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ECONOMIC EFFECTS OF TRADE LIBERALIZATION WITH THE USA: EVIDENCE AND QUESTIONS

by

A.R. Moroz and
Gregory J. Meredith

September 1985

The authors are, respectively Assistant Director and Researcher and both work with the International Economics Program of the Institute for Research on Public Policy. They wish to thank the Department of External Affairs for its financial support. They are grateful to John M. Curtis and Gerry Salembier for comments on an earlier draft. Views expressed in the paper are the responsibility of the authors and do not express the views of the Department of External Affairs, the Institute for Research on Public Policy or any other individual.

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Abstract

Freer trade with the United States, in the form of a functional, sectoral or comprehensive arrangement is evaluated in the context of existing economic literature. The dynamics of the world economy and increased protectionism in the U.S. and elsewhere has increased the importance of any trade-policy decision. The evolution of trade theory and the incorporation of facets of industrial structure and performance into empirical models of trade liberalization show the potential gains for Canada to be large. An increase of up to 9% of GNP is accompanied by increases in employment opportunities and in labour incomes, with all regions benefiting in the medium to long run, while in the short run significant capital and labour adjustment could be expected. Firm behaviour and non-tariff measures are also found to be important factors helping to determine the extent of realization in Canada of the potential gains from freer trade.

PART 1: THE GLOBAL AND DOMESTIC ECONOMIC ENVIRONMENT

Introduction

What should be the form and conditions of Canada's trade relationship with the United States? This question has dominated the trade policy debate in Canada since before Confederation. As Canada's economic performance and development are tied largely to international trade, particularly bilateral trade, this question is a major issue in the overall economic policy debate in Canada.

The specific issue of negotiating a bilateral trade agreement with the United States has once again emerged as a current policy question facing Canadians and their governments. Three options for any potential bilateral trade negotiations have been identified: a framework agreement; a series of sectoral or functional agreements; and a comprehensive bilateral trade arrangement. The debate over whether to enter bilateral negotiations and the best course to pursue will have to deal with a wide range of complex issues, including a changing global economic environment and rising concerns over the future direction of U.S. trade policy. Nevertheless, the fundamental question is: will a bilateral trade agreement with the United States contribute to a more competitive and healthier Canadian economy with higher incomes and greater and better employment opportunities for Canadians?

The purpose of this paper is to establish what is known theoretically and empirically about the likely impact on the Canadian economy of a bilateral trade liberalization agreement with the United States and, just as important, to determine what is not known and requires further investigation.

The paper is divided into four major parts. The first part outlines the external factors affecting Canadian economic and trade policy, including the global economic environment, recent U.S. trade policy developments and the bilateral trade environment; it then turns to an examination of the relationship between trade policy and other areas of economic policy. The central economic and trade policy issues are reviewed in the context of the four aggregate sectors of the Canadian economy--agriculture and fisheries, resource extraction and processing, manufacturing, and services. This part of the document is intended to delineate the important features of the domestic and international economic environment in which any bilateral trade negotiations will occur.

Part 2 of the paper addresses the questions of the size and nature of the potential economic benefits and costs of bilateral trade liberalization. The discussion begins with a critical review of recent developments in international trade theory and what these developments can contribute to our knowledge of the impact of trade liberalization. Included in this evaluation are examinations of the importance of scale economies, industrial organization and competitiveness in the Canadian economy to the realization of potential gains from bilateral trade liberalization. The next step is to examine the theoretical and empirical issues involved in estimating for Canada the impacts of trade liberalization, with the specific purpose of determining what we know, how reliable this knowledge is, and where further work is required.

The next issue dealt with is the employment impacts of trade liberalization, followed by a discussion on non-tariff barriers. Since most of the

preceding discussion concentrates on the economics of a comprehensive bilateral trade agreement, the discussion then turns to an examination of the sectoral and functional approaches to bilateral trade liberalization. Throughout the discussion, those areas that warrant further research are identified.

The purpose of the third part of the paper is to examine a number of economic policy issues which are outside the strict confines of international trade theory but which are critical to the evaluation of the bilateral trade policy options. This section is concerned largely with the two general questions of whether Canada will be able to realize the potential medium-run net benefits from bilateral trade liberalization, and what factors may aid or disrupt the adjustment process. The discussion starts with the issue of structural adjustment, the process of adjustment and adjustment costs. This discussion is followed by an examination the regional implications of bilateral trade liberalization. The next group of issues dealt with concerns the microeconomics of corporate behaviour with the emphasis in the discussion on R&D and technological adoption, adaptation and diffusion.

Although considerable research exists on many of the issues addressed in these areas, for the most part only the adjustment work has been carried out in the context of the specific question of bilateral trade liberalization. This also applies to the latter section in part 3, which deals with the issues raised by intra-corporate trade for Canadian trade and economic policy.

The fourth part is a general summary of the paper. Overall, the paper concludes that the potential medium-run impact of broad bilateral trade liberalization is positive and large. A broad trade liberalization agreement would provide the conditions for a healthier, more productive economy and greater and better job opportunities. The sectoral approach offers small positive benefits if the right sectors are chosen; however, a number of difficulties with this approach are indicated. While tariffs still remain high in a number of product lines, much of the effort in any potential bilateral trade negotiations will be directed at non-tariff barriers. The functional approach provides a mechanism by which to deal with the complex nature of most non-tariff measures, although it is suggested that the potential medium-run net economic benefits are likely to be larger if a number of non-tariff barriers are dealt with as a package. Turning to the areas outside of the strict confines of trade theory, the general assessment is that there are a number of major gaps in our knowledge of the process of structural adjustment in both capital and labour markets, the regional impact and the microeconomics of corporate behaviour. Since these factors can affect significantly the ability of the economy to realize the potential medium-run benefits, they raise important research and policy questions.

1.1 The Global Economic Environment

Although Canada and the United States are each other's major trading partner, the evaluation of the economic consequences for Canada cannot ignore the global economic environment. Likewise, Canada and the United States

participate in a number of multilateral institutions, such as the GATT, the OECD and the IMF, and any negotiations will have to take into account each country's multilateral economic objectives and policy obligations. With regard to the external environment, the following points warrant particular attention.

- Partly as a result of past international cooperation in the economic and trade systems, the world economy is much more integrated today than ever before: national economies are increasingly linked through flows of goods, services, capital and people.

- By 1987 the staged tariff reductions agreed to by the participants in the Tokyo round of multilateral trade negotiations will be fully implemented. The new codes extending and clarifying the GATT rules governing the use of non-tariff trade measures, which were also adopted in the Tokyo round, have led the members who have signed the codes to amend their domestic trade legislation to make it conform with their new rights and obligations. Some of these changes have given rise to additional conflicts among GATT members, while others have effectively reduced earlier sources of conflict.

- The world economy continues to undergo major structural adjustments; numerous industries, particularly in the traditional manufacturing sectors, are moving to new locations of production, especially in the Newly Industrialized Countries (NICs); the older developed countries are maturing and have entered a post-industrial stage of development; and global production is becoming more specialized internationally.

- Resistance to the adjustment process in the form of protectionist measures and other "defensive" adjustment policies has become a major problem for the substance and management of international trade and economic relations, both between developed countries and in a North-South context.

- The rise in protectionism is characterized by a preoccupation with bilateral and/or sector trade balances, the use of non-tariff measures, frequently applied outside the rules developed under the GATT, and the resort to trade protection when the real cause of the problem is macroeconomic policy imbalances, or domestic economic changes. As such, the current rise in protectionism not only disrupts international trade and investment flows but also weakens the basic GATT principles of non-discrimination, predictability and transparency for trade policy.

- As a result of the rise in global protectionism, new developments in international trade and problems left over from the Tokyo Round such as agricultural trade, subsidies and safeguards. Canada, the United States and certain other OECD countries have called for a new round of GATT negotiations. In addition to the old trade issues, new areas such as trade in services, counterfeit goods, high technology trade and intellectual property will likely be included in any future round of multilateral trade negotiations.

- The emergence of Japan and the European Economic Community (EEC) as major economic powers has created a multipolar world economy.

- In contrast to the 1960s and early 1970s, the growth rate of world demand is much slower and there is excess global production capacity in most resource and manufacturing sectors, the reduction of which is an increasingly important part of the adjustment process.

- The rise in global interdependence and multipolarity has increased the policy interdependence of nations as well as the sensitivity of each nation's economy to the domestic policies and legislation of its major trading partners and, at the same time, has generated great pressures upon the existing international economic institutional framework.

- The expansion of trade into new areas such as services, the increase in international capital movements and the rise in the use of non-tariff barriers have further compounded the complexities of the trade policy issues confronting national governments.

- Above all, the single most important factor facing citizens and governments is the great uncertainty about their future economic prospects and development.

The above points summarize briefly the global economic and trade policy environments in which the various bilateral trade policy options will be evaluated. To a considerable degree, the changes in the economic environment that bear on North America come from outside the continental economy, and the onus is on North American industries and economies to adjust to the competitiveness and dynamism of those offshore. This is important to recognize since for certain Canadian industries--for example footwear, textiles and

clothing--the problem of stiff import competition in the Canadian market is due not to U.S. competition but to offshore competition. At the same time, the unsettled global trade policy environment raises numerous questions about the future of the GATT and other multilateral institutions. The Canadian and U.S. economies are not immune to foreign trade policies, and both Canada and the United States have a large stake in a stable and open multilateral trading system. In short, the assessment of the bilateral trade options needs to recognize a world characterized by a high degree of global economic integration and strong economic pressures for structural adjustment. Developments in the global trade policy environment are also an important consideration in evaluating the bilateral trade options.

In the context of global trade, the evaluation of the economic impacts of bilateral trade liberalization on the Canadian economy must take into account the issue of trade diversion. Part of the economic impact on Canada, particularly in terms of increased production and exports, of entering a bilateral trade arrangement would come from trade diversion as Canadian exporters would no longer be confronted by the same trade barriers faced by other exporters to the U.S. market. To the extent that adjusting to meet the competitiveness of U.S. industries within a bilateral trade arrangement is the first step to meeting global competition, the bilateral trade option should not be viewed as a pure alternative to the multilateral approach. Indeed, it is likely that the adjustment process in Canada would be smoother and less costly in most industries if a bilateral trade liberalization arrangement preceded further multilateral trade liberalization.

On the other hand, there may be some industries in which adjusting to match U.S. competitiveness under a bilateral trade agreement may not be consistent with adapting to the emerging global economic conditions. Moreover, a bilateral trade agreement might not offer a solution to the structural adjustment problem in industries such as footwear and clothing which are experiencing major problems in adjusting to global economic changes and stiff offshore competition. More important, any gains in terms of production, employment and exports from trade diversion are likely to be temporary. The U.S. has stated that its long-run objective is multilateral trade and investment liberalization and the U.S. Administration is pushing strongly for a new round of multilateral trade negotiations. The federal government of Canada has also called for a new round of multilateral trade negotiations: indeed, Canada has long supported the multilateral route because of the benefits multilateral trade rules provide to a small economy and the importance of improved access to all markets throughout the world. The bilateral option offers both countries an opportunity to further develop the bilateral trade environment as well as opportunities to retard the rise in protectionism and develop models that might be extended to the multilateral level. Nevertheless, both countries are likely to participate actively in any future multilateral trade negotiations. Consequently, two issues should be borne in mind when evaluating the economic impact: the extent of trade diversion, and the impact of bilateral trade liberalization on Canadian industries' global competitiveness and hence on their prospective ability to take advantage of future opportunities outside of North America under any future multilateral trade liberalization.

1.2 The Bilateral Trade Environment

Trade between Canada and the United States is the single largest component of world trade, and both countries are each other's largest trading partner. The bilateral trade relationship is asymmetric when viewed from a number of perspectives. Over 70 per cent of Canada's international trade is with the United States, while around 20-25 per cent of U.S. international trade is with Canada. Trade accounts for close to 30 per cent of Canada's national income but only around 10 per cent in the United States. Moreover, once bilateral automotive trade is accounted for, Canada's bilateral merchandise exports are concentrated heavily in primary and semi-processed materials, whereas U.S. bilateral merchandise exports comprise mostly manufactured products. When evaluating the various bilateral trade policy options, the following considerations need to be borne in mind:

With few exceptions, bialteral trade is conducted under the provisions of the GATT which is the main trade agreement governing the Canada-United States trade relationship; the notable exceptions are the Canada-U.S. Automotive Products Trade Agreements, the Canada-U.S. Defence Production Sharing Arrangement and the understanding on safeguards negotiated bilaterally in 1984, and even in these cases both countries have sought to ensure that the arrangements meet their GATT obligations.

- It is estimated that when the Tokyo Round cuts are completed in 1987, 80 per cent of Canada's exports to the United States will be duty free and 65 per cent of U.S. exports to Canada will be duty free; a significant share of the remaining bialteral trade will cross the border at tariff rates of 5.0 per cent or lower; however, tariff rates for certain products remain high in both Canada and the United States, with some as high as 20-25 per cent in Canada, and hence trade is much lower in these products than it might otherwise be; overall, the average tariff rate on dutiable products entering Canada will be 8-9 per cent while the average U.S. tariff on dutiable products will be about 4.5 per cent after 1987, and the dutiable items are

mostly manufactured products; consequently, while Canada and the United States appear to be close to the meeting the GATT requirements for declaring a free trade area, this appearance is deceptive and tariff rates are still an important issue to be considered in any bilateral trade negotiations.

- Although certain U.S. tariffs remain high, it is the growing mood of protectionism and the increasing use of non-tariff measures that pose the major threat to Canadian trade interests; in traditional sectors, the demands for protection have switched from demands for relief from a cyclical downturn to demands for permanent trade protection against foreign competition as many of these U.S. industries are experiencing difficulties similar to those in the same Canadian industries; likewise, U.S. corporations have resorted more frequently to U.S. unfair and fair trade legislation in an effort to reduce foreign competition in the U.S. and, as was the situation in the Canadian lumber countervailing petition, these petitions may be directed at domestic policies in foreign countries; the Congress has introduced a growing number of protectionist bills and although few have been passed, the language in the Congress has shifted from "free trade" to "freer trade" and, for some, to "fair trade"; while the Administration has attempted to resist the mood of protectionism in the Congress, it too has resorted to non-tariff measures to restrict imports of products such as steel and Japanese automobiles.

