				
Operating profits (\$ millions)	3.1	-2.8	26.4	14.6	6.4

**TRADE STATISTICS**

	1982	1983	1984	1985	1986
Exports (\$ millions)	488.4	531.2	682.6	678.0	766.6
Domestic shipments (\$ millions)	799.6	839.8	1 014.0	975.0	1 082.4
Imports (\$ millions)	242.2	345.6	544.0	457.0	421.7
Canadian market (\$ millions)	1 041.8	1 185.4	1 559.1	1 432.0	1 504.1
Exports as % of shipments	37.9	38.8	40.2	41.0	41.5
Imports as % of domestic market	23.3	29.2	34.9	31.9	28.0
Source of imports (% of total value)		U.S.	E.C.	Asia	Others
	1982	60.0	14.0	21.2	4.8
	1983	67.5	7.8	19.1	5.6
	1984	65.3	8.8	20.6	5.3
	1985	58.5	11.3	24.4	5.8
	1986	53.4	10.1	29.7	6.8
Destination of exports (% of total value)		U.S.	E.C.	Asia	Others
	1982	94.4	0.6	0.1	4.9
	1983	96.4	1.2	0.3	2.1
	1984	96.1	0.3	1.1	2.5
	1985	92.8	0.7	3.1	3.4
	1986	95.2	0.5	2.3	2.0

(continued)





**REGIONAL DISTRIBUTION — Average over the last 3 years**

	Atlantic	Quebec	Ontario	Prairies	B.C.
Establishments — % of total	30	20	40	10	—

**MAJOR FIRMS**

Name	Ownership	Location of Major Plants
Goodyear Canada Inc.	American	Valleyfield, Quebec Napanee, Ontario
Michelin Tires Canada Ltd.	French	Bridgewater, Granton, Waterville Nova Scotia
Firestone Canada Inc.	American	Joliette, Quebec
Uniroyal-Goodrich Canada Inc.	American	Kitchener-Waterloo, Ontario
General Tire Canada Limited	German	Barrie, Ontario
<b>Remaining firms in industry:</b>		
United Tire & Rubber Co. Ltd.	Canadian	Rexdale, Ontario
Trent Rubber Services 1978 Ltd.	Canadian	Lindsay, Ontario

\* Based on industry-supplied data.

**Note:** Statistics Canada data have been used in the preparation of this profile.



