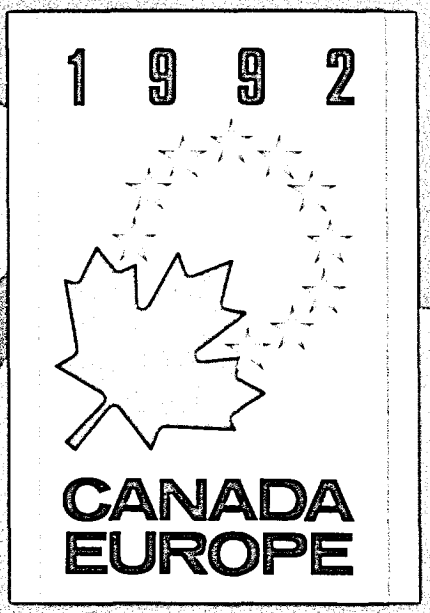
1992 IMPLICATIONS of a SINGLE EUROPEAN MARKET

Industrial Products and Services



External Affairs and International Trade Canada

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1992

IMPLICATIONS

OF A SINGLE EUROPEAN MARKET

INDUSTRIAL PRODUCTS AND SERVICES

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The opinions expressed in this report are those of the authors and do not necessarily represent the past or current policy of the Government of Canada.

FOREWORD

The European Community (EC), with a GDP similar to that of the United States, is Canada's second-largest trading partner and source of investment and technology. Canadian companies therefore have a particular interest in the completion of the European Community's internal market. The goal of the Single Market program, or Europe 1992 as it is often called, is the complete removal of barriers to the movement of goods, services, labour and capital within the 12 states of the Community to create a dynamic and rapidly growing market.

External Affairs and International Trade Canada (EAITC) is pleased to present this study as part of a series of reports on the implications of a Single European Market for Canada's trading, investment and technology interests. The areas to be covered by these reports include:

Agriculture and Food Products
Consumer Goods and Cultural Industries
Telecommunications and Computers
Automotive Industry
Minerals and Metals
Forest Products
Defence, Aerospace and Transportation
Specialty Chemical Products, New Materials,
Pharmaceuticals and Biotechnology
Industrial Products and Services
Financial Services
Fisheries Products
Professional and Consulting Services -- Law and Accounting

These reports, prepared by Raymond Chabot International Inc. (RCI), Bureau d'informations et de prévisions économiques (BIPE) and Informetrica Ltd., analyse the trends, export impact, competition, investment implications and technological acquisitions arising from the EC Single Market of 1992.

This series of reports complements an earlier study published by EAITC, *1992: Effects on Europe*, which details the major economic and trade effects of the integration. Now in its third printing due to popular demand, the report provides a clear picture of the unification legislation, implementation measures, and general expectations and responses of European industries.

Following the publication of these sectoral reports, EAITC will focus on subsectors of Canadian industry in which particular opportunities arise from the Single Market. These studies will go into much more detail on the trade ramifications specific to each subsector.

With these reports, the overview presented in *Effects on Europe*, the sectoral analyses of this series of studies, and the subsector details of the next phase of Europe 1992 reporting are not simply an information base for Canadian business people but can be seen as a call to action.

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LIST OF ACRONYMS AND ABBREVIATIONS

BRITE/EURUM	Basic Research in Industrial Technologies for Europe/European Research for Advanced Materials
CEN	European Committee for Standardization
CENELEC	European Committee for Electro-technical Standardization
EC	European Community
ECU	European Currency unit (= C $ 1.30: November 1989)
EDC	Export Development Corporation
EUREKA	European Program for High Technology Research and Development
F.R.G.	Federal Republic of Germany
FTA	Free Trade Agreement
ISTC	Industry, Science and Technology Canada
M&E	Machinery and Equipment
R&D	Research and Development
STD	Science and Technology for Development
TOEP	Technology Opportunities in Europe Program
U.K.	United Kingdom
U.S.	United States
VAT	Value-Added Tax

EXECUTIVE SUMMARY

This report investigates the ways in which the Canadian industrial products and services sector may be influenced by the European Community's (EC) attempt to complete its common internal market by 1992 -- a program called Europe 1992 for short.

The Canadian-owned companies in the industrial products and services sector are mostly of small and medium size with an average of 33 employees. All the subsectors in this sector have a negative trade balance. One of the factors explaining these deficits is the lack of research and development (R&D) done by Canadian firms.

The European market is quite different from the Canadian one, with growth of the European market quite high (around 8 per cent). The leaders in the Community are Germany and the United Kingdom with more than 55 per cent of total EC production.

The secret to remaining competitive in this market is to stay on top technologically through R&D and the marketing of new products. This is why European companies are putting up to 5 per cent of their sales in R&D and investing more than 13 million ECU every year.

Europe 1992 has already started to increase the trade volume among EC countries, and this trend is expected to continue for many years.

Furthermore, European companies are already internationally competitive in this sector. With Europe 1992, companies want to establish themselves as world leaders. Although only a small proportion of Canada's current trade in this sector is with the EC (only 250 Canadian companies export to the EC and 20 have operations there), Canadian firms cannot afford to ignore the important developments now taking place in Europe.

Canada ships only 1.7 per cent of all imports entering Europe, whereas European products represent 15 per cent of Canadian imports. However, the Canadian deficit in this sector over the past 10 years has been over $13.8 billion.

Europe 1992 aims to reduce or eliminate the trade barriers between EC countries. Numerous directives harmonizing standards, promoting transparency and opening up government procurement to EC-wide bidding have either been agreed to or are under intensive discussion. Already some individual EC firms are restructuring to take advantage of the economies of scale and greater specialization made possible by a single EC market comprising 340 million people.

Through the proposed directives, the European Commission wants to eliminate the customs controls between Member States, harmonize the taxation system and the technical standards, and adopt similar government procurement policies. The Commission is also trying to help European firms increase their strength by the common rules for the movement of capital as well as for the application of a new company law. The Commission is also setting up R&D programs that will permit the European companies to produce new advanced products.

The industrial products sector may be broken into two main parts: the electric and electronic engineering category and the mechanical engineering products category. Each of these categories has its own rules and operates in its own way. The first one is developed more toward the international market with big companies, while the second has a lower profile, with small and medium-sized companies operating on a national and community level.

The Canadian firms are faced with new sets of rules that will affect the way they do business with the Community. Thus, they will have to operate with new technical standards and new government procurements, as well as R&D programs.

Europe 1992 will alter the procedures on the European continent. There will be changes in the testing and certification of the products. In fact, some managers are afraid of what they call "Fortress Europe." They include in this term all the trade policies between the two entities (Canada and the Community), such as reciprocity and anti-dumping measures.

All these measures will have indirect impacts on many factors such as trade flow, the rationalization undertaken throughout the world, investment opportunities and the possibility of acquiring new technology.

Europe 1992 is expected to provide opportunities for Canadian firms. In addition to an expected growth in the EC market of 8 per cent, Europe 1992 will create a very large market in which Canadian firms with technological and market know-how should be able to find niches.

Depending on the size and level of presence in the Community and the sector of activity of the company, different strategies will apply in order to take full advantage of this market modification. Thus, a multinational will face a different market than will a corporation with one subsidiary in the EC or a firm that is exporting only to Europe. Even a company with no interest in Europe will have to be aware of the market change.

In order to take advantage of opportunities provided by Europe 1992, Canadian industrial equipment firms will require some form of EC presence. Even small and medium-sized Canadian exporters will have to adopt, to some degree, a multinational character if they wish to take advantage of an EC-wide market. Given the additional risks as well as the headaches entailed by a foreign (EC) presence, many Canadian firms may not avail themselves of EC opportunities. But they cannot ignore the fact that Europe 1992 is likely to create new world-scale, European-based firms that will be in a position to compete for a share of North American markets.

There are different ways to have a presence in a new market. The advantages and disadvantages of strategic alliance, joint venture, acquisition and greenfield investment are examined.

In summary, Europe 1992 will test other countries' capability and willingness to compete internationally. Success in Europe is likely to require a European presence, a high-quality product and a technological edge.

Some subsectors appear to have limited opportunities for taking advantage of the changes in Europe. This is true in subsectors such as agricultural machinery, material handling equipment and machine tools. However, Europe 1992 represents a good opportunity in some specific areas, such as large electrical equipment, oil and gas field equipment, mining and smelting equipment, pulp and paper equipment, and environmental equipment.

INTRODUCTION

Under the Treaty of Rome (1957), the countries of Western Europe have developed a common market that includes 12 countries with a market of 340 million consumers. The potential for the unrestricted movement of products has, however, not been fully realized since there are non-tariff barriers between the European Community (EC) Member States. This has led many firms to restrict themselves to their national market.

In 1987, the EC Member States agreed on a detailed schedule for eliminating non-tariff barriers within the EC to complete the common market envisioned in the Treaty of Rome. The target date for the elimination of all non-tariff barriers is December 1992.

This report evaluates the impact of this restructuring on the Canadian industrial products and services industry sector. The five different subsectors include resource industries equipment, material handling and construction equipment, electrical equipment (engines and turbines, electric generators and motors), agricultural machinery, and other industrial machinery, in which environmental equipment is a growing part.

The objective of this report is to draw a broad picture of the opportunities and constraints affecting the sectors as the economy moves toward Europe 1992. Given the terms of reference of our mandate, this report should be read more as a guideline than as a detailed plan for each subsector. Each company should therefore assess its opportunities in view of its own capabilities and evaluation of its product(s).

This report presents the Canadian and European context and the changes that are likely to occur in the European industrial sector, as well as the changes that these new regulations will mean to the Canadian industry. Given the constraints and opportunities of Europe 1992, this report also outlines a number of strategies that could be considered by companies interested in the development of the pan-European trade that Europe 1992 will facilitate.

1. BACKGROUND AND TRENDS

1.1 Canadian Context

The industrial products and services sector comprises companies involved in the production of a wide range of machinery and equipment (M&E) for resource-based, resource processing, manufacturing and service industries, as well as for power generation, electrical and major appliance industries. The sector includes over 4200 companies employing more than 137 000 people with annual factory shipments of over $20.4 billion.

To remain financially competitive in markets characterized by a wide range of industrial needs and a large number of suppliers, many M&E manufacturers have become increasingly specialized. Many have concentrated on certain types and sizes of machinery, as well as on custom-engineered equipment.

In numerous cases, specialization has been achieved through rationalization undertaken between Canadian subsidiaries and their U.S. parents. The Canadian industry is mainly represented by a number of small and medium-sized companies with an average of 33 employees; however, the majority of large companies in this sector are subsidiaries of foreign firms, with headquarters mostly in the United States. Table 1 indicates some of the largest companies present in Canada in different subsectors. Only 20 per cent of these companies are Canadian-owned.

Even with the internationalization of trade, most of Canada's business transactions are still done with U.S. companies. However, Canadian imports from the U.S. have been decreasing through the years as a result of tough competition imposed by Japan and the European Community. The U.S. share has decreased from 83 per cent in 1978 to 71 per cent in 1987. Nevertheless, exports to the U.S. still represent more than 75 per cent of total Canadian exports (Figure 1). (The European Community represented only 6.5 per cent of Canadian exports in 1987.) With the Canada-U.S. Free Trade Agreement (FTA) on tariffs and trade and the proximity of the U.S. market, this trend is not likely to change.

For the industrial sector and each of its subsectors, Canada imports more than it exports. As shown in Table 2, the trade position of the industrial sector has been deteriorating. Over the past 10 years the Canadian trade deficit in the industrial sector has been increasing at an average annual rate of 9.2 per cent, as also from 1978 to 1987 (see Figure 2).

One of the most important factors underlying Canada's major trade deficit in the industrial sector is the lack of research and development (R&D). For example, American and European companies in this sector have been investing between 2.5 per cent and 4 per cent of their revenues in R&D during the last few years, while Canadian companies have been investing less than 1 per cent in R&D in the industrial sector. These numbers follow general Canadian trends. Canada has been investing less than half the percentage of that which the U.S. and the European Community Member States have been investing in the past 25 years. The weakness of Canadian companies' investment in R&D is certainly a factor that explains the technological gap between Canadian manufacturers and the major producers of the world (U.S., Japan and EC) in almost all the analysed subsectors.

Although investment in technology is, in general, limited, there are Canadian companies that have been successful on the export market. In fact, Canadian companies that produce industrial goods are exporting up to 30 per cent of their production. Companies that offer the best potential are those that have developed strong, technology-oriented "niche" markets on an internationally competitive basis. The fact remains, however, that this

TABLE 1

Examples of Ownership in Canadian Market

Industry	Name	Ownership
Fluids-handling and Mechanical Power-transmission Equip. (Engines and turbines)	1. Crane Canada Inc.	American
	2. Canadian Blower/Canada Pumps Ltd.	American
	3. Novenco Canada Inc.	Danish
	4. CML Northern Blowers Inc.	Canadian
	5. De Vilbiss (Canada) Limited	American
Agricultural Machinery	1. John Deere Limited	United States
	2. J.I. Case Canada	United States
	3. Massey Combines Corporation	Canada
	4. White Farms Equipment Company	United States
Material Handling Equipment (Material handling and construction)	1. Rapistan Systems Limited (conveyors)	American
	2. Mathews Conveyors Company (conveyors)	British
	3. Stephens Adamson Limited (conveyors)	Sweedish
	4. Jervis B. Webb Company of Canada Ltd. (conveyors)	American
	5. John T. Hepburn Limited (cranes)	Canadian
Instrumentation (Other industrial and construction)	1. Foxboro Canada Inc.	American
	2. Honeywell Limited	American
	3. CAE Electronics Ltd.	Canadian
	4. Valmet Sentrol Ltd.	Finnish
	5. Lumonics Inc.	Canadian
Pulp and Paper (Resource industries equipment)	1. Beloit Canada Inc.	American
	2. Ingersoll Rand (Canada) Inc.	American
	3. Black Clawson Kennedy Ltd.	American
	4. Dorr Oliver (Canada) Ltd.	Canadian
	5. Valmet Dominion Ltd.	Finnish/ Canadian
Mining Equipment	1. Eimco Jarvis Clark	American
	2. JKS Boyles International Inc.	Canadian
	3. Boart Canada Inc.	South African
	4. Longyear Canada Inc.	South African
	5. Kenroc Tools Corporation Inc.	Swedish
Oil and Gas Field Equipment	1. Dreco Energy Services Ltd.	Canadian
	2. National Oilwell Canada Ltd.	American
	3. Smith International	American
	4. Legrand Industries Div.	American
	5. Canadian Fracmaster Ltd.	British
Electrical Wire and Cable	1. Canada Wire and Cable Ltd.	Canadian
	2. Phillips Cables Ltd.	British
	3. Northern Telecom Ltd.	Canadian
	4. Pirelli Cables Inc.	Swiss (Italian)

TABLE 2

Canadian Trade Balance: Industrial Products and Services Industry, 1987

(millions of dollars)

Sectors	Imports	(%)*	Exports	(%)*	Trade Balance
Industrial Products and Services	17 687		5 978		(11 709)
Subsectors					
1. Resource Industries	3 625	20.5	1 030	17.2	(2 595)
2. Material Handling and Construction	408	2.3	227	3.8	(181)
3. (a) Engines and Turbines	372	2.1	365	6.1	(7)
(b) Electric Generators and Motors	376	2.1	141	2.4	(235)
4. Agricultural Machinery	1 658	9.4	551	9.2	(1 106)
5. Other Industrial Machinery	11 249	63.6	3 664	61.3	(7 585)

* Columns with percentages indicate the subsector dollar value as a percentage of the total sector dollar value.

growing export trend for industrial products has been largely due to the tremendous worldwide increase in demand for industrial equipment in the past few years. In this sense, there is a great potential for Canadian companies to capture part of the new markets that have been created.

The industrial M&E subsectors in which Canadian companies enjoy the most export success are mainly resource industries such as forest harvesting equipment and mining equipment. Most of the export figures result from transactions with U.S. companies; the number of transactions with the EC is very low. Since most primary resources are exported to the United States, this helps to export the handling equipment developed domestically.

1.2 European Context

European purchases of M&E have increased tremendously in the past four years. With the European economy growing at a faster rate than in previous years, European companies have seen the demand for their products increase to an annual GNP growth rate of 8 per cent; many economic analysts expect this trend to continue for at least two to three more years.

As indicated in Table 3, Germany is the largest producer among the EC Member States in mechanical and electrical equipment and in electronic engineering equipment. The United Kingdom follows in second place, although its production has declined significantly in the past three years.

The industrial M&E sector in Europe is in a stronger position than its counterpart in Canada, even though the recession of 1981-83 brought the level of production down by 7.8 per cent in real terms (Table 4) from its 1980 value.

If one looks more specifically at certain subsectors, the mechanical engineering products have been maintaining this trend while the electrical and electronic engineering products have slightly decreased in sales. The agricultural equipment sector has also pursued a downward trend that seems unlikely to stop.