- The rise in protectionism in the United States is due largely to three factors: the huge U.S. merchandise trade deficit, caused in large part by the high U.S. dollar and high U.S. interest rates; the shift in comparative advantage in certain traditional industries away from the United States; and the U.S. frustration over the problems in placing those trade issues it is interested in on the GATT agenda, in particular the issues of trade in services, counterfeit goods, high technology trade and intellectual property.

- Although Canada is not the prime target for most U.S. protectionist demands and actions, the number of trade disputes between Canada and the United States has increased recently and in numerous cases the issues concern matters outside the usual boundaries of trade policy and involve Canadian regulatory and cultural policies.

Given the size and depth of the Canada-U.S. trade relationship, it is not surprising that at any point in time there are a number of bilateral trade problems confronting Canadian and U.S. policy makers. While some are not solved and are simply allowed to continue, Canada and the United States have

generally been able to resolve most bilateral trade disputes. Canadian interest in exploring the possibility of negotiating a bilateral trade agreement has developed because of the growing mood of protectionism and the increasing use of non-tariff measures, particularly contingent-protection measures, in the United States.

The issue of whether or not to negotiate a bilateral trade agreement is becoming one of securing as well as enhancing the existing access to the U.S. market. Since most major private sector investment projects in the manufacturing sector require access to a large market, the terms and conditions of access to the U.S. market are a medium-term policy issue for Canada. In large part, the threat of reduced access to the U.S. market is caused by U.S. trade policy actions directed primarily against third countries which can spill over and affect Canadian exports. In other instances, competitive Canadian industries have found themselves confronted by demands for protection from Canadian imports by their U.S. competition.

A further Canadian concern is the growing willingness of U.S. producers to petition under U.S. unfair trade legislation for countervailing duties against Canadian domestic economic policies and regulations which are alleged to provide countervailable subsidies to Canadian exporters. Whether or not these unfair trade petitions by U.S. producers succeed in the imposition of trade barriers against Canadian exports, the resort to U.S. fair and unfair trade legislation raises the risk of exporting to the United States and saddles Canadian producers with the legal and other costs of protecting their interests and

positions before U.S. tribunals. At the same time, the increased threat and actual use of standing protectionist measures--for example, discriminatory government procurement by U.S. states--may have already played a major role in the decision by a number of Canadian firms to establish production facilities in the United States to serve the U.S. market in product areas such as mass transit equipment and telecommunications equipment.

1.3 Trade Policy and Other Policy Considerations

The three bilateral trade options currently under discussion in Canada are:

i) a framework agreement to establish principles and procedures for the management of Canada-U.S. trade relations, including the conduct of negotiations for secure and enhanced market access and dispute settlement;

ii) a sectoral or functional agreement, for the elimination of trade barriers in specific sectors such as agriculture, or for the control of policy instruments such as government procurement; and

iii) a comprehensive bilateral trade agreement which would involve the elimination of tariff and non-tariff barriers on substantially all trade, including both goods and services, except in a selected few industries.

Of the three options, the United States has indicated that should Canada and the United States engage in bilateral trade negotiations, its preference would be to negotiate a comprehensive bilateral trade arrangement. There is, however, no suggestion from either country that the two negotiate to form a full free trade area or a common market. Moreover, there is no suggestion that a mechanism for coordinating in some bilateral framework Canadian and U.S. trade barriers against third country exports should be negotiated. Any potential

negotiations would be concerned with negotiations on trade barriers as they affect bilateral trade and would encompass only those bilateral trade policy matters which are of mutual interest to both countries. Furthermore, Canada has indicated a preference that any resulting bilateral arrangement be in accordance with Canada's rights and obligations under the GATT.

There are a number of bilateral trade issues that either Canada or the United States might ask to be included in any potential bilateral trade negotiations. Tariffs are one example, and both countries have expressed an interest in discussing a number of non-tariff measures as they affect bilateral trade--for example, federal and provincial/state government procurement policies, the use of subsidies, and contingent-protection measures. In the discussions in Canada over the three proposals, a number of other issues have been raised such as the appropriate time frame for phasing in any agreement, the appropriate safeguards, and in the case of the third option, what sectors might be excluded.

Before turning to the economic assessment of the bilateral trade liberalization options, it is important to recognize that trade policy is only one dimension of a government's policy agenda and concerns. In each nation, governments have acquired many responsibilities and play an important and active role in the economy. However, as a result of global economic integration, trade flows and international investment flows have become increasingly sensitive to domestic economic policies, be they domestic microeconomic policies and regulations or macroeconomic policies. In the past, national

governments have found it mutually beneficial to co-operate internationally in a wide range of policy areas other than trade policy. At the same time, governments throughout the world have had to become more sensitive in domestic policy making to external economic conditions and events. In short, the interdependence between trade policy and other economic policy areas has increased. Nevertheless, trade policy is but one item on the government's policy agenda; furthermore, the trade issues to be discussed in any bilateral trade negotiations will be only those mutually agreed upon by the governments of Canada and the United States.

While the distinction between the trade policy sphere and other economic policy spheres has become blurred, as Pearson and Salembier (1983) point out, it remains important to make the distinction between macroeconomic and microeconomic perspectives when evaluating trade policy options. The trade environment and trade policy regime affect the pattern and composition of trade and the microeconomic structure of the economy. While changes in macroeconomic policies may affect the total level of trade flows and the competitiveness of an economy as a whole, changes in trade policy affect primarily the pattern of trade, the composition of domestic production and the allocation of resources--including labour--across economic activities.

1.4 Sectoral Assessments

In broad terms, the Canadian economy can be divided into four major sectors: agriculture and fisheries, natural resources and resource processing,

manufacturing, and services. Canadian-U.S. trade includes products produced in all of these broad sectors. Trade is not restricted to final products as there is considerable bilateral trade in intermediate products used as inputs by importing industries. A major share of bilateral trade is intra-industry trade, as opposed to inter-industry trade, and a considerable portion of bilateral trade is conducted between the parents and the subsidiaries of multinational enterprises operating in both countries. In this subsection of the paper, the main economic and trade policy issues for Canada are briefly reviewed in the context of the four sectors identified above.

(a) Agriculture and Fisheries

Trade in agricultural and fisheries products has emerged as an issue-area of increasing complexity and concern between the two governments over the last few years. The inadequacy of international rules governing agricultural trade, and the variety and magnitude of national programs of farm support have contributed to the growing difficulty in managing bilateral trade issues in the agriculture sector in particular.

The agricultural sector is, on the whole, characterized by a relatively high degree of protection through a combination of non-tariff barriers, such as health standards, labelling and packaging requirements and quantitative restrictions. Bilateral trade in dairy products, for example, has been severely reduced by application of quantitative restrictions. Although both countries apply low nominal tariffs for fresh produce for most of the year, these tariffs rise

significantly during seasonal peak periods for most fruits and vegetables. Moreover, the protection for processed food products is much higher in both Canada and the U.S. than for fresh produce, which provides protection to the food manufacturing industries on both sides of the border. Generally, the bilateral trade barrier problem is compounded by the divided jurisdiction for agriculture in Canada and the U.S. between the federal and provincial or state governments.

Since the mid-1970s when new directions for agricultural policies were introduced in each country, a widening split has developed between the Canadian and American governments over the accepted levels and measures of subsidization for the industry. This split has resulted in a number of recent specific disputes over bilateral trade in temperate zone horticultural and agricultural commodities, namely: potatoes, sugar, beef and pork and hogs. The first concerned charges from American farmers that potatoes from eastern Canada were being dumped in the U.S. market. Despite a dumping determination by the Commerce Department, the ITC ruled that U.S. producers were not being injured and no anti-dumping duty was warranted. Sugar has long been subject in the U.S. to a complex set of quota arrangements. The restrictions on imports of refined sugar and related products, however, were recently tightened and broadened to preclude imports of processed foods from Canada containing sugar, such as chocolate and cake mixes. These measures were protested by the Canadian government since Canada's quota allocations were quickly filled, resulting in layoffs in the Canadian refining and food manufacturing industries. The U.S. Administration has since promised to roll-back some of these

restrictions. By contrast, the dispute over beef concerns Canadian import quotas that were tightened in late 1984, mostly in response to a surge of exports from the European Community. The U.S. government, however, protested the controls imposed on imports from the U.S. which the Canadian government has since promised to modify. The dispute over exports of Canadian pork and hogs to the U.S. centres on the level of subsidization to Canadian producers as documented in a section 332 investigation (U.S. Tariff Act 1930) in 1984. A subsequent countervail action resulted in determinations of both subsidy and injury. A countervailing duty on imports from Canada was instituted in March 1985.

The situation regarding fisheries trade is similar to that of pork and hogs. The U.S. fishing industry maintains that Canadian exports of fish and fish products to the U.S. market are unfairly subsidized by various government programs and through the recent equity involvement of the federal and provincial governments in several large fish processing companies. There have been vigorous actions by the U.S. industry to restrict Canadian access to the U.S. market, including four unsuccessful countervail actions (no serious injury was found) between 1976 and 1981. Recently, however, U.S. harvestors and processors have had more success with an anti-dumping action against Canadian exports of salt cod fish, leading to the imposition in early 1985 of heavy anti-dumping duties, and to the completion of an exhaustive fact-finding investigation of the Atlantic groundfish and scallop industries. It is expected that the information gathered will be used as evidence to launch future countervail actions.

Although bilateral fisheries trade is subject to generally low nominal tariff rates, (but high effective rates of protection), as with agricultural trade, most of the trade tension arises from the use, by both countries, of trade legislation to protect domestic industries from what are perceived to be unfair practices by the other trade partner.

(b) Natural Resource Extraction and Processing

Since Canada has a comparative advantage in natural resources with respect to the United States and most Canadian resource-producing companies are world competitors, the resource sector could be expected to gain from bilateral trade liberalization. Furthermore, the degree of resource processing prior to exportation to the United States could also be expected to increase.

A long-term developmental objective for Canada has been to increase the degree of resource upgrading and value-added in resource processing. Since the U.S. tariff system, like the tariff system in most countries, escalates as the degree of processing increases, it has been argued that it encourages exports of low-processed resources and discourages exports of higher-processed resources. In certain sectors, particularly forestry, Canada has responded with export quantity restraints and export taxes to offset the impact of tariff escalation. Evidence provided to The Standing Senate Committee on Foreign Affairs (1978) suggests that the tariff escalation problem is over-stated. Moreover, changes in the U.S. tariff system as a result of the Tokyo Round negotiations have reduced the degree of the escalation problem. The removal of U.S. tariffs on Canadian

exports would eliminate this problem and would at the same time provide Canadian natural resource producers and processors with a competitive advantage in the U.S. market vis-à-vis offshore producers and processors. To the degree that U.S. non-tariff measures replicate the tariff escalation problem, their reduction or removal would also provide benefits to Canadian resource-based industries.

While tariffs may play an important role in certain natural resource industries, the research by Beigie and Hero (1980) and work by other researchers indicate that the main issues for both domestic and bilateral policy considerations are taxation, excess production capacity (especially in resource-processing), growing competition from offshore producers and non-tariff barriers. Many natural resource and resource-processing industries in both Canada and the United States are suffering from low prices and over-capacity in the face of weak and shifting demand, as clearly is the case in the petrochemical industry. Concerns about over taxation and double taxation are frequently raised by Canadian producers; however, as aptly demonstrated in the lumber and steel cases, the bilateral trade-policy question for Canada in many resource industries is how to pre-empt or avoid new trade barriers to the U.S. market.

In the steel case, the issue for Canada was one of avoiding the web of a U.S. protectionist action directed against third countries. The steel case is also a good example of the trade policy problems for competitive Canadian industries caused by the global excess production capacity and the attempts by nations to

shift the excess capacity problem, and hence the structural adjustment problem, onto their trading partners. The lumber case, however, was a bilateral trade problem which was caused by the economic recession and the burden imposed on the U.S. North West forest product producers by U.S. domestic stumpage policies for U.S. government land. The U.S. North West producers sought relief from their domestic problems through a countervail petition which alleged Canadian stumpage policies provided Canadian producers with subsidies. Although the U.S. producers did not win the case, Canadian firms and government expended considerable efforts and monies in preparing and arguing their case.

(c) Manufacturing

Improving the performance and fostering the development of the domestic manufacturing sector has long been a major economic policy priority in Canada. Since before Confederation, Canadian manufacturing industries have been protected by high tariffs, and even after 1987, Canadian tariffs on manufactured products will be higher than in the United States and most other OECD countries. Canadian governments also provide support to Canadian manufacturers in a variety of ways, including various forms of financial assistance and government procurement policies. And, on occasion, the Canadian federal government has employed tough trade restrictions to protect certain industries, such as the global quotas on footwear imports and MFA (Multi-Fibre Arrangement) bilateral restraints on apparel imports, or has developed special policy packages for other industries, including the special arrangement for the automotive sector under the Canada-U.S. Automotive Products Trade Agreement (APTA).

Specific Canadian concerns over bilateral trade in manufactured products are wide ranging and vary considerably across industries. Some general concerns are the persistent Canadian bilateral trade deficit in manufactured products, the dominance in Canadian bilateral exports of automotive products shipped under the APTA, the large share of intra-corporate trade in bilateral trade, and the growing vulnerability of Canadian exports, investment and policies to U.S. protectionist actions. With regard to the specific issue of bilateral trade liberalization, a number of observers have expressed the fear that it would result in a major contraction of manufacturing production and employment in Canada.

In large part, the pattern and composition of bilateral manufactured products trade and the Canadian policy concerns over the future performance and development of the manufactured sector reflect the structure and competitiveness of Canadian manufacturing industries.

