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Industry, Science and
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Some Indicators of Canada's Trade Performance and Competitiveness

Canada 

SOME INDICATORS OF CANADA'S TRADE PERFORMANCE AND COMPETITIVENESS

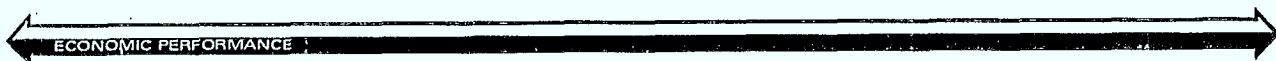
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INTRODUCTION

INTRODUCTORY REMARKS AND HIGHLIGHTS

- ⇒ The ability of the Canadian economy and industry to compete in the world market has emerged as a central issue and concern of government, business and labour. However, it would seem that there is no single, readily available source of information focused on major aspects of Canada's international competitiveness.
- ⇒ This report attempts to fill that gap. It presents statistical information on some commonly used indicators of Canada's trade performance and competitiveness, in comparison with its major trading partners and competitors, in easily readable tables and charts. The economic and business information assembled and presented here, along with the commentary on each table and graph, should provide useful background information to those (in both the private and public sectors) who are concerned with industrial development in Canada and with the international competitiveness of Canadian industry and the economy.
- ⇒ It should be noted from the outset that there is no single, generally accepted indicator of competitiveness. Competitiveness can, in fact, be examined and analyzed from several perspectives. Accordingly, this report consists of five sections, each one focusing on a different aspect of competitiveness.
- ⇒ To set the stage, Section 1 presents information on key indicators of Canada's economic performance in aggregate terms.
- ⇒ A nation's competitiveness is frequently measured by its ability to compete in the international marketplace, that is, by its ability to produce and sell in the world market while earning increasing returns on its resources. Section 2, therefore, deals with several measures of Canada's relative trade performance.
- ⇒ Whether a country does well in international trade depends, to a large extent, on how its goods and services are priced in the world market. This in turn depends on a country's relative cost structure. Accordingly, Section 3 provides information on the relative cost and price competitiveness of the Canadian economy.
- ⇒ A healthy and growing manufacturing sector is considered to be of fundamental importance as the engine of sustained economic growth and a major source of job creation and wealth generation. Section 4 is, therefore, devoted to examining the output and employment performance of the manufacturing sector in some detail.
- ⇒ Finally, Section 5 deals with technological aspects of Canada's competitiveness, in recognition of the importance of the impact of technology on the productivity of a country's industry and the quality of its products.
- ⇒ To provide a better perspective, the overall performance of the Canadian economy and industry is compared not only with the achievements of Canada's key competitors but also with past Canadian accomplishments. Accordingly, the statistical tables and charts in this report contain comparable data for Canada's major competitors (especially the G-7 countries) as well as historical data on the performance of the Canadian economy. The newly industrialized countries (NICs) have become increasingly competitive, and this trend is likely to continue in the future. This report, therefore, attempts to present relevant information on their performance, although comparable and reliable data for these countries are not always available.
- ⇒ *Unless otherwise stated, all monetary figures in the statistical tables and charts are in current Canadian dollars. The section on trade refers to merchandise trade only.*

Note: The following abbreviations are used in some tables.

U.S. - United States	EEC - European
Ger. - Germany	Economic
U.K. - United Kingdom	Community
Mal. - Malaysia	H.K. - Hong Kong
Sing. - Singapore	

HIGHLIGHTS

Economic Performance

- ⇒ Over the last eighteen years (1970-87), Canada has enjoyed an impressive rate of economic growth; amongst the major industrial economies, Canada's performance is exceeded only by Japan.
- ⇒ Although Canada experienced the worst decline in output among the major industrial countries in the 1981-82 recession, it has achieved one of the best performances in the post-recession period.
- ⇒ While the current expansion has been fuelled primarily by personal consumption, Canada continues to enjoy significant growth in capital investment.
- ⇒ The proportion of Canadian real output devoted to investment in recent years has been comparable to that in other industrialized countries, with the exception of Japan. In Japan, the proportion of output devoted to investment has been significantly higher than in other major OECD countries, although it has declined over time.
- ⇒ The most notable feature of the current economic upswing in Canada is the substantial rate of job creation, the highest among the major industrialized countries, including Japan and the United States.
- ⇒ Despite this impressive record of job creation, the Canadian unemployment rate, which reached double digit levels in the 1981-82 recession, has declined rather slowly, especially when compared to decreases in the U.S. rate.

Trade Performance

- ⇒ Canada's recent success story may be linked to its ability to compete in the international marketplace. In recent years, Canada has enjoyed a merchandise trade surplus each year, though its

magnitude has been declining over time since 1984. This is in contrast to most of the other major OECD countries, which have suffered trade deficits, with the exception of Japan and Germany. In the case of these two countries, trade surpluses have increased substantially over time.

- ⇒ In spite of increasingly stiff foreign competition – particularly from Japan, Germany and the NICs in Asia – Canada has been able to maintain its market share in exports, both for manufactured goods and for other products.
- ⇒ Of particular importance to Canada's favourable trade performance has been its trade with the United States. Over the 1978-88 period, the proportion of total Canadian exports shipped to the United States has increased from 70% to 74%, whereas the share of total Canadian imports from the United States has declined marginally from about 70% to 69%.
- ⇒ Natural resources and raw materials, agricultural products, and crude petroleum and natural gas still continue to be among the most important commodities for Canada's international trade.
- ⇒ By comparison, Canada continues to suffer from a recurring deficit in its trade in manufactured products. It has recorded increasingly larger annual trade surpluses in semi-processed goods, but generally this has been more than offset by growing deficits in trade in final products.
- ⇒ In terms of trade by sector, transportation equipment (especially automobiles) continues to account for by far the largest share of both Canada's exports and imports.
- ⇒ Since 1977, export orientation (i.e., the ratio of exports to shipments) in Canada has been increasing steadily. This suggests that Canadian industry is becoming more competitive in the world market.

- ⇒ Simultaneously increasing import penetration (i.e., the proportion of domestic market supplied by imports), often in the same industrial sectors in which export orientation has been rising, suggests that Canadian industry is undergoing a process of rationalization.

- ⇒ Among the major OECD countries, Canada registered one of the most substantial declines in relative unit export values (prices of traded products) for manufactured goods over the 1970-87 period, i.e., Canada became more competitive in the international market.

Cost and Price Competitiveness

- ⇒ On a national currency basis, Canada's average annual rate of growth in unit labour costs has been higher than the comparable rates in the United States, Japan and Germany over the 1973-88 period, due to its weaker performance in both productivity growth and wage increases.
- ⇒ On a U.S. currency basis, however, the cost structure of Canadian manufacturing has become one of the most competitive among the major industrialized countries, due to the depreciation (up until 1986) of the Canadian dollar in terms of the U.S. currency, and the recent depreciation of both the Canadian and the U.S. dollar against the major European and Japanese currencies.
- ⇒ In terms of changes in trade-weighted unit labour costs, Canada has performed well. Over the 1976-87 period, unit labour costs in Canada recorded a marginal decline. However, Canada's performance in this area deteriorated substantially during 1987-88.
- ⇒ In terms of unit labour costs measured in U.S. dollars, most Canadian manufacturing industries are not competitive with their U.S. counterparts. The situation improved between 1980 and 1987 in the following sectors: wood products, metal fabricating, transportation equipment and electrical products. In the latter two sectors, Canadian unit labour costs are lower than in the U.S.

Manufacturing Performance

- ⇒ While the manufacturing sector's share of Canadian employment has declined since 1971, its contribution to Canada's exports has increased significantly.
- ⇒ In comparison to other major industrialized countries, manufacturing in Canada continues to play a less significant role in the economy. In this country, both manufacturing output as a percentage of real output and manufacturing employment as a proportion of civilian employment are lower than in other industrialized countries.
- ⇒ Manufacturing employment as a percentage of civilian employment in Canada has been declining steadily, while manufacturing output as a percentage of real output has remained relatively stable.

Technology Aspects of Competitiveness

- ⇒ Compared with other major industrialized countries, Canada's performance is low in terms of both gross expenditure on R&D as a percentage of real output, and the proportion of R&D personnel and research scientists and engineers in its labour force.

⇒ Industrial R&D in Canada, as measured by the ratio of R&D expenditures to sales, is concentrated in a few industries, most notably telecommunication equipment, aircraft and parts, and electronics.

⇒ Canada has reported recurring and generally growing trade deficits in high-technology products. However, the ratio of high-tech exports to imports is rising.

Section 1

ECONOMIC PERFORMANCE

Real Output Growth

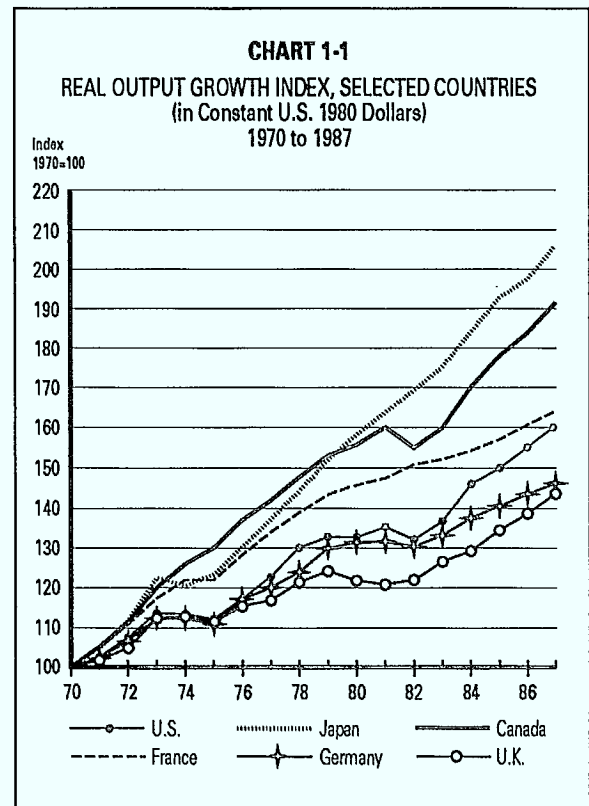
- ⇒ Compared to other major industrialized countries, Canada recorded one of the highest average annual real growth rates in economic activity, second only to Japan, over the 1970-81 period. Although it experienced the worst decline during the 1981-82 recession, Canada has achieved one of the best performances in the post-recession period.
- ⇒ Compared to the major OECD countries, the NICs experienced higher real output growth rates during the seventies. During the eighties, Korea is the only country, among the NICs, that has enjoyed high growth consistently (in fact, much higher than most of the industrialized countries).

TABLE 1-1
REAL OUTPUT GROWTH,
SELECTED COUNTRIES, 1970 TO 1987
(Average Annual Rates of Change)

	Average							
	1970-	1982-						
	1981	1987	1982	1983	1984	1985	1986	1987
United States	2.8	2.9	-2.5	3.6	6.4	2.7	3.6	3.4
Japan	4.6	3.8	3.1	3.2	5.1	4.7	2.5	4.4
Canada	4.3	3.0	-3.4	3.2	6.3	4.6	3.2	4.0
France	3.6	1.8	2.5	0.7	1.3	1.7	2.1	2.3
Germany	2.5	1.7	-1.0	1.9	3.3	1.9	2.3	1.8
Italy	3.0	2.2	0.2	1.1	3.2	2.9	2.9	3.1
U.K.	1.7	2.9	1.1	3.5	2.1	3.9	2.9	3.6
Brazil	7.9	3.8	0.8	-2.8	5.7	8.4	8.0	2.9
Korea	8.2	8.9	5.7	10.9	8.6	5.4	11.7	11.1
Malaysia	7.9	4.2	5.9	6.3	7.8	-1.0	1.2	5.2
Mexico	6.7	—	-0.6	-5.3	3.7	2.8	-3.7	—
Singapore	9.2	5.4	6.9	8.2	8.3	-1.6	1.7	8.8

—: Data not available

Source: IMF, International Financial Statistics, Country Tables, April 1989



Real Output Growth Per Capita

- ⇒ Some people believe that growth in a country should mean more than a mere increase in output. It should also denote a rising standard of living. Thus, they place more importance on an increase in per capita income as a measure of a country's economic performance than on an increase in total real output.
- ⇒ In terms of this criterion also, Canada's performance has been very creditable. In the most recent years for which the data are available (1986 and 1987), Canada has experienced the highest economic growth among the major industrialized countries, including Japan and the U.S.