To remain competitive in a more specialized market, the European industry has focused on technological development and product innovation. Companies and governments have been investing heavily in R&D. In some subsectors, Europeans have injected up to 5 per cent of their sales in the research and development of products that could compete well internationally. Rationalization has been another major point of attraction. Companies have tried to increase productivity through large investments (Figure 3). Annual investment has increased from 1980 to 1986, and it seems unlikely that companies will alter this trend in the near future.

These changes in the European industrial sector have kept these companies internationally competitive. European companies have been able to keep their positive trade balance at a high level (Figure 4), even though other countries, such as the U.S. and Japan, are trying to penetrate the European market.

TABLE 3

Total Production by Category in the European Community, 1987
(Percentage of total)

Country	Mechanical Engineering	Electrical and Electronic Engineering
Germany	42.0	39.5
United Kingdom	18.0	18.2
Italy	16.0	10.3
France	12.0	14.8
Netherlands	30.0	5.8
Spain	30.0	5.8
Belgium	20.0	2.3
Denmark	20.0	1.2
Portugal	0.2	0.5
Ireland	0.2	0.5
Luxembourg	0.2	0.1
Greece	0.1	0.4

TABLE 4

Level of Production in Europe
(millions 1980 ECU)
(Constant Value)

	1980	1981	1982	1983	1984
Industrial Equipment	190 585	183 136	180 074	175 964	185 308
Electrical and Electronic Engineering Equipment	71 064	69 849	69 705	70 126	74 488
Mechanical Engineering Equipment	119 521	113 287	110 369	105 838	110 820

	1985	1986	1987	1988
Industrial Equipment	196 690	195 331	197 473	202 990
Electrical and Electronic Engineering Equipment	78 756	79 903	80 505	83 000
Mechanical Engineering Equipment	117 934	115 428	116 968	119 990

Intra-EC Trade

The weakening U.S. dollar has reduced exports to the U.S. and substantially increased intra-community trade. With the creation of the Single Market, this trend is likely to intensify over the next few years. The reduction of non-tariff barriers would create a positive income effect for companies, which will lower their indirect costs of exporting within the Community (due to reduction of customs controls and harmonization of taxes). It is also likely to supplant some trade that was previously external to the EC.

1.3 Trade Relations between Canada and the European Community

Industry, Science and Technology Canada (ISTC) estimates that 250 Canadian companies (including subsidiaries of foreign-owned companies) export to the EC in the industrial sector. Of these, only 20 Canadian-owned companies have operating subsidiaries in the EC, with approximately 13 having a manufacturing plant or warehouse in Europe. As shown in Figure 5, the sector trade balance between Canada and the EC is largely in favour of the Europeans. From 1978 to 1987, Canadians have had, with the EC, a $13.8 billion cumulative deficit in this sector.

The EC is not a major trading partner with Canada. In fact, Canada ships only 1.7 per cent of all imports entering Europe, while European products represent 15 per cent of Canadian imports (Figures 6 (c) and 7 (c)). In 1987, Canada exported products worth $389 million to the EC while there were imports worth $2.9 billion from the EC (Figure 5).

The largest trading partners in the common market are the U.K. and Germany, as shown in Figures 8 and 9. This reflects their status as the most industrialized entities in the common market.

As shown in Figures 10 and 11, the more active subsectors are "resource industries

equipment" and "other industrial machinery." These subsectors respectively include products such as forest harvesting equipment and plastic and rubber working machinery. They are enjoying some export success on the basis of their ability to serve "specific" market segments on an international basis.

Table 5 presents the Canadian trade balance with the EC by subsectors. Overseas trade in subsectors such as material handling and construction equipment are characterized by few technological developments (mature technology). Competing products and transport costs are not very important.

In the electrical equipment subsector (engines and turbines, and electrical generators and motors), factors such as standards, cultural preferences and currency exchange make it difficult for Canadian firms to export their products to the EC. In the larger custom-built electrical products, the major buyers are state supported and controlled electrical utilities. Historically, they have been supporting local manufacturers either by subsidies and tax breaks or by direction of the controlling governments. Government purchasing policies have, therefore, had a direct impact on the way Canadian companies market their products in the EC.

TABLE 5

Canadian Trade Balance: Industrial Products and Services Industry with the European Community, 1987

(millions of dollars)

Sectors	Imports	(%)*	Exports	(%)*	Trade Balance
Industrial Products and Services	2 867		389		(2 478)
Subsectors					
1. Resource Industries	401	14.0	83	21.4	(318)
2. Material Handling and Construction	66	2.3	8	2.1	(58)
3. (a) Engines and Turbines	75	2.6	22	5.7	(52)
(b) Electric Generators and Motors	77	2.7	9	2.4	(68)
4. Agricultural Machinery	304	10.6	12	3.0	(292)
5. Other Industrial Machinery	1 944	67.8	255	65.4	(1 689)

* Columns with percentages indicate the subsector dollar value as a percentage of the total sector dollar value.

In the oil and gas equipment part of the resource industries subsector, most manufacturers do not enjoy the efficiencies of long production runs because of the relatively small market in Canada. They are mostly oriented to serve the domestic market, but some specialized equipment developed to meet Canada's climate, topography and resource characteristics has been sufficiently robust to establish global niche markets.

Products such as control devices and hazardous area drilling equipment have enjoyed successful export to the U.S. and overseas to countries that have similar geographical and climatic conditions.

A number of foreign-owned companies in Canada export to the common market on an inter-company basis. Because of their parent companies' presence in the EC, they are more aware of standards and purchasing policies. They also have their own communication and distribution network, which makes it easier for them to export their products to the EC. For individual Canadian-owned companies exporting to Europe, these factors can and will continue to present some difficulty. Even with these problems, investment in the EC by Canadian firms is insignificant in contrast with European companies, which invested $932 million in Canada in 1985.

2. INDUSTRY-RELEVANT CHANGES RELATED TO EUROPE 1992

2.1 Directives Implemented

Removal of tariff barriers on goods traded within the EC has been offset to a substantial extent by non-tariff barriers. As governments have tried to preserve national industries and employment through the years, non-tariff barriers may have become a more important factor in the decision to export to intra-EC trade. Countries' standards and government purchasing policies and testing procedures have been modified to make it more difficult for foreign products to enter countries. Europe 1992 is designed to eliminate these non-tariff barriers within Europe and to permit free movement of capital, goods, people and services.

In order to achieve its goal, the Commission of the European Community established a detailed agenda of precise and concrete measures, which it published in its 1985 White Paper. These will not only have direct effects on the companies but will also have indirect effects such as new marketing strategies and concentration in the industry.

The following paragraphs outline the most important general policies that will have an impact on the industrial products and services sector.

a) Elimination of Customs Controls

Since January 1988, the *Single Administrative Document* has allowed truckers to cross borders with only one document, in contrast to the as many as 70 import-export declaratory documents previously required.

By reducing and standardizing the procedures for granting clearance to goods entering a particular Member State, the EC will reduce border costs and diminish transport time. Among nationally oriented companies, this practice will generate a more efficient view of the European market.

b) Harmonization of Taxes

Excise and value-added tax (VAT) rates vary considerably among EC countries (as shown in Table 6 and Figure 12). These

TABLE 6

VAT Rates in the EC
(Per cent)

	Reduced Rate	Standard Rate	High Rate
Belgium	1 and 6	19	25 and 33
Britain	0	15	None
Denmark	None	22	None
France	2.1 to 7	18.6	33.5
Greece	6	18	36
Holland	6	20	None
Ireland	2.4 to 10	25	None
Italy	2 and 9	18	38
Luxembourg	3 and 6	12	None
Portugal	8	16	30
Spain	6	12	33
Germany	7	14	None
Commission Proposal	4 to 9	14 to 20	None

differences in the percentage of VAT are an impediment to cross-border trade.

The EC Commission has proposed to deal with this problem through harmonization of excise taxes within the EC and convergence of the value-added tax rates of Member States. The standard rated value-added tax could vary between 14 and 20 per cent, and, for specific products, a reduced rate of between 4 and 9 per cent could apply.

Manufacturers in markets with high VAT rates have been disadvantaged since they could not compete with other countries or with the rest of the Community because of higher costs (higher taxation). As long as reductions are passed on to consumers, products with high current rates and high demand elasticities could generate higher sales as future rates fall.

These policies will marginally lower costs. The major impact will come from indirect implications of these policies. By eliminating the tariff barriers, the European Community is showing all Europeans that each country is only a part of a larger entity -- the European Economic Community. The "European mind" is focused on forming the largest economic entity in the world.

These policies are positioning Europeans to compete internationally by permitting them to rationalize their industries, set the context for the emergence of world leading firms, exercise international leadership in setting standards and achieve large economies of scale.

c) Harmonization and Mutual Recognition of Technical Standards

Two main standardization bodies received mandates from the Commission to elaborate and harmonize standards: the European Committee for Standardization (CEN) and the European Committee for Electro-technical Standardization (CENELEC). In most cases, their work is based on international quality standards.

The rationale behind the adoption of common standards is that compliance with one set of rules enables a manufacturer to sell in 12 Member States without having to adapt its product to national specifications.

Although there has been no vote yet and although the recommendations from each Member State differ widely, the European Community is trying to identify a labelling process that would simplify and reduce to one the number of labels required to distribute a product throughout the EC.

The policy of the European Commission with respect to standards is based not only on the principle of selective harmonization but also on the principle of mutual recognition. Mutual recognition means that all products legally manufactured and marketed in one Member State must also be admitted in all other Member States without any impediment. In principle, EC Member States will no longer be able to use national standards to bar products of other EC countries and will, therefore, have to accept certificates and licences issued on the basis of tests conducted according to the rules of other member countries or issued according to a common set of rules.

These standards will become particularly important in specific areas such as mechanical engineering (refrigeration, ventilation, heating, valves equipment, textile machinery, boilermaking, chemicals, plastics and food machinery), electrical and electronic engineering (control and distribution, automation and installation equipment, power transformers, and measurement and regulation equipment) and, of course, environmental products.

The importance of these regulations is that currently most Member States have their own standards in these fields, especially in the electrical products area. The Community members will set standards in order to reorganize themselves with the global market in mind.

The Community will face pressure from the European industries to differentiate standards from North American ones, especially in the fields of high technology, since these standards should not differ drastically from international standards.

In some subsectors, the standards will be set based on the best and the more advanced countries, namely Germany, France and the U.K.

The adoption of these standards should open up intra-EC trade and produce a large wave of mergers and acquisitions in order to permit leaders of the industry to achieve economies of scale and specialization. Their "new standards" will have a direct impact for Canadian companies. They will indicate what is to come internationally in the following years.

d) Liberalization of Government Procurement

The EC has proposed directives to open up government procurement to community-wide competition. This will expand markets for firms that were government-oriented but could not break out of their own country market because of the protective attitude of the other public sectors. In 1984, government contracts inside the EC in the industrial products sector amounted to 147.2 billion ECU (as shown in Table 7).

Under the proposed directives on the liberalization of public procurement in the fields of water, energy, transport and telecommunication, entities should be permitted to exclude offers containing less than 50 per cent EC content. External trade is disadvantaged since a 3 per cent preference is given to an EC supplier over a non-EC bidder who meets the local content requirement.

TABLE 7

Public Purchases in the European Community by Product Type in 1984

Sectors	In Billions of ECU	Per Cent of Total Public Purchases
Agriculture — Fishery	2.7	0.6
Energy Products	73.2	16.3
Industrial Products*	147.2	32.7
- Chemical Products	14.5	3.2
- Metal Products	9.8	2.2
- Industrial and Farm Machinery	12.2	2.7
- Office Supply	28.5	6.3
- Transport	45.7	10.1
- Papers and Print Articles	10.5	2.3
Construction: Buildings and	129.1	28.6
Civil Engineering Services	98.3	21.8
Total	450.5	100.0

* Sector analysed in this report.

These directives will particularly affect segments in industries such as large electrical equipment, wire and cable, office and automated equipment in the electrical and electronic engineering category.

With these new directives and electrical standards, governments will be hard pressed to protect their own industries. Companies from every EC Member State and even from outside the EC will be able to obtain contracts that, until now, were reserved for national companies. It is clear that Canadian companies should monitor the changes in EC standards for divergences from North American or world standards. This will help them adjust for European needs and be more competitive in the European market.

In the long term, it is estimated that these changes will considerably reduce the number of firms involved in subsectors affected by government procurement. Mergers and acquisitions will be emphasized. It is estimated that the number of manufacturers will drop down to about the same number found in the U.S.

These directives will, however, have very little impact on the mechanical engineering products. This is because, with the exception of the armed forces, the mechanical engineering industry is not one that is nationally protected. Table 8 shows the number of companies for specific categories influenced by government procurement. It also indicates the number of producers in the U.S. for the same products.

e) Movement of Capital

The freedom of capital movement will permit entrepreneurs to invest their money in other member countries more freely.

Anticipation of free movement of capital and the abolition of intra-community trade barriers have already had an important impact on the location of new investments within the Community. For example, in sectors in which labour costs are an important variable, productivity will be a major factor. Thus countries with a lower cost structure will have a great advantage as long as labour quality does not decrease. Since protectionism will be much more difficult to achieve, investors in every country will be able to seek the best investment opportunities throughout the entire European Community.

Companies manufacturing products in the electrical and electronic engineering category, such as low tension equipment, rotating machines, professional equipment and construction and material handling

TABLE 8

Number of Companies for Specific Industries Influenced by Procurement

	Value of EC market in billions ECU per year	Mumber of EC producers	Number of American Producers
Boilermaking	2	12	6
Turbine generators	2	10	2
Locomotives	0.1	16	2
Mainframe computers	10	5	9
Telephone exchanges	7	11	4
Telephone handsets	5	12	17

equipment, are the most likely to be affected by increased mobility of capital.

f) Company Law

The European Commission is trying to unify different aspects of company laws in every Member State to create a new entity called the "European Company." This directive will permit the creation of strong European corporations that will utilize capital and human resources situated throughout the Community countries.

This new statute should slash the legal red tape entangling many cross-border businesses and make joint ventures and mergers easier. It has also been put forth that, through European incorporation, companies will be able to use their losses in one country to write off profits in another. This would give a major advantage to the company that is able to achieve this European corporation label. Canadian-owned companies present in more than one European country will be able to obtain this European incorporation.

g) European R&D Programs

The European Commission is planning to spend 7.7 billion ECU to support cross-border research in the five years up to the end of 1994, nearly doubling the EC's present spending on technology. The Community's efforts are directed at strengthening the scientific and technological basis of European industry and to encourage it to become more competitive at an international level. The principal instrument of implementation of this policy is the five-year "Research and Technological Development Program."

The main program related to the sector analysed in this paper is the Industrial Technology/ European Research for Advanced Materials (BRITE/EURAM) program. More than 439 million ECU are allocated for this program over five years.

Some other programs, such as Jessi (the pan-European semi-conductor scheme) and Science and Technology for Development (STD), can be profitable for some companies in the industry.

In most cases, and for the bigger programs such as BRITE, the Community finances 50 per cent of the cost of the research, with the other 50 per cent assumed by the recipient of the aid. For all large programs, the application must be submitted by undertakings having their headquarters in at least two Member States. The project must be of high quality, both technically and scientifically.

Successful recipients are consortiums, whose members represent at least two Community countries and involve at least one industrial concern. Canadian firms can participate in these programs subject to the following conditions: the research must be conducted from an EC Base and must be part of a European joint venture (since it cannot participate directly).

These programs have been created to reduce the technological gap between the Europeans and other world leaders, namely the U.S. and Japan. The European Community is counting on these programs to make its companies internationally competitive and position them to set new international quality standards in the near future.

There is, however, another R&D program that permits Canadian firms without a presence in the EC to work with companies in Europe. This program is called EUREKA. It has been created to increase the competitiveness and productivity of European firms on the world market through direct co-operation with the firms of other countries.

This co-operation has been taken in the form of information exchange, joint research projects, industrial missions, seminars and conferences. It has helped small companies everywhere to grab a better hold of their market.

2.2 Changing European Environment as a Result of 1992

The industrial equipment sector can be broken down into two parts: the electrical and electronic engineering and the mechanical engineering categories. Growth trends and opportunities are so different as to preclude analysing them together.

a) Electrical and Electronic Engineering

The electrical and electronic engineering category holds a key position in the EC. This industry is a leader in terms of production volume and numbers of people employed. Growth and development of intra-EC trade have been substantial, and, with the creation of the Single Market, this trend is likely to intensify.

The industry is dominated by a few very large companies that are found in almost every Member State of the Community. Ten per cent of the companies in the category represent approximately 80 per cent of the total output.

Recently, electrical and electronic manufacturers have been increasingly active in their own restructuring and re-grouping. Besides corporate integration at the international level, R&D co-operation and joint ventures for purposes of standardization have gained in importance. This trend will apparently continue in the near future.

Structural changes set in motion in the 1980s in the direction of technology-intensive production methods will be key elements in the future of the industry, as they continue to contribute to favourable growth prospects. In order get the desired results, the European Community has set up research and development programs in which all countries, those both inside and outside the EC, can participate.