With some exceptions, Canadian manufacturers are high cost, low productivity producers of manufactured products. As shown in Table 1, Canadian manufacturing labour costs per unit of output--adjusted for productivity differences--are the second highest when compared to the major OECD countries. Unit-labour costs are, of course, only one element of overall competitiveness; however, they are the most important component of production costs in manufacturing. Taking into account the generally higher costs of capital and non-production costs in Canada, most Canadian industries do not now appear to be well situated to compete with foreign producers of manufactured products.

Turning to the Canadian-U.S. comparison of labour costs and productivity, the last fairly comprehensive study of Canadian and U.S. labour costs and productivity across various industries was for 1974 by Frank (1977). An update of this study is required because of the need for intra-industry and inter-industry comparisons in undertaking quantitative analysis of the impact of bilateral trade liberalization on Canadian industries and the Canadian manufacturing sector. The recent work by Daly (1985) allows a useful bilateral comparison of the productivity and labour cost performance of the Canadian and U.S. manufacturing sectors. Although the labour productivity gap is narrower today than in the 1960s, Canadian real output per worker still remains 27-29% below that of the United States. For 1974, Frank (1977) found that the productivity gap was, on average, 23%. The gap has thus apparently widened over the past decade since U.S. productivity has been increasing faster than Canadian productivity. While U.S. wages have been increasing at a slower rate than Canadian wages since 1974, total average labour compensation in Canada is about 7% below the U.S. average when evaluated on the basis of the 1983 exchange rate. Nevertheless, the net effect of the difference of compensation per hour and the difference in output per hour is that unit-labour costs in Canada are higher than in the United States. Taking into account capital, distribution and managerial costs, it is likely that Canada's cost disadvantage in manufacturing relative to the United States is even greater than suggested by the above figures.

The above discussion reinforces the fact that Canada continues to be a high cost, low productivity producer of most manufactured products. As will be

discussed in the section on trade theory, numerous factors such as the small Canadian domestic market, trade barriers, sub-optimal plant sizes and production runs, and excessive product diversity in Canadian plants, are considered to be important reasons for the long-standing differences between Canadian and U.S. manufacturing performance. There are also other reasons which have been adduced to explain these differences, including the slow diffusion and adaptation of new process and product technologies, and managerial performance. These issues are discussed in the third part of the paper.

TABLE 1

Labour Costs per Unit,
Manufacturing, Selected Countries, 1983
United States = 100.0

United Kingdom	136.0
Canada	129.3
Italy	107.2
Belgium	106.3
United States	100.0
Germany	92.3
France	86.5
Sweden	73.3
Japan	61.2

Methods: These estimates incorporate the net effects of output per hour in real terms, total compensation per hour, and the 1983 exchange rates. This covers a major part of costs for GDP in manufacturing, and costs per unit for capital and depreciation can be approximated for some countries. The results are updates of the methods used in D.J. Daly, Canada's Comparative Advantage (Ottawa: Economic Council of Canada, 1979); A.D. Roy, "Labour Productivity in 1980: An International Comparison," National Institute Economic Review, August 1982, p. 35; updated by U.S. Bureau of Labor Statistics News, May 31, 1984, "International Comparisons of Manufacturing Productivity and Labor Cost Trends, Preliminary Measures for 1983."

Source: Daly (Forthcoming).

The poor performance of the Canadian manufacturing sector is a burden on other sectors as well as on Canadian economy in general. One central question is whether entering a trade liberalization agreement with the United States would result in a significant improvement in the competitiveness and performance the Canadian manufacturing sector. This question must be asked specifically for the manufacturing sector because it is here that the largest economic adjustments and the largest potential long-run economic gains from trade liberalization are likely to occur. Moreover, it is the concerns over the future of Canadian manufacturing industries and employment that have traditionally dominated the debate on bilateral trade liberalization.

(d) Services

In Canada approximately 65% of total GNP and employment is in the service sector, while the comparable figure for the U.S. exceeds 55%. What is surprising is that until recently this sector, despite the fact it has been the fastest-growing and most dynamic sector in most developed countries, has received relatively little research attention except in selected cases, usually for domestic regulatory and policy reasons. The lack of intensive and extensive research on the domestic service sector extends to trade in services. Yet, as demonstrated by the recent trucking, information-processing and banking disputes, trade in services is an important issue in bilateral trade relations. Moreover, trade in services is an area where the United States is keen to negotiate agreements (bilateral and multilateral) to reduce and control real or perceived barriers to trade.

The traditional approach in international trade theory has been to treat services as non-traded goods or as part of the process of goods trade in instances where services support this trade (i.e. trade financing, transportation). While many services continue not to be traded internationally, in the past decade trade in services has been the fastest growing and the most dynamic sector in international trade, and much of this growth and dynamism is due to trade in services that are independent of goods trade such as information processing, business services, and construction and engineering services. Many of the services that are now traded internationally are part of the "high tech" sector and there is growing evidence that trade in services can play an important role in stimulating trade in goods.

Given the high degree of integration of the Canadian and U.S. economies and the intra-corporate ties across the national boundary, the bilateral flow of services is likely to be quite extensive. How extensive or in what services unfortunately can only be approximated. Next to the problem of relatively little theoretical work on the economics of service industries, the most immediate problem for research on services and trade in services is the lack of hard data. Unlike data on trade in goods, data on international service transactions have not been compiled in a systematic and detailed fashion for the explicit purpose of measuring and analyzing trade volumes, patterns and composition. At present, data are collected primarily for balance-of-payment purposes and compiled at high levels of aggregation. Consequently, these existing data do not provide conceptually precise measurements of service-trade flows and there are problems in comparing the data collected by major trading nations because of

the lack of a standardized analytical definition of services to guide empirical measurement and data collection. There is also a problem in distinguishing between an international service transaction and an international investment transaction. Consequently, estimating price elasticities and other economic parameters required for modelling trade in services has not been possible.

Turning to the theory of international trade in services, there appears to be a slowly emerging consensus that the basic theoretical arguments for goods trade, such as the concept of comparative advantage, also hold for services trade. There is also growing evidence that the scale economy and industrial-structure agruments frequently made in manufactured goods trade may also be applicable to services trade. The problem encountered by theoreticians such as Deardorff (1984) and Hindley and Smith (1984) is twofold: defining what a service is (including how services are economically different from goods) and dealing with the fact that most services are consumed where they are produced and, hence, taking into account in the trade analysis the fact that trade in services involves a form of trade in factors of production. The theoretical problems are being sorted out; however, the above two basic problems often reappear in the context of attempts to undertake policy research.

As a practical matter, the Canadian Task Force on Trade in Services (1982) identified four types of traded services: services embodied in goods; services complementary to trade in goods; services that are substitutes for goods; and services that are traded without a relationship to goods. This classification is useful because the economic characteristics of services and their international

exchange vary considerably. The Task Force also commissioned two studies on data; one study was to examine the applicability and usefulness of existing data for trade analysis, and a second study was to develop a classification system for trade in services. Nevertheless, a major data collection and assembly effort is still required as a prerequisite to solid research on trade in services. There also remains much to do in identifying and understanding how service industries operate and how bilateral service trade is conducted before a full assessment of the impact of liberalizing bilateral service trade can be made. For example, given the high degree of intra-corporate trade across the border, there is likely to be a considerable degree of intra-corporate services flow; however, little is known analytically or quantitatively about the internal trade of services within multinational corporations, although some work has been undertaken by Statistics Canada.

As the theoretical and empirical issues in services trade differ significantly from those in goods trade, so do the institutional and policy issues. Most service industries are highly regulated for domestic policy reasons. Both the reasons for, and forms of regulation vary significantly between Canada and the United States. In most instances, the bilateral disputes over services trade have involved clashes over domestic regulatory policies that reflect the different problems, objectives, traditions and perspectives of each country. Thus, while explicitly designed barriers to services trade are not infrequent, bilateral trade negotiations on services trade may also involve discussions on regulatory issues.

Notwithstanding the major problems for research and negotiation arising from dealing with diverse regulatory issues, the analytical and policy problems

are further complicated by the nature of services trade. The production of services involves primarily labour, capital and other services, as opposed to intermediate material inputs. The delivery of many services requires an establishment and/or direct access to the distribution system in the consuming market. The ability of a service exporter to employ his own labour and capital and to utilize the distributional infrastructure in his foreign markets corresponds to the ability of a goods exporter to move physically his products across national boundaries. The issues of foreign ownership and access to the domestic market can therefore become quite important, and bilateral negotiations may involve such issues as foreign investment, (the right of establishment issue), the treatment in domestic markets of foreign-owned establishments, (national treatment issue), the treatment of foreign labour, and access for foreign users to domestic service distributional facilities and networks.

There is no international consensus on many of these issues. Indeed, as the debate between Clark (1982) and Grey (1984) indicates, there is little consensus on whether or not the current GATT rules can or should be applied to services. Bilateral negotiations on trade in services will, for the most part, be starting from scratch. Research is required to examine Canadian trade in services from the trade-policy point of view, to develop the conceptual issues, including defining and measuring services trade flows, to identify the role of services in Canadian trade, to spell out the risks and the potential gains in any bilateral negotiations, and, thus, to provide a basis to develop policy positions for bilateral negotiations. Moreover, research is required to assess the implications of changing domestic regulations including rules on such policies as government procurement, right of establishment and national treatment.

PART 2: TRADE THEORY AND EMPIRICAL WORK

Changes in the trade environment or in the trade-policy regime affect both the pattern and composition of international trade and the domestic structure of an economy. In evaluating the international trade theory predictions associated with the various bilateral trade options, the following points must be recognized:

- at the overall economy level, given the size and structural differences between the Canadian and U.S. economies, the major structural adjustments to bilateral trade liberalization will be concentrated in Canada and the onus will be on Canadian industries and the Canadian economy to adjust to meet the competitiveness of U.S. industries and the U.S. economy;

- certain U.S. industries--such as forestry products, clothing, steel and mass transit--could be adversely affected by bilateral trade liberalization. These and other industries may resist reduction or elimination of U.S. trade barriers;

- the economic costs and benefits from bilateral trade liberalization will not be the same as those from multilateral trade liberalization because under the bilateral option barriers to imports from other countries remain in place in both countries and, hence, a significant amount of the increase in bilateral trade may arise from trade diversion, not from trade creation;

- both imports and exports, particularly within industries, are likely to increase dramatically; the increase in bilateral trade flows will involve both intermediate and final goods and lead to a greater economic integration of the North American economy, which in turn will affect the macroeconomic sensitivity of the Canadian economy to the U.S. economy;

- many of the economic benefits in terms of improved productivity, efficiency and improved competitiveness are due to increased import competition, as Canadian industries adjust to new opportunities and competition in and from the United States;

- adjustments in Canadian productivity and competitiveness arise from exposure to U.S., but not world, competitive pressure, due to the maintenance of external trade barriers; and

- consumers can be expected to benefit directly from lower prices and from wider product selection.

2.1 Trade Theory

The traditional or neo-classical theoretical economic argument in international trade theory--that free trade provides net economic benefits to a country--was established well before Confederation. If prices and quantities are not distorted by trade barriers and if markets are competitive, then each country will produce those products in which it has a natural comparative advantage and, through international exchange, will trade them for the products its consumers wish to purchase. Since consumers pay the lowest price possible and firms' produce the optimal product mix at the lowest economic cost, the country as a whole will be better off. While it can be shown that a large economic power can use its trade barriers to enhance its own economic welfare, the traditional theoretical argument is unequivocal in its conclusion that a small country is better off under free trade.

In the case of bilateral free trade, this prediction should, of course, be modified to account for the consequences of trade diversion. However, the applicability and relevance of the traditional theory of trade has been challenged on numerous and widespread grounds. Moreover, many observers have questioned whether the small medium-run net economic benefits predicted by the traditional theory warrant the short-run adjustment costs or the potential medium-run costs which, it is argued, are not captured by the traditional theory.

For a small, open economy, these challenges are critical for the evaluation of trade-policy options. On balance, the incorporation into trade theory and empirical testing of these challenges has indicated that the economic benefits are much larger than predicted by the traditional theory. Moreover, the new trade theories suggest that there are large, potential long-run gains for the Canadian manufacturing sector from bilateral trade liberalization. However, the new theories also show that under certain circumstances, there can be benefits from trade protection. Indeed, the theoretical developments in the last decade have made the evaluation of competing trade-policy options an increasingly complex task.

The challenges to the traditional trade theory have been that the assumptions and underlying concepts are unrealistic, and the observed patterns of trade do not conform to the predictions of neo-classical trade theory. Traditional trade theory augments the assumption of perfect competition with the following additional assumptions: within each industry, foreign and domestic firms produce identical products (perfect substitutes assumption); industries operate under constant-returns-to-scale production functions and have identical cost structures; each firm in an industry uses the same technology; and factors of production are mobile within an economy, but not across national boundaries. The traditional theory further assumes a condition of full employment and in the case of a small country, that domestic prices are determined solely by world prices and trade barriers. The direction and pattern of trade and, hence, a nation's production mix, is determined by its comparative advantage. The comparative advantage is exogenously determined--the principal factors being

differences between countries in factor endowments, technology, consumer tastes and/or competitive equilibrium conditions (i.e. internal taxes, see Melvin (1979)). While much of the traditional theoretical work is based on analysis of differing factor endowments, all four conditions can fluctuate simultaneously and a nation's comparative advantage is the net outcome of their interaction. Each country trades the product (or products) in which it has a comparative advantage for the product (or products) in which it has a comparative disadvantage and consequently, the pattern of trade involves inter-industry trade.

Since certain factors of production--for example, land and mineral resources--are immobile, Canada's comparative advantage is influenced by its endowments of natural resources and, even in the bilateral context, this will influence the economic impact of bilateral trade liberalization. However, it is now recognized that factor endowment is a less important determinant of the pattern of trade than it was once thought to be--particularly in trade between the developed countries, and especially for the Canada-U.S. situation because of the high degree of mobility of capital between the two countries.