TABLE 1-2

REAL OUTPUT GROWTH PER CAPITA,
SELECTED COUNTRIES, 1970 TO 1987
(Average Annual Rates of Change)

	Average							
	1970-	1982-						
	1981	1987	1982	1983	1984	1985	1986	1987
United States	1.7	1.9	-3.5	2.2	5.8	1.8	2.6	2.5
Japan	3.5	3.2	2.4	2.5	4.4	4.1	1.9	3.9
Canada	3.0	2.3	-4.4	2.2	5.3	3.6	3.0	4.0
France	2.9	1.3	2.0	0.2	0.9	1.2	1.7	1.9
Germany	2.4	1.8	-0.9	2.3	3.7	2.2	2.3	1.6
Italy	2.5	2.0	0.0	0.7	2.9	2.7	2.7	2.9
U.K.	1.6	2.7	1.1	3.5	1.9	3.7	2.7	3.4
Brazil	5.1	1.6	-1.4	-5.0	3.3	6.0	5.8	0.8
Korea	6.5	7.4	4.0	9.3	7.1	4.0	10.3	9.7
Malaysia	4.9	1.5	3.3	3.7	5.1	-4.1	-1.5	2.3
Mexico	3.5	—	-3.1	-7.6	1.2	0.5	-4.9	—
Singapore	7.6	4.2	5.6	6.9	7.4	-3.2	0.6	8.0

— : Data not available

Source: IMF, *International Financial Statistics, Country Tables*, April 1989

Components of Real Output

- ⇒ In both 1981 and 1988, about two-thirds of Canada's GDP was accounted for by the service-producing industries (i.e., sectors other than agriculture, mining, manufacturing, construction and utilities).
- ⇒ While the share of personal consumption in the economy increased from 55% to 58% over the 1981-88 period, that of fixed investment declined from 24% to 22%.
- ⇒ The current expansion has been fuelled more by personal consumption than by investment.
- ⇒ As will be shown in Table 1-5, however, investment performance turned around to become one of the most significant factors in the continuation of the economic upswing (started at the end of 1982) in the late eighties.

TABLE 1-3

COMPONENTS OF REAL OUTPUT (OR GDP),
CANADA, 1981 AND 1988

INDUSTRY	% of Total		EXPENDITURE	% of Total	
	1981	1988		1981	1988
Agriculture	4.2	3.4	Pers. Consumption	55.1	58.2
Mining	5.5	6.0	Gov. Consumption	19.3	19.0
Manufacturing	19.3	19.7	Fixed Investment	24.2	21.8
Construction	7.9	7.1	Exports	27.2	26.2
Transp. & Comm.	10.7	10.5			
Wholesale & Retail Trade	11.0	12.2	Imports	-26.1	-25.7
Finance & Ins.	13.9	14.6	Stockbuilding	0.3	0.2
Other Services	27.5	26.4	Stat. Discrepancy	0.0	0.3

GDP at Factor Cost* 100.0 100.0 GDP at Market Prices* 100.0 100.0

* Figures may not add up to 100 due to rounding.

Source: Statistics Canada, *System of National Accounts*

Investment as a Percentage of Output

- ⇒ Investment as a percentage of output in Canada declined from about 26% in 1975 to some 21% in 1987.
- ⇒ Over the period under review, among the major industrialized countries, Japan consistently devoted the highest proportion of its GDP to investment and the United Kingdom, the lowest.
- ⇒ Investment in Japan as a percentage of real output has declined over time by a significant margin, especially after 1979.
- ⇒ In recent periods, the share of real output devoted to investment in the industrialized countries has been generally lower than the share in the developing countries.

TABLE 1-4

INVESTMENT AS A PERCENTAGE OF OUTPUT,
SELECTED COUNTRIES, 1975 TO 1987

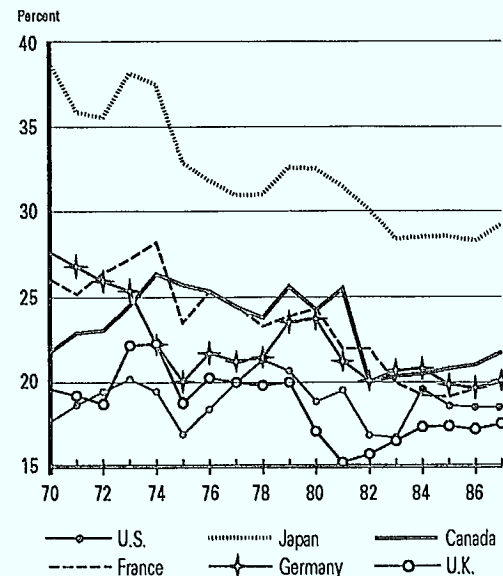
	1975	1980	1982	1986	1987
United States	16.8	18.6	16.6	18.3	18.2
Japan	32.8	32.3	30.1	28.1	29.0
Canada	25.6	24.0	19.9	20.7	21.4
France	23.4	24.2	21.9	19.3	19.9
Germany	19.8	23.5	19.7	19.2	19.6
Italy	20.3	26.8	23.5	21.2	21.0
United Kingdom	18.6	16.9	15.7	17.0	17.2
Brazil	26.9	22.4	20.2	—	—
Korea	27.1	31.1	27.4	28.8	29.1
Malaysia	25.5	30.4	37.3	25.7	—
Mexico	23.7	28.1	21.2	—	—
Singapore	37.6	46.3	47.9	38.2	39.4
Industrialized Countries	21.7	22.9	20.4	20.5	20.6
Developing Countries	25.7	25.9	24.2	—	—
World	22.7	23.6	21.3	—	—

— : Data not available

Source: IMF, International Financial Statistics, 1988

CHART 1-2

INVESTMENT AS A PERCENTAGE OF REAL OUTPUT,
SELECTED COUNTRIES, 1970 TO 1987



Investment Intentions of Manufacturing Industries

- ⇒ Canada continues to enjoy significant growth in capital investment. The rate of increase in investment in the manufacturing industries is expected to accelerate from about 15% in 1987-88 to around 28% during the 1988-89 period, even though the overall rate of investment is anticipated to decline somewhat from about 13% to around 11%.
- ⇒ Among the manufacturing industries, strong increases in investment in 1988-89 are expected to occur in chemicals and chemical products, primary metals and metal fabricating, and forest products. By comparison, after strong showings in recent years, capital investment in transportation equipment is expected to decline by 1.6%.

TABLE 1-5
CAPITAL INVESTMENT INTENTIONS OF
MANUFACTURING INDUSTRIES,
CANADA, 1988 AND 1989
(Millions of Dollars)

INDUSTRY	Preliminary Actual % change		Revised Intentions % change	
	1988	1987-88	1989	1988-89
Food and Beverage	1 385.8	15.0	1 562.8	12.8
Forest Products	4 669.4	43.3	6 440.4	37.9
Primary Metal and Metal Fabricating	1 982.3	1.5	2 940.8	48.4
Chemicals and Chemical Products	1 101.1	1.4	1 712.4	55.5
Transportation Equipment	2 892.5	10.5	2 846.5	-1.6
Electrical Products and Machinery	1 016.7	8.6	1 206.9	18.7
Non-Metallic Minerals	444.0	24.7	477.5	7.5
Other Manufacturing	4 124.2	5.2	5 346.9	29.6
Total Manufacturing	17 616.0	14.9	22 534.2	27.9
Non-Manufacturing	105 547.6	12.5	114 327.8	8.3
Total	123 163.6	12.8	136 862.0	11.1

Source: Statistics Canada, Private and Public Investment Survey, July 1989

Unemployment Rates

⇒ As was the case with most other industrialized countries, the unemployment rate in Canada increased substantially due to the 1981-82 recession, from 7.4% in 1980 to 11.8% in 1983. During the ensuing recovery and economic upswing, it declined consistently to reach 7.7% in 1988. In June 1989, it reached 7.3%, the lowest level recorded since August 1981.

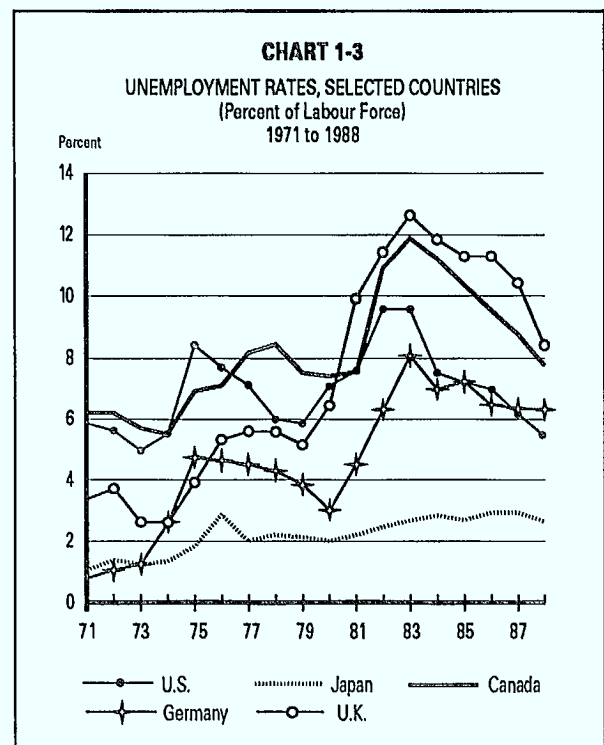
⇒ Japan has enjoyed the lowest unemployment rate among the major OECD countries. As shown in Chart 1-3, while rising slowly over the last eighteen years (1971-1988), its unemployment rate has been generally lower and much less volatile than in other major industrialized countries.

TABLE 1-6

UNEMPLOYMENT RATES, SELECTED COUNTRIES,
1980 TO 1988 (Percent of Labour Force)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
United States	7.0	7.5	9.5	9.5	7.4	7.1	6.9	6.1	5.4
Japan	2.0	2.2	2.4	2.6	2.7	2.6	2.8	2.8	2.5
Canada	7.4	7.5	10.9	11.8	11.2	10.4	9.5	8.8	7.7
France	6.3	7.4	8.1	8.3	9.7	10.2	10.4	10.5	10.3
Germany	3.0	4.4	6.1	8.0	7.0	7.2	6.4	6.2	6.2
Italy	7.5	8.3	9.0	9.8	10.2	10.1	10.9	11.8	—
U. K.	6.4	9.8	11.3	12.5	11.7	11.2	11.2	10.3	8.3

Source: OECD, *Main Economic Indicators*, March 1989



Rates of Job Creation

- ⇒ Matching the strong expansion in real output, employment in Canada has also experienced particularly strong growth in recent years. Over the 1985-88 period, Canada reported the highest annual rate of job creation among the major OECD countries, surpassing even Japan and the United States.

TABLE 1-7
RATES OF JOB CREATION,
SELECTED COUNTRIES, 1973 TO 1988
(Average Annual Rates of Change)

	Average 1973- 1975- 1975 1979		1979-1983	1984	1985	1986	1987	1988
United States	0.4	3.5	0.5	4.1	2.0	2.3	2.6	2.2
Japan	-0.3	1.2	1.1	0.6	0.7	0.8	1.0	1.7
Canada	2.9	2.8	0.8	2.5	2.8	2.9	2.7	3.3
France	0.0	0.5	-0.2	-1.1	0.5	0.0	0.0	—
Germany	-2.1	0.2	-0.7	0.2	0.7	1.1	0.8	0.6
Italy	1.1	0.7	0.4	0.3	0.4	0.5	-0.1	1.2
United Kingdom	0.0	0.4	-1.8	2.0	1.5	0.8	2.7	2.8

Source: OECD, Quarterly Labour Force Statistics, Number 1, 1989

Section 2

TRADE PERFORMANCE

World Merchandise Trade

- ⇒ In 1987, about 73% of world exports and imports were accounted for by the industrialized countries.
- ⇒ The EEC was the leading exporter in the world, supplying about 40% of world exports. It was followed by the U.S. and Japan, accounting for 11% and 10% of total world exports respectively. The trade data for the EEC includes intra-EEC trade.
- ⇒ The EEC also led the world in imports, providing a market for about 40% of total world imports. In comparison to exports, the share of world imports accounted for by the United States (17%) was considerably higher than the share of imports destined for Japan (6%).
- ⇒ Canada's share of world exports was about 4%, of which about three-quarters was shipped to the U.S. Canada also received some 4% of world imports, of which about two-thirds was supplied by the U.S.
- ⇒ The NICs accounted for about 8% of world exports and some 7% of world imports. About two-thirds of their trade was with the industrialized countries.
- ⇒ The trade deficits for the United States, and to a lesser extent for the United Kingdom, have deteriorated considerably during the eighties. By comparison, the trade surpluses enjoyed by both Japan and Germany have grown substantially.
- ⇒ Although Canada still maintains a surplus in its merchandise trade balance, this has been reduced considerably from a little over \$13 billion in 1982 to only about \$1.7 billion in 1988.
- ⇒ While France reported some improvement in its trade balance in the mid eighties, its trade deficits have deteriorated in more recent years. In general, Italy has also experienced large trade deficits.

TABLE 2-1
WORLD MERCHANDISE TRADE MATRIX,
1987
(Billions of U.S. Dollars)

	EXPORTS TO:	EEC	U.S.	Ja- pan	Can- ada	IND ¹	OIL EXP	NON-OIL DEVG	NICs	WORLD
EXPORTS FROM:										
EEC		560.5	82.9	15.8	10.4	765.0	34.1	129.1	20.8	958.1
United States		60.6	—	28.2	57.4	158.5	10.6	72.1	36.7	250.4
Japan		38.3	85.0	—	5.7	141.7	11.5	62.6	32.8	231.3
Canada		7.2	71.5	5.3	—	85.3	1.2	6.2	2.4	98.1
GROUPS OF COUNTRIES:										
Industrial		750.2	254.8	60.5	75.7	1287.9	62.7	296.6	100.2	1716.5
Oil-Export		35.4	10.6	11.5	1.2	62.7	2.1	31.1	11.8	84.6
Non-Oil Devg		109.8	103.9	39.8	6.9	275.4	16.9	115.8	26.0	458.2
6 NICs*		31.2	68.2	20.4	4.4	130.5	6.1	52.7	19.0	195.7
World**		920.6	405.2	135.2	85.3	1717.0	84.6	478.8	163.0	2354.4

* Brazil, Hong Kong, Korea, Malaysia, Mexico, Singapore

** Includes Soviet Union and Eastern Europe

Source: IMF, Direction of Trade Statistics, 1988

TABLE 2-2
MERCHANDISE TRADE BALANCES,
SELECTED COUNTRIES, 1982 to 1988
(Billions of U.S. Dollars)

	1982	1983	1984	1985	1986	1987	1988
United States	-42.6	-69.3	-122.4	-133.6	-155.0	-170.0	-138.0
Japan	6.9	20.5	33.5	46.7	83.2	80.3	77.3
Canada	13.1	12.0	12.5	10.3	5.1	5.6	1.7
France	-19.0	-11.0	-6.8	-6.6	-4.5	-10.1	-11.2
Germany	21.1	16.5	18.7	25.4	52.5	65.9	72.8
Italy	-13.5	-6.9	-10.6	-11.0	-1.8	-8.8	-10.1
U. K.	-2.7	-8.4	-10.8	-7.7	-19.1	-23.1	-44.8

Source: IMF, International Financial Statistics, April 1989

Share of World Exports

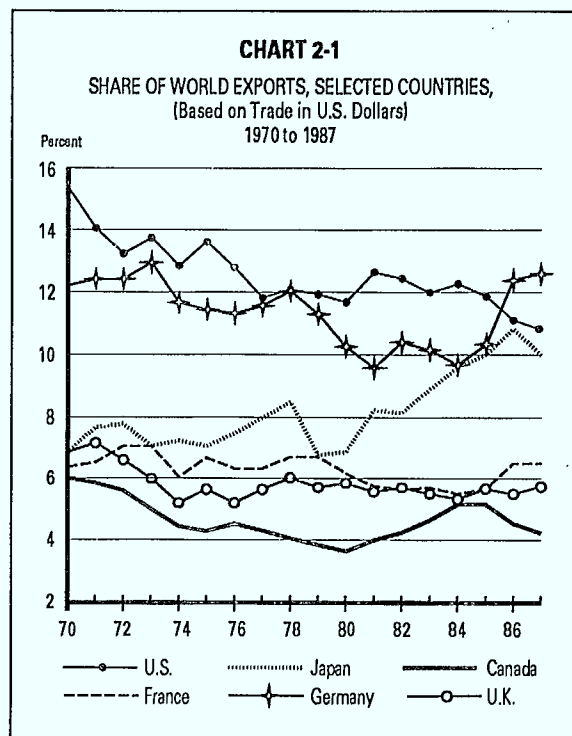
- ⇒ Canada's share of world exports has generally varied between 4% and 5% over the last quarter of a century. Its peak (5.9%) was recorded in 1970, and its trough (3.6%) in 1980.
- ⇒ The shares of world exports accounted for by most of the other industrialized countries also have remained relatively stable. The most notable exception is Japan. It has recorded the best performance, with its share rising from 3% in 1960 to about 10% in 1987.
- ⇒ As a result of the huge increases in oil prices during the seventies, the share of world exports accounted for by the oil-exporting developing countries increased substantially, from 6.1% in 1970 to 15.9% in 1980. However, due to the recent collapse of the oil market, their share of world exports fell dramatically to under 6% in 1987.
- ⇒ The share of world exports accounted for by the NICs is still relatively small compared to the share supplied by the industrialized countries. However, some of the NICs (e.g., Mexico and Malaysia) have almost doubled their shares over the 1970-1987 period. Korea's share has, in fact, zoomed from about 0.7% to about 2.0%.

TABLE 2-3
SHARE OF WORLD EXPORTS,
SELECTED COUNTRIES, 1960 TO 1987
(Based on Trade in U.S. Dollars)

	1960	1970	1973	1976	1980	1982	1985	1986	1987
United States	11.2	15.3	13.6	12.7	11.6	12.3	11.8	11.1	10.6
Japan	3.0	7.0	7.1	7.4	6.9	8.1	9.8	10.7	9.8
Canada	4.1	5.9	5.0	4.5	3.6	4.1	5.0	4.5	4.2
France	4.4	6.8	7.0	6.3	6.1	5.6	5.6	6.3	6.3
Germany	7.2	12.1	12.9	11.3	10.2	10.3	10.2	12.3	12.5
Italy	3.6	4.7	4.2	4.1	4.1	4.3	4.4	4.9	4.9
United Kingdom	9.2	6.9	5.9	5.2	5.8	5.6	5.6	5.4	5.6
Brazil	—	1.0	1.2	1.1	1.1	1.2	1.4	1.1	1.1
Korea	—	0.7	0.6	0.9	0.9	1.3	1.7	1.8	2.0
Malaysia	—	0.4	0.6	0.6	0.7	0.7	0.9	0.7	0.8
Mexico	—	0.5	0.4	0.4	0.8	1.2	1.2	0.8	1.1
Singapore	—	0.8	0.7	0.7	1.0	1.2	1.3	1.1	1.2
European Economic Community	—	39.8	40.6	36.4	36.5	35.8	35.9	40.1	40.7
Oil Export Devg Countries	2.9	6.1	7.5	14.4	15.9	12.6	8.7	5.4	5.5

—: Data not available

Source: IMF, Direction of Trade Statistics, 1988



Share of Total Manufacturing Exports

- ⇒ Canada's share of manufacturing exports to the developed market economies has improved over time, from about 3.8% in 1975 to around 5% in recent years.
- ⇒ Japan's share increased very significantly from 12.3% in 1975 to more than 16% in recent years. By comparison, both the U.S. and the United Kingdom have reported declines in their respective shares.

Table 2-4

SHARE OF TOTAL MANUFACTURING EXPORTS AMONG THE
DEVELOPED MARKET ECONOMIES*
SELECTED COUNTRIES, 1975 to 1987

	1975	1980	1981	1982	1983	1984	1985	1986	1987
United States	16.4	15.5	17.2	16.4	15.6	15.8	15.2	12.9	12.7
Japan	12.3	13.4	16.3	15.7	16.7	18.2	17.9	17.6	16.3
Canada	3.8	3.7	4.2	4.4	5.0	5.7	5.6	4.9	4.4
France	9.2	9.0	8.4	8.2	8.1	7.8	7.7	8.0	8.2
Germany	18.4	18.0	16.8	17.8	17.2	16.4	16.9	18.8	19.3
Italy	6.7	7.1	7.0	7.2	7.3	7.0	7.1	7.5	7.6
United Kingdom	8.4	9.3	7.8	7.6	7.1	6.9	7.1	6.9	7.3

* Developed market economies include: Canada, U.S., EEC, and other West European Countries as well as Japan, Australia, New Zealand, Israel and South Africa.
Source: U.N. Monthly Bulletin Statistics, June 1988

Canada's Merchandise Trade

- ⇒ In 1988, the U.S. continued to be Canada's most important trading partner. Some 74% of Canada's total exports were shipped to that country, and in return, the U.S. supplied about 69% of Canada's total imports.
- ⇒ The other leading trading partners of Canada were Japan, the United Kingdom, and other EEC and OECD countries. Japan accounted for 6.2% of Canada's merchandise imports while it received 6.0% of Canada's exports.
- ⇒ Canada recorded a trade deficit with most of its major trading partners. However, with two of its largest trading partners (the U.S. and Japan), it had a trade surplus.

TABLE 2-5

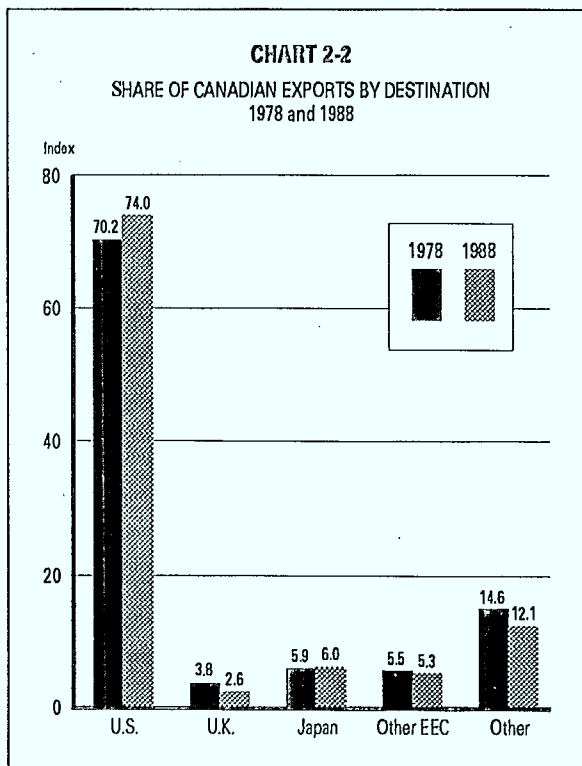
CANADA'S MERCHANDISE TRADE
WITH PRINCIPAL TRADING AREAS,
1988
(Millions of Dollars)

	United States	Japan	United Kingdom	Other EEC	Other OECD	Other Countries	Total
Exports from Canada	100 556	8 213	3 482	7 197	3 027	13 487	135 962
Imports to Canada	87 687	7 915	4 720	10 556	3 613	12 647	127 138
Trade Surplus or Deficit (-)	12 869	298	-1 238	-3 359	-587	841	8 824