The industry is concentrated in particular areas such as Baden-Württemberg, Bavaria, and North Rhine-Westphalia in Germany; the Paris basin in France; the northern and southwestern parts of Italy; and the West Midlands and the northwestern region of the United Kingdom. These regions are increasingly gaining in strength as companies from other Member States and from outside the EC set up plants there. Investments in Spain in this category have increased greatly in the past years as a result of the low cost of labour in this country.

By rationalizing their production, companies in this category are trying to save costs to become internationally competitive. The opening of the European market will permit them to achieve large economies of scale and spread their variable costs over a large number of clients.

b) Mechanical Engineering Products

The European Community is by far the world's biggest producer of mechanical engineering products. The success of this category of the industry lies in the fact that it combines microelectronics and highly efficient and precise mechanics. In 1989, shipment value was 210 million ECU while consumption value was 180 million ECU for a net export value of 30 million ECU.

Description of the Industry

The mechanical engineering category of the industry supplies traditional capital goods and related components. Its clients are active in all sectors of the economy, ranging from farming, energy, and industrial sectors to government services. This requires a broad-based production, able to take on unit manufacture, such as ball bearings, as well as a wide variety of machines, such as automatic lathes, robots and hydraulic dredgers. The fitting out of complex industrial installations, such as cement plants, is another area in which the mechanical engineering category is active. It is a very diversified industry, and the traditional view according to which the industry manufactures mechanical devices to transform energy is one of the

past. New hydraulic, pneumatic, micro-electronic and laser technology has given renewed impetus to mechanical engineering, thereby fostering innovations in production.

Moreover, today there is a beneficial trend to combine machines and processes within increasingly bigger systems. The term mechanical engineering is now being viewed as out-of-date in describing today's machine manufacturing industry.

Broadly speaking, machine firms have extensive expertise in adapting to the specific needs of their clients. For this reason, a number of machines with special capabilities have been developed. Small-scale and single-piece manufacturing is of top concern and large-scale manufacturing is the exception.

Structure of the Industry

The EC's mechanical engineering industry mainly comprises small and medium-sized businesses. The average size of firms is 110 employees, similar to the mechanical engineering industry in the U.S. and Japan. The industry's extensive production diversity and its high degree of specialization in single-piece and small-scale series production give it a competitive advantage. No changes have been observed in recent years, and all indications are that the situation will continue, even after the completion of the Single Market. However, a growing trend has been noticed on the part of non-EC firms to buy a stake in EC firms in order to gain a foothold in post-1992 Europe. To date, no major merger has taken place. According to a survey conducted in Germany's mechanical engineering sector, only 5 per cent of businesses planned to strengthen their situation through takeovers with a view to consolidating their position in the Single Market. On the other hand, 21 per cent of the firms surveyed expressed the desire to set up co-operation agreements in preparation for the Single Market. This latter strategy would probably best suit the EC's small and medium-sized businesses.

Environmental Protection

Generally speaking, mechanized production does not seriously threaten the environment. Noise has traditionally been considered the most worrisome problem. Today, thanks to steady improvements in production techniques and processes, noise has been sharply reduced. However, certain processes, such as hardening and galvanizing, can cause serious harm to the environment. In the trend toward lesser vertical integration of production, these processes are increasingly carried out by experts outside the machine production category. In general, costs arising from environmental protection in this area are relatively low.

Moreover, there is a strong demand for new capital goods for environmental protection, a trend that offers new possibilities for innovation and boosting of yield.

c) The 1992 Single Market

The 1992 Single Market will offer many attractive opportunities, and businesses hope to secure more outlets for their products; however, they can also expect stiffer competition. These two considerations should prompt them to invest more in new technologies. Preparations for the Single Market have already revived investment in recent years.

Spending on R&D in machine production has also been given greater priority in the run-up to 1992. The resulting production innovations are crucial for achieving greater competitiveness in this area. Microelectronics and automation have radically altered a great many production methods. The machine production industry both supplies and acquires new production technologies that help to step up productivity and strengthen competitiveness. In addition, supplementary investment in new technologies has a beneficial impact on

employment. This is especially true for the machine production industry, which, after an extended decline, has staged an impressive come-back that will continue in the medium term.

In both categories of the industry, changes have occurred in the EC since the announcement of Europe 1992. Some concentration with international involvement is occurring in the industry. This is due mainly to companies outside the Community who wish to position themselves in the market prior to 1992. These companies seem to choose Germany and Italy as their prime targets. In fact, annual mergers and acquisitions have almost tripled from 1983 to 1987. This is shown in Figure 13.

3. EUROPE 1992: EFFECTS ON CANADA'S INDUSTRIAL PRODUCTS AND SERVICES SECTOR

3.1 Structural Changes

Of the 20 Canadian-owned companies with operating subsidiaries in the EC recorded by ISTC, approximately 13 have an office/warehouse/manufacturing operation in Europe. This is a low number compared with the 250 Canadian companies (including subsidiaries of foreign-owned companies) exporting to the EC.

Import opportunities for firms without a presence in Europe are expected to be adverse. The measures following integration will cause these firms to lose markets. Europe 1992 might have a negative impact on these companies, and if they do not react quickly enough, they might find the market more difficult to penetrate.

The changing market conditions in the European Community will have an impact not only on the Canadian companies present in the EC, but also on those that are only exporting to EC countries or have no business at all with the European countries. These expected impacts are presented in Chapter 5.

The rationalization and the lower costs achieved through economies of scale by the European companies will make it more difficult for companies that will remain of small or medium size to operate in the electrical and electronic engineering products industry. This could affect most of the Canadian firms since they mainly have one or two subsidiaries in the EC and very few have made a move to increase their presence in Europe. Some companies could take advantage of the opportunity in Europe and merge with others to increase the number of countries in which they have some activities. However, they are still in a better position than companies only exporting to the Community since these firms may not be able to take full advantage of the opening of the European market (outside Community firms will not be treated as equal to Community companies).

In the mechanical engineering category, European companies are generally ahead of Canada in terms of technology. They invest a greater share of revenues in R&D than do the average Canadian companies. Two possibilities therefore exist for Canadian companies present there. Either their market share will decrease because they cannot follow the pace of the European companies invading the market with new personalized and well-designed products; or they will take advantage of the opportunity of being in a technologically advanced market and transfer the technology to the Canadian companies' plants.

Most Canadian firms with subsidiaries in the EC in this category are evolving into a specific market "niche." In order to remain competitive, their efforts are concentrated on a very small market segment. This appears to be the best way to compete in the European market since companies can concentrate on giving the best products to their customers. With the opening of the borders, it will be easier for these companies to enlarge their market to more than one or two Member States. As long as these products embody the latest technology, firms will take advantage of the European opportunities. One has to consider that a market "niche" is not a one-product line. What is reflected here is to have a specific market target with sufficient diversity to minimize risks.

3.2 Changes as a Result of New Regulations

a) Technical Standards

With the elaboration of new European standards, it is essential that Canadian companies servicing global markets ensure that their products qualify under these new

international standards. This necessity will also apply in Canadian markets since domestic companies will be faced with increased competition from countries currently conforming to international quality standards.

Canadian firms support the EC's unified approach to standards as a way to liberalize the movement of goods throughout the Community. Some managers believe that the EC will, or may, use the standards and criteria for certification and testing procedures as a way to hinder market access for Canadian, American and Japanese exports. This process will be an instrument of the so-called "Fortress Europe." These managers believe that one way for the Community to protect its companies is by setting standards and, especially, certification and testing procedures that are so difficult to reach by third countries, that it would make penetration of the Community market more difficult. This fear is understandable since the emission of new standards can be perceived as a way to protect the European industrial market. Up to this moment, the European standards adopted by the standardization bodies are for the most part either identical or close to the international standards. This fact should at least offer some guarantees as to the accessibility of the European market.

However, legitimate fear arises from the fact that there is no system in place whereby products certified in Canada can enter the European market without further certification. This could complicate matters for Canadian firms exporting to Europe. It is still unclear if standards testing and certification will be awarded or remain private, or be done sufficiently quickly to allow Canadian firms to gain significant market shares. This is yet another incentive for Canadian firms to have a presence in the EC.

b) Government Procurement

The rules on government procurement will permit non-EC firms to bid on public tenders. In fact, projects that were destined only for national firms will be awarded to competitive Community companies or non-EC companies, as long as they meet a local content requirement of 50 per cent in the "excluded sectors" or meet technical specifications that should be given with reference to EC standards in general.

Possibilities exist for Canadian firms to obtain contracts in Europe by working with European companies or perhaps with American firms that already have European subsidiaries. In subsectors such as large electrical equipment, wire and cable and switches for telecommunications centres, and office equipment, the impact of Europe 1992 on government procurement will be quite significant. Part of the 1992 package is the new proposals on the following sectors, that is transport services; production, distribution and transmission or transport services for water and energy; and telecommunications. In such subsectors, it would be potentially profitable for some Canadian companies to open a subsidiary in the Community. However, if bids are in other than the above subsectors, companies will have to meet local content requirements of 50 per cent, even if the subsidiary is considered to be European.

New government procurement policies should open up a large market for third country companies, but especially for companies that are present in the Community.

c) R&D Programs

By investing large sums of money and by structuring their R&D programs, the Europeans are trying to narrow the technology gap between the Community, on the one hand, and the U.S. and Japan, on the other.

Europeans are already investing heavily in R&D. It would appear that, with such programs, they will be able increasingly to dominate the market and, eventually, to be of serious competition for Canadian companies in domestic markets.

On the other hand, Canadian companies in the EC will be able to participate in the R&D programs and transfer the technology to their Canadian operations as long as the research is conducted from an EC base and they are part of a European joint venture without participating directly in the research. Some companies do not have to be in the EC to take advantage of these R&D programs. Because of these regulations, it appears that it will be more difficult to transfer technology for Canadian companies without a subsidiary in the EC.

To protect Canadian industry, it seems that Canadian companies should invest more in R&D and develop the manufacturing of products in association with European companies so that they can gain a leading edge. It would appear that the Canadian government could help in this type of process. In fact, there is an ISTC program that helps Canadian firms to acquire technologies in Europe.

Another way to take advantage of the opportunities created by the 1992 project is to establish a joint venture or an alliance with a Japanese firm in Europe and to take part in the R&D programs and transfer the Japanese technology to the plant in Canada.

4. RISKS AND OPPORTUNITIES

Europe 1992 will alter the relationship between Canada and the countries inside the Community. Instead of having 12 different trade policies, only one will remain. This new policy will bring opportunities as well as risks to the Canadian industry. Canadian managers fear the new testing and certification procedures, as well as what is known as "Fortress Europe." "Reciprocity," "national treatment" and "anti-dumping" are terms that have been brought up in the negotiations among the 12 countries of the Community.

Furthermore, this new trade policy will have a direct impact on the trade flow, the investment opportunities and the technological development and will affect the structure of the industry.

4.1 Direct Impacts of the Regulations

a) Testing and Certification

Canadians, in general, are supporting the unification of standards in Europe as long as Europeans subscribe to international standards. These standards will make it easier for any product to move within the Community since harmonized standards and the mutual recognition principle will allow a product that complies with *the* set of rules to be sold freely within all EC Member States. The apparent problem for Canadian companies is exporting to the Community. How can they have their products certified for the EC market? How long will the delay last? What market share will be lost in the interim? These are questions that remain to be answered. Is a Canadian certified product good enough for the European standards? This last question encompasses a legitimate fear since EC companies often have a more advanced technology than do Canadian companies in the industrial products and services sector.

This could represent a major adaptation problem in some areas such as wire and cable and large electrical equipment, as well as in agricultural machinery, heating equipment, valves, and medical electronics.

It seems that, in most areas, the best way to resolve problems related to standards would be to have a subsidiary in the Community and to be considered as European in cases where one has to face the European standards only.

b) Fortress Europe

National protectionism has been the rule for quite a while now in Europe. Each country is trying to protect its own industry through non-tariff barriers. Europe 1992 is intended to eliminate this national protectionism, but there is some fear that it might bring "European protectionism" instead, through some modern non-tariff barriers.

By strengthening its use of anti-dumping actions and an uncompromising demand for "Reciprocity," the EC is making it difficult for non-member state countries to export their products inside the Community, especially if the Community does not have large, established trade relations with the country.

Reciprocity

The principle of reciprocity is the corner-stone of the EC's foreign trade policy. One does not know exactly how this principle will be applied. Its meaning may vary, depending on the sector to which it applies. "Reciprocity," "national treatment," and "similarities of opportunities" are all terms used to describe this policy. The rationale behind the Community's attitude is that it will try to obtain from its main trading partners benefits similar to those that non-EC companies will enjoy following the opening of the internal market. It will try to reach agreements with third countries ensuring comparable and effective access

for EC enterprises to the markets of these third countries. Mr. Jean Caillot, Chairman of the French Electronic Industry Association and President of Thompson International, stated that the Community must ensure that it is not easier for non-EC competitors to cross European boundaries than it is for European companies to break into the competitors' home market.

Fortunately, Canada's trade policy has been recognized throughout the world as very liberal. This will make it difficult, almost impossible, for the Community to deny the access to Canadian products.

Hence, what began as a fear might turn out to be an advantage for some firms in certain sectors.

National Treatment

This policy stipulates that a foreign-owned company will be treated as "one of mine if it is the same for my companies in the foreign country." The national treatment will be required by the Community for a foreign-owned company to do business there. This will provide an opportunity to position Canadian companies advantageously since it is already the policy that Canada has adopted.

It will ease the access of the European market for Canadian firms willing to open subsidiaries inside the Community.

Anti-dumping

The anti-dumping action is the practice of imposing duties or other trade constraints on foreign producers that sell products below their home price. These measures are used more and more in the international markets. The application of anti-dumping duties to some products is quite often a "political" decision. However, the EC has adopted an anti-dumping regulation in accordance with the GATT's anti-dumping code. This regulation enumerates the conditions under which anti-dumping duties can be imposed. Global trade balance is not one of these factors. Anti-dumping regulations can be applied more or less severely as a means of "regulating trade" between trading partners. The EC has been identified by some members of the international community as being quite aggressive in this respect with regard to a number of products.

It is believed by some that, in order to avoid criticism by its trading partners on its uses of its anti-dumping legislation, the Community has been drafting rules of origin with the intention of using them as an instrument of foreign trade policy. These could have the effect, for example, of redefining the origin of some goods transformed in Canada as being of Japanese and not Canadian origin, hence making their import into the Community more difficult, since Japanese goods are often subject to trade measures.

As an example, a product might no longer be considered Canadian if it is assembled in Canada but most of its components were made in Japan. The Community is redefining what is the "last major transformation" of a product and what the conditions are that make it a product of one country versus the product of another. However, as the regulations have not been adopted yet, it is impossible to identify the variables of major importance for Canadian entrepreneurs.

This reorganization could apply to a number of subsectors, especially in the electrical and electronic engineering department, in areas such as large electrical, office and automated equipment. It is difficult to estimate the impact of such rules. If the European Community decides to enforce them, Canadian companies must be prepared to open a subsidiary in the EC or at least to develop an association with European firms.

4.2 Indirect Impacts of the Regulations

Europe 1992 involves a series of approximately 300 regulations, of which more than 120 have already been voted on

and approved. These regulations will have a major impact on the European Community and its trading partners. The regulations will also bring indirect impacts on variables such as the trade flow between the two entities, the competitiveness and the investment opportunities. In the following paragraphs, an analysis of some of these key variables and their impacts on the Canadian industrial products and services industry are examined.

a) Trade Flow

The exact impact on the trade flow of the industrial products and services sector is difficult to determine. It is likely that Canadian companies established in the EC will take the opportunity to increase their clientele by distributing their products to a greater number of countries. Assuming that some of the products or components are manufactured in Canada, this practice would help the trade deficit. On the other hand, however, the European companies are growing, especially in the electrical and electronic category, and may be able to produce some products at much lower costs. Rationalization and economies of scale will permit them to introduce new products at very affordable prices.

There could also be a positive trade flow for Canada coming from companies exporting to the EC. After 1992, those companies that have passed the new ruling on reciprocity and anti-dumping will now be able to export their products over all the Community territory. These factors should enable them to increase their sales figures and, at the same time, work positively on the Canadian trade deficit with the Community in this sector.

From what has been seen in the past few years, the trade balance with the EC is decreasing every year, and it is very unlikely that this trend will change. The easiest way for Canadian companies to enter the European market will be to take a special "niche," small market segment and try to cover a large part of this segment in the Community.

b) Increased Movements of Rationalization

Europe 1992 has already begun to affect the European industry. Mergers and acquisitions, rationalization and joint R&D programs have been implemented and this will continue. European companies, especially in the electrical and electronic engineering category, are already changing the "rules" of the game. They are seeking to reach international competitiveness as soon as possible. Over the long term, this could decrease the Canadian positive trade balance with the Community and also with the third countries, since European firms should become more aggressive in countries outside the EC.