The condition of differences in consumer tastes is not a major consideration in evaluating bilateral trade-policy options because of the general similarity in Canadian and U.S. consumer tastes. Differences in technology and competitive equilibrium conditions not only remain important in determining static comparative advantage but, as will be discussed below, these differences are major determinants of dynamic comparative advantage. However, the manner in which technology and competitive equilibrium conditions can affect

trade flows, and, hence, investment decisions, is significantly different in the new theories of trade than in the traditional theory, and this is of particular importance for evaluating the economic consequences of bilateral trade liberalization for the manufacturing sector.

The main criticisms of the traditional theory of trade are directed to its inability to explain and incorporate observed events, such as intra-industry trade, inter-country differences in industrial structure, in productivity and in unit-costs of production in the same industry, and the fact that domestic prices in Canada do not appear to follow the law of one price which underlies the traditional theory. This has led economists to focus on the basic microeconomic aspects of production and consumption; early research by Eastman and Stykolt (1967), Melvin (1969), Wonnacott and Wonnacott (1967) and others identified scale economies, imperfect competition (oligopolistic and monopolistic behaviour) and imperfect substitutes (product variety within product markets) as major factors in evaluating the economic costs and benefits of trade-policy options. The early work has prompted considerable theoretical and empirical research into the importance of these factors in a small, open economy protected by trade barriers and into the implications thereof for the country's economic welfare, industrial structure and trade flows. Much of this work has involved incorporating industrial organization theory into trade analysis, utilizing new data developed by Statistics Canada to test economic relationships, and constructing sophisticated general equilibrium trade models.

One critical conclusion emerging from this research is that comparative advantage can be endogenously determined as well as exogenously predetermined. Internal scale economies, product differentiation, technological advancement and so forth have been found to be potential sources of national comparative advantage which can be directly influenced by domestic policies in such areas as taxation and government assistance to industries. This conclusion has introduced the term "dynamic comparative advantage" into trade-policy discussions and underlies the arguments advanced by Longo (1984), Wilkinson (1982) and others for "industrial strategies" to improve R&D and technology performance, labour-market operations (including education and labour training), managerial and administrative performances. This conclusion also underlies concerns over foreign ownership and forms the foundation of much of the discussion in the third part of this paper on other economic and policy issues associated with freer trade.

The introduction of scale economies, product differentiation and imperfect competition into trade analysis has provided theoretical explanations for such events as intra-industry trade, and different industrial structures in the same industry across countries. Their introduction has also created major problems for evaluating the consequences of trade-policy actions, since the economic predictions are much different from those obtained from the traditional neo-classical trade theory. It is no longer theoretically certain that the impact on economic welfare of trade liberalization in an industry is positive. For instance, Brander and Spencer (1982 and 1981) show that under oligopolistic conditions, export subsidies and import taxes may not only lead to an industry

with significant product-scale economies to expand its output but also may result in a net welfare gain to the economy if economic rents are extracted from foreigners. Similar applications of industrial organization theory to trade-policy analysis can be used to show various ways by which a small country can alter its economic structure by trade protection and still experience a net welfare gain. Indeed, the incorporation of imperfect competition into trade analysis--particularly as viewed through industrial organization analysis of barriers to entry--has given new life to the traditional infant-industry argument, although it should be recognized that the circumstances under which such policies may result in net welfare gains are limited.

At the same time, introducing scale economies, product differentiation and imperfect competition means that the direction and pattern of inter-industry trade resulting from trade-policy actions cannot be predicted with the confidence they were predicted by the traditional theory. With the introduction of intra-industry trade, historical and competitive factors such as market penetration, technological performance, capital intensity of production, the willingness to take risks, marketing expertise and other non-production costs are shown to play important roles in determining which industries expand and which industries contract when trade is liberalized. Thus, while the new theories provide explanation for events not explained by the traditional theory, assessments of the pattern of trade, the direction of resource allocation or the changes in factor incomes are much harder to make. Probably the most troublesome problem emerging from the new theories is that although scale economies are a source of potential gains from bilateral trade liberalization, the

theoretical possibility that trade liberalization in the presence of scale economies will result in economic losses to a small economy cannot be totally dismissed. And, as will be discussed later, these theoretical problems spill over to the theory of trade barriers and their impact on economic variables; the impact of tariffs and non-tariff barriers can be much different under conditions of imperfect substitutes, imperfect competition and large-scale economies than under conditions of perfect competition.

2.2 Industrial Structure and Scale Economies in Canadian Manufacturing

In large part, the bilateral trade liberalization debate--particularly for the manufacturing sector--has taken two avenues: theoretical testing of the circumstances under which the presence of scale economies, product differentiation and/or imperfect competition will result in economic benefits or losses from trade liberalization; and empirical modelling and testing of the importance of these factors to the direction and magnitude of the impact of trade liberalization. Recent theoretical work by Ethier (1982), Markusen and Melvin (1982) and others suggest that the circumstances under which scale economies will lead to net economic losses from trade are relatively few. Since most of the circumstances under which product differentiation and imperfect competition lead to economic benefits--usually from capturing rents from foreigners--rely on the assumption of scale economies, the above theoretical research on scale economies is reassuring. The problems of predicting resource reallocation and income distribution remain, as do the difficulties in predicting the patterns and magnitudes of the regional impacts, employment impacts and adjustment costs.

What emerges from the theoretical incorporation of the above factors in general, and scale economies in particular, is that:

- over all, the potential long-run economic benefits of bilateral trade liberalization are significantly larger than traditionally thought;
- consumer benefits are larger because not only do they pay lower prices, but they have a greater variety of products to choose from in each product line;
- the gains in productive efficiency are larger because of intra-industry resource reallocation that is additional to productive efficiency gains from inter-industry resource shifts;
- much of the economic benefits from bilateral trade liberalization come from the removal of U.S. trade barriers; this is in contrast to the conventional argument that the benefits only arise from the removal of domestic trade barriers;
- the policy problem of income redistribution between owners of capital, labour, natural resources, etc. may not be as large as traditionally expected--indeed, it may be possible for all factor incomes to increase due to trade liberalization, as opposed to one group gaining real income at the expense of another group;
- while certain industries in the manufacturing sector are likely to contract under bilateral trade liberalization, most manufacturing industries will expand and, production, productivity and competiveness in the manufacturing sector as a whole is expected to increase; and
- there are significant employment impacts, but it is quite likely that employment in the manufacturing sector will increase if bilateral trade is liberalized.

The main factor leading to the above conclusions is that the elimination of bilateral trade barriers creates the incentives and the conditions for Canadian firms to rationalize their production activities. Import competition provides the catalyst for firms to adjust their production techniques and activities, and free access to the U.S. market allows them to exploit scale economies and, hence,

improve productivity and cost-competitiveness. This is not to say that certain industries--particularly labour-intensive industries--will not be adversely affected. Furthermore, there would be short-run structural adjustment costs experienced during the adjustment process as labour, capital and other inputs are displaced in the contracting industries and move to the expanding industries. Nor is there any guarantee that bilateral trade liberalization will immediately solve such problems as the unsatisfactory R&D and technology performance in Canada. It is frequently argued that domestic rationalization stemming from scale economies in production would allow similar economies for R&D. investment financing, marketing, managerial and administration performance and so forth, and that the economic conditions for improvement in these areas would be expected to present under freer bilateral trade. However, part of the difficulty in evaluating fully the impact of bilateral trade liberalization is the question of whether technology, labour and management considerations lead to exploitation of scale economies or whether exploiting scale economies leads to improved technology, labour and management performance. The prediction is clear, however, that the long-run economic benefits are positive and that they arise from structural changes in Canadian industries. The theory is also clear as to the important role played by imports in stimulating structural adjustment and raising the national income level and living standards.

The question of the importance of industrial structural problems in Canadian manufacturing industries are in explaining the poor productivity and competitive performance of Canadian manufacturing industries has received

great attention. Daly (1979) and others have provided considerable statistical evidence of the productivity and cost-competitiveness gaps between Canadian and U.S. industries. At the same time, numerous researchers have investigated the effect of the small domestic market and trade barriers on the industrial structure of Canadian manufacturing industries. An assessment of this empirical and theoretical research is in order in view of the importance of scale economies to the economic consequences of bilateral trade liberalization and the use of this research in general equilibrium modelling.

The dual issues of low productivity in Canadian industries and potential scale economies has led a number of researchers to investigate theoretically and empirically the reasons for the current industrial structure in Canadian industries. There is little doubt that factors related to the question of Canadian productivity and its relationship to market structure, market size, product diversification, foreign investment, trade barriers and scale economies are affected by the prevailing economic environment and will be subject to pressures and changes if bilateral trade is liberalized. Therefore, two central questions are herein addressed in the context of a possible movement toward freer bilateral trade: first, what effect has the current economic and trade-policy environment had on market structure, on product diversification, on the performance of foreign-owned firms, on Canadian productivity and on industrial performance in Canadian manufacturing industries; and, second, what pressures and changes are likely as the movement to freer trade is undertaken.

A great deal of theoretical and empirical work has been done on these and other questions about Canadian industrial structure, particularly with regard to excessive product diversity, sub-optimal plant size and sub-optimal scale economies in Canadian industries. The work by Caves (1975), Caves et al (1980), Baldwin and Gorecki (1983a, 1983b, 1983c, 1984d), Daly (1979), Hazledine (1978) and others provide valuable insights into the causes of the relative gap between Canada and U.S. productivity levels and the relationship between these variables, industry and firm behaviour and Canadian trade barriers. The empirical work in this area is, in general, quite instructive, as it has been carried out over the period of trade liberalization during the late 1960s and through the 1970s when the Kennedy round of multilateral tariff reductions were being instituted.

The literature surrounding the issue of Canadian productivity can be summarized with reference to the achievement of (or barriers to the attainment of) economies of scale. Economies of scale are characterized by reductions in the long-run average cost of production and are achievable, under conditions constrained by market size and other factors, in the form of product-specific scale economies, plant-specific scale economies and/or company-wide (multi-plant) scale economies. It is, however, the first two of these that provide the most fertile and useful areas of research.

In the general case, an industry operating above the long-run average cost of production is able to do so in an environment characterized by some form of protection. This protection is a cost--essentially a transfer from consumers and/or taxpayers to domestic producers in the form of excess profits, or to

immobile factors of production. When this transfer is discontinued by the elimination of protection, inefficient production is replaced by imports or more efficient domestic production. In each case, the resources freed from the protected production must adjust to the new economic environment. Where and to what extent this adjustment takes place will partially depend on the form of the scale economies potentially achievable and on the actual productivity improvement experienced as the domestic economy adjusts to freer trade.

Product-specific scale economies refer to the volume of production of any single good produced and marketed. Manufacturing in Canada has often been cited as being characterized by highly diversified firms and plants producing a diverse product-mix. Though reducing the number of different products each plant produces (reducing product diversification) is one method of extending the production run and reducing long-run average costs, evidence on the Canadian economy has tended to show that these economies are not currently achievable due in part to the small, protected Canadian market. Daly (1979), for example, attributes a significant portion of the 25-30% difference in Canada-U.S. productivity levels to sub-optimal product-specific scale economies in Canadian manufacturing. Both Caves and Daly have demonstrated empirically the significant differences between Canada and U.S. within-plant product diversity.

Product diversity also has certain other ambiguous causes, with contrasting effects on productivity differences between Canada and the U.S. Caves (1980) shows that effective tariff protection--measured as the value-added that may be lost if protection were removed--exerts a negative effect on plant size, and

therefore on the realization of the minimum efficient scale (MES) economies in Canadian industry. Plant size is also sensitive to market size and available demand. But under certain circumstances, product diversification can mitigate some of the cost disadvantage faced by a firm in a small, protected market. The scale economies achievable through deliberate product diversification are called economies of scope. The effectiveness of this strategy has not been demonstrated empirically, but it will depend largely on the confluence between production runs of key inputs, of human capital and of production processes. More research into this area would be useful in determining the value of economies of scope in mitigating the effects of product diversification.

Product diversification is in this sense a response to trade protection indirectly through the impact this protection has on market and plant size. But by increasing the portion of the domestic market available to firms operating at higher than the long-run average cost of the efficient-scale firm in the industry, product diversification can have the effect of increasing the number of firms in the market. This, in turn, permits trans-border productivity differences to persist, even in light of increasing intra-industry trade.

On the other hand, Eastman and Stykolt (1967) document the tendency of firms to use product differentiation as a means to erect higher entry barriers to an industry in terms of higher management, advertising and marketing costs. Higher entry barriers are associated with decreased competition and, thus, increased concentration in an industry. As Harris (1983) points out, in a highly concentrated industry, smaller, less efficient firms can exist through the

tendency of the dominant firms to earn excess profits--partially possible as a result of domestic protection--rather than to compete on price. A high degree of concentration, where the largest 4 or 8 firms in an industry dominate a large percentage of total industry sales (30-50% is common in Canadian industries), is therefore also a feature of industrial structure which is associated with two deleterious effects on the competitive position of Canadian firms and industries: the inefficiency associated with excessive product diversity and differentiation; and the continued operation of small, inefficient firms under the price umbrella provided by the non-price competition of larger firms.

The failure of some Canadian manufacturing sectors to achieve necessary product-specific scale economies has also been attributed to the significant presence of foreign investment in Canadian manufacturing industries. The work by Caves (1975) has become the benchmark piece in documenting what is felt to be the debilitating effect of foreign investment on product rationalization and product-specific economies of scale. Results yielded from analysis of 1974 data on manufacturing industries showed evidence of a marked tendency by U.S.-owned firms toward greater product diversity--the "miniature replica" effect referred to in some economic literature. More recent data and analysis by Baldwin and Gorecki (1983a) have, however, refuted this assertion with evidence which yields two distinct findings with regard to the impact of foreign investment on product diversification. First, they determined that Caves' evidence results from an aggregation bias which, when corrected, shows an ambiguous effect of foreign investment. Second, when account is taken of the product diversity of sectors in which foreign firms locate, U.S.-owned plants,

representing a sample of all foreign-owned firms, are found to be significantly less diversified than comparable Canadian firms. From these two important findings, indirect inferences can be made to the effect that foreign-owned (mainly U.S.) firms have undertaken, over the period of trade liberalization through the 1970s, a process of rationalization the rate and extent of which Canadian firms were at the time unable or unwilling to emulate.