Source: Statistics Canada, Preliminary Statement of Canadian International Trade, December 1988

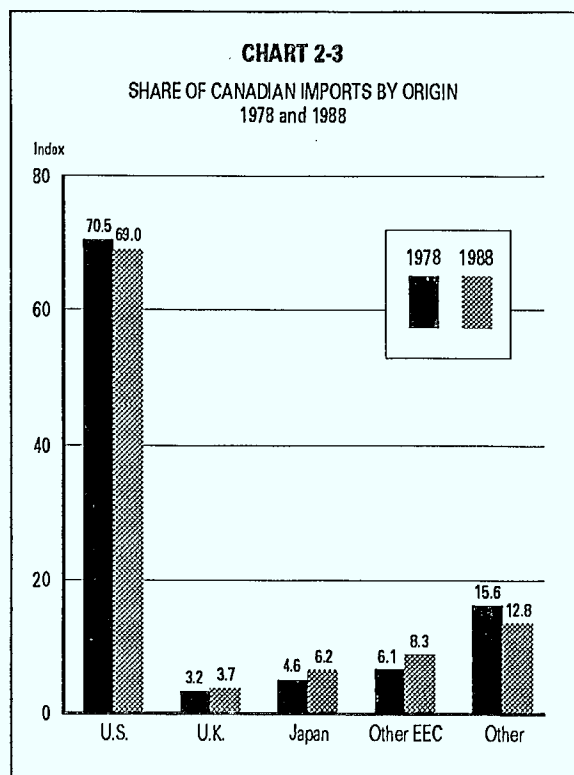
Destination of Canadian Exports

- ⇒ Between 1978 and 1988, the U.S. share of Canadian exports grew from some 70% to 74%.
- ⇒ With the increasing dominance of the U.S. as Canada's principal trading partner, the market shares of all our other major trading partners either declined or remained more or less unchanged. The largest decline occurred in exports to the U.K.



Origin of Canadian Imports

- ⇒ Between 1978 and 1988, the U.S. share of the Canadian import market decreased, but only marginally, from 70.5% to 69%.
- ⇒ The major changes have been the growing importance of Japanese imports and an increase in imports from the EEC (including the United Kingdom). The share of Canadian imports coming from Japan increased from 4.6% in 1978 to 6.2% in 1988. The corresponding statistics for the EEC (including the U.K.) were 9.3% and 12%.



Canadian Merchandise Trade by Commodity

- ⇒ Over the past twenty-three years (1966-1988), Canada has enjoyed trade surpluses in raw materials and agricultural products.
- ⇒ For manufactured products, Canada has recorded trade surpluses in semi-processed goods (or fabricated materials, inedible), and deficits in final products (or end products, inedible).
- ⇒ Overall, Canada's balance of trade has usually been in surplus, with its deficits in manufactured products being more than offset by its surpluses in raw materials and agricultural products.

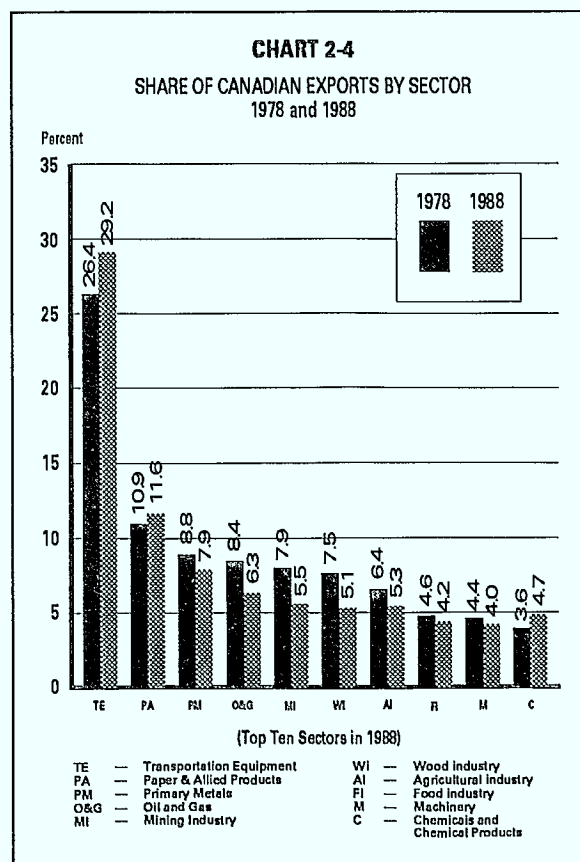
TABLE 2-6
MERCHANDISE TRADE BALANCES*,
CANADA, 1966 TO 1988
(Billions of Dollars)

	Foods, Feeds, Beverages, Tobacco Live Animals	Crude Materials Inedible	Fabricated Materials Inedible	End Products Inedible	Total Manufacturing	
1966	1.1	0.9	1.8	-3.4	0.5	-1.6
1970	0.8	1.9	3.0	-2.8	2.9	0.2
1975	1.5	2.9	3.9	-9.7	-1.4	-5.8
1980	3.5	3.4	16.6	-17.8	6.9	-1.2
1986	3.2	8.0	18.4	-24.6	8.2	-6.2
1987	3.8	9.4	20.9	-27.4	8.8	-6.3
1988	4.6	9.6	23.0	-32.1	6.8	-9.0

* Trade balance is defined as domestic exports minus total imports.
Source: Statistics Canada, Summary of Canadian International Trade, December 1987 and Special Tabulation for 1988

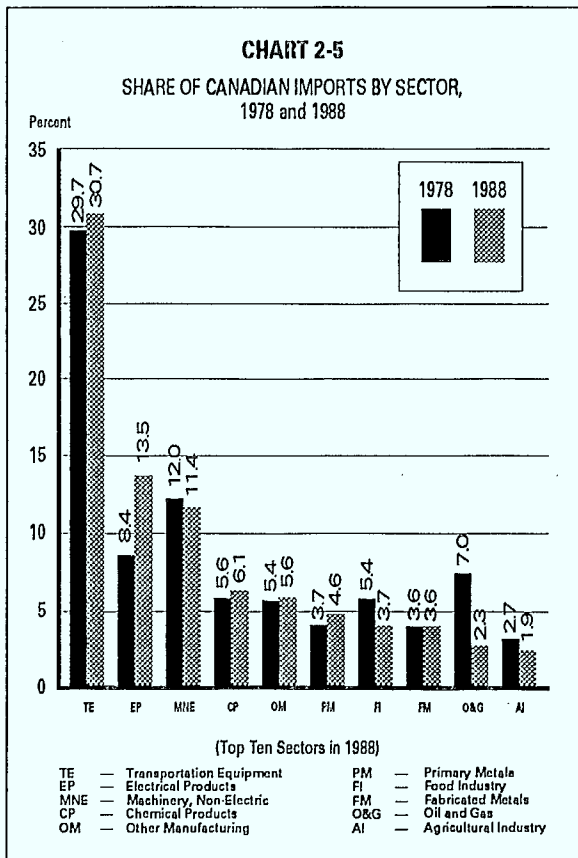
Composition of Canadian Exports

- ⇒ Transportation equipment continues to account for the largest share of Canada's exports, increasing from 26.4% in 1978 to 29.2% in 1988.
- ⇒ Except for some small increases in the shares of total exports accounted for by chemical products and paper and allied products, other major sectors have seen their shares decline over the 1978-88 period.
- ⇒ Primary industries (such as oil and gas, mining and agriculture) have experienced a decline in terms of their shares of Canadian exports. Exports of manufactured products have grown in importance.



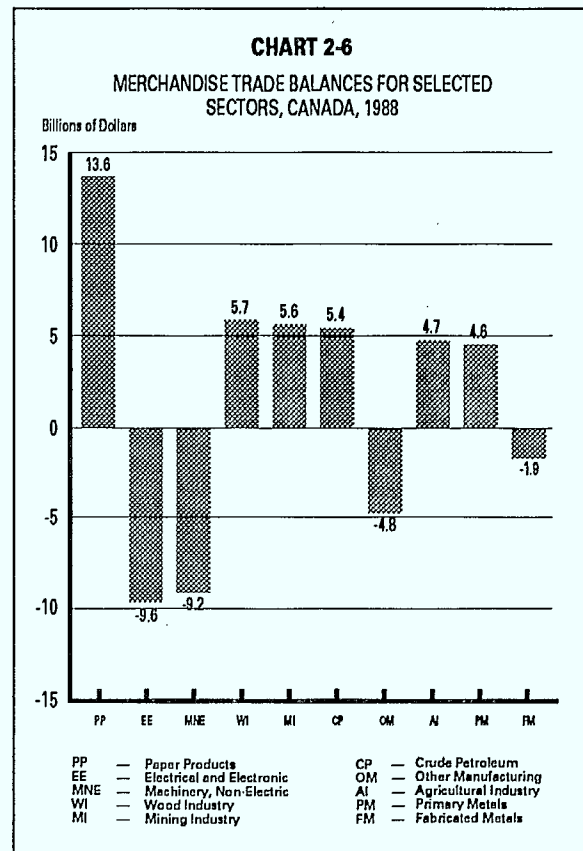
Composition of Canadian Imports

- ⇒ Transportation equipment also accounted for the largest share of Canada's imports, increasing from 29.7% in 1978 to 30.7% in 1988.
- ⇒ Imports of electrical products have grown in importance. At 13.5%, they formed the second largest share of Canadian imports in 1988.
- ⇒ Although its share has declined slightly, non-electrical machinery accounted for 11.4% of the Canadian import market in 1988.
- ⇒ Of all the sectors, oil and gas reported the largest decrease in its share of the Canadian import market, from 7.0% in 1978 to 2.3% in 1988.



Canadian Merchandise Trade Balance by Sector

- ⇒ In 1988, Canada enjoyed its largest trade surplus in the paper products sector, followed by other resource-based sectors such as wood products, mining, crude petroleum, agriculture and primary metals.
- ⇒ Electrical and electronic products and non-electrical machinery were the two sectors where Canada reported the largest trade deficits in 1988.



Trade and Shipments of Major Manufacturing Groups

- ⇒ Of the nine sectors that in 1987 had the highest value of total trade (exports + imports) among the major groups in manufacturing, transportation equipment reported by far the highest value of exports, followed by paper and allied products, and primary metals.
- ⇒ Transportation equipment also led by a substantial margin all major manufacturing groups in the value of imports, followed by electrical and electronic products, and non-electrical machinery.
- ⇒ While Canada recorded a trade deficit in total manufacturing, there were substantial trade surpluses in paper and allied products, wood industries, and primary metals.
- ⇒ Large deficits were reported in electrical and electronic products, and non-electrical machinery. The deficit in transportation equipment (mostly motor vehicles and parts) was minimal.

TABLE 2-7
TRADE AND SHIPMENTS OF MAJOR
MANUFACTURING GROUPS*,
CANADA, 1987
(Billions of Dollars)

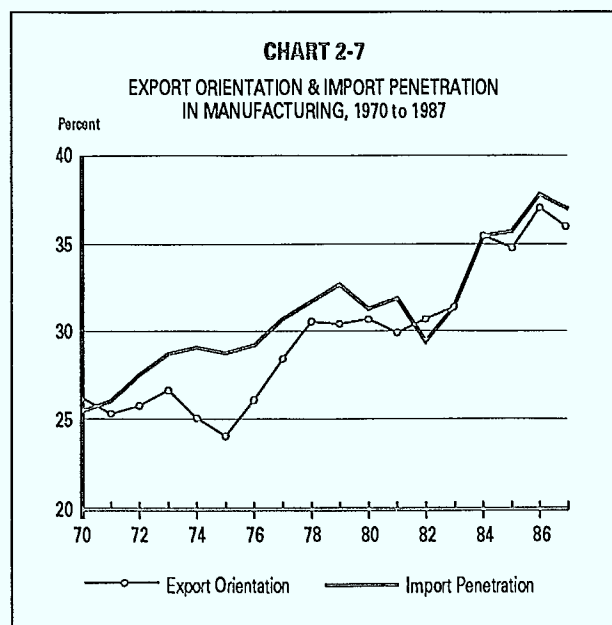
INDUSTRY	Exports	Imports	Trade Balance	Shipments
Food Industries	5.3	4.4	0.9	36.8
Wood Industries	7.1	0.8	6.3	14.9
Paper & Allied Products	13.6	1.5	12.2	23.3
Primary Metals	8.8	4.5	4.4	18.9
Fabricated Metal Products	3.0	3.5	-0.5	16.3
Machinery (Non-Electrical)	3.7	11.2	-7.4	9.0
Transportation Equipment	35.3	36.2	-0.9	41.6
Electrical & Electronic Prod.	5.6	13.2	-7.6	15.8
Chemicals & Chemical Prod.	5.0	6.4	-1.4	20.2
Other Manufacturing	9.4	19.8	-10.6	73.1
Total Manufacturing	96.8	101.5	-4.6	269.9

* Based on the 1980 Standard Industrial Classifications. These nine sectors have the highest values of total trade (exports plus imports) among major groups in manufacturing.

Source: ISTAT Trade Databank, 1988

Export Orientation and Import Penetration

- ⇒ Export orientation is the ratio of domestic exports to shipments. Import penetration is the ratio of imports to domestic market, which in turn is defined as shipments plus imports minus exports. In Canadian manufacturing, both export orientation and import penetration have shown an almost steady increase since 1970, particularly after the 1981-82 recession, reaching a peak in 1986. They showed a decline in 1987. It is too early to say whether this is the beginning of a trend.



- ⇒ The increase in export orientation suggests that some Canadian manufactured goods have become more internationally competitive, while the increase in import penetration indicates that some manufactured goods have lost their competitive edge.

Export Orientation and Import Penetration continued

- ⇒ In sectors where import penetration increased simultaneously with export orientation, it could mean that the Canadian industry was undergoing a process of rationalization in response to the recent reductions in trade barriers.
- ⇒ All manufacturing industries (except wood industries and non-electrical machinery) reported an increase in export orientation. Very substantial increases occurred in rubber products, electrical and electronic products, and furniture and fixtures.
- ⇒ All manufacturing industries (except wood industries, printing and publishing, and non-electrical machinery) recorded increased import penetration, with the largest gains reported by electrical and electronic products, and clothing and textiles.
- ⇒ Transportation equipment had both the highest export orientation and import penetration in 1987 (84.7% and 85.0%, respectively), reflecting the impact of the Auto Pact.
- ⇒ Other sectors that exported over 40% of their production in 1987 were paper products, wood industries, primary metals and non-electrical machinery.
- ⇒ Sectors (other than transportation equipment) with a high degree of import penetration included non-electrical machinery, electrical and electronic products, leather and allied products, and primary textiles.

TABLE 2-8
EXPORT ORIENTATION AND IMPORT PENETRATION
IN MANUFACTURING INDUSTRIES,
CANADA, 1977 AND 1987

INDUSTRY	Export Orientation (%) (Exports/Shipments) Change			Import Penetration (%) (Imports/Can. Market) Change		
	1977	1987	1977-87	1977	1987	1977-87
Food	11.1	14.5	3.4	10.1	12.3	2.2
Tobacco Products	0.5	6.3	5.8	1.3	1.5	0.2
Rubber Products	12.8	35.2	22.4	28.4	36.2	7.8
Leather & Allied Products	8.8	9.2	0.4	36.5	48.4	11.9
Primary Textiles	5.7	12.7	7.0	26.3	40.5	14.2
Clothing	4.4	7.1	2.7	11.8	27.6	15.8
Wood	49.8	47.6	-2.2	11.4	9.4	-2.0
Furniture and Fixtures	6.0	21.7	15.7	13.6	15.8	2.2
Paper & Allied Products	55.8	58.5	2.7	9.8	13.1	3.3
Printing & Publishing	2.6	5.3	2.7	14.2	12.0	-2.2
Primary Metals	44.6	46.8	2.2	22.2	30.7	8.5
Fabricated Metal Products	6.4	18.1	11.7	15.7	20.7	5.0
Machinery (Non-Electrical)	49.0	41.6	-7.4	72.9	68.1	-4.8
Transportation Equipment	74.3	84.7	10.4	75.8	85.0	9.2
Electrical & Electronic Prod.	14.7	35.7	21.0	36.8	56.5	19.7
Non-Metallic Mineral Prod.	8.8	11.2	2.4	17.3	18.5	1.2
Refined Petroleum & Coal	2.4	9.4	7.0	3.3	9.6	6.3
Chemicals & Chemical Prod.	20.5	24.6	4.1	30.9	29.5	-1.4
Other Manufacturing	17.5	28.6	11.1	54.8	58.7	3.9
Total Manufacturing	28.5	35.9	7.4	30.6	37.0	6.4

Source: ITC, Manufacturing Trade and Measures, 1988

Export of Goods and Services

- ⇒ Canada is one of the most open economies among the major OECD countries and, with the exception of Germany, has the highest export orientation. Exports as a percentage of Canadian real output have tended to be higher than in other major industrialized nations. This ratio has risen steadily since 1975, particularly after the 1981-82 recession, suggesting that Canada has become increasingly competitive in the world market.
- ⇒ Among the industrialized countries, the U.S. reported the lowest value of exports in relation to real output. Even with significant growth since the mid-seventies, the value of exports from Japan, as a percentage of real output, remained the second lowest among the major OECD countries. It should be noted that both the U.S. and Japan have considerably larger domestic markets than Canada or other OECD countries.
- ⇒ Exports play a more significant role in the economies of the NICs in Asia than has been the case for the industrialized countries or NICs in the Western Hemisphere.

CHART 2-9
EXPORT OF GOODS AND SERVICES,
SELECTED NEWLY INDUSTRIALIZED COUNTRIES
(As a Percentage of Real Output)
1976 to 1987

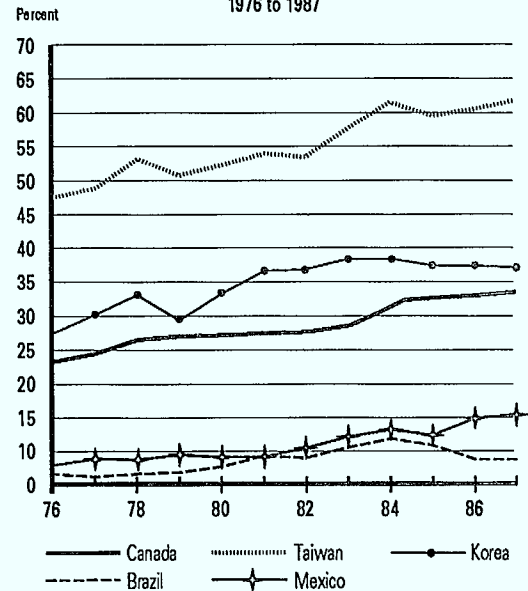
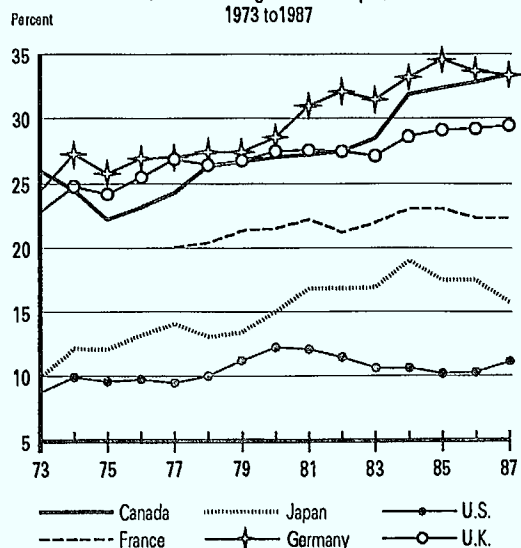
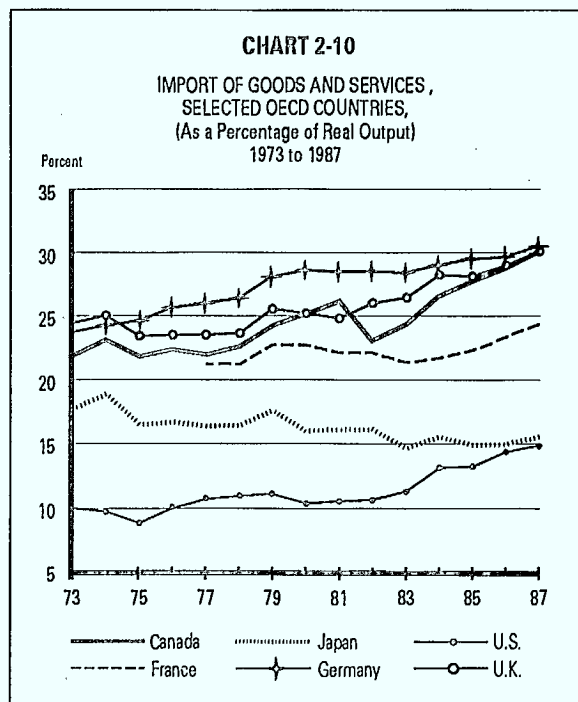


CHART 2-8
EXPORT OF GOODS AND SERVICES, SELECTED OECD COUNTRIES,
(As a Percentage of Real Output)
1973 to 1987

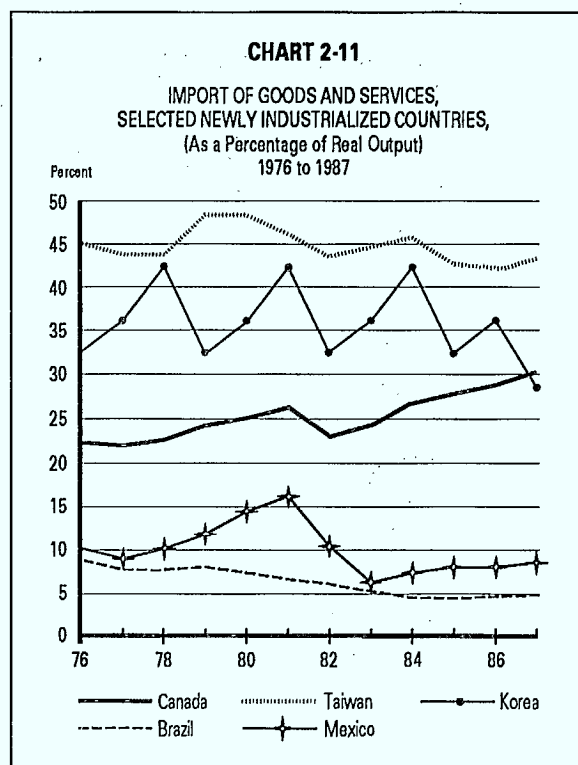


Import of Goods and Services

- ⇒ As was the case for exports, imports also have an increasingly pivotal role in the Canadian economy, more than in most other major OECD countries. The Canadian economy, as indicated earlier, is a very open economy, with both imports and exports being of vital importance.
- ⇒ For the U.S., the value of total imports, as a percentage of national real output, has risen substantially, particularly since the 1981-82 recession. It remains, however, the lowest among the major industrialized countries. From this perspective, the U.S. has one of the most closed economies among the major industrialized countries.
- ⇒ Not only is Japan's export orientation (exports as a percentage of GNP) increasing, but also its level of import penetration (imports as a percentage of GNP) is amongst the lowest in the major OECD countries. Indeed, import penetration in Japan has been declining since the early seventies.



- ⇒ Contrary to the situation in most industrialized countries, import penetration in the NICs has been declining steadily in recent years.



Section 3

**COST AND PRICE
COMPETITIVENESS**

Labour Costs and Productivity

- ⇒ In 1988, Canada reported one of the largest increases in unit labour costs (2.9%), on a national currency basis, among the major OECD countries. In contrast, Japan, France and Germany reported declines of 2.1%, 1.6% and 0.5% respectively.
- ⇒ However, this annual rate of increase in Canadian unit labour costs was much lower than Canada's average annual rate of increase occurring during the period 1973-1988.
- ⇒ Unit labour costs expressed in a common unit of accounting (the U.S. dollar is the most commonly used measure for this purpose) are a better measure for international cost comparisons than costs expressed on a national currency basis.
- ⇒ Using this measure, there were significant increases in unit labour costs in Japan and Europe in 1987, as a result of the appreciation (since 1985) of their currencies against the U.S. dollar. However, in 1988 the rate of increase in unit labour costs in France, Germany and Italy slowed down substantially as the rate of appreciation in their currencies (in terms of the U.S. dollar) stabilized. On the contrary, as the Canadian dollar appreciated in terms of the U.S. currency, the increase in unit labour costs in Canada accelerated.
- ⇒ This shows that international labour cost competitiveness is significantly affected by changes in exchange rates and that much of the Canadian advantage in the recent past (up to 1985) was largely attributable to the depreciation of the Canadian dollar in terms of the U.S. currency, as well as the appreciation of the currencies of Japan and the European countries since 1985.
- ⇒ Canada's unit labour costs over the long term (1973-88) increased at a slower rate than those in other G-7 countries, with the exception of the U.S.

TABLE 3-1

UNIT LABOUR COSTS, PRODUCTIVITY AND
HOURLY COMPENSATION IN MANUFACTURING,
SELECTED COUNTRIES, 1973 TO 1988
(Average Annual Rates of Change)

	United States	Japan	Canada	France	Germany	Italy	United Kingdom
Unit labour costs, national currency basis							
1973-88	4.5	2.1	7.0	8.5	3.6	11.4	9.9
1973-79	8.0	6.9	9.0	11.2	4.9	15.9	18.0
1979-88	2.2	-1.0	5.2	6.7	2.7	8.5	4.8
1987	-1.2	-5.1	2.7	3.3	2.6	3.8	0.0
1988	0.3	-2.1	2.9	-1.6	-0.5	3.4	2.9
Unit labour costs, U.S. dollars basis							
1973-88	4.5	7.3	5.5	6.4	6.5	5.6	7.6
1973-79	8.0	10.8	6.9	12.0	11.6	9.2	15.2
1979-88	2.2	5.0	4.6	2.8	3.2	3.2	2.7
1987	-1.2	10.4	7.7	19.0	23.8	19.4	11.7
1988	0.3	10.5	10.9	-0.8	1.8	2.9	11.8
Output per hour, national currency basis							
1973-88	2.5	5.7	2.2	3.7	3.3	4.7	3.3
1973-79	1.4	5.5	2.1	4.6	4.3	5.7	1.2
1979-88	3.3	5.8	2.2	3.1	2.6	4.1	4.7
1987	3.4	7.8	2.4	1.2	1.3	2.5	6.4
1988	3.2	7.6	3.2	5.3	4.6	2.9	4.9
Compensation per hour, national currency basis							
1973-88	7.1	7.9	9.3	12.5	7.0	16.7	13.5
1973-79	9.5	12.8	12.0	16.3	9.5	22.5	19.4
1979-88	5.6	4.7	7.5	10.0	5.3	12.9	9.7
1987	2.1	2.3	5.2	4.6	3.9	6.5	6.4
1988	3.5	5.4	6.2	3.6	4.1	6.4	8.0

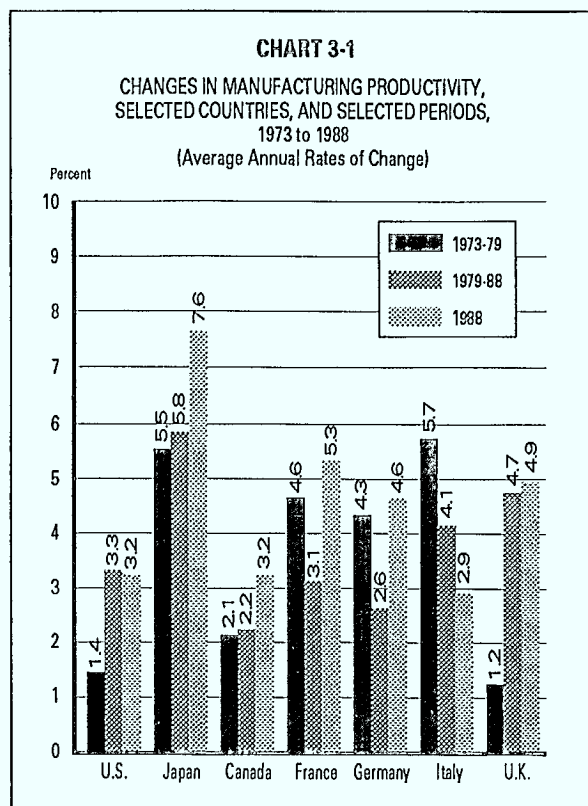
Source: U.S. Department of Labor, Bureau of Labor Statistics, June 1989

- ⇒ Unit labour costs consist of two components — output per hour (productivity) and compensation per hour.
- ⇒ Canada reported the lowest productivity growth among all the major OECD countries over the 1973-88 period. However, over the 1973-79 period, Canada did report stronger growth than either the United Kingdom or the U.S. (Chart 3-1).

Labour Costs and Productivity

continued

- ⇒ Canada experienced a somewhat better performance in productivity growth in both 1987 and 1988, compared to the average over the previous fourteen years. However, its growth rate is still lower than in most of the other major OECD countries.
- ⇒ In terms of compensation per hour, Canada reported the third highest rate of growth in 1988 (6.2%), after the United Kingdom (8.0%) and Italy (6.4%). This relatively high growth in wages and salaries, in conjunction with its poor performance in productivity growth, has contributed to Canada's non-competitiveness in unit labour costs (on a national currency basis).
- ⇒ Over the last sixteen years (1973-88), Canada's rate of growth in compensation has usually been higher, at times quite substantially, than the rate in the United States, Japan and Germany.



- ⇒ Countries differ greatly in terms of the importance of trade to their manufacturing sectors. Consequently, data on trade-weighted unit labour costs may present a better picture of a country's cost competitiveness.
- ⇒ In terms of growth in trade-weighted unit labour costs in manufacturing between 1976 and 1987, Canada performed better than two of its three major trading partners, Japan and the U.K., and almost as well as its other major trading partner, the U.S. The rate declined marginally in Canada and the U.S. and increased slightly in Japan and the U.K..
- ⇒ However, Canada's performance in this area deteriorated substantially in 1987. Instead of declining, the rate of change in its trade-weighted unit labour costs increased. Moreover, all other countries except Germany performed better than Canada, especially the U.S., where the costs declined by a substantial margin, 14%.

TABLE 3-2

UNIT LABOUR COSTS (TRADE-WEIGHTED) IN MANUFACTURING,
SELECTED COUNTRIES, 1976 TO 1987
(Average Annual Rates of Change)

	United States	Japan	Canada	France	Germany	Italy	United Kingdom
1976-87	-0.5	2.2	-0.4	-0.1	1.6	-0.5	1.2
1976-81	1.3	0.0	-1.2	-0.5	0.1	-3.2	7.0
1981-87	-2.3	4.5	0.3	0.4	3.0	2.2	-4.6
1985	1.3	-1.3	-3.1	4.6	-1.7	-1.7	-0.4
1986	-22.0	26.0	-5.5	2.5	9.3	1.6	-6.7
1987	-14.1	3.9	4.3	-0.5	8.1	1.3	-1.0

Source: IMF, International Financial Statistics, March 1989

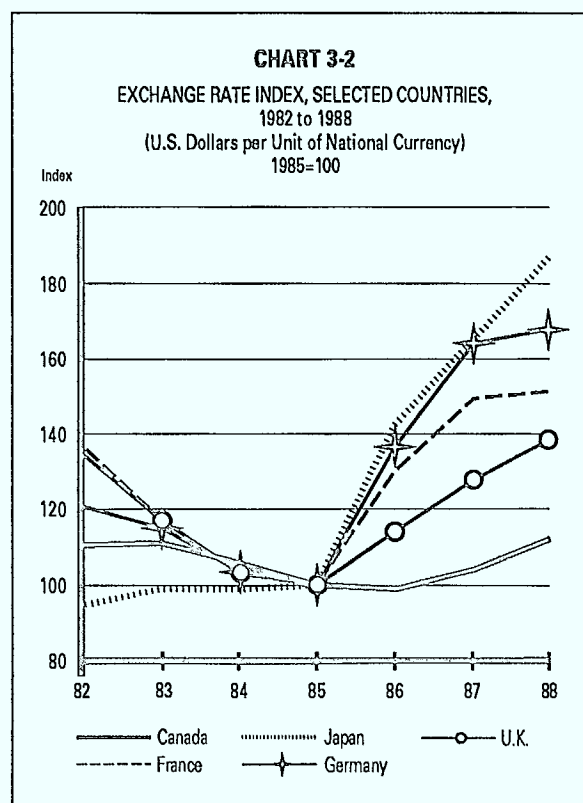
Exchange Rate

- ⇒ The exchange rate remains a critical factor in determining Canada's international competitiveness.
- ⇒ In relation to the U.S. dollar, the value of the Canadian dollar stopped declining in 1986 and increased in both 1987 and 1988. The values of other major OECD currencies have shown a substantial increase with respect to both the U.S. and the Canadian dollar since 1985.
- ⇒ The value of the Japanese yen has shown the most dramatic rise since 1986, followed by the German mark.
- ⇒ With further depreciation of the Canadian and U.S. dollars in 1987 and in 1988 in terms of the Japanese and major European currencies, the competitive positions of both the Canadian and U.S. economies have been enhanced.

TABLE 3-3
EXCHANGE RATE INDEX*,
SELECTED COUNTRIES, 1970 TO 1988
(1985=100)

	1970	1975	1980	1982	1983	1984	1985	1986	1987	1988
Japan	66.2	79.8	104.8	95.4	99.7	99.8	100.0	141.4	164.2	184.9
Canada	130.8	134.3	116.8	110.7	110.8	105.5	100.0	98.3	103.0	111.0
France	161.0	208.0	211.0	136.3	117.5	102.3	100.0	128.9	148.4	149.9
Germany	80.1	118.9	160.9	120.5	114.6	102.9	100.0	135.1	162.7	166.6
Italy	303.3	291.8	222.6	141.1	125.7	108.6	100.0	128.1	147.0	146.5
U. K.	184.9	171.4	179.5	135.0	117.0	103.1	100.0	113.2	126.4	137.4

* U.S. dollars per unit of national currency
Source: IMF, International Financial Statistics, April 1989



Comparison of Canadian and U.S. Labour Costs and Productivity

- ⇒ Even though Canada's overall productivity in total manufacturing relative to the U.S. deteriorated between 1980 and 1987, it improved in the following manufacturing sectors: electrical products, transportation equipment, wood products, primary metals and metal fabricating.
- ⇒ In 1987, electrical products was the only sector where Canada enjoyed a productivity advantage over the U.S.
- ⇒ Machinery and printing and publishing were the two sectors where Canada suffered the worst productivity disadvantage, with their respective output per hour being at 53% and 71% of the U.S. levels.
- ⇒ Labour compensation (hourly earnings measured in U.S. dollars) in Canada is generally lower than in the U.S. Wood products and pulp and paper were the only two industries in 1987 where it was at a higher level than that in the U.S.
- ⇒ Between 1980 and 1987, Canada's unit labour cost in manufacturing industries (relative to the U.S.) worsened, largely due to its declining productivity performance.
- ⇒ Electrical products and transportation equipment were the only sectors where Canada enjoyed a significant advantage in unit labour costs.
- ⇒ In 1987, machinery, and printing and publishing, were the two sectors where Canada's performance was the worst. Each of these sectors deteriorated significantly between 1980 and 1987. In 1987, unit labour costs in these sectors were, respectively, 64% and 29% higher than in the United States.

TABLE 3-4

PRODUCTIVITY, HOURLY EARNINGS AND UNIT LABOUR COSTS
IN MANUFACTURING INDUSTRIES
CANADA RELATIVE TO UNITED STATES, 1980 AND 1987
(Percent of U.S. Level in U.S. \$ 1981)

INDUSTRY	Relative Productivity		Relative Hourly Earning		Relative Unit Labour Costs in \$ US	
	1980	1987	1980	1987	1980	1987
Food, Beverage	74	—	90	95	122	—
Plastics, Rubber	88	79	90	92	102	116
Textiles, Clothing	93	88	101	96	108	108
Wood Products	79	89	106	110	135	124
Pulp, Paper	113	97	105	104	93	108
Printing, Publishing	90	71	96	91	106	129
Primary Metals	83	88	84	98	100	111
Metal Fabricating	71	72	93	91	132	126
Machinery	78	53	95	88	121	164
Transportation Equipment	66	92	84	83	127	90
Electrical Products	120	156	90	89	75	57
Concrete, Cement Products	105	95	100	96	95	102
Chemical Products	86	74	86	80	100	108
Total Manufacturing	84	80	92	93	110	117

— : Data not available

Source: DRI, *The Manufacturers' Analyst*, Winter 1987 and Spring 1988

Relative Export Unit Values

- ⇒ In addition to unit labour cost indicators, price measures are also used to gauge a country's relative competitiveness. Usually, relative export unit values are used to measure changes in export prices and consumer price indices to ascertain changes in domestic prices.
- ⇒ The rates are calculated from the IMF data on relative indices of export unit values for 17 industrialized countries. A relative indicator compares an index for a particular country with a composite index for the 16 other industrialized countries.
- ⇒ The prices of both Canadian and U.S. exports showed a significant decline in 1986. In the case of the U.S., this was a major turnaround from the increases reported in previous years. In 1987, the rate of decline for the U.S. slowed down. However, Canada moved from a significant rate of decrease in 1986 to a minor rate of increase in 1987.
- ⇒ The rise in the value of German and Japanese currencies in terms of the U.S. dollar is reflected in the significant increases in their export prices in 1986 (10.2% and 5.4%, respectively). In 1987, however, Germany's rate of increase slowed down substantially, whereas in Japan, prices actually declined, though marginally.
- ⇒ Over the period 1970-83, Canada experienced the largest average annual rate of decrease in relative export unit values, i.e., Canadian products had become more competitive in the international market.

TABLE 3-5
RELATIVE EXPORT UNIT VALUES* IN MANUFACTURING,
SELECTED COUNTRIES, 1970 TO 1987
(Average Annual Rates of Change)

	Average 1970-83	1984	1985	1986	1987
United States	1.5	4.5	2.6	-12.5	-8.9
Japan	-0.3	1.8	-2.5	5.4	-0.4
Canada	-2.6	0.0	-5.4	-12.0	0.1
France	-0.1	3.3	1.9	3.8	2.5
Germany	-0.3	-6.8	0.6	10.2	4.2
Italy	-0.1	0.6	-0.6	-1.0	0.4
United Kingdom	1.0	-2.1	1.6	-2.5	3.6

* Export unit values serve as a proxy for data on final product prices for traded goods.
Source: IMF, International Financial Statistics, April 1989

Consumer Price Index

- ⇒ Over the 1971-81 period, among the major industrialized countries, only Germany and the United States reported average annual rates of inflation (as measured by consumer price indices) that were lower than the rate in Canada.
- ⇒ Like other industrialized countries, Canada has enjoyed significant reductions in inflation since the early eighties, with the annual rates of increase in the Consumer Price Index declining from 10.8% in 1982 to 4.0% in 1988. However, in recent months, there has been an increase in inflation in Canada. In June 1989, for example, it was 5.4%.
- ⇒ The recent trend in inflation reduction is also evident in most of the Asian NICs. However, it has been on the rise since 1986. Mexico and Brazil both have had very high levels of inflation in recent years.

TABLE 3-6

CONSUMER PRICE INDEX,
SELECTED COUNTRIES, 1971 TO 1988
(Average Annual Rates of Change)

	Average 1971-81	1982	1983	1984	1985	1986	1987	1988
United States	8.1	6.2	3.2	4.3	3.6	2.0	3.6	4.0
Japan	8.7	2.7	1.9	2.3	2.0	0.6	0.0	0.7
Canada	8.5	10.8	5.8	4.3	4.0	4.2	4.4	4.0
France	10.0	11.8	9.6	7.4	5.8	2.5	3.3	2.7
Germany	5.2	5.3	3.3	2.4	2.2	-0.2	0.3	1.2
Italy	14.6	16.5	14.6	10.8	9.2	5.9	4.7	—
United Kingdom	13.6	8.6	4.6	5.0	6.1	3.4	4.2	4.9
Brazil	42.9	97.8	142.1	197.0	226.9	145.2	229.7	682.3
Hong Kong	9.1	10.6	9.9	8.5	3.4	3.2	5.3	7.4
Korea	16.9	7.3	3.4	2.3	2.5	2.8	3.0	7.1
Malaysia	6.3	5.8	3.7	3.9	0.3	0.7	0.9	2.0
Mexico	17.8	58.9	101.8	65.5	57.7	86.2	131.8	114.2
Singapore	6.9	3.9	1.2	2.6	0.5	-1.4	0.5	1.5

Source: IMF, International Financial Statistics, May 1989

Section 4

**MANUFACTURING
PERFORMANCE**

Size and Share of Manufacturing Sector

- ⇒ While the manufacturing sector's share of total employment in the economy has declined steadily since 1971, its share of the total value of exports and imports of goods has increased. In particular, its share of exports has grown from 73.5% in 1971 to around 80% in recent years.
- ⇒ The manufacturing sector's share of real output has remained relatively stable over the 1971-88 period, while its share of employment has declined. This indicates an improvement in the productivity of the sector.

TABLE 4-1

SIZE AND SHARE OF THE MANUFACTURING SECTOR*, CANADA, 1966 TO 1988

	Size of Manufacturing Sector**				Share of Economy(%)			
	Real GDP (\$1981)	Employment	Exports	Imports	Real GDP	Employment	Exports	Imports
1966	39 563	—	7 267	8 527	20.8	—	68.6	84.7
1971	45 938	1 766	13 101	13 827	19.6	21.8	73.5	88.5
1976	55 983	1 921	26 428	31 214	19.6	20.3	68.7	83.3
1981	61 648	2 124	59 391	64 703	19.3	19.3	70.9	81.4
1982	53 702	1 928	59 916	56 573	17.4	18.2	71.4	83.4
1984	65 541	1 954	83 071	84 112	19.5	17.9	75.0	88.3
1985	68 132	1 960	89 347	92 776	19.3	17.5	76.0	89.2
1986	69 971	1 989	97 899	101 433	19.2	17.2	81.1	90.2
1987	73 744	2 018	100 323	104 972	19.4	17.0	80.2	90.3
1988	77 998	2 104	109 499	119 805	19.7	17.2	79.5	91.1

—: Data not available

* Manufacturing Sector is defined here according to SIC (1980) definitions and includes resource processing sectors.

** In millions of dollars. Employment in thousands

Source: ISTC Trade Databank, 1989, and Statistics Canada, Labour Force Survey, System of National Accounts

Durable Manufacturing

- ⇒ Real output for durable manufacturing showed somewhat weaker growth in 1988 (8.5%) than its average annual rate of expansion over the 1983-87 period (8.7%). The corresponding figures for the manufacturing sector as a whole were 5.8% and 6.6% respectively.
- ⇒ The strongest expansion in 1988 occurred in electrical products, transportation equipment and machinery. Wood was the only industry to experience a downturn in 1988.

TABLE 4-2

SELECTED DATA FOR DURABLE MANUFACTURING INDUSTRIES, CANADA, 1971 TO 1988

INDUSTRY	Real Output (Average Annual Rates of Change)			Employment (Thousands)		Shipments (\$ Bill) 1987
	1971-80	1981-82	1983-87	1988	1988	
Durables	3.1	-16.0	8.7	8.5	1 136	127.3
Wood	4.5	-19.1	12.9	-0.4	140	13.6
Furniture & Fixtures	1.4	-23.7	8.3	3.7	66	3.9
Primary						
Metals	0.1	-24.9	9.6	6.2	142	18.7
Metal						
Fabricating	2.6	-15.0	4.6	3.5	158	15.8
Machinery	6.2	-25.5	4.4	10.3	78	8.4
Transportation Equipment	2.4	-8.4	9.4	11.5	249	41.0
Electrical Products	6.3	-7.7	13.0	19.4	160	13.7
Non-Metallic Mineral						
Products	1.5	-23.4	9.2	1.7	55	7.3
Miscellaneous	2.5	-7.0	3.7	0.9	88	4.9
Total Manufacturing	3.0	-12.9	6.6	5.8	2 104	261.7

Source: Statistics Canada, Labour Force Survey, System of National Accounts

Non-Durable Manufacturing

- ⇒ In 1988, the non-durable goods sector reported substantially slower growth than the durable goods sector. Overall, real output in this sector grew at an annual rate of 2.3%, compared to 5.8% for the durable goods sector. The 1988 rate of expansion in the non-durable goods sector (2.3%) is also much lower than the average annual rate of growth it experienced over the 1983-87 period (4.3%).
- ⇒ In 1988, petroleum and coal products, printing and publishing, chemicals and chemical products, as well as paper and allied products, expanded at a rate substantially higher than the average rate experienced by the non-durable sector as a whole. By comparison, leather products and clothing reported an actual decline (-4.9% and -0.5% respectively).

TABLE 4-3

SELECTED DATA FOR NON-DURABLE
MANUFACTURING INDUSTRIES,
CANADA, 1971 TO 1988

INDUSTRY	Real Output (Average Annual Rates of Change)				Employment (Thousands) 1988	Shipments (\$ Bill) 1987
	1971-80	1981-82	1983-87	1988		
Non-Durables	3.2	-9.4	4.3	2.3	990	134.3
Food, Beverages	1.6	-2.0	1.6	1.5	264	42.5
Rubber & Plastics	6.6	-10.6	8.9	1.3	97	7.1
Leather Products	1.6	-12.9	0.7	-4.9	22	1.3
Textiles	5.0	-22.4	8.4	1.4	57	6.1
Clothing	3.6	-11.2	3.8	-0.5	125	6.1
Paper & Allied Products	1.9	-14.3	5.0	2.8	135	22.6
Printing & Publishing	5.5	-8.3	4.6	4.6	167	11.1
Chemical Products	4.2	-11.1	6.6	3.3	100	19.2
Petroleum & Coal Products	3.1	-7.3	0.5	5.0	23	18.3
Total Manufacturing	3.0	-12.9	6.6	5.8	2104	261.7

Source: Statistics Canada, Labour Force Survey, System of National Accounts.

Manufacturing Output

- ⇒ In terms of manufacturing output, Canada suffered the worst decline during the 1981-82 recession (-12.9%). However, in the following recovery and ensuing economic upswing, Canada also experienced one of the strongest expansions among the major OECD countries.
- ⇒ In recent years, the growth of manufacturing has slowed down in most of the industrialized countries.

TABLE 4-4

MANUFACTURING OUTPUT,
SELECTED COUNTRIES, 1975 TO 1987
(Average Annual Rates of Change)

	Average 1975-81	1982	1983	1984	1985	1986	1987
United States	2.2	-6.2	6.1	12.2	4.0	2.3	4.5
Japan	5.2	5.8	8.0	11.6	7.0	0.5	7.3
Canada	1.7	-12.9	6.5	12.9	5.6	2.6	5.4
France	2.0	0.9	0.4	-1.8	-1.0	-0.9	0.8
Germany	1.4	-2.4	1.1	2.7	3.4	0.7	0.7
U. K.*	-2.5	0.2	2.9	4.0	3.0	0.9	3.1
Brazil	1.5	0.0	-6.3	6.7	—	—	—
Korea	14.9	5.3	16.8	15.8	—	—	—
Malaysia	9.0	5.8	6.4	12.1	—	—	—
Mexico	4.0	-2.8	-7.7	5.2	—	—	—
Singapore	8.2	-5.8	1.9	9.4	—	—	—
World Total	3.5	-2.0	4.1	5.9	—	—	—

—: Data not available

* Includes mining and gas, etc.

Source: OECD Economic Outlook, 1960-1987, and U.N. Statistics Yearbook

Manufacturing Output as a Percentage of Real Output

- ⇒ Since 1981, manufacturing output as a proportion of total real production has remained more or less stable in the major OECD countries. In Germany, this ratio has always been substantially higher than in any other country.
- ⇒ The shift to more service-based economies in the 1980's has yet to result in a significant reduction in the manufacturing sector's share of real output. The trend towards more service orientation does show up, however, in terms of employment data (see Table 4-7).

TABLE 4-5
MANUFACTURING OUTPUT,
SELECTED COUNTRIES, 1975 TO 1987
(As a Percentage of Real Output)

	1975	1981	1982	1983	1984	1985	1986	1987
United States	23	22	21	21	21	20	20	19
Japan	30	29	29	29	30	30	29	29
Canada	19	17	16	16	17	17	—	—
France	27	23	23	23	22	22	22	22
Germany	34	32	32	31	31	32	32	32
U. K.	26	22	22	21	21	21	22	—
Brazil	24	25	24	—	—	—	—	—
Hong Kong	25	22	22	20	—	—	—	—
Korea	26	28	27	27	—	—	—	—
Mexico	23	22	21	23	—	—	—	—
Singapore	24	29	26	25	—	—	—	—

—: Data not available

Source: U.N. Statistical Yearbook and DECD Economic Outlook, 1960-1987

Employment in Manufacturing

- ⇒ Japan is the only major OECD country where employment in manufacturing increased during both the 1979-82 and 1982-87 periods.
- ⇒ In the other major OECD countries, employment in manufacturing declined over the 1979-82 period. Only Canada, Japan and the U.S. reported some recovery in the 1982-87 period. Among the NICs shown in the table, Korea has shown the largest growth in employment in this period (1982-87).

TABLE 4-6
EMPLOYMENT IN MANUFACTURING
SELECTED COUNTRIES, 1979 TO 1987

	Rates of Change		Number (in thousands)	
	1979-82	1982-87	Change 1982-87	Level 1987
United States	-3.7	0.3	284	19 065
Japan	1.3	1.1	640	12 150
Canada	-2.3	1.2	114	2 044
France	-2.4	-2.5	-588	4 393
Germany	-1.9	-0.5	-199	7 717
Italy	-1.3	-2.7	-591	3 986
United Kingdom	-6.7	-2.5	-714	5 149
Hong Kong	-0.9	0.6	21	868
Korea	-0.9	8.4	1 216	3 675
Mexico*	3.4	-4.0	-70	510

* 1986

Source: U.N. Monthly Bulletin of Statistics, February 1989, and Statistics Canada, Labour Force Survey

Ratio of Manufacturing Employment to Total Employment

- ⇒ Almost all the major industrialized countries have seen their manufacturing employment as a percentage of total civilian employment decline over time. Over the 1960-87 period, the largest decrease (17%) occurred in the U.K. In Canada, the decline was less dramatic, with manufacturing employment falling from 25% in 1960 to 19% in 1987.
- ⇒ Even though it has declined slowly over time, the ratio of manufacturing employment to total employment in Germany has remained consistently higher than in any other country.

TABLE 4-7

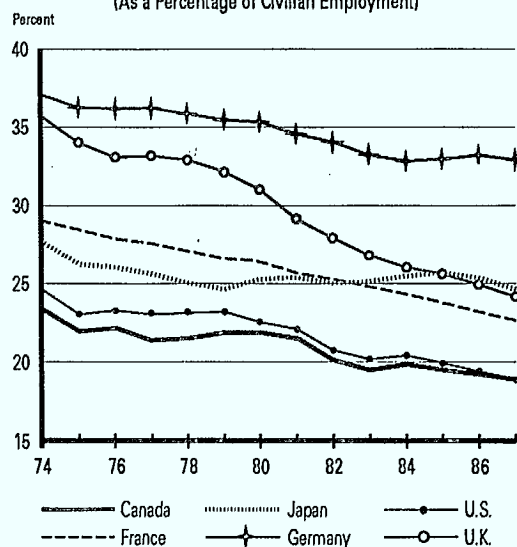
MANUFACTURING EMPLOYMENT,
SELECTED COUNTRIES, 1960 TO 1987
(As a Percentage of Civilian Employment)

	United States	Japan	Canada	France	Germany	United Kingdom
1960	26	21	25	27	34	38
1968	28	26	24	27	36	36
1974	24	27	23	28	36	35
1978	23	25	21	27	35	32
1980	22	25	22	26	34	30
1984	20	25	20	24	32	25
1985	20	25	19	23	32	25
1986	19	25	19	23	32	24
1987	19	24	19	22	32	24

Source: OECD Economic Outlook, 1960-1987

CHART 4-1

MANUFACTURING EMPLOYMENT, SELECTED COUNTRIES,
1974 TO 1987
(As a Percentage of Civilian Employment)



Section 5

**TECHNOLOGY ASPECTS OF
COMPETITIVENESS**

GERD as a Percentage of Real Output

- ⇒ Of the major OECD countries, Canada's Gross Expenditure on Research and Development (GERD) as a percentage of real output is low, slightly higher than that of Italy. It has also remained relatively stable over the 1981-88 period.
- ⇒ The U.S. had the highest GERD/real output ratio among the major industrialized countries until the mid-eighties. Since then, it has been overtaken by Japan and Germany, though marginally.
- ⇒ In some of the major OECD countries, the GERD/real output ratio has been rising slowly but steadily over time. But in Canada, as mentioned before, it has remained more or less unchanged.

TABLE 5-1

GROSS EXPENDITURE ON RESEARCH AND DEVELOPMENT (GERD) AS A PERCENTAGE OF REAL OUTPUT, SELECTED COUNTRIES, 1981 TO 1988

	1981	1982	1983	1984	1985	1986	1987	1988
United States	2.5	2.6	2.7	2.7	2.8	2.7	2.7	2.7
Japan	2.3	2.4	2.6	2.7	2.8	2.8	2.9	—
Canada	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4
France	2.0	2.1	2.1	2.2	2.3	2.3	2.3	2.3
Germany	2.5	2.5	2.5	—	2.7	2.7	2.8	2.8
Italy	1.0	1.0	1.0	1.0	1.1	1.1	1.3	1.3
United Kingdom	2.4	—	2.3	—	2.3	2.4	—	—

— : Data not available

Source: OECD, *Main Science and Technology Indicators*, April 1989

R&D Expenditures and Sales

- ⇒ As measured by the ratio of R&D expenditures to sales, R&D in Canada is concentrated in a few industries, most notably telecommunications equipment, aircraft and parts, and electronics.
- ⇒ In the service sector, R&D is overwhelmingly concentrated in engineering and scientific services, and computer services.

TABLE 5-2
CURRENT RESEARCH AND DEVELOPMENT EXPENDITURES AND SALES BY INDUSTRY, CANADA, 1987

	R&D (\$Millions)	R&D/SALES (%)
TOTAL MINING AND OIL WELLS	76	0.6
MANUFACTURING		
Food, beverages and tobacco	83	0.2
Rubber and plastic products	18	0.7
Textiles	38	1.1
Wood	23	0.6
Pulp and paper	84	0.3
Primary metals (ferrous)	30	0.3
Primary metals (non-ferrous)	110	1.3
Metal fabricating	32	1.1
Machinery	77	3.2
Aircraft and parts	463	17.1
Other transportation equipment	117	0.3
Telecommunications equipment	685	16.9
Electronic parts and components	28	5.9
Other electronic equipment	285	12.0
Business machines	266	3.7
Other electrical products	63	1.5
Non-metallic mineral products	14	0.4
Refined petroleum and coal products	118	0.5
Drugs and medicines	101	3.5
Other chemical products	178	1.2
Scientific and professional equipment	45	2.5
Other manufacturing industries	32	2.3
TOTAL MANUFACTURING	2892	1.8
SERVICES		
Transportation and other utilities	138	0.4
Electrical power	213	1.0
Computer services	199	11.7
Engineering and scientific services	340	11.9
Other non-manufacturing industries	211	0.9
TOTAL SERVICES	1101	1.3
TOTAL ALL INDUSTRIES	4069	1.4

Source: Statistics Canada, *Industrial Research and Development Statistics*, 1989

R&D Labour Force

- ⇒ Relative to other major OECD countries, Canada ranks low in terms of both R&D personnel and research scientists and engineers (RSE) per thousand of labour force. Japan and the United States are substantially ahead of other major industrial countries in terms of the ratio of RSE to labour force.
- ⇒ In recent years, however, Canada has made some progress in improving its ratio of RSE labour force. This may be due to the increasing importance of the manufacturing sector in the economy.

TABLE 5-3

TOTAL RESEARCH AND DEVELOPMENT PERSONNEL AND
RESEARCH SCIENTISTS AND ENGINEERS (RSE)*
SELECTED COUNTRIES, 1986

	R&D Personnel (Per Thousand Labour Force)	RSE	Change in RSE from 1982 (Percentage)
United States	—	6.6	15
Japan	12.9	8.1	20
Canada	8.0	4.3	36
France	11.4	4.4	17
Germany**	14.3	5.2	10
Italy	5.1	2.8	20

—: Data not available

* RSE in some countries consists of all university graduates in science and engineering.

** 1985

Source: OECD, Main Science and Technology Indicators, April 1989

High-Tech Trade Balance

- ⇒ Canada reported recurring and generally growing deficits in trade in high-technology products.
- ⇒ However, there was an improvement in the ratio of high-tech exports to high-tech imports in the eighties as compared to the seventies. Currently, Canadian high-tech products appear to be holding their own in export markets in the face of intense international competition.

TABLE 5-4

HIGH-TECH TRADE BALANCE,
CANADA, 1978 TO 1987
(Millions of Dollars)

	Exports	Imports	Balance	Exports/Imports
1978	4 175	7 164	-2 989	0.583
1980	5 911	10 501	-4 590	0.563
1982	7 723	11 953	-4 230	0.646
1984	11 222	17 621	-6 399	0.637
1985	12 059	18 443	-6 384	0.654
1986	12 874	19 885	-7 011	0.647
1987	13 564	20 730	-7 166	0.654

Source: ISTC, Science and Technology Resource Allocation Statistics, 1988

High-Tech Trade Balance by Product Group

- ⇒ Proportionally, the largest contributor to Canada's deficit in high-tech trade was trade in computers and related equipment followed by trade in non-electrical machinery, scientific instruments, electronic equipment and electrical machinery.
- ⇒ The only product group in which Canada had a trade surplus was aerospace.
- ⇒ In trade with the U.S., Canada only had a surplus in telecommunications equipment.
- ⇒ The largest proportion of the deficit with the U.S. was concentrated in computers and related equipment.

TABLE 5-5

HIGH-TECH TRADE BALANCE BY PRODUCT GROUP, CANADA, 1986

PRODUCT GROUP	Total		With the U.S.	
	(\$ Millions)	(Percent)	(\$ Millions)	(Percent)
Computers and related equipment	-2 680	-37	-2 390	-42
Non-electrical machinery	-1 468	-20	-783	-14
Scientific instruments	-1 393	-19	-909	-16
Electronic equipment	-1 115	-16	-947	-17
Electrical machinery	-669	-9	-461	-8
Chemicals (including drugs)	-215	-3	-322	-6
Telecommunications equipment	-36	-1	164	3
Aerospace	410	6	-84	-1
Total	-7 166	-100	-5 731	-100

Source: *ISTC, Science and Technology Resource Allocation Statistics, 1988*