The European sector is already a major international trader, and it is expected that, with Europe 1992, it will increase its presence outside the Community. North America seems to be an ideal target for it.

c) Investment Opportunities

Canadian investments in the EC in the industrial products and services sector have been very minor, as noted earlier, with only 20 companies having subsidiaries and only 13 having an official warehouse or manufacturing operation in the Community.

The opening of the European market will permit better access between Community countries and thus favour investment in the EC. Canadian firms will not have to invest in more than one subsidiary, since they will be able to move their products throughout the Community with only one subsidiary. However, some programs, such as R&D, might require two subsidiaries in the EC in order to take part in these programs. The opening of a European subsidiary could be a very wise investment, especially in industries such as wire and cable, large electrical equipment, agricultural machinery and construction

equipment, since these areas are influenced by variables such as high overseas transport costs and/or low profit margins. The opening of a subsidiary in the Community would permit Canadian companies to do business in a market of 340 million people.

It is expected that Canadian entrepreneurs will take advantage of this opportunity and thus increase the level of Canadian investments in the Community. However, the future of European investments in Canada is still unclear. It is expected that European investments will increase in the long term due to technological capacity. Europeans should open new subsidiaries in Canada in order to take advantage of the North American market. Being able to produce high-tech products might permit them to gain a share in Canadian and American markets.

d) Technological Acquisitions

The easiest way for the Canadian industry to acquire technology from the more advanced EC industries would be by participating in their R&D programs. This could be done in three ways:

1. by creating a subsidiary in the Community. Some questions regarding regulations that are still unclear still need to be answered (for example, whether two subsidiaries are necessary in some cases).

2. through the EUREKA program, which permits technology exchange between Canadian and European firms.

3. through mergers and acquisitions. Mergers and acquisitions could be possible in the electrical and electronic engineering category, since most of the companies were working on a national market and are currently trying to develop strategies for staying in business when the barriers fall. A number of strategies have already been implemented, and it is imperative for Canadian firms to react as soon as possible.

It is unlikely that technology transfers will occur on a short term basis. However, if Canadians can achieve joint ventures or acquisitions in the EC, the repercussions could occur quite quickly.

5. STRATEGIES

Canadian companies, whether they are active in Europe or not, will need to take constructive, thoughtful action to defend themselves against more aggressive competition from European companies and will need to exploit the opportunities that an integrated European market has to offer.

The forces governing changes in Europe are specific to each industry, and effective responses must be specific to each company. Thus, strategies proposed here do not pretend to be valid for every enterprise. Managers should analyse their environment before using the proposed global strategies. Companies will each respond differently to Europe 1992, but it is important that they pay close attention to the accelerated development in Europe.

The strategies developed hereafter are set for four different types of companies: multinationals operating in both Canada and Europe, Canadian companies with one subsidiary in Europe, firms exporting to Europe and firms that do not have any commercial links. General strategies that the industry should adopt are then discussed, followed by a look at the five subsectors previously analysed.

5.1 Level of Presence in the Community

a) Multinational

Very few multinational companies in the industrial products and services sector are Canadian-owned. Three challenges face these companies:

Taking advantage of the opportunity for improved productivity. Multinational companies must be able to achieve rationalization by lowering organization costs and realizing efficient marketing and sales. The elimination of the European barriers should lead them to greater economies of scale. Variables such as the location and rationalization of plants are becoming more and more important.

Competing with European companies. European companies will have the same opportunity to rationalize and achieve economies of scale. Some have been moving very aggressively in the past few years to consolidate their position in the European market. This is especially true in the electrical and electronic engineering equipment category, where a number of joint ventures, mergers and acquisitions have recently taken place.

Dealing with Customers. Multinationals are now marketing their products on a national basis. Each office is responsible for a small number of countries and specific marketing exploitation. Now, local tactics will lead the way to pan-European strategy. It will still be important to analyse local needs and target appropriate advertising companies, but the main priority will be to create an efficient marketing plan. Even though the actual number of branches may decrease, multinationals must not forget that they are still dealing with 12 different cultures.

If a company can take care of these three challenges, there are good opportunities in Europe 1992. Mechanical engineering product firms should try to rationalize also. Even though custom design seems to be the way to deal with customers right now, it is still possible to reduce plants and cut costs in order to achieve small economies of scale.

b) Corporations with One Subsidiary in the EC

Canadian firms with one subsidiary in the EC will generally face the same challenges as most European businesses, especially medium-sized and smaller companies that dominate the mechanical engineering category.

These companies will face stiff competition from firms with high technology. Since the market is controlled by small and medium-sized companies, it appears that Canadian firms could realize opportunities in this area by taking advantage of special segments of the markets. Services and custom-designed products that capitalize on core technological advantages are the keys to success in the mechanical engineering products industry.

For the electrical and electronic engineering products industry, Canadian subsidiaries will face a rapidly evolving market in which waves of mergers, acquisitions and rationalizations are already on the way. European companies in this category are getting bigger and better and achieving international production scale.

Canadian subsidiaries will compete against larger European firms. These larger firms will use their economies of scale, reputation and stronger research and development capacities to penetrate the market. They will try to move into local markets and push aside smaller companies.

Some of the subsidiaries may already feel the increased presence of the European competition. As a result of the recognition of new standards and the opening of the European frontiers, National European companies will start doing business with other countries, and this may take away some of the "niche" market currently occupied by Canadian firms.

A Canadian-owned subsidiary faced with these risks has several choices: expansion, formation of a strategic alliance, rationalization or selling out and withdrawing.

Expansion. Those companies already in Europe can take as much advantage of the situation as the multinational ones can. They can decide to expand throughout the territory of the Community. They would then face the same situation that the key companies in Europe face.

Acquisitions or mergers can involve a major commitment of capital. The larger firms would then be positioned to play on the same level with the European leaders. In order for this to succeed, companies must already be large in a non-EC country and have a solid marketing and sales network built on an established reputation.

Strategic Alliance. A strategic alliance does not require major commitment of capital. Companies would seek alliances with others to join R&D or cross-marketing of products. In taking equity in the other company they will either take advantage of selling their products in new countries or locations, or being part of an R&D program that would permit them to stay on top technologically.

If it is possible for a firm to find a partner with enough synergy in its products, this approach should be a good one.

The strategic alliance approach requires contacts, substantial knowledge of the European sector, and a willingness to sacrifice the freedom of an independent business. Although it seems to be a good way to approach Europe 1992, it is not (yet) a popular approach.

An additional approach is to create a new company that will take care of all of the products coming out of the alliance. However, there are some disadvantages, such as losing some control on the sales of the product, not acquiring as much reputation as the company should, and losing money when trying to sell your partner's products.

Rationalization. Rather than concentrating on many products and one country, the rationalized company would consolidate its activities to gain from a pan-European market in a more specialized product line. This can lead to more international

specialization and better use of "just in time" inventory practices.

This appears to be what most small and medium-sized firms in the industrial products sector (especially mechanical engineering products) are currently contemplating. It will permit the company to operate in a special "niche" market where it has a certain competitive advantage and technological edge.

One must bear in mind that a narrow market brings some risks of limited exposure. However, by focusing in a specific segment, companies should be able to keep their edge over multinationals that have to support higher costs.

Selling Out and Withdrawing. Selling out or withdrawing is sometimes the only option, especially for companies in the electrical and electronic categories already facing difficulties in the Community.

Even though this is a very difficult decision, it is one that managers will have to make if they do not wish to lose more money in the future. Managers will have to analyse the current situation and determine if they can survive in the new market.

There are no general scenarios that can be presented. In each case, it is the managers' decision to determine which approach to use. They will have to take a long look at themselves and their sector and then choose the appropriate way to face Europe 1992.

c) Firms Exporting to Europe

Firms exporting to Europe will face the same market changes as those with a subsidiary in the EC. Competition will be tougher, companies will increase in size, and new products and technology will be necessary to satisfy customers. Furthermore, these companies are facing two uncertainties that could affect the rules of the game by 1992.

First, the definition of mutual recognition is still unclear. The Community is talking about products manufactured in the EC. This would mean that Canadian-based companies may not have the same easy access to European countries that European firms have. In fact, it is unclear as to how easy it will be for Canadian products to enter the European market as well as to move from country to country.

This fear was mentioned previously in this report under "Fortress Europe." It is still possible for the European Community to impose new constraints on importers.

Second, as internal barriers fall, the competitive advantage of all companies within the community will improve, with respect to the Canadian producer.

If firms still wish to do business on an equal scale with the European countries, it appears that they will require a European presence. This can be identified in three different forms: European branch, acquisition and strategic alliance.

European Branch

When opening a European subsidiary, firms will have to ensure that they hire people who know the "European way," the European culture and European needs, as well as European regulations. Although they may have done business in Europe before, these companies are not automatically aware of the potential difficulties on the European market. They must be ready to adjust their products to please the European customers everywhere in the Community by designing and changing technological output in order to gain a share of the market.

Acquisition

This is a good way to enter the European market. Operations start instantly, since there are already good knowledgeable European employees in the company. The

problem with this approach is that it requires a great deal of capital. Identifying a good company to buy is not an easy task either, especially in the electrical and electronic category where a number of acquisitions have already occurred and where the companies are already of respectable size.

Strategic Alliance

A joint venture with a European firm can be an easy way to enter this market. The major problem encountered to finalize a joint venture is the lack of attraction the Canadian company offers to the European one. All strategic alliances must be profitable for both parties. Generally speaking, Canadian technology is not up to the level of European. However, in some sectors where there is good Canadian technology, such as large electrical control systems and environmental equipment, some European companies would listen carefully to a Canadian offer.

In each case, the administrators will face the same problems that managers of Canadian companies in the EC are already experiencing, that is, rationalization or full penetration (see 5.1b).

d) Companies with No Interest in Europe

Some companies that have found the European market too fragmented could decide finally to open a branch there (with the elimination of the barriers). This is the case for intensive capital industries such as large electrical equipment, machine tools and boilermaking. Since Europe will represent a large unified market for companies in the Community, the temptation to be part of the global market will increase. It would not be surprising to see some Canadian firms take an interest in this market.

In most cases, Europe 1992 could have a negative effect on external companies. This situation is true in the electrical and electronic engineering category, where European giants will try to penetrate the North American market. The companies with no interest in Europe should keep an eye on the development in the EC and should be aware of the presence of these European giants, who could come into North America and steal a large market share of Canadian companies.

In June 1990, the Canadian High Commission in London requested a study on the impact of the different routes chosen by Canadian companies to enter the European markets. The following overview outlines the major results of this study, entitled *Link 1992*.

5.2 Different Routes to Having a Presence in The Community

a) Strategic Alliance

The strategic alliance method gives quick and easy access to unknown and sometimes closed markets. It reduces the fears of the management in facing a new market. It is also a good way to get to know a company before a more formal partnership. It gives access to a new way of thinking, marketing and managing.

However, this kind of understanding brings uncertainty due to the looseness of the agreement. Each partner still has the possibility to evolve on its own and to offer its services without involving the other party. There is also a risk of being spied upon by the other firm. Spying happens frequently when one firm has a real technical advantage over the other.

b) Joint Venture

The joint venture route is one of the most sought after. The principal advantage of this method is that it allows exploitation of synergies between the companies. It decreases the risks of market entry into a new market or a new sector. It is also an efficient way to learn other management methods.

The disadvantages are the loss of freedom (the company does not have as much control as with an independent operation) and the possible clash of cultures (the difficulty of adjusting to a new business language and to new ways of thinking and dealing.

c) Acquisition

The acquisition method is a quick way to begin doing business in Europe because it allows immediate gain of market share and of goodwill. It reduces much of the uncertainty associated with setting up greenfield operations in a foreign country. Most important, acquisition is a quick way to break into a market with high barriers to entry and established players. The problems with acquisition are of two natures: time and size. First, considerable time must be spent on adapting the acquisition to the parent company's management style and culture. Second, when a company buys another one, it takes on both the good and the bad aspects of the company. It must find a way to handle these bad aspects of the purchased company.

d) Greenfield Investment

Companies that are opening new subsidiaries in Europe can benefit from a number of advantages such as the possibility of starting with the newest equipment and technology, complete freedom of moves and orientations, and the possibility of making a fresh start on corporate image.

However, these companies are facing a big challenge since they need to find their own customers, suppliers and employees in an unknown environment. These facts greatly increase the risks related to the European activities of the company.

e) Some Recommendations following the Decision to Go to Europe

In order to facilitate the European operations, it is recommended that the company hire part of the senior management from the country where the company has its office and lawyers from the Community, since these lawyers will be aware of the European regulations.

In the event of an acquisition or a greenfield investment, the operations should start pretty small to give the company time to adjust to its new environment.

It is important to understand that North Americans and Europeans are quite different and that, to communicate, different marketing and communication tools are needed.

On a long term basis, the company has to work on the concept of corporate citizenship in order to have everyone working in the same direction and in the same spirit. This can be realized by sending Canadian people to Europe and vice versa.

5.3 Public Policy

a) Presence in the EC

For the benefit of Canadian firms, the government *must* support the firms in need of a European presence. Programs are already in place, but need to be publicized more. For most entrepreneurs in small and medium-sized companies, opening a branch overseas looks like an impossible task.

Companies in Canada do not have many models of their compatriots doing business with Europeans. This is one reason why the government's role is so important. Government agencies should help to make Europe a more accessible market.

b) R&D Programs

European firms are far ahead of Canadian firms in the mechanical engineering products category. It is imperative that Canadian companies invest more money in order to reduce the technological lag.

Ways to make companies invest more in R&D must be found. One way is through government R&D programs. Government assistance can either be in the form of full financing, a joint firm-government program or a research centre for the industry sponsored by the government. The form that financing will take is not as important as the actual research. Canada has been losing ground for 25 years. One of the keys is to have more R&D within the firms and less by government entities. There is a need to have better returns from what was done in the past. There are government programs designed to support R&D, such as the Technology Opportunities in Europe Program (TOEP) to access EUREKA, which provides assistance for joint-venture R&D with European firms. There are also R&D investment tax credits that contribute directly to the bottom line of firms carrying out or sponsoring qualified R&D.

5.4 Strategies by Subsectors

a) Agricultural Machinery

This subsector has been depressed for an extended period of time. Most farm-machinery manufacturers throughout the world continue to experience financial difficulties as they try to maintain market share and survive.

Remaining Canadian companies are mostly tracking with the United States. They remain technologically and cost competitive despite low capacity-utilization and limited financial resources. There are no large Canadian firms left in this subsector; however, there are good specialized companies. These companies, mostly found in the western provinces, are operating either with a specific type of equipment or with the equipment used by the majority of companies in a specific agricultural subsector. They export most of their production to the U.S.

The European industry is built on the same basis as the Canadian one. More than 3000 small companies are trying to sell very specific products in a shrinking market. In fact, there are seven big multinationals in the world that are selling more than 60 per cent of all the agricultural products (in terms of value).

For a company that is not part of these seven firms, the best option is either to sell parts and products to those seven companies or to sell products to local users. It is very difficult to export large pieces of equipment because of export costs.

It would appear that very few Canadian companies would be able to take advantage of the changes occurring in Europe.

One must be careful in analysing the European market since Canadian-designed equipment is not always suited to the type of crops and agricultural practices that exist in Europe. On the other hand, as European firms are struggling as much as Canadian firms to survive, it would appear that joint ventures might be an interesting concept for farm equipment companies. In fact, we already have seen this approach taken between North American firms.

b) Electrical Equipment: Electric Generators and Motors, and Engines and Turbines

Sales of companies involved in this subsector are mainly made in Canada and the U.S. Exports of this equipment to the EC are minimal. Development in this subsector is highly influenced by national standards. Because of the European market segmentation that creates separate national standards, Canadian firms are not present in Europe.

Firms in this subsector seem, however, to be positively influenced by Europe 1992. In areas such as large custom-built electrical products (hydrogenerators, turbines, power transformers and switchgear), the main customer is the government. Member States have a policy of supporting local manufacturers.

Canadian-owned firms will probably have a chance to acquire some business in Europe if they have a subsidiary in the Community. It should be noted, however, that a number of moves have already been made and that firms are growing larger and stronger. Firms have established contacts with the procurement entities of each European government. An alliance with European firms, in specific sectors where Canadian technology is comparable to the European one, would then be the best way to progress in this market. The prime targets for alliance are firms nationally oriented or protected by the state since they already have a regular client.

In the electrical equipment subsector (power hand tools), imports supply more than half the domestic market. Canadian firms, with the exception of a few large ones, are not internationally competitive; it would appear that very few opportunities will open up with Europe 1992.

Firms should concentrate on improvements in the North American market to compete with European firms that are exporting aggressively in Canada.

In the small and integrated horsepower motors sector, exports to the EC are minimal. This trend is unlikely to change given the well-developed European industry. An increase of the European presence is foreseen in Canada since European companies will achieve new economies of scale and will thus be able to support export costs more easily. It would be hazardous for Canadian integrated horsepower motor companies to expand (by opening a new branch) in Europe since the competition in that market is already ferocious.