Why foreigners would experience more rapid rationalization of product output than Canadian firms is not completely clear, but some insight may be found by examining the nature of the foreign firms in Canada, by reference to the effect of tariff protection and by reference to market structure. For example, the foreign firms in Canada are of a group of firms best able to assume the entry barrier costs of entering a protected, diversified product market: namely, the MNE. The MNE may, among locational costs and other factors affecting its investment decision, be pursuing a strategy dictated by its global or North American, rather than Canadian, objectives. It may be more able to rationalize its production output in response to trade liberalization than the Canadian firm, or it may be better able to achieve plant scale economies which may act to mitigate the pressure to diversify. The use of intra-corporate trade may also be a method by which the MNE speeds adjustment, by facilitating the transfer of product and process technology, for example. The issue of foreign ownership and the likely reaction of MNEs to bilateral trade liberalization are discussed in the accompanying paper. It is becoming clearer, however, that foreign firms in Canada are not contributing to Canadian manufacturing inefficiency in the ways previously thought.

With regard to the overall question of product scale economies, the literature that focuses on the Canadian economy has tended to confirm the general thrust of the Eastman/Stykolt hypothesis, which emphasizes the negative impact of high concentration, high trade protection and, to a lesser extent, foreign investment on product specialization. In general, industries characterized by high protection levels and oligopolistic structure tend to be characterized by higher product diversity than other industries. At the same time, Baldwin and Gorecki (1983b and 1983c) demonstrate that Canadian firm product diversity, and the historically persistent gap between this and a similar measure of U.S. firms' product diversity, has moderated significantly over the period of the 1970s, due primarily to the adjustments undertaken in response to trade liberalization.

The lack of product-specific scale economies in Canadian industry is partly a result of the small, protected market and its associated imposed constraints -- especially in terms of industrial structure and lack of competition. Product diversity, as noted, can also be seen as a rational response to a prevailing economic environment and as one in which profitable, but sub-optimal production runs result from firms' attempts to capture some economies of scope (or plant-specific scale economies) by trading off product-specific scale economies. Bilateral trade liberalization would undoubtedly force changes in this strategy, and some of the adjustment would involve within-plant product rationalization, concomitant with intra-industry specialization between firms. This kind of rationalization would, however, need to be augmented by a rather substantial re-allocation of resources between sectors to better exploit Canada's comparative advantage in a more open bilateral trading environment.

The overall extent of the adjustment necessary is difficult to assess. If product diversity is a response primarily to the dis-economies of shorter production runs, small plant size and lack of assured access to a large market, then significant scale economies could be achieved at relatively low cost by intra-plant rationalization and production run increases. On the other hand, to the extent that product diversity in an industry reflects the impact of an environment characterized by trade protection, high concentration and significantly lower productivity relative to foreign firms, adjustment would be more difficult and would probably necessitate inter-industry resource shifts.

The general difficulty in assessing the potential relative responsiveness of Canadian manufacturing to trade liberalization through attainment of product-specific scale economies derives from the inextricable relationship between these economies and factors related to plant and market size. Plant-specific economies of scale are generally what is being referred to in the context of minimum efficient scale (MES) economies and sub-optimal plant size. Plant-specific economies of scale are the cost advantages attainable through larger plants and longer production runs. In the context of Canadian manufacturing, some of the cost and productivity differentials observed between Canadian and U.S. manufacturing are thought to derive from the smaller plant sizes in Canada.

Until relatively recently, plant-specific scale economies, or sub-optimal plant sizes, were considered to be less important determinants of competitive disadvantage between Canadian and U.S. firms than product-specific economies

of scale. This flowed logically from observations that the largest Canadian and U.S. firms are relatively of the same scale, and was also inferred from observed correlations between measures of Canadian plant efficiency and various measures of U.S. MES.

The empirical work on Canadian productivity and plant-specific scale economies generally uses the U.S. MES as the comparative benchmark measure. Unfortunately, measurement of the MES is a conceptually and methodologically contentious issue, and has not been completely resolved. Baldwin and Gorecki (1983b and 1983c) have, however, re-assessed the impact of sub-optimal Canadian plant sizes in light of technical refinements to the data, and conceptual clarification of the observed MES of U.S. plants in the United States. This re-analysis suggests that a considerable gap exists between Canadian manufacturing plants' efficient scale and the MES in comparable U.S. industries. This gap is on the order of 25-30 per cent. These results are even more dramatic when re-analysis is done under the assumption of unit average costs remaining constant in firms operating above the MES level. In other words, under the assumption that the largest of Canadian and U.S. firms operate at full scale economies, and that no further reductions of long-run average production costs of these firms are attainable, the average Canadian firms are shown to be operating at a significant cost disadvantage.

The determinants of plant scale, and thus the ability of Canadian firms to achieve competitive economies of scale, are generally held to be market size, market structure and tariff protection. The interactions of these variables are

closely related to the size of Canadian manufacturing plants, particularly so when high effective tariff protection is observed in conjunction with oligopolistic market structure. Market size is also, on its own, a highly significant factor contributing to the competitive disadvantage implied by plants operating at a less than minimum efficient scale.

In light of these general observations, it would appear that significant plant-specific scale economies are more important than generally thought and are attainable in Canadian manufacturing. The most marked improvement in scale economies could be expected in protected and concentrated sectors. The fact that higher-cost production through product diversification has been a strategy to partially mitigate the lack of plant scale economies suggests that significant productivity gains could be expected in Canadian manufacturing. It should be clear, however, that the mutually reinforcing effects of market structure, trade protection and market size are only the domestic features that prevent optimal plant scale economies from being achieved. The structure of foreign trade protection is also a highly important factor contributing to the lack of competitiveness in Canadian manufacturing. Clearly, trade liberalization would mitigate the domestic forces, as well as provide improved access to the larger U.S. market. Expansion of the total market available to domestic firms would make a significant contribution to the attainment of efficient plant-specific scale economies, and would probably be the single most important condition for the achievement of overall plant- and product-specific scale economies in Canadian manufacturing.

Company-wide scale economies generally refer to the absolute size of the firm, with particular reference to the managerial expertise of the firm, and its ability to spread significant advertising, financing, marketing, research and development and other 'entry barrier' costs over widely dispersed and/or diversified operations. These scale economies are identified in the accompanying paper as one important set of inputs into the overall strategic operation of the MNE. There is, however, less attention devoted to the attainment of company-wide scale economies as a causal factor contributing to Canadian productivity performance than to product-specific or plant-specific scale economies. Bilateral trade liberalization would create conditions whereby company-wide scale economies may become more important, but they are currently not as central to the issue of Canadian manufacturing competitiveness. The multi-plant operations incorporating these economies of scale are found in economic literature, however, to be better able and more willing to build smaller, regional or market-niche-oriented production facilities.

Despite the difficulty in specifying the exact form and extent of adjustment to freer trade through achievement of plant- and product-specific scale economies, certain generalizations can be made. The form of adjustment that would take place depends to a great extent on the competitive pressure resulting from a lowering of trade barriers, which has different outcomes depending on the scale economies available to domestic firms, and depending on the determinants of pricing behaviour in the domestic market. In much of the empirical work done on responses to freer trade in a small economy, the assumption that domestic prices are set at the world price plus the domestic

tariff is commonly made. Often, the predicted rationalization in response to freer trade is a product of this assumption, with a lowering of the domestic tariff leading to lower prices and encouraging rationalization through competition with imports. This assumption has been employed by, among others, Williams (1976), Wilkinson and Norrie (1975) and in the modified form of collusive/monopolistic pricing behaviour by Harris (1983 and 1984). If one also assumes that domestic firms can benefit from further economies of scale--in other words, they are not operating at constant returns to scale--then significant gains to the domestic economy will accrue through the dual effects of competition and diminishing costs.

Hazledine (1978), however, has provided evidence that tended to show that in Canadian manufacturing, high factor-input costs and market size were strong determinants of the domestic price structure. In other words, in some industries, domestically determined costs and attainable scale economies affected domestic pricing and the efficiency achieved in these sectors more than did the foreign price plus the domestic tariff.

Hazledine (1984) notes that pricing to the tariff is more likely in industries which are highly concentrated. A tariff cut in a diminishing cost industry would then affect profit margins more than market shares, and would stimulate intra-industry rationalization. On the other hand, a firm in a competitive industry with low concentration will experience pressure on its market share as a result of a tariff cut, thus setting up the forces for inter-sectoral shifts of production factors.

A certain portion of the gains accruing to Canada from multilateral free trade as identified by Harris (1983 and 1984) is a direct outcome of the effect of free trade on collusive or monopolistic pricing behaviour, and therefore, on competitiveness in Canadian manufacturing. In terms of sector-adjustment, it is clear that rationalization, increased competition and the capture of scale economies will be more easily achieved in sectors where non-competitive behaviour is a function of tariff protection and collusive/monopolistic pricing behaviour. Hazledine's (1978) evidence, however, would suggest that in other sectors--specifically those where high factor input costs strongly determine domestic price and where firms are operating at constant or diminishing returns to scale--adjustment to the world price structure will be more difficult and will bear primarily on the high-cost factor of production most intensively employed. In general terms, inter-sectoral shifts of high-cost factors would be expected in cases such as these, and would probably be primarily found in labour intensive industries. If imperfect competition and collusive/monopolistic pricing behaviour are characteristic of a certain industry, then adjustment would more likely be intra-industry, with greater intra-firm specialization.

Some of the more interesting findings from the empirical work discussed above are summarized in Table 3. In terms of evaluating the various bilateral trade-policy options, the main conclusions of the research on the influence of market size and trade barriers on productivity and industrial structure are:

- there exist significant scale economies in many Canadian manufacturing industries, but the minimum efficient scale (MES) level of production is large in comparison to the size of the Canadian market;

firms in domestic protected markets operate well below the MES level of production in smaller plants relative to U.S. firms; while Canadian plants can be as competitive as U.S. plants in the same size categories, the largest plants in Canada are, at best, only 70% the size of the largest plants in the United States in any given industry;

- firms attempt to reduce some cost disadvantages by diversifying their product mix in each plant and hence trade-off product scale diseconomies for plant scale economies by producing more products with short production runs;

- since the early 1970s, the average length of production run has increased and the diversity of products produced has decreased in most Canadian manufacturing industries, due largely to market growth and the lowering of tariff barriers;

- the relationship between foreign investment, product diversity, market structure and scale economies is less clear than previously thought; nevertheless foreign firms, particularly U.S.-owned firms, are generally able to capture more product-specific and plant-specific economies of scale than are Canadian-owned firms;

- the gap between U.S.-owned firms' and domestic firms' productivity has not changed a great deal over the 1970s; trade liberalization has, however, encouraged greater product rationalization and promoted the attainment of great scale economies for both Canadian and U.S.-owned firms operating in Canada;

- 2 of the 3 forms of scale economies represent the most immediate sources of potential further gains in Canadian productivity levels: of these two, plant-specific scale economies are a more important potential source than previously thought; product-specific scale economies continue to be the single most important source of potential productivity increases;

- economies of scope remain less clearly defined in terms of their potential contribution to Canadian productivity levels. Preliminary work, however, seems to suggest that economies of scope could become an increasingly important factor in maintaining a competitive advantage in domestic manufacturing.

TABLE 3

Some Findings From Empirical Work on Size, Scale and Trade Barriers

A. Factors Helping to Avoid Small Plant Size in a Small Economy

- domestic market growth
- product diversification
- export opportunities (which appear to have a greater influence than domestic growth)

B. Factors Contributing To Smaller Plant Size

- high tariffs/high concentration and, to a much lesser extent, foreign ownership
- import protection
- product differentiation

C. Factors Influencing Patterns of Diversification and Length of Product Runs Within Industries

- larger plant/greater product diversity/longer runs
- multiplant operations tend to build smaller plants specializing in product lines, market niches

D. Factors Influencing Patterns of Diversity Across Industries

- growth reduces diversity by encouraging specialization
- export market and import competition reduce diversity in domestic industry, while trade increases consumer welfare through increased diversity
- the combination of high tariffs, small market size and high concentration raise product diversity in production

E. Factors That Depress Canadian Productivity Relative To That of the U.S.

- smaller plant sizes
- more diversification in plants
- high tariffs and high concentration
- smaller market given plant size

> increased market access appears to be the most effective means of stimulating adjustment to larger-scale economies and a more competitive posture in Canadian manufacturing.

The above research provides valuable insights into answering two important questions: what would be the structural adjustments expected if bilateral trade is liberalized and what has happened to the structure of manufacturing industries as tariffs have declined? The answers to these questions can help provide answers to other questions such as what will happen to prices and employment if bilateral trade is liberalized? There is, of course, much more research to be done on industrial structure and, as in any empirical analysis, there are numerous data problems. For example, quantitative measures of the MES of an industry are difficult to obtain or estimate, and researchers have had to rely on engineering estimates or use various technical approaches to approximate the MES level of production. However, this research has been aided by the construction by Statistics Canada of detailed and highly disaggregated data bases on production, costs, product lines and so forth. At the same time, the observed events since the 1960s have led researchers to examine the importance of other factors such as the speed of technological adoption, adaptation and diffusion in explaining productivity and cost-competitiveness differences.

The research on the interrelationships between market size, trade barriers, productivity and scale economies would appear to confirm the theoretical predictions that when scale economies and other considerations are taken into account, the potential economic benefits from bilateral trade liberalization are much greater than traditionally thought. In large part, the entire question of the

economic benefits has become an empirical question. The relevant empirical issues concern the magnitude of the economic impacts on important economic variables and the magnitude of the potential long-run economic benefits. Implicit are the questions of whether or not the potential benefits justify the short-run costs of adjustment, and of who in the short run will bear these costs or experience the benefits.

2.3 Empirical Estimates of Trade Liberalization

It is surprising that despite all the attention devoted to the Canada-U.S. trade liberalization question, there are few studies that have attempted to estimate quantitatively the impact of bilateral trade liberalization. Most Canadian empirical studies on trade liberalization have taken one of two common approaches to the problem. They have either examined the economic impact of a unilateral elimination of all Canadian tariffs and a few non-tariff barriers in partial equilibrium models constructed on the basis of the traditional theory or they have concentrated on estimating the impact in selected industries using partial equilibrium models, sometimes incorporating the considerations of scale economies, imperfect substitutes and product differentiation. An interesting and important study examining the economic consequences of unilateral trade liberalization is the one by Hazledine (1981). The model employed by Hazledine covers 100 Canadian manufacturing industries and examines empirically the impact on output and employment of eliminating all Canadian tariffs, quantitative restraints on footwear and apparel imports and certain subsidy programs. Hazledine (1981) allows product differentiation in

both input and final goods markets, treats industries as consisting of heterogenous firms with different cost characteristics, and incorporates product-scale economies, entry and exit barriers, and price discrimination. An important feature of the model is the pricing behaviour hypothesis developed by Hazledine (1978 and 1981) which is discussed earlier in the paper. Another important aspect of the model is that it takes into account the reduction in material input costs that arise when tariffs on intermediate products are eliminated.

Although the Hazledine model assesses the impact of tariff liberalization in each industry in a partial equilibrium analysis, the empirical conclusions indicate that the impact of removing unilaterally the Canadian tariff on domestic output, employment and economic welfare is much different than predicted by the traditional theory of trade. While the Canadian economy is found to experience a net benefit from trade liberalization, the impact on prices, output and employment in the Hazledine model varies considerably across manufacturing industries because of differences in market and cost conditions. For example, the impact of removing trade protection on domestic producer prices and profits are much different between low-concentration industries and high-concentration industries. Although the data used by Hazledine (1981) are dated--for example the pricing model is based on 1972 data and the rest of the model is based mostly on 1978 data--and the study is vulnerable to a number of technical criticisms, it is a systematic effort to incorporate important aspects of economic behaviour that are observed in the real world but which are quite difficult to estimate empirically. Moreover, the results raise important

questions about who and what are the intended beneficiaries of protection: are they jobs, high production, corporate profits or marginal firms? An instructive conclusion arising from the Hazledine study is that even on the narrow "jobs saved criteria", trade protection is unsuccessful in 41 of the 97 industries, while what is being protected are profits or high costs.

The Hazledine results are even more interesting because the model only examines the case of a unilateral reduction of Canadian trade barriers and does not incorporate the large potential gains accruing from improved and less-costly access to the huge U.S. market. The first systematic attempt to assess the economic impact on Canada of bilateral trade liberalization was undertaken by Wonnacott and Wonnacott (1967). Taking into account productivity differences, scale economies and the U.S. tariff, the Wonnacotts concluded that the net economic welfare benefits to Canada from trade liberalization could have amounted to 10.5% of GNP in the early 1960s. As they point out in their 1982 paper, this estimate should be revised downward to around 8% because of the gains already achieved through multilateral tariff cuts and the Canada-United States Automotive Products Trade Agreement. Nevertheless, the conclusion remains that the potential benefits from bilateral trade liberalization are quite substantial. The Wonnacotts argued that much of the specialization of production would take place within industries and within firms as industries and firms specialized in product lines and rationalized their economic activity. The most important conclusion reached by the Wonnacotts is that the U.S. tariff, and not the Canadian tariff, is the major burden carried by Canadian producers because, as price-takers, Canadian producers have to pay the U.S. tariff if they

want to sell in the U.S. market. Consequently, the U.S. tariff acts to inhibit Canadian exports to the U.S. and further constrains Canadian firms to concentrate on the domestic market. The tariff structure and other U.S. trade barriers are, therefore, an important causal factor contributing to the diseconomies of plant and product scale identified earlier as affecting Canadian productivity and competitiveness.

The original study and the update by the Wonnacotts have been criticized on numerous conceptual and empirical grounds. For instance, Wilkinson (1982) and others point out that the estimates of the economic impact rely on the assumption that all of the average productivity difference between Canada and the United States disappears as bilateral trade is liberalized. This means all the available scale economies are captured which need not be the case for numerous reasons--such as differences in labour, management capabilities and so forth. Moreover, the Wonnacott study is a partial equilibrium analysis and is not directly useful in assessing inter-industry resource movements and other important impacts. Nevertheless, the early work by the Wonnacotts is important because it identified the critical importance of scale economies and the relative importance of U.S. trade barriers to the assessment of the impact of bilateral trade liberalization.

One criticism of both the Hazledine and Wonnacott studies relates to their use of partial equilibrium analysis. Given the importance of inter-industry and intra-industry resource shifts and the economic constraints within an economy--such as fixed production factors--the analysis of the impact of

bilateral trade liberalization should be undertaken in a general equilibrium model. General equilibrium models deal with real economic variables as opposed to nominal economic variables, and predict long-run changes of going from one equilibrium position to another when policies change. These models incorporate the impact on resource allocation of changes in the relative prices of final goods and the relative prices of inputs and thereby provide better predictions of the direction, pattern and magnitude of the structural changes that are likely to arise from bilateral trade liberalization. For example, certain factors are in fixed supply and not all industries experiencing an increase in demand due to trade liberalization may be able to purchase the desired amount of this factor. Consequently, the price of the factor rises and this sets off a chain reaction in prices and quantities across the economy, the final outcome of which, in terms of the price of inputs and in output of each industry, will depend on the interplay of market characteristics, industrial structure, and the differences in these variables between industries. By ignoring the impact on relative factor prices, partial equilbrium analyses can lead to quite misleading conclusions as to the effects of trade liberalization. Moreover, to a considerable degree, general equilibrium models allow empirical analysis of input-specific subsidy and tax policies, and of industry-specific policies while preserving the general equilibrium relationships between variables.

In one of the most important contributions to Canadian economics in the last decade, Harris (with Cox, 1983) has constructed a general equilibrium trade model for Canada. This simultaneous equilibrium model incorporates plant-specific scale economies, product-specific scale economies, imperfect

competition in the manufacturing sector and product differentiation. The model assumes full labour employment, internationally mobile capital, nationally but not internationally mobile labour, homogenous firms in each industry, and homogenous factor inputs. Fixed costs are established as the main entry barrier to an industry.

The model is disaggregated to 29 industries with 9 industries assumed to operate under competitive conditions and 20 assumed to operate under imperfect competition. For these 20 industries, Harris specifies a collusive/monopolistic price setting behaviour. Although less disaggregated than the Hazledine model, the Harris model incorporates a number of details about price and production behaviour in Canadian industries. The Harris model is a powerful tool because it can be used to assess empirically the effects of a wide range of trade policy and industrial policy "experiments" for one industry, for groups of industries or for the goods-producing economy as a whole.

As Harris himself points out, the model has its limitations. Its construction requires a great deal of data, particularly on important economic parameters such as price elasticities, elasticities of substitution, and minimum efficient scale from which potential scale economies are estimated. Estimates of these parameters have been drawn from other studies where available and usually relate to the economic conditions of the 1970s. In addition, the Canadian and foreign tariff rates used in the model are from the early 1970's and the model itself is constructed from 1976 data. The model does include some Canadian and foreign non-tariff barriers; however, Harris faces the traditional problem of the paucity of estimates of the degree of protection provided by non-tariff barriers.

Some of the more important qualifications to the Harris model should, however, be reviewed, since they impinge directly on the estimates of industry gains, losses and adjustments, and also affect directly the overall gains to the Canadian economy. For instance, Whalley (1984) points out that the Harris estimates of U.S. trade barriers in the multilateral experiment are potentially too high. This implies that the gains from a reduction in these barriers are overstated. The Harris estimates of U.S. tariff barriers are certainly higher than today's tariffs, since they represent 1971 tariff levels; therefore, some of the gains accruing to Canada from lowering these tariffs have already been realized. In addition, the Harris tariff equivalents of non-tariff barriers, taken from Whalley (1980), do not reflect U.S. barriers to Canadian trade accurately, and are heavily weighted by Voluntary Export Restrictions on automobiles and steel, thus creating a bias against EEC and Japanese trade, but not against Canadian-U.S. trade. Again, this creates the potential that gains which are estimated to accrue from a lowering of these barriers are too optimistic. Harris made an attempt to update some of these estimates in the bilateral trade liberalization experiment.

The most important caveat to the Harris estimates of gains to Canada from trade liberalization concerns the important roles played by the capture of

scale economies and the pricing behaviour of firms in the Harris model. In the model, much of the gains from freer trade are realized through capture of economies of scale which may be overestimated. Rao and Preston (1983) showed that some manufacturing sectors in Canada are operating at diminishing or constant returns to scale, which calls into question the use by Harris of large scale economy estimates. This point is also made by Hazledine (1984) who argues that Harris' estimates of the potential for scale economies are far too optimistic. He also adds that applying the same estimates of scale economies to all firms in an industry amounts to an implicit assumption that all these firms operate at higher than minimum-efficient-scale costs. In fact, in most Canadian industries there is a mixture of efficient-cost and sub-optimal-cost firms. In effect, this means the Harris estimates of the gains to the economy which arise from capture of increased scale economies are biased upward to the extent that an industry's output is produced in efficient-cost plants.

The combination of collusive/monopolistic pricing behaviour in 20 non-competitive manufacturing industries in the Harris model is also a significant source of gains to Canada from trade liberalization. Whalley (1984) and Tremblay (1985) both point out the potential for error in this feature of the model. Since inefficiency is the result of these pricing and competition assumptions, benefits to the Canadian economy arise through rationalization and efficiency gains when domestic protection is removed. The difficulty is that the model does not endogenously establish these features of the domestic economy, but rather incorporates them by assumption. For example, that under a perfect competition form of the Harris model, 9 out of 20 manufacturing industries-

form of the Harris model, 9 out of 20 manufacturing industries contract, whereas under the imperfect-competition assumption only 4 of 20 industries contract.

An additional source of potential error in the Harris model stems from the form of adjustment that the model shows industries experience. Tremblay (1985) notes that if Canadian industries are competitive and operate at constant costs, then the form of adjustment to freer trade will be primarily inter-industry, in line with the country's comparative advantage. If, however, one assumes non-competitive industries in which firms engage in collusive/monopolistic price behaviour and in which significant economies of scale are present, then the form of adjustment to freer trade will be primarily intra-industry. The shortcoming of the Harris model is that it is biased by assumption toward results which reflect intra-industry shifts of resources. Consequently, the Harris estimates of inter-sectoral shifts of labour and capital may be too small. As is shown in the section in this paper dealing with adjustment, inter-industry shifts of labour generally result in longer periods of unemployment than is the case when workers shift from marginal to more productive firms within the same industry. Labour adjustment costs could therefore be higher in a movement to freer trade than the Harris model implies. Nevertheless, while the Harris model is not without criticism, it provides a powerful tool for assessing the impact of trade liberalization on the Canadian economy.

In Harris (1983), the model is used to estimate the economic impact on Canada of a unilateral and then a multilateral elimination of tariffs and certain non-tariff barriers. In the Harris model, 20 of the 29 industries are

manufacturing industries, 4 are primary industries, and the remaining 5 are service industries. In the unilateral trade liberalization experiment, output increases in every industry outside the manufacturing sector and in 15 of the 20 manufacturing industries. Labour productivity rises in all industries, with the largest improvement in manufacturing industries. Labour experiences a wage increase and, contrary to the prediction of the neo-classical factor endowment theory, employment increases in the manufacturing sector and declines in the other sectors. Within the manufacturing sector, employment falls in 13 industries but rises in the remaining 7; consequently these 7 industries--which include Paper and Allied Products, Metal Fabricating and Chemical Industries--absorb the decline in jobs available in both the other manufacturing industries and the non-manufacturing sector, under the full employment assumption of the model. Overall Gross National Expenditure rises by 3.5%, and Canadian net economic welfare increases by 4.1% of GNP, representing a permanent net gain to the Canadian economy. The results from the unilateral trade liberalization experiment are interesting because they suggest that significant gains may be realized merely from removing Canadian trade barriers, and a large part of these benefits arise from rationalization in the manufacturing sector.

In the case of multilateral trade liberalization, the net welfare gain jumps to 8.6%, and Gross National Expenditure rises by 12.5%. The source of the real income gains is intra-industry rationalization and inter-industry resource reallocation. Labour productivity rises by 33% and total factor productivity in the economy increases by 10%. As in the unilateral case, employment increases in the manufacturing sector and declines elsewhere. On the trade side, the

manufacturing sector goes from a deficit to a surplus, which is about double the surplus found in the unilateral scenario. The estimates of the impact on relevant production statistics in the 29 industries are reported in Table 4. The results are interesting because they reflect the incorporation of scale economies, product differentiation and imperfect competition into the analysis and they take into account the lower cost of access to foreign markets when foreign barriers are removed. Import competition provides the incentive for firms to rationalize their production to become more efficient, while less-restricted access to foreign markets provides them with the means to exploit scale economies.

As in the unilateral trade liberalization experiment, output increases in all primary industries; however, the estimated increases in output in the multilateral trade liberalization case are much larger than those found in the earlier experiment because of the dramatic increase in primary-product exports. For example, in the unilateral case, output in Forestry increases by 9.55%, while exports decline by 2.88%. As shown in Table 4, if foreign trade barriers as well as Canadian trade barriers are removed, then output in Forestry rises by 31.23%, the additional increase stimulated by the 77.14% increase in exports. This pattern of dramatically larger output gains and large increases in exports is found in all the primary industries when the multilateral case is compared to the unilateral case. In the service sector, the output gains are also larger in the multilateral case, but the decreases in exports are larger as Canadian service industries find themselves unable to compete abroad because of the increase in Canadian labour costs.

In the manufacturing sector, output declines in only four industries--Leather, Furniture and Fixtures, Machinery, and Miscellaneous Manufacturing--and with the exception of Machinery, they share the characteristic of labour intensive technology. The increase in output in the other manufacturing industries is much larger in the multilateral case, although the massive increase shown in Table 4 in production by the Transportation Equipment Industry is perhaps questionable because the Canadian automotive industry has already rationalized production and enjoys duty free access to the U.S. market under the Canada-United States Automotive Products Trade Agreement.

While the actual empirical results of the multilateral trade liberalization experiment change under different sensitivity analyses performed using various price elasticities and other economic parameters, the modelling exercise concludes that, in general, industries which have the following characteristics are likely to come out ahead if trade is liberalized multilaterally:

- unexploited scale economies;
- low levels of protection;
- capital-intensive production technology;
- high-export elasticities; and
- moderate degrees of substitutability between imports and domestic goods.

TABLE 4

Impact on Production Variables from Multilateral Trade Liberalization

Industry	Relative Change In				
	Output	Value-Added	Employment	Exports	Imports
1. Food and Beverage	0.2907	-0.0463	-0.0538	1.1722	0.9593
2. Tobacco	0.3147	-0.1818	-0.1365	0.8963	2.2029
3. Rubber and Plastic	0.4276	0.2375	0.1270	1.0302	0.9296
4. Leather	-0.1314	-0.2685	-0.3601	0.7578	0.7770
5 Textiles	0.9417	0.6255	0.4925	6.4431	1.0916
6. Knitting Mills	0.0674	-0.2132	-0.2481	6.6563	1.3696
7. Clothing	0.6842	0.2186	0.0384	31.6460	2.6520
8. Wood	0.1189	-0.0302	-0.0932	-0.0549	0.4126
9. Furniture and Fixtures	-0.1837	-0.3015	-0.3914	0.4293	1.6815
10. Paper and Allied Products	0.9578	0.7849	0.6283	1.7060	0.7427
11. Printing and Publishing	0.3423	0.2782	0.1140	5.9964	0.6990
12. Primary Metals	0.3753	0.2069	0.1281	0.1127	0.5631
13. Metal Fabricating	0.2261	0.1051	-0.0264	0.3227	0.7505
14. Machinery	-0.0703	-0.1303	-0.2536	-0.0576	0.3816
15. Transportation Equipment	1.2184	0.9819	0.7627	1.5704	1.0033
16. Electrical Products	0.0190	-0.0816	-0.1991	0.2945	0.6677
17. Non-Metallic Mineral Production	0.2521	0.1128	0.0409	0.3548	0.5165
18. Petroleum and Coal	0.2596	0.1575	-0.0077	0.1058	0.3279
19. Chemical Products	0.2885	0.1590	0.0623	0.4086	0.6382
20. Misc. Manufacturing	-0.1046	-0.1993	-0.3047	0.3442	0.7485
21. Agriculture	0.6063	0.6760	0.3385	1.8706	0.6659
22. Forestry	0.3123	0.5073	0.2038	0.7714	0.5297
23. Fishing	0.3214	0.4450	0.1541	0.7286	0.4899
24. Mining	0.2846	0.3838	0.1051	0.4892	0.5004
25. Construction	0.0404	0.1430	-0.0872	-0.1715	0.6252
26. Transportation	0.0152	0.1467	-0.0842	-0.2162	0.4940
27. Communication	0.0237	0.1673	-0.0678	-0.2308	0.6227
28. Electric, Power and Gas	0.1728	0.2482	-0.0031	-0.1172	0.3714
29. Others	0.0623	0.1802	-0.0574	-0.2676	0.6900

Source: Harris (1983).

On the other hand, an industry lacking these characteristics would be adversely affected and, as shown in Table 4, the labour-intensive industries experience a negative impact of multilateral trade liberalization. The importance of accounting for imperfect competition and scale economies is illustrated by the comparison in Table 5 of the impact of multilateral trade liberalization when industries are assumed to operate in perfect competition and under constant costs and when industries operate under conditions of imperfect competition (including product differentiation and scale economies). In the perfect competition case, 9 industries experience output declines, while in the imperfect competition case, only 4 industries experience output declines. Furthermore, the gains in production are larger--and the losses in production in the 4 remaining adversely-affected industries are smaller--in every industry in the imperfect competition case. Finally, by taking into account scale economies, imperfect competition and product differentiation, the welfare gains increase from less than 2% of GNP to over 8.0%.

At first glance, given the overwhelming proportion of U.S. trade in total Canadian trade, the multilateral tariff elimination would appear to be a useful approximation of the economic impact of an across-the-board bilateral Canada-U.S. tariff reduction. However, this would ignore the impact of trade diversion, which could significantly affect the estimated economic impacts. Trade diversion implies that Canadian firms would have enhanced access to the U.S. market while being protected from offshore competition by U.S. and Canadian tariffs. The same would hold for U.S. producers in terms of access to the Canadian market.

Fortunately, Cox and Harris (1984a and 1984b) have used the Harris model to estimate the economic impacts of across-the-board bilateral trade liberalization and the economic impacts of sectoral bilateral trade liberalization in five sectors. The latter is set aside for the moment and the discussion deals with the total bilateral trade liberalization scenario estimates.

In conducting the across-the-board bilateral trade liberalization experiment, Cox and Harris incorporate trade diversion by distinguishing three markets--Canada, the United States, and the rest of the world--and incorporating an elasticity of substitution between U.S. and Canadian goods into the Canadian and U.S. demand equations. Cox and Harris also make a number of other assumptions about various price elasticities in the three regions and indicate where there are grounds for concern due to the lack of more precise and specific estimates of the relevant elasticities.

TABLE 5

Multilateral trade Liberalization Under Imperfect and Perfect Competition Assumptions

	Industries	Imperfect competition	Perfect competition
1.	Food and beverage	0.2907	0.0077
2.	Tobacco	0.3178	-0.0869
3.	Rubber and plastic	0.4276	0.0480
4.	Leather	-0.1314	-0.3848
5.	Textiles	0.9417	0.5741
6.	Knitting mills	0.0674	-0.3945
7.	Clothing	0.6842	-0.2093
8.	Wood	0.1180	0.0461
9.	Furniture and fixtures	-0.1837	-0.2903
10.	Paper and allied products	0.9578	0.9162
11.	Printing and publication	0.3423	0.1900
12.	Primary metals	0.3753	0.0709
13.	Metal fabricating	0.2291	-0.1863
14.	Machinery	-0.0703	-0.1863
15.	Transportation equipment	1.2184	0.3727
16.	Electrical products	0.0190	-0.1799
17.	Non-metallic mineral production	0.2521	0.0172
18.	Petroleum and coal	0.2596	0.1820
19.	Chemical products	0.2385	0.1265
20.	Mis. manufacturing	-0.1046	-0.2542
21.	Agriculture	0.6063	0.5210
22.	Forestry	0.3123	0.3592
23.	Fishing	0.3214	0.2472
24.	Mining	0.2846	0.2683
25.	Construction	0.0404	0.0129
26.	Transportation	0.0152	0.0249
27.	Communication	0.0237	0.0106
28.	Electric Power and Gas	0.1728	0.1033
29.	Others	0.0623	0.0309

Source: Harris (1984b).

Cox and Harris include estimates of Canadian and U.S. export subsidies obtained from Moroz (1984) and Morici and Megna (1983) respectively. They assert that the export subsidy estimates are likely to be too low, although the very opposite is probably true. Both the U.S. and Canadian export subsidy estimates include estimates of the implicit subsidy from subsidized government export financing; indeed, for most Canadian industries, subsidized export financing is the most important export subsidy. With the one major exception of the Bombardier case, virtually all of the subsidize export financing in Canada and the United States is for exports to off-shore markets and is, therefore, not completely applicable to bilateral trade liberalization. On the other hand, given the openness of the Canadian economy, certain Canadian domestic subsidy programs are likely to act indirectly as "export subsidies" although this effect would need to be examined on a program-by-program basis. Whalley (1984) has also pointed out that many of the other non-tariff barriers included in the Harris model do not apply to bilateral trade and are more relevant to U.S.-Japan-EEC trade. In a similar manner, non-tariff barriers directed at selected exporters--for example the Multi-Fibre Arrangement restriction on textiles and apparel--would not restrict bilateral trade, although they could have major indirect bilateral impacts as a result of trade diversion . In any event, Cox and Harris are correct when they point out the problems and the limitations of estimating the impact of bilateral trade liberalization because of lack of reliable estimates of most non-tariff barriers.

Cox and Harris (1984a) estimate the net welfare gain from bilateral trade liberalization to be 9.0% of GNP. This is higher than the 8.6% estimate because

of the inclusion of the effects of trade diversion. As in the multilateral case, the competitive effect of firms moving to rationalize production is extremely important in achieving substantial gains to Canada. The trade-diversion effect further benefits Canada because Canadian producers no longer pay the U.S. tariff and, at the same time, are able to displace off-shore competition in the U.S. market under the protective umbrella of U.S. trade barriers. Table 6 reports the Cox/Harris (1984a) estimates of the impact of bilateral trade liberalization on major aggregate economic variables and provides a comparison of the bilateral estimates with the sectoral estimates.

The industry impacts estimated by Cox and Harris (1984a) are reported in Table 7 and the estimated change in labour productivity is reported in Table 8. In the case of labour productivity, the increase is lower in some manufacturing industries--for example Petroleum and Coal, and Food and Beverages--than in the multilateral case; however, the increase in the majority of industries is similar or higher than in the multilateral case.

The findings for the across-the-board bilateral free trade scenario are particularly relevant to the concerns expressed over the potential impact on Canadian manufacturing of entering a bilateral arrangement with the United States. The results in Table 7 are quite interesting when compared to those in Table 4. For example, production in Leather rises and production in Electrical Products falls in the bilateral case, whereas the opposite occurs in the multilateral case. The increases in output in Food and Beverages and Chemical Products are smaller in the bilateral case, while the increases in production in Textiles and Wood are higher. Caution should be used when interpreting the Clothing and Transportation Equipment production estimates for reasons given earlier. With respect to the employment estimates, significant differences can also be found between the bilateral and multilateral cases, and the differences in the production, productivity and employment estimates reflect in part the pattern of the trade-diversion effect in the Canada-U.S. economic context.

As in the case of multilateral trade liberalization, various industries that experience output gains also experience employment losses. This reflects the change in industrial structure and the increase in wages relative to capital costs.

Labour is nevertheless is a major beneficiary from bilateral trade liberalization in terms of real wage and income gains. Overall, the estimates of the impact of an across-the-board bilateral trade liberalization agreement indicate that intra-industry specialization and inter-industry resource allocation adjustments would be an important source of economic welfare gain; the inter-industry resource shifts are also likely to be significant and enhanced access to the protected U.S. market would result in a more competitive and productive manufacturing sector. Most manufacturing industries experience output gains and the overall results for the bilateral case conform to earlier statements concerning the industries likely to gain or lose. In sum:

- the resource sector gains under bilateral free trade;
- manufacturing industries which are capital intensive and have large potential scale economies to exploit are major beneficiaries of bilateral trade liberalization;
- labour-intensive manufacturing industries suffer significant adverse effects in terms of output and employment;
- the Canadian economy as a whole experiences a large, net positive permanent economic welfare gain from bilateral trade liberalization.

In short, the empirical work by Harris (1983) and Cox and Harris (1984a and 1984b) would appear to substantiate both the theoretical predictions and early empirical work by Wonnacott and Wonnacott (1967) in that scale economies, imperfect competition, product differentiation and U.S. trade barriers are critical both to the assessment of the trade-policy options and as a source of economic benefits to Canada from trade liberalization. There are of course numerous other assumptions and specifications about economic behaviour

TABLE 6

A Comparison of Canada-U.S. Bilateral Free Trade with Canada-U.S. Sectoral Free Trade: The Canadian Perspective

	Bilateral Free Trade	Sectoral Free Trade (without export subsidies)	Sectoral Free Trade (with export subsidies)
D-wage	0.283	0.057	0.069
D-productivity	0.299	0.043	0.053
D-scale	2.243	0.189	.263
Welfare/aggregate	0.090	0.015	0.019
Welfare/sectoral	•	0.404	0.503
D-trade volume	0.882	0.145	0.172
D-US trade	.987	.136	.163
Diversion index	.764	.709	.710
Realloc. index	0.069	0.021	0.025
Sectoral value add.	8193.65	8499.93	8861.087
Sectoral employment	.055	.065	.069
Sectoral net exp.	-5916.56	2894.31	3991.25
D-firms(sectoral)	-.456	-.071	-0.169

Notes: Bilateral Free Trade assumes all tariff and export subsidies pertaining to bilateral trade between Canada and the U.S. are eliminated. D-wage is the relative change from base of the Canadian real wage (defined as the gross wage paid to suppliers of labour services deflated by an index of world prices); D-productivity is an index of average labour productivity across all sectors; welfare/aggregate is the welfare gain meassured by the Hicks equivalent variation as a proportion of base G.N.E.; welfare/sectoral is the welfare gain measured as a per cent of base value added in the liberalized sectors: D-trade volume is the relative change in the aggregate volume of trade in all sectors measured as the value of exports plus imports; realloc. index is the proportion of the labour force required to shift intersectorally; D-scale is the relative increase in the average output per firm in the manufacturing industries; D-firms is the average increase in the number of firms in the liberalized sectors; value added measured in millions of 1976 Canadian dollars; sectoral employment is measured as share of total employment; D-US trade is the relative change in total volume of trade with the U.S.; the Diversion index measures the proportion of total Canadian trade (volume) accounted for by U.S. trade.

Source: Cox and Harris (1984a).

TABLE 7

Industry Performance and Rationalization
Sectoral versus Bilateral Free Trade

	Bilateral Free Trade			Sectoral Free Trade		
	D-output	D-prod	D-emply	D-output	D-prod	D-emply
Target Sectors						
Textiles	2.394	0.325	1.561	1.777	0.139	1.438
Steel	0.209	0.225	-.013	0.294	0.071	0.208
Agric. Eqp.	-.122	0.197	-.267	-.058	0.038	-.093
Urb. Trans. Eq.	0.614	0.259	0.282	1.973	0.100	1.703
Chemicals	0.227	0.223	0.004	0.181	0.073	0.100
Other Industrial Sectors						
Food & Bev.	0.245	0.274	-.023	0.015	0.043	-.027
Tobacco	0.277	0.423	-.102	0.018	0.042	-.023
Rubber	0.369	0.305	0.049	0.052	0.048	0.004
Leather	0.242	0.347	-.078	-.016	0.046	-.059
Knitting	1.069	0.396	0.482	0.166	0.058	0.102
Clothing	4.782	0.609	2.592	0.057	0.056	0.001
Wood	0.145	0.313	-.128	-.028	0.039	-.064
Furniture	-.157	0.361	-.381	0.003	0.047	-.042
Paper & Allied	0.598	0.218	0.313	-.003	0.039	-.039
Printing	0.354	0.202	0.127	0.010	0.038	-.026
Metal Fab.	0.135	0.232	-.079	0.023	0.046	-.022
Non-Ag. Mach.	-.194	0.232	-.346	-.050	0.043	-.092
Transport. Eqp.	1.012	0.268	0.587	0.034	0.033	0.001
Electrical	-.015	0.273	-.227	-.005	0.044	-.048
Non-Metal Min.	0.209	0.227	-.014	0.008	0.035	-.026
Petroleum	0.238	0.340	-.077	0.036	0.052	-.015
Misc. Mfg.	-.184	0.223	-.332	-.016	0.047	-.063

Note: Both trade liberalization experiments assume the removal of export subsidies on the appropriate trade between Canada and U.S. industries. D-output refers to the relative change in industry output over base. D-prod is the relative change in industry labour productivity over base. D-emply is relative change in industry employment over base.

Source: Cox and Harris (1984a).

TABLE 8

Change in Labour Productivity under Bilateral Trade Liberalization
Trade with the U.S. in Manufactured Goods, Canada

Industry	Change in Labour Productivity
	(Percentage Change)
Textile	+32.5
Steel	+22.5
Agricultural Equipment	+19.7
Urban Transit Equipment	+25.9
Chemical	+22.3
Food and Beverages	+27.4
Tobacco	+42.3
Rubber	+30.5
Leather	+34.7
Knitting	+39.6
Clothing	+60.9
Wood	+31.3
Furniture	+36.1
Paper and Allied	+21.8
Printing	+20.2
Metal Fab.	+23.2
Non-Ag. Machinery	+23.2
Transport Equipment	+26.8
Electrical	+27.3
Non-Metal Min.	+22.7
Petroleum	+34.0
Miscellaneous Mfg.	+22.3

Source: Cox and Harris (1984a).

and the structure of the relationships between economic variables that are worth testing in the general equilibrium framework. In addition, work on updating and improving the estimates of the price elasticities, of non-tariff barriers and of other economic parameters would be useful. Research is also needed on trade in services and serious consideration might also be given to increasing the level of industry disaggregation to, for example, the Hazledine disaggregation, if a major modelling exercise is to be undertaken. Such work would allow for sensitivity testing as well as better estimates of the long-run consequences of bilateral trade liberalization and would offer more information for evaluating the dynamic process of adjustment and the economic and policy obstacles to the realization of these long-run benefits. Notwithstanding the need for further research, it would seem that Canada would benefit significantly in terms of economic welfare, productivity and competitiveness from the structural adjustments that would arise from bilateral trade liberalization. Since many of Canada's economic problems can be attributed to the structural problems in Canadian industries, trade liberalization offers one possible policy approach which would contribute to the solution of these problems.

2.4 Employment Impacts

The impact on employment has always been a major concern in the assessment of any economic policy issue. The persistent high rates of unemployment experienced in recent years have made this question even more important. The reasons for continuing high unemployment are numerous, ranging from sluggish and uneven macroeconomic growth to domestic and international

structural economic developments such as the introduction of new technologies, changes in consumer tastes, and the global shift in competitive advantage. As a result of the global integration of national economies, external macroeconomic developments can affect significantly the number of total jobs created by the domestic economy. At the same time, external microeconomic developments may affect an economy's overall medium-run potential to create jobs as well as the total number and distribution of jobs in the across industries. The stiff competition in labour intensive, mature technology industries from the Newly Industrialized Countries has raised concerns over employment in all the developed countries and has contributed to the growing mood of protectionism in these countries. This has encouraged the increasing focus of trade policy on issues of job creation and employment.

In evaluating the impact of trade liberalization on employment, a number of questions can be raised concerning the number, type and distribution of jobs lost or gained in the short-run and the long-run, and what types of labour adjustment policies are required. Trade theory can be used to evaluate the impact of trade-policy changes on employment in a particular industry and on the distribution of employment across industries. For example, Table 7 in the previous section reports the estimates by Cox and Harris of the change in employment in each industry under the comprehensive or sectoral bilateral trade agreement options. Cox and Harris estimate that up to 7.0% of employment in Canada could be involved in the adjustment to a bilateral trade liberalization arrangement. As shown in Table 7, job losses could be expected in Leather, Furniture, Electrical Products and Food and Beverages industries, with new jobs

in Rubber, Paper and Allied Products, Steel Transportation Equipment, and Chemical industries. The movement of labour from one occupation and/or industry raises important questions about the labour adjustment process and labour adjustment costs. These issues are dealt with in the next section of the paper.

Trade theory is less useful in predicting the impact of bilateral trade liberalization on the total number of jobs available in the economy. Trade theory usually assumes full employment and examines what happens to resource allocation and remuneration when the trade environment or the trade-policy regime changes. The full-employment assumption is used in the Harris model for example. While labour market rigidities can be incorporated into general equilibrium models, most models use the full employment assumption. This reflects the fact that the issue of trade is primarily a microeconomic concern in contrast to the issue of total job creation, which is primarily a macroeconomic concern.

Traditional trade theory shows that jobs can be protected and created in an industry; however these jobs come at the expense of jobs in other industries. However, in the new trade theories, it is possible to show that trade barriers can be used to increase domestic income and total employment. One implicit assumption of this theoretical prediction is that none of the country's trading partners retaliate when the country uses import restrictions, subsidies or export promotion. In any event, the possibility of net job creation arising from trade protection cannot be dismissed on theoretical grounds, although for a small open

economy the required conditions may be unlikely to be in operation and the likelihood of avoiding retaliation may not be great.

In a period of high unemployment and import surges in labour intensive industries, trade protection would appear to be an attractive option. The work on trade protection and employment by Hazledine (1981), the OECD (1984) and others suggest that the number of jobs saved may not be as great as is commonly expected. Under conditions of imperfect competition, trade barriers may protect higher profits or inefficient, high cost production, and few if any jobs. Moreover, the argument that trade barriers can create jobs in periods of high unemployment not only overlooks the general equilibrium structure of the economy but may avoid addressing the source of high unemployment. If the cause can be traced to domestic economic rigidities, then trade barriers could increase the unemployment problem because trade barriers themselves tend to reinforce resistance to change.

It was suggested in an earlier part of the paper that bilateral trade liberalization could provide the conditions for a more efficient and flexible microeconomic structure. The work by Cox and Harris shows that bilateral trade liberalization would likely lead to major increases in labour and total productivity, to more efficient industries, to a more efficient allocation of resources across industries and to higher national incomes. There would be significant structural changes if bilateral trade is liberalized and in the short-run job losses would occur as existing firms adjust their production facilities or exit out of industries. On the other hand, new firms would enter into industries

to take advantage of new opportunities arising from bilateral trade liberalization. Short-term jobs gains could be expected due to the increase in investment and the positive impact this would have on the economy. On balance, the short-term job losses may out-number the short-run job gains partly because the labour intensive industries are likely to be hit the hardest even though they would continue to be protected from offshore competition.

There is no reason to expect that bilateral trade liberalization would reduce the number of jobs in the medium run. If anything, the increase in real incomes and the improvement in the microeconomic structure would likely increase the economy's medium-run potential to create jobs. There is also the distinct likelihood that bilateral trade liberalization would lead to better jobs in terms of permanent, better paying work opportunities.

The potential for net job creation under bilateral trade liberalization has been demonstrated by Wilton (1975) and in a follow-up study, by Moroz (1978). The two studies used a large macroeconomic model to examine empirically the impact of the Canada-United States Automotive Products Trade Agreement (APTA) on the Canadian economy. They came to the conclusion that the changes in the structure of automotive production in Canada and the expansion of bilateral automotive trade under this agreement resulted in a higher national income and a higher level of employment in Canada.

In large part, the question of how many total jobs will be gained or lost in the short run and the long run under a bilateral trade agreement is an empirical

issue. Since this question is primarily macroeconomic in nature, an empirical analysis would require a macroeconomic model which takes into account both the input-output structure and the macroeconomic structure of the Canadian economy. If the production structure of the model could be adjusted to incorporate the structural changes predicted by trade theory, then the macroeconomic model could be used to examine empirically the impact on the economy's macroeconomic potential and performance. A number of macroeconomic models are available, and Harris has been testing the employment impact of bilateral trade liberalization in a small open macroeconomic model. No estimates are publicly available at this time however, the initial testing indicates that bilateral trade liberalization would lead to a net gain in jobs in a relatively short time span.

There are also concerns over the impact of bilateral trade liberalization on labour incomes. The traditional factor endowment model would predict that real wages would fall and the real return to capital and fixed resources would rise if bilateral trade is liberalized. However, updated trade theories refute this conclusion. Cox and Harris find that real wages could increase by as much as 13-15%. Indeed, labour is found to be the largest beneficiary of bilateral trade liberalization.

2.5 Non-Tariff Measures and Barriers to Trade

To this point in the paper, the issue of non-tariff measures has been raised frequently. Traditionally, trade policy analysis has concentrated on assessing the

impact of removing a tariff. This is not to suggest that non-tariff measures have been ignored in the theoretical and empirical work; however, there are numerous theoretical problems in evaluating their protective effect and their economic impact on industrial prices, output, employment and industrial structure. As the early research work of Baldwin (1970), Stegman (1973), and Walter (1969) show, the immediate problem is defining in economic terms what is a non-tariff measure and identifying which policies are non-tariff measures. While certain policies, such as quotas and export subsidies, are obviously designed to protect domestic industries from foreign competition, other policies, such as standards and cultural policies, may or may not be explicitly intended to distort trade, but can give to trade problems. Examples of the types of Canadian policies which fall in this second group are the Canadian electrical products standards, lower postal rates for magazines and periodicals printed and published in Canada, and the disallowance as income tax deductions of Canadian advertising placed with U.S. border T.V. stations and foreign-published magazines.

Unlike tariffs, non-tariff measures rarely take the form of an explicit tax on imports, comprise a wide range of dissimilar measures, and frequently involve administrative procedures as well as explicit legislative requirements. Generally speaking, non-tariff barriers are unpredictable and non-transparent. The application of many non-tariff measures is discretionary, and numerous types, such as subsidies, are applied to specific companies, as opposed to broad industries or are designed to protect inputs in production rather than final output. Furthermore, many non-tariff measures such as discriminatory technical standards are found in domestic legislation, not trade-policy legislation, and

hence operate behind the border within the domestic economic environment. In addition, non-tariff measures are not limited to import protection policies, as many nations now employ measures designed to boost exports. In federal countries, numerous non-tariff measures are also applied at the provincial or state level.

While tariffs continue to be significant trade barriers in many industries, any bilateral negotiations are likely to involve discussions on non-tariff measures as well. Table 9 lists some Canadian non-tariff measures which can affect bilateral trade. In general, non-tariff measures can be divided into two groups: standing protection measures and contingent measures.

Standing protection involves the application of policy instruments in a permanent fashion to restrict trade flows. They can be applied at the border or behind the border. In addition to quantitative restrictions such as import prohibitions, global quotas, export restraint arrangements and orderly marketing arrangements, non-tariff restrictions on imports erected at the border include arbitrary tariff classification and customs valuation, import deposit requirements, excessive documentation requirements, import labelling requirements, and minimum import price schemes. Policy instruments which can be used behind the border to restrict imports include government purchasing policies, intellectual property legislation, domestic content schemes, performance requirements imposed on foreign-owned firms, arbitrary packaging and labelling requirements, discriminatory health and safety product standards, and various types of domestic subsidies for import-competing industries.

TABLE 9

CANADIAN NON TARIFF MEASURES

	Products and/or Programs
Global Quotas, Prohibitions and Other Import Controls	- footwear, butter, milk and milk cream, wheat, oats, barley, eggs, poultry, used cars, used aircraft, import monitoring and surveillance of certain products.
Voluntary Export Restraints	- automobiles from Japan, textile products and clothing products from many Third World countries under the Multi-fibre Arrangement.
Export Controls and Prohibitions	- logs and/or pulpwood cut on provincial lands in B.C., Quebec and Ontario.
Government Procurement	- federal and provincial governments and Crown corporations.
Provincial Liquor Commission Monopolies	- Ontario and B.C. mark-ups for imports, listing policies.
Customs Valuation System	- "made in Canada" and "not made in Canada" provisions, import permits, tariff classification procedures.
Performance Requirements and Domestic Content Requirements	- Foreign Investment Review Agency, National Energy Program, Auto Pact, most subsidy programs, government procurement, major defense contracts, Radio and T.V. programming.
Current Subsidies	- Shipbuilding Industry Assistance Program, Federal Labour Intensive Program and other labour subsidies, provincial subsidies for labour.
Capital Subsidies	- Defense Industry Productivity Program, General Development Agreements, Industrial and Regional Development Program, Canadian Industrial Renewal Board, provincial subsidies for purchasing fishing equipment.
Research and Development Subsidies	- Industrial Research Assistance Program, Energy Research and Development Program, Enterprise Development Program, Defense Industry Production Program, New Technology Employment Program.
Transportation Subsidies	- Crow's Nest Pass Agreement, Maritime Freight Rates Act, Atlantic Region Freight Assistance Act, subsidies for feed grains.
Export Subsidies	- Skim Milk Powder, Program for Export Market Development, Promotional Projects Program, subsidized export financing provided by the Export Development Corporation
Indirect Subsidies to Producers Via Government Regulation	- energy pricing, postal rates for Canadian magazines and periodicals.
Financial Support	- subsidized loans, loan guarantees, government equity, Federal Business Development Bank, Ontario Economic Development Corporation.
Duty Remission Programs	- automobiles and components, power cruisers, televisions and parts, sