

The Economics of the Colour Television Industry in Canada
and
Their Implications for Public Policy in the
Consumer Electronics Sector

by

Gary David Sawchuk

A thesis
presented to the University of Manitoba
in fulfillment of the
thesis requirement for the degree of
Doctor of Philosophy
in
Economics

Winnipeg, Manitoba

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CONSUMER ELECTRONICS SECTOR

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GARY DAVID SAWCHUK

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
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DOCTOR OF PHILOSOPHY

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ABSTRACT

This study analyzes public policy and the economics of the Canadian colour television industry to provide insights into effective industrial development in the consumer electronics sector of advanced technology work in Canada and public policy modernization in light of changing conditions in this sector.

The methodology for the analysis combines institutional, historical and quantitative techniques. First, the institutional characteristics of the colour television industry are established, and its two-phase historical development is described. A cost-benefit analysis is undertaken to provide quantitative insights into the public interest effects of different government policies. Three alternatives for public policy are then identified: protection, free trade, and free trade with industry intervention. Criteria for comparison are established on the basis of government positions and a literature review of the Canadian thought on industrial economics.

Findings reveal that the policy of protection is defective. It imposes high costs on consumers, and results in an efficiency loss, while contributing only modest employment in assembly. Free trade, while better in some

respects, will likely result in the elimination of Canadian consumer electronics. Free trade with industry intervention emerges as the most promising policy for the attraction of Canadian consumer electronics activity because it meets with the present realities of this type of industry: market domination by multinational corporations, the importance of economies of scale and product differentiation, rapidly changing product lines, and the rising importance of developing countries. However, this policy alternative relies on the ability of government to develop and reach agreements with MNCs.

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Goetz, Technical Liaison Officer with the Electrical and Electronic Manufacturers Association of Canada. In addition, some surprising help came my way from the Assistant Professor of Engineering I happened to meet one morning in a Carleton University cafeteria, who shared with me his knowledge of past colour TV manufacturing in Canada at Fleetwood and Sylvania, where he had worked for a period of time during the 1970s.

I received assistance from a number of government departments and agencies. Most of all, I should like to thank Louis Doyle, Project Officer in Electronics and Aerospace, Department of Regional Industrial Expansion. He provided me with information about the industry past and present. Ron Walsh and Edmond Kingsbury of the Department of Regional Industrial Expansion also offered me assistance. Ron Walsh was familiar with the duty remission programs of the past Department of Industry and International Trade. Graham Forrester, an economist with The Tariff Board, helped me to better understand present-day issues and concerns. A. N. Polianski, Assistant-Director of The Tariff Board, assisted me with information about The Tariff Board's past activities concerning colour TVs. I received information about activities of the Anti-dumping Tribunal and present-day Canadian Import Tribunal from Mr. Trudeau of the Canadian Import Tribunal. Richard L'herault of the Tariff Division in the Department of Finance presented me with

background information about the current special tariff measure on imported colour TV parts, and discussed with me past tariff levels and the previous duty remission programs. My research also took me to Statistics Canada, where Jean-Marc Houle showed me much courtesy in providing me with unpublished trade information on imports of TV parts. Lucy Magnus of the Ontario Government Ministry of Treasury and Economics also helped direct me to information about consumer electronics in Canada.

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Chapter I

INTRODUCTION

Manufacturing is important to Canada. In 1984 it comprised 22 percent of Canada's Gross Domestic Product, and in terms of value of shipments, manufactures amounted to about \$226 billion. However, long-term success in manufacturing will depend upon the adjustment of Canadian industry to changing world realities and its competitive strength. Effective development will depend, in part, upon the appropriateness of government policies. Two manufacturing sectors which appear to hold much promise for Canada's industrial future are the natural resources and high technology sectors.¹ The latter includes electronics, comprised of communications and components, computers and office equipment, instrumentation and industrial process control, defense, microelectronics, and consumer electronics. This advanced technology electronics sector

¹ Kimon Valaskakis, "Barriers to the Development of Canadian High-Technology Industries: Who is Responsible," in Ministry of State for Science and Technology, Canada Tomorrow Conference: November 6-9, 1983, Commissioned Papers (Ottawa: Supply and Services Canada, 1984), pp. 1-13.

Alan M. Rugman and S. Douglas, "The Strategic Management of Multinationals and World Product Mandating," Canadian Public Policy 12 (1986), pp. 320-28.

Rugman and Douglas discuss how natural resources will remain an area in which Canadian companies will maintain a country-specific advantage.

has been a focus of interest in government policy in recent years.²

Some of this attention for advanced technology electronics is probably due to the high degree of research, development, design, and engineering involved in this sector. High-skill and high-income activity and employment are widely-perceived to be associated with these advanced technology activities. Research and development (R & D) is also believed to be essential for maintaining and improving Canada's standard of living.³ Moreover, the advanced electronics sector is expected to be a growth area,⁴ and will be important both in respect to providing technology to make other areas of manufacturing more competitive and in satisfying consumers' increasing needs. Yet consumer electronics has not received much attention although it is a

² Please see J. S. Cohen et al., "Chasing the Bandwagon: Government Policy for the Electronics Industry," Canadian Public Policy, 10 (March 1984), 25-34; Industry, Trade and Commerce, Canada, "STEP: Support for Technology Enhanced Productivity", (Ottawa: 1982); Regional Industrial Expansion Canada, Electronics and Aerospace Branch, Corporate Development, Electronics Directorate, The Electronics Industry: Opportunities for Growth (Ottawa: Supply and Services Canada, 1985); and Finance Canada, An Agenda for Economic Renewal (Ottawa: Supply and Services Canada, 1984).

³ Minister of State, Science and Technology, Research and Development and the Budget: A Key to Economic Growth (Ottawa: Ministry of State for Science and Technology, 1985).

⁴ Regional Industrial Expansion Canada, The Electronics Industry: Opportunities for Growth; and D. J. Daly and D. C. MacCharles, Canadian Manufactured Exports: Constraints and Opportunities (Montreal: The Institute for Research on Public Policy, 1986).

major component of the Canadian demand for electronic products.

1.1 THE CONSUMER ELECTRONICS AND COLOUR TV INDUSTRY IN CANADA

Consumer electronics include such items as colour television receivers (TVs), stereos and stereo equipment, video cameras, video cassette recorders, camcorders, and compact disc players. Advanced technology consumer durables such as microwave ovens can also be included because they, too, involve advanced technology and are manufactured by consumer electronics multinational corporations (MNCs).⁵ Canadian demand for new and innovative electronic and advanced technology consumer products is small when compared to the world market for such goods and in particular to the United States market, but is still quite a significant market in its own right. In 1985, Canadian demand for consumer electronics was over \$1.8 billion, and for consumer electrical and electronic products was estimated to be some \$3.6 billion.⁶

⁵ For countertop microwave ovens there is one Canadian manufacturer, Camco Inc., plus Sanyo Industries which makes/assembles these in Canada. Sharp, Toshiba, Hitachi, Matsushita, Samsung, and Goldstar are but some of the major MNC exporters to Canada of this product line.

⁶ Consumer electrical products include such items as home appliances, many of which are not advanced technology. Albeit, some electrical household products are becoming increasingly sophisticated in their technology.

In respect to the growing Canadian market for new consumer electronic items: in 1985, there were some 1.2 million video cassette recorders imported into Canada, at a total value of \$409 million.⁷ Between 1981 and 1984, video cassette recorders showed an average compound growth rate of 110 percent per year in quantity (but 74 percent in value, since unit prices had steadily fallen). In 1984, too, there were over twelve thousand compact disc players sold in Canada (valued approximately at \$3.8 million). For the near future, new products such as large-screen TV, digital and stereo TV and increased use of camcorders and video cameras are expected. Therefore, growth projections for consumer electronics and advanced technology consumer durables are high.

Two decades ago the Canadian colour TV manufacturing industry was a high technology industry with everything from research and design to the manufacture of all parts and components done in Canada.⁸ The Canadian companies produced mainly for the domestic market while parent and other companies in the United States and elsewhere supplied this

⁷ Please see Regional Industrial Expansion Canada, Video Cassette Recorders (VCR's) Except Television Broadcast: Canadian Market Opportunities - Import Profile, pub. no. 64-86 (June 1986); and Regional Industrial Expansion Canada, Import Profile: Compact Disc Players, June 1984 to June 1985 (1985).

⁸ Colour transmission in Canada began in 1966, and colour TV production began to expand rapidly around this time. Research and development were important Canadian colour TV activities until the mid-1970s. This is discussed more fully in Chapter 3.

and other markets.

The Canadian colour TV industry is now made up of small assembly operations of MNC subsidiaries but, by value of sales, colour TVs are still the most important consumer electronics activity in Canada. In 1985, the value of colour TVs sold in Canada was \$435.9 million; forty-nine percent of this sales volume was from sets assembled in Canada.

In Canada, significant difficulties were experienced by the colour TV industry in the mid-1970s. Up until this time, the industry employed thousands of engineers, designers and production workers. The production was mainly for the domestic market while their MNC affiliates served other markets. However, by the mid-1970s, imports from overseas increased rapidly. These imports were made in large, export-oriented facilities where economies of scale in key components could be achieved. At the same time, the companies in Canada turned to overseas suppliers for these same components. The MNC parents of Canadian companies removed research and design from Canada for centralization in their main operating area. The Canadian government responded by trying to find a way to help the domestic industry, finally deciding in 1976 that the best it could do was help extend the anticipated phase out of the industry from two to five years. However, the industry turned to just the assembly of colour TVs, and in 1978 the government

decided to protect colour TV assembly. Presently, there are still government tariff measures in place that benefit the assembly of colour TVs in Canada. Pressure from low-priced imports from newly industrialized countries (NICs) is putting the viability of even this activity into question.

1.2 RESEARCH OBJECTIVE

The basic objective of this thesis is to analyze public policy and the economics of the Canadian colour TV industry. This analysis is done to provide insights into effective industrial development in the consumer electronics sector of advanced technology work in Canada and public policy modernization in the light of changing conditions in this sector.

More specifically, the research is designed to answer the following questions:

1. In what context do consumer electronics industries such as the colour TV industry operate?
2. How effective, in terms of the Canadian public interest, has Canadian public policy been towards the colour TV industry?
3. In view of the evolution of the consumer electronics sector, what would appear to be the most promising direction of public policy and industrial development for operations such as colour TV?

1.3 METHOD

A variety of methods will be used to meet the objective of this research. Institutional data will be provided to put the analysis in a realistic setting and an historical presentation will show the evolution of the industry and relevant Canadian public policy. A cost-benefit analysis of the colour TV industry will be done to provide quantitative insights into the public interest effects of different policy directions and measures. Finally, a political economy analysis will be used to compare alternative strategic public policy directions for the support of Canadian industrial development in consumer electronics industries such as colour TV.

1.4 PROCEDURE

The next four chapters develop a systematic framework for understanding the nature and problems of the colour TV industry. On the basis of these chapters, alternative policy directions will be evaluated.

Chapter 2 is an initial step in putting the colour TV industry in the perspective of the global consumer electronics sector. Industry and market characteristics, and possible developments which could have important impact on the colour TV industry and consumer electronics in general, will be examined.

Chapters 3 and 4 provide an historical analysis of the colour TV industry. Industry developments from the early days of colour TV production in Canada up to the mid-1970s when firms in Canada still manufactured all their parts in Canada will be examined in Chapter 3. However, in the mid-1970s the industry reached a crisis. In Chapter 4, these difficulties and subsequent industrial development will be described. Special attention will be given to support measures taken by the Canadian government since the mid-1970s. Chapters 3 and 4 identify significant changes in the industry and in government policy. They provide evidence of the importance of the industrial characteristics presented in Chapter 2 and reveal the level of effectiveness of past policies.

A cost-benefit analysis of the colour TV industry will be provided in Chapter 5. A partial equilibrium model will be used to estimate the costs and benefits arising from alternative government initiatives.

An outline of three major policy directions available to the Canadian government is given in Chapter 6. These are 'protection', 'free trade', and 'free trade with industry intervention'. Literature reviews will be provided and criteria will be established for comparing predicted outcomes of alternative policy directions.

Chapter 7 will focus on the findings established in Chapters 2 to 6. On this basis the respective merits and limitations of the three major policy alternatives will be established.

In Chapter 8 the overall findings of the thesis will be presented. These will lead to the conclusions reached in this study. Finally, limitations of the study will be discussed and suggestions for future research will be offered.

Appendices will be provided to give a chronology of government industrial support measures, information on individual companies, examples of duty remission orders, price and quantity information and elasticity estimations, and a questionnaire for Canadian colour TV manufacturers. A bibliography completes the work.

Chapter II

CONSUMER ELECTRONICS AND THE COLOUR TV INDUSTRY

As a first step in the analysis of the colour TV industry in Canada, this chapter provides a descriptive background of the present global and Canadian consumer electronics industry, and places the Canadian colour TV industry⁹ in the perspective of the global and domestic markets for consumer electronics and advanced technology consumer durables. First, the global and Canadian consumer electronics industries will be described. Since the global industry is dominated by MNCs, comment is directed to corporate strategies and R & D activities. Possible future developments which could have a significant impact on the colour TV industry in Canada, and consumer electronics in general, will also be given some attention. Finally, key

⁹ Much of the following information, especially on the colour TV industry in Canada, was received through industry interviews that took place between August 23 and 30, 1985 with: Luigi Romanelli, Assistant to the Vice-President (Sanyo Industries Canada), C. E. Kreuzweiser, Manager and Jay Cowan, Contract Assembly (Electrohome Limited), Tom Fischer, Accounting Manager (Matsushita Industrial Canada Limited), and Peter J. Scheibling, Controller and Jim McKay, Plant manager (RCA Inc.). They should be absolved of any responsibility for errors of interpretation or fact. A copy of a Questionnaire used during the interviews is shown in Appendix E.

Also, discussions with Louis Doyle of the Department of Regional Industrial Expansion, Richard L'herault of the Department of Finance and Graham Forrester of the Tariff Board were very helpful.

characteristics of the global and Canadian industries and the Canadian market will be summarized. This chapter provides an institutional and descriptive overview of the industry which provides a setting for the historical material in Chapters 3 and 4 and for the subsequent discussion of alternative policy directions for the Canadian industry.

2.1 THE GLOBAL PERSPECTIVE

Global consumer electronics are highly internationalized, dominated by large Japanese MNCs.¹⁰ MNCs include Sony, Sanyo, Matsushita, Mitsubishi, and Hitachi. There is one prominent United States company, Zenith; two major European companies, Thompson S.A. of France (who just recently purchased the GE and RCA consumer electronics lines in the United States) and N.V. Philips of the Netherlands; and some new MNCs emerging from NICs, for example, Gold Star and Samsung from South Korea, and others from Hong Kong and Taiwan.

The main reason why the industry is dominated by multinationals is because there are dynamic entry barriers. This is seen in the need by companies to make large expenditures on innovative and marketing activity. The MNCs are large with significant market power and world marketing

¹⁰ Jack Baranson, Sources of Japan's International Competitiveness in the Consumer Electronics Industry (Washington: Developing World Industry and Technology, Inc., 1980).

channels. They can afford to make investment in R & D to create innovations, and are in the best position to develop the innovative features and refinements for commercial purposes. Small, nationally-oriented companies will not be able to produce sufficient output to cover the costs of R & D, while rapidly changing products and features necessitate such investments if a company is to successfully compete. At the same time, the essential advertising and promotion of products is too expensive for a small company selling a small output.

Since the industry is dominated by MNCs, important decisions about where to produce consumer electronics are made in the context of global operations. As private enterprises, their decisions to invest, export, cease or begin activities are motivated by net private benefits, and these can differ by product line. Therefore, MNCs might export some products to a market, do local manufacture or assembly of other products, and perhaps produce parts or products in a third country for export. In the following section, we will look at how tariffs, the need to protect the rewards of R & D, and corporate strategy in general can influence these MNC decisions.

2.1.1 Tariffs and MNC Investment

Since the MNCs can switch production from one country to another, the rate of return to a MNC from domestic operations relative to that associated with exporting to the domestic market is important. Tariffs offer a way for a government to attempt to influence a MNC to undertake domestic activity. By imposing tariffs, the government increases the costs to MNCs of exporting to the country. However, should they locate activity in the country, and it then becomes more profitable for MNCs to produce outside the country, by the nature of the competitive process, MNCs will relocate their production elsewhere. The emergence of NICs, with their lower labour costs, threatens especially labour-intensive manufacturing activities such as assembly in developed countries like Canada in spite of their tariffs.¹¹

¹¹ In recent years the United States has been able to attract some new consumer electronics investment in assembly. For instance, Matsushita Electric Industrial Company plans to establish a factory in Vancouver, Washington to make colour TVs and video cassette recorders. Toshiba is just beginning to produce video cassette recorders at its colour TV/microwave-oven facility in Tennessee: "Toshiba To Expand Overseas", Globe and Mail (November 12, 1986). There is some hope that the same might occur in Canada; please see: Paul J. Murray & Assoc. Ltd., Investment Opportunities in the Consumer Electronics Industry in Canada, prepared for the Consumer Products Group, Electronics Directorate, Electronics and Aerospace Branch, Department of Regional Industrial Expansion, Government of Canada (Ottawa, 1985); and Regional Industrial Expansion Canada, The Electronics Industry: Opportunities for Growth.

It is interesting to note that in some areas of electronics, Japanese MNCs, especially, have been placing millions of dollars in United States venture capital funds--obtaining licensing, marketing and joint-venture agreements with the companies they back.¹² This is mostly in the areas of advanced micro-chip electronics. However, Canada lacks such companies, and does not have any domestically-owned companies in the area of consumer electronics with advanced expertise. Consequently, joint ventures in consumer electronics in Canada are unlikely; future investment in consumer electronics by MNCs will likely be through subsidiaries.¹³

2.1.2 The MNC and Technology

Strategic decision-making depends on assessing such environmental conditions as demand and competition, as well as internal factors (e.g. addressing the question of which subsidiaries do or make what). A major reason why MNCs carry out activities in a single location is to achieve economies of scale.

¹² Robert B. Reich, "The Rise of Techno-Nationalism," The Atlantic Monthly (May 1987), pp. 63-69.

¹³ There is the possibility that a consumer electronic MNC could seek a joint venture in another area, as a way of diversifying. However, no joint ventures would appear possible in Canada's consumer electronics sector.

¹⁴ Larry Armstrong with Christopher Power and G. David Wallace, "Sony's Challenge: The Mighty Yen and Fierce

Armstrong, Power and Wallace (1987)¹⁴ point out the general trend by Japanese consumer electronics MNCs toward more standardized mass production and assembly operations in foreign countries while retaining the more highly skilled R & D, engineering and senior marketing and corporate planning and administration at home. As they seek to do more activity outside Japan to escape the rising yen, more sophisticated manufacturing is occurring in their subsidiaries. In the area of electronics and high-technology in general, Japanese MNCs are setting up research and other facilities in the United States.¹⁵ Similarly, Japanese consumer electronics MNCs are doing more production of key components in NICs.

2.1.2.1 Research and Development

R & D is very important in the consumer electronics field because in addition to price, the MNCs compete in the range and kinds of products they offer, and in the features incorporated in their products.¹⁶ Technological innovation, which involves the introduction of new products and new

Competition Are Forcing It Into New Markets," Businessweek (June 1, 1987), pp. 64-69; Baranson, Sources of Japan's International Competitiveness; and interviews with Canadian colour TV industry executives, August 23-30, 1985 (please see footnote in beginning of chapter).

¹⁵ Reich, "The Rise of Techno-Nationalism".

¹⁶ New products and innovations are the MNCs' future. MNCs are in a race for innovation: it is one form of their competition and is reflected in their short-run, if not long-term, profitability and market share.

processes (to produce products more efficiently and productively) is, therefore, important to the MNC's corporate performance over the long-term. New and better consumer goods such as microwave ovens, video cassette recorders, compact disc players, and camcorders are recent results of R & D design and development efforts. However, consumer electronic MNCs will need to continue the development of new and better consumer goods.

It must be noted that R & D is a broad activity: it includes pure research and the development of new products and processes, but it also includes such 'downstream' innovative activities as modifications to a product line in design and engineering, and the incorporation of new ideas that may originate from pure research.

MNCs do much of their pure R & D in a central location usually in their home country,¹⁷ to control the dissipation of their R & D rewards. Another reason why pure R & D is centralized is because of the importance in the innovative process of close communication and cooperation among R & D,

¹⁷ This is a characteristic of consumer electronics MNCs. The Japanese MNCs lead in R & D, especially in innovative features and enhancements to products. However, in very basic and advanced microelectronic research, it seems clear that there is increasingly a 'globalization' of research effort, and companies will carry out research in different facilities, make use of corporate and academic talent in different countries and buy and transfer both research and staff to different of its companies in order to make improvements, further advances, and commercial adaptations. Please see: Reich, "The Rise of Techno-Nationalism".

marketing, production and top management.¹⁸ Since the MNC will want to protect its pure R & D, and because formal strategic planning is done at the corporate level and principal production activities are also there, R & D can be more efficiently exploited if done centrally. Nevertheless, the rising yen is putting pressure on Japanese MNCs to move plants overseas (so revenues and expenditures will be in the same currency).

While it is more important for the MNC to carry out pure R & D in a centralized location, there is less risk for the MNC to carry out R & D in secondary locations. Overall and product line strategic decision-making can remain centralized, especially if the R & D is decentralized on a product line basis. In the subsidiary location, new product features could be developed and even more basic innovations. However, while pure research may aim at fundamental breakthroughs, this other R & D would aim at better application of the breakthroughs.

¹⁸ For arguments in favour of centralization and decentralization, please see Vern Terpsta, "International Product Policy: The Role of Foreign R & D", in Heidi Vernon Wortzel and Lawrence H. Wortzel, eds. Strategic Management of Multinational Corporations: The Essentials, (New York: John Wiley & Sons, 1985), pp. 384-92. also see Alan M. Rugman, ed., Multinationals and Technology Transfer: The Canadian Experience (New York: Praeger Publishers, 1983); and Donald G. McFetridge, Technological Change in Canadian Industry, volume 5 in the series of studies commissioned as part of the research program of the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).

2.1.2.2 Corporate Strategy

A key corporate strategy for MNCs, most evident in the consumer electronics sector, is to seek to optimize economies of scale in production and R & D, while minimizing the costs of coordinating and monitoring activities. All the consumer electronics MNCs produce their key components in central facilities in their home country or in NICs where low labour cost advantages are present. To minimize the costs of coordination and monitoring activity, subsidiaries involved in similar activities are not allowed to compete with each other. We see this in the consumer electronics industry: the Canadian colour TV subsidiaries are generally restricted to assembling for the domestic market, and are not allowed to compete with their United States affiliates. One of the companies interviewed, Matsushita in Toronto,¹⁹ did sell some colour TVs in the United States market. Even then, most of the United States market is served by Matsushita operations located in the United States. Although the work done in these Canadian and American subsidiaries is mainly low technology, assembly work. This does not mean consumer electronics MNCs will never grant greater activity to subsidiaries. Generally, when a subsidiary already has the expertise, equipment and facility to make a product, it becomes a preferred choice for a MNC to 'centralize' a product line's manufacture in: it is very costly for the MNC to develop and acquire expertise and

¹⁹ August 27, 1985 in Toronto, Ontario.

product-specific capital--this requires investment in human and physical capital. Yet, MNCs have to be quick to capture market opportunities. Should a consumer electronics subsidiary already have these kinds of capital, it would receive a firm-specific advantage to carry out present and future activities for this product line. Nevertheless, the demand for these capital and skills and new products usually originate in subsidiaries. Atkinson (1986)²⁰ also indicates that there is another advantage for a MNC to assign some responsibility for new product innovations to subsidiaries: this is to help the MNC through diversification of 'downstream' R & D, and risk. Ideally, a subsidiary might be given a world product mandate (WPM), which means the MNC grants to a single subsidiary the right to sell a specific product or product line on a world-wide or even regional basis.²¹ For instance, it is pertinent to the situation of Canadian subsidiaries, that there can be a North American mandate (Canada and the United States markets)--especially for particular styles, features or sizes of products for which there is strong regional demand (e.g. large screen TVs in wooden cabinets). In any case, the subsidiary receives exclusive geographical access to a MNC's product, and some R

²⁰ Michael M. Atkinson, "If You Can't Beat Them: World Product Mandating and Canadian Industrial Policy," Duncan Cameron and Francois Houle, eds., Canada and the New International Division of Labour (Ottawa: University of Ottawa Press, 1985), p. 132.

²¹ This is a broad definition of WPM. The Science Council of Canada also refers to the concept of WPM, but mean a subsidiary with autonomous management and R & D facilities.

& D, innovation, design and engineering will likely follow.

It should be noted, that there are reasons why a host country might help a subsidiary persuade its parent to give it more activity. There are social benefits to a subsidiary being given a WPM, or even a North American mandate in Canada's case. These include:

1. more opportunities for skilled employment,
2. enhanced productivity, because longer production runs can result, and lower unit costs,
3. and local suppliers have a better opportunity to compete for contracts.

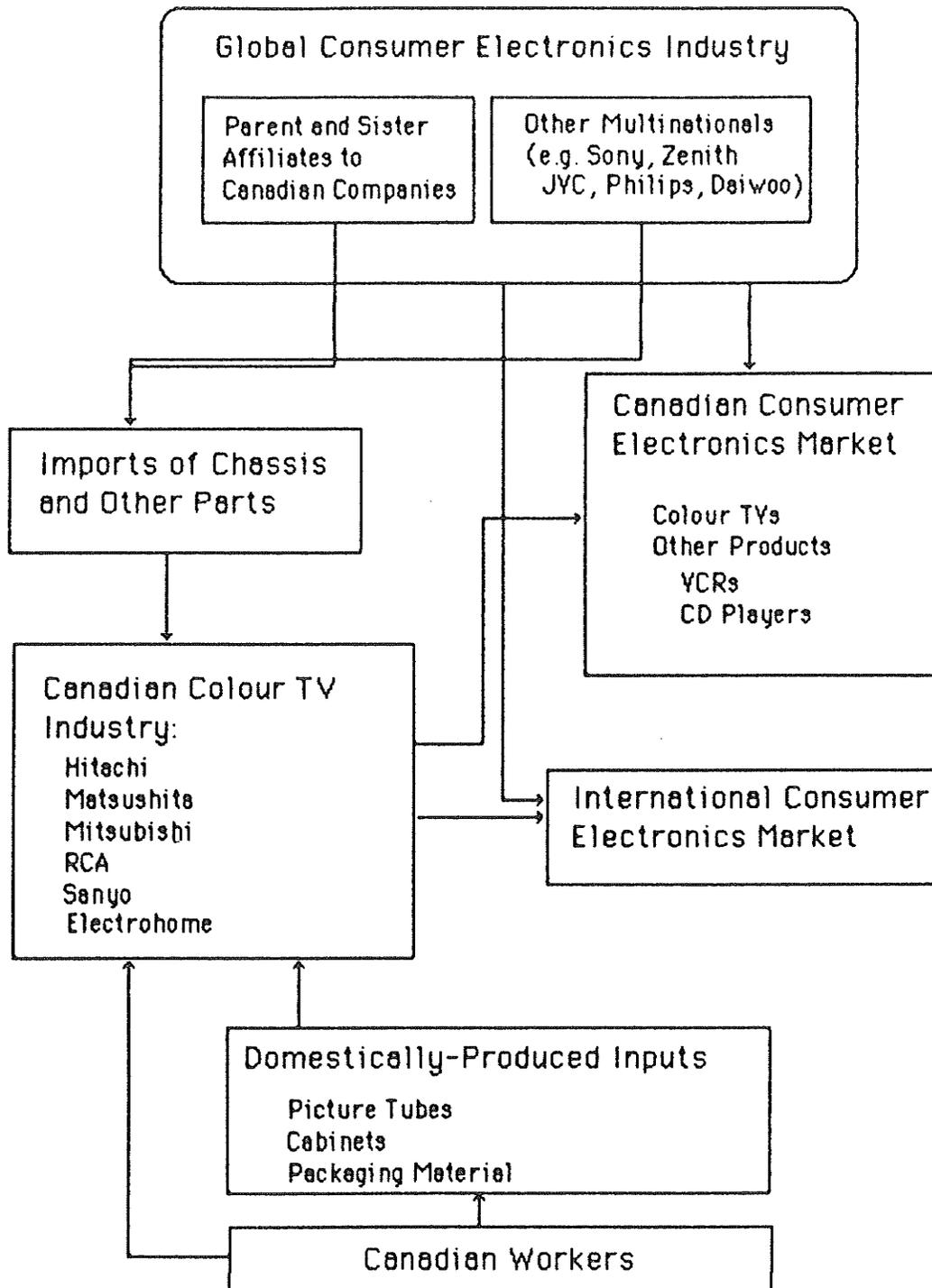
As well, further stages of product development could result, and new products or features might be manufactured in the country in response to new or anticipated market opportunities.

2.2 THE CANADIAN COLOUR TV INDUSTRY

The Canadian industry²² is but one small part of the much larger, world, colour TV and consumer electronics industry (please see Chart 2.1). The Canadian colour TV industry, like so many other consumer electronics industries, can be

²² This section summarizes information obtained from the interviews with company officials listed in this chapter's first footnote and in Appendix E.

Chart 2.1
Consumer Electronics Industry



characterized as one in which product differentiation is present, while at the same time there is much price sensitivity in the demand across competing brands.

Product differentiation is evident in brand name and model advertising, and in consumer recognition of individual brand names (see section 2.1.2.1). Both the firms in the domestic industry and those exporting to Canada, sell many sizes and models of colour TVs to the Canadian market. The different models incorporate various features. Some brands have been able to build a name on such things as picture quality, plus most companies have higher priced models which are cable-ready, or have stereo sound, remote control, or other advanced features. All companies have kept up with general technological improvements so that the colour TV of today is, without exception, of high quality, especially relative to TVs of ten and even five years ago. Most frequently, different brands of similar sized colour TVs will be sold at somewhat different prices, where the prices reflect the features incorporated. The importance of price competition can be seen in the response of domestic assemblers to changes in import colour TV prices, both in the past and in recent years. The domestic firms will lower price even though they will make zero profit and even make temporary losses, in order to maintain some market share.

Given the high price sensitivity, the comparative costs of domestic assembly and importation become significant.

Three important costs are the transportation cost of importing certain parts versus whole colour TVs, the labour cost, whose effective cost depends upon the exchange rate, and the tariff duty which must be paid on imported sets.

A feature of colour TV imports is the rising percentage from countries eligible for General Preferential Tariff (GPT) treatment, although such has been recently permanently withdrawn. The strength of their competitiveness is their low prices.

There are presently just five companies assembling colour TVs in Canada: Electrohome, Hitachi (HSC) of Canada, Matsushita Industrial Canada, RCA Inc. and Sanyo Industries of Canada.²³ Electrohome Limited is actually a contract assembler.²⁴ With the exclusion of Electrohome Limited, all are affiliates to consumer electronic MNCs.²⁵ From the

²³ The domestic colour TV market shares of the five Canadian assemblers were, in 1984: RCA Inc., 19 percent; Hitachi (HSC) of Canada, 8 percent; Matsushita Industrial Canada, 7 percent; Sanyo Industries of Canada, 6 percent; Electrohome Limited, 4 percent.

Please see Regional Industrial Expansion, Canada. Trade Assessment: International Competitiveness Profile; Canadian Consumer Electronics Industry (SIC 334), mimeo (1985).

²⁴ Mitsubishi has purchased a license to use Electrohome's name on colour TVs. The contract for assembly, and the license to use the name were purchased in 1981.

²⁵ Hitachi (HSC) of Canada Inc. and Matsushita Industrial Canada Limited are wholly-owned subsidiaries of Japanese MNCs. RCA is a wholly-owned subsidiary of General Electric in the United States. Sanyo Canada Inc. is affiliated with the Sanyo Electric Corporation of Japan through a joint ownership between the Japanese MNC and Magnasonic Canada Inc. Other MNCs, such as Sony from

mid-1960s to the early 1970s, there were many companies involved and thousands employed in the manufacture of complete TVs. They included subsidiaries to American and European MNCs, Canadian-owned firms and, later, affiliates to Japanese MNCs. In the early 1970s, there were at least thirteen companies directly involved in colour TV manufacturing.²⁶ Gradually, the number reduced and then a major shake-out occurred in association with industry difficulties in the mid-1970s and the introduction of government rationalization and revitalization programs beginning in 1976 (to help the industry phase out). The industry became comprised of the present companies. Another large consumer electronics MNC, Mitsusbishi, has just recently completed its own facility to assemble TVs, in Waterloo, Ontario. Mitsubishi's Canadian subsidiary, Mitsubishi Electric Sales Canada, has TVs assembled for them by Electrohome. The contract for assembly, and the license to use the name Electrohome were purchased in 1981. There is also a picture tube plant owned by Mitsubishi Canada, that provides many of the colour tubes for the industry in Canada, and, as well there are Canadian cabinet

Japan and Zenith in the United States, supply the Canadian market through imports.

²⁶ Please see Chapter 3. A list of these companies is provided in Chart 3.3 (in Chapter 3). However, in Ontario government publication Industry Sector Review: Manufacturers of Household Radio and Television Receivers (Toronto: Ministry of Industry and Tourism, 1979) reports that there have been 17 companies in the Canadian colour TV industry. I have found information on 13 companies.

manufacturers and packaging material companies who provide products to the five assemblers. Many Canadian subsidiaries lack an international marketing capability.

Almost all households in Canada have colour TVs. This is true for all income levels. For example, in 1986, 96.1 percent of households with incomes under \$10,000 had TVs and 99.2 percent of those with incomes \$55,000 and higher.²⁷ Information on prices is difficult to obtain.²⁸ The selling price to consumers has a variation between low and high seasons. Low prices occur during the end of the year, when the producers are trying to get rid of inventory. January, February and March make up a slow season. Come June, people start to buy televisions for vacation needs. Near to September, people want new colour TVs to watch the fall sports and television programming.

Also, the subsidiaries in Canada sell to intermediary or marketing affiliates in Canada, and to dealers, often all at different price structures. These in turn sell to the retail stores and other dealers. Marketing is a very important activity in the consumer electronics field. All the current companies in Canada either assemble for a very good marketer of a good mix of consumer electronic products

²⁷ Statistics Canada, Infomat, Catalogue no. 11-002 (April 10, 1987), p. 3.

²⁸ This makes it difficult to discuss final prices. This is important in doing quantitative analyses (the method developed to arrive at final prices will be discussed below in the cost-benefit analysis in Chapter 6 and Appendix D).

(like Electrohome for Jutan International and Mitsubishi), or else are a totally integrated company (that designs chassis and mass produces the chassis in world-scale volumes to support product design development and world-wide marketing).²⁹ This restricts entry by smaller, especially locally-owned companies, who might have to spend large amounts of investment and effort from the start, to sell their products.³⁰

Some particular colour TV industry characteristics - employment, nature of Canadian operations (assembly), inputs, and possible future developments - will be outlined below.

2.2.1 Employment Levels in the Colour TV Industry

The Tariff Board³¹ compiled employment information for the years 1982 to 1985. This information is shown in Chart 2.2. Only about 1000 persons were directly employed in colour TV assembly in 1984. At the distributor/wholesaler

²⁹ These points were raised in the interview with a company executive.

³⁰ This was a problem faced by Electrohome, too, and resulted in this company leaving the industry except as a contract assembler.

³¹ The Tariff Board, Report of the Tariff Board Relating to the Re-instatement of the General Preferential Tariff on Imports of Colour Television Receiving Sets, Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985).

Chart 2.2
Employment in Canadian Colour TV Manufacturing
(1982 to 1985:1Q)

	1982	1983	1984	1st Q. 1985
production	639	667	676	624
administration	275	300	324	307
total	914	967	1000	931

Source: The Tariff Board, Report of The Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985), p. 39.

level, marketing affiliates to the Canadian companies might employ another 500 persons. This includes sales personnel for only colour TVs, but excludes all persons engaged in the retail sales level. These 500 should be unaffected by import competition, since even if the MNCs choose to instead export complete sets to Canada, these marketing and sales functions will still be carried out in Canada.³²

It is also noteworthy that another 850 persons were employed in the manufacture of colour picture tubes, cabinets and cabinet parts in 1984. Currently, colour picture tubes in the 20-inch and 26-inch size range are produced in Canada.

³² Ibid., p. 39.

2.2.2 Current Low Profit Levels

For 1983 and 1984, the domestic industry provided the Tariff Board with statistics on profits and profitability solely for their colour TV manufacturing operations. In 1984, the domestic companies reported losses on their assembly operations for small colour TVs, and averaged only 2.4 percent profit over all their colour TV operations.

The Tariff Board also noted that while the 20-inch market segment is a profitable one, the perception is that this results chiefly from the higher profit margins prevailing at the top end of the segment (where additional features are incorporated).³³ The 14-inch, 20-inch and 26-inch screen sizes, in 1984, made up over 90 percent of the total domestic market.³⁴ The size of the colour TV market in units, in 1984, is shown in Chart 2.3.

³³ Ibid., p. 48.

³⁴ There are very small sets, with under 10-inch screens, some 13-inch, and a few colour TVs between 14-inches and 20-inches. There are some 19-inch screen colour TVs imported (many of these will be 20-inch in terms of Canadian standards, which measure the whole face of the picture tube; in the United States the exposed picture tube, only, is measured). They form a small part of the market (for instance, in 1984, they amounted to 33,500 units, which is less than 8 percent of the total market of 422,200 units). A very few kits and combination colour TVs (e.g. with turntable), are imported: in 1984, combinations and kits accounted for only 1.1 percent of total imports (Statistics Canada, 1984, Imports by Commodities).

Chart 2.3
Selected Canadian Colour TV Markets
According to Screen Size
(1984, in '000 units)

Screen Size	Domestic Market	Imports		Domestic Output	
		GPT*	nonGPT	Dom. Mkt.	Export
14-inch	425.5	187.7	105.2	124.6	--
20-inch	657.0	150.2	200.2	306.7	--
26-inch	250.7	--	71.8	178.9	95.1
Total**	1399.9	337.9	377.2	600.8	95.1

Screen Size	% of Domestic Market Met Through Domestic Market
14-inch	29.3
20-inch	46.7
26-inch	71.4
Total**	42.9

Notes:

* Countries eligible for General Preferential Tariff treatment.

** Includes all other sizes of colour TVs, as well.

Source: Calculated from information available in The Tariff Board, Report of The Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985).

2.2.3 Description of the Assembly Operations

The operations today mainly involve the putting together of the picture tube, cabinet and chassis, and if the tuner is not imported as part of the chassis, the prior marrying of a chassis, yoke and tuner. There are also other minor details to be attended to, plus testing and packaging. A few positions will be required for factory technicians, and there will be some people called manufacturing or industrial engineers.³⁵ However, the designing and R & D, which are the high technology activities related to colour TV manufacturing, are done elsewhere.

The assembly of TVs is actually quite a labour intensive activity.³⁶ The majority of workers have basically low-skill jobs, aligning, connecting, and marrying parts. Although, the company plants are, to a large extent, mechanized, the mechanization found in the Canadian plants is mainly in the conveying system:³⁷ there are power conveyors in plants and automated packaging equipment.³⁸

³⁵ Interviews with Canadian colour TV industry executives, August 23-30, 1985.

³⁶ As one executive said during the interview, unless the industry can start to use robotics, it will remain labour intensive. Given the small production levels, though, it is highly unlikely that it will be feasible to use robots in Canada for the Canadian market.

³⁷ This was observed during the tours of the Electrohome plant and the Matsushita plant in August 1985, and from discussion with persons with these and the Sanyo Industries Canada and RCA companies.

Industry executives report that the percentage of technical people employed in the industry in Canada is small.³⁹ The general labour must have such skills as good manual dexterity. The average number of years of seniority in one company was five years. This should be approximately true for the industry, as well. The workers may be able to find employment elsewhere, especially where assembly skills are required, and sometimes in other industrial processes.

The Tariff Board⁴⁰ has obtained data on production costs for colour TVs in Canada, and arrive at the figures for 1984 in Chart 2.4.⁴¹ For the 14-inch colour TV, all materials and components are imported. For the 20-inch and 26-inch colour

³⁸ The degree of mechanization and automation varies by company. Some of the companies in Canada have been making investments to increase efficiency along the assembly line. The companies have been able to add machinery to reduce by a small amount the labour needed, for instance in the final assembly alignment. Packing has been another area where investments have been made.

As a result, the labour intensity of the work falls. Indeed, over the past few years, the absolute amount of the labour factor per TV is apparently going down faster than the material factor, and the labour factor is starting from a much smaller base (The Tariff Board, Report of The Tariff Board Reference No. 160.1). The assembly costs, and the labour component of the assembly costs are not large relative to the final consumer price or even factory cost (see Chart 2.4).

³⁹ A company may need a few factory technicians and repairmen (people who are college or technical institution graduates) and a technologist to provide interactive duties between the supplier and manufacturing centre.

⁴⁰ The Tariff Board, Report of the Tariff Board Reference

Chart 2.4
 Canadian Industry Colour TVs Per Unit
 Production Costs by Type of Cost
 (1984 in \$)

	Screen Size					
	14-inch	%	20-inch	%	26-inch	%
Factory Labour	9.40	4	19.43	6	25.81	5
Materials	200.47	88	274.94	88	436.00	89
of which:						
Canadian	.06	..	59.77	19	141.75	29
Non-domestic	200.41	88	215.17	69	294.34	60
Factory Overhead	8.78	4	10.98	4	15.45	3
Other Costs	8.51	4	7.65	2	14.28	3
Total Unit Cost	227.39	100	313.00	100	491.54	100

Source: The Tariff Board, Report of The Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985), p. 43.

TVs, the chassis are imported, but most picture tubes are domestically provided, and in addition, for the 26-inch colour TVs, many of the wooden cabinets are supplied and manufactured in Canada. The Canadian materials content accounted for 28.8 percent of the factory cost for the 26-inch, 19.1 percent for the 20-inch (and zero percent for the 14-inch)⁴² while, when factory labour, overhead and some other costs are included, the Canadian content rises to 40.1

No. 160.1, p. 43.

⁴¹ Factory Overhead was described as mainly comprised of various administrative expenses, taxes, capital cost allowance, heat/light and power. Other Costs varies among firms and may include patent fees, selling expenses, maintenance/security, and interest expense.