Electrical wire and cable products are largely frozen out of European markets because of utility purchasing practices and standards requirements. Europe 1992 will open up opportunities in this area, since community standards and purchasing policies will be adopted.

However, for Canadian firms to succeed in this area in the Community, they will need a presence in Europe. There are three main reasons for this: such products cannot support ocean-going shipping costs because of the low value-weight ratio; the purchasing policies will permit firms in the EC to take part in the bidding; and companies would be able to take advantage of the large market with a small geographical territory. This should make a change from Canadian sales whereby the industry is geographically fragmented. This area is dominated in Canada by three companies -- Canada Wire and Cables, Northern Telecom and Phillips Cables Ltd. -- of which the first two are Canadian. Canadian products that are competitive internationally are the higher technological products, such as power and telecommunication cables. Companies manufacturing these products in Canada are the most likely to enjoy success in the Community.

c) Material Handling and Construction Equipment

This is a mature subsector, with 106 enterprises in Canada, mostly controlled by U.S. subsidiaries. There are very few large Canadian companies. During the past five years there has been an important increase in exports to the EC, mostly from U.S. subsidiaries.

Technology and worldwide markets are the two most important variables in the material handling equipment subsector. European companies are becoming stronger, and it would appear that this trend will continue with the rationalization under way.

In order to remain competitive, smaller Canadian firms will need to develop strategies involving technology transfers, international licensing and joint ventures, and modern production methods. Canadian firms must find a way to increase their size in the country. They will need to

achieve economies of scale so that they can compete on a worldwide basis.

Most of the Canadian companies should therefore put emphasis on the domestic market before going into Europe. However, it remains that technological leaders could envisage going into Europe with specific products. Canadian products that are the most likely to compete in the European market include conveyers and handling systems as well as heavy-duty bridge cranes, vehicle-mounted cranes and hydraulic winches. Strategic alliances or joint ventures would be the best ways to enter the Community. The major constraint is finding an adequate partner.

In the construction equipment subsector, the international market is very narrow. Tools are more or less the same in Canada as in Europe. However, there are some market segments in which Canadian firms have a technological edge over their European counterparts. These segments include large construction equipment such as road repair equipment.

It is necessary to mention here that very few Canadian companies in this subsector would be able to enjoy success in Europe without a joint venture or European partnership. Regular contacts are very important in order to introduce some new products to the construction groups.

d) Resource Industries Equipment

Besides the "other industrial sectors," which include numerous products, this subsector is the most active in international trade. It includes very diverse industries ranging from oil and gas field equipment to pulp and paper and mining equipment.

Oil And Gas Field Equipment

This is a an industry characterized by a large number of small, mostly Canadian-owned firms, as well as by branch plant-type foreign subsidiary operations. The majority of these Canadian-owned companies are nationally oriented, serving the needs of the domestic market, and when they do export, they are not exporting to Europe but to third countries such as the U.S.S.R. and China.

The key elements essential to a strong and internationally competitive industry are product reliability and available after-sales servicing, competitive manufacturing costs, state-of-the-art technology, continuing R&D and a sound financial structure.

The U.S., the U.K., France and Italy are the main international competitors. These countries currently all have national policies favouring their domestic market. With Europe 1992, there might be difficulty maintaining these policies, and this may open the door for some Canadian companies in certain specialized market niches.

The oil and gas equipment used for exploration, exploitation and distribution is basically the same throughout the world. However, some companies such as ESSO Resources have developed new technologies and new designs of products that make them more attractive and more useful to the users.

Due to the climate and the geographical structure of Canada, Canadian firms have developed specialized products and have become international leaders in very specific segments of the market. These products include engineering and pipeline system design, equipment for drilling in difficult environments, quality control equipment, environmental control, energy conservation devices and sour gas technology.

Canadian manufacturers of these products should seriously consider enlarging their market outside Canada. However, it might be difficult to take a big part of the European market since the market for the above-mentioned products and services is very nationally protected. This does not mean that Canadian firms should not expand to Europe. On the contrary, being

on the European territory might facilitate access to other world oil and gas markets, such as the U.S.S.R., Eastern Europe, the Middle East and Indonesia.

These countries have currently been doing more business with European companies than with North American ones. Thus, a presence in Europe could open the door to a much larger market.

Mining and Smelting Equipment

The Canadian mining equipment industry competes quite successfully in the international marketplace, with the exception of certain markets such as Europe and Brazil. The problems with Europe are the non-tariff barriers such as "required use of components sources from the buying country" and preferential buying practices. These factors combine to virtually exclude Canadian mining equipment and services from the European market. Furthermore, other countries can export to Canada without paying any tariff (duty-free).

The Canadian mining equipment industry is technologically competitive worldwide. In fact, Canada has developed leadership in high-technology geological exploration, reduced labour mining methods and high-efficiency smelting techniques. This sector's strength is its ability to respond to the high degree of product innovation demanded by the mining industry. Because of the custom-built nature of mining equipment, flexibility is more important then are economies of scale.

This industry is highly characterized by strong international competition. In many cases, foreign companies receive financing from their country to export their products. Canadian companies do not have this financing and must perform in an environment without tariff protection. It is reasonable, therefore, to assume that imports will continue to capture a large share of the Canadian market. This makes the export market -- in which innovation and technological advancement have a significant role -- even more important.

Europe 1992 may have an important impact on the Canadian mining equipment and services industry. With Europe 1992, the non-tariff barriers between those countries will not be as serious a problem as before, since preferential buying practices from government will be prohibited or at least more regulated. It should then be easier to sell Canadian products in Europe.

It would appear that a good way to sell Canadian products in the EC is to have a subsidiary that would use Canadian components. The present EC tariff structure has, generally, lower tariffs on components than on finished products. Since we do not know what the tariff barriers will be for countries outside the Community, we will expect them to be generally the same. It also seems probable that, if companies want to be recognized as "European firms" and take advantage of the non-tariff customs, Canadian firms will need to establish a manufacturing unit inside the Community.

The "required use of components sources" regulation will be extended from the buying country to the entire Community, but will not likely be dropped.

Wood and Pulp and Paper Equipment

According to ISTC industry profiles, there are about 50 companies operating in the pulp and paper equipment industry in Canada. Canadian subsidiaries of foreign-owned companies account for approximately 80 per cent of the Canadian industry's shipment. Those firms are highly dependent on their parents for technology and do very little R&D in Canada.

The world market in this industry is controlled by a small number of international giant companies that have amalgamated with and/or acquired smaller companies with complementary technologies and manufacturing capacities. As a result, several smaller Canadian companies that

had developed an expertise in selected markets have been bought out by international firms.

The key factors influencing competitiveness in this industry are quality, technology and price. Canadian pulp and paper machinery manufacturers have developed the technical expertise to compete in both the domestic and overseas markets. The smaller Canadian-owned companies are very active in the export market. They are keeping pace with the international technology developments by investing in their own R&D programs. Even though the Canadian-owned companies are export-oriented, very few Canadian goods are sent to the EC (less than 1.5 per cent of total shipment or 4 per cent of total export). They are exporting mostly to the U.S.

Although Canada imports more equipment than it exports, the Canadian pulp and paper equipment industry has world-recognized capacities in manufacturing competitive equipment for the chemical pulp and paper part of the industry. It also has excellent capabilities in equipment in the mechanical pulping area. The Canadian industry is renowned for the quality and the technology of its products. To keep this image, Canadian firms keep modernizing their facilities and upgrading their product through R&D.

The principal source of export outside North America in this subsector is the Canadian consulting engineering industry that specializes in pulp and paper technology. This industry usually spearheads Canada's participation in overseas projects where Export Development Corporation (EDC) is involved. These are the kinds of companies Canadian manufacturers will want to reach an agreement with in order to bid for international contracts.

The European sector, on the other hand, is the biggest in the world in terms of production and exports. Germany is leading the Community with shipments of ECU 1134 million in 1987.

It is difficult to penetrate this market since it is a very small one in terms of purchases. Since the number of forest acres inside the EC is very small, Member States do not buy much equipment compared with important producer countries. Major customers in this subsector are companies in the Scandinavian countries such as Sweden and Finland, as well as African countries.

Europe 1992 will not have an important impact on this industry since the important moves have already been made and since this market is oligopolistic in nature. Recent amalgamations have resulted in the domination of three major refiner manufacturers. This means that, in order to perform well in this market, companies must be large enough to take advantage of the same economies of scale that the leaders enjoy.

In this particular area, mergers and acquisitions might not be a very good idea for Canadian firms. A venture with complementary European firms in order to get contracts from government throughout the world in association with a major consulting engineering firm seems to be the best way to take "advantage" of the European development.

e) Other Industrial Equipment

This subsector incorporates such a wide variety of industrial equipment and services, that it is impossible to analyse them all in this report. Nevertheless, some of the most important segments will be examined.

Environmental Equipment

More and more attention is being given to the environment. This is reflected in an industry that is growing at a fast pace. Here again, the key factors for competing internationally are technology and price.

Canadian firms are technologically competitive with the rest of the world. The Canadian industry is perceived abroad as being a leader in environmental matters; however, the Canadian involvement in export markets has been minimal to date. In fact, one study estimated that 20 manufacturers and 20 service firms are already active in environmental products export.

Export markets appear to have a number of attractive features that might make them promising options for Canadian suppliers. The growth rate of this industry throughout the world is one of the primary attractions. Estimation of growth in the past five years (1986-1990) for the worldwide industry has been calculated to be around 40 per cent. Experts expect another impressive growth in the next five years (8 to 12 annually). Thus, other foreign markets such as the European Community may be attractive to Canadian exporters.

The market value of the countries inside the EC for the environmental protection market totalled 52 billion Canadian dollars in 1987. Of this total, 48 per cent was for water treatment projects, 27 per cent for solid waste and 21 per cent for pollution control. The biggest market inside the Community is Germany, followed by Italy and the U.K.

The European market is very fragmented, with over 9000 small and medium-sized private companies. This large number should make it easier for Canadian firms to penetrate this market or to find a partner.

It is expected that with the opening of the European markets, there will be a large number of mergers and acquisitions, as well as joint ventures.

Virtually all segments of this industry represent a good potential. The most important variable is the technology of the product, since the quality of the work is quite significant. Many Canadian firms could compete adequately in this market in Europe, but most of them are not exporting because they cannot fill the demand in Canada. The Canadian industry imports 56 per cent of the products and services required in this area (90 per cent of this coming from the U.S.) even though the technology in Canada is comparable to that of the U.S.

For companies that have the human resources to expand, it is important to mention that doing business in foreign countries requires sales people who are capable of providing extensive pre-sales and post-sales counselling. Companies wishing to establish their industry in the EC are advised to either establish a consulting or engineering company, enter into a licensing agreement with an engineering firm or co-operate with a consulting engineering or manufacturing company. It would be difficult for a company to make it on its own because of technical standards that are different from Canadian ones and government (either national or municipal) procurement that represents a large part of the market.

The major problem in finding a partner for a joint venture is that local partners are entirely aware that they may be educating a potential competitor through joint venturing. That is why firms with specialized expertise or new technology and/or companies willing to be minority partners may be more attractive to European firms.

Canadian firms appear to have a strong knowledge and experience in market segments such as cleaning water systems, advanced wastewater treatment and air pollution control systems for industrial companies. There are probably a number of small segments in which Canadian firms have a technological advantage over their European competitor. Canadian companies should keep track of the situation in Europe and the new international trends.

Machine Tools

There are several different trends emerging in machine tool technology. Machine

intelligence and performance are increasing the number of digitally controlled alternating current machines, digital controls with micro-processors, and laser cutting that leads to faster, more accurate machines. Other trends are the integration of these sophisticated machines into production systems of whatever type (manufacturing units with loading/unloading points organized around modular machines operated by robots), their standardization and their spread into small and medium-sized firms.

Traditionally, the main client sectors for machine tools have been the metalworking, mechanical engineering, and automobile industries.

In this segment again, the European Community is the world leading producer and exporter. The Canadian industry is parted in two groups: subsidiaries of foreign-owned companies that are strong financially and Canadian-owned companies that are mostly of small and medium size. These firms are often specializing in a very precise segment of this market.

It would appear difficult for most Canadian firms in this part of the industry to be successful in trying to open a subsidiary in Europe. The alliances and concentrations at Community level aim not only to achieve critical size but also to maximize the various specialities within Europe. The European companies are trying to protect themselves from the Japanese companies, but at the same time they make it very difficult for all companies, including American and Canadian ones, to compete in this market.

There are many other market segments that have not been discussed in this report. These include fluid handling and mechanical power transmission equipment and instrumentation equipment. These segments represent small opportunities for international projects since most of these firms have enough difficulty operating in Canada. However, a successful Canadian company should always be aware of the changes occurring in Europe and should try to learn more about the competition and the problems of opening a subsidiary in Europe.

If a company is in Canada mainly because of its technology, it has an even better chance of performing well in the Community.

An EC presence seems to be the primary requirement for taking part in the opening European market that will result from Europe 1992. It is imperative for Canadian managers to assess the situation now and to determine the direction they want to take in the face of these changes -- there might still be good opportunities. Canadian managers must respond to this internationalization and be attentive to the way the European competition is developing.

CONCLUSION

Europe 1992 is a continuation of the direction that Europeans have been moving in to permit their countries to form a strong global market in which companies will need to be cost-competitive.

International competitiveness or specialized "niche" markets would become the key to success in this new environment created by Europe 1992 and its regulations. Europeans are expecting rapid changes in order to help them achieve economies of scale and rationalizations so that they can become leaders in the worldwide market.

These expected changes have already created many corporate moves, such as mergers, acquisitions, joint ventures, or simply the opening of branches. These moves are coming not only from Europeans but also from all the industrialized countries of the world.

Large corporations want a piece of the big unified market, and they are already putting in place a strategy to take their share of the increased GNP that will result from Europe 1992. Of course, 1992 is not a final date after which nothing will happen. Europe 1992 is an objective that has been set by the EC to abolish as much as possible the non-tariff and tariff barriers. It is therefore a target date for which most European companies are trying to prepare and companies that do not have a proper strategy may be penalized.

In the years beyond 1992, the gradual elimination of impediments to trade within the EC will progress beyond tariffs to include non-tariff barriers. The European trade structure will become pan-European. In order to make this trade structure operable, norms and standards will need to be harmonized between the 12 Member States.

Europe's move to unify its standards will understandably have a great international impact, since it has a market of 340 million consumers, a market larger than the United States' domestic market. Chances are that the European standards will become the international standards.

With the impact of Europe 1992 on the rationalization and competitiveness of firms, Canadian firms that do business with Europe will need to adjust in order to remain competitive and to continue to export their products. In addition, with economic growth superior to what is expected in North America and with the dynamism of the market, companies should consider ways to create alliances or some forms of presence in Europe to be considered as European. In any case, companies should inform themselves about the European situation in their respective sectors since European companies can become more competitive on third markets and threaten Canadian performance in Canada and in these third markets.

Although it is still difficult to assess the full impact of Europe 1992, since regulations are still being debated, one thing is certain: Europe has started the process of creating a global market with the creation of the common market. With greater trade liberalization occurring within the EC, there are a considerable number of business transactions that are going to set the pace for the next decade. Canadian companies looking for growth outside the North American continent should develop their own European strategy.

APPENDIX

FIGURES

FIGURE 1

Canadian Industrial Products Exports, 1987

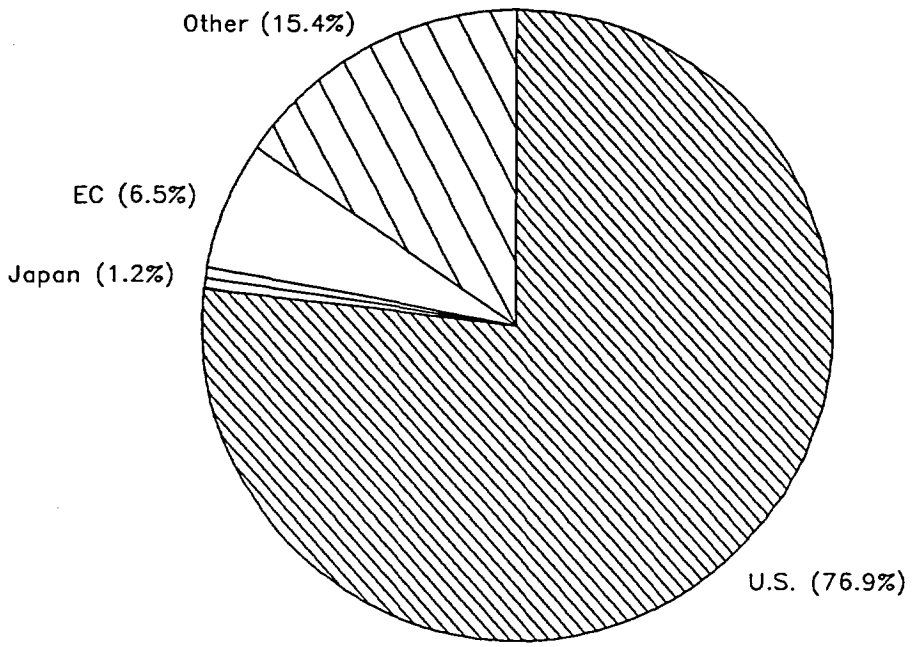


FIGURE 2

Canadian Trade Balance

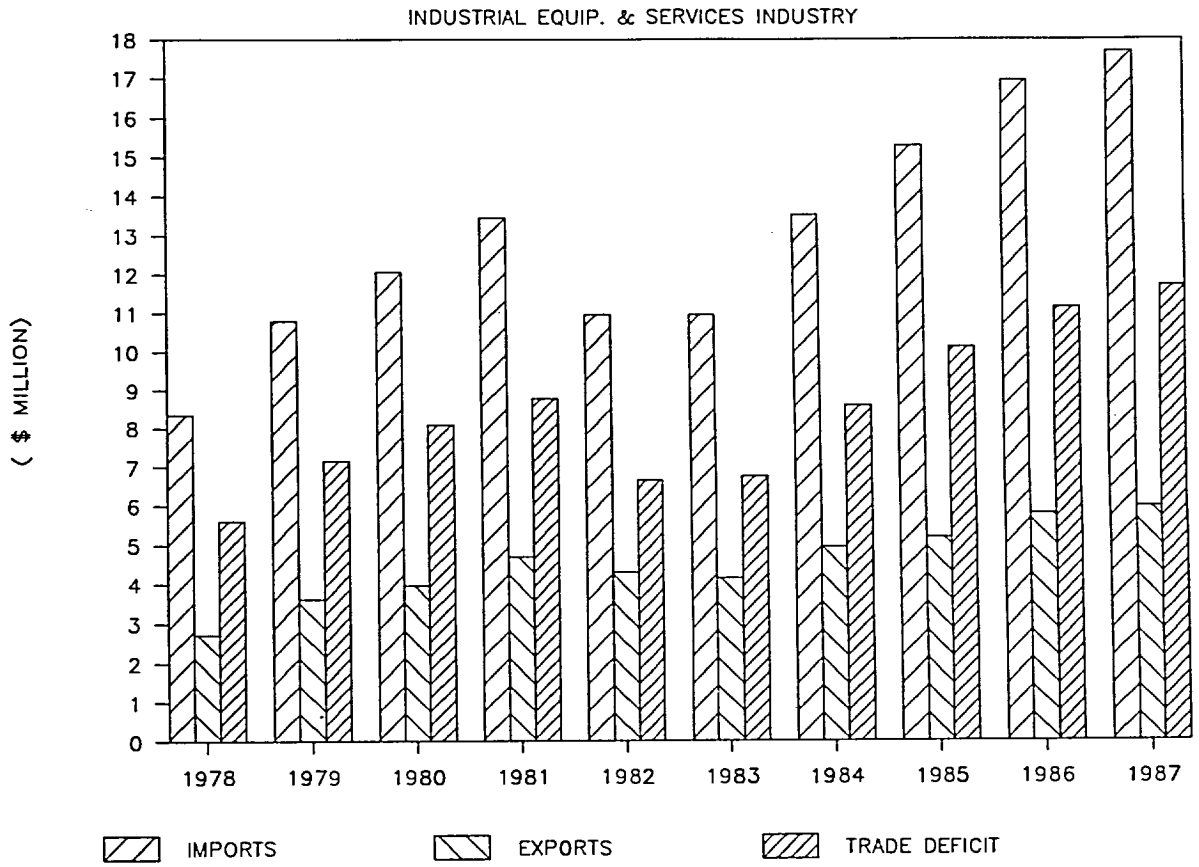


FIGURE 3

Gross Investment in the European Community

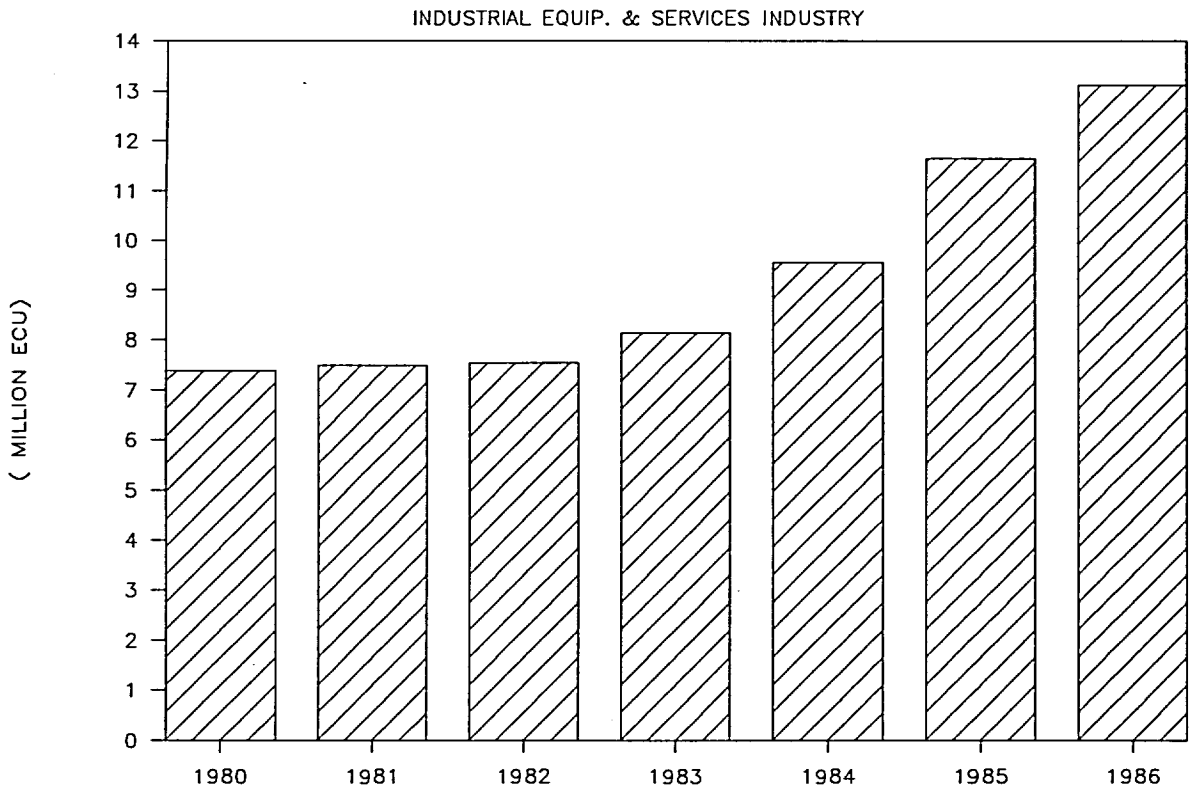


FIGURE 4

European Community Trade Balance

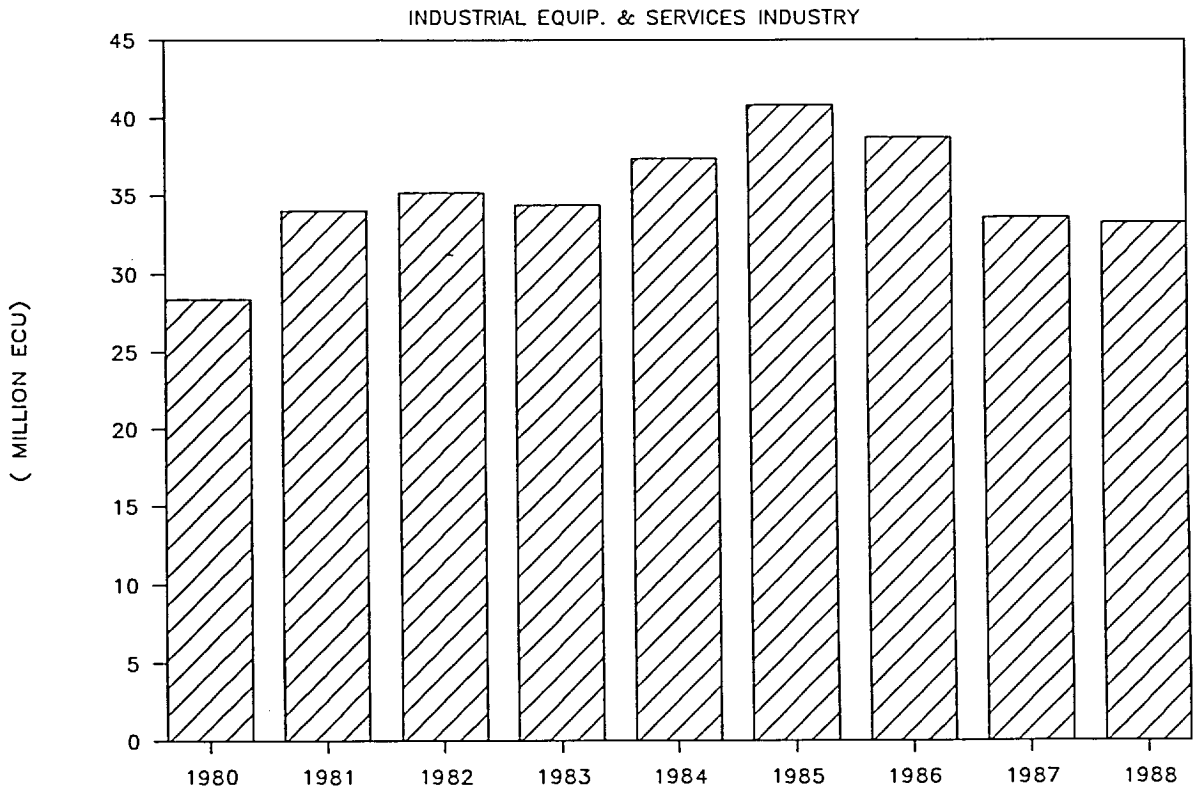
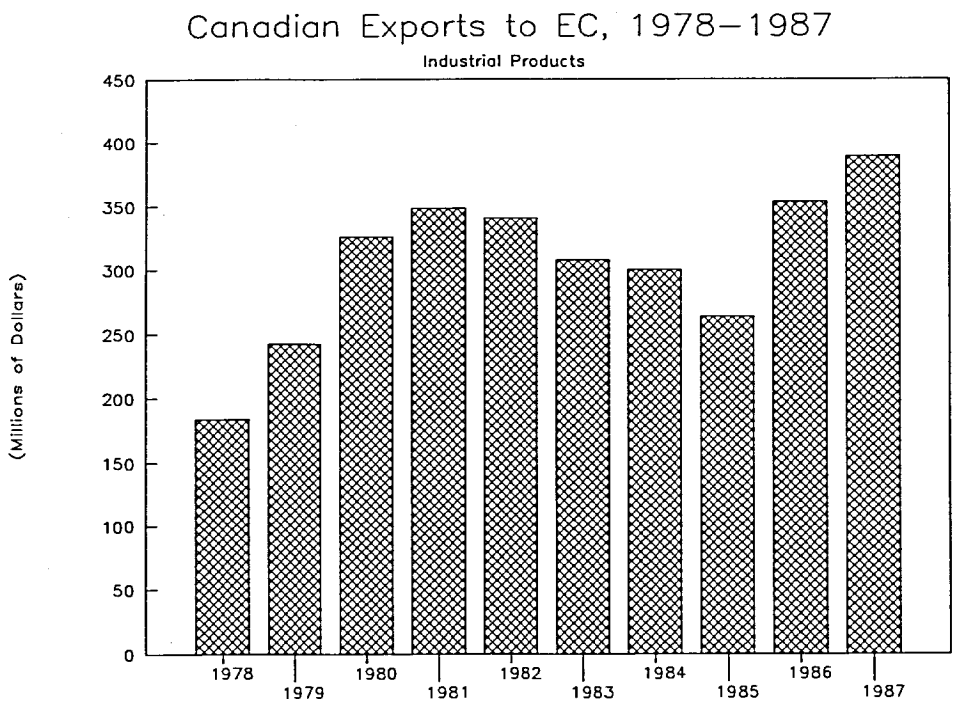


FIGURE 5

Trade Relations between Canada and the European Community



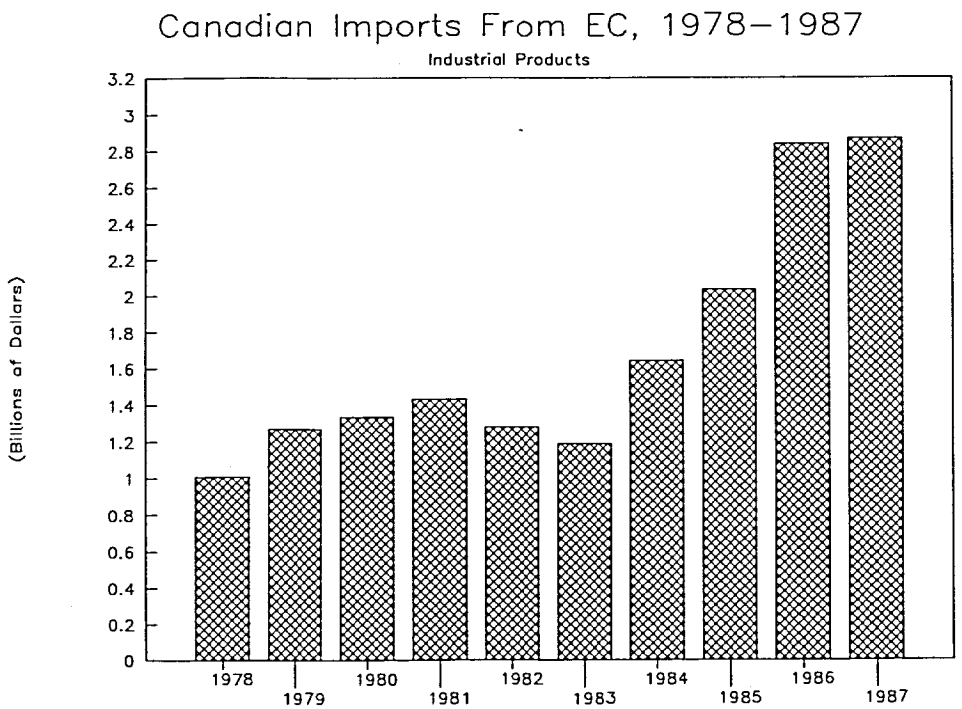


FIGURE 6 (A)

Industrial Products and Services Industries:
Origin of EC Imports, 1978
(as a percentage)

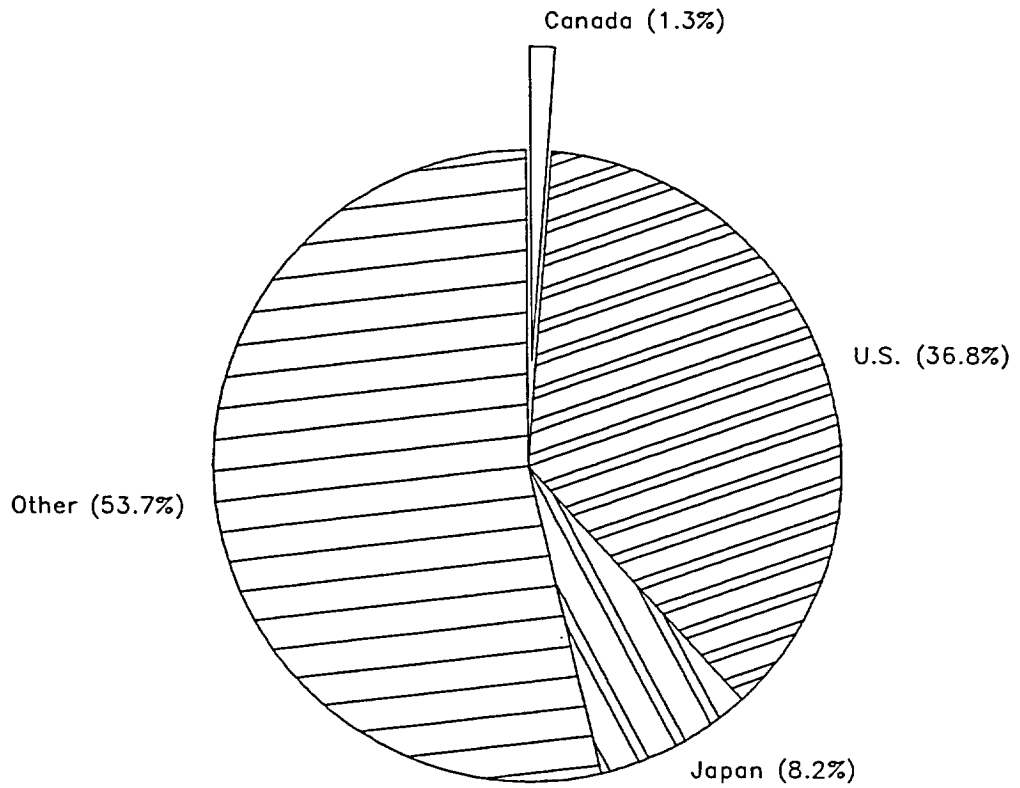


FIGURE 6 (B)

Industrial Products and Services Industries:
Origin of EC Imports, 1984
(as a percentage)

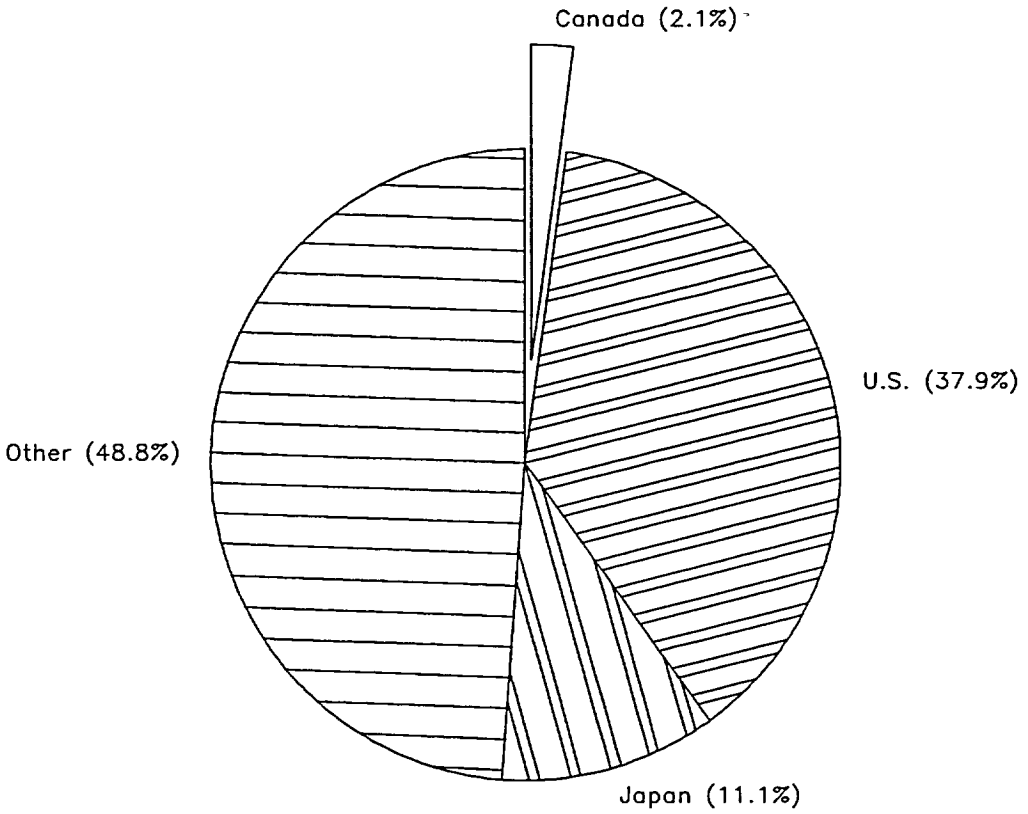


FIGURE 6 (C)

Industrial Products and Services Industries:
Origin of EC Imports, 1987
(as a percentage)

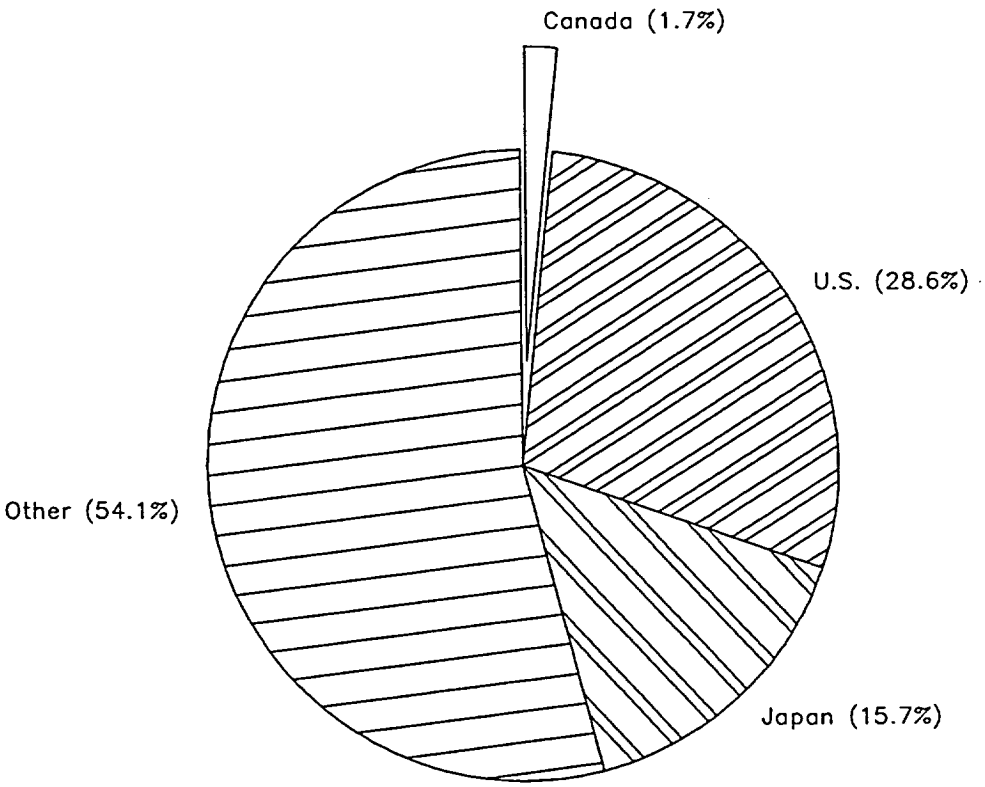


FIGURE 7 (A)

Industrial Products and Services Industries:
Origin of Canadian Imports, 1978
(as a percentage)

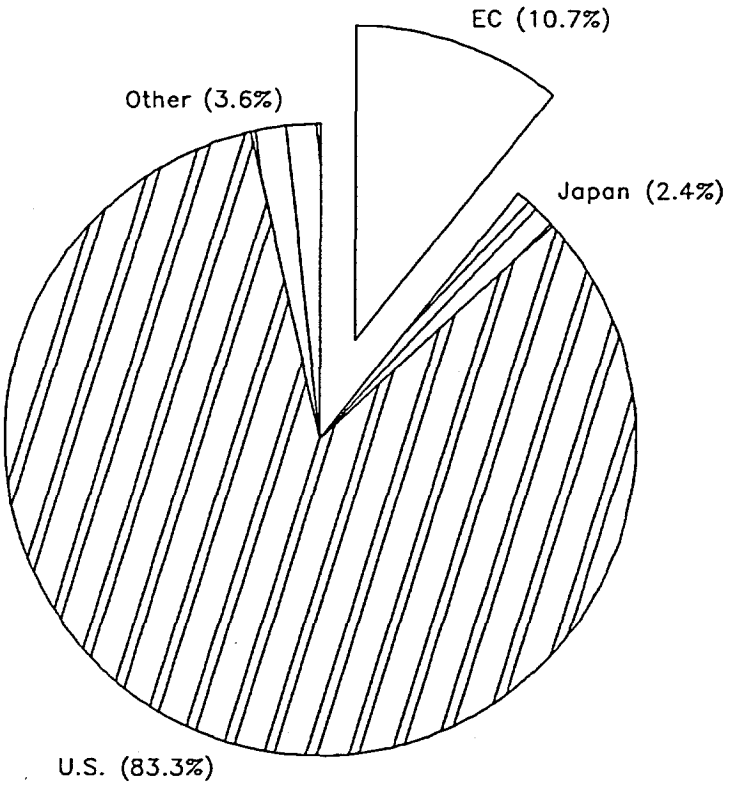


FIGURE 7 (B)

Industrial Products and Services Industries:
Origin of Canadian Imports, 1984
(as a percentage)

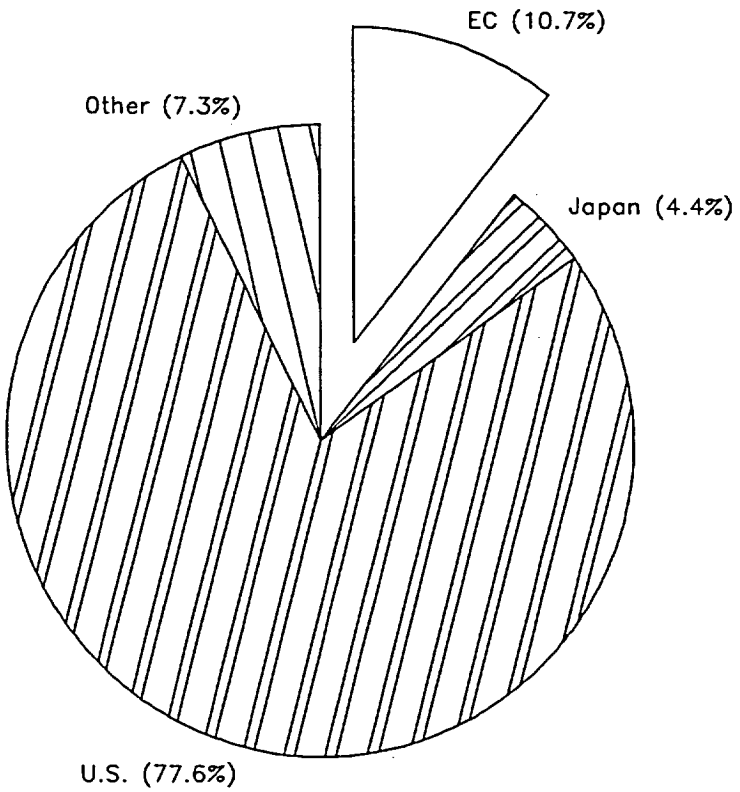


FIGURE 7 (C)

Industrial Products and Services Industries:
Origin of Canadian Imports, 1987
(as a percentage)

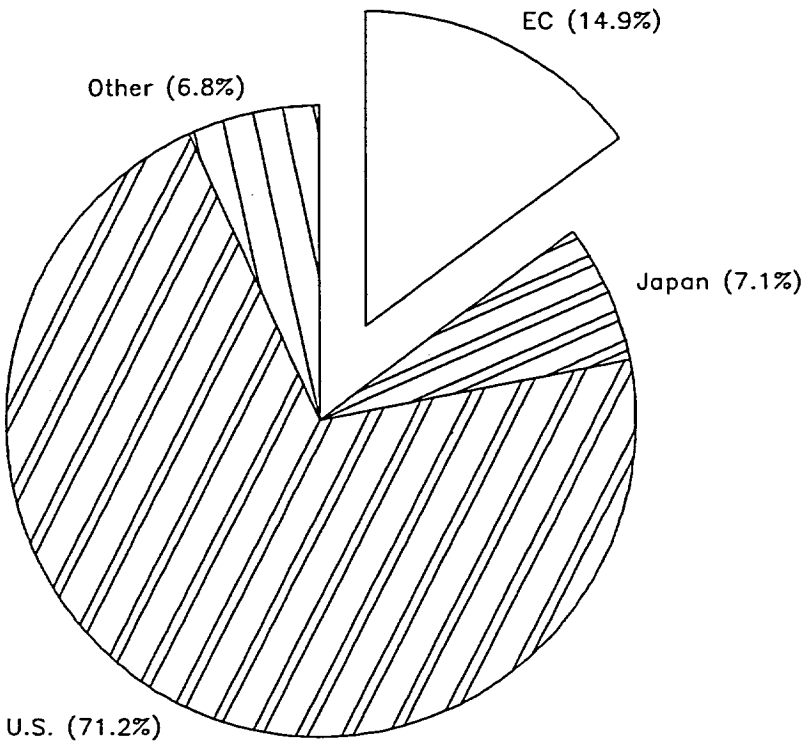


FIGURE 8

Exports to Each EC Country, 1987

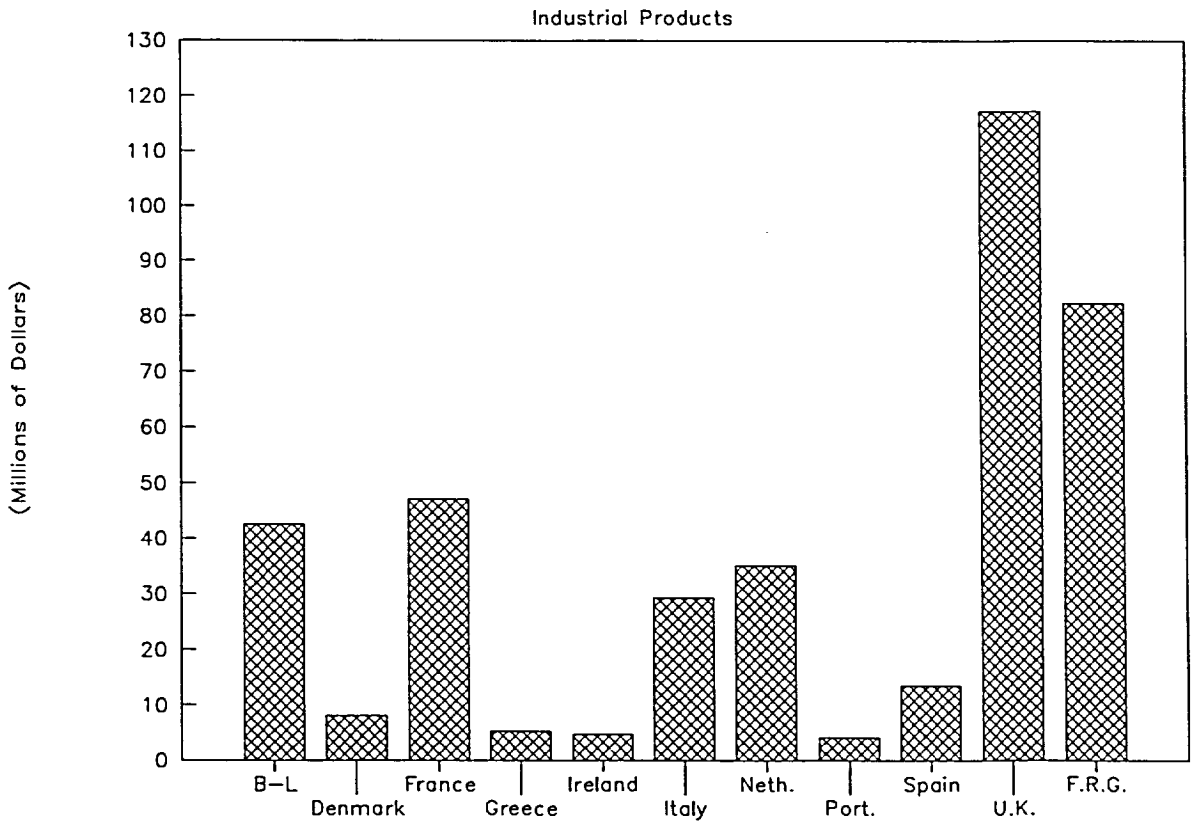


FIGURE 9

Imports from Each EC Country, 1987

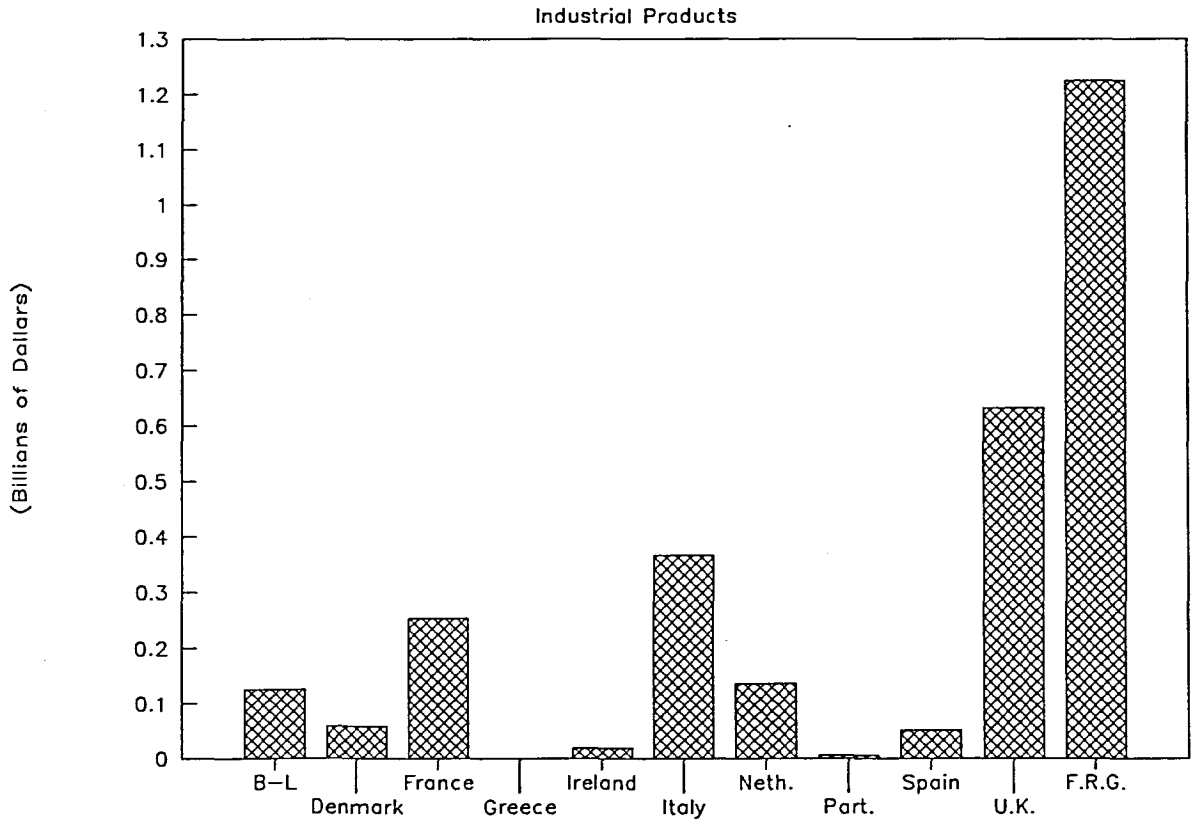


FIGURE 10

Canadian Exports to EC by Subsector, 1987

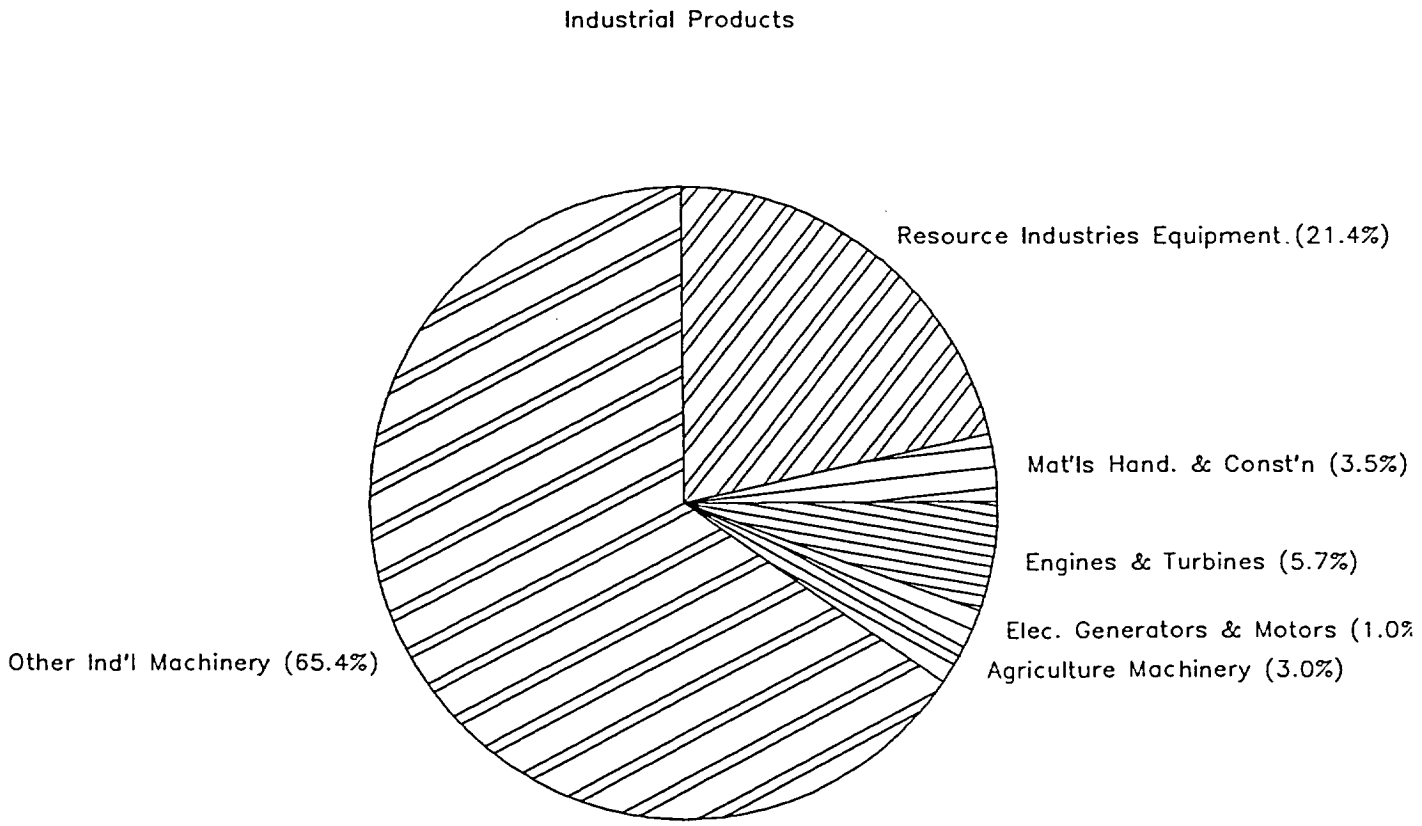


FIGURE 11

Canadian Imports from EC by Subsector, 1987

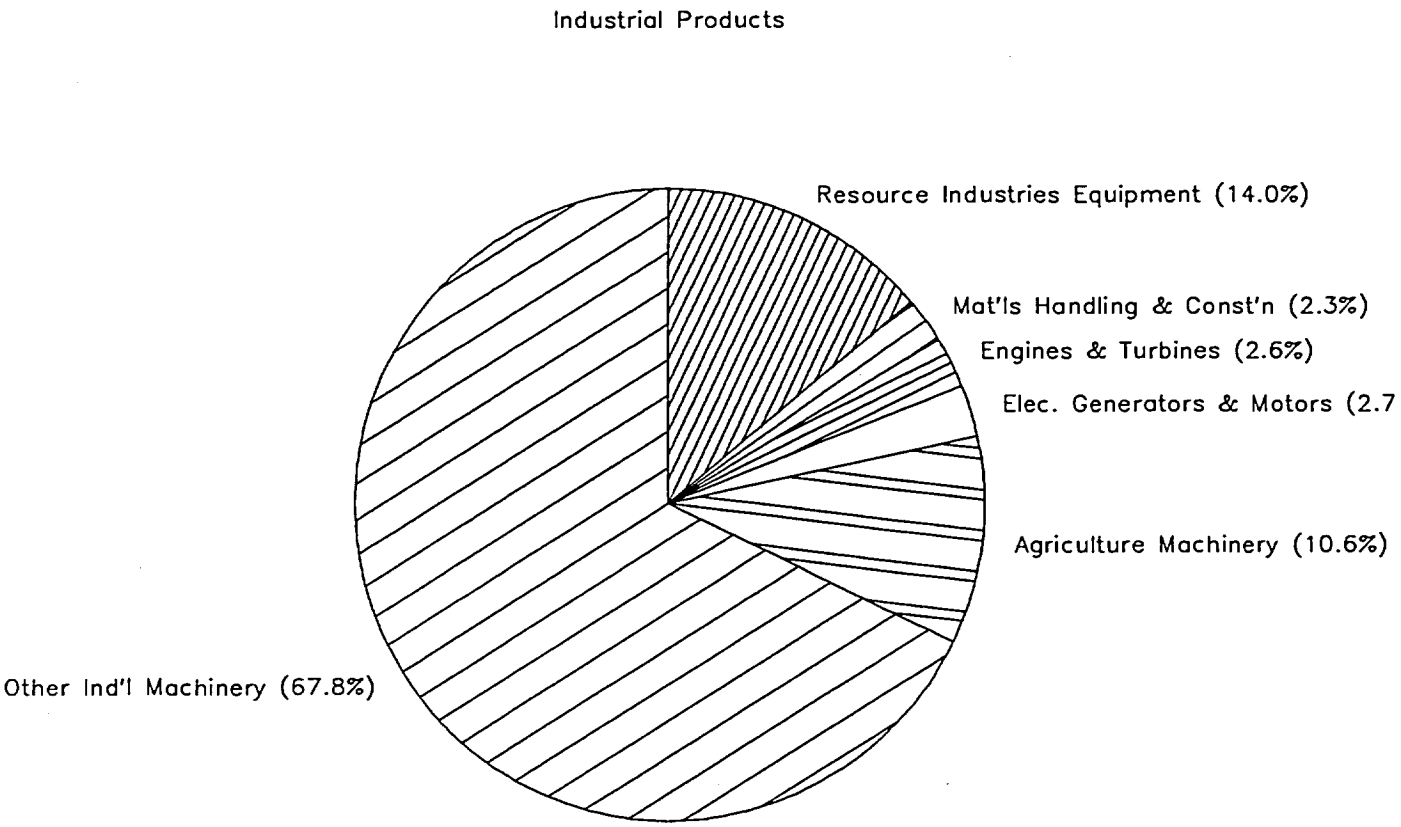
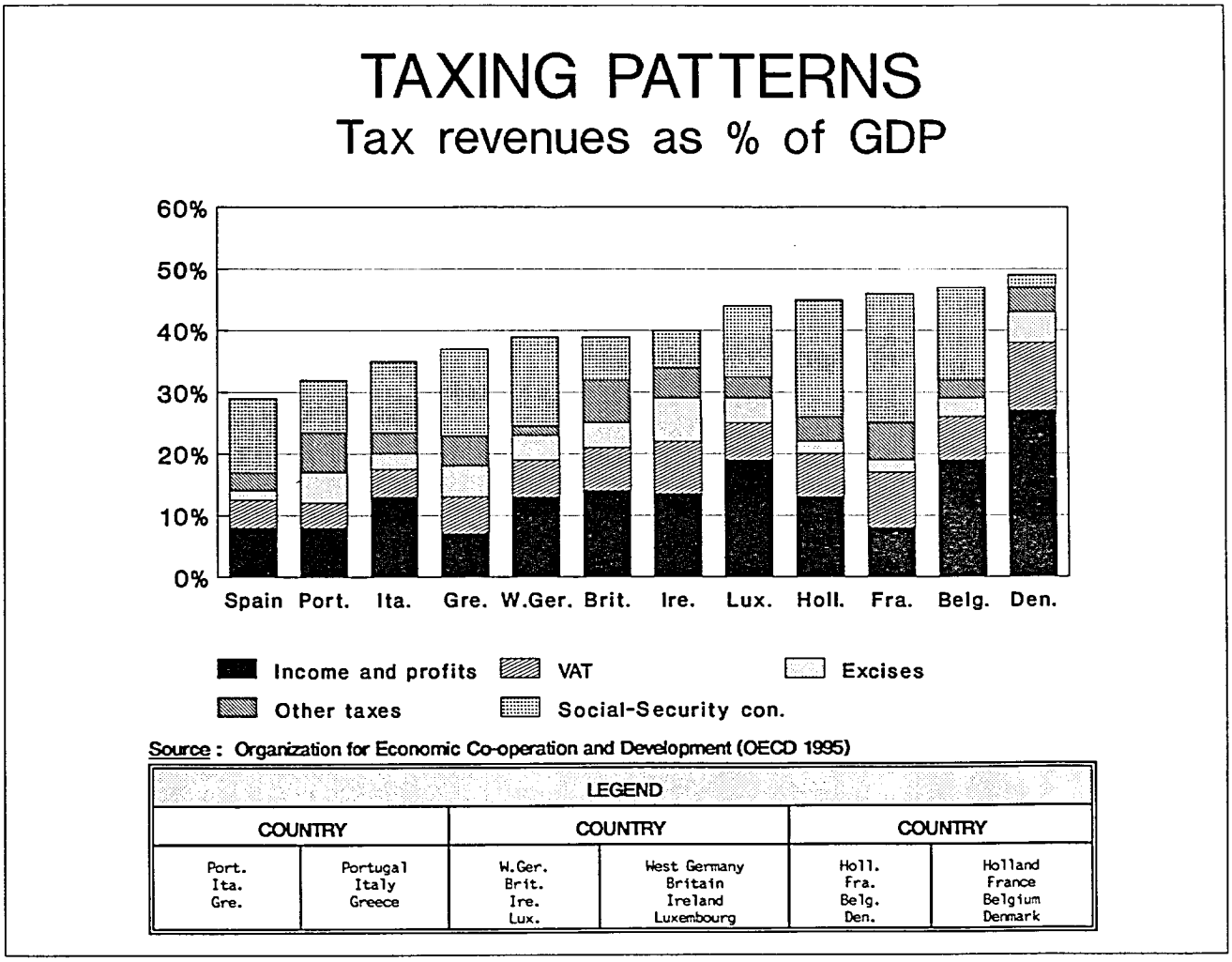


FIGURE 12

Tax Revenues as Percentage of GDP

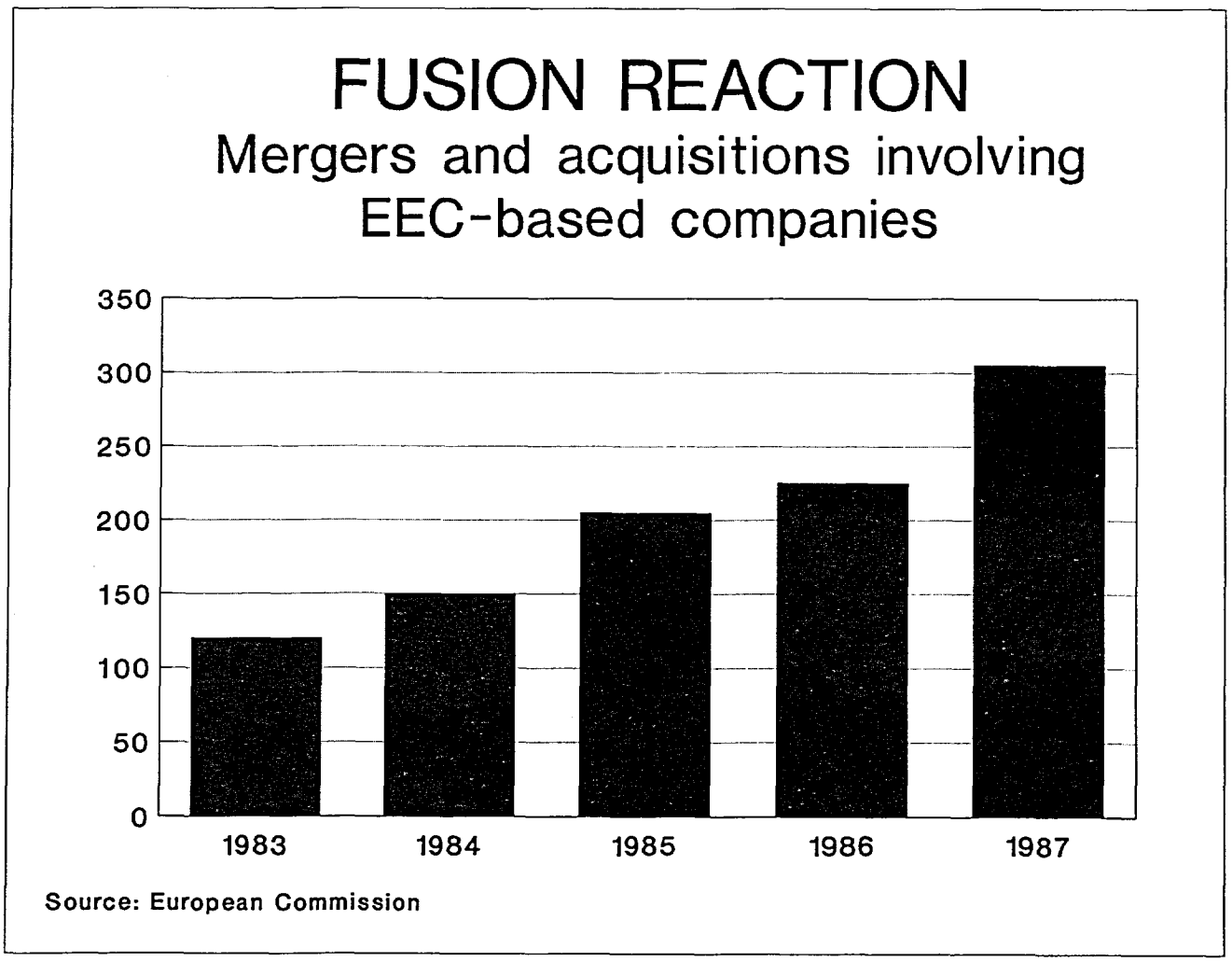


Source : Organization for Economic Co-operation and Development (OECD 1995)

LEGEND					
COUNTRY		COUNTRY		COUNTRY	
Port. Ita. Gre.	Portugal Italy Greece	W.Ger. Brit. Ire. Lux.	West Germany Britain Ireland Luxembourg	Holl. Fra. Belg. Den.	Holland France Belgium Denmark

FIGURE 13

Mergers and Acquisitions



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