⁴² Ibid., p. 42.

percent for the 26-inch, 31.3 percent for the 20-inch and 11.8 percent for the 14-inch inputs.⁴³

In respect to R & D, the companies do try to undergo process improvements to make the assembly lines more productive. These can be quite minor relative to the kinds of development expenditures occurring in large, overseas facilities. Each year, the companies in Canada study the opportunities to improve the assembly (and potential demand, should they need to expand on their assembly lines). Productivity improvements have resulted from investment and modernization in processes. Processes have changed over the last fifteen years, not only because of mechanization but because of product innovation. The higher technology colour TVs with more channel capability and FM sound will result in the need for some additional investment

⁴³ The labour component in a 14 inch colour TV is almost the same as in a 20 inch screen colour TV, since the parts that go into each size TV are quite similar. For the larger screen colour TVs, the picture tubes are larger, and often large wooden cabinets are involved, which may increase the assembly cost. At present, the amount of direct labour time per colour TV, in assembly, is only about one person hour.

Under the present circumstances, particularly with the lower Canadian dollar, there is a favourable wage differential between the Canadian operations and the United States operations (information received through interviews with domestic companies). However, the few dollars per single labour hour of assembling saved in assembling in Canada is very small compared to the 11.3 percent duty placed on imported colour TVs. The tariff has a much more important effect on making Canadian assembled colour TVs competitive with imports. Still, the favourable wage differential contributes to the competitiveness of the Canadian operations especially with the United States operations.

and signal equipment. However, technological advancements in the components have also helped reduce the work involved in assembly. For example, tuners have become much smaller and, in many cases, are imported with the chassis. As the labour factor has become smaller, so has its application become simpler.

The production lines change over between models quite frequently, every few days and sometimes once a day. This is because each company assembles a number of models and sizes in one plant with only one or a few lines. In the United States, on the other hand, each plant has many assembly lines and may produce the same line for days and weeks on end.

2.2.4 Picture Tube Plant and Other Colour TV Inputs

Another feature very important to the Canadian industry is that some imports are sourced in Canada. As mentioned earlier,⁴⁴ many of the colour TVs assembled in Canada have a picture tube manufactured at the picture tube plant in Midland, Ontario. About 800 persons were employed in Canada in tube production in 1984. Although picture tubes are made for export, a significant portion are purchased by the domestic colour TV assemblers. So much so, in fact, that the TV picture tube plant's viability is tied to the survival of the domestic assembly industry (and this is why

⁴⁴ This was in section 2.2.1 on employment in the colour TV industry in Canada.

the tube manufacturing can be included in the discussion of the colour TV industry).

A good percentage of wooden cabinets are made in Canada. Increased use of plastic cabinets will reduce wooden cabinet spin-off activity in Canada. Matsushita has a cabinet factory integrated into their assembly plant. Both Sanyo and Hitachi own their own wood cabinet manufacturing companies in Canada. Electrohome makes and buys some of its cabinets from local suppliers. In some cases, plastic and other types of sheets are bought by the subsidiary in Canada and given to local manufacturers for some preliminary work (e.g. bending). The finishing work is then done by the subsidiary.

An important part of the Canadian value added for the domestic colour TV industry, is in the manufacture of picture tubes and wooden cabinets and packaging material, especially the picture tubes. Consequently, the tube plant can be considered together with the assembly activities when speaking about the industry. And, therefore, the impact of any changes in TV demand or cost, whether caused by government policy or other developments or trends, should include the effect on the tube operations, as well. At present, there is a tariff on TV tubes that are imported, so there is an advantage for assemblers to buy Canadian tubes. Also, picture tubes are costly to transport.

2.2.5 Possible Future Developments and the Colour TV Industry

There are many factors which could impact on the colour TV industry and consumer electronics in Canada. Among these are: changes in consumer demand (in general, and by screen size, in the case of colour TVs), falling MFN tariff rates, innovations that reduce the transport cost of imports, and changes in the value of the Canadian dollar.

Market demand is both a very important and an unpredictable factor. For consumer electronic products, in general, there is rapid growth in demand soon after the introduction of the product, after which demand levels off. The rapid growth occurs as many people make their first-time purchases. Following this, the demand is mostly comprised of replacement demand, plus demand by new first-time buyers (e.g. young adults), and by those seeking an upgraded or second home product. The years, 1983-1984, for instance, showed a large increase in unit sales of colour TVs. After being in the 740,000 to 900,000 range for many years, just getting a little above 900,000 in 1981, the units sold jumped to almost 1.3 million in 1983 and over 1.4 million in 1984. The larger sales were attributable to consumers buying second and third colour TVs, but also reflected the favourable impact that home computers, video games, video cassette recorders, and special audio equipment had on the demand for colour TVs. Now that colour

TVs have been purchased for these purposes, it may be that the market in Canada will shift somewhat downward, again.⁴⁵

Canada's participation in the Tokyo Round of MTN resulted in a schedule of tariff reductions. By 1987, the MFN rates on coloured TVs will be reduced to about 7.0 percent. If there are further MFN reductions negotiated, this will increase the import competition faced by the colour TV companies in Canada. The tariffs on parts will be reduced, too. Presently, companies receive duty remission on the chassis, and can use Canadian picture tubes.

⁴⁵ While demand for colour TVs, in general, is a changing factor, so it is with colour TVs of different sizes and features. Of the three principal sizes of colour TVs (14-inch, 20-inch and 26-inch screen sizes), the 20-inch size enjoyed the largest increase in demand. Over the period 1982 to 1984, unit sales of this size increased by 58.5 percent. Over half of this gain was captured by imports from industrialized developing countries. The domestic share, and that of Japan and the United States, fell. There was also an increase in imports from such non-GPT countries as Taiwan, so that the non-GPT share of the market remained the same.

The 14-inch market grew very fast, but the growth took place on a much smaller base than did the 20-inch market. Between 1982 and 1984, the market for 14-inch colour TVs grew 132 percent. Much of this growth has been in imports from GPT countries, and while the domestic and non-GPT shares have fallen, imports from non-GPT countries have contributed to a major part of the rise in GPT imports.

The 26-inch colour TV market grew, too, over the period 1982 to 1984, by 40 percent. Non-GPT imports rose marginally from 26.5 percent to 28.7 per cent of the market. The rest is the domestic market share. It is

Recent years have seen innovations widen the range of use of colour TVs. Stereo TV began to gain popularity in the United States in 1985, and will likely become popular in Canada in the near future. Also, innovations have changed the shape and dimensions of the TV. These innovations include the compressed picture tube and the monitor style design. Their impact will be to make it less expensive to import larger complete TV sets over long distances.⁴⁶ This will hurt the domestic assemblers which base their operations on 20 inch colour TVs and provide most of the very large TVs for the Canadian market. To the end of April of 1985, of approximately 400,000 colour TVs assembled in Canada, only 71,000 were consoles, 206,000 were 20 inch sets, and 124,000 were small screen colour TVs.

In the same way that the lowering of the value of the Canadian dollar has helped reduce the cost of assembly activities in Canada, the continuance of a lower dollar will be helpful to the viability of assembly in Canada. How the Canadian dollar fares in respect to the United States dollar will be of utmost importance, although the

also in this screen size of colour TV that Canada exports some colour TVs, to the United States. Consequently, this is an important size of TV from the Canadian assembly perspective.

The 26-inch market has just been recently entered by overseas suppliers, especially in the compact 'monitor style' versions of sets.

⁴⁶ At this time, a higher proportion of smaller colour TVs are imported. A main reason for this is because the freight cost on the smaller TVs is substantially less than on larger TVs.

level of the Japanese yen and some other currencies will affect the advantages of North American assembly. If the operations in Canada become less competitive against imports from the United States, it will very easy for the MNCs to shift production for the Canadian market to the United States operations.

With respect to profits, the domestic assemblers have done better in the 1981 to 1983 period. Government programs since 1976 have helped the domestic activities to be competitive. The recent low-priced, duty-free colour TVs originating from South Korea and produced by large, diverse South Korean MNCs, made rapid inroads into the Canadian market (from zero to 25 percent between 1981 and 1984).⁴⁷ If, through further advancements or adoption of technology, transportation costs can be reduced, TVs from other overseas countries may become increasingly competitive, as well.

Freer trade developments can be of key importance. There are the MTNs which can reduce tariffs among countries. There are also the free trade negotiations between Canada and the United States: as MNCs may be encouraged to enter Canada or expand Canadian operations to serve the larger North American market (or the MNC parent may decide to centralize North American operations solely in United States locations). Interestingly, the newest operation in Canada, the new Mitsubishi plant intends to assemble colour TVs in

⁴⁷ This is described more fully in Chapter 4.

Canada for part of the United States market (as Matsushita Industrial Canada is doing).⁴⁸ However, as yet, the other companies are prohibited by their parent MNCs from selling colour TVs in the United States.

2.2.6 Industry View to Government Assistance

A most common viewpoint among industry executives seems to be that there should be some protection for the industry, notably when the industry is faced by massive imports by new overseas producers who have the benefit of new, large scale and modern facilities in developing countries plus tariff-free treatment under the GPT.⁴⁹ It is based, too, on the belief that the domestic operations contribute to Canada: the subsidiaries make investments, contribute to Canadian employment, buy some materials and parts from Canadian sources. Finally, there is the bottom-line that without at

⁴⁸ Matsushita, "Mimeograph Notes on the Industry and Company", provided during an interview, August 27, 1985 in Toronto, Ontario.

All production by Matsushita Canada for export sale is ordered from Panasonic in the United States, a related marketing company of the Matsushita Electric Corporation of America. Panasonic also imports colour TVs from Japan and Korea, and purchases a large quantity of TVs from Matsushita Industries in the United States (the United States production division). Exports began in 1977 (5 years after Matsushita's entry into Canada). The marketing divisions in Canada and the United States are not restricted to purchase from the production divisions in their respective countries. This is a departure from what is true for other companies, and may be due to different company philosophies or willingness to coordinate exports to the United States market.

⁴⁹ This was just removed permanently, in the case of colour TVs, in 1985.

least some tariff support, the industry will have to cease as the domestic produced colour TVs will not be able to be adequately competitive with imports.

Another concern raised by one company that it is important for the present colour TV industry to be supported by the government because it promotes technological learning at its most elementary level for assembly production workers. This addresses the idea that technological learning is an accumulative activity that builds on existing activity, and that it is important for Canada to get more engineering and electronic industrial experience. The latter will enable Canada to absorb new technologies more easily, and facilitate the quicker application of knowledge into new products in Canada.⁵⁰

Government monies to industry has in recent years not been coming. However, the industry has recognized the importance of the government assistance in the past, in the period 1976 to 1981, when the industry was in peril and would otherwise have likely ceased.

⁵⁰ If greater advanced technology activity was involved, probably more companies would have also suggested the importance of Canada supporting the present colour TV industry.

2.3 SUMMARY OF INDUSTRY AND MARKET CHARACTERISTICS

The market characteristics for consumer electronics and colour TVs can be summarized as follows. Canada's market for consumer electronics and advanced consumer durables products is a significant and growing one. However, consumer electronic and advanced technology consumer products change quickly, new innovations are incorporated and new products enter the international marketplace. It is necessary for companies to respond quickly to these innovations and continually search for new product niches.

R & D is an activity in the global industry that results in skilled, relatively high-income employment. R & D is a broad activity, including pure research and downstream innovations such as product line modifications in design and engineering and incorporation of new ideas that might originate from pure research. MNCs dominate the consumer electronics industry. As private enterprises, their decisions to invest, export, cease or begin activities are motivated by the net private benefits of doing so. They respond to advantages of doing their corporate strategy decision-making and pure research in a central location, usually in their home country. A major reason is to control the dissipation of its pure research, and new innovations technology. The technology is made available to affiliates, but it is generally only undertaken in a centralized place. Also there is the importance in the innovative process of

close communication and cooperation among R & D marketing, production and top management.

Advanced technology will be important to Canada's future economic activity. Research in Canada is a concern, but companies in Canada will have to make better use of technological breakthroughs, wherever they occur around the world. Canadian subsidiaries are generally restricted to assembly or simple manufacture and only for the domestic market, and are not allowed to compete with affiliates in other countries' markets. Tariffs on imports help the Canadian activity to compete with the imports, and provide some incentive for the MNCs to do activity especially like assembly (in the case of colour TVs) in Canada. Transportation costs in respect to larger items--e.g. colour TVs with large picture tubes and heavy wooden cabinets--are high and a barrier to imports. Costs of transporting are to a great extent based on the size or bulk of the product. Transport costs can fall even more as design changes allow smaller sized products to contain more features and functions.

Also, locating activity in a market allows a MNC to keep abreast of regulations and to better oversee market trends, e.g. gauge preferences and check complaints about products.

The next two chapters focus on the history of Canadian colour TV including the evolution of government measures and

actions which were instrumental in this consumer electronic industry's development in Canada.

Chapter III

EARLY HISTORY OF THE CANADIAN TV MANUFACTURING INDUSTRY

An overview of developments which have taken place in the Canadian TV manufacturing industry will now be provided. Particular emphasis will be placed on the period since 1965 when the industry first became engaged in colour TV manufacturing. Many of the important industry and market characteristics identified in Chapter 2 will be highlighted and evidence will be given to the role of these factors in the industry's development and their impact on the effectiveness of public policies.

Two stages in the history of the Canadian colour TV industry will be presented to highlight shifts that have taken place within the Canadian industry. They reflect a pattern of change in both the global colour TV industry and the consumer electronics sector in general. The first stage, examined in this chapter, deals with an industry comprised of integrated firms which manufactured all their parts in Canada. The second stage, to be described in Chapter 4, begins in the mid-1970s when the Canadian industry reached a crisis. The origins of these colour TV difficulties can be perceived soon after the industry's start in Canada, but this basic vulnerability apparently was

overshadowed by the excitement and optimism often associated with any new technology.

3.1 THE EARLY YEARS OF CANADIAN TV MANUFACTURING

The Canadian colour TV industry started around 1965, but black and white TV manufacturing began much earlier by companies which would later shift into colour TV manufacturing.

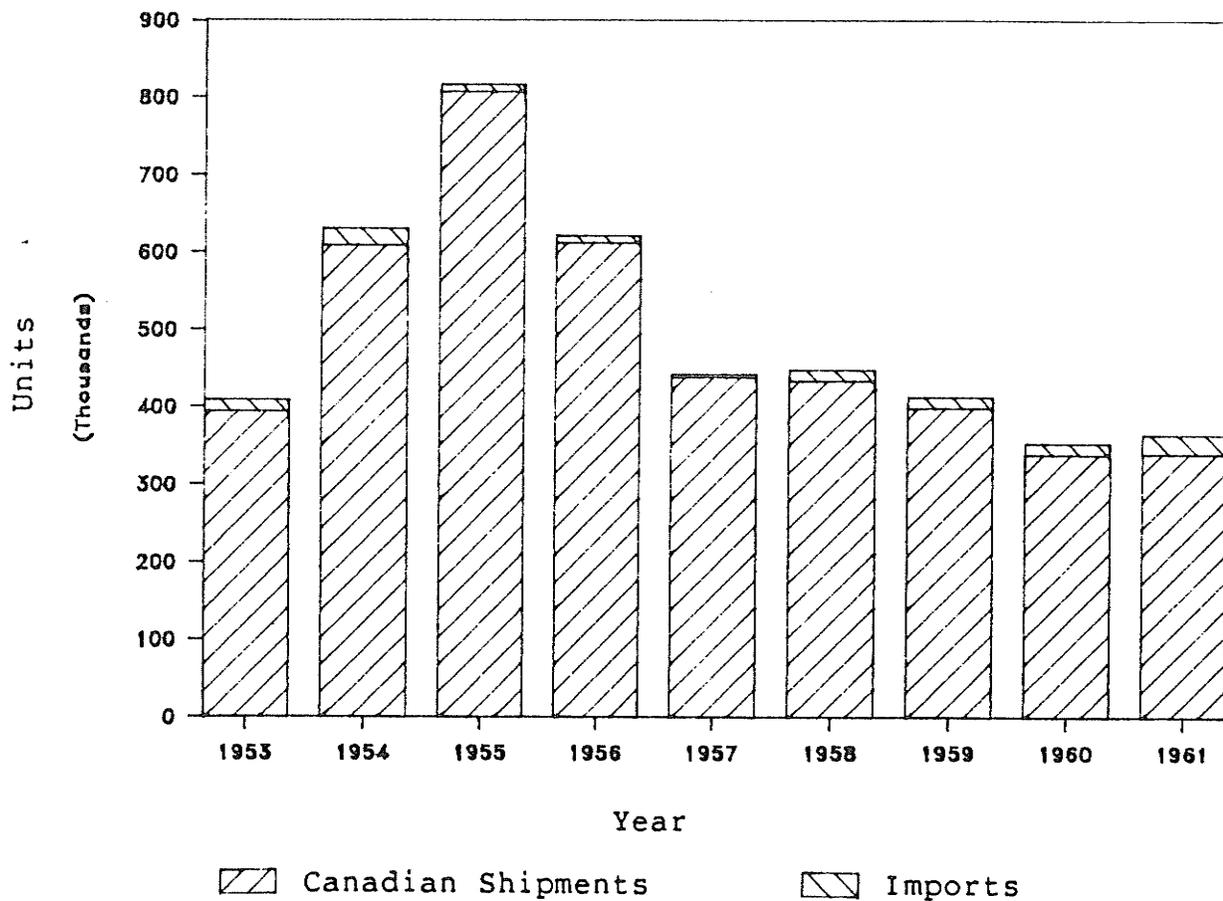
The Canadian TV industry began modestly in the mid-1940s. At that time, a very small number of black and white TVs were produced.⁵¹ Following the first Canadian television transmissions in 1952, in Toronto and Montreal, the number of black and white TVs produced in Canada rose dramatically. This is shown in Chart 3.1. A peak was reached in 1955, when 806,000 TVs were manufactured in Canada. The percent supplied by domestic producers was typically over 90 percent, and until 1963 was always more than 95 percent. Much of the explanation for this lies in the existence of a company called Canadian Radio Patents⁵² and a tariff of 20 percent on TV imports.

⁵¹ The Tariff Board, Report by the Tariff Board Relative to the Inquiry Ordered by the Minister of Finance Respecting Radio, Television and Related Products, reference no. 123 (Ottawa: Queen's Printer, 1965).

⁵² Ibid.

Chart 3.1

Apparent Canadian Market for TVs
1953-1961, Units



Notes: Apparent Canadian Market is equal to Canadian Shipments plus imports (exports have been negligible).

TVs include radio-phonograph-television, or three-way combinations.

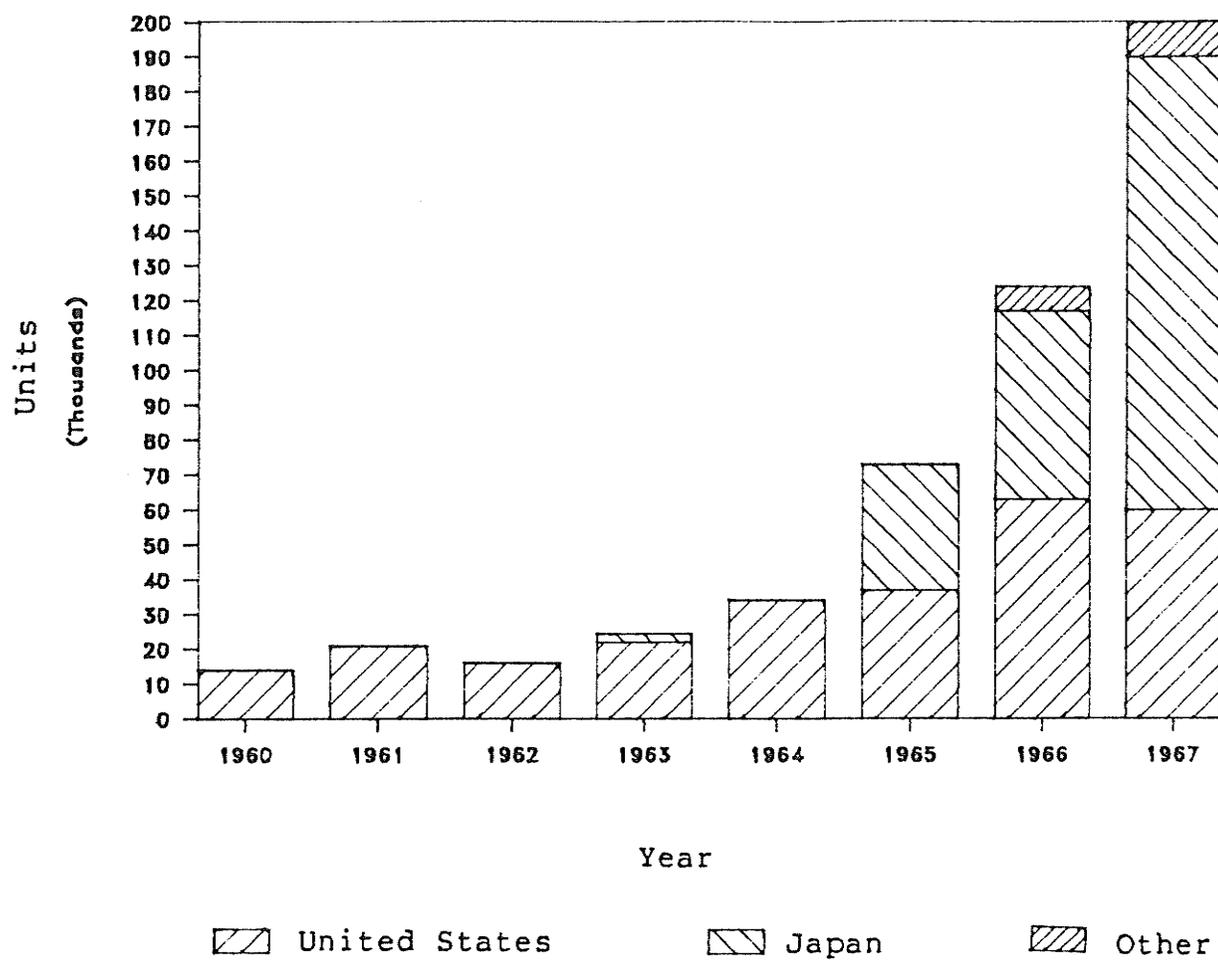
Source: The Tariff Board, Report by the Tariff Board Reference No. 123 (Ottawa: Queen's Printer, 1965, p. 37).

Canadian Radio Patents was incorporated in 1926, formed initially by five companies active in the radio manufacturing industry in Canada. The company controlled the licensing rights under which were most of the important patents relating to inventions which were necessary for the construction of radio receiving sets and, later, TVs as well.

Canadian Radio Patents and the 20 percent tariff on imports effectively protected the Canadian market for Canadian producers. The tariff, of course, raised the price of imports relative to Canadian produced TVs. Canadian Radio Patents allowed member companies and other companies interested in manufacturing in Canada to pay a single royalty in order to get a license allowing them to make use of the necessary patents. This made it easier to manufacture radios and TVs in Canada. On the other hand, Canadian Radio Patents did not sell licenses to those who wanted to import the radios and TVs, unless the kind or size of item was not manufactured, at least not to a significant extent, in Canada.

These imports, which were small in number, came largely from the United States. A small proportion came from Japan and western Europe. Imports from the United States and Japan are shown in Chart 3.2.

Chart 3.2

Sources of Imports of Colour TVs by Exporting Country
1960-1967, Units

Source: Statistics Canada, Imports by Commodities and Countries, cat. no. 65-007 (various issues).

3.2 1965-70: THE BEGINNING OF COLOUR TV PRODUCTION

In October of 1966, colour transmission from Canadian TV stations first reached the screens of people's TVs.⁵³ In the United States, where audiences had been exposed to colour programming earlier, colour TV sales were quite good. It was anticipated by many that the sales in Canada would rise rapidly, as well.⁵⁴ Colour TVs were relatively expensive and regarded as a luxury good, however.

Imports, especially in black and white TVs, began to enter more rapidly after 1966. This was for three principal reasons: the expiry of many patents, the less active role that the Canadian Radio Patents was playing for colour TVs (as patents expired the company became less vigilant in checking what TVs were imported, and whether licenses were used), and the tariff rate on TVs was reduced in 1965 to 15 per cent.⁵⁵ TV producers perceived the future of TV manufacturing would be in colour TVs--the black and white market was by the early 1960s a replacement market, and imports were increasing. By 1966, the TV manufacturers

⁵³ M. Sinclair, "Colour TV: Glorious Colour Will Burst Upon (some) Canadians..." Financial Post, 60 (August 27, 1966), pp. 1,4.

⁵⁴ For instance, please see Ibid. and "Future is Bright for Colour TV Makers," Financial Post, 60 (September, 1966), p. E3.

⁵⁵ A chronological listing of government measures affecting the Canadian colour TV industry is provided in Appendix A.

in Canada were starting or preparing for colour TV production. These included Canadian Admiral, Canadian General Electric, Canadian Westinghouse, Clairtone Sound, Electrohome, Fleetwood, Philco of Canada, Philips Canada, RCA, and Sparton of Canada.⁵⁶ The entry and departure of companies in the Canadian colour TV industry is capsuled in Chart 3.3.⁵⁷

Although the 15 percent tariff on colour TVs still provided protection to companies in Canada, certain features began to be noticeable. The above manufacturers were quite large in number for the size of the domestic market (under 200,000 colour TVs per year). The MNC parents to these companies allowed the companies to proceed with colour TV research and design, making use of Canadian expertise from black and white TV manufacturing and Canadian engineers. Canadian facilities were as advanced as any elsewhere, but the MNCs--mainly American and European--also carried out research in their other affiliates. In its early years of colour TV technology no company had firm leadership, and companies used all of their international operations to make advances. As a result companies in Canada could participate

⁵⁶ The Tariff Board. Report by the Tariff Board Relative to the Inquiry Ordered by the Minister of Finance Respecting Radio, Television and Related Products, Reference No. 123; also see Anti-dumping Tribunal, Transcript of Hearing, Monochrome and Colour TV Sets, August 9, 10 and 11, 1971 (Ottawa, 1971).

⁵⁷ For short descriptions of individual company experiences, please see Appendix B.

Chart 3.3
Companies in the Canadian Colour TV Industry

	1966	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Canadian Admiral	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
Canadian General Electric	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x						
Canadian Westinghouse	x	x	x	x	x	x															
Clairtone	x	x	x	x	x	x															
Electrohome	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Fleetwood (GTE Sylvania)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Hitachi Sales Canada																					
Matsushita Industrial Canada																					
(Panasonic Industries Canada)																					
Quasar																					
Motorola of Canada																					
Mitsubishi																					
Philco of Canada																					
Philips Electronics																					
Pro-conic Electronics																					
RCA Canada																					
Sanyo Industries Canada																					
Sparton of Canada																					
Video Canada Manufacturing																					

Notes: Since 1969, GTE Sylvania Canada has held most of Fleetwood's shares. Matsushita was, until 1980, named Panasonic Industries Canada. In 1974, Quasar took control of Motorola (Quasar's parent, Matsushita of Japan, purchased Motorola and set up operations under the Quasar name).

in the new advances. In Canada, the tariffs were still needed because the small domestic market meant less output to distribute R & D costs over. Per set costs in Canada would be costly relative to imports without tariffs.⁵⁸

While the industry did sell about 120,000 colour TVs in 1967, it had confidently predicted in 1966 that it could sell 165,000.⁵⁹ By 1968, manufacturers were able to make more realistic estimates of the market's growth, and temper any optimism they may have earlier had about colour TV production with a realization that they faced a slower growing market.⁶⁰

⁵⁸ Also, as a result of Canadian Radio Patents, the companies in Canada were all used to the way of doing business where, as much as possible, 'home' manufacturing was pursued; however, this was to be increasingly tested in upcoming years.

⁵⁹ For instance, please see D. Bentley, "Color TV Breakout 'for sure'," Financial Post, 63 (September 27, 1969), pp. 1,8; A. Bruchovsky, "At Last, Color TV Set Sales Set to Start Snowballing," Financial Post, 63 (February 22, 1969), p. 23; P. R. Henry, "Color TV Sales Are Up - and Everybody (but the buyer) is Blue," Financial Post, 64 (August 29, 1970), 1,4; "Industry Expects 33% Gain Over 1967 in Color TV Sales," Financial Post, 62 (June 15, 1968), p. 27; please also see B. Jackson, "Color TV Prices Going Up (Yes, Up) Despite Sluggish Sales?" Financial Post, 61 (September 23, 1967), pp. 1,4; B. Jackson, "Canadian-made Japanese TV," Financial Post, 62 (January 27, 1968), pp. 1,5; B. Jackson, "Dazzle of Color TV Sales Ignite Production Scramble," Financial Post, 62 (November 2, 1968), p. 3.

⁶⁰ Please see especially Bentley, "Colour TV Breakout 'for sure'"; Bruchovsky, "At Last, Color TV Set Sales Set to Start Snowballing"; and "Industry Expects 33% Gain Over 1967 in Color TV Sales".

In the meantime, imports of black and white portable TV sets steadily captured a greater proportion of the domestic market. Chart 3.4 displays the growth in imports in black and white TVs, from 1964 through to 1979 when black and white TVs stopped being produced in Canada. With companies in Canada shifting to colour TVs, and the Canadian Radio Patents no longer as effective (with patents expiring), the market became increasingly served by imports.

3.3 1971-75: INTENSE COLOUR TV IMPORT COMPETITION

The market for colour TVs, and consumer spending in general, picked up around 1971.⁶¹ Some figures on the increase in TV sales at this time are presented in Chart 3.5. Sales in 1971 and 1972 were reported to be \$125 million and \$174.2 million, respectively.⁶² The growth in colour TV sales also reflects families who were now purchasing colour TVs, after having postponed buying perhaps to learn more about the individual products. A removal of a 15 percent excise tax on home-entertainment equipment in

⁶¹ Finance Canada, Economic Review (Ottawa: Supply and Services Canada, various issues).

Please also see B. Jackson, "Color TV Sales Take Off At Last," Financial Post, 65 (November 20, 1971), pp. 1,4.

⁶² Anti-dumping Tribunal, Statement of Reasons To Finding of the Anti-dumping Tribunal in Inquiry no. ADT-4-75 Under Section 16 of the Anti-dumping Act (Ottawa: October 29, 1975).

Chart 3.4
Canadian Shipments and Imports of Black and White TVs
1964-1979, units

Year	Canadian Shipments	% Total	Imports	%Total
1964	564,634	94	34,572	6
1965	514,043	89	63,968	11
1966	639,841	100	-	0
1967	confidential	100	-	0
1968	confidential		199,646	
1969	confidential		175,687	
1970	305,273	56	239,238	44
1971	257,597	51	250,472	49
1972	238,966	39	366,636	61
1973	194,851	41	276,662	59
1974	111,844	27	297,810	73
1975	84,674	29	203,581	71
1976	64,449	12	459,178	88
1977	29,570	7	405,911	93
1978	confidential		321,710	
1979	-	0	506,558	100

Source: Statistics Canada, Manufacturers of Household Radio and Television Receivers, catalogue no. 43-205 (various issues).

Statistics Canada, Imports By Commodities and Countries, catalogue no. 65-007 (various issues).

Chart 3.5
Personal Expenditure and TV Sales, 1972-1975

Year	Personal Expenditure		TV Sales	
	millions \$	% Δ	millions \$	% Δ
1972	62,208		271	
1973	71,278	15	326	20
1974	83,388	17	319	-2
1975	96,995	16	260	-18

Source: Statistics Canada, National Income and Expenditure Accounts (various issues), and Tariff Board, Report of The Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985).

July of 1971 by the federal government spurred demand for colour TVs as well.

Even though the domestic colour TV market picked up, much of the increase was met through increased imports. By 1970, imports had increased to a 69 percent share of the domestic market. The domestic manufacturers, who were all trying to maintain what market share they could, were concerned that the imports were being sold at too low prices. The industry reported to the government that their profits were very low and falling. They filed complaints with the government. An investigation was made,⁶³ and consequently, in July of 1971, Customs and Excise levied provisional anti-dumping duties on several makes of Japanese and Taiwanese TVs. This followed by only a few months, a similar finding of dumping by the United States against TV imports from Japan and Taiwan.

In Canada, after provisional anti-dumping duties are applied against particular imports, cases are referred to the Anti-dumping Tribunal.⁶⁴ Dumping duties can be

⁶³ Detailed and lengthy descriptions of the complaints and related discussions are available in Anti-dumping Tribunal, Transcript of Hearing, Monochrome and Colour TV Sets, August 9, 10 and 11, 1971.

⁶⁴ The Anti-dumping Tribunal has a chairman, four other members, a secretary, and a research and support staff and conducts public and closed hearings, personal interviews, in-house research, statistical and financial analysis, interviews with Canadian manufacturers and associations, and inspection of facilities.

At any time after the date of an order or a finding made by the Tribunal, it can review, rescind, change,

levied on the imported product, in this case colour TVs, after an investigation by the Tribunal determines its price to be less than the normal value (generally the fair market value in the country of origin) and the imported product is either causing material injury to the production of like goods or hindering the establishment of their production in Canada. On the basis of its investigation, the Tribunal reported on September 21, 1971 a finding of injury.⁶⁵ An overview of the import levels for a few years up to and including 1972, from all sources including Japan, Taiwan and some other nations, and the Canadian shipments, are presented in Chart 3.6. It can be noted that TV sales increased between 1970 and 1972 by 140 percent, to 817,000 units. However, imports held on to over 60 percent of the market even after the dumping decision.⁶⁶

alter or vary the order or finding or may rehear any matter. The Tribunal reports to Parliament through the Minister of Finance.

⁶⁵ The specific finding of the Tribunal was that dumping of TVs having a screen size of 12 inches and over, from Japan and Taiwan (not including such TVs manufactured in Japan by Sharp or Sony) had resulted in lost sales, lost profit and lost employment to Canadian TV producers and had and is likely to continue to cause 'material' injury to Canadian producers and production in Canada.

⁶⁶ However, on October 6, 1972, the Tribunal ruling was successfully appealed in the Federal Courts by the exporting firms and the dumping duty collected was refunded to the firms that paid it. A similar happening occurred in the United States. Nevertheless, an easing up in the dramatic growth rate in imports appeared to have occurred. Chart 3.6 shows that the import share decreased by 7 percentage points between 1970 and 1972.

Chart 3.6

TV Sales in Canada, 1970-1972,
in '000 units

Year	Made in Canada	% Total	Imports	% Total
1972	312	38	505	62
1971	174	35	325	65
1970	106	31	234	69

Source: Electronics Industries Association of Canada (data based on Statistics Canada Reports), cited in:

Gordon D. Hutchison, "Has There Been An Injury? The Facts are not Clear", Financial Post (October 11, 1975).

The companies producing colour TVs in 1971 included Canadian Admiral, Canadian General Electric, Canadian Westinghouse, Clairtone Sound, Electrohome, Fleetwood, Motorola Canada, Philco Ford of Canada, Philips Canada, and RCA.⁶⁷ In the next year, three Japanese MNCs entered. Sanyo was the first Japanese MNC, in early 1972.⁶⁸ Hitachi's Canadian operation was its first off-shore assembly plant.⁶⁹ In May of the same year, Matsushita Electric of

⁶⁷ Canadian Westinghouse stopped producing colour TVs in Canada in 1971. Clairtone Sound was to cease its operations in 1971, too, but not for reasons directly related to its colour TV activities. Sparton apparently ceased quickly, in the late 1960s. See Appendix B.

⁶⁸ Through Magnasonic, of which it then owned 50 percent, it began by assembling black and white TV sets. By 1972, the firm was planning for the manufacture of colour TVs for both the Canadian and United States market.

⁶⁹ An interesting piece is H. McIntyre, "'Typhoon Pepin' Blows in Two Japanese Industries," Financial Post, 66

Canada, selling Panasonic electronic products, also opened a colour TV assembly operation. Soon afterwards, through a purchase of another company by Matsushita, the Matsushita Electric of Canada plant would also be assembling Quasar colour TVs for the Canadian market.

Reduced protection in the form of the General Preferential Tariff (GPT) was to increase imported colour TVs from lesser developed countries. The GPT was implemented as Canada's contribution to the international system of tariff preferences for developing nations. The intent of offering preferences is to assist developing countries to expand their exports of manufactures, including colour TVs, and semi-manufactures to developed country markets. The legislation for the GPT received Royal Assent in April of 1972, and was introduced on July 1, 1974.⁷⁰

The Canadian preferential rate on industrial products was set at two-thirds the Most-Favoured-Nation (MFN) rate of duty or the British Preferential Tariff rate, whichever is lower. In the early sixties, the MFN rate on TVs and TV apparatus and parts was 15 percent, having fallen from the

(May 20, 1972), p. 40. In it is suggested that part of the reason for their entry was to ameliorate a large positive Japanese trade balance with Canada. Also please see B. Jackson, "Canadian-made Japanese TV," Financial Post, 63 (July 17, 1971), p. 5.

⁷⁰ This was met with displeasure by the domestic industry: G. D. Hutchison, "Electronics Industry Blows Tube Over New Tariff Bill," Financial Post, 68 (June 29, 1974), p. 8.

20 percent, which existed before then. The British Preferential Tariff rate was duty-free for TVs.

Chart 3.7 shows the colour TV import figures from the countries which became eligible for the GPT, for the period 1970 to 1975, the year after the GPT was introduced. Before 1974, the figures were very low. Indeed, total imports from the GPT countries were less than 500 in number annually until 1974.⁷¹ In 1974, they jumped to over 4000, and in 1975, to about 13,000 colour TVs. Still, imports from GPT countries remained relatively minute. For instance, while the imports from the GPT countries were about 13,000, Canadian production provided about 400,000 colour TVs and other imports another 300,000 colour TVs.⁷²

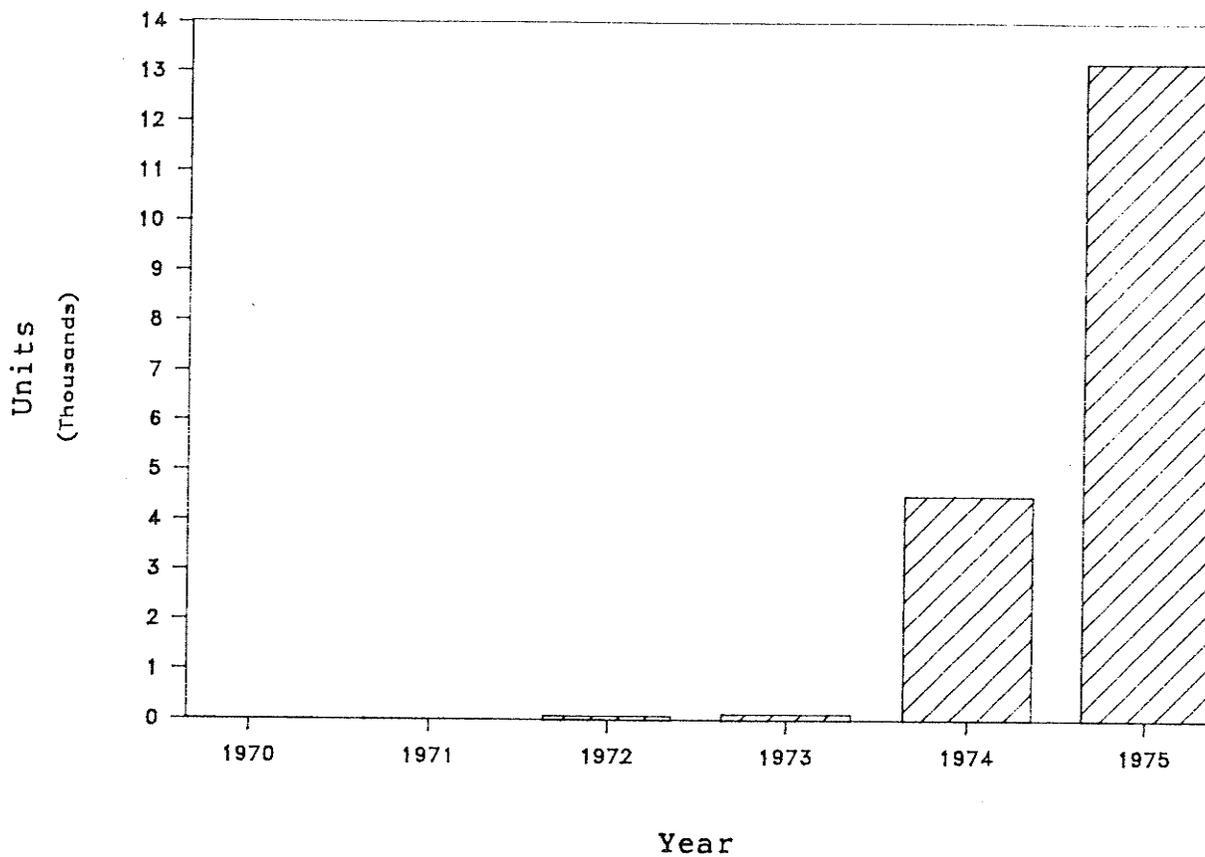
Colour TV purchases hit a record peak in 1974 of nearly one million units. However, many of these were smaller colour TVs. A recession was setting in, following on the heels of the energy crisis, and the domestic producers manufactured more of the higher-price, larger colour TVs,

⁷¹ Singapore accounted for almost all of the imported TVs from the group of countries which were becoming eligible for the GPT. Singapore already received the British Preferential Tariff rate. Imports from this country were just beginning to grow, and indeed, TV imports from other developing countries had been very small from these countries. Imports continued to grow from Singapore and from other developing countries, too, now.

⁷² An expose is provided in: Industry, Trade and Commerce, Canada, Import Analysis Branch, Import Analysis: TV Receiving Sets (Ottawa: 1974).

Chart 3.7

Colour TV Imports, General Preferential Tariff Countries
1970-1975, Units



Source: Statistics Canada, Imports by Commodities and Countries, cat. no. 65-007 (various issues).

which were more sensitive to the recession. Moreover, since no significant growth in any part of the market was anticipated for the near future, with the rising level of colour TV imports, this could only mean a shrinking market share for domestic makers. An impact was also expected to be felt by the components sector, since at this time, about 50 per cent of the components were still produced by domestic suppliers (Financial Post, June 29, 1974).⁷³

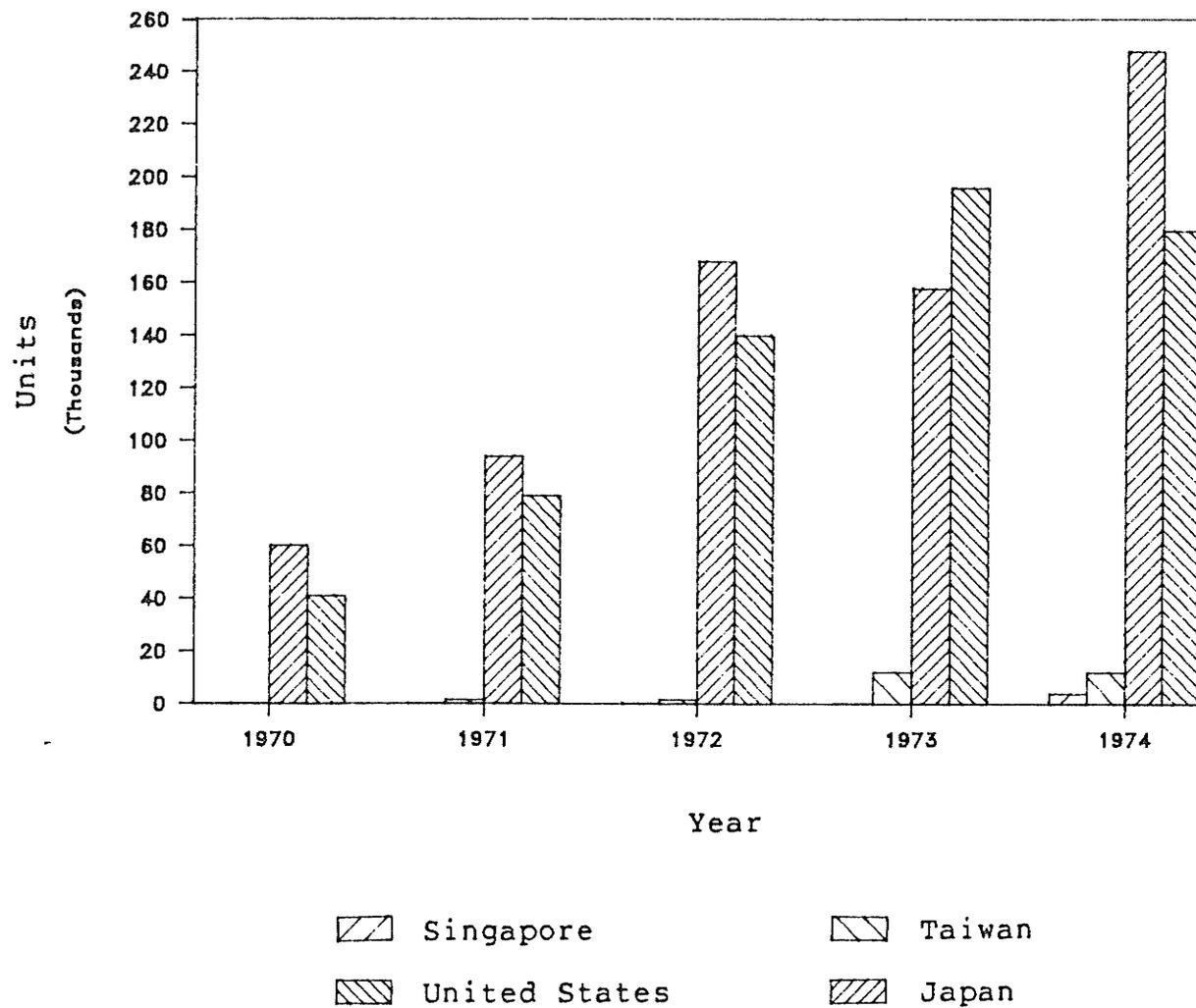
The United States provided a very large portion of the Canadian colour TV imports. As can be noted, too, in Chart 3.8, imports of colour TVs from Japan, Singapore and Taiwan about doubled between 1972 and 1974. Imports from Japan, Singapore and Taiwan were in those segments of the colour TV market that were growing fastest. Domestic production of colour TVs with screens 16 inches and larger remained in the 63 to 68 percent range of domestic market for this size colour TV from 1971 to 1975.

In 1974 another dumping issue arose. Canadian Admiral, Canadian General Electric, Electrohome, Fleetwood and Philips approached the Department of National Revenue, Customs and Excise and on November 20, 1974, an investigation was initiated.⁷⁴ Throughout the remainder of

⁷³ One producer, Philco-Ford of Canada, stopped making colour TVs in 1974.

⁷⁴ "Color-TV 'dumping' Probe", Marketing, 80 (February 24, 1975), p. 15; "Ottawa Looks into TV Set Dumping", Marketing, 80 (September 1, 1975), p. 9.

Chart 3.8
Major Colour TV Exporters to Canada
1970-1974, Units



Source: Statistics Canada, Imports by Commodities and Countries, cat. no. 65-007 (various issues).

1974 and into the early part of 1975, Customs and Excise took note of the import of colour TV sets with screen sizes 16 inches in diagonal length and longer (in Canada, the whole screen is measured--this differs from the practice in the United States of measuring only the visible part of the screen in cabinet). Originally, the investigation looked at Japan, Taiwan and the United States, but on the eighth of May was expanded to include TVs coming in from Singapore.

The industry and the labour unions had in the past requested additional protection, such as import quotas and tariffs.⁷⁵ The situation became very critical in 1975. The TV unions marched on Parliament Hill and conducted a tremendous mail campaign directed at members of Parliament that continued into 1977. The government was now carrying out its second dumping inquiry. On July 14, 1975, the Trade and Industry Minister indicated to the cabinet that the colour TV manufacturing industry in Canada could not survive for more than a few more years. The domestic plants could not compete against imports from much larger, technologically advanced operations from overseas.

⁷⁵ The industry's employment, which was 6,000 in 1973, was falling by hundreds quite quickly (please see below). This became the topic of government memoranda (Department of Industry, Trade and Commerce), as well as media news coverage of the day.

It was a pervading view that without any major changes in the industry structure and policy environment, the industry would soon disappear.⁷⁶ Already, Electrohome's survival was becoming questionable. In addition, the design capability of the entertainment product division of GTE Sylvania Canada (Fleetwood) was removed by the parent company in the United States.⁷⁷ The GTE Sylvania Canada facility would import a greater portion of the basic electronic assembly and perform more of an assembly operation in Canada. RCA was substantially reducing the overhead in its Canadian operations. A large concern for the government was the significant impact on the communities and the consumer electronics industry as a whole, of the sudden ceasing of activities of individual companies.⁷⁸ So, on July 14, while the dumping investigation was going on, the Canadian cabinet ordered the Department of Industry, Trade and Commerce to present an action plan.

⁷⁶ Please see G. D. Hutchison, "Canadian TV Manufacturers Are 'Fighting for our Survival'," Financial Post, 69 (September 20, 1975), p. 2.

⁷⁷ In Canada, the small market, which when shared by the above mentioned companies and imports, left each company producing about 50,000 sets. This is small, compared to plants in the United States and Japan which were producing much in excess of 100,000 sets annually. Manufacturing costs such as design and engineering research had a smaller production to be spread over. The domestic companies could not get the same economies of scale as could plants and operations in other countries.

⁷⁸ This was indicated in a number of Department of Industry, Trade and Commerce memoranda.

On July 31, 1975, Customs and Excise came up with its preliminary determination: dumping was occurring, and certain makes and models of TVs were to be charged provisional duties of as much as 20 percent. The case then went to the Anti-dumping Tribunal.⁷⁹ On October 29, 1975 the Tribunal gave its report. It found that dumped colour TVs imported from Japan, Singapore and Taiwan 'had not caused and were not causing material injury, but were likely to cause material injury.'⁸⁰ It noted that Japanese imports increased in 1974, and would likely continue to increase. However, the Tribunal was not able to support the contention that the domestic industry had been injured by the imports. Consumer resistance to high-priced luxury goods during the recent recession, and

⁷⁹ Anti-dumping Tribunal, Finding of the Anti-dumping Tribunal in Inquiry no. ADT-4-75 Under Section 16 of the Anti-dumping Act (Ottawa: October, 29, 1975); and Anti-dumping Tribunal, Statement of Reasons (To Finding of the Anti-dumping Tribunal in Inquiry no. ADT-4-75 Under Section 16 of the Anti-dumping Act (Ottawa: October 29, 1975).

In the transcript of the hearing that is available, key topics raised at the hearing included the speed at which overseas companies could develop and incorporate innovations, quality, and advantages of using mass production techniques: Anti-dumping Tribunal, Transcript of Public Hearing, TV Receiving Sets, September 9, 16-19, 22-24, and 26, 1975 (Ottawa: 1975).

⁸⁰ Anti-dumping Tribunal, Finding of the Anti-dumping Tribunal in Inquiry no. ADT-4-75.

Please also see: G. D. Hutchison, "Anti-dumping Tribunal: TV Makers Will Need to Learn to Stand on Their Own Feet," Financial Post, 69 (November 15, 1975), p. E2; G. D. Hutchison, "Has There Been An Injury? The Facts Aren't Clear," Financial Post, 69 (October 11, 1975), C3; and T. Messer, "Anti-dumping Body Says Domestic TV Industry Has Not Been Hurt Yet," Marketing, 80 (November

the late start by domestic producers in the solid-state era were the main reasons identified in the Tribunal's report for the industry's difficulties.⁸¹

The finding of the Tribunal marked the critical moment for the industry. The most recent entries in the Canadian industry, the Japanese companies, packaged complete imported chassis in cabinets with domestically produced picture tubes. The remaining manufacturers had to accede to the fact that assembling imported sub-assemblies would be the only way domestic colour TV manufacturers would be able to compete with TV imports and the assembly by the other producers.⁸² There were much lower scale economies in assembly.⁸³ This had grave implications for the industry. Component manufacturers who had served the chassis/assembly activity had to curtail their

17-24, 1975), pp. 16,18.

⁸¹ The Tribunal came to the same finding for imports from Singapore and Taiwan. In their cases, the finding had not so much to do with the level of past imports. In fact, only in 1973 were imports from Taiwan found to reach levels of importance, and in the case of Singapore, only in the first half of 1975. The crucial consideration in their cases was the presence of two major Japanese producers in these countries who were likely to export TVs from these nations.

⁸² B. Jackson, "Canadian Color TV Makers Say They Need Price Increase," Financial Post, 70 (January 17, 1976), p. C2; and "Why it Pays to Go Offshore", Financial Post, 70 (April 3, 1976), p. 7.

Canadian Admiral was still committed to manufacturing its chassis in Canada.

⁸³ This was substantiated in interviews with experts in the industry.

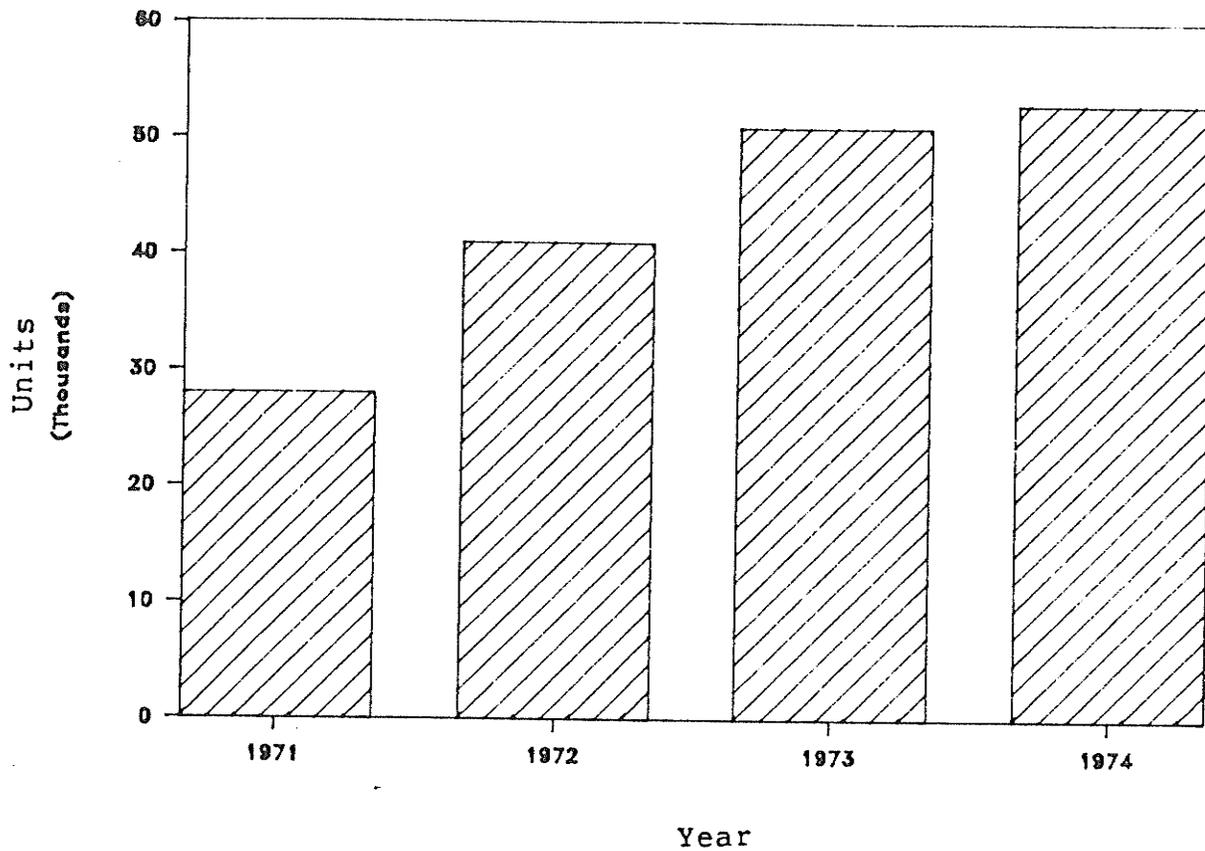
Canadian operations or cease. As well, with the end of chassis manufacturing, the companies moved out of design. The many engineers employed in the industry were no longer needed.⁸⁴ Only small design changes would still be done in Canada and would be minor and mostly associated with standards and regulatory requirements.

The Japanese companies assembling in Canada, which included Matsushita Electric of Canada, Hitachi Sales of Canada, and Sanyo Canada, were also importing complete TVs (especially small ones). The other manufacturers (Electrohome, RCA, Philips) were also feeling the pressure to fill out their product lines through imports. The finding by the Tribunal signalled that these other producers would have to rely more greatly upon importing TV sizes that they could not competitively make. The degree to which Canadian producers were already doing this is shown in Chart 3.9. These were almost all the small portable or table sized colour TVs.

⁸⁴ In 1973, employment in the colour TV industry was estimated to be 6,000 (The Tariff Board, 1983, p. 7). By 1976, employment had fallen to 2,600. At Electrohome alone, hundreds of engineers and research and design people were to lose their jobs in 1975.

Chart 3.9

Domestic Producers' Colour TV Sales
16" and Over from Imports
1971-1974, Units



Source: The Tariff Board, Report by the Tariff Board
Reference No. 160.1 (Ottawa: Supply and
Services Canada, 1985).

3.4 CONCLUSION

The aim of the tariff measures on TVs until 1975 was to protect the domestic activity in TV manufacturing. The high tariffs, the Canadian Radio Patents, plus high transportation costs from overseas locations helped foster a radio and black and white TV manufacturing industry in Canada. The companies that grew during the 1950s and early 1960s did research, design and engineering. The domestic radio and black and white TV operations provided the infrastructure and technology base that allowed Canada to begin colour TV manufacturing when Canadian colour transmission and a growing market for colour TVs began in the mid-1960s.

In this first stage, the Canadian industry grew, but profits remained low and imports rose fast. Its political economy was vulnerable. The companies in Canada were entering a more globally competitive world, and were unable to compete in parts with large off-shore, world-export oriented factories with lower labour costs. The operations in Canada, small and directed to the domestic market, could not obtain the scale economies now realized in the manufacture of major sophisticated components. An organizational change developed among the MNCs with plants in Canada. Increasingly, they carried out the manufacture of key parts off-shore in large plants and a shift in their international manufacturing strategy became evident. The

MNCs with plants in Canada began to specialize more in product lines, making bigger colour TVs for the Canadian market and importing smaller TVs from overseas affiliates. They also carried out the sophisticated manufacturing stages in overseas locations. Assembly, which has much lower economies of scale than chassis and other forms of manufacture, became the fact in Canada.

Further, it should be noted that domestically-produced colour TVs were not sufficiently differentiated from imports to escape the effects of competitively-priced imported colour TVs in the Canadian market. The rapid innovation of new features and improved technology also hurt domestic firms. They were unable to take the lead in technology and this meant that they did not have the consumer appeal of Japanese imports; the domestic companies were always playing 'catch-up' in features. The distinctly Canadian company, Electrohome, lacked the marketing advantages of competitors which could reach Canadian consumers through cross-border advertising, with promotion of their name brands across a wide product range. This gave their competitors more advertising impact with lower per unit advertising costs.

Chapter IV

CANADIAN COLOUR TV INDUSTRY FROM THE MID-1970S TO THE PRESENT

In this chapter, government shifts in policy directed towards the industry responses will be discussed. Further developments in international colour TV manufacturing, including the rise in imports from NICs, and the issue of the GPT for colour TVs, will be highlighted. This second phase of the industry is fundamentally defensive.

4.1 A PROGRAM TO SAVE THE INDUSTRY

What seemed clear by 1975 was that the industry could not last much longer with its present structure.⁸⁵ The Department of Industry, Trade and Commerce held preliminary discussions with all the companies, including key United States and Japanese parent companies. The scenario set out by the government in the negotiations was one of decreasing tariff protection.⁸⁶ The Multilateral Trade Negotiation (MTN) reductions would result in the gradual

⁸⁵ This was indicated in Department of Industry, Trade and Commerce memoranda of the time.

⁸⁶ This was a matter that the industry already expressed its disapproval over. Please see C. Baxter, "What Electronics Industry Wants From the Gatt Negotiations," Financial Post, 69 (March 22, 1975), 18; and S. Duncan, "Tell Your Tariff Tales Now," Financial Post, 69 (February 22, 1975), p. 1.

decrease in the 15 percent tariff on TVs and parts to 7.5 percent. The goal of the negotiations was to find some way to extend the life of the industry. It was also hoped that this could be done without increasing the prices consumers would have to pay for TVs, nor restricting the consumer choice of models. It was foreseen that large-scale facilities of some sort would be necessary for the industry to be maintained over a long period of time.⁸⁷ Only through scale economies could the domestic industry be competitive in the manufacture of components. The initial negotiations were therefore concerned with establishing what was described as a 'core' company: one whose production capability would be equal to that of the merging of several of the companies in Canada. Two options were given serious consideration:⁸⁸

1. The creation of a joint production facility, or core manufacturer, by two or more of the manufacturers in Canada;

⁸⁷ G. D. Hutchison, "Rationalization Possible to Save Color TV Industry," Financial Post, 69 (June 7, 1975), p. E4.

⁸⁸ International competitiveness, it was believed, could only be achieved if it were possible to develop in Canada, in collaboration with one or more major and international leaders in colour TV technology, a Canadian 'centre of excellence': capable of producing competitively priced colour TVs, and adapting technology advances for the development of new colour TVs and other consumer electronic products.

It is interesting to note that around this time, the need keep up with advancements in electronics generally was being recognized: for instance, please see R. Steklasa, "Electronic R & D Boost is Vital," Financial Post, 72 (September 16, 1978), p. 23.

2. The transfer to Canada by a multinational firm of its North American production of colour TVs and parts, with possible participation by other companies in Canada.

Both of these options required the participation of multinational firms. Only through them could a technology base of advanced R & D be attained that would permit up-to-date TVs and new or modern products to be manufactured. However, the multinational firms rejected the possibility of joining forces in Canada while they remained competitors in the rest of the world (one reason being fear of United States anti-trust legislation, but also an unwillingness to be involved with a competitor in a small market while trying to keep secretive and combative in their dealings with each other in major markets). The second option was for a time seen as promising, but all the multinational companies indicated that they had more attractive locations than Canada for producing for the North American market.

At this point, the Department of Industry, Trade and Commerce came to believe that the Canadian industry could not survive much longer.⁸⁹ The department concluded that,

⁸⁹ In negotiations with the industry, the government pointed out that the choices for discussion included the government taking no action, or the government providing incentives for cost reductions to the industry to postpone its demise. At least, the latter could provide them with more time to adjust. Without any help, it was predicted the industry would cease in two years. It then set to work out a way it might help to

after careful consideration of alternative policies, no policy could permanently maintain the industry in Canada. Without some effort the industry would cease in two years. However, it was believed that a program could be devised to prolong the life of the domestic industry as much as another five years. A more slowly and orderly phase out would forestall the costs involved of a rapid decline. It was recognized that the industry's failure would eliminate about 2,400 employees directly, and 3,600 indirectly, would increase Canada's trade deficit by \$100 million, and result in the loss of approximately \$10 million that the Province of Ontario and the federal government had invested in the tube facility in Midland, Ontario, which was dependent upon domestic demand.⁹⁰ However, the Program would not make the industry competitive in the longer term, but would only maintain employment for a few years beyond the expected date of closure.

rationalize the activities of the companies in Canada. A program was formulated. In November of 1976, the department recommended a program to the cabinet, based on its negotiations with the industry.

⁹⁰ There was also the prospect of further union unrest, increased unemployment expenditures and welfare payments, and retraining programs.

⁹¹ Industry, Trade and Commerce News Release; Industry, Trade and Commerce, Canada, Government Five-Year Plan To Aid Television Manufacturers, (December 31, 1976).

Please also see: Ontario, Ministry of Industry and Tourism, Industry Sector Review: Manufacturers of

The cabinet announced the Program on December 31, 1976,⁹¹ there were three main elements. The first was a duty remission program, the Television Set Remission Order.⁹² In brief, the scheme was designed to allow the Canadian manufacturers to import complete TV sets duty free. This applied only to producers presently in the industry. This was to help them round out their product lines while they restructured their companies to other activities. However, the duty remission was contingent on a company maintaining its production levels and Canadian content.⁹³ The remission scheme was to run for a five year period, from January 1, 1977 to December 31, 1981.

Household Radio and Television Receivers (Toronto: Ministry of Industry and Tourism, 1979); The Sector Task Force on the Canadian Electronics Industry, A Report (Ottawa: 1978); and G. D. Hutchison, "Duty Remission Plan May Brighten Color TV Outlook," Financial Post, 70 (October 16, 1976), p. 15.

⁹² The duty remittance was not a simple refunding of duty payments. The regulations basically consisted of three interrelated sets of eligibility criteria: manufacturing criteria; the duty remission ratio; and the value of imported TVs declared eligible. Companies which manufactured TVs in 1975 or 1976 were allowed to import, duty remitted, TVs in accordance with the ratio of the value of production of eligible goods (i.e., TVs and other goods deemed eligible) to the value of their sales of TVs in Canada. That is, the value of colour TVs the companies could import duty free depended upon the value of the individual companies' domestic activities. It was also recognized that many of the present Canadian manufacturers would withdraw early from the production of TVs in Canada, because their production and scale of TVs were too small for the program to be worthwhile pursuing. In any case, the companies were to submit business plans annually and these would form the basis for negotiations.

The second element was the maintenance of the prevailing MFN rate for colour TVs for the same five year period, 1977 to 1981, inclusive. This meant that any reduction in the MFN rate being negotiated during the Tokyo Round of MTN would not be implemented till after 1981. The prevailing rate was 15 per cent.

The third element was a measure withdrawing the GPT and British Preferential Tariff rate for colour TVs with screen sizes of 16 inches and longer. This element was originally set to be in effect for a three year period, from February 5, 1977 to December 31, 1979. In Chart 4.1 the tariff rate changes associated with the Program are summarized.

The companies did not all react the same way to the Program. Electrohome, Philips Electronics Industries, Canadian Admiral, RCA, Hitachi (HSC) of Canada, Sanyo Industries, and Panasonic Industries took part in the project. Quasar, Canadian General Electric and Fleetwood (GTE Sylvania Canada) decided not to participate and phased out their TV operations in Canada and imported their TVs from affiliates. GTE Sylvania stopped producing sets in

Recommendations to the Treasury Board would follow, as to whether the individual company would be included in the program for that year.

⁹³ They must maintain a Canadian value added (parts, labour) of at least 50 percent of the production cost of the Canadian colour TVs.

Chart 4.1

Tariff Schedule as of February 5, 1977 For
Radio and Television Apparatus and Parts Thereof:

1. Domestic colour television receiving sets and parts thereof:

British Preferential Tariff*	Most Favoured Nation Tariff	General Tariff	General Preferential Tariff*	United Kingdom & Ireland
Free	12.5 %	25 %	Free	7.5 %

2. Radio and television apparatus and parts thereof, other than the above:

British Preferential Tariff*	Most Favoured Nation Tariff	General Tariff	General Preferential Tariff*	United Kingdom & Ireland
Free	12.1 %	25 %	Free	9.2 %

* the British Preferential Tariff and General Preferential Tariff are temporarily withdrawn on colour TVs, with screens 16 inches and above.

Canada in 1978, and Canadian General Electric in 1979. Even though Philips Electronics Industries were one of the companies which, in 1976, participated in the Program, they decided to phase out of TV production in 1977--but instead of reducing its electronics efforts in Canada, it increased its efforts in the automotive electronics and telecommunications fields. Of the remaining colour TV manufacturers in Canada, only Admiral continued to have an

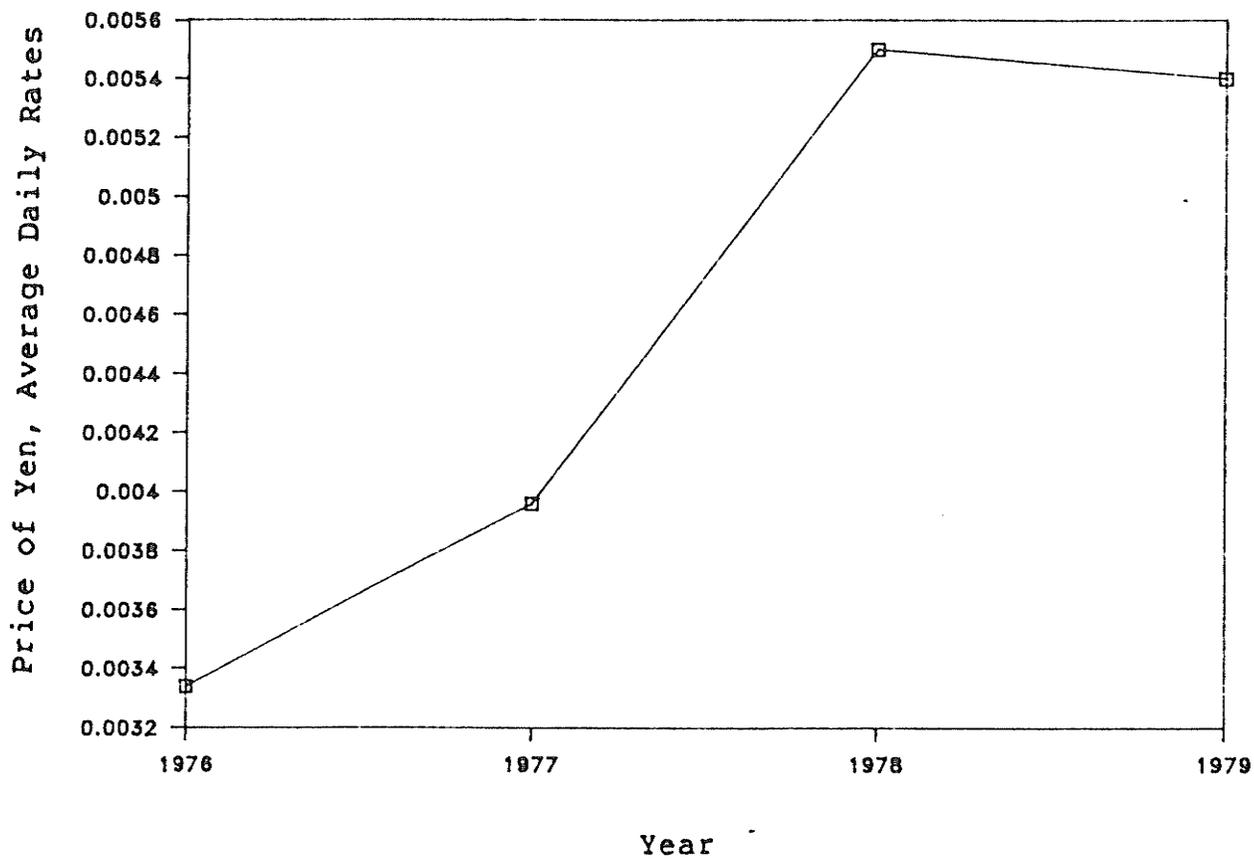
integrated operation with parts and TV chassis manufacturing. However, high labour costs and low production volume were reported as reasons why the company could not continue to produce chassis on a competitive basis, and Canadian Admiral soon planned the termination of chassis production in Canada (1979), and its exit from the industry (1982). Electrohome underwent significant restructuring: focussing its TV production on large-screen TVs. It phased out production of 20-inch colour TVs and smaller, replacing them with imports. Electrohome concentrated on other consumer and industrial electronic items. RCA produced only 20-inch colour TVs, exporting many to the United States.⁹⁴

4.2 GOVERNMENT PROTECTION AND THE SHIFT TO COLOUR TV ASSEMBLY

A few outside events helped the industry in the first few years of the Program. First, the dollar began depreciating quite rapidly from mid-1976, vis-a-vis the Japanese yen. This is shown in Chart 4.2. In the period from mid-1976 to the end of 1977, the dollar had fallen about 60 percent against the rising yen. The Canadian dollar also fell about 15 percent relative to the United States dollar. The fall in the Canadian dollar vis-a-vis the United States dollar is shown in Chart 4.3. This

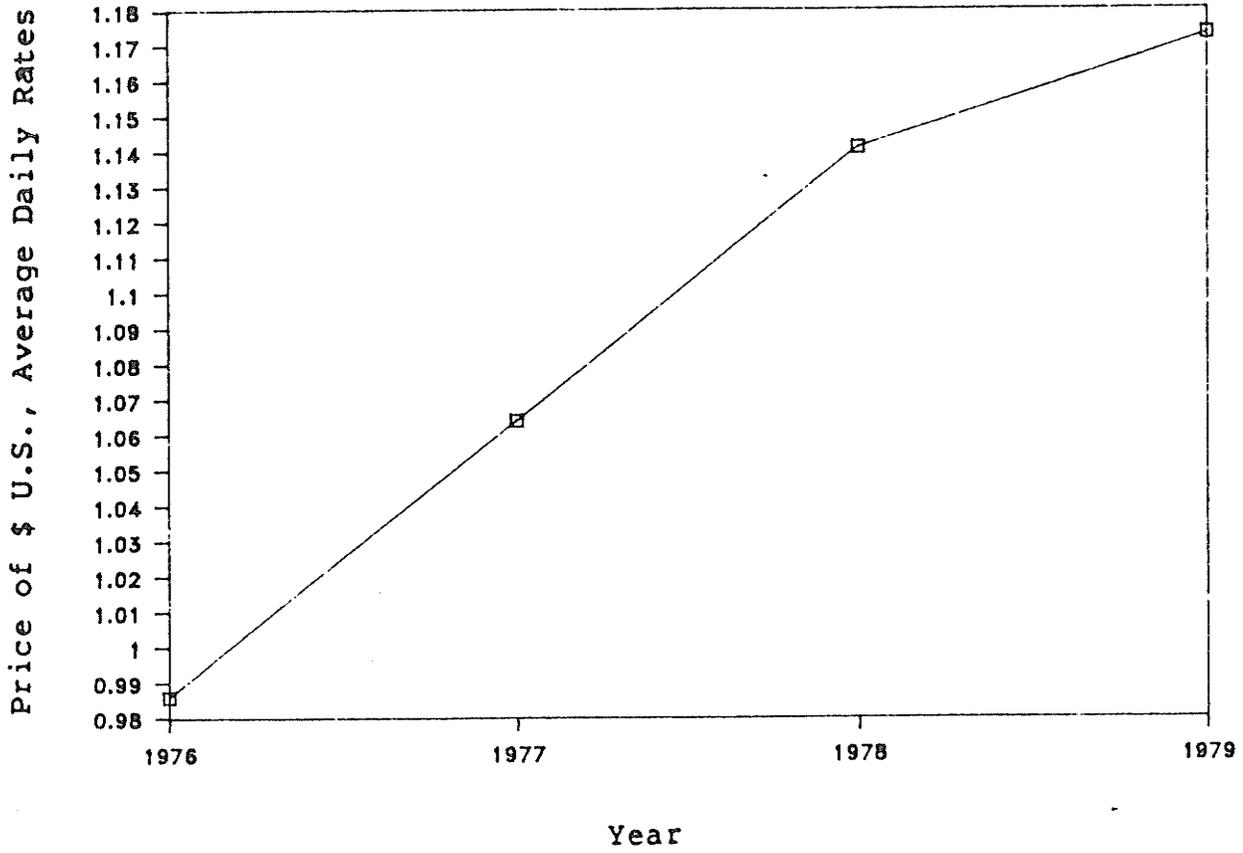
⁹⁴ However, the Program produced a market distortion effect, whereby RCA imported many of the actual sets it exported to the United States. Please see Appendix B.

Price of Japanese Yen in Canadian Currency
1976-1979



Source: Bank of Canada.

Price of United States Dollar in Canadian Currency
1976-1979



Source: Bank of Canada.

pushed up the price of imported complete TVs from these countries, relative to the price of TVs made in Canada.⁹⁵ Secondly, transportation costs to Canada were rising as a consequence of rising energy prices. These rising costs again improved the attractiveness of carrying-out TV activities in Canada. During these years, the Japanese companies in Canada began planning an increase in the volume of popular-sized TVs they would assemble in Canada. They planned on using this increase in volume to replace some of their TV imports.

The third was the discovery that the Canadian industry could carry on assembly activity for the time being, for its small domestic market under the present level of protection. Given the higher transport costs of complete TVs versus TV parts, plus the tariff, there were absolute cost advantages for companies to assemble in Canada for the domestic market. The scale economies are also low in assembly: as described in Chapter 2, there are conveying mechanisms along which workers place and fasten parts. The per set costs advantages of having one versus three or four assembly lines are not too significant.⁹⁶

⁹⁵ Still imports rose, and kept the domestic industry in difficulty. Please see: D. Olerenshaw, "Cut-throat Competition Keeps Profits Low in TV, Major Appliance Industries," Marketing, 83 (January 1978), pp. 7-8.

⁹⁶ This was pointed out by the companies (Electrohome, August 26; Matsushita Industrial Canada, August 27; Sanyo Industries, August 23; RCA, August 30) in their interviews during the summer of 1985.

The TV activities of companies stabilized. Total domestic production continued to fall, to 404,000 units in 1976 and 305,000 sets in 1977, and then 297,800 sets in 1978, but this output was achieved by fewer companies as some completely phased out their Canadian colour TV manufacturing activities.⁹⁷ Aggregate employment by the companies in the program dropped between 1976 and 1977 by 20 percent (but this was partially due to the Order in Council for the program not being issued until September 1977), but increased 7 percent between 1977 and 1978.

In 1978, the Department of Industry, Trade and Commerce decided that certain amendments in the Program were in order,⁹⁸ and on March 8, 1979, the government agreed to a number of changes. These reflected the economic and other changes that had occurred since 1976, the government's desire to fix up weaknesses in the original remission scheme, and the inclusion of additional objectives. The old Program had as objectives the rationalization of companies in the TV industry, product diversification and the phasing out of TV production in Canada in a gradual and orderly fashion. The new objectives included the continued rationalization of companies in the TV industry, and the encouragement of manufacturers to

⁹⁷ A description of individual company experiences around this period of time is given in Appendix B.

⁹⁸ Industry, Trade and Commerce, Canada, The Canadian Electronics Industry: Sector Profile, discussion paper (Ottawa: 1978).

restructure into products which will be profitable over the long term. They also now included the product rationalization of the TV tube operation in Canada, import replacement, the maintenance of the assembly operations plus the export of TVs from some companies. The development of a sub-sector of the industry, assembly, that could be viable in the face of imports, was of key importance.⁹⁹

The amount of remission for each company would be determined in relation to the company's plans for new investments in Canada for the production of other goods. On an individual basis, the recommendations for remission would be submitted by the department to the government for determination.

TV manufacturers in Canada would also now be eligible for remission of duty on imported chassis and components required for their production. This remission would start from January 1, 1979 and run till the original Program ending date of December 31, 1981.

The chassis remission scheme permitted only those few manufacturers still in the industry to import chassis, duty free. There were six companies still in Canada: Canadian Admiral, Electrohome, Hitachi (HSC) of Canada,

⁹⁹ Industry, Trade and Commerce News Release; Industry, Trade and Commerce, Government Five Year Plan To Aid Television Manufacturers (regarding changes to the Program) (March 23, 1979).

Panasonic Industries, RCA, and Sanyo Canada. However, Canadian Admiral would announce its plans to terminate production in 1979.

A very important, third measure was that remission would also now be allowed on picture tubes imported by RCA. The government extended, too, the withdrawal of the GPT zero-tariff rate until December 31, 1981. Moreover, the withdrawal was broadened to cover all sizes of colour TVs.

Under this new Program, RCA reduced its colour TV production in Canada for the United States, and instead increased its production of colour TVs of all sizes for the Canadian market. Also a lot more assembly work resulted for Electrohome, who was approached by Jutan International and later Mitsubishi to assemble colour TVs for them. This included 14-inch and larger sizes of colour TVs. Sanyo Industries, Hitachi (HSC) of Canada, and Matsushita Electric of Canada augmented their assembly activities. With respect to tubes, since the Canadian manufacturers would pay a tariff on their imported tubes, they consequently turned their purchases to the RCA plant at Midland, Ontario.

While the government announced the amendments for the new Program, the Anti-dumping Tribunal was doing a formal review of its October 29, 1975, finding that imports from Japan, Singapore and Taiwan were likely to cause 'material' injury to Canadian producers. The review was

requested by Japanese importers and exporters, representatives of exporters from Singapore and Taiwan, and the following companies in Canada: Hitachi (HSC) of Canada, Panasonic Industries (Matsushita Electric of Canada), and Sanyo Canada.¹⁰⁰ The Japanese affiliates now comprised the majority of companies operating in Canada and a large volume of Canadian output. Many of the imports in question came from their affiliates in Japan, Singapore and Taiwan.

From its review,¹⁰¹ the Tribunal found no justification for continuing with the finding that dumped imports from these countries were likely to cause material injury to production in Canada. A noteworthy observation made in the rescission was that the action taken under the anti-dumping code had not much impact in lessening the difficulty faced by the industry in respect to import competition. While the government offered the industry greater protection under the amendments to the Program from the developing countries, this rescission reduced still further the price at which imports from Japan, Taiwan, and Singapore, could come into Canada. Employment dropped from 2600 in 1976 to 2200 in 1981. The import of chassis (with components attached) continued to increase during the period

¹⁰⁰ Electrohome argued for its retention. RCA did not take an active part.

¹⁰¹ Anti-dumping Tribunal, Order of the Anti-dumping Tribunal in Review no.: ADT-4B-75 Under Section 31 of the Anti-dumping Act (Ottawa: 1979).

since 1976. This is shown in Chart 4.4. In the five year period from 1976 to 1981, chassis (with components) increased from 160,000 to 750,000.

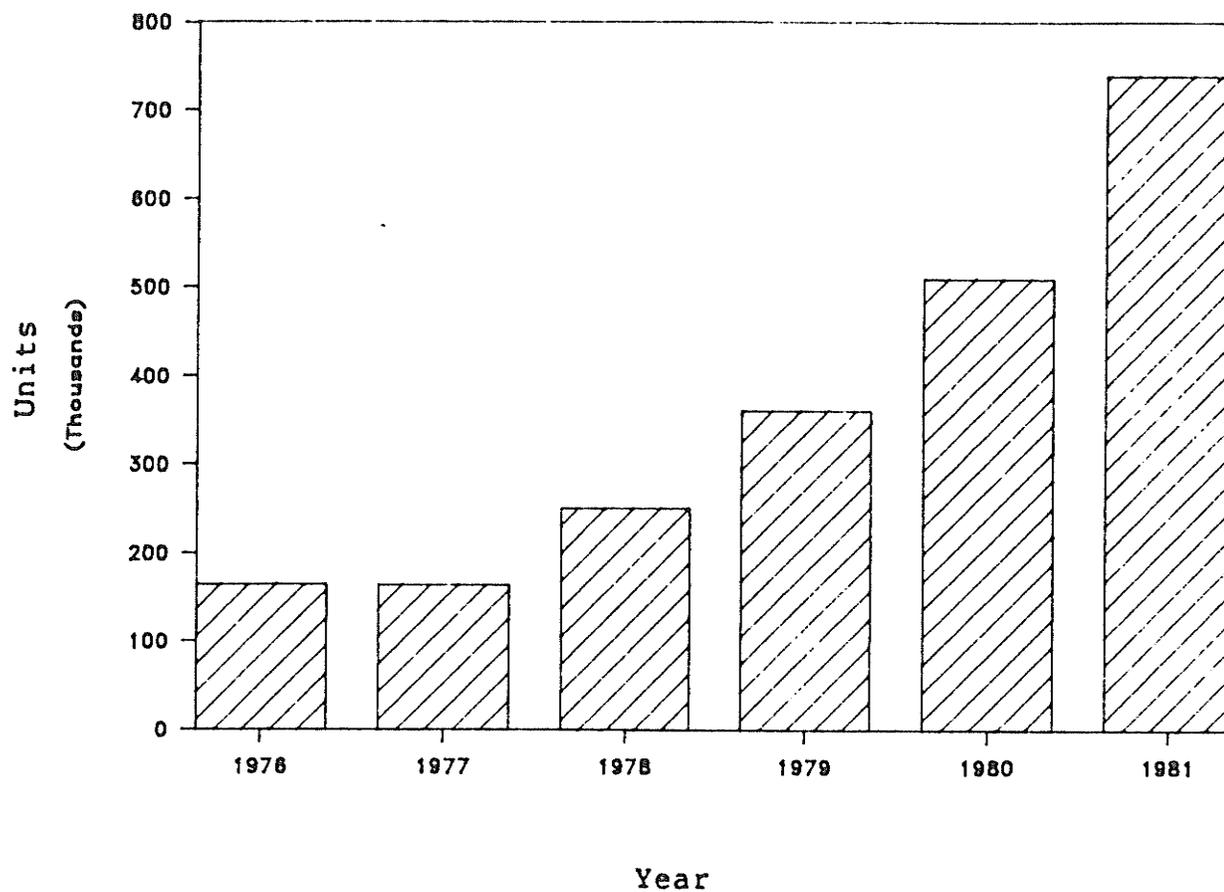
It was during this period, that Electrohome decided to assemble colour TVs with a screen size of 20 inches, using a TV chassis imported from Japan, rather than to import them.¹⁰² RCA increased its production for the Canadian market, and scaled down its production of colour TVs for the American market. Around 1979, Electrohome started to contract assemble for other companies, and gradually make its exit from marketing colour TVs. In 1981, Mitsubishi Electric Sales Canada, one of the companies for whom Electrohome started to assemble colour TVs in Canada, also purchased the picture tube plant in Midland, Ontario; thereby keeping this activity going in Canada.¹⁰³

¹⁰² J. Gross, "Broader Picture Aids Electrohome," Financial Post, 74 (September 27, 1980), p. 19.

More about Electrohome and its difficulties around this time is found in P. Best, "Electrohome's Comeback Loses Momentum," Financial Post, 77 (February 26, 1983), p. 17; P. Cook, "Electrohome Comes Back from the Brink," Executive, 22 (October 1980), pp. 50-3; S. Horvitch, "Electrohome Tightens its Belt - Looks for a Better Year," Financial Post, 71 (January 8, 1977), p. 17; and W. Lilley, "John A. Pollack: Electrohome Ltd.," Canadian Business Magazine, 55 (July 1982), pp. 56-7. Another source is Ontario, Ministry of Industry and Tourism, Industry Sector Review: Manufacturers of Household Radio and Television Receivers.

¹⁰³ Please see Appendix B for a description of the events around Electrohome's exit from the industry as the sole independent Canadian company in the Canadian industry, and Mitsubishi Electric Sales Canada entrance into the domestic industry.

Chart 4.4

Imports of Colour TV Chassis With Components
1976-1981, Units

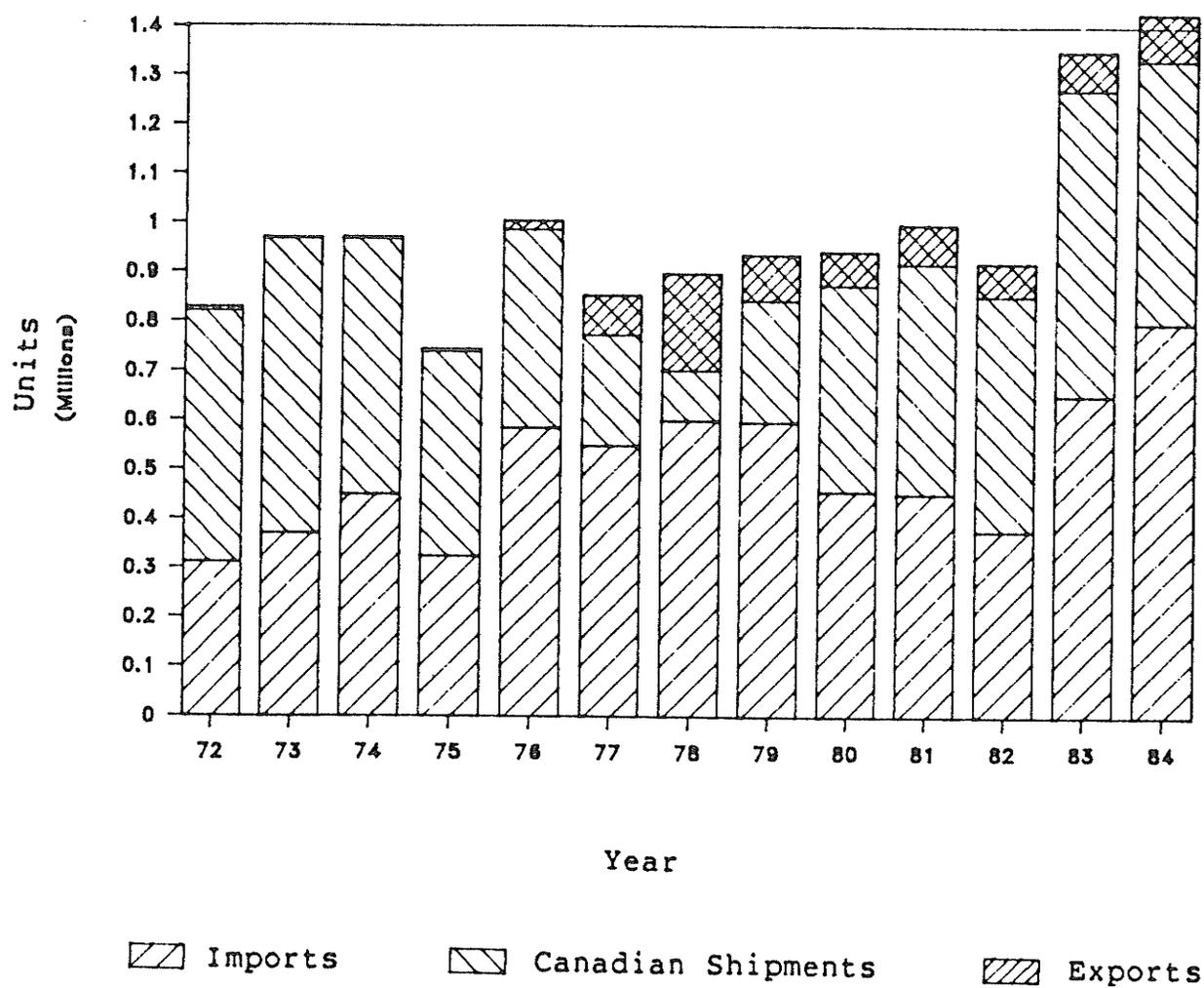
Source: Statistics Canada, Imports by Commodities and Countries, cat. no. 65-007 (various issues).

4.3 CHANGING POLITICAL ECONOMY

Throughout 1981 and 1982, the market for colour TVs in Canada, continued to improve. The forecast for the near future was also very good, since home computers, and video disk and games and related products were anticipated to increase the demand for colour TVs. Following the peak in sales of 1974, when over one million TVs were sold, the market had been quite stable, slowly climbing from around 750,000 in 1975 to 900,000 in 1981. The market took a little drop, in 1982, from the gradual rise that was taking place during the period. In 1983 and 1984, the number of sets sold jumped to 1.3 million and 1.4 million, respectively. Chart 4.5 shows the market in Canada, for the period 1972 to 1984. The most popular size colour TV continued to be the 20 inch TV.

On December 31, 1981, the colour TV remission scheme ended, as did the MFN regime. While in the past five years the domestic TV industry stabilized, and companies were helped to diversify into other products, TV assembly needed continued protection. The government decided to allow the TV industry to continue to receive import chassis and component parts free of duty. Cabinet requested the Department of Industry, Trade and Commerce to review the desirability of having a tariff provision replace the remission scheme on chassis and parts.

Chart 4.5
Canadian Colour TV Market
1972-1984, Units



Source: The Tariff Board, Report by the Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985).

Also, the GPT for colour TVs was withdrawn for another year. However, the British Preferential Tariff was re-installed. Colour TV imports from countries such as Malaysia and Singapore were now able to enter duty-free.¹⁰⁴

Since 1981, the government has had several reviews and added time extensions to the withdrawal of GPT benefits and to duty free treatment of TV chassis and components. During this time¹⁰⁵ the market had been fairly favourable. As mentioned, sales of TVs in Canada through to 1984 have shown an upward movement. Canada was assembling as many TVs in 1981 as it had manufactured at its last peak in 1974. Production growth between 1972 and 1984 is also shown in Chart 4.5. As well, there has been a small amount of production by the domestic industry for export. Typically, this was less than 5000 annually.¹⁰⁶

¹⁰⁴ It was felt that imports of colour TVs from these nations did not pose an immediate threat to the industry in Canada. Imports would be monitored, however. If problems arose, the MFN rate could be imposed for a period of 180 days, by Order in Council. During that time, a more permanent measure could be imposed.

¹⁰⁵ Please see "Mixed Results But Outlook is Sound", Executive, 24 (November 1985), p.18.

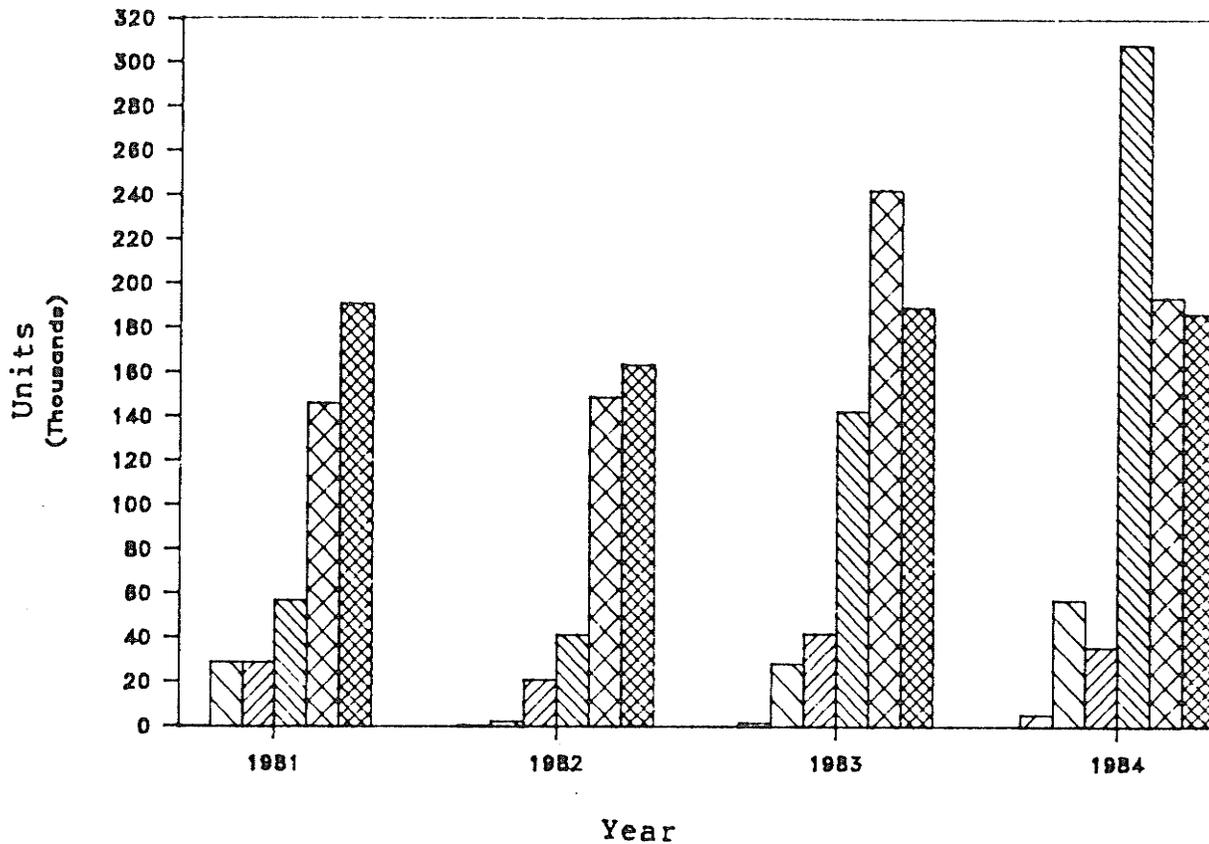
¹⁰⁶ Exports really began around 1977, when they reached 80,500 sets. This was also in the first year of the Program, and included those from RCA which were then imported back for domestic sale. Many of the domestic sales of TVs assembled in Canada, continued to be in the larger sized TVs.

However, imports from GPT countries suddenly became significant. The emergence of GPT countries in the import figures can be seen in Chart 4.6. Almost all of the GPT imports are from South Korea. Until 1982, a major part of the colour TV imports were imported by the Canadian companies who received duty remissions. TV chassis and components continued to come principally from Japan and Taiwan.

The increase in imports from GPT countries was a part of a new phase in the internationalization taking place in the consumer electronics industry. MNCs including those from Japan had a presence in NICs, but with the technology involved in colour TV manufacturing becoming more widely available, MNCs from NICs were now making colour TVs for export. The basic models of colour TVs were, by the early 1980s, mature goods and price sensitive. MNCs, too, were making more parts and mature consumer electronic products (TVs and radios) in overseas NICs. This was not generally true for newer consumer electronics such as video cassette recorders and new camcorders. These were still being made in centralized plants where important skills and R & D were available (frequently in the home country of the MNCs). For example, General Electric (and RCA) in the United States still carried out much activity for these newer products in the United States. Such activity, expertise and R & D did not exist in Canada, however, and none of these newer

Chart 4.6

Origin of Total Colour TV Imports by Country
1981-1984, Units



/ Hong Kong / Taiwan / Singapore
 / South Korea / Japan / United States

Source: Statistics Canada, Imports by Commodities and Countries, cat. no. 65-007 (various issues).

consumer electronics activity were given to Canadian-located subsidiaries.

Imports were capturing a greater share of the domestic market. South Korea, in particular, was supplying a growing share of the market. In June of 1982, the Tariff Board conducted hearings on whether the GPT should be permitted once more, and whether its re-imposition would cause injury to the Canadian production of colour TVs. The Tariff Board is both an independent commission of inquiry into matters of tariff and trade and a quasi-judicial court of appeal. It looks into and reports on any matter in relation to goods that, if brought into Canada, are subject to or exempt from custom duties or excise taxes. In its role as commission of inquiry, the Tariff Board undertakes specific trade studies at the request of the Finance Minister.¹⁰⁷ In July, following from its review, the board announced its finding that there was clear evidence of a real threat of injury to domestic producers of colour TVs should the GPT be re-instated.¹⁰⁸

¹⁰⁷ Tariff Board recommendations are used by the government in changes in tariff or excise tax legislation: e.g. The Tariff Board was given the General Preferential Tariff issue for colour TVs. It generally takes into account those economic factors recognized as relevant to determination of injury such as those contained in the GATT anti-dumping code and the code on subsidies and countervailing duties.

¹⁰⁸ The Tariff Board, Relating to the Re-instatement of the General Preferential Tariff on Imports of Colour Television Receiving Sets, Reference No. 160 (Ottawa: Supply and Services Canada, 1982); and The Tariff Board, Relating to the Re-installment of the General Preferential Tariff on Imports of Colour Television

Taking note of the board's conclusion, the government extended the temporary withdrawal of the GPT for a further three years, until December 31, 1985.

The RCA picture tube plant closed down at the end of 1982,¹⁰⁹ but was eventually re-opened by Mitsubishi Electric Sales Canada. A federal-provincial government loan of \$15 million was offered to Mitsubishi Electric Sales Canada to encourage it to make the step. As well, it received about \$2.5 million in duty remission on picture tube purchases. During the negotiations with RCA and the government, Mitsubishi Electric Sales Canada was also able to get a confirmation that a Canadian value added criteria would not be introduced into the chassis

Receiving Sets: A Staff Report, Reference No. 160
(Ottawa: 1983).

¹⁰⁹ RCA's exports of picture tubes from its Midland plant to Europe were greatly reduced from what they once were in the early part of 1981. However, demand conditions in Canada and the United States also fell off. The TV tube industry in Japan reached a level of production capacity. It was even thought that the Japanese TV companies in Canada might switch to Japanese tubes sourced from their parent companies. In the midst of all this, RCA wanted to make big capital investments in its plants in North America, which then numbered three, two being in the United States. This was in order to produce mini-back tubes, a new kind of tube with a compressed back, so that the whole tube can fit within a small or sleek cabinet. The company felt it only needed two plants. Midland was the smallest, and it was losing its major export market in Europe to tubes being produced there. RCA decided to cease the operations of its picture tube plant in Midland, Ontario in December 1982.

The plant was re-opened by Mitsubishi of Japan, who received a combined loan of \$15 million by the federal and Ontario governments, plus duty remission (about \$2.5

remission measure.

Between 1981 and 1983, the industry did well. The lower value of the Canadian dollar was helping the industry. Also, the Canadian market for colour TVs was expected to increase, as a consequence of the introduction of video cassette recorders, video games, home computers and special audio equipment into the market. With this growing market, it appeared a better time for the government to replace the duty remission Program for chassis by a tariff item.¹¹⁰ The remission duty scheme was cumbersome if additional companies were to be included. Also, a tariff item would permit the government the flexibility to introduce a Canadian value added criteria (as part of the item) at a later date, should it decide this is desirable. Consequently, a special tariff item was put in place, providing the opportunity for any new venture to start assembly in Canada.

million). Mitsubishi proposed to invest about \$25 million towards modernization (government memorandum to the Honourable Edward C. Lumley).

¹¹⁰ There were five new companies who expressed an interest to start TV assembly.

Cabinet instructed the Department of Finance, in conjunction with the Department of Regional Industrial Expansion, to recommend whether the Television Chassis and Components Remission Order should be replaced by a temporary tariff item. The latter could result in additional new assembly jobs and employment with parts suppliers if new companies would enter. A temporary (Special) tariff item was subsequently recommended.

This period from 1983 to 1986 saw some dramatic impacts upon the industry in Canada. This included new entrants to the domestic industry, the rapid rise in imports from South Korea, and pressures on Japan to do more consumer electronics manufacturing in other countries.

There were three entrants in Canada. Video Canada and Pro-conic, small firms which failed within a year in 1985,¹¹¹ and an assembly facility was opened in early 1986 in Waterloo, Ontario by Mitsubishi Electric Sales Canada.¹¹²

Between 1984 and 1985, market sales continued to climb in Canada. However, Canadian production failed to maintain its market share. Imports from South Korea continued to rise rapidly, particularly in colour TVs with 20 inch screens.¹¹³ At the end of 1985, the withdrawal of the GPT was again reviewed by the Tariff Board.¹¹⁴ The

¹¹¹ This information was provided by Louis Doyle, who in 1985 was a Department of Regional Industrial Expansion Project Officer examining the colour TV industry in Canada.

¹¹² P. Best, "Electrohome's Comeback Loses Momentum," Financial Post, 77 (February 26, 1983), p. 17.

¹¹³ The Tariff Board, Report of the Tariff Board Reference No. 160.1.

By mid-1985, 25 percent of the domestic market in TVs with 20 inch screens, and 50 percent of the imports of these same size TVs were supplied by South Korea.

¹¹⁴ A public hearing was held on June 26, 1985 and interested parties attended. Briefs were presented by the domestic producers of colour TVs, the Electronic Industries Association of Korea, the Consumers' Association of Canada, the Canadian Tire Corporation and Sears Canada. Please see: Brief Presented on Behalf of the Canadian Producers of Colour Television Receiving

Tariff Board then recommended a permanent withdrawal of the GPT,¹¹⁵ which was made government policy soon after. Also in 1985, the domestic producers--Electrohome, Hitachi (HSC) of Canada, Matsushita Electric of Canada, RCA Inc., and Sanyo Industries--made a joint request of a remedy under the Special Import Measures Act¹¹⁶ from imports of low-cost colour TVs. On September 9, 1985, the government agreed to conduct an investigation of the possible dumping into Canada of colour TVs from South Korea. The domestic industry felt that dumping was extensive and causing much of the industry's recent grief. Domestic producers were operating at 50 percent or less.¹¹⁷

Sets, May 26, 1985 (Before the Tariff Board, Reference 160.1).

The domestic producers pointed out that South Korea was currently the only country that would benefit from a re-instatement of the GPT, however other countries such as Mexico are developing world class production facilities, and reminded everyone of the finding that the Tariff Board made in 1982:

These facilities "tend to be world-scale, or nearly world-scale at birth and are not the small evolving plants whose products require special assistance to enter the markets of developed countries."

¹¹⁵ The reason it presented was that a "longer-term resolution of the tariff schedule ... is required, which would assist the stabilization of the domestic industry" (Tariff Board, 1985, p. 56). It was also mentioned that this might also encourage the Canadian industry and suppliers to it (to consider the production of more parts and components for colour TVs in Canada). It seems that it was also a consideration that colour TVs from GPT countries are made in large, modern, world production plants.

On November 29, 1985, the Deputy Minister of National Revenue, Customs and Excise made a preliminary determination of foreign dumping of colour TVs with 10-24 inch screen sizes,¹¹⁸ under the Special Import Measures Act, which came into force on December 1, 1984 and replaced and repealed the 1969 Anti-dumping Act as amended.¹¹⁹ The Deputy Minister became satisfied from the available information provided by domestic companies, that there was a reasonable indication of material injury to Canadian production. There may also have been the hope that the threat of dumping duties might encourage South Korean companies to invest in Canada. Gold Star and Samsung established manufacturing plants in the United States in 1983 when it was found that South Korean colour TVs were being dumped. The Canadian Import Tribunal

¹¹⁶ The General Agreement on Tariffs and Trade (GATT) anti-dumping code, as revised in 1979, for example, requires that for a finding of injury, a significant increase in imports and price undercutting must have occurred. A remedy under the Special Import Measures Act should occur where serious injury results, from substantially lower prices in these imports. Also to be considered is the extent to which the domestic industry can recover through the safeguard action.

¹¹⁷ Regional Industrial Expansion Canada, The Electronics Industry: Opportunities for Growth.

¹¹⁸ National Revenue Canada, Customs and Excise, Special Import Measures Act, Decision under the Special Import Measures Act Respecting Colour Televisions, (September 3, 1985); National Revenue Canada, Customs and Excise, Special Import Measures Act, Statement of Reasons: Decision Respecting Colour TVs (February 14, 1986); National Revenue Canada, Customs and Excise, Special Import Measures Act, Statement of Reasons: Decision Respecting Colour TVs (February 14, 1986); National Revenue, Customs and Excise, Special Import Measures Act, Information Document: Initiation of Investigation Respecting Colour Televisions Originating in or Exported From the Republic of Korea (September 3, 1985); and

was also established under the 1984 Special Import Measures Act, to replace the Anti-dumping Tribunal.¹²⁰ The Canadian Import Tribunal was therefore called upon to hold an inquiry on the issue of alleged material injury.¹²¹ However, on March 27, 1986, it found that dumping has not caused (nor is causing nor is likely to cause) injury to the Canadian operations. The Tribunal reported, though, that of the imports it reviewed, 37.79 percent were dumped. The weighted average margin of dumping was calculated at 4.54 percent. However, the Tribunal stated that:¹²²

(t)he success of the Korean product in penetrating the Canadian market is related to factors other than dumping. The Korean manufacturers, operating worldscale plants and with a labour cost advantage, produce the subject goods with a significant competitive edge.

National Revenue, Customs and Excise, Special Import Measures Act, Information Document: Preliminary Determination of Dumping Respecting Colour Televisions Originating in or Exported From the Republic of Korea. (1985)

Of the colour TVs sold during the investigation period leading to the preliminary determination, 69.82 percent of the colour TVs examined were found to be dumped by margins ranging from 20 to 22.14 percent, with a weighted average margin of 8.22 percent.

¹¹⁹ The process usually starts with a complaint from domestic manufacturers to the Deputy Minister of National Revenue, Customs and Excise. National Revenue officials will start a formal investigation once they are satisfied there is evidence of dumping (or foreign subsidization) as well as material injury. At that time, exporters and importers of the goods will be placed on notice and their transactions investigated.

As a general rule, the investigation by National Revenue is to be completed within 90 days of its commencement. The Deputy Minister must issue a preliminary determination of dumping (or subsidization) or terminate the investigation. On receipt of a

For instance, the South Korean industry produced 4.6 million sets in 1984, mostly for export to the United States and Canada (68.9 percent of exports going to the United States and 11.7 percent to Canada).¹²³

During 1985 to 1987, the yen rose dramatically relative to the United States, Canadian and other international currencies. This was putting pressure on the Japanese industry to do more activity outside of Japan, in NICs and the major importing countries. An advantage of conducting activity in the major importing countries is to have expenditures and revenues in the same currency. Although there was no significant inflow of colour TV parts manufacture to North America (rather these tend to go to

preliminary determination from the Deputy Minister, the Canadian Import Tribunal begins an investigation to determine whether the domestic producers suffered material injury or retardation as a consequence.

- ¹²⁰ The Canadian Import Tribunal is also an independent, statutory and quasi-judicial court of record, and like the Anti-dumping Tribunal investigates whether imports are causing material injury to Canadian industry or hindering the establishment of domestic production.
- ¹²¹ Canadian Import Tribunal, Colour Television Receiving Sets Originating in or Exported From the Republic of Korea: Finding of the Canadian Import Tribunal in Inquiry No. CIT-13-85 under Section 42 of the Special Import Measures Act: February 17-21, 1986 (Ottawa: 1986).
- ¹²² Canadian Import Tribunal, Colour Television Receiving Sets Originating in or Exported from the Republic of Korea: Statement of Reasons to the Finding of the Canadian Import Tribunal in Inquiry No. CIT-13-85 under Section 42 of the Special Import Measures Act: February 17 to 21, 1986 (Ottawa: 1986).
- ¹²³ The Tariff Board, Report of the Tariff Board Reference

NICs), this outward oriented move supported North American assembly of goods as well as new product-lines intensive in R & D, capital and skill-expertise. These are necessary before Japanese MNCs could set up central facilities for these product-lines in North America. A problem, however, is that because much of the sophisticated manufacturing of consumer electronics has already left both Canada and the United States, and the skills and expertise necessary to start new product-line operations are less likely to be found in North America.

4.4 CANADA - UNITED STATES FREE TRADE NEGOTIATIONS

More recently, negotiations have been carried on between Canada and the United States regarding free trade. The impact on the Canadian industry is not clear. However, given the characteristics of MNCs outlined in Chapter 2, and the apparent advantages of the centralization of large facilities in the United States by MNCs for North America production, Canadian industry would lose in an agreement embracing consumer electronics. This has been the perception of the federal government based on their discussions with, and knowledge of, the Canadian colour TV

No. 160.1.

The two leading South Korean producers each produce more colour TVs annually than the total sales in the entire Canadian market: one produced 2.4 million colour TVs in 1984. In addition, the manufacturers have the economies of fully integrated plants, producing colour TVs of quite comparable quality to those manufactured in Canada.

industry.¹²⁴ However, there has been concern, too, in the United States that free trade might work in the Canadian industry's favour.¹²⁵ Isaiah A. Litvak points out:¹²⁶

RCA, North American Philips Corp., and the Committee to Preserve American Color TV are opposed to the inclusion of color TV in a free trade agreement. The U.S. industry is characterized by low profits, and a decreasing number of firms, many of which are Japanese-owned. The Canadian market is small and U.S. firms would benefit very little from free access to it. The Canadian industry consists almost entirely of Japanese subsidiaries. It is argued that if tariffs were eliminated, the Japanese manufacturers would rationalize North American operations, with cheaper Canadian labor and Canadian government subsidiaries drawing them to Canada. In addition, duties paid on parts imported from Japan would be refunded by the Canadian authorities when the TVs left Canada for the U.S.

The United States industry view does not appear to take into account the already substantially larger size of United States establishments which would override Canadian labour and parts-duty remission advantages. The Canadian market could more easily be met through incremental production by United States operations.

¹²⁴ Please see Regional Industrial Expansion Canada, Trade Assessment: International Competitiveness Profile; Canadian Consumer Electronics Industry.

¹²⁵ Isaiah A. Litvak, "Freer Trade With Canada: The Conflicting Views of U.S. Business", Business Quarterly (November 1986), pp. 44-51.

¹²⁶ Ibid., pp. 48-49.

4.5 COLOUR TV INDUSTRY EXPERIENCES ELSEWHERE

It is useful to note colour TV industry experiences in the United States and Europe. Basically, they shadow the experience in Canada. Imports from Asian countries, particularly Japan and more recently from NICs, have hurt consumer electronic businesses in the United States¹²⁷ and profits have been elusive for the surviving businesses. Increasingly, the industries in these countries have become assembly operations of Japanese MNCs. However, some MNCs are still based in Europe and the United States.

Zenith is the only major United States owned producer of colour TVs, and in 1986 provided about 15 percent of the United States market.¹²⁸ Thomson S.A., the French state-owned company, just recently purchased General Electric's consumer electronics division, which did have about 23 percent of the United States market (General Electric and RCA brands), and was number one in TVs and video cassette

¹²⁷ Please see: Ira C. Magaziner and Robert B. Reich, Minding America's Business: The Decline and Rise of the American Economy (New York: Vintage Books, 1983); James E. Millstein, "Decline in An Expanding Industry: Japanese Competition in Color Television", in John Zysman and Laura Tyson, eds., American Industry in International Competition (Ithaca, New York: Cornell University Press, 1983); US Congress, Office of Technology Assessment, International Competitiveness in Electronics, OTA-ISC-200 (Washington, D.C.: 1983); and US Department of Commerce, The United States Consumer Electronics Industry (Washington, D.C.: 1975). and Europe.

¹²⁸ "Zenith After GE's Exit, Is Last Big TV Maker in U.S.", The Wall Street Journal (July 23, 1987), p. 6.

recorders in the United States.¹²⁹ The Far Eastern countries have made strong inroads. There were as many as fifteen United States-owned producers of colour TVs in the mid-1970s, and well over 20 in the 1960s. As early as 1968, calls for protectionism and anti-dumping measures were raised by colour TV producers in the United States.¹³⁰ During the 1970s recession, imports from Japan continued to make inroads, as they had in Canada. The United States firms eventually went into assembly and out of business. Today, Zenith makes some sets in its neighbouring NIC, Mexico--although it continues to make most of its sets in the United States.

In Europe, overseas imports have led to the downfall of many consumer electronic businesses. The strategy of the two largest European companies is to try and attain larger economies of scale, by picking up failing companies. They both believe that they must rival their Japanese and South Korean competitors in technology, and to afford to do so they need to be big.¹³¹ N.V. Philips of the Netherlands is

¹²⁹ Peter Gumbel and Thomas Kamm, "Thomson Takes Risky Path of Expanding A Business Racked by Asian Competition", The Wall Street Journal (July 23, 1987), p. 6; Laura Laudro and Douglas R. Sease, "General Electric to Sell Consumer Electronics Lines To Thomson SA for Its Medical Gear Business, Cash", The Wall Street Journal (July 23, 1987), p. 3; and "Zenith After GE's Exit, Is Last Big TV Maker in U.S.".

¹³⁰ Gloria Webster, "Trade and Adjustment in Consumer Electronics: The U.S. Color Television Industry", Harvard University, mimeo, 1985.

¹³¹ Thane Peterson with Lois Therrien, Larry Armstrong and Rose Brady, "Overnight, Thomson has the Stuff to Take on

already large, and Thomson S.A.'s purchase of the consumer electronic division of General Electric places it in the same league of Philips and the Japanese MNCs. Thomson S.A. purchased the consumer electronic's division of Germany's AEG AG, called Telefunken Fernsch & Radio G.m.b.H. in 1983, and in 1987 purchased Britain's Thorn-EMI PLC. N.V. Philips bought the German consumer electronics company Grundig AG within the last few years, as well. Philips has several Asian plants and has standardized its products over the years--still it is recognized that it is less profitable than the Japanese MNCs.¹³² Thomson S.A. does not have much presence in NICs, as does Philips. It has been suggested that Thomson S.A.'s recent purchases reflect its interest in trying to tie consumer electronics and semiconductors,¹³³ perhaps to lead to new products and future profits. In particular, it is looking towards the 1990s, when high resolution and digital TVs and stereos will replace present-day models.¹³⁴ In the meantime, Thomson S.A. has the benefits of lucrative defense electronics contracts and as a state-owned company the financial resources of the French government.

the Titans", Business Week (August 10, 1987), pp. 36-7.

¹³² Ibid..

¹³³ Gumbel and Kamm, "Thomson Takes Risky Path of Expanding a Business Racked by Asian Competition".

¹³⁴ Peterson with Therrien, Armstrong and Brady, "Overnight, Thomson has the Stuff to Take on the Titans".

4.6 CONCLUSION

In Chapters 3 and 4, an historical review of the industry, with its changes in industrial development and public policies, has been presented. Two stages in the history of the Canadian colour TV industry were identified: the early years of development and the defensive years. It was found that the problems leading to the crisis that introduced the defensive years can be traced to certain industry and market characteristics present during the early years. These include too many small firms producing only for the domestic market, their lack of scale economies in production, and their inability to afford the expenditures to engage in technological innovation. In its second stage, it was found that the dynamics were generally missing whereby firms in Canada then producing colour TVs would carry out R & D in order to develop or switch to new consumer electronic products to take the place of colour TV manufacturing. Increasingly, the MNCs carried out the manufacture of those key parts for which technology was becoming widely available in NICs, and in the case of Japanese MNCs, in large, automated factories. More recently, the Japanese MNCs show a willingness to carry out more outside activity to escape the rising yen. In newer products such as video cassette recorders, much production and activity still occurs in the United States where downstream R & D also takes place. Canada, though, has not attracted such activity.

The major events and changes in government policy were reviewed in Chapters 3 and 4. The major events in the Canadian colour TV industry's history include:

1. during the mid-1960s, the rapid entry by many firms-- Canadian-owned and American and European MNC subsidiaries;
2. during the early 1970s, the rapid rise of imports from Japanese MNCs;
3. in the mid-1970s, severe Canadian industry difficulties:
 - a) Canadian operations felt the competitive pressure from imports which were manufactured in large, world-export facilities (who achieved greater economies of scale in key components),
 - b) Canadian companies turned to overseas suppliers of these same components,
 - c) MNC parents to Canadian subsidiaries with research and design in Canada centralized the research and design out of Canada; and
4. in the early 1980s, the rise in imports from NICs.

Government policies have changed:

1. from protecting the industry in the 1960s;
2. to tariffs reductions (from 20 percent in the early 1960s to 15 percent and then to about 11 percent in the 1970s);
3. to industry intervention to slow the phasing-out of the industry in the late 1970s; and
4. finally, since 1978, to protect Canadian colour TV assembly.

These events and shifts in government policy have resulted in a Canadian industry that is today largely an

assembly industry. Very little product or process research or development is done in Canada, the Canadian manufacturers are largely dependent upon technology transferred from affiliates. Only a small amount of adaptation goes on in Canada, a result more of minor differences in standards with the United States. In recent years Canadian manufacturers have made limited capital investment. That which occurred has been for product handling equipment or maintenance. Investment decisions are made overseas, and in view of the small volume which characterizes the Canadian operations, many plant and equipment expenditures by MNCs are directed to the larger integrated plants in other countries (ie. Japan, NICs, and United States).

There are several lessons to be gained from the examination of past developments in the colour TV industry in Canada. First, economies of (plant) scale in key components in consumer electronics and colour TVs are significant. There are cost advantages in the production of technically sophisticated key components in central and large-scale automated plants. Canadian companies that were on the leading edge of colour TV consumer electronics before industrial globalization have ceased operations. Without economies of scale, and the rising costs of perfecting new generations of technology, the price of staying in operation had become too high.

R & D contribute to rapid product change in design and features for the general category of consumer electronics and lead to the introduction of new products to the marketplace. With the internationalization that occurred by the mid-1970s, the MNCs carried out their pure R & D close to their principal manufacturing operations and downstream R & D in their major product-line operations. They did not fragment the R & D efforts among operations in different countries for any product line. For the Canadian colour TV operations in the early 1970s, the problem of insufficient volume hurt those Canadian plants doing R & D. Their output was insufficient to spread the R & D costs economically. This leads to the centralization of such activities in the United States for the American MNCs since the parents' facilities were usually larger in any case. New products also occurred in the United States since product specific-expertise is frequently found where the products are developed.

Marketing is an important aspect of consumer electronics and advanced technology consumer durables. High marketing costs make it difficult for smaller companies to enter and even to survive against the larger MNCs which expend much money and effort marketing their product lines. In evidence of this, it was described in Chapter 3 how high marketing costs helped influence Electrohome to become a contract assembler and to license its name to Mitsubishi.

MNCs have not been amenable to sharing facilities of key components with others or to agree to fragment their R & D for a product line. The history of the colour TV industry in Canada described how the government has not been able to get companies to rationalize their North American operations so that Canadian subsidiaries could produce lines of colour TVs on a North American mandate level. Similarly, in the 1970s the government was not able to elicit sufficient cooperation among the MNCs to produce a common chassis in Canada when the domestic production of this component was in difficulty.

NICs have made a rapid emergence in colour TV manufacturing relying on purchased and other technology that has become widely available. Their lower labour costs plus large automated plants allow them to produce colour TVs that are internationally competitive in price. As with colour TV manufacturing, these countries have economic strength for the production of consumer electronics and advanced technology consumer durables more generally as technological development leads to more products. Additional NICs can be expected to emerge, and the new products as technology will become available to them.

Finally, policies can start out one way but then shift over time, e.g. from temporary support to protection. In 1976, the government intervention in the colour TV industry was to help the industry phase out. However, by 1978 the

intervention had changed to help the industry to adjust into assembly. A Special Tariff Item provides tariff-free access by the industry to imported parts, while the GPT has been permanently withdrawn. The MFN tariff rate protects the domestic assembly industry, enabling it to remain competitive with imported colour TVs. The government has not negotiated further with MNCs having subsidiaries in Canada nor designed policy measures specifically to promote mandating or to help Canadian subsidiaries attract R & D and human and capital product-specific requirements to compete with their affiliates in new and advanced consumer electronics.

Chapter V

COST-BENEFIT ANALYSIS

This chapter furthers the analysis of the colour TV industry by focussing on the costs and benefits of alternative government policies. This develops an appreciation of the impact of governmental policy in terms of the nature and magnitudes of the costs and benefits. The chapter not only furthers understanding of various policy but it is also an integral part of the basic analysis necessary for the evaluation of alternative public policies for the industry.

This chapter uses a simple comparative statics framework to calculate the costs and benefits of possible government initiatives associated with alternative government policies. As well, the importance of certain assumptions (particularly about the elasticity of demand) and the impact of possible future developments upon the benefits and costs will be investigated.

5.1 THE MODEL AND MEASUREMENT OF BENEFITS AND COSTS

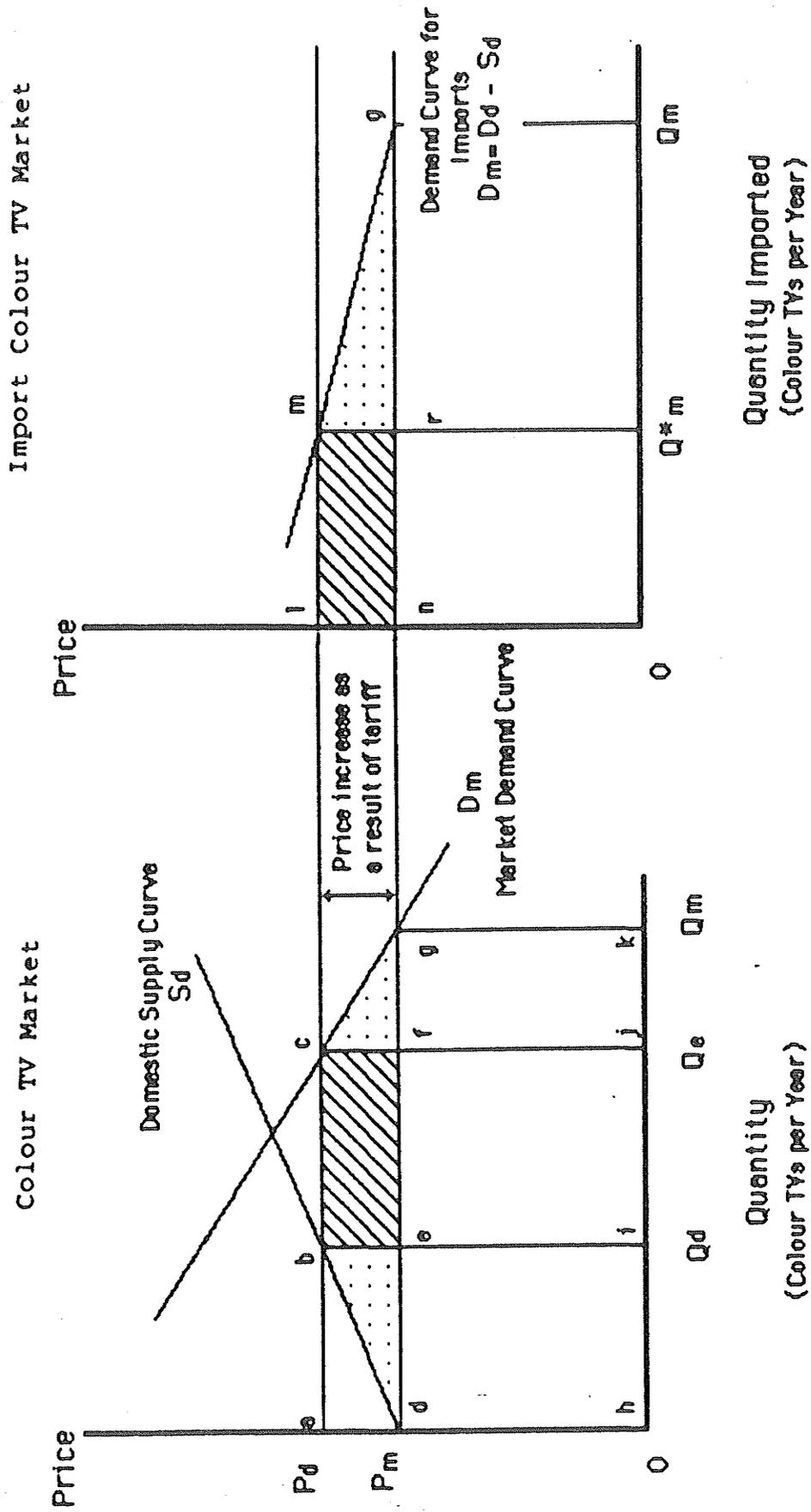
The simple comparative statics framework is shown in Figure 5.1. There are three major assumptions behind Figure 5.1:¹³⁵

1. Imported colour TVs and domestically-assembled colour TVs are perfect substitutes.
2. The supply schedule for imported colour TVs is perfectly elastic.
3. The supply schedule for domestically-assembled colour TVs is upwardly sloped.

Domestically-assembled colour TVs and imported colour TVs are not, of course, perfect substitutes. First, there is product differentiation among colour TVs of different brands. Second, the mix of imported colour TVs' screen sizes is different from those domestically-assembled. The imports from South Korea tend to be basic colour TVs (not so many extras), and are small sizes. On the other hand, on the large screen sizes, the imports appear to have more extras (e.g. special picture tubes) so there is a positive price differential with domestically-assembled colour TVs.

¹³⁵ The presentation in this section benefits from Chapter 3 of Gary Clyde Hufbauer, Diane T. Berliner and Kimberly Ann Elliott, Trade Protection in the United States: 31 Case Studies (Washington: Institute for International Economics, 1986); Charles P. Kindleberger and Peter H. Lindert, International Economics 6th edition (Homewood, Ill.: R. D. Irwin, 1978); and Glenn P. Jenkins, "Costs and Consequences of the New Protectionism," in North-South Institute and World Bank Canada in a Developing World Economy: Trade or Protection (Toronto: The Macmillan Press, 1985).

Figure 5.1



Panel (a)

Panel (b)

However, imported colour TVs and domestically-assembled colour TVs are still reasonably close substitutes, and the assumption of perfect competition provides insights to the nature and general magnitude of the costs and benefits. The assumption of perfect substitutability will be relaxed later in the analysis below to allow for different cross-price elasticities of demand between imports and domestically-assembled colour TVs.

Regarding the second assumption, the Canadian market is small and international prices are important, and at the prevailing prices in the domestic market for particular imported TV model the supply is for all practical purposes perfectly elastic. An upward domestic supply schedule implies that the supply of domestically-assembled colour TVs can be increased only by bidding up marginal costs of assembly labour and other factors in the domestic industry.

5.1.1 Costs and Benefits

Figure 5.1, Panel (a), provides the basic demand-supply diagram of a Canadian tariff on colour TVs. D_m is the market demand curve, which shows the consumer demand for colour TVs at different consumer prices.¹³⁶

¹³⁶ That is, the prices facing consumers when they purchase colour TVs. These prices will reflect domestic production costs and c.i.f. imports, plus marketing and distribution costs. These marketing and distribution costs can add about 45 percent to the price of a colour TV after it leaves the domestic plant, or reaches the border in the case of imports. Please see Appendix D.

If there were no tariff, colour TVs would be imported freely at a world price of P_m . At this price consumers would import Q_m colour TVs.¹³⁷ However, a tariff raises the price of colour TVs. By raising the price to P_d ,¹³⁸ the tariff in Figure 5.1 forces some Canadian consumers to pay an extra $P_d - P_m$ per colour TV to get the same quantity Q_e of colour TVs they would rather have bought at P_m . This is called the direct cash cost of the tariff, and is shown in Panel (a) as the area 'acfd'. The area 'bcfe' is the direct cash cost due to higher prices on purchases of imports alone.¹³⁹

The tariff also makes some consumers decide that a colour TV is not worth P_d to them, so that total demand drops back from Q_m to Q_e . The net loss to consumers from the tariff is the area 'cgf'. This is the consumption effect (CE) of a tariff. They value these $Q_m - Q_e$ colour TVs by an amount

¹³⁷ When the tariff becomes zero, no more colour TVs are made domestically, and consumers will replace domestic purchases with imports. This was our finding in Chapter 4. This was also the view of the industry (from industry interviews), and government officials, too. Please see: Regional Industrial Expansion, Canada, Trade Assessment: International Competitiveness Profile: Canadian Consumer Electronics Industry.

¹³⁸ P_d will equal P_m multiplied by (1 plus the tariff rate).

¹³⁹ Since imports currently (1984) make up about half of the domestic market, it can be approximated that the direct cash cost of the tariff to consumers on all their purchases of colour TVs will equal double that on imports alone.

In 1984, the production value of domestically-assembled colour TVs was about \$213,759,000 and the c.i.f. value of imports was \$222,133,000.

equal to the area 'cgkj', or $(1/2)(P_m + P_d)(Q_m - Q_e)$ and under free trade would have had to pay only $(P_m)(Q_m - Q_e)$ for them (the area 'fgkj'). They are worse off by the difference between these two measures, which is shown as the area 'cgf' and measured by $(1/2)(P_d - P_m)(Q_m - Q_e)$.

When the tariff is imposed, individual consumers will buy more domestically-assembled colour TVs. Sales of domestically-assembled colour TVs are shown in Panel (a) by the supply curve S_d . Through the imposition of the tariff, sales of domestic suppliers expand up to Q_d . It is at this level of output that the marginal costs of providing these domestically-assembled colour TVs to the market equals P_d . Above this price, it is not profitable for domestic companies to raise their output any higher. Doing so would raise per unit costs above P_d , the price that would be received when selling domestically-assembled colour TVs in competition with imported colour TVs in the Canadian market.

A tariff brings gains for domestic producers. In Panel (a) it is shown that the tariff will clearly raise the total sales revenues of the domestic producers. The total sale revenues after the tariff is measured by the area 'abih'. The part of total revenues lying below the supply curve S_d , the area 'dbih', represents the variable costs of producing colour TVs. The part lying above the supply curve and within the total-revenue area 'abih' represents producers' surplus. Therefore, the tariff raises producers' surplus in

the domestic colour TV industry only by the amount of area 'abd'. Area 'bed' is the production effect of a tariff (PE) and results from the inefficient use of resources in the domestic colour TV assembly industry. Both the CE and PE comprise the dead weight efficiency loss (EL) to Canada of having a tariff on colour TV imports.

There are other effects of the tariff on the Canadian economy. One important benefit is the employment associated with the domestic activity, i.e. with the production of Qd colour TVs. Then there are also spin-off activities such as the TV tube operation in Midland Ontario, some cabinet making and packaging material concerns which depend for their existence upon the Canadian assembly operations. For instance, a major share of the demand for the TV tube operation is by the Canadian colour TV assembly industry, and the 800 jobs belonging to the TV tube operation can be thought of as a benefit of a domestic TV assembly industry.

As long as there are imports, the tariff also brings revenue to the government. This revenue equals the unit amount of the tariff times the volume of imports with the tariff. The value of the tariff revenue (plus marketing and distribution costs for imports resulting from the tariff), can be shown by the area 'bcfe'.¹⁴⁰ Therefore, tariff

¹⁴⁰ Marketing, retail and distribution costs are typically based on the value of the colour TV. In the case of imports this will be after tariff. As the tariff increases the price of imports (c.i.f.), it also increases the marketing, retail and distribution charges.

revenue will be somewhat less than the area 'bcfe'.

The import colour TV market is shown in Panel (b). The demand curve for colour TV imports shows the amount by which Canadian demand for colour TVs exceeds domestic supply at every price. It can therefore be derived by subtracting the domestic supply curve from the domestic demand curve for colour TVs at each price (horizontally), since imports equal demand minus domestic supplies. This allows us to show the areas 'bed' and 'cgf' from Panel (a) as area 'mgr' in Panel (b).¹⁴¹ The areas 'bed' and 'cgf' can be understood as gains from international trade and specialization that are lost because of the tariff on colour TVs. Since 'bed' and 'cgf' represent CE and PE respectively, and CE plus PE equals EL, the area 'mgr' measures EL, and can be calculated as $(1/2)(P_d - P_m)(Q_m - Q_m')$.

The data used in this analysis are described in Appendix D. The data include: colour TV prices for both domestically-assembled colour TVs and colour TV imports; the quantity of imported and domestically-assembled colour TVs sold; and estimates of demand and supply price elasticities. Little is known about the demand and supply price elasticities. Hufbauer et al.¹⁴² use the value of 2.0 for

¹⁴¹ Since area 'bed' and 'cgf' have the same tariff height and relate, respectively, to the net shift from imports to domestic supply and the total decline in demand, area 'bed' and 'cgf' is a triangle with the amount $P_d - P_m$ as its height and the total reduction in imports, $Q_m - Q_m'$ as its base, as is 'mgr' in Panel (b).

¹⁴² Hufbauer et al., Trade Protection in the United States,

the United States price elasticity of domestic supply. Like the Canadian industry, the United States industry also assembles colour TVs, although the facilities are much larger.¹⁴³ Without any Canadian estimates, this value of 2.0 will be assumed for Canada's price elasticity of supply.

A range of price demand elasticities have been found for colour TVs. Fortune¹⁴⁴ estimated an elasticity of Canadian demand for colour TVs of -1.02. For the United States, Hufbauer et al.¹⁴⁵ estimated that the price elasticity of demand in the United States for colour TV imports is -1.5. However, Morici and Megna¹⁴⁶ estimated that the price elasticity of demand in the United States for colour TV imports is -2.8. In Appendix D, the Canadian price elasticity of demand for colour TV imports is estimated at -0.61, while the price elasticity of Canadian demand for

p. 223.

¹⁴³ Baranson, Sources of Japan's International Competitiveness in the Consumer Electronics Industry; and Hufbauer et al., Trade Protection in the United States.

The Canadian company executives who were interviewed for this present study were unanimous in pointing out that facilities in the United States are much larger, many having ten production lines while the largest Canadian facility has but four and the others one or two.

¹⁴⁴ J. Neill Fortune, "Measurement of Tariff Elasticities," Applied Economics, 3 (1971): 19-34.

¹⁴⁵ Hufbauer et al., Trade Protection in the United States.

¹⁴⁶ Peter Morici and Laura L. Megna, US Economic Policies Affecting Industrial Trade: A Quantitative Assessment, Report no. 200 (Washington: National Planning Association).

domestic colour TVs is -0.63 . In this cost-benefit analysis, we will examine the middle value of all these values for the price elasticity of Canadian demand for colour TVs of -1.5 . However, we will also look at the situation when the own-price elasticity of demand is -0.5 and -3.0 ; this will cover the range of values found in the above previous Canadian and United States studies.

5.2 1984 COSTS AND BENEFITS

As shown in Chart 5.1, the value of the consumption effect, and the efficiency loss associated with the tariff, vary directly with the size of the price elasticity of demand. The consumption effect varies between \$76,000 and \$458,000, and the efficiency loss varies between \$3.5 million and \$3.9 million, as the market demand price elasticity moves from -0.5 to -3.0 . The consumption effect is also dependent on the price elasticity of supply of domestic colour TVs. The smaller this supply price elasticity, the larger the consumption effect (but the smaller the production effect). That is, for a given market demand price function, the more inelastic the domestic supply the greater must be the change in imports in response to a change in the market price and the resulting change in domestic demand for colour TVs. Employment, tariff revenue, direct cash cost of tariff, production effect of tariff, producers' surplus and additional distributing and marketing revenue do not depend on the market demand price elasticity.

Chart 5.1

Costs and Benefits in 1984
(in \$'000)

Market Demand Price Elasticity (no. of workers)	Employment (no. of workers)	Efficiency Loss* (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Consumption Effect of Tariff* (CE)	Production Effect of Tariff* (PE)	Producers' Surplus*	Additional Distributing & Marketing Revenue
-0.5	1,850	3,512	25,101	38,405	76	3,436	30,403	13,304
-1.5	1,850	3,665	25,101	38,405	229	3,436	30,403	13,304
-3.0	1,850	3,894	25,101	38,405	458	3,436	30,403	13,304

Notes:

* Price elasticity of supply for domestic colour TVs is 2.0.

To summarize the main findings: consumers pay a high cost for the tariff support. In 1984, they paid approximately \$38 million in direct cash costs on purchases of imports alone, and the direct cash cost on all colour TVs was \$76 million, about double the direct costs on purchases of imports. They lost approximately \$0.08 to \$0.46 million in welfare--depending on the size of the price elasticity of demand--from not being able to purchase as many colour TVs as they would otherwise (the consumption effect).

The federal government gained tariff revenue of approximately \$25 million at the expense of consumers. As well, marketing agents, retailers and distributors would have charged about an additional \$13 million on imported colour TVs sold in Canada.

It was found that Canadian TV assemblers gained approximately \$30 million in producers' surplus at the expense of the Canadian consumer. At the same time, there was a waste of economic resources (the production effect of the tariff) through their use in this industry rather than having been employed in other sectors of the Canadian economy. The production effect of the tariff amounted to approximately \$3.4 million in 1984.

A measure of the efficiency loss (production effect and consumption effect) resulting from the tariff for the Canadian colour TV industry in 1984 can be found to be

approximately \$3.5 to \$3.9 million. Production and consumption effects accounted for 88 to 98 percent and 2 to 12 percent, respectively (depending on the elasticity of demand for colour TVs). On the other hand, the benefit of the tariff amounted to only 1850 jobs.

However, the efficiency loss as calculated above might underestimate the actual cost of the tariff to Canada. This underestimation arises from the foreign-ownership of the industry and the extent to which the profits earned by the foreign-owned firms are expatriated. In Figure 5.1, the producers' surplus represents an additional return created by the tariff to all fixed factors of production, including the foreign-owned factors. There is a problem in including this additional cost in the calculation of the cost-benefit effects of the tariff. Any attempt to measure the cost of expatriated earnings should also take into account the benefits arising from foreign investment¹⁴⁷ (e.g. tax revenue on investment profits and more general benefits). Unfortunately, data for these benefits are not accessible and inclusion of the additional cost would lead to biased cost-benefit calculation because of the absence of the offsetting benefits. Despite this deficiency, the model is useful for comparing and contrasting the costs and benefits associated with different trade policy scenarios.

¹⁴⁷ Foreign investment benefits, especially with respect to advanced technology activity, will be discussed in Chapters 6 and 7.

Efficiency Loss Per Job

With an employment benefit of 1850, the efficiency loss per job saved would fall in the \$1,893 to \$2,105 range depending upon the size of the price elasticity of demand. The costs to consumers would be \$41,560 to \$41,766 per job saved. The gain in producers' surplus per job saved would be about \$16,434.

These costs can be compared to those found in the study by Hufbauer et al.¹⁴⁸ for the United States in 1982. According to their estimates, the tariff (15 percent) produced:

1. an increase of 1,000 production jobs at a consumers' cost of \$420,900 per job saved; and
2. a gain to their domestic producers of \$9000 per job saved.

They estimate an efficiency loss of \$7 million.

If the price elasticity of Canadian domestic supply is 1.0, instead of 2.0, the consumer costs will be the same. However, the estimate of the production efficiency loss is much lower: it falls to approximately \$1.7 million in 1984. Consequently, the total efficiency loss (CE and PE) would be about \$1.8 million to \$2.2 million depending on the elasticity of demand for colour TVs (\$1.95 million when the elasticity of demand equals -1.5). This means that the

¹⁴⁸ Hufbauer et al., Trade Protection in the United States, pp. 14-15.

efficiency loss per job saved would be \$970 to \$1176 (and \$1052 when the elasticity of demand is -1.5). The gain in producers' surplus would now be about \$32 million, or \$17,363 per job saved.

5.3 POSSIBLE FUTURE DEVELOPMENTS AND GOVERNMENT INITIATIVES

These costs and benefits are subject to change as the demand and supply for colour TVs changes over time. This section examines briefly the consequence of possible changes for costs and benefits, and government policies toward the colour TV industry.

The colour TV market is now mainly a replacement market, (plus first-time purchases by mostly young adults), however innovations (stereo sound) and styling (sleek cabinets and modular look) and new uses (for home computers, video games and video cassette recorders) have resulted in new demands. After purchases for these reasons occur the demand might go down again, and reflect mostly replacement purchases, or else new features and innovations could again spark new demands. It will be easier for the domestic companies to hold onto their level of production if overall demand increases. On the other hand, with a shrinking market and import competition, it will become very difficult for the domestic companies to maintain production levels.

To examine possible future developments in demand size with respect to colour TVs, the costs and benefits associated with government actions in support of the industry are estimated for various market scenarios. These scenarios are summarized in Chart 5.2. It is assumed that the incidence of purchases between imports and domestically-assembled colour TVs remains the same, so that we can focus only on the total demand for colour TVs. This may not be quite so realistic, especially since the recent growth in demand for 14-inch and 20-inch colour TVs have been accomodated by increased imports. To minimize the effect of this problem on our results, the costs and benefits are also estimated assuming a changing mix in market demand.

The main feature evident in Chart 5.2 is that employment and the producers' surplus both grow as market size and the demand for domestically-assembled colour TVs increases. Employment increases from 1,586 to 2,115 as market size increases from 1.2 million to 1.6 million. These are pro-rated in Chart 5.2 to the level of output existing in 1984. As well, the direct cash cost to consumers increase from \$32.9 million to \$43.9 million (as do tariff revenues and the amount going to marketing agents, retailers and distributors). The efficiency loss remains the same in absolute terms (\$3.7 million), though efficiency loss per job saved drops. This is important because if the market would expand from its current size in 1984 of 1,399,900 to

Chart 5.2
 Costs and Benefits and the Size of the Colour TV Market
 (in \$'000)

Market Size	Employment (no. of workers)	Efficiency Loss* (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Consumption Effect of Tariff* (CE)	Production Effect of Tariff* (PE)	Producers' Surplus*	Additional Distributing & Marketing Revenue
1,200,000	1,586	3,665	21,517	32,921	229	3,436	25,571	11,404
1,399,900	1,850	3,665	25,101	38,405	229	3,436	30,403	13,304
1,500,000	1,982	3,665	26,896	41,151	229	3,436	32,823	14,255
1,600,000	2,115	3,665	28,689	43,895	229	3,436	35,240	15,205

Notes:

- * Price elasticity of supply of domestic colour TVs is 2.0.
- Price elasticity of demand for colour TVs is -1.5.

1,500,000, the efficiency loss will fall from \$1981 per job saved to \$1849, and to \$1733 should the market grow to 1,600,000 (for a price elasticity of demand of -1.5).

If the market shrinks, then the opposite will occur: the efficiency loss per job saved will increase, while employment, the consumer cash costs and producers' surplus will all decrease. The consumer cash costs per job (about \$21,000) and the producers' surplus per job (about \$16,000) remain constant over the different market sizes because changes in import levels and the demand for domestically-assembled colour TVs are assumed to change in proportion to the market size.

5.3.1 Demand Changes by Screen Size of Colour TV

If tastes and the demand for individual screen sizes change, then the total quantity demanded of domestically-assembled colour TVs will also change. Following the recent trends in demand by each of the three major screen sizes, we consider the following possibilities of changes in the output mix:

1. The demand for the 14-inch and 20-inch colour TVs continue to rise so that they capture a 30 and 60 percent value share of the market, respectively;
2. the demand for 14-inch colour TVs rises much faster so that it capture a 35 percent market share, leaving 20-inch sets with a 45 percent share and 26-inch colour TVs with a 20 percent share;

3. and the demand for the 26-inch colour TVs captures 37 percent of the market and the 14-inch and 20-inch sets capture 18 and 45 percent of the market, respectively.

Chart 5.3 summarizes the output mix for 1984 and for the above three scenarios. The share of employment associated with each of these sizes is assumed to depend on the number of each size assembled, the sum of these equal to the 1850 associated with the domestic industry. The domestic shares in 1984 were about 22 percent for the 14-inch, 33 percent for the 26-inch colour TVs, and 45 percent for the 20-inch colour TVs.

Chart 5.3
Percentage of Canadian Colour TV Market*

	Three Scenarios			Actual (1984)
	Mix 1	Mix 2	Mix 3	Mix 4
14-inch screen:	30	35	18	22
20-inch screen:	60	45	45	45
26-inch screen:	10	20	37	33

* the purchase incidence between imports and domestically-assembled colour TVs remains the same.

The costs and benefits associated with each of these market scenarios are shown in Chart 5.4. The most

Chart 5.4

Costs and Benefits by Colour TV Market
Demand Mix
(in \$'000)

Demand Mix	Employment (no. of workers)	Efficiency Loss* (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
Mix 1	1,685	3,665	22,863	34,981	12,118
Mix 2	1,693	3,665	22,970	38,145	12,175
Mix 3	1,898	3,665	25,752	39,401	13,649
Mix 4	1,850	3,665	25,101	38,405	13,304

Notes:

Colour TV Demand Mixes are as defined in Chart 6.3.

- * Price elasticity of demand for colour TVs is -1.5.
- Price elasticity of supply for each domestic colour TV screen size is 2.0.

favourable case in respect to the ratio of the efficiency loss to the employment generated is Mix 3, which is the one in which the demand for 26-inch sets increases. This is because much of this submarket is provided domestically. The efficiency loss costs per job are \$1,931. Mix 3 also creates 1,898 jobs, as compared with the current actual employment, 1850.

The value of imports will be highest under Mix 3. It can be seen that tariff revenue and the direct cash costs to tariff are also highest. In Mix 3, it is expected that the 26-inch submarket will contribute more employment than will the 20-inch TVs. Chart 5.5 shows the contribution of each screen-size submarket by mix scenario. Of the four scenarios, only in the 26-inch submarket does Mix 3 contribute more jobs than the other mixes. A movement toward smaller colour TVs, as demonstrated in Mix 2, will result in higher employment, but also higher efficiency loss per job.

Since imports comprise a much larger share of the smaller screen sub-markets, a shift in demand to smaller colour TVs, for instance to Mix 1 or Mix 2, could have an impact on the domestic industry. Employment is much lower for Mix 1 and Mix 2: 1685 and 1693, respectively. However, so too will the consumer costs be smaller because smaller sets are less costly and the absolute impact of the ad valorem tariff is less. The highest direct consumer cash costs are associated

Chart 5.5

Costs and Benefits by Colour TV Market
Demand Mix By Screen Size
(in \$'000)

16-inch submarket:

Demand Mix	Employment (no. of workers)	Efficiency Loss* (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
Mix 1	337	667	4,572	6,995	2,423
Mix 2	392	776	5,318	8,137	2,819
Mix 3	202	400	2,740	4,192	1,452
Mix 4	247	489	3,351	5,127	1,776

20-inch submarket:

Demand Mix	Employment (no. of workers)	Efficiency Loss* (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
Mix 1	1,116	2,211	15,143	23,169	8,026
Mix 2	837	1,658	11,357	17,376	6,019
Mix 3	837	1,658	11,357	17,376	6,019
Mix 4	837	1,658	11,357	17,376	6,019

26-inch submarket:

Demand Mix	Employment (no. of workers)	Efficiency Loss* (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
Mix 1	232	460	3,148	4,816	1,668
Mix 2	464	920	6,295	9,631	3,336
Mix 3	859	1,702	11,655	17,832	6,177
Mix 4	766	1,518	10,393	15,901	5,508

Notes:

Colour TV Demand Mixes are as defined in Chart 6.3.

* Price elasticity of demand for colour TVs is -1.5.
Price elasticity of supply for each domestic
colour TV screen size is 2.0.

with Mix 3: just on imports alone they were \$39.4 million which is about \$1 million more than Mix 4, and much higher than Mixes 1 and 2 (\$35.1 and \$35.0 million, respectively). Total revenue will also increase as a result of a larger market demand.

5.3.2 Technological Change, Transportation Costs, Exchange Rates

Technological change, transportation costs and exchange rates will have an impact on relative prices. To consider technological change, attention can be focussed on the 26-inch colour TVs. As was illustrated in Chart 2.3, it is on the larger sets that the domestic companies make their returns. The recent introduction of the compressed picture tube, and the monitor style colour TV has reduced transportation costs, especially for larger screen sized colour TVs. This makes imports of 20-inch and larger screen sets more competitive. Most 26-inch colour TVs (87 percent by unit) are imported from the United States. It can be noted that the price of imported colour TVs from the United States may also drop from these technological innovations and lower transportation costs.

As pointed out earlier in this Chapter, the import own-price elasticity of demand will likely be larger than that for colour TVs in general, because when relative prices change, TVs from this subgroup may be substituted for TVs from other subgroups.

It can be anticipated that part of the demand for overseas 26-inch colour TVs will be met soon from exports from NIC countries. These will also be likely less expensive in the same way that present GPT (South Korean) colour TVs are less expensive than those from Japan and Canada and other countries.

It is unlikely that the 14-inch and 26-inch sets are close substitutes. Although, it is likely that 20-inch colour TVs can be a price substitute to both 14-inch and 26-inch colour TVs. The greater the substitutability among the sets the higher the efficiency loss costs per saved job. For lower cross-price elasticities, the tariff revenue is also higher, so and the burden on consumers be greater.

When changes in the exchange rate with the Japanese yen occur, changes in both the price of imports and through imported parts (affecting the price of domestically-assembled colour TVs) occur. As was displayed in Chart 2.4, imported materials accounted for 88, 68.7 and 59.9 percent of the production cost of 14-inch, 20-inch and 26-inch domestically-assembled colour TVs, respectively. For most of the domestic companies, these would all be imported from Japan. RCA carries out its major colour TV activities outside of Japan. If other costs (such as distribution and marketing) are based on these costs, for each 10 percent fall in the Japanese yen, the price of a domestic colour TV will fall 8.8, 6.9 and 6.0 percent respectively for these

three same sizes of colour TVs. For price changes from a 10 percent rise in the value of the yen, the reverse will be true.

The same will be true for changes in Canada's exchange rate with the United States, although the effects will be smaller. Both countries import parts, but an important variable cost will be labour which depends upon wage levels.¹⁴⁹ Information on how wages in the two countries compare is not available, but the Canadian colour TV industry executives who were interviewed did indicate that the wages would be similar, perhaps less in Canada.¹⁵⁰ Exchange rate changes will likely have only a marginal effect upon relative wage rates.

¹⁴⁹ Regional Industrial Expansion Canada, The Electronics Industry: Opportunities for Growth, reports that in 1984, in the consumer electronic and electrical products industry, salaried employees earned an average of \$15.50 per hour while non-salaried employees earned an average of \$9.50 per hour. It must be noted that in the colour TV industry, most people are in assembly, and may be paid less than these figures which involve skilled persons doing technical work in the broader electronic and electrical products industry.

¹⁵⁰ These were the industry interviews that took place during August 23 to 30, 1985 with: Luigi Romanelli, Assistant to the Vice-President (Sanyo Industries Canada), C. E. Kreutzweiser, Manager and Jay Cowan, Contract Assembly (Electrohome Limited), Tom Fischer, Accounting Manager (Matsushita Industrial Canada Limited), and Peter J. Scheibling, Controller and Jim McKay, Plant Manager (RCA Inc.).

Isaiah Litvak also mentions the United States colour TV industry's argument that Canadian labour is cheaper, in Isaiah Litvak, "Freer Trade With Canada: The Conflicting Views of U.S. Business", Business Quarterly (November 1986), p. 49.

5.3.3 Government Initiatives

This section addresses directly possible government initiatives including the reduction in MFN tariff rates and freer trade with the United States, as well as the permanent withdrawal of the GPT for colour TVs.

Results pertaining to the re-introduction of the GPT for colour TVs is given in Chart 5.6. Canadian assembly operations are under incredible import competition mainly by imports from GPT eligible countries. The import demand is divided into those from GPT and non-GPT colour TVs. The impact of a fall in GPT prices on overall import prices depends upon colour TVs' cross-price elasticities of demand.

The GPT will reduce domestic assembly and employment in Canada to between 1641 and 1798, depending upon the cross-elasticity of demand with respect to price. Assuming a cross-elasticity of demand of 1.0 and a demand elasticity for colour TVs of -1.5, the efficiency loss cost per employment will decrease from around \$1,944 to \$1,508 when the GPT is removed. This means that the GPT will actually reduce the costs associated with supporting the industry. However, the higher the cross-elasticity of demand the larger will be the effect on employment, and the higher the efficiency loss per job saved. With an import - domestically-assembled cross-elasticity of demand of 2.0, the efficiency loss per job saved increases to \$1604.

Chart 5.6

Costs and Benefits with the GPT
(in \$'000)

Import-Domestic Cross-Price Elasticity*	Employment (no. of workers)	Efficiency Loss** (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
0.5	1,798	2,632	16,940	25,918	8,978
1.0	1,745	2,632	16,940	25,918	8,978
2.0	1,641	2,632	16,940	25,918	8,978

Notes:

* Cross-price elasticity between domestically-assembled and import colour TVs for an average price change in imports resulting from a tariff reduction.

** Price elasticity of demand for colour TV imports from GPT countries is -2.0.

The tariff rate is scheduled to drop to 7.0 percent by 1987. The costs and benefits associated with this is presented in Chart 5.7. This is also done for a range of demand elasticities and cross-elasticities of demand, as shown in the chart.

Two patterns can be observed. For lower cross-price elasticities, the employment levels can be better maintained. And, for higher demand elasticities for imported colour TVs, the efficiency loss is larger. Consequently, the most favourable circumstances for Canada, are low (absolute) cross-elasticities of demand and import demand elasticities. For an import demand elasticity of -2.0 and an import - domestically-assembled cross-elasticity of demand of 0.5, the efficiency loss per employee is only \$800 (consumer direct cash cost on imports is \$14,206). When the import demand price elasticity rises to -3.0, it becomes \$1,200, and when the cross-elasticity of demand also rises to -2.0, it becomes \$1,280 (and for the latter, the direct consumer cash cost on imports alone per job will be \$15,734). Of course, a high import demand elasticity means that domestic consumers have much to gain by lower import prices. The low import demand elasticity can be thought to be favourable in the sense that there is less reason to reduce the tariffs on imports.

The annual costs and benefits, should free trade in colour TVs occur with the United States, is shown in Chart

Chart 5.7

Costs and Benefits and a Most-Favoured-Nation
Tariff Rate of 7.0%
(in \$'000)

Elasticity of Demand for Imported Colour TVs is -2.0:

Import-Domestic Cross-Elasticity of Demand*	Employment (no. of workers)	Efficiency Loss (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
0.5	1,812	1,450	16,824	25,741	8,917
1.0	1,774	1,450	16,824	25,741	8,917
2.0	1,698	1,450	16,824	25,741	8,917

Elasticity of Demand for Imported Colour TVs is -3.0:

Import-Domestic Cross-Elasticity of Demand*	Employment (no. of workers)	Efficiency Loss (EL)	Tariff Revenue	(Direct) Cash Cost On Imports to Consumers	Additional Distributing & Marketing Revenue
0.5	1,812	2,175	17,462	26,717	9,255
1.0	1,774	2,175	17,462	26,717	9,255
2.0	1,698	2,175	17,462	26,717	9,255

Notes:

- * Cross-elasticity of demand between domestically-assembled and import colour TVs for an average price change in imports resulting from a tariff reduction.

Chart 5.8

Costs and Benefits and Free Trade in Colour TVs
with the United States
(in \$'000s)

Import- Domestic Cross-Elasticity of Demand*	Employment (no. of workers)	Efficiency Loss (EL)	Tariff Revenue**	(Direct) Cash Cost On Imports to Consumers**	Additional Distributing & Marketing Revenue**
0.5	1,815	2,459	15,833	24,224	8,391
1.0	1,780	2,459	15,833	24,224	8,391
2.0	1,711	2,459	15,833	24,224	8,391

Notes:

* Cross-elasticity of demand between domestically-assembled and import colour TVs for an average price change in imports resulting from a tariff reduction.

** Figures are when colour TV imports from the United States do not displace other colour TV imports. The higher the substitutability among imports from the United States and other imports the lower will be these figures.

5.8 for a range of import demand elasticities and import - domestically-assembled cross elasticities of demand. The costs and employment benefits are higher in this chart than in Chart 5.7. For instance, for a -0.5 import demand elasticity and a 2.0 cross-elasticity of demand between imports and domestically-assembled colour TVs, the efficiency loss is \$2.5 million and employment is 1,815, for an efficiency loss per job of about \$1,355. For an import demand elasticity of -2.5 and a cross-elasticity of demand of 2.0, the efficiency loss per employee is only \$1,899. The direct cash cost on imports to consumers will now be about \$24 million, and if the costs for domestically-assembled colour TVs are the same, the direct cash cost per job will be \$13,347.

5.3.3.1 New Rationalization of Activities in North America

If a free trade arrangement is negotiated with the United States, it is quite likely that any centralization of present North American colour TV facilities would favour the United States. However, there has been concern on both sides of the Canadian - United States border as to whose colour TV industry will benefit.¹⁵¹ If there is no centralization, it not clear how the MNCs will coordinate

¹⁵¹ This will be discussed in Chapter 6, section 6.5. Please see: Isaiah A. Litvak, "Freer Trade With Canada: The Conflicting Views of the U.S. Business", pp. 48-49; and Regional Industrial Expansion Canada, Trade Assessment: International Competitiveness Profile; Canadian Consumer Electronics Industry (SIC 334).

their North American activities on both sides of the border. Some Canadian subsidiaries may be allowed to supplement or complement, in some screen sizes, the United States' market; or the North American market can be divided a little differently (with Canadian-located plants shipping more to the northeast United States). The United States market for colour TVs is about ten times that for Canada, and if the Canadian facilities can be used just to help fill some of the replacement market, Canadian activity and employment can be sufficiently expanded to reduce the above calculated consumer costs per employed person.

The costs are high, but they are not so out of line so that if employment could be increased by 50 percent the per employed person costs approach the approximate average wage income of the workers. In 1984, the consumers cash costs (section 5.3) were just over \$40,000 per employed person, and the efficiency loss was \$2,000 per employed person. About \$20,000 per employee is due to direct cash costs on imported colour TVs, much of which is offset by the government getting tariff revenue (and marketing agents and distributors about \$13 million in total).¹⁵² With the higher employment, the consumer cash costs on domestic colour TVs per employed person would drop close to the average assembly wages in 1985 (about \$15,000).

¹⁵² See Chart 5.1.

5.4 CONCLUSION

This chapter has provided an estimate of the costs and benefits associated with different policy directions, using a simple comparative statics framework. The importance of certain assumptions (particularly about the elasticity of demand) and the impact of possible future developments upon the benefits and costs were also investigated.

However, on the basis of the historical analysis in Chapter 4, it appears that free trade will in all likelihood lead to the cessation of the colour TV industry in Canada. Tariff protection imposes a very high cost (consumer costs and efficiency loss) when compared to the modest number of assembly workers and induced additional employment in spin-offs activities. The consumer costs amounted to over \$40,000 for each person employed in the colour TV industry. However, about half of this was due to higher purchase costs on imported colour TVs, which is balanced by tariff revenue and additional revenues to marketing agents and distributors. The consumption effect of protection were calculated to be less than \$300 per employed person. However, the efficiency loss was estimated to equal \$2000 per employed person.

Possible future developments such as lower transport costs and technological change would appear to increase the relative costs to benefits of protecting local assembly.

Exchange rates will, of course, hurt Canada if the Canadian dollar rises against the yen, or against the United States dollar. Finally, it merits repeating that if a North American rationalization of industry, perhaps as a result of a freer trade arrangement between Canada and the United States, could increase employment by 50 percent, the per employment costs of tariff protection--after tariff revenues and additional revenues to marketing agents and distributors due to higher import colour TV prices are deducted--would approach the approximate average wage income of the assembly workers (\$15,000 in 1985).

Chapter VI

ALTERNATIVE POLICY DIRECTIONS AND EVALUATIVE CRITERIA

The first part of this chapter provides a brief examination of the literature on the problems facing Canadian manufacturing and appropriate policy responses. Current government programs will then be critically examined. Three broad policy directions for advanced technology consumer electronics and consumer durables will be identified and criteria for the evaluation of the policy alternatives will be offered.

6.1 REVIEW OF THE LITERATURE

This review is directed at literature concerned with appropriate Canadian public policy for the economic development of Canadian manufacturing industries. It will contribute to the perspective needed for the establishment of policy alternatives in this thesis.

It has been long recognized that Canadian operations need to attain sufficient volume of output to have unit costs which are internationally competitive. Literature which emphasizes this takes a free trade position. The following statement by English is illustrative:

Among the problems of Canadian manufacturing industries, one of the most important is the difficulty of attaining a sufficient volume of output to reduce unit costs to levels which are competitive internationally...Since in most other respects (specialized and effective use of capital equipment and related technology) Canadian manufacturing resembles American, many Canadians have become convinced that the principal handicap to the achievement of a strong competitive position lies in the barriers to economies of large-scale production.¹⁵³

English's work was published a year before companies in Canada went into colour TV production; it foreshadowed difficulties which were to be experienced by the domestic colour TV industry. Another classic Canadian study is by Eastman and Stykolt,¹⁵⁴ whose principal conclusion also emphasizes that the size of a plant's market is an important determinant of its size and of its relative costs. Eastman and Stykolt attach much blame to tariffs and a policy that allows many companies to enter a small market producing small runs of several types or kinds of products. They also

¹⁵³ Edward English, Industrial Structure in Canada's International Competitive Position (Montreal: Canadian Trade Committee, 1964), p. ix. Please also see Harry G. Johnson, The Canadian Quandry, (Toronto: McGraw-Hill, 1963), 126-28.

¹⁵⁴ H. C. Eastman and S. Stykolt, The Tariff and Competition in Canada (Toronto: The Macmillan Press, 1967).

The contribution by English, and by Eastman and Stykolt, are part of a Canadian tradition to analyse international trade and trade problems by using an industrial organization framework and perspective. The small domestic market results in the international market and international competition being very important to understanding industrial and trade problems. There has been, consequently, a great amount of Canadian input to the development of this approach (much of the work does not rely on rigour, but on an intuitive use of ideas and concepts).

emphasize the beneficial aspects of freer trade which is expected to lead to specialization and production for export. The Economic Council of Canada¹⁵⁵ supports this view,¹⁵⁶ as do others including R. J. and Paul Wonnacott, who articulated it in a series of publications.¹⁵⁷

In contrast to English, and Eastment and Stykolt who believe that domestic competition policies should be addressed, R. J. Wonnacott points out that a government policy to increase industrial scale and efficiency through encouragement of mergers or cartelization of the relatively small Canadian market cannot be expected to succeed in raising Canadian efficiency unless it results in increased Canadian exports and international interdependence. He recognizes many problems to Canadian industry but emphasizes trade barriers and goes on to argue that the best way to increase Canadian exports is by encouraging freer trade.

¹⁵⁵ Economic Council of Canada, Looking Outward, a New Trade Strategy for Canada (Ottawa: Information Canada, 1975).

¹⁵⁶ Please also see, for a government view: Senate, Standing Committee on Foreign Affairs, Canada's Free Trade Relations with the United States, vol. 3 (Ottawa: Supply and Services Canada, 1982).

¹⁵⁷ These include: Paul and R. J. Wonnacott, "Free Trade Between the United States and Canada: Fifteen Years Later," Canadian Public Policy 8 (Special Supplement) (October 1982); R. J. Wonnacott, "An Analysis of Some Recent Developments in Trade Theory and Policy," Report prepared for the Institute for Research on Public Policy, Ottawa: 1984; R. J. Wonnacott, Canada's Trade Options (Ottawa: Economic Council of Canada, 1975); R. J. Wonnacott, "Industrial Strategy: A Canadian Substitute for Trade Liberalization?" Canadian Journal of Economics 8,4 (November 1975); and R. J. and Paul Wonnacott, Free Trade Between the United States and Canada (Cambridge: Harvard University, 1967).

Benefits will result from greater specialization and more efficiency through longer production runs.¹⁵⁸ If Canadian firms can gain freer access to export markets, then they can expand production, and benefit from economies of scale and rationalized production methods.

This 'freer trade' literature visualizes the coexistence of Canadian industries with similar industries in other countries and the export of Canadian output to those countries, especially to the larger eastern American market where transportation costs of exports are minimized. When international impediments as tariffs are reduced or removed, product differentiation and comparative costs increase in importance. More recently, Harris and Cox¹⁵⁹ and the Royal

¹⁵⁸ Please see Christopher Green, Canadian Industrial Organization and Policy, 2nd edition (Toronto: McGraw-Hill Ryerson Limited, 1985).

¹⁵⁹ Richard G. Harris with David Cox, Trade, Industrial Policy and Canadian Manufacturing (Toronto: Ontario Economic Council, 1984).

Please also see Richard G. Harris, Trade, Industrial Policy and International Competition, volume 13, in the series of studies commissioned as part of the research program of the Royal Commission on the Economic Union and Development Prospects for Canada (University of Toronto Press, 1985).

Harris and Cox, using 1976 data, attempt to provide empirical evidence that Canadian manufacturing would gain through scale efficiency when the tariff is reduced. Until recently, most studies estimated a small effect. Harris and Cox assume unit costs of production that are sensitive to plant scale and specialization, and estimate that if tariffs were removed, then increased competitive pressures would stimulate large increases in production of Canadian manufactures that the country would then specialize in. As costs fall, the price competitiveness of Canadian goods would

Commission on the Economic Union and Development Prospects for Canada¹⁶⁰ gave great importance to industrial rationalization and the benefits that would result from freer trade.

The Royal Commission's Report proposes free trade with the United States, with zero tariffs and detailed codes of conduct.¹⁶¹ Support of free trade by the Royal Commission appears to reflect less the virtues of an unfettered market than the promotion of acceptance of neoclassical views of the economy.¹⁶² A principal proposition from this report is that Canadian policy needs to be more market oriented. Letting the market play a major role becomes the strategy, itself. As with the Economic Council of Canada¹⁶³ report

increase, allowing them to be exported to other markets. Their findings are very dependent upon these assumptions and relationships.

¹⁶⁰ Royal Commission on the Economic Union and Development Prospects for Canada, Report (Ottawa: Minister of Supply and Services, 1985).

¹⁶¹ The Report also recommends:

1. that Canada continue to support the multilateral system of trade and payments as the mainstay of Canada's foreign economic policy;
2. that import policy should be based on a recognition of its costs to consumers and the costs of delaying adjustment;
3. and the proviso is added that export promotion should be pursued aggressively with greater reliance of private sector mechanisms.

Please see the Royal Commission on the Economic Union and Development Prospects, Report, Part IV, p. 418.

and the R. J. and Paul Wonnacott articles, the Royal Commission's basic argument is that there are substantial benefits for Canada in reducing its protectionism, and seeking freer trade with its neighbours.

There are weaknesses in this literature. For instance, it does not treat the concern that Canadian subsidiaries will not establish specialized operations that export or that the parent companies will serve the Canadian market from operations elsewhere. In Chapter 2, it was identified how many of the consumer electronics MNCs with operations in Canada, already have much larger operations in the United States.

Other literature supports an interventionist role for government.¹⁶⁴ Bourgault,¹⁶⁵ Britton and Gilmour,¹⁶⁶ and

¹⁶² Richard Simeon, a seminar given at Harvard University, September 1985.

¹⁶³ Economic Council of Canada, Looking Outward.

¹⁶⁴ Since freer trade negotiations have started between Canada and the United States, there have been a number of more recent publications on both the virtues of freer trade and the dangers.

¹⁶⁵ Pierre Bourgault, Innovation and the Structure of Canadian Industry, special study no. 23 (Ottawa: Science Council of Canada, 1972).

¹⁶⁶ John N. H. Britton and James M. Gilmour, The Weakest Link: A Technological Perspective on Canadian Industrial Underdevelopment, background study no. 43 (Ottawa: Science Council of Canada, 1978).

¹⁶⁷ Glen Williams, Not for Export: Toward a Political Economy of Canada's Arrested Industrialization, (Toronto: McClelland and Stewart, 1983).

Williams¹⁶⁷ have contributed to this literature.¹⁶⁸ In common with the writers who support free trade this line of thought recognizes that Canada has a modest domestic market and reflect the belief that Canadian-based operations need to supplement their production for the domestic market with exports. However, these writers address the relationship between subsidiaries and their parent operations.¹⁶⁹ Their ideas are frequently associated with Canadian nationalism and economic sovereignty. Moreover, they often advocate an industrial policy that does not rely on the market place to determine the course of industries¹⁷⁰ or to determine how fast adjustment should be allowed to take place.¹⁷¹

¹⁶⁸ Also, there is the book: Daniel Drache and Duncan Cameron, eds., The Other Macdonald Report: The Consensus on Canada's Future that the Macdonald Commission Left Out, (Toronto: Lorimer, 1985).

Bourgault's report and that by Britton and Gilmour's were both written for the Science Council of Canada, a federal government advisory body. Since the 1970s, this Council released several reports relating to the weak exporting performance of Canadian manufacturing, the above two receiving the most attention.

A critical assessment of the views found in Britton and Gilmour (1978) is found in: D. J. Daly, "Weak Links in 'The Weakest Link'", Canadian Public Policy, (1979), pp. 307-17; and Kristian S. Palda, The Science Council's Weakest Link: A Critique of the Science Council's Technocratic Industrial Strategy for Canada (Vancouver: The Fraser Institute, 1979).

¹⁶⁹ Bourgault examined Canada's advanced technology sectors and points out that because the parent is large, and has access to the same technology, economies of scale and efficiency mean that it is unprofitable to the MNC to have the subsidiary export when the parent can. Britton and Gilmour stressed that foreign ownership resulted in

A leading characteristic of this literature is that it proposes the need for more than traditional policy instruments for Canadian public policy. For example, Britton and Gilmour, perhaps the most explicit in their policy recommendations, recommend some tariff protection for most industries until an advanced technology capability is achieved,¹⁷² but also propose the use of different incentives and penalties to encourage and/or coerce the private sector (Canadian-owned or controlled firms) to achieve greater 'technological sovereignty' at home.

Steps could include:

1. A reorganization of existing industrial sectors to create newly rationalized and specialized firms with production efficiencies,

domestic branch plants which depended upon imports of foreign technology, machinery and components. Please see: Bourgault, Innovation and the Structure of Canadian Industry, p. 96; and Britton and Gilmour, The Weakest Link, pp. 92, 110.

¹⁷⁰ There have been several Canadian books written on industrial policy in recent years. Please see: Michael Bliss, The Evolution of Industrial Policies in Canada: An Historical Survey, discussion paper no. 218 (Ottawa: Economic Council of Canada, 1982); P. C. Davenport and P. C. Green, W. S. Milne, R. Saunders and W. Watson, Industrial Policy in Ontario and Quebec (Toronto: Ontario Economic Council, 1982); and Richard D. French, How Ottawa Decides: Planning and Industrial Policy-Making 1968-1980 (Ottawa: Canadian Institute for Economic Policy, 1980).

¹⁷¹ Actually adjustment assistance will play a key role in helping make any movement to freer trade acceptable, and this is recognized generally in the economic literature: one form might be to make gradual the adjustment process.

The topic of adjustment assistance is closely related to discussions of declining industries. Please see: Glenn

2. Formation of 'core' Canadian-controlled, technology independent firms to take the role of leaders, and
3. Selection of strategies to move core firms into promising future products.

By and large these were considered in the rationalization programs for the Canadian colour TV industry.

Britton and Gilmour also recommend:

4. Promotion of small manufacturers to service the 'core' companies,
5. World trading consortias, and
6. Stricter regulation of foreign investment and technology imports.

Britton and Gilmour^{17 3} argue that any move to freer trade should be opposed until other policies have improved Canadian industry's competitiveness. They also suggest that the government's industrial policy should favour manufactured goods which incorporate Canadian technology in procurement. They further recommend that the government provide risk capital to users of domestic technology at preferential rates.

P. Jenkins and John Evans, Worker Adjustment Policies: An Alternative to Protectionism (Ottawa: The North-South Institute, 1981); Roy A. Matthews, Industrial Viability in a Free Trade Economy: A Program of Adjustment Policies for Canada (Toronto: Private Planning Association of Canada, 1971); Ronald S. Saunders, Aid to Workers in Declining Industries (Toronto: Ontario Economic Council, 1984); plus the works by R. J. and Paul Wonnacott and the Economic Council of Canada, e.g. Looking Outward.

^{17 2} Britton and Gilmour, The Weakest Link, Chapter 7.

^{17 3} Ibid...

This interventionist literature has a number of problems. For instance, civil servants may not be able to successfully identify winners. Watson¹⁷⁴ articulates this concern well: he emphasizes that market forces are better than alternative forms of organization for the efficient allocation of resources. He acknowledges that there are market imperfections, but states that public policy should be used only when it is possible to address these.

Regarding the issue of helping domestically-owned companies versus foreign enterprises, Reich¹⁷⁵ points out that in the case of the United States, that it is wrong to give a national orientation to new policies for advanced technologies. His views also appear to be applicable to Canada. Reich describes how R & D in the world follows the 'principle of Techno-Globalism' where corporations, as well as academic communities, draw on talent internationally. Also modern technology, through data banks, blueprints, information and designs, can flow quickly across national boundaries. It is more important to develop a workforce with expertise for technological innovative ability in one's country. This means some way must be found to attract product-specific skills to one's country. Technological learning is a certain kind of knowledge founded in shared experience. It is not necessary that the country only help

¹⁷⁴ W. Watson, A Primer on the Economics of Industrial Policy (Toronto: Ontario Economic Council, 1983).

¹⁷⁵ Reich, "The Rise of Techno-Nationalism".

or assist domestically-owned companies, but by helping even foreign companies to do more R & D in one's country, technological ability and expertise will increase, allowing new ideas and activity, perhaps domestically-owned, to occur.

More recently, there appears to be the development of a third group of literature on public policy. It takes a somewhat middle approach. It includes work by Saunders,¹⁷⁶ Harris,¹⁷⁷ and the Science Council of Canada.¹⁷⁸ Much of this literature focusses on the MNC, and an important part of it is concerned with international special agreements between governments and MNCs. Saunders would like a policy plan that helps the country move towards freer trade provided there are appropriate safeguards regarding activity levels by MNCs in Canada. He suggests that MNCs be required to guarantee that their Canadian content value-added (e.g. labour and parts) will at least match that of pre-free trade levels. The government must also carefully screen proposals for new foreign direct investment and future participation of MNCs in the Canadian economy, so as to secure WPMs for Canadian subsidiaries. Also, the Science Council of

¹⁷⁶ Ronald S. Saunders, "Continentalism and Economic Nationalism in the Manufacturing Sector: Seeking Middle Ground," Canadian Public Policy, 8 (October 1982), 463-80.

¹⁷⁷ Harris, Trade, Industrial Policy and International Competition.

¹⁷⁸ Science Council of Canada, Canadian Industrial Development: Some Policy Directions, Report 37 (Ottawa: 1984), p. 35.

Canada's 1980 report,¹⁷⁹ Multinationals and Industrial Strategy: The Role of World Product Mandates falls into this literature. This report proposes that the government encourage subsidiaries in Canada to seek WPMS from their parents outside Canada (in order to lower unit costs, improve domestic capabilities and exploit long-term export opportunities). The government must pick areas or industries and choose subsidiaries to assist, negotiating with the parent MNC to have the Canadian subsidiary carry out production, R & D and marketing. Moreover, in a 1984 report,¹⁸⁰ the Science Council of Canada recommends that the Canadian Manufacturers' Association should offer advice and assistance to leading executives of foreign subsidiaries to help them present the case to their parent MNC for building a strong export-oriented subsidiary in Canada, and in situations the government can seek the substitution of direct foreign investment for imports, using whatever incentives and leverage it has available.

The 1984 Science Council report also emphasizes the role of government assistance in the growth of small but dynamic Canadian high-technology firms. There is the problem that a trade deal with other countries might not allow subsidies and restrict the making of special agreements by Canada with

¹⁷⁹ Science Council of Canada, Multinationals and Industrial Strategy: The Role of World Product Mandates (Ottawa: 1980).

¹⁸⁰ Science Council of Canada (1984), Canadian Industrial Development: Some Policy Directions, Report 37 (Ottawa: 1984), p. 35.

MNCs. Outright financial assistance might especially be prohibited. Harris,¹⁸¹ too, suggests a technological policy designed to help small and medium-sized (domestic) firms in high-technology industries increase their R & D activities in Canada. He stresses the need in any case for free trade, and does not overlook MNCs and a role for government to help make Canadian subsidiaries attractive for MNC investment.¹⁸² He also suggests selective assistance by the government for certain businesses it considers dynamic. The purpose is to gain more R & D, purchasing, and employment (in research, management and other high-income jobs) for Canada.¹⁸³

There are weaknesses to this third line of thought. Atkinson,¹⁸⁴ raises many of these problems with respect to WPMs. He emphasizes that since the assignment of MNC activities to subsidiaries is an internal process,¹⁸⁵

¹⁸¹ Harris, Trade, Industrial Policy and International Competition.

¹⁸² On this point, please also see Andre Blais, "The Debate on Canadian Industrial Policy," in Andre Blais, research coordinator, Industrial Policy, Volume 44 in the series of studies commissioned as part of the research program of the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto: University of Toronto Press, 1985).

¹⁸³ The importance of these activities is also reported in Isaiah A. Litvak and Christopher J. Maule and R. D. Robinson, Dual Loyalty: Canadian - U.S. Business Arrangements (Toronto: McGraw-Hill Company of Canada Limited, 1971).

¹⁸⁴ Atkinson, "If You Can't Beat Them: World Product Mandating and Canadian Industrial Policy".

¹⁸⁵ This is consistent with the views of Alan Rugman, cited in our discussion in Chapter regarding strategic decision-making and centralization of R & D. E.g.

governments will require "a broad knowledge and a potent set of policy instruments if it is to have any direct impact on the decisions of parent (MNCs)." Atkinson asks a fundamental question whether the government should encourage such subsidiary activity as WPMs at all. He focusses on three problems:

1. the government's need to be familiar with global operations;
2. the future of these production and other subsidiary assignments remains a prerogative of the parent MNCs; and
3. the Canadian subsidiaries might become increasingly dependent on the government to maintain levels of assistance and preferential policies that allow them to defend or continue to receive mandates.¹⁸⁶

Litvak, Maule and Robinson¹⁸⁷ note other problems in a MNC presence in Canada, including dependency on foreign decisions for future investment and expansion, and potential problems for Canadian trade unions (the parent has substantial bargaining power if it can switch production between countries). Litvak, Maule and Robinson also mention that the monetary and fiscal powers of the country can be reduced when much of the economy is foreign owned.¹⁸⁸

Rugman and Douglas, "The Strategic Management of Multinationals and World Product Mandating". Please also see: Alan M. Rugman, Inside the Multinationals: The Economics of Internal Markets (New York: Columbia University Press, 1981).

¹⁸⁶ Atkinson, "If You Can't Beat Them: World Product Mandating and Canadian Industrial Policy", pp. 143-44.

¹⁸⁷ Litvak and Maule and Robinson, Dual Loyalty.

¹⁸⁸ The companies access to the retained earnings of

Moreover, Litvak and Maule¹⁸⁹ explain how Canada may want to include terms in an agreement to require MNCs to manufacture a certain number of products and volume of output in Canada, to limit the use of extraterritorial employment, and to limit the transfer of inventions for the purpose of manufacturing outside of Canada without permission.

Rugman and Douglas draw attention to another problem insomuch as the majority of MNCs do not readily grant production and R & D activities, and WPMs to their subsidiaries in Canada.¹⁹⁰ To overcome this problem the Ontario Advisory Committee¹⁹¹ (made up of executives from important companies in Canada) stress a tax and incentive system that will make Canada internationally attractive in order to enhance subsidiaries' abilities to win mandates from their parent MNCs.

affiliates and parent MNCs' access to funds can weaken domestic monetary policy measures, and through manipulation of transfer prices the companies might be able to evade taxes.

¹⁸⁹ Isaiah A. Litvak and Christopher J. Maule, "Small-Medium Sized Canadian Firms and Their International Business and R & D Activities," Technological Innovation Studies Program, Research Report No. 94 (Ottawa: Regional Industrial Expansion, Office of Industrial Innovation, 1984).

¹⁹⁰ Rugman and Douglas, "The Strategic Management of Multinationals and World Product Mandating". Please also see Alan M. Rugman, "Research and Development by Multinational and Domestic Firms in Canada," Canadian Public Policy 7 (1981), pp. 604-16. See Chapter 2, p. 16-7.

¹⁹¹ Ontario, Ontario Advisory Committee, The Report of the Advisory Committee (Toronto: 1980), pp. 8-12.

Finally, another general weakness in this literature would be the reliance on the government's ability to pick winners and to spot niches where a Canadian subsidiary or domestically-owned company might be successful at entering. Also in order to articulate policy objectives and do case-by-case analysis to discover product lines which appear most compatible with subsidiaries will require high search costs and expensive negotiating.

This review of three major lines of thought in the literature shows that each offers a different understanding of what should become Canadian public policy. The literature supporting free trade emphasizes above all else the need for Canadian operations to attain sufficient volume of output to achieve unit costs which are competitive internationally. The literature supporting an interventionist role for government advocates the need for tariff protection at least until advanced production capabilities are achieved, and the use of incentives and penalties to encourage and/or coerce Canadian-owned or controlled firms to achieve greater production and to advance technologically. The third literature argues that an appropriate Canadian public policy for the economic development of Canadian manufacturing industries must focus on the MNC and special agreements between the government and MNCs. It supports a policy plan that moves the country towards freer trade, but provides government intervention on

an industry case by case basis. The object of the assistance is to safeguard MNC activity in Canada and to make Canadian subsidiaries attractive for MNC investment. The three lines of thought lead to quite different policy approaches, each of which will need to be examined in respect to Canadian consumer electronics.

6.2 CURRENT GOVERNMENT PROGRAMS

Current government programs provide important additional perspective for the discussion of alternative policy measures. Import policies, industrial policies and, then, R & D policies will be outlined.

Canada's main instrument of import policy is the tariff. It is not the only instrument. As was shown in Chapter 3, supplementary measures such as anti-dumping duties and the withdrawal of the GPT have been resorted to in the past. However, these measures are added onto the initial tariff, and only apply in specific circumstances. Nontariff barriers are not important within the North American market for consumer electronics. There are only minor differences in standards and these have a little impact on where products are made because product adaptation to the other country's standards can easily be made.¹⁹²

¹⁹² However, between North America (NTSC standards) and Europe (PAL/SECAM), there are major differences in standards which means that colour TVs made for one market can not easily be adapted for the other market. Therefore, in colour TVs, there are really two different markets served by separate factories, which makes any

Canada does not have a well developed or formulated industrial policy as have Japan or France. Canada does provide financial and technical aid: financial aid can be direct (i.e. grants, loans, and guarantees) or indirect (i.e. tax advantages or through government purchases). The government's principal support for industry comes through a system of tax incentives.¹⁹³ Within the federal government, the Department of Regional Industrial Expansion (DRIE) was responsible for providing programs and services to industry. It has just recently been replaced, as the government underwent a major restructuring of responsibilities. The government created two economic development agencies: the Atlantic Canada Opportunities Agency on June 6, 1987 and the Western Diversification Office on August 5, 1987. The government also created a new Department of Industry, Technology and Science. It still remains to be seen which policies develop and programs emerge. At the time of this writing, no spending plans or programs in connection with this restructuring has been announced.¹⁹⁴

exporting of colour TVs between the two impossible.

¹⁹³ Canada offers investment tax credits which reduce the after tax cost of R & D and, as well, the purchase of new manufacturing equipment. Particularly for high technology equipment, accelerated depreciation provides a source of assistance. Firms, generally, which are expanding or modernizing existing plants and companies which are establishing new facilities can also seek assistance.

¹⁹⁴ The regional development agencies will be in charge of funding co-ordinating and efforts of other departments, and have as main purposes the development of their regions. The new industry department will pick up science and technology activities, focussing on advanced

However, the present Conservative government set out its philosophy of economic management in its An Agenda for Economic Renewal (1984)¹⁹⁵ and in the federal budget of May 1985.¹⁹⁶ Both of these can be seen as statements of intentions: setting out principles and priorities. The government is not bound by these principles, but they do describe present purposes that new policies might be compared against for consistency. The private sector is encouraged to go more its own way.¹⁹⁷ Budget cuts reduced monies available as direct grants, and one major emphasis of government activities is to do investment prospecting, developing and presenting memoranda of understanding between the government and industries and companies. By investment prospecting is meant that the government is active in investment promotion, for instance through investment and trade ties. For example, there have in recent years been high profile trips by department and other government officials to South Korea and Japan. They were intended to encourage such developments as joint ventures, licensing

technology and how to help Canada develop and keep competitive.

¹⁹⁵ Finance Canada, An Agenda for Economic Renewal (Ottawa: 1984).

¹⁹⁶ Finance Canada, Budget Papers: Securing Economic Renewal (Ottawa: 1985); and Finance Canada, New Management Initiatives: Initial Results from the Task Force on Program Review (May) (Ottawa: 1985).

Please also see: Finance Canada, An Agenda for Economic Renewal: Principles and Progress (Ottawa: 1986).

¹⁹⁷ Finance Canada, Budget Papers: Securing Economic Renewal.

agreements, joint R & D, and two way investment. During the South Korean trip, it was announced that Hyundai would invest \$200 million in a passenger car assembly plant in Canada; Toyota confirmed a decision to build a plant during the Japanese visit. Some other car assembly announcements followed. Memoranda of understanding establish frameworks for some co-operative action based upon a long-term link for discussions with individual companies and associations. Examples of the latter have been the Canadian Sporting Goods Association and Canadian Council of Furniture Manufacturers. A memorandum of understanding has also been signed with the Canadian aerospace industry. The colour TV assembly industry has not been part of the memoranda of understanding, and no special programs have been developed to help the industry (as had occurred in the past).

The government has a variety of policies intended to assist product and process development in Canada. These include the provision of scientific and technical information, tax incentives (R & D investment tax credit, tax allowance, and other measures), grants, and procurement from the private sector (e.g. encouraging purchases of innovation and inventive output). In recent years, these policies have been modified and intensified.¹⁹⁸

¹⁹⁸ Jeffrey I. Bernstein, "Research and Development, Patents, and Grant and Tax Policies in Canada," in Donald G. McFetridge, research coordinator, Technological Change in Canadian Industry, Volume 3 in the series of studies commissioned as part of the research program of the Royal Commission on the Economic Union and Development Prospects for Canada (Toronto:

The federal government has a number of grant programs intended to decrease the unit cost of a specific type of R & D investment program.¹⁹⁹ A most important program is the Industrial and Regional Development Program, which was administered through DRIE²⁰⁰ (it is uncertain whether the program may change under the new Department of Industry, Technology and Science). The program included grants for firms of specific size or for specific types of R & D investment projects. They must be applied for and approved by the federal government. The product and process development must be undertaken in Canada: there is an emphasis on those innovations with commercial application. DRIE also provided grants, loans and technical assistance to manufacturing firms adversely affected by structural change

University of Toronto Press, 1985), pp. 1-41.

Another kind of policy is the public sector production of innovation and inventive output.

¹⁹⁹ The Industrial Research Assistance Program encourages production activities based on the physical and biological sciences and engineering; Defence Industry Productivity Program, which encourages R & D investment into product and process development in the defence industries; and there is the Industry/Laboratory Projects, to promote the transfer of results for federal laboratories in order to develop product and process innovations.

²⁰⁰ This program replaces the Enterprise Development Program among others, that were also administered by DRIE. The Industrial and Regional Development Program promotes industrial development through the support of private sector initiatives with particular emphasis on projects, industries and technologies with the greatest potential for economic return, sustained growth and international competitiveness. The support can take a variety of forms including feasibility studies, project and process innovation, new plant establishment, modernization or expansion of existing plant facilities and marketing. A

(e.g. from imports) under this Program. Its assistance has been aimed at and used for stimulating economic activity, creating jobs in slow-growth regions and promoting technology development. In the 1980s, the colour TV industry in Canada benefitted from assistance under the Industrial and Regional Development Program and the replaced Enterprise Development Program, and Regional Development Incentives Program (since withdrawn). The assistance helped to partially offset costs in purchases of equipment and plant modernizations.

With respect to tax incentives, there have been many government provisions introduced to promote R & D capital investment. Bernstein²⁰¹ summarizes provisions introduced over the last decade:

1. Current and capital R & D expenditures can be deducted in the year they were incurred or in any year thereafter.
2. Current and capital R & D expenditures in the current year are eligible for a tax credit.
3. Current and capital R & D expenditures in the current year in excess of the average of the three preceding years are eligible for a 50 percent tax allowance. Deductible R & D expenditures are reduced by the amount of the allowance.

few of the TV companies were able to benefit from these programs: for instance, when Matsushita expanded in the early 1980s, and by Matsushita and others in making improvements to their assembly operations.

²⁰¹ Bernstein, "Research and Development, Patents, and Grant and Tax Policies in Canada", in McPettridge, Technological Change in Canadian Industry, pp. 30-1.

The federal budget of 1983 introduced many of the current rates. Any tax allowance based on incremental R & D expenditures have been eliminated, the tax credit rate for companies eligible for the small business corporate income tax rate is now 35 percent, 30 percent for companies operating in the Gaspe and the Atlantic provinces, and 20 percent for all other companies. Also, for the tax credit a three-year carry-back period was introduced and the carry-forward period increased to seven years.

A \$90 million federal grant program to provide money to private companies, specifically for microelectronics was announced April 25, 1987. The money, however, has been garnered from other federal projects. Most of the grants will be provided through a new office, which was within DRIE, and may be transferred to the Department of Industry, Technology and Science. Companies working alone, or alongside university researchers or with foreign companies will be able to benefit.

Comment should also be made on certain other areas of public policy. DRIE had no specific industrial adjustment assistance programs to help industries in difficulty because of import competition. There were special DRIE programs to help firms in the following specific industry sectors:²⁰²

²⁰² Regional Industrial Expansion Canada, Canada's Industrial Adjustment to Trade Policy Change and External Shocks, study prepared for the Royal Commission on the Economic Union and Development Prospects for Canada, Research Symposium (Ottawa: 1984).

textiles and clothing, leather and footwear, automotive parts, shipbuilding, and pulp and paper. These or similar programs will probably continue under the new Department of Industry, Technology and Science. Employment and Immigration Canada (EIC), which is responsible for programs to help make the Canadian labour market function more efficiently, can provide training and temporary income protection to workers who lose employment in Canadian industry. EIC has no special labour market programs for workers affected by import competition. So far, since the mid-1970s, there has been no special industry assistance offered for the Canadian consumer electronics industry.

Regarding trade policies, the government is committed to giving priority to strengthening the multilateral trade system. In September, 1985, the government proposed and has since entered negotiations towards a bilateral trade agreement with the United States. Canada also has GPT rates for many goods imported from developing countries, although these were taken off colour TVs. Canada would like to maintain an image in favour of international development.

6.3 MAJOR POLICY ALTERNATIVES

Three general and alternative policy directions come out of the literature review for the colour TV industry and consumer electronics sector. They are:

1. Protection,
2. Free trade, and
3. Free trade with intervention on a case by case industry basis.

Protection is the policy direction that is presently employed in the Canadian consumer electronics industry. Protection can include small changes in the tariff rates, but basically some level designed to provide a safety margin of support for domestic activities is present. As evidenced in Chapter 3, on the history of the colour TV industry, protection of the domestic market has led to branch plants, so this might also be called the branch plant option. A key concern is the consumer costs, since tariffs increase prices which are born by consumers.

The second policy direction, free trade, requires the domestic economy to adjust to international competition and market forces. Actually, under this policy direction different kinds of free trade might be pursued. One is general free trade: to this end, a gradual and reciprocal decline in MFN tariff rates would be sought. Another policy pursuit is free trade between Canada and the United States. In both cases, the government relies on the market process to guide how companies in Canada adjust and whether MNCs will produce in Canada for the international, North American or even domestic markets (or not at all). Reciprocal tariff reductions, of course, not only extend the range of

manufactured products which firms in Canada can profitably export, but will also increase the degree of import competition for domestic producers.

A third policy direction is for the government to pursue freer trade accompanied by intervention measures aimed at firms and MNCs in specific industries. Intervention might include negotiation and the use of leverage with foreign and domestic companies and domestic subsidiaries, perhaps including various incentives such as tax breaks, subsidies and preferential loans. Therefore, instead of relying only upon the marketplace to signal how industries should adjust, the government would be involved in special intervention measures to aid companies' adjustment and/or expansion. Additional freer trade access can be offered to a MNC on particular product(s), contingent on the MNC carrying on additional activity in Canada (e.g. if regional freer trade with the United States is pursued, then additional freer trade on imports of a MNCs overseas products can still be given, subject to the MNC's commitment to carry on more activity in Canada).

Regarding possible advantages for locating in Canada, it might be noted they have not by themselves been sufficient to attract much Canadian consumer electronic investment. The advantages include:

1. Access to the Canadian market. However, in most products, including consumer electronics, the Canadian market is much smaller than the United

States market; although the domestic Canadian consumer electronics market is still a significant market in its own right.

2. Access to the Canadian workforce. Canada has a highly educated and skilled workforce (albeit not in consumer electronics nor in technological commercial innovation). The workforce has become increasingly urbanized, and is ethnically diverse.
3. An industrial infrastructure, and fine educational and research facilities. Canada's relatively inexpensive educational system also includes a diverse system of non-university institutions comprised of Community Colleges, technical and trade schools.
4. A stable political life and modern amenities to make relocation easier for any foreign workers and executives who may have to accompany foreign investment into Canada.
5. Canadian businesses pay relatively inexpensive rates for energy. Office, factory and commercial space is reasonably priced and readily available. Most communities also have industrial parks specifically designed to meet various business needs, and land is relatively inexpensive to that in many countries.

If freer trade occurs between Canada and the United States, two points become particularly important:

6. Canada's transportation and communications systems are well developed, and provide easy access to the United States and international markets.
7. Proximity to the large United States market.

Of course, locations in the United States will be even closer to the United States market.

6.4 CRITERIA FOR DECIDING BETWEEN POLICIES

The following criteria are established for the comparison of public policy alternatives for consumer electronics in terms of the Canadian public interest. Although provincial and lower levels of government can play a role, the major mandate and 'machinery' (of government departments, national boards and agencies, and programs) for developing and implementing consumer electronics policy lie with the federal government.

For many items in this criteria list, it is important to remember that many different interested parties might be affected: consumers, workers (production workers, engineers, researchers), the government and the Canadian subsidiary and/or MNC parent. While it is important to try and keep a general perspective on how the whole might be affected by policy, it is also essential to show how different groups or parties might be affected.

The following is a list of criteria:

1. Employment creation (with emphasis on advanced-skills and high-income employment),
2. Investment,
3. R & D and technological innovation,
4. Consumer prices,
5. Equity (no undue burdens on particular groups),
6. Regional and federal-provincial considerations (e.g. how benefits are allocated and the regional and provincial incidence of costs),

7. Balance of trade (and services),
8. Government budgetary position,
9. Consistency with other policies.

A policy that promotes the creation of employment opportunities is a key criteria. Advanced-skills and high-income employment will be more desirable than low-skill employment.

Investment is important, because it results in economic activity and creates employment. Activities involving manufacturing and R & D and technological innovation are especially attractive because they will result in advanced-skills and high-income employment, provide interesting jobs and exposure by Canada's skilled and educated ²⁰³ to the process of innovation.

There are policies and results that the government would like to avoid. Policies with burdens that fall on a few, or which hurt poorer members of society are not considered desirable as are policies which raise consumer prices. The fact that provinces and regions of the country may be affected differently is an important consideration. If all the benefits accrue to one or two provinces but the burden of a policy is felt by all provinces, the inequity of these costs and benefits could lead to regional, political difficulties. When financial assistance is involved, it

²⁰³ This will be important if NICs continue to put activities at risk in developed countries through their lower labour costs.

matters where the benefits occur--since all provinces may contribute to taxes, but only the workers and spin-off activities in a single region may benefit from the rewards of any resultant company investment.

Canada is running a balance of trade deficit in manufactures, and trade in consumer electronics is particularly one-sided. While half of the Canadian colour TV market is provided through imports (increasingly from NICs, even with the GPT removed), only a small fraction of total Canadian output is exported. The more activity done in Canada, and the more Canada can export, the better for Canada's trade balance. If a MNC does more R & D in Canada, there may initially be higher service deficits in consumer electronics (e.g. license fees and royalties on new technology).

How the treasury is affected can be important, particularly during the present times of budget restraints, when there are many competing claims on government expenditures. Tariff revenues bring money to the Canadian treasury. However, subsidies and financial assistance impose a cost on the government.

A policy must be viewed with respect to consistency with other policies already in place, so that its individual effect will not unnecessarily detract from other policies or some broader purposes or goals. As an example, a policy

which provides industry protection from other countries but invites retaliation by them would conflict with a government's intent to promote more liberal trade. Canada is a signatory to the GATT, and because it is very dependent on trade, Canada should try to avoid behaviour that might appear to undermine the principles of GATT and the international trading system. Canada was also a primary participant in launching the Uruguay Round of MTNs, which began in October 1986. Other countries responses to a policy must also always be considered when calculating the effect or implications of a policy.

6.4.1 Limitations of These Criteria

There are also other considerations that need recognition in the implementation of public policy. They might include (a) an investigation of how both federal and provincial government decisions are made, (b) the need for cooperation in areas where provinces wish to exercise greater influence over decisions made by the federal government, (c) the need for the formulation of common objectives and policy strategies by levels of government for bringing in new manufacturing and R & D, and (d) the mandates and responsibilities of individual departments, boards and agencies, and levels of governments should be important considerations, when comparing policy alternatives. Their roles as players and their relationships with one another in

respect to different policies will determine the effectiveness of some policies. Coordination of these departments, boards and agencies in the area of consumer electronics can be difficult: the Department of Finance presently has responsibility over many policy aspects including countervailing duties legislation, customs tariff rates, duty remissions, and customs valuation safeguards. Revenue Canada, Customs and Excise administers the Customs Tariff, countervailing duties regulations and safeguards and assesses tariffs and investigates complaints from other countries. However, External Affairs and the Department of Industry, Technology and Science, and the regional development agencies will need to be consulted in negotiations with the United States or other countries on tariff and custom matters. External Affairs looks after the promotion of exports and trade relations with other countries.

DRIE administered the duty remission orders, and provided advice to other departments about Canada's industry competitiveness. It is not yet clear how the new Department of Industry, Technology and Science, and the regional development agencies, will administer programs and coordinate efforts; but they will likely be key participants in administering any possible new programs for the consumer electronics sector--particularly the Department of Industry, Technology and Science since the consumer electronics

industry is presently strongest in Ontario and Quebec. The Canadian Import Tribunal and The Tariff Board are also important players. The Tariff Board is charged with responsibility for economic inquiries into trade and commercial policy issues; determination of injury to Canadian producers caused by imports under the GPT, and deciding on appeals on certain administrative decisions made by Revenue Canada, Customs and Excise. The Canadian Import Tribunal inquires into whether dumping causes or threatens 'material injury' or hurts production in Canada.

Although these players are all individually important, it will not be possible to give them their due consideration in this study. Neither will it be possible to deal with political questions, and how the make-up of government and policy agendas affect decision-making. Still, the merits and weaknesses of policy alternatives can be perceived by focussing on the criteria identified above.

6.5 CONCLUSION

Literature on policy directions and problems facing Canadian manufacturing were reviewed. In this literature, different views and lines of thought are present, with implications for the appropriate Canadian policy response. Three major policy directions to the Canadian government for the economic development of Canadian manufacturing industries were identified: 'free trade', 'protection', and 'free trade with industry intervention'.

Criteria has been outlined for comparing Canadian public policy alternatives.

Chapter VII

DISCUSSION OF POLICY ALTERNATIVES

In this chapter, findings in terms of the industrial institutional realities, historical experience, and cost-benefit analysis are brought to a focus. Problems associated with each of three alternative policy directions for Canadian consumer electronics and advanced technology consumer durables manufacturing will be identified, and the individual merits and weaknesses of these policy directions will be evaluated with respect to the criteria previously established.

7.1 REVIEW OF FINDINGS

In the institutional examination, the Canadian colour TV industry was placed in the perspective of the global consumer electronics sector and the domestic market for consumer electronics and advanced technology consumer durables. It was found that the Canadian colour TV industry is a small part of a larger, world consumer electronics sector dominated by MNCs. These MNCs are proficient in pure research and technological innovation and their R & D is centralized where principal product manufacturing occurs. The MNCs assign products or product development R & D to

facilities which have or are attaining the skills and capital most suitable for the production of new products. Facilities are emerging in NICs on the basis of country-specific advantages. It was also found that MNCs must continually seek to develop capital and skill expertise for new goods production and innovation. Another factor in favour of the MNCs is that they can afford the expenditures necessary to market consumer electronic products. The MNCs have world-wide marketing systems and can spread marketing costs over many products.

The historical review of the colour TV industry was done in two stages. First, in the early years, the Canadian colour TV industry was a high technology industry with everything from research and design to the manufacture of all parts and components done in Canada. However, from the outset, the industry suffered certain problems. One problem was the presence of too many domestically-located firms producing only for the small domestic market and unable, because of parent-subsidiary relationships, to export. Consequently, they were unable to achieve scale economies, nor afford the R & D to take the lead in technological innovation, while facing high unit marketing costs. The second stage began in the mid-1970s when the Canadian industry came into crisis. This period was marked by the increasing internationalization of the global industry. Canadian companies turned to overseas suppliers of

components, the MNC parents of Canadian subsidiaries centralized their research and design out of Canada, and all companies limited their Canadian activity to final assembly. The MNCs also achieved scale economies by producing key, sophisticated components in large centralized facilities usually in their home countries or in NICs. More and more production occurred in low-wage countries and new companies were established in NICs to do colour TV manufacturing.

Rapid changes in product features and innovations made R & D expenditures important and the small scale of Canadian output did not make such expenditures feasible. Canadian activity would at least have to tap initially into the pipeline of existing MNC research. However, even though Canada has skilled and educated workers, they are not in the consumer electronics sector. Moreover, consumer electronics technological innovation and adaptation involve a learning process. The knowledge and ability build on one another through exposure to ideas and experience. With respect to Canadian-owned operations, specifically Electrohome, it was noted that the rival MNCs' goods were well known world-wide, and their brand-names are associated with quality and consumer appeal. Although the brand-name 'Electrohome' was successfully promoted, and had captured a Canadian market share, the marketing costs required were too large, and the company began to contract assemble. Electrohome was the last full-fledged Canadian-owned company, and its demise as

an independent producer also brought to an end the possibility of joint ventures in advanced consumer electronics manufacturing in Canada.

In the cost-benefit analysis, it was found that the costs of protection are very high. Consumer costs due to the tariff policy in 1984 were calculated to be over \$40,000 per person employed through the colour TV industry (or about \$75 million in total). There was also estimated to be an efficiency loss equal to \$2,000 per employed person. It was ascertained that if employment could be increased by about 50 percent as a result of a North American rationalization of the industry, per employment consumer costs of tariff protection would approach the average wage income of assembly workers (\$15,000 in 1985).

7.2 ALTERNATIVE POLICY DIRECTIONS FOR CONSUMER ELECTRONICS

Three policy alternatives have been identified for the economic development of Canadian manufacturing: protection, free trade, and free trade with government intervention. Criteria for their evaluation were established. In light of these findings, the following sections examine critically the three alternative policies.

7.2.1 Protection

This policy direction has not been successful in encouraging consumer electronic activity in Canada. The safety margin provided by present tariffs has resulted in little consumer electronics activity occurring in Canada. More specifically, the consumer electronics industry is limited to colour TV assembly operations and a few operations in stereo equipment (mostly in loudspeakers and high fidelity turntables) and micro-wave ovens. Moreover, based on evidence from the cost-benefit study of the colour TV industry, the costs of protecting existing activity appear very high with respect to both consumer costs and the inefficient use of Canadian resources. The approximately 1850 assembly and other jobs associated with the colour TVs in Canada, while significant, are quite modest compared to the consumer losses. These equalled about \$76 million or over \$40,000 per job. Only about \$40 million of this will be offset by tariff revenue.

A principal problem with this policy is that the Canadian market is too small by itself to attract significant investment by MNCs. This problem has been long standing and has been well recognized in the literature on Canadian industrialization. Moreover, this policy direction cannot address the fact that in most cases the Canadian subsidiaries are not allowed to compete with affiliates in other countries, a fact that restricts the Canadian

subsidiaries' activity to the domestic market. The problems of small and inefficient-scale production runs prevent the viability of sophisticated manufacturing in Canada and only allow local assembly of an item costly to transport (e.g. colour TVs). At the same time, because the domestic colour TV assembly industry is oriented mainly to the domestic market, it cannot survive without the tariff since it cannot attain a level of economic efficiency comparable to that found overseas in low-cost producing countries. It is important, too, to note that as low wage countries become more proficient and innovations make the product easier to transport, even costly to transport items such as colour TVs will become threatened by imports. By protecting these, the government falls into a 'technology trap'. Another important problem is that this policy alternative is inappropriate for attracting investment and R & D. Even innovation and development of a downstream product line only occurs where the MNCs carry out their major manufacturing of their product lines and parts (which are presently all done outside of Canada). This underscores the fact that if Canada is to receive investment and downstream R & D, Canadian facilities will have to become major company facilities for product lines or key parts. A Canadian protectionist policy cannot address this and, as a result, will not result in any significant consumer electronics industry research, engineering or skilled-production employment in Canada.

Another major problem of protection is that it does not address the question of how to help the Canadian subsidiaries compete with affiliates in order to win additional activity. A recent trend in policy thinking is concerned with the help that the Canadian government might give subsidiaries to obtain greater manufacturing mandates. In order to help the Canadian subsidiaries compete with their MNC affiliates, the government would have to help them obtain the skills or capital most suitable for the production of newer product lines so the MNCs might assign new products or product development to them. Tariff protection provides Canadian colour TV subsidiaries with some advantage in doing assembly work, but does not help the Canadian subsidiaries in competing with other MNC facilities for further manufacturing.

Evaluation of a policy of protection in terms of the criteria established in the preceding chapter gives systematic confirmation to the negative judgement.

In terms of employment the policy has led to the employment of a modest number of people in the production of colour TVs, micro-wave ovens, and stereo equipment. However, the employment does not involve advanced-skills, nor does it provide high-income opportunities. Furthermore, this policy will not likely bring in more investment nor create more employment because no product development is taking place. The existing facilities are already under severe pressure from import competition.

Regarding R & D and technological innovation, the subsidiaries and other firms in Canada are not doing more than minimal R & D; there is a little process research. R & D, design and innovation would probably continue to be done outside Canada with a protectionist policy in place.

Further, the welfare costs to consumers through high prices were found to be high relative to the employment benefits. In the sense that colour TVs are a basic household commodity (most every Canadian household now has one or more colour TVs) the policy is regressive by imposing an approximately equal dollar burden on poorer groups, thus hurting consumers who will likely value the loss in welfare more.

With respect to regional and federal-provincial considerations, the employment benefits are concentrated in towns in Ontario (Kitchener-Waterloo, Prescott and Midland) and in Toronto and Montreal. However, consumers in all provinces must share the burden of higher consumer costs. All consumers are paying for the modest number of consumer electronic jobs in areas of Canada in which employment is not as severe a problem. Ontario and the Montreal area of Quebec have enjoyed much employment growth while areas both to the east and west have not fared as well.

Domestic assembly has a small effect on the balance of trade, because the parts that are assembled are principally

imported, i.e. assembly operations have a low value added content. Picture tubes are the major colour TV item made in Canada (and many tube parts are imported too). If it were not for the picture tubes, the effect of protection on the balance of trade would not only be small but be negligible.

This policy direction will provide revenue to the Treasury (from custom tariff duties), but the tariff revenues are derived from higher prices paid by consumers.

With respect to consistency with other policies, certainly additional protection (higher tariffs) is unlikely and inconsistent with Canada's current international obligations under the GATT. A policy of maintaining present levels is not consistent with the present Conservative government's stated interest in freer trade, nor of allowing the marketplace a greater role in allocating resources.

To sum up, there is little merit but many weaknesses associated with protection. Moreover, the merits may be short-term; the Canadian colour TV industry's future is not secure. Protection of a specific product does not promote dynamic change within the industry and will not lead to the kind of activities that will result in technological innovation nor advanced-skill employment.

7.2.2 Free Trade

This policy alternative addresses the need for Canadian manufacturers to obtain a larger market so they may achieve economies of scale and be competitive internationally. It includes free trade, either on a regional (United States - Canada) or multilateral (reductions in MFN tariff rates) basis. In the North American consumer electronics market, tariffs are the main trade barrier.

Serious questions were raised earlier in this thesis about the impact that comprehensive free trade would have on the Canadian consumer electronics industry. The literature that espouses trade liberalization for its contribution to prosperity and economic development in Canada, also accepts the fact that there will be industries which will be winners and losers. Indeed, a major weakness of this policy with respect to consumer electronics industries is that there is no assurance that new companies will make investments in Canada. Based on interviews with government officials and experts in the industry, it was found that the colour TV industry would likely cease under MFN free trade and even under free trade with the United States. There are already large facilities in the United States which the MNCs will likely favour for their North American production. On the other hand, it should be noted that there has been concern in the United States that free trade might work in favour of the Canadian TV industry. However, it is argued that the

findings from interviews with Canadian government officials and Canadian industry would be the more accurate portrayal of how free trade will impact the North American industry.

Whether this policy encourages consumer electronics and advanced technology consumer durables manufacturing in Canada depends greatly on the location policies of the MNCs. Removal of the tariff, whether on a MFN basis or on a regional one (with the United States), will make it less expensive for MNCs to supply the Canadian market through export of complete products and provide greater disincentives for MNCs to invest in any kind of manufacturing activity in Canada, including assembly. Granted that a consumer electronics industry which results in more skilled work is desirable, this policy direction does not address the question as to how Canada can enhance its attractiveness for MNC investment nor how MNCs can be encouraged to do R & D in Canada. Therefore, it suffers too from the same criticism discussed above under a policy of protection.

It is now appropriate to examine free trade in terms of a reduction in MFN rates and, then, in terms of free regional (United States - Canada) trade. Removal of MFN tariffs will not remedy the problem of consumer electronics production overseas are already at more competitive prices. Since transportation costs for most other consumer electronic products are less than that for colour TVs, there will be

even more incentive for MNCs to export items, including colour TVs, to Canada. Furthermore, once their technology becomes available to NICs, new product lines will be manufactured in these countries. Complete products can be exported from the NICs, at prices very competitive with those of assembled North American consumer electronics. The promise of robotics is still many years away. However, the bigger danger to the Canadian consumer electronics industry would seem to be that MNCs will serve the Canadian market from large plants already established in the United States. The United States facilities are already much larger, and the United States market is much more important to the MNCs. If the MNCs fully centralize their North American facilities, United States locations will likely be favoured. Not only is this useful in terms of corporate control but it is also beneficial for the MNCs to be seen as good corporate citizens and a provider of employment opportunities within the United States. These benefits of investment will be lost if it takes place in Canada. Further, American policy-makers and legislators might bring pressure against overseas production and this might have a broader impact which would be unfavourable to production in Canada.

Even a movement to free trade with the United States, while holding tariffs constant on overseas imports, will probably not benefit Canada. As just stated, if a MNC decides to make or assemble products in North America, it

will likely favour the larger United States facilities to provide for the North American market. For Canada to attract, through the existing companies, consumer electronic investment in new product lines, on a North American mandate based on guaranteed access to the United States, it will be necessary to command the confidence of the MNCs. This will be very difficult on the strategic political good-will grounds alone apart from restrictions in favour of United States locations based on corporate economic power considerations.

In summary, it would seem that free trade, either on a MFN or on a regional basis, is unlikely to result in more consumer electronic MNC manufacturing activity in Canada. This policy does not improve the ability of Canadian subsidiaries to compete with other MNC subsidiaries or promote more investment in Canada.

An evaluation of free trade in terms of the criteria established raises further questions about this policy. Free trade will almost certainly lose the modest, lower-skill employment provided by the colour TV industry and also opportunities for the Canadian workforce to participate, even at a rudimentary level in other parts of the consumer electronics activity. Loss of the colour TV industry would eliminate about 1,850 jobs.

Under free trade no significant new consumer electronics investment in Canada by MNCs is anticipated. Moreover, this policy will not result in the consumer electronics MNCs doing more R & D and technological innovation in Canada.

Free trade is beneficial to consumers because it results in lower prices. In this respect it is superior to protection which leads to both significant consumer welfare and economic efficiency costs. Consumer benefits would be spread across Canada with beneficial regional effects. The impact of free trade through lower prices is also favourable in terms of income distribution as both poorer and richer households own consumer electronics products.

With respect to regional and federal-provincial considerations, cessation of the colour TV industry could have serious negative implications. Ontario and Quebec, where the existing colour TV facilities are located, are powerful provinces which might try to influence the federal government to not proceed with free trade. Protection of communities where production is located would be at the cost of consumers across Canada.

The direct impact of free trade on Canada's balance of trade would be unfavourable. This effect would worsen Canada's unfavourable trade balances with countries such as Japan, South Korea, Taiwan and Hong Kong where consumer electronics products are produced for export. The lower

prices available to Canadian consumers would strengthen demand and exacerbate the trade balance problem.

Removal of tariffs would, of course, decrease government revenue. Assistance which might have to be provided to workers who lost jobs as a result of the closure of consumer electronic facilities in Canada would put further pressure on the government budget.

Free trade, however, is part of a broad policy position which lets markets play a strategic role in resource allocation and would promote a more liberalized trading world.

To conclude, free trade in this industrial field would help consumers, and contribute to a market economy and trade liberalization. Its direct effects on employment, investment and Canada's balance of trade are unfavourable. Regional effects are mixed in character.

7.2.3 Free Trade Plus Intervention

Free trade plus intervention lies between the first two policy alternatives. Much of this policy's effectiveness will depend on whether any agreement for MNC participation in Canada can be successfully negotiated and this depends on the kind of intervention or assistance proposed. An agreement will only be possible if both Canada and the MNCs benefit from it. Mutual guarantees are necessary. For this

reason, three points must be briefly explored: a) the industrial needs and which benefits Canada should try to address, b) the kinds of assistance and/or pressure which might be required to entice MNCs to operate in Canada, and c) the implications of any agreement for current federal government programs.

This policy recognizes that freer trade is necessary for Canadian-located operations to attain economies of scale, efficient resource use, lower costs, and lower prices to consumers, but it also uses tariff barriers and domestic assistance to provide incentives for MNCs to invest in Canadian plants. It therefore addresses two major problems of protection, the inability to expand the small domestic market and high consumer costs, as well as the weakness of free trade in attracting and retaining MNC investment in Canada.

The historical analysis of the colour TV industry pointed out the need for economies of scale if any major manufacturing involving more than assembly is to occur, and the promise of free trade for the achievement of scale-economies. Consumer electronics and advanced technology consumer durables mostly come from overseas. Therefore, freer trade with the United States with retention of tariffs on overseas' products would fit this policy. Regional free trade still permits an external tariff whose full or partial withdrawal on consumer goods or parts can be used by Canada

to encourage consumer electronics MNCs to set up facilities in Canada. In implementing this policy the government will need to recognize the dynamics of the consumer electronics sector. Any agreements will need to be flexible in terms of product line and not be restricted to a single product which, in time, the NICs will be able to produce at lower prices. The government must address the fact that as a result of R & D, new products are constantly being introduced to the marketplace and should capitalize on this fact. At the same time it will need to recognize that the technology can be diffused to NICs with their low-wage advantage. With low transportation costs the competitive strength of the NICs becomes even stronger.

More specifically, federal government assistance would need to be committed so that Canada can develop plant-specific advantages, including intellectual and physical capital, that do not exist in other subsidiaries. The MNCs must then be induced to respond quickly to the prospect of advantages to be gained in Canadian locations for the production of newer products. Also, the Canadian operation might be able to capitalize on this comparative advantage within the MNC and successfully compete against other affiliates, including those in the United States, for corporate production and marketing rights in North America. The MNCs would still make strategic business decisions such as the choice of product lines to pursue and the timing of

entry into new product lines and out of old product lines. Canada would rely on the comparative advantage of the facility within the MNC for present and future activity.²⁰⁴ Assistance might be in the form of loan guarantees and grants but would not be tied to a product or activity and would thus provide flexibility in the reallocation of resources and product lines within Canada.

The government could also give duty-free access to imported parts to be used in the MNC's Canadian subsidiary's activities.²⁰⁵ Again, the scope could be broader than a single product line. Given the industry characteristics of frequent innovation in products, protection of a product line will likely be uneconomic and ineffective.

In respect to present government programs and activities, DRIE did seem to have the analytical capacity to undertake the kinds of negotiations envisaged in this policy alternative. Now their analytical capacity is distributed among the Department of Industry, Technology and Science and the regional development agencies. This further limits the efficiency of public servants in the development, screening

²⁰⁴ This has not been done in the past: the government has not provided assistance to help MNCs' subsidiaries to move out of existing products, with the proviso they can count on similar support in future. The colour TV duty remission program was for a set period of time, and had a strong emphasis on the product line of colour TVs, which by the mid-1970s was not new technology.

²⁰⁵ The duty remission on colour TV parts was in a similar policy direction, but it was faulty in its formulation inasmuch as it related only to a product.

and evaluation of proposals for industrial development. Competition among these institutional components could weaken Canada's position vis-a-vis MNCs.

In any event, a new grant mechanism may have to be developed under which consistent, flexible, long-term support can be provided. R & D grants and tax incentives are already available, but the Industrial and Regional Development program would have to be augmented so it could provide for the full range of industrial innovation processes, not just initial R & D.

Costly new assistance measures involving loan guarantees and grants would need to be developed to allow the subsidiaries to purchase knowledge and capital for the new product-specific cases. Grants would have to be controllable but consistent with a commitment by the government to help finance on a long-term basis the development of resources and expertise by the subsidiary for new ventures.

A successful agreement will induce and allow a MNC's subsidiary to continually turn its attention to newer products. The government might therefore be called upon to facilitate the withdrawal of certain resources from the industry, e.g. specific employment skills. Employment adjustment assistance could be provided through Employment and Immigration Canada for retraining and helping those

people let go from the industry. In conjunction with the Department of Industry, Technology and Science and the regional development agencies, External Affairs Canada might also need to become more active in facilitating foreign sales and technology transfers.

Since this policy involves industrial intervention, it suffers from problems which have been articulated previously. Civil servants may not be able successfully to identify winners and, also, they may have difficulties designing and winning effective agreements with MNCs for Canadian subsidiaries.

Specifically, it will be difficult for government officials to weigh such social benefits as high-skill employment and workforce involvement in advanced technology production, the uncertainty regarding both future developments and future industry decisions regarding different products and activities, and then compare these to the costs of any assistance. Moreover, given that there are different consumer electronics MNCs and different forms of assistance that can be extended, there are potentially many options within this policy direction that can be pursued. It would appear to take considerable experience and special expertise to recognize the most promising agreements to quickly and comprehensively screen proposals, and critically compare them at a detail level. These abilities will take time, effort, and departmental coordination to develop.

Other responsibilities of government departments, and budget constraints which affect time, preparation costs, and the talent availability, are additional factors which will impact civil servants' abilities to pursue agreements with MNCs.

Success for this policy will depend upon freer trade with the United States in consumer electronics for easier access to the United States market. Such an agreement is difficult to negotiate, even on an industry basis. Further a Canada - United States trade agreement may impose restrictions on the kinds of assistance that Canada can offer to industry.

It should also be recognized that Canada lacks significant country-specific advantages for consumer electronics activity to locate in Canada such as those found in low-wage NICs. With respect to firm-specific advantages (Canadian subsidiaries versus MNC affiliates), without government help, expertise will not develop to give subsidiaries in Canada a comparative advantage within the corporations. There is, of course, the problem that the Canadian subsidiaries might become increasingly dependent upon the government to maintain levels of assistance and preferential policies that allow them to carry out activity in Canada.

Another problem is that of appropriate safeguards to guarantee that MNCs carry out activity in Canada and that

government policy will have continuity. For instance, each side will likely require some commitments before arriving at a formal agreement: the government, if it is providing significant assistance, will probably need to elicit a guarantee from MNCs that they will undertake a certain amount or kind of activity in Canada. The MNCs would require assurances about present and future assistance and protection.

It is realistic to note that the government may be reluctant to commit itself to providing sufficient present and future funds for an agreement to be made. Any program would become a target for political attention and debate. The assistance is a cost to Canada, and the necessary assistance must be compared against benefits: e.g. employment, opportunities for the workforce in manufacturing or R & D, and potential spin-offs.

Further, the consumer electronic MNCs may not be willing to give up any of their R & D lifeline, including downstream R & D. Also, if the Japanese or other MNCs decide to do further consumer electronics manufacturing in North America, and if they choose Canada as opposed to the United States, it will likely be because the assistance offered in Canada will be better. However, the United States may compete for the investment, or the Japanese MNCs may still prefer to make 'off-shore' investments, e.g. in low-wage NICs. Similarly, MNCs from the NICs, like South Korea, still have their own low-labour cost advantages to exploit.

It has not been addressed how labour and unions will respond, if the Canadian subsidiaries do become active in moving into new products. The government might have to develop special retraining and adjustment assistance programs to help groups affected by future product line changes by MNCs' subsidiaries in Canada.

Finally, a number of premises made about MNC behaviour in response to policy actions should be noted. For example, there is the hypothesis that, if MNCs are given assistance for making capital and expertise purchases for new products, the MNC might undertake more manufacturing in Canada. Second, if the Canadian subsidiary could make capital and technology purchases, on a continuing basis, then the Canadian subsidiary would always have appropriate product-specific expertise in Canada. Third, on the basis of this capital and human expertise, it was then presumed that Canada would have greater opportunities for attracting higher-income and downstream R & D employment. The downstream R & D could involve design and innovation for product design changes and additional features for the product line. However, further manufacturing and downstream R & D cannot be guaranteed, and much will depend on successfully negotiated special arrangements, future developments and the future decisions of the MNCs.

The MNCs need to be concerned about changes in government, and government legislation and programs. This

includes United States' legislation. Even if a freer trade agreement could be negotiated with the United States, there is the problem of future United States countervailing duties unless they become part of the agreement. Also, the United States has a tendency to resort to contingency protection, to modify its trade laws and to make new interpretations of older rules which could still dissuade businesses from making investments in Canada.

On the other hand it will be difficult for a MNC to guarantee that it will carry out a certain amount of activity in a specific country. Such guarantees are not part of the usual factors that MNCs consider in their internal strategy-making. They like to focus on market conditions, growth, risks, and transaction (and coordination) costs. These guarantees complicate MNCs' decision-making and add to their risks.

An individual MNC may not want agreements to be signed between Canada with other MNCs. It will not want to see a competitor receive an advantage. To be sure, the Canadian government will want to make agreements with those MNCs who can contribute the most to Canada. Since MNCs will recognize that Canada would not want to risk alienating some MNCs by assisting others, the MNCs might play a 'special deal' game, bidding with others; so others have to commit more, or so they may demand similar concessions from the government. In turn, the MNCs have to spend time and effort

at this exercise, whose returns will be hard to measure. Politicking could occur, in which case it becomes more difficult for the government to objectively choose the best deal.

Then, when a MNC makes an agreement with the government, there is the additional trepidation as to what might happen if new product developments do not satisfactorily occur. Even if according to the 'agreement' the MNC can be absolved from blame, elements of the government and opposing political groups might expect the MNC to return part of the assistance it receives. Negative publicity in itself could hurt the MNC's market sales for imported and domestically-made product lines. Also, the question arises as to what perogatives are open to the MNC should the benefits of assistance not develop as predicted.

On the assumption that agreements are feasible, what advantages and disadvantages are to be expected if this policy is adopted?

This policy option offers prospects for investment, and if more major manufacturing occurs, there will be a chance for downstream R & D. Downstream R & D can be expected for product refinements, and product and process innovations. The hope remains that products may subsequently be developed by the subsidiary (because the innovations are applicable to new products), and also that new production mandates may be

given to the subsidiary because appropriate and valuable expertise is developing or already located in the subsidiary. Also, there may be some spin-offs as the affiliate seeks local suppliers for some inputs and subcontracts some parts. The subsidiaries could also act as 'incubators' for some new innovations and knowledge. Canadian firms may be able to further develop the downstream technology, perhaps with the subsidiary jointly sharing in the opportunities.

If the policy can be implemented and major manufacturing and downstream R & D occur, there will be prospects for higher-income, skilled employment. People may have to be brought in from outside the country should the subsidiary seek people with product-specific expertise, but Canadian engineers, technologists, technicians and researchers will likely be hired. Canadian production workers would be exposed to more sophisticated consumer electronics manufacturing and a pool of workers with knowledge of advanced consumer electronics manufacturing techniques may, in time, allow new Canadian-owned companies to start making parts for the subsidiary or new or related products.

This policy is subject to risks of employment instability because of a higher sensitivity to the international economic climate and, also, because MNCs are to continually seek new products for manufacture. If the companies do succeed in moving into new product areas, this could mean

the release of some workers with skills no longer needed and the retraining or hiring of others. This could present significant social costs over time and these employment costs must be included when weighing the total benefits and costs of this policy. However, the cessation of the consumer electronics industry will impose higher employment costs as all the employment associated with the industry would be lost. Furthermore, it should be kept in mind that if the MNC is successful in moving into new product lines, and undertakes a stream of activity over the long-run, then employment levels may be kept up over the long-run, even though product-specific skill-requirements may change.

With respect to consumer prices, if the MNC is given special access to the Canadian market, its goods should become available at lower prices. This will benefit consumers. However, the prices may not be as low as under unconditional free trade. There are equity questions and concerns. It is difficult to predict which products will be affected, or who will be recipients of benefits. Generally speaking, however, the freer trade part of this option can be expected to benefit consumers.

There is the possibility of great difficulties in the areas of regional and federal-provincial relations. Many of the direct and visible benefits of assisting a MNC will occur in one region or province. Other regions and provinces may indicate their dissent. Essentially, this

will make it difficult for the government to negotiate with the MNCs. Consumer electronics have traditionally located in Ontario and Montreal. The general perception might be that tax payers will be paying to support industry in areas where unemployment is not presently as severe a problem as elsewhere.

If this policy direction is successful in attracting investment and activity, it should have a positive effect on Canada's balance of trade even though royalties and license payments might be higher if a Canadian subsidiary purchases product-specific capital and research from elsewhere. There will be a financial cost to the Canadian government when providing such assistance as loans, loan guarantees, and matching or other grants. As well, tariff revenue could be less.

This policy requires much government involvement both in negotiating with MNCs and in providing assistance. However, the government already has substantial involvement. This policy would alter the nature of this activity.

The policy introduces a hazard in international relations. Any trade agreement with the United States allowing access by MNCs in Canada to the United States market may impose restrictions on what kinds of assistance Canada can provide. As well, Canada is a signatory to GATT, and dependent upon trade and needs to avoid behaviour that

might appear to undermine the principle of GATT and the international trading system.

If successful, this policy would allow Canadian companies to compete in international markets. In encouraging adjustment into other products, there may be more dynamic efficiency among resources used for consumer electronics than there is with the protection of single product lines such as colour TVs.

In conclusion, this policy has merits, including prospects of increasing not only Canada's share of MNC activity, but also activity involving R & D. The prospects are difficult to estimate, and attaining the above merits depend on certain premises. It is not a simple policy option and can vary considerably in scope and form.

7.3 AN APPROPRIATE POLICY DIRECTION

Problems have been identified with all three policy alternatives. Yet each has merits. In light of this study, the policy direction of free trade with government intervention appears the most promising. Protection has serious weaknesses. It protects a small number of jobs, many of which are in low-skill assembly, but results in quite high costs to consumers and an economic efficiency loss. In addition to its high costs, protection does not address the need for a larger market for Canadian output nor

does it address problems associated with modern industrial realities in the form of market domination by large MNCs. These MNCs will not be encouraged by tariff protection to move skilled and high-income activity and employment to Canada. Also, protection will not, over time, be able to save the domestic industry from increasingly competitive consumer electronic products from NICs.

Free trade avoids the consumer and efficiency costs of protection, but this policy will likely result in the elimination of present industrial activity and jobs. Free trade removes the United States tariff impediment to the achievement of scale economies by Canadian plants but this will not be sufficient to encourage MNCs to remain or locate in Canada--a major handicap. In existing product lines, the MNCs already have larger facilities elsewhere, including in the United States, where production for the Canadian market could be more competitively produced. In new product lines, Canada does not possess country-specific advantages that could result in new activity. Canadian strengths, for instance closeness to the North American market, and an educated workforce, are also held by the United States which as a larger market would probably attract any future activity earmarked for North America. Also, free trade offers no advantages to the Canadian subsidiary competing with other affiliates for new activity.

The policy direction of free trade with industry intervention offers benefits to consumers and, also, provides hope to the consumer electronics industry in Canada through investment and the long-term workforce involvement in the manufacture of more advanced technology products. It has promise, too, for industrial progressiveness through design and technological adaptation research. It also has flexibility to provide economic efficiency. However, the necessary agreements between the government and MNCs make this policy somewhat complex and will require skill and efficiency in government negotiations. For this policy alternative regional free trade is preferred to MFN free trade. This choice allows Canadian goods to be sold in the United States while Canada still maintains tariffs on overseas imports for leverage in negotiating with MNCs to encourage them to carry out activity in Canada. In general, this policy alternative appears the best to meet the realities of modern industrial institutionalization and the requirements of industrialization dynamics.

Chapter VIII

CONCLUSION

This study has examined the economics of consumer electronics with special reference to the colour TV industry in Canada. Based on this examination an analysis of Canadian public policy in this industry has been conducted and an evaluation of alternative public policies has been provided.

8.1 SUMMARY OF FINDINGS

A review of the Canadian colour TV industry placed it in the perspective of the global consumer electronics sector. It was discovered that the Canadian colour TV industry is only a small part of a much larger, world consumer electronics sector dominated by MNCs. Further, a study of the global consumer electronics sector revealed that centralization of R & D close to the MNC's major facilities is a strategic consideration of MNCs and that the rapid introduction of new products through innovation results in the MNCs' continual search for capital and expertise.

In the historical review of the colour TV industry, two stages were found. First, in the early years, the Canadian colour TV industry was a high technology industry with

everything from research and design to the manufacture of all parts and components done in Canada. From the outset, the industry suffered certain problems. A major problem was that many domestically-located firms produced only for the small domestic market, and were unable to export. Consequently, they could not achieve scale economies, nor afford the R & D in order to take the lead in technological innovation, while facing high unit marketing costs. The second stage began in the mid-1970s when the Canadian industry entered a period of crisis. This period was marked by the increasing internationalization of the global industry. Canadian companies turned to overseas suppliers of components, MNC parents of Canadian subsidiaries centralized their research and design out of Canada, and all companies restricted manufacture in Canada to final assembly. More and more production occurred in low-wage countries and new companies in NICs began colour TV manufacturing. Rapid changes in product features and innovations also made R & D expenditures important, and the small scale in Canada did not permit such expenditures limited to Canadian production. However, transportation costs of large items and product fragility did make local assembly practical.

From a cost-benefit analysis it was found that the costs of protection were very high. The consumer costs of the 1984 tariff policy were calculated to be over \$40,000 per

person employed in the colour TV industry. About half of this is balanced by tariff revenue and additional revenues to marketing agents and distributors from higher import colour TV prices. There was also estimated to be an economic efficiency loss equal to \$2,000 per employed person (or about \$3.7 million--given the 1984 employment level of 1,850). It was ascertained that if employment could be increased by about 50 percent as a result of a North American rationalization of the industry (Canada - United States free trade), per employment consumer costs of tariff protection would approach the approximate average wage income of assembly workers (\$15,000 in 1985).

From a selective literature on the problems facing Canadian manufacturing (and policy responses to these problems), three main policy alternatives were delineated: protection, free trade, and free trade with government intervention. Criteria were established for evaluating policy outcomes in order to evaluate the merits and weaknesses of the alternative policy directions.

In the evaluation of the policy alternatives the current policy direction of protection was found defective. It imposes high costs on consumers in the form of higher purchase prices and results in an economic efficiency loss, while contributing only modest levels of assembly activity. While a global or a North American market is critical for developing viable consumer electronics manufacturing, free

trade would likely result in the elimination of the consumer electronics industry in Canada.

The third option, free trade with industry intervention, best meets the present realities of this type of advanced technology industry. However, it relies on the ability of the government to strike special agreements with MNCs, for the manufacture of new products. It is important to pursue free trade, but the Canadian government must also pursue policies that will foster the application of new manufacturing, and manufacturing technologies, otherwise Canadian colour TV and consumer electronics manufacturing will be washed away by the tide of competition. On the basis of a comparison of problems of these individual policy directions and their merits and weaknesses, this third alternative offers more prospective benefits.

8.2 LIMITATIONS OF THIS STUDY

Although the colour TV industry is the single, most important Canadian consumer electronics industry, its study cannot replace a full study of all Canadian consumer electronic industries. Ideally, it would have been preferable to have been able to also study other products such as stereo equipment and microwave ovens. The economics of the production of video cassette recorders, compact disk players and electric bread ovens would have been helpful for fully understanding public policy for new advanced

technology consumer electronics. Such an undertaking was too large for this thesis.

The institutional analysis could not describe in detail how the MNCs involved in Canada make their R & D decisions, and their current R & D activities, pricing and production and competitive strategies. The need for confidentiality by companies did not permit the industry experts interviewed from providing this information. Also further and more detailed information about particular firms would have been useful for learning more about which types of firms are most vulnerable to the problems studied in this research, and more information about the impact of imports and Canadian policy on individual corporate operations, e.g. product upgrading, diversification and Canadian investment. A greater knowledge of differences in the product mix produced by individual companies, and their ability to respond to the import pressures and government policy would be insightful for understanding the effectiveness and suitability of policies from the perspective of different firms.

In the historical analysis, the mandates and responsibilities of individual federal government departments, national boards and agencies and other levels of government could not be undertaken, for reasons of time. However, their study could have added to the explanation of how and why certain past policies were made. By researching and analysing these policy players and their relationships,

other factors may have been illuminated of relevance to Canadian public policy, and why certain decisions are more likely to be made. Also, a fuller study of the historical development and public policy experiences of the colour TV industry in other countries could not be undertaken, although such would have been useful especially to see how other countries responded to the internationalization of the industry, and for insight into the success by developing countries in attracting consumer electronics activity.

Price data with regards to colour TV features and styling were unavailable, as was information on the prices and quantity of colour TVs assembled or imported by individual firms. In the interviews, industry experts could not disclose such information, needed for a fuller understanding of dynamics and cost-benefit analysis and Canadian industrial adjustment. For instance, as developing countries pick up a larger share of the bottom of the line segment in the different screen size markets, Canadian assembly may be restricted to higher priced models, for which there is a smaller market. Imports from Japan may be similarly deflected to the higher priced models, but as imports from NICs become more sophisticated this segment of the domestic industry will come under pressure too.

These data limitations also restricted the cost-benefit analysis to straight line price elasticities. If time series, and prices of colour TVs by features and brand name

were available, then further study of price sensitivity could have been undertaken. The impact of income changes upon the price elasticities, and how demand and preference changes affect elasticities would have allowed a better understanding of how future demand and preference changes might affect the Canadian industry.

An important topic in all discussions of industrial adjustment and trade is adjustment assistance. It is a weakness of this study that this was not undertaken. How long it might take workers having particular skills associated with TV assembly, and ability to learn new skills, or for new consumer electronics activities to attract Canadian high technology workers are important questions for understanding the magnitude of adjustment costs and assistance which might be needed.

It should also be recognized that any case study of an industry has the limitations of partial analysis. Obviously, considerations of industrial development and public policy need to be coordinated with economic studies which have a broader economic scope but lack the specific insights to be gained from the study of specific industries.

8.3 SUGGESTIONS FOR FUTURE RESEARCH

Individual studies of other consumer electronic items and industries might be undertaken. This includes an examination of spin-off activities, the nature of any political economy constraints that may face these industries, and how present high-technology innovations can develop into consumer or business items that can soon fall to the pressures of lower-priced imported manufactured goods and eventually be made elsewhere. The significance of changing transportation costs, labour costs or overall production costs can be examined as can the importance of tariffs and other trade barriers. The income effects, or dynamic effects, that might occur because of free trade should also be looked into.

Individual government departments, national boards and agencies and provincial governments should be studied so as to discover their relationships with one another as players in respect to policy development. These players include: Finance; External Affairs; Department of Industry, Technology and Science; Revenue Canada (Customs and Excise); Employment and Immigration Canada; the Tariff Board and Canadian Import Tribunal. In respect to western Canada and the Atlantic provinces, the two regional development agencies, the Western Diversification Office and the Atlantic Canada Opportunities Agency, would also be involved. It is also important to study the Cabinet and the policy direction it has given these departments and boards.

The development of consumer electronics in developing countries and the presence of MNCs in these countries deserve study. The study can include reasons for the success of the industry in these countries, as well as the impact of Canadian (and North American) policy on foreign exporters and their and MNC responses. The issue of the GPT will likely become ever more important in other product lines in the future. As well, the lower priced imports from the GPT countries might displace or impact on imports from the non-GPT countries, affecting Canada's trade relations with these countries.

It is noteworthy that while the GPT has been permanently withdrawn, the British Preferential Tariff for colour TVs has not, and the MNCs already have plants in these NICs, making colour TVs for Europe and some parts like remote controls and some extremely small TVs for Canada and North America. It may not be long that colour TVs and more consumer electronics and advanced technology consumer durables from these countries will be exported to Canada, and the British Preferential Tariff will need to be withdrawn, from colour TVs and/or other items.

The magnitude of adjustment costs and the need for assistance can be accurately appraised. It was found that the kind of jobs involved in colour TV assembly is mostly low-skill labour. If additional demographic information could be obtained about the persons, the importance of their

incomes for their families, together with the information about how long it might take persons of these skills to find new jobs in their communities, the worker and community adjustment costs in Kitchener-Waterloo, Midland, Prescott, Toronto and Montreal could be better understood.

Finally, free trade with government intervention is not a simple alternative. Since only specific government and MNC considerations, and features which will have to be included in any successful agreement, were explored above further study of the nature and implications of special agreements is in order.

Appendix A

CHRONOLOGY OF GOVERNMENT MEASURES

The Early Years of Colour TV: 1965-1976

Measures or
actions: high tariffs of 15% on imported
complete sets and parts

Policy Measures for Adjustment: 1976

Measures or
actions: (from Jan. 1, 1977 to Dec. 31, 1981)
duty remission program (allowing some
free import of colour TVs)

postponement of MTN reductions

temporary withdrawal of General
Preferential Tariff and British
Preferential Tariff treatment
on colour TVs

Protection of Assembly: 1978

Measures or
actions: a new duty remission program on
chassis and chassis parts begins

continued postponement of MTN
tariff reductions

temporary withdrawal of General
Preferential Tariff treatment is
extended to all sizes of imported
colour TVs

duty remission on picture tubes
imported by tube plant in Canada

Since 1978Measures or
actions:

- 1981: duty remission program for complete colour TV imports ends
- program for duty remission on chassis and chassis parts is extended
- 1982: withdrawal of General Preferential Tariff is further extended for a period to expire December 31, 1985
- 1983: Special Tariff Item for free import of chassis and chassis parts (to replace duty remission program for chassis and chassis parts)
- 1985: the General Preferential Tariff is permanently withdrawn

Appendix B

INDIVIDUAL COMPANY EXPERIENCES

Additional information about company experiences are presented here to help describe industry developments and adjustment from the perspective of individual firms. In the first section, early company experiences are briefly described.

This is followed by a description of company events since 1976, in section B.2. First, information on those early entrants who stayed past 1976 is provided. Then information about the more recent Japanese MNC entrants is described.

The information was obtained from interviews with industry executives and government officials, newspaper articles, and government documents. Company executives and government officials interviewed should be absolved of any responsibility for errors of interpretation of fact.

B.1 THE EARLY YEARS

The TV industry in Canada became significantly engaged in colour TV manufacturing by 1965. Although, colour TV transmissions from the United States could reach some markets in Canada during the early 1960s, colour TV transmissions from Canadian TV stations just began in October 1966. Fleetwood²⁰⁶ started producing small numbers

²⁰⁶ In Chapter 3, Chart 3.3, companies in the Canadian colour TV industry--and the years they have produced in Canada (since 1965)--is presented.

of colour TVs in Canada in 1956. Electrohome began producing colour TVs in 1965 (Electrohome had a large Electronics Division which produced a variety of electronic products). By 1966, Canadian Admiral, Canadian General Electric, Canadian Westinghouse, Clairtone Sound, Philco of Canada, Philips Canada, RCA, and Sparton of Canada were also starting or preparing for colour TV production in Canada. They designed, manufactured, and marketed colour TVs. Electrohome alone had 120 engineers who designed TVs and 1000 persons building them. The company designed and manufactured its own circuitry and boards. Clairtone Sound was turning out colour TVs in their Stellaton plant in Atlantic Canada by August 1966, and as in the other companies, all its design and development work took place in Canada. RCA's manufacturing facility was in Prescott, Ontario, but the engineering and administration was carried out at the head office in Montreal. Black and white TVs and audio products were also made in Montreal. RCA produced numerous consumer electronics and other products.

Since 1969, GTE Sylvania Canada has held most of Fleetwood's corporate shares. Philips started marketing colour TVs in 1971, also using a Canadian conceived and engineered chassis. Clairtone Sound ceased operations in 1971, due to financial difficulties not directly related to its colour TV activities. Canadian Westinghouse stopped producing after 1971. However, Motorola was producing colour TVs by this time.

Between 1971 and 1974 a shift was occurring, whereby the companies in Canada stopped designing and manufacturing all their parts and instead began to procure some of their chassis, complete, from low-cost countries overseas. For instance, Electrohome started importing chassis from the Japan Victor Company (JVC), and the other companies in Canada from their overseas corporate affiliates. The chassis could not be built as inexpensively in Canada, and in order to remain competitive, all the producers had to import chassis. By 1974, Electrohome made the decision to no longer design its own chassis. The engineers were laid off. The company both imported smaller colour TVs and complete chassis for larger models. For these larger sized colour TVs, Electrohome would continue to make the cabinet or buy it locally, and purchase picture tubes from the RCA tube plant in Canada. This change in activity patterns was also seen in the other companies. The scale of operations in Canada became vastly different: not only did the companies no longer require engineers, but they also required less production workers because they were no longer manufacturing chassis. Employment at Electrohome fell to around 200 to 300. At that time, Electrohome tried to get into new business and product (commercial and industrial) areas to offset the loss in colour TV work. For example, the company went into monochrome and colour monitors. Between 1973 and 1980 the company would design a skeleton monitor (chassis) and develop this commercial trade into a substantial business.

Hitachi (HSC) of Canada, Sanyo Industries, and Panasonic Industries Canada began assembling colour TVs in Canada in 1972. Actually, Sanyo Industries began producing black and white TVs in 1969 as a result of a joint venture agreement between Sanyo Electric Co. Ltd. and Sanyo Electric Trading Co. (both of Japan) and Magnasonic Canada Inc.. Magnasonic handled the marketing and sales of Sanyo products in Canada, until January 1, 1983, when Sanyo Canada was established to market in Canada. Quasar took over Motorola of Canada in 1974. Also, Matsushita of Japan, the parent company to Panasonic Industries in Canada, purchased the Consumer Products Division of Motorola Corporation of the United States as well as its Canadian operations, which were then manufacturing colour TVs under the Quasar name. Philco-Ford of Canada stopped making colour TVs in 1974. By 1975, GTE Sylvania owned Fleetwood. The design capability of the entertainment product division of GTE Sylvania Canada (Fleetwood) was removed by the parent company in the United States and a greater portion of the basic electronic assembly was imported. In April 1975, Hitachi moved its operations from St. Laurent to Point Claire, Quebec. Also in 1975, Belbois Ltd. was established by Hitachi as an affiliated company to produce TV cabinets and cabinets for other audio, high-fidelity products.

B.2 THE PERIOD SINCE 1976

B.2.1 Quasar

The federal government programs to assist the colour TV industry came into effect in 1976. Quasar did not participate in the Duty Remissions Program. Quasar began to phase out its TV production and to import colour TVs from its United States affiliate in Chicago (it was not until 1979 that Quasar completely phased out its TV operations in Canada).

In addition to Quasar, Canadian General Electric and Fleetwood (GTE Sylvania Canada) also chose not to participate under the Program due to reported technology and restructuring reasons (their MNC parents wanted to consolidate research and production) and instead started phasing out their TV activities in Canada. GTE Sylvania (Fleetwood) stopped producing colour TVs in 1978 and Canadian General Electric ceased in 1979. Quasar and Fleetwood were both subsidiaries of United States MNCs, and their United States parent affiliates continued the North American consumer electronics production in the United States. Seven companies did participate in the program. They were: Electrohome, Philips Electronics Industries, Canadian Admiral, RCA, Hitachi (HSC) of Canada, Sanyo Industries and Panasonic Industries.

B.2.2 Philips Electronics Industries

Philips Electronics Industries initially participated in the Duty Remissions Program, but decided to phase out of TV production in 1977. Philips Electronics concentrated on product areas for which it could produce for the world market. This involved getting the corporate mandate for certain products. Philips Electronics increased its efforts in the automotive electronics and telecommunications fields. Of note was a joint venture it formed with MICOM in the word processing field.

B.2.3 Canadian Admiral

The experience of Canadian Admiral was somewhat unique. Over 1977 and 1978, only Canadian Admiral continued to have an integrated operation, with parts and TV manufacturing, including the whole chassis, in Canada. The intention of its United States parent to close down its TV production in the United States may have given Canadian Admiral hope that it could acquire its parent's automated assembling equipment at minimal cost. Canadian Admiral already had, as well, the corporation's world mandate for microwave ovens, and was diversified from this standpoint. The Admiral MNC's R & D and manufacturing for microwave ovens was centred with Canadian Admiral. However, high labour costs and low production volume did not allow Canadian Admiral to continue to produce colour TV chassis on

a competitive basis in Canada, and consequently terminated the chassis production and finally ceased all its colour TV operations in Canada around 1981.

B.2.4 Electrohome

Under the Colour Television Set Remission order, Electrohome procured increasingly more of its parts off-shore while reducing the amount of manufacturing carried on in Canada. At the start of the Duty Remissions Program, Electrohome was on the border of bankruptcy. The federal government insured the company's bank debt, while the company underwent changes in management structure and policy.

After the restructuring, Electrohome focussed its Canadian TV production on large-screen TVs. In 1977, Electrohome phased out the production of colour TVs with screen sizes of 20 inches and less, replacing them with imports of complete colour TVs from Japan. Electrohome concentrated more on other consumer and industrial electronic products which it could export. This included products such as projection TV systems, display monitors and video games. New product development was given greater emphasis. The company was trying to diversify from the TV operations so that it would not be so dependent on consumer product lines.

As a consequence of the government's Television Chassis and Components Remission order, much there was much assembly work at Electrohome, but no engineering. The Electrohome name was a successful brand in the Canadian market, nurtured by the marketing people in the company, but at considerable expense. About this time, Electrohome was approached by Jutan International, an importer and distributor of consumer electronic products from Toronto, to assemble colour TVs for them, under the Duty Remissions Program. Jutan International could not assemble TVs under the Duty Remissions Program, since the Program was restricted to existing producers--to avoid further fragmentation of the market. In turn, Electrohome would benefit by making a small profit on the assembly. Consequently, this arrangement was a good one, for both companies.

Then, in 1981, Electrohome was asked by Mitsubishi Electric Sales Canada to assemble colour TVs. An agreement was reached that would result in Electrohome producing colour TVs for them, under contract, beginning January 1, 1983. Mitsubishi Electric Sales Canada was interested in establishing a colour TV presence in Canada. Electrohome decided to also allow Mitsubishi Electric Sales Canada to purchase licenses, so that the latter could be the sole user of the Electrohome name for colour TVs (and video cassette recorders but not on other Electrohome products). The advantages of this for Mitsubishi Electric Sales Canada

was that it would immediately attain a small, but significant share, of the Canadian market. For Electrohome, the marketing of colour TVs was not a very profitable activity. Also, being a small and independent firm, Electrohome did not enjoy the benefits of the large, integrated company which produced a variety of home electronic products, was good at marketing, and whose world-scale manufacture of major parts and products could offset the costs of product design and marketing. Immediately, Mitsubishi said they were not going to use JVC chassis, and instead Electrohome started to use Mitsubishi chassis (chassis for colour TVs assembled by Electrohome for Jutan came from a company called the General Corporation in Japan). Eventually, Mitsubishi would reduce advertising expenditure on Electrohome's name and more on the Mitsubishi name. The decision by Electrohome to license its name did mean, however, the loss of the sole independent Canadian company in the Canadian industry.

In 1984, Mitsubishi Electric Sales Canada also purchased the picture tube plant in Midland, Ontario (please see RCA below). In 1986 Mitsubishi opened a plant in Waterloo, Ontario, close to the Electrohome plant in Kitchener (Kitchener and Waterloo are adjacent cities).

B.2.5 RCA

In the mid-1970s, RCA's Canadian design group ceased their activity, and instead adopted their United States parent's designs. As with the other companies in Canada, RCA used more and more off-shore components, from a RCA plant in Taiwan and later one in Mexico. Modules were now easy to assemble and easy to transport, so the company went to assembly. The company also reduced all the general overhead, in consumer electronics and all other areas. In consumer electronics this meant reducing the headquarters staff by 80 percent.

Under the Colour Television Set Remission order, RCA made a decision to produce only 20 inch colour TVs. These were exported to the United States. The formula used by the government to provide duty remission was found to be weak in that it encouraged a peculiar market distortion: RCA could export TVs assembled in Canada in order to have a sufficient volume of exports to qualify for duty remission. The company could then import some of its exports back. RCA's more labour intensive production facilities, e.g. its chassis and tuner facilities, were already located in the low-labour cost country of Mexico.

Since the beginning of the Colour Television Set Remission order, RCA's tube plant in Midland had been rationalized with other RCA tube plants in the United

States. In Canada, mostly 20-inch tubes were produced, and mostly for export to Europe. However, in Europe, new picture tube manufacturing capacity was being constructed. In 1979, RCA was permitted tariff remission on a specified number of imported tubes so RCA could rationalize its tube production.

With the introduction of the Television Chassis and Components Remission order, RCA decided to reduce its production of colour TVs in Canada for the United States market and to increase the production of colour TVs of all sizes for the Canadian market. Other TV manufacturers would be faced with either paying a tariff on their imported tubes or purchasing them from RCA. The other companies, consequently, purchased their tubes from RCA, effectively giving RCA a monopoly of TV tube sales in Canada.

However, by the end of 1982, the RCA picture tube plant closed down. Due to the growing capacity of tube production in Europe, RCA's exports from the Midland plant fell. The TV tube industry in Japan also was reaching higher levels of production capacity. It was believed that the Japanese TV companies in Canada might switch to Japanese tubes sourced from their parent companies. During this same time, RCA wanted to undertake expensive investments in its plants in North America, which then numbered three, two being in the United States. This was in order to produce mini-back tubes, a new kind of tube with a compressed back. The

company felt it needed only two plants, and Midland being the smallest and losing much of its market in Europe, was marked to cease operations.

Mitsubishi Electric Sales Canada was encouraged to re-open the plant in 1984. As stated in Chapter 4, section 4.3, Mitsubishi Electric Sales Canada was offered a combined loan of \$15 million dollars (shared between the federal and provincial governments), and \$2.5 in duty remission on picture tube purchases. During the negotiations with RCA, Mitsubishi Electric Sales Canada was also able to obtain confirmation that a Canadian value added criteria would not be introduced into the chassis remission measure. Mitsubishi Electric Sales Canada also proposed to invest about \$25 million towards modernization.

B.2.6 The Japanese MNCs in Canada

In 1976, Quasar was acquired and placed under the same roof as Panasonic Industries Canada. When Panasonic Industries Canada changed to Matsushita Industrial Canada in 1980, production continued to include both the Panasonics and the Quasar brand names, and later, too, the brand name Technics on many high-end models. Hitachi (HSC) of Canada, Sanyo Industries Canada and Panasonic Industries Canada stepped up their Canadian activities following the introduction of the federal government programs for the industry in 1976. Hitachi was unable to justify the use of

remission funds in 1978 and by mutual agreement was not included in the Duty Remissions Program for 1978. The Japanese MNCs basically used the remission monies to augment their capital investments and to offset higher production costs in Canada. Panasonic Industries had been initially given its MNC parent's (Matsushita) North American mandate for the Panasonic brand of console TVs, but Matsushita plants in the United States were to eventually take away the strength of this mandate.

Hitachi began with the production of 26-inch colour TVs in Canada in 1972, but in 1979, the company began manufacturing 20-inch colour TVs. The plant underwent a significant expansion in 1980. As well, Panasonic Industries moved into a larger facility in Toronto in the early 1980s.

In 1983, Sanyo Industries also began to produce microwave ovens in Canada. Mitsubishi commenced production of colour TVs at its newly established Waterloo, Ontario facility in early 1986.

B.2.7 Two Small Canadian Companies

After 1983 two small companies, Video Canada and Pro-conic, tried to set-up colour TV assembly operations in Canada. However, neither was successful, and both soon left the market.

Appendix C

EXAMPLES OF REMISSION ORDERS

In this Appendix are shown two examples of remission orders provided to the colour TV industry. The first is an example of the Television Set Remission Orders. There are small differences among the individual orders for companies participating in the remission program. The one here is for Matsushita. It was renewed in 1980. In 1981, the Television Chassis and Component Remission Orders were provided to the companies.

In the second part of this Appendix, a TV Tube Remission Order (1983) is shown for Mitsubishi. The specific remission order shown here was renewed in 1985 and 1987.

C.1 MATSUSHITA TELEVISION SET REMISSION ORDER

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HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL, considering that it is in the public interest to remit customs duty and sales tax on certain imported television sets, on the recommendation of the Minister of Industry, Trade and Commerce, the Minister of Finance and the Treasury Board and pursuant to section 17 of the Financial Administration Act, is pleased hereby to make the annexed Order respecting the remission of customs duty and sales tax on television sets imported by Matsushita Industrial Canada Limited.

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CLERK OF THE PRIVY COUNCIL - LE GREFFIER DU CONSEIL PRIVÉ

1983-328

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL,
considering that it is in the public interest to remit customs
duty and sales tax on certain imported television sets, on the
recommendation of the Minister of Industry, Trade and Commerce,
the Minister of Finance and the Treasury Board and pursuant to
section 17 of the Financial Administration Act, is pleased hereby
to make the annexed Order respecting the remission of customs
duty and sales tax on television sets imported by Matsushita
Industrial Canada Limited.

ORDER RESPECTING THE REMISSION OF CUSTOMS DUTY AND
SALES TAX ON TELEVISION SETS IMPORTED BY
MATSUSHITA INDUSTRIAL CANADA LIMITED

Short Title

1. This Order may be cited as the Matsushita Industrial Canada Limited Television Set Remission Order.

Interpretation

2. In this Order,

“Canadian value added of the manufacturer's non-production parts” means

(a) the price paid by the manufacturer for the non-production parts, where the value for duty of imported goods used in the production of the non-production parts does not exceed one-half of that price; or

(b) in any other case, the price paid by the manufacturer for the non-production parts minus the value for duty of imported goods used in the production of the non-production parts;
(valeur canadienne ajoutée des pièces qui n'entrent pas dans la réproduction)

“domestic consumption” means the value for duty of all imported television sets sold by the manufacturer in the relevant period for consumption in Canada; (consommation intérieure)

“free issue parts and materials” means parts and materials imported by the manufacturer that are supplied to the manufacturer free of charge by or on behalf of a foreign customer for the express purpose of being incorporated by the manufacturer into a television set to be sold by the manufacturer to a foreign customer for consumption outside Canada, the selling price of which, does not include a charge for those parts and materials;
(pièces et matières distribuées gratuitement)

“imported television set” means a television set imported or taken out of warehouse by the manufacturer, but does not include any television set

(a) that is exempt from customs duty under Schedule A to the Customs Tariff,

(b) that is subsequently exported from Canada

(c) for which no claim for remission is made under section 3,
or

(d) in respect of which the total customs duty payable under Schedule A to the Customs Tariff is paid and for which there has been no remission granted; (appareil de télévision importé)

"manufacturer" means Matsushita Industrial Canada Limited;
(fabricant)

"net sales value of a television set" means an amount equal to

(a) the aggregate of

- (i) the price received by the manufacturer for the television set minus any payments to foreign corporations as management fees, royalty charges or selling costs incurred outside Canada in respect of the television set,
- (ii) the value for duty of any free issue parts or materials incorporated in the television set, and
- (iii) the cost of transporting the television set within Canada,

minus

(b) the aggregate of

- (i) federal sales and excise taxes paid in respect of the television set, and
- (ii) rebates, discounts and other allowances granted by the manufacturer in respect of the television set subsequent to its sale; (valeur nette de vente d'un appareil télévision)

"non-production parts" means parts of television sets purchased by the manufacturer and exported by the manufacturer without alteration in the relevant period to a foreign vendor from whom he purchases television sets; (pièces qui n'entrent pas dans la fabrication)

"relevant period" means the period commencing on January 1, 1979 and ending on December 31, 1981; (période visée)

"television set" means a television receiving set, whether or not it incorporates a record playing device, designed primarily for entertainment purposes and able to receive and, in itself, display video and audio broadcast transmissions in monochrome or colour; (appareil de télévision)

"value of production" means the net sales value of television sets produced in Canada by the manufacturer at any time and

sold by that manufacturer in the relevant period; (valeur de production)

Remission of Customs Duty

3. Subject to sections 4 and 6, remission is hereby granted of all or a portion of the customs duty paid or payable under Schedule A to the Customs Tariff by the manufacturer in respect of television sets that are imported or taken out of warehouse by the manufacturer during the relevant period on condition that a claim for remission is made by the manufacturer to the Minister of National Revenue before July 31, 1984.

4. The remission granted to the manufacturer under section 3 shall be

(a) an amount equal to the product obtained by multiplying the amount of the customs duty paid or payable in the relevant period by the percentage that the aggregate of the manufacturer's value of production in the relevant period and the Canadian value added of the manufacturer's non-production parts in that period bears to the manufacturer's domestic consumption in that period; or

(b) where the percentage referred to in paragraph (a) exceeds one hundred per cent, an amount equal to the customs duty paid or payable.

Remission of Sales Tax

5. Subject to section 6, remission is hereby granted of the sales tax on every television set for which customs duty is remitted under this Order in an amount equal to the difference between

(a) the amount of sales tax payable on the television set; and

(b) the amount of sales tax that would be payable on the television set if the duty paid value used to calculate the sales tax on the television set was reduced by the amount of the remission of customs duty under this Order.

Limit of Remission

6. The remission granted to the manufacturer under this Order shall not exceed two hundred and fifty thousand dollars.

Designation

7. Where the manufacturer has, before July 31, 1984 by notice in writing to the Minister of National Revenue accompanied by the consent in writing of any other person who is a related person within the meaning of section 251 of the Income Tax Act, designated such other person as a person associated with the manufacturer in the production of television sets, the person so designated shall, with respect to the importation and sale of television sets, be considered for the purposes of this Order not to be a separate person from but to be the same person as the manufacturer.

Reports

8. As a condition to the granting of any remission under section 3 or 5, the manufacturer shall submit to the Minister of Industry, Trade and Commerce and to the Minister of National Revenue such reports as may be required by those Ministers respecting the production and sale by the manufacturer of television sets and non-production parts.

EXPLANATORY NOTE

(This note is not part of the Order, but is intended only for information purposes.)

This Order grants remission of all or a portion of the customs duty and a portion of the sales tax paid in respect of television sets imported by Matsushita Industrial Canada Limited during the period commencing on January 1, 1979 and ending on December 31, 1981 and provides that the total amount of remission granted pursuant to the Order shall not exceed two hundred and fifty thousand dollars.

C.2 MITSUBISHI PICTURE TUBES REMISSION ORDER



PRIVY COUNCIL & CONSEIL PRIVÉ

HIS EXCELLENCY THE GOVERNOR GENERAL
IN COUNCIL, considering that it is in the public
interest to make the annexed remission Order, is
pleased hereby, on the recommendation of the
Minister of Finance, the Minister of
Industry, Trade and Commerce and the Treasury
Board and pursuant to section 17 of the Financial
Administration Act, to make the annexed Order
respecting the remission of customs duty on
certain colour picture tubes imported by
Mitsubishi Electronics Industries Canada Inc.

CERTIFIED TO BE A TRUE COPY - COPIE CERTIFIÉE CONFORMÉMENT

CLERK OF THE PRIVY COUNCIL - LE GREFFIER DU CONSEIL PRIVÉ

ORDER RESPECTING THE REMISSION OF CUSTOMS DUTY ON CERTAIN
COLOUR PICTURE TUBES IMPORTED BY MITSUBISHI
ELECTRONICS INDUSTRIES CANADA INC.

Short Title

1. This Order may be cited as the Mitsubishi Picture Tubes Remission Order.

Interpretation

2. In this Order,
- "basic production" means
- (a) for the first period, 350,000 colour picture tubes,
 - (b) for the second period, 580,000 colour picture tubes, and
 - (c) for the third period, 650,000 colour picture tubes;
- (production de base)
- "domestic production" means the quantity of colour picture tubes produced in Canada by Mitsubishi Electronics Industries Canada Inc. in each of the first, second and third periods; (production domestique)
- "first period" means the calendar years 1983 and 1984; (première période)
- "picture tube" means a cathode ray tube (or electron tube, except X-ray tube) of the kind used in the manufacture of graphic and data display terminals or television receivers, and for the purposes of the definition "basic production" or "domestic production", includes two faceplates made from bare glass by matching the shadow mask and screening the phosphor; (tube - images)
- "production" means the manufacture of a tube from bare glass by matching the shadow mask to the faceplate, screening the phosphor, inserting the electron gun, sealing the tube, exhausting and testing the unit; (production)
- "second period" means the calendar year 1985; (deuxième période)
- "third period" means the calendar year 1986. (troisième période)

Remission

3. Subject to section 4, remission is hereby granted of the customs duty paid or payable under Schedule A to the Customs Tariff on colour picture tubes imported by or on behalf of Mitsubishi Electronics Industries Canada Inc. during each of the first, second

and third periods, on condition that a claim for remission is made to the Deputy Minister of National Revenue, Customs and Excise, prior to July 1, 1987.

4. The quantity of imported colour picture tubes on which remission is granted pursuant to section 5 for each of the first, second and third periods shall be the least of

- (a) the quantity of colour picture tubes imported by Mitsubishi Electronics Industries Canada Inc.;
- (b) 100,000 colour picture tubes; and
- (c) the domestic production minus the basic production.

EXPLANATORY NOTE

(This note is not part of the Order, but is intended only for information purposes.)

This Order remits customs duty on certain colour picture tubes imported by Mitsubishi Electronics Industries Canada Inc.

Appendix D

PRICE AND QUANTITY INFORMATION, AND THE ESTIMATION OF ELASTICITIES

The prices of colour TVs are important to the cost-benefit analysis in this study. The first part of this Appendix describes the sources and also the calculations and assumptions behind the factory prices and at-the-border import prices for different sizes of colour TVs in 1984 and 1983. In the second section of this Appendix, translogarithmic (translog) demand estimates will be made of key elasticities used in the cost-benefit analysis in Chapter 5. Also, implications of these estimates will be discussed.

D.1 DOMESTIC PRODUCTION, IMPORTS, COSTS AND PRICES OF COLOUR TVS

The Tariff Board²⁰⁷ obtained information regarding the quantity of colour TVs assembled and the production costs of colour TVs for the Canadian colour TV assembly industry. The production cost is defined in terms of the ex-factory cost value of the colour TVs, and does not include the federal sales tax. Also, marketing and distribution costs which must be added on to arrive at the price faced by consumers. This price information plus c.i.f. import price information is shown in Chart D.1.

²⁰⁷ The Tariff Board, Report of The Tariff Board Reference No. 160.1.

Chart D.1

Average Domestic Production Costs and
c.i.f. Import Prices By Size, 1984

Screen Size	Domestically Assembled	Imports
14-inch	227.39	333.89
20-inch	313.00	394.17
26-inch	491754	578.32

Estimated using information from The Tariff Board, Report of The Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985) and Statistics Canada, Imports by Commodities, cat. no. 65-007.

Chart D.2

Average Colour TV Prices By Size, 1984
(includes tariffs, marketing and distribution costs,
in dollars)

Screen Size	Domestically Assembled	Imports
14-inch	347.91	333.89
20-inch	478.89	394.17
26-inch	752.06	984.82

Estimated using information on the production cost of domestically-assembled colour TVs and price of imports before duty and domestic transportation costs (The Tariff Board, Report of The Tariff Board Reference No. 160.1, (Ottawa: Supply and Services Canada, 1985)).

The information was provided to the Tariff Board from the industry, according to the 14-inch, 20-inch and 26-inch screen sizes, although information for the 14-inch screen size is reported by the Tariff Board only in indice form. Using available information from the Tariff Board, it is still possible to approximate the production cost of the 14-inch screen size of colour TV in Canada. The method behind this estimation and as well that for the estimates of the c.i.f. value of imports by these same three screen sizes are as follows:

1. In the Canadian colour TV market in 1984 was \$435,892,000, based on factory level prices for shipments and on landed cost less duty and domestic freight for imports. The Tariff Board estimates that in 1984 the 14-inch, 20-inch and 26-inch accounted for more than 90 percent of this Canadian colour TV market. The value of domestic-assembled colour TVs for the domestic market was \$213,759,000. Also, the Tariff Board estimates that 33 percent of the value of the 14-inch, 20-inch and 26-inch colour TV markets are of the 26-inch screen size.²⁰⁸ About 178,900 26-inch sets were assembled in Canada in 1984. At a production cost of \$491.54 per set, the domestic portion of the 26-inch market was \$87,936,506. This means that the value of the imported 26-inch colour TVs can be estimated to be \$41,523,410. There were 71,800 imported sets of this size (all from non-GPT nations); this gives a per unit value of the 26-inch colour TV imports of \$578.32.
2. Most of the colour TVs reported by Statistics Canada²⁰⁹ for the 10 to 18 inch range (202,900 sets in 1984) are 14-inches. The Tariff Board²¹⁰ reports

²⁰⁸ The Tariff Board, Report of The Tariff Board Reference No. 160.1, p. 33.

²⁰⁹ Statistics Canada, Imports by Commodities, catalogue no. 65-007 (1985).

²¹⁰ The Tariff Board, Report of The Tariff Board Reference

that 92.7 percent of the GPT imports in this category are 14-inch screens (or 188,088 sets), and 6 percent are 14-inch screens. If the same is true for imports from non-GPT countries, then there were about 292,930 imports of 14-inch colour TVs.

The Tariff Board²¹¹ report the 14-inch quantities in the market in indice form. Using the index and the quantity of imported 14-inch sets from the above, the quantity of domestically-assembled 14-inch colour TVs can be estimated to be 124,570 sets. The per unit value of the 10 to 18-inch sets, which can be used to approximate the per unit value of the 14-inch sets, can be calculated from the Statistics Canada value and quantity figures to be \$196.07, in 1984.

3. Using the above calculations for the prices and quantities of the 14-inch and 26-inch screen sizes of colour TVs and 20-inch domestically-assembled sets, and the fact that the three submarkets (including the 20-inch size) equal 90 percent of the \$435,892,000 market, the price of 20-inch imports is estimated to be \$231.47.

D.1.1 Consumer Prices for Domestically-Assembled and Imported Colour TVs

It is difficult to arrive at average consumer prices. There are important marketing and distribution intermediaries between the company assembling the colour TV and the the final consumer. The interviewed officials from the domestic companies described how the Canadian companies' colour TVs are marketed and distributed in different ways.²¹² For instance, sales may be made to national

No. 160.1, p. 36.

²¹¹ The Tariff Board, Report of The Tariff Board Reference No. 160.1, pp. 34-35.

²¹² RCA Inc. has a marketing division. Matsushita Industrial Canada and Sanyo Industries have affiliates or related companies who help in the marketing of the colour TVs in Canada. Matsushita Industrial Canada sells all of its colour TVs for the

retailers, to small retailers, and/or to wholesalers for resale to retailers. While the final cost of assembling and packaging is important for the viability of the assembly operations in Canada, the final purchase price of a colour TV will reflect many additional costs relating to marketing and the distribution of the TVs.

Between the time a colour TV leaves the plant until it is sold to dealers, the marketing expenses are very high. These expenses include advertising, administration and sales. There are interest and sales tax to be paid, the latter also applied to the marketing costs. The marketing expenses can represent something like 10% to 15% of the selling price.²¹³ The dealer, too, will add a mark-up, which can also be 10% to 15%. There are dealer rebates, price cuts when the colour TVs are not selling, and different kinds of warranties (the dealer can choose what type he wants: some companies offer five years, some less, some include labour, some just material). Then there is also the practice of consumer discounts. Published

domestic market to Matsushita Electric of Canada. Matsushita Electric of Canada actually has two marketing divisions: Panasonic and Quasar Divisions. Matsushita Industrial Canada also sells to a sister marketing company in the United States, the Panasonic Company, which is a division of the Matsushita Electric Corporation of America. Sanyo Industries sells directly to a large Canadian retailer, plus to Sanyo Canada Ltd. In the case of Electrohome, it sells its assembled colour TVs to Mitsusbishi Electric Sales Canada and to Jutan International. These two carry out all marketing of the sets assembled by Electrohome.

²¹³ This is from information received through interviews with domestic companies.

prices frequently are quite different from actual consumer prices.

Revenue,²¹⁴ in its deliberations regarding dumping, began by looking at final prices of domestically assembled colour TVs, and subtracted 45 percent, to reflect the retailer margin, the special excise tax, defence tax, value added tax and other adjustments, in order to arrive at estimated ex-factory selling prices. As an approximation, the production costs exhibited above for domestically-assembled colour TVs can be increased by 53 percent. Similarly, import per unit values (without duty and domestic freight) must be roughly increased by the tariff rate plus 53 percent of this price, to account for such adjustments as the federal sales tax, marketing costs and dealer costs. The tariff rate on colour TVs was 11.3 percent in 1984. The following estimations of consumer prices for imported colour TVs were calculated by adding the 11.3 percent tariff, and then adding 53 percent to this price.

The average consumer prices for different sized domestically-assembled and imported colour TVs are brought together in Chart D.2. A slightly different approach is used for 1983 prices, which is discussed below in section

²¹⁴ National Revenue Canada, Decision under the Special Import Measures Act Respecting Colour Televisions; National Revenue, Information Documents: Initiation of Investigation Respecting Colour Televisions Originating in or Exported From the Republic of Korea; and National Revenue Canada, Information Document: Preliminary Determination of Dumping Respecting Colour Televisions Originating in or Exported From the Republic of Korea.

D.2.1.1. regarding the trans-logarithmic estimation of the demand elasticities (based on 1983 and 1984 information).

D.1.2 Quantity Information

Ideally, one would like information on quantity supplied and demanded. There is information available on the quantity of colour TVs leaving the factories in Canada, and the quantity of imported TVs going through Canadian Customs. These were shown by major screen size in Chart 2.3 in Chapter 2. Those leaving Canadian factories and not exported are assumed to be for domestic purchase. These become a less accurate measure of actual quantity sold, when inventories change dramatically from one year to the next. Domestic inventories, for instance, can periodically be very high, due to changing demand or over-production or shrinking market shares from import pressure. This can depress the price of the colour TVs, as the companies try and reduce their inventories. In 1984, the inventories were high. In this study, it is assumed that future production will approximate the new demand levels.

D.1.3 Literature on Demand Price Elasticities

The literature on price elasticities, especially at the disaggregated level of the colour TV, and even for consumer and home electronic products, for Canada, is quite small. A

study by Haritos,²¹⁵ using quarterly data from 1964 to 1974, found a demand elasticity for a category called 'other consumer goods', which includes colour TVs, of -1.40.

Another study done by Basevi²¹⁶ in 1973 presented import demand elasticity estimates for Canada of around -1.6. Basevi found a short-run import demand elasticity of -1.593 (and long-run elasticity of -2.492) for the Standard International Trade Classifications code range 5-9, which corresponds to manufactures. In respect to finished manufactures, Balassa and Kreinin²¹⁷ estimated an import demand elasticity of -2.06 for Canada.

One study by Fortune²¹⁸ based on monthly data for the period from January 1959 to May 1967, estimated the price elasticity of Canadian demand for TV imports from the United States, and as well the demand elasticity for all TVs (including black and white) and the elasticity of domestic supply and supply of imports. However, this was done for TVs which at this time, of course, were primarily black and

²¹⁵ Janice Haritos, "An Econometric Model of Canadian Imports," The Canadian Statistical Review, catalogue no. 11-003 (April 1977).

²¹⁶ G. Basevi, "Commodity Trade Equations in Project Link," in R. J. Ball, ed., The International Linkage of National Economic Models (Amsterdam: North-Holland Publishing Company, 1973).

²¹⁷ B. Balassa and M. E. Kreinin, "Trade Liberalization under the 'Kennedy Round': The Static Effects," Review of Economics and Statistics, 49 (May 1967), 125-37.

²¹⁸ J. Neill Fortune, "Measurement of Tariff Elasticities," Applied Economics, 3 (March 1971), 19-34.

white TVs. As described in Chapter 3, these TVs were mainly imported from the United States in the early 1960s. As less expensive and smaller TVs became available from overseas, more and more black and white TVs were imported from Japan, Hong Kong, Taiwan and Singapore. For the TV imports from the United States during the time period studied by Fortune, an import demand elasticity was found at -16.17. The demand elasticity for TVs in general was found to be -1.02 and the import elasticity from the rest of the world to be -20.23.

It is difficult, though, to move from the more aggregate estimated elasticities reported above, to those for present-day colour TVs. For a consumer product such as colour TVs, where there is domestic assembly and product differentiation, the elasticity will likely be a little higher than those for manufactures in general. There is been no recent Canadian literature; this is important when the product or product categories undergo rapid change, as have TVs over the past twenty years. They are also subject to shifting demand and preference changes (although preference changes for colour TVs have affected much more the choice of size and style of colour TV, as has been described in Chapter 3). For the United States, Hufbauer, Berliner and Elliott²¹⁹ compiled two recent estimates for the demand elasticity for imported colour TVs and three for the demand elasticity for domestic colour TVs. First, for imported colour TVs, they report a finding by Peter Morici

²¹⁹ Hufbauer et al., Trade Protection in the United States.

and Laura L. Megna²²⁰ of -2.8. However, Hufbauer, Berliner and Elliott estimate that the elasticity is -1.5. Then, for the elasticity of demand for domestic colour TVs, they report two government findings²²¹ of -0.31 for domestic colour TVs and -1.4 for all domestic TVs. Hufbauer, Berliner and Elliott estimate that the elasticity is -0.5. Also, Hufbauer, Berliner and Elliott estimate that the cross-elasticity of demand for domestic colour TVs relative to the price of imported This is shown in Chart D.3.

²²⁰ Peter Morici and Laura L. Megna, US Economic Policies Affecting Industrial Trade: A Quantitative Assessment, Report no. 200 (Washington: National Planning Association, 1983).

²²¹ US International Trade Commission, Television Receivers, Color and Monochrome, Assembled or Not Assembled, Finished or Not Finished, and Subassemblies Thereof. USITC Publication no. 808 (Washington: March 1977); and US International Trade Commission, Economic Effects of Export Restraints. USITC Publication no. 1256 (Washington: June 1982).

Chart D.3
Estimates of Elasticities

Elasticities	Value	Source
Canada:		
Elasticity of Demand for 'Other Consumer Manufactures'	-1.40	Haritos (1977)
Elasticity of Demand for Imports of Manufactures:		
Short-Run	-1.593	Basevi (1973)
Long-Run	-2.493	Basevi (1973)
Elasticity of Demand for Finished Manufactures	-2.06	Balassa and Kreinin (1967)
Elasticity of Demand for Colour TV Imports:		
From United States	-16.17	Fortune (1971)
From Rest of World	-20.23	Fortune (1971)
Elasticity of Demand for Colour TVs in General	-1.02	Fortune (1971)
Elasticity of Demand for Imports of Colour TVs	-0.61	author (1985) (Appendix D)
Elasticity of Demand for Domestic Colour TVs	-0.63	author (1985) (Appendix D)
United States:		
Elasticity of Demand for Colour TV Imports	-1.5	Hufbauer et al (1986)
Elasticity of Demand for Colour TV Imports	-2.8	Morici (1983)
Elasticity of Supply of Domestic Colour TVs	-2.0	Hufbauer et al (1986)
Cross-Elasticity of Demand for Domestic Colour TVs Relative to Imports' Price	0.8	Hufbauer et al (1986)
Cross-Elasticity of Demand for Domestic Colour TVs Relative to Imports' Price	0.63	author (1985) (Appendix D)

D.2 THE ESTIMATION OF ELASTICITIES

As just discussed in section D.1.3, recent Canadian literature for the price elasticity of Canadian demand for colour TVs is not available. A major reason for this is the limited data available on prices and quantity sold. In this section, an attempt will be made to estimate price elasticities of Canadian demand for imported and domestically-assembled colour TVs. First, the model will be described, and then the data used will be described. Values will be calculated and then the results will be related to the findings from Chapter 5.

D.2.1 The Data and the Translog Demand Model

D.2.1.1 Information on 1984 and 1983 Prices and Quantities

Only two years of information at the level of detail of screen size submarkets is available (and even for these two years, assumptions and calculations must be made). More information is available for imported and domestically-assembled colour TVs, in general. Although, it is also true that the changing characteristics of colour TVs has meant that the product has been improving significantly over the years, and that the colour TV of today is quite a different product from that of even a few years ago.

In the same way that the 1984 price and quantity sold information described in Chapter 5 was determined,

respective figures for 1983 can be calculated. The Tariff Board²²² reported that the 1983 production costs for domestically-assembled colour TVs were, for the 14-inch, 20-inch and 26-inch screen sizes, \$220.55, \$322.04 and \$493.81, respectively. The quantity sold in the Canadian market for the 20-inch and 26-inch sizes were 333,400 and 183,100, respectively.²²³ Estimating the quantity of 14-inch size colour TVs in 1983 according to the method used in calculating the 1984 values, the quantity 99,930 can be found. In 1983, the 26-inch sets comprised about 19.4% of the market. If it is assumed that they comprised about 34% of the market in value terms and if it is still assumed that the 14-inch, 20-inch and 26-inch sets comprise about 90% of the total market for colour TVs in Canada, findings for prices and output for 1983 can be calculated in the same manner as described in Chapter 5 for 1984 imports.

Prices and sale quantities for 1983 are summarized in Charts D.4 and D.5.

D.2.1.2 A Trans-logarithmic Demand Function

Within the Canadian market, at the level of retailers, there is imperfect competition, with product differentiation and persistent price differentials between imported and

²²² The Tariff Board, Report of The Tariff Board Reference No. 160.1, p. 43.

²²³ The Tariff Board, Report of The Tariff Board Reference No. 160.1, pp. 34-35.

Chart D.4
Average Consumer Colour TV Prices, 1983
(in dollars)

Screen Size	Domestically Assembled	Imports
14-inch	337.44	349.24
20-inch	492.72	426.91
26-inch	755.53	1183.76
Total *	544.16	507.36

* includes other sizes

Chart D.5
Selected Canadian Colour TV Sales
According to Screen Size, 1983
(in '000 units)

Screen Size	Market	Imports	Domestic Output (For Domestic Market)
14-inch	330.5	230.6	99.9
20-inch	599.9	266.5	333.4
26-inch	236.3	53.2	183.1
total**	1272.5	651.4	621.1

* calculated from information available in The Tariff Board, Report of The Tariff Board Reference No. 160.1 (Ottawa: Supply and Services Canada, 1985).

** includes other sizes

domestically-assembled colour TVs. To estimate the elasticities, it would be desirable to find a way to deal with the imperfect competition and finite elasticities of substitution, and sparse data.

One way is to use the translog (transcendental-logarithmic) demand function.²²⁴ Especially since only two years of information regarding prices and quantity sold are available, this method is very convenient to use. According to the translog demand model, the value share, 's', for domestically-assembled colour TVs in the market, can be expressed as follows:

$$s = a + k [\ln (P/P^*)],$$

where 'a' and 'k' are parameters, 'P' is the average price of domestically-assembled colour TVs, and 'P*' is the market price of imports. Similarly, the same can be done for imported colour TVs:

$$S = A + K [\ln (P/P^*)],$$

where 'S' is the value share of imported colour TVs, and 'A' and 'K' are parameters. It is assumed that the parameters 'a' and 'k', and 'A' and 'K', are constant over the two

²²⁴ Please see: Laurits R. Christensen, Dale W. Jorgenson and Lawrence J. Lau, "Transcendental Logarithmic Utility Functions," American Economic Review, 65,3 (June 1975), pp. 367-383; and Dale W. Jorgenson, Lawrence J. Lau and T. M. Stoker, "The Transcendental Logarithmic Model of Aggregate Consumer Behaviour," in R. L. Basmann and G. Rhodes, eds., Advances in Econometrics, Vol. 1 (Greenwich: JAI Press, 1986).

years, 1983 and 1984. This means that, using the price and quantity sold information, these four parameters can be calculated.

According to the translog demand model, elasticities can be defined as:²²⁵

import own-price
elasticity = (W)(s)

domestically-assembled
own-price elasticity = (X)(S)

cross-elasticity
(import colour TV
price change) = (Y)(s)

cross-elasticity
(domestically-assembled
colour TV price change) = (Z)(S)

where 'S' and 's' are value shares as defined above, and 'W, X, Y, and Z' are partial elasticities of substitution equal to:²²⁶

$$W = \{ k / [(s)(s)] \} + 1,$$

$$X = \{ K / [(S)(S)] \} + 1,$$

²²⁵ This is shown by Ernst T. Berndt and David O. Wood, "Technology, Prices, and the Derived Demand for Energy," The Review of Economics and Statistics 57 (1975), pp. 259-68.

They draw on R. G. D. Allen, Mathematical Analysis for Economists (London: Macmillan, 1938), who shows that partial elasticities of substitution are analytically related to the price elasticities of demand for factors of production (or in our case, the subcomponents of demand for colour TVs--eg. domestically-assembled and imported colour TVs).

²²⁶ Berndt and Wood, "Technology, Prices, and the Derived Demand for Energy". p. 261.

$$Y = \{ J / [(s)(S)] \} + 1,$$

and $Z = \{ J / [(S)(s)] \} + 1.$

In the two goods case, 'k' equals 'K', and these equal '-J'. Using the parameters estimated through the translog model, point estimates for the elasticities can be found for 1984.

D.2.2 The Estimated Elasticities and the Findings

D.2.2.1 Import and Domestically-Assembled Colour TV Elasticity Estimates

The import demand elasticity was estimated to be -0.61; and the domestically-assembled demand elasticity was -0.63. The total demand elasticity would be expected to be no more, and probably less than these figures since elasticity values for larger aggregations are typically smaller in absolute size. For changes in the price of domestically-assembled colour TVs, the cross-elasticity for the demand for imports was 0.61, while that for domestically-assembled colour TVs from a change in the price of imports was 0.63.

A demand elasticity of around -0.5 means that the consumer direct cash cost of higher import prices that result from the tariff will be around the \$76.8 million mark (\$38.4 million on imports) in 1984, and the consumption effect (from purchasing less colour TVs than otherwise)

about \$76,000, and the production effect about \$3.4 million (and the total efficiency loss is about \$3.5 million or \$1898 per employed person).

The cross-elasticity for a change in the price of imports of 0.63 is in the low part of the range of cross-price elasticities examined in Charts 5.5, 5.6, 5.7 and 5.8. The values of the benefits and costs, as indicated by this elasticity estimate, will be expected to be close to those given for the 0.5 value in the in these charts. Even at this level, in Chart 5.7, the direct cash cost to consumers are around \$25.7 million on imports (and \$51.4 million for colour TVs in general) and the efficiency loss around \$1.4 million; and in Chart 5.8, the direct consumer cash costs on imports are around \$24.2 million and the efficiency loss about \$1.8 million. The efficiency loss is calculated to be \$1790, and direct consumer cash costs are \$13,347, per employed person in the most favourable case when the cross-elasticity is 0.5.

D.2.2.2 Elasticities for Colour TV Submarkets

Estimates of own and cross-price elasticities are observed by assuming separability in demand among screen size submarkets. This means that in each submarket, these elasticities can be found in the same manner in which they were found for the imported and domestically-assembled colour TVs in general. These elasticities are shown below, in Chart D.6.

Some comments can be offered about these estimates. The demand elasticity for the 14-inch sets might be anticipated as being higher than the other two. This is due to the fact that the 14-inch screen size has been subject to the most severe import pressure from especially the NICs, and it is only in the larger screen sizes that styling and perceived quality would be important. Furthermore, transport costs are less for these imports, plus this is the submarket in which the GPT imports have made the greatest inroads. It might also be expected that cross-elasticity would be stronger for the 14-inch screen size. Between 1983 and 1984, the prices for this size colour TV has actually dropped, for domestically-assembled and imported colour TVs, the latter more so as the low-priced GPT imports captured a growing part of the market. Consequently, quantity demanded grew significantly, for both sources, but again much more so for imports. However, for the proportionate change in prices the change in demand for imports should seem to be expected

Chart D.6

Elasticities for Colour TV Submarkets

	14-inch	20-inch	26-inch
import own-price elasticity	-0.08	-3.57	-0.14
domestically-assembled own-price elasticity	-0.18	-3.36	-0.07
cross-price elasticity (import colour TV price change)	1.21	3.36	0.62
cross-price elasticity (domestically-assembled colour TV price change)	0.54	3.57	1.17

larger. The answer may lie in the new lower-priced GPT imports being substituted for other imports and being bought by new demand (by lower income families or second TV demand). The domestic 14-inch colour TVs are at the higher end of this submarket, and benefit from a reputable name even in the new TV use, and the trend toward smaller sets.

On the other hand, the 26-inch colour TVs do not face as severe import competition, and is the market segment where product differentiation appears most important. Consequently, its demand elasticity might be expected as being less than that for the other screen sizes.

The above does suggest that more than just price is important. The discussion of demand changes, done earlier

in Chapter 4, did outline how it seemed the market for colour TVs spurred by video cassette recorders and home computers was becoming saturated. Nevertheless, the import demand elasticity is found to be highest for the 26-inch screen size. This is the submarket in which the import share is smallest, less than 29 percent in 1984.

D.2.3 Conclusion

Some simple estimates have been found for the important elasticities used in Chapter 5, based on the translog demand function, and 1983 and 1984 information on prices and quantity demanded. The estimated elasticities fall within the low of many of the values examined in Chapter 5. The estimated import own-price elasticities for colour TVs in general are close to -0.5, while those of the submarkets vary greatly, and are high for the 20-inch submarket. These estimated values suggest a somewhat smaller loss in consumer welfare due to consumers affording less colour TVs, than that indicated in many of the charts in Chapter 5. The estimated cross-elasticity of a change in import prices (0.63) is close to 0.5 in the charts, and means that the employment effects and changes resulting from small changes in tariffs or import price changes will be smaller than if the cross-elasticity were 1.0 or 1.5.

Appendix E

QUESTIONNAIRE FOR CANADIAN COLOUR TV MANUFACTURERS

The following is a copy of the Questionnaire given to Canadian colour TV manufacturers during my interviews with them. While the Questionnaire was used as a guide to the interviews, the many persons who received me were also generous in answering many additional questions that arose during the individual interview sessions. Four interviews took place during the period August 23 to August 30, 1985. I am grateful to Luigi Romanelli, Assistant to the Vice-President (Sanyo Industries Canada), C. E. Kreuzweiser, Manager and Jay Cowan, Contract Assembly (Electrohome Limited), Tom Fischer, Accounting Manager (Matsushita Industrial Canada Limited), and Peter J. Scheibling, Controller and Jim McKay, Plant manager (RCA Inc.).

Dates and locations of interviews:

Sanyo Industries Canada:	August 23, 1985 Montreal, Quebec
Electrohome Limited:	August 26, 1985 Kitchener, Ontario
Matsushita Industrial Canada Limited:	August 27, 1985 Toronto, Ontario
RCA Ltd:	August 30, 1985 Prescott, Ontario

QUESTIONNAIRE FOR CANADIAN COLOUR TV MANUFACTURERS

Your assistance in providing responses to the following set of questions would be greatly appreciated. It would be most helpful if you could provide written answers where answer blanks are provided.

Please fill in the blanks and mark with 'X' to indicate your answer where appropriate. All numerical responses will be kept in confidence and used only in an aggregated form to give an overview of the industry.

1.0 Background Information: Your Company's Production:

1. Could you please describe some of the highlights in the company's historical development in Canada? (i.e. when did you start production of TVs in Canada) _____

3. What factors were instrumental to the company setting up operations in Canada? _____

3. What factors have changed your TV production operations in recent years? _____

2.0 The TV Market:

1. What are the principal factors upon which TV manufacturers and importers compete in the Canadian market? _____

 _____.

2. Do you see the relative importance of price, reputation for quality, and special (technological) features changing over the next five years? Yes____ No____.
 If yes, in what way? _____

 _____.

Are there differences for particular models and sizes of TVs? Yes____ No____.

3. What proportion of your sales goes through retail chains____%, private dealerships____%, private brands____%, or through other channels____% (please specify the type of channel_____
 _____).
 _____).

3.0 Technological Innovations:

1. How have innovations incorporated in TVs over the years affected the capital investment and assembly activities of your company? _____

 _____.

2. Did you make any new capital investments in TV products or processes in 1984? Yes____ No____.
 Why? _____

 _____.

Did you make any new capital investment in other consumer electronic goods in 1984? Yes____ No____.

3. Please mark with an 'X' to indicate whether your TV assembly operations have become more _____ or less _____ labour-intensive in the last five years. Do you see this trend continuing? Yes _____ No _____.
4. How important a factor is the transportation cost of imports in determining what kind of TVs are imported into Canada? Do you perceive any changes in this factor in the near future? Yes _____ No _____.

4.0 Employment:

1. We are aware that the electronics industry, as a whole, contributes many jobs to the Canadian economy. What level of employment does your company's TV activities by themselves directly contribute? _____

2. What level of skills are required for TV production or assembly? _____

Are these skills readily applicable to other production processes or forms of employment? Yes _____ No _____.

5.0 Production and Imports:

1. What proportion of your company's sales of consumer electronics in Canada was composed of TVs in 1984? _____% What proportion of the total TV sales did the TVs assembled in Canada contribute? _____% Please mark an 'X' to indicate whether you predict this domestic proportion to grow _____, shrink _____, or remain constant _____ in the next five years? Please comment.

2. Could you please indicate the percentage breakdown of TVs assembled in Canada by basic model or size?

TV Sizes	Percentage
under 14"	_____
14"	_____
20"	_____
26"	_____
other _____	_____

3. What models or sizes does your company import? What is the percentage breakdown? From what countries? Do they come from affiliated companies?

TV Sizes	Percentage	Origin	From Affiliate	
			(Yes)	(No)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

4. Does your company export TVs or TV components? If so, what percent of your production is exported _____%, and what TVs or components and to what countries primarily?

5. Can you, please, indicate for each of the sizes of TVs your company assembles in Canada, the typical proportion of the complete TV's value that goes to imported parts and components?

TV Sizes	Percentage
under 14"	_____
14"	_____
20"	_____
26"	_____
other _____	_____

6. Please indicate your major country sources for these parts and components: also place an 'X' to show whether

the sources are company affiliates or non-affiliated suppliers. Where possible, please indicate the dates such sourcing began.

	Country Origin	Affiliate		Date
		Yes	No	
colour picture tube	1. _____	___	___	19__
	2. _____	___	___	19__
	3. _____	___	___	19__
chassis	1. _____	___	___	19__
	2. _____	___	___	19__
	3. _____	___	___	19__
tuner	1. _____	___	___	19__
	2. _____	___	___	19__
	3. _____	___	___	19__
cabinet	1. _____	___	___	19__
	2. _____	___	___	19__
	3. _____	___	___	19__
other major parts	_____	___	___	19__
	_____	___	___	19__

7. Is your company considering further sourcing? If so, where and why? Possible future sourcing sites _____

Principal reasons/considerations _____

8. For the TV sizes you produce, please indicate the typical costs of these parts if imported:

Size (in.):	under 14"	14"	20"	26"	Other_____
colour picture tube	_____	_____	_____	_____	_____
chassis	_____	_____	_____	_____	_____
tuner	_____	_____	_____	_____	_____
cabinet	_____	_____	_____	_____	_____
other_____	_____	_____	_____	_____	_____

9. Please, can you indicate the average final price of these different size TVs that you assemble in Canada:

TV Sizes	Average Final Price
under 14"	_____
14"	_____
20"	_____
26"	_____
other_____	_____

6.0 Advice to the Government:

1. What advice or concerns would you like to share with the Canadian Government with respect to any of its programs for helping the consumer electronics sector and TV industry? _____

2. Has the government been helpful in providing direct financial assistance, loans and other services? Please comment. _____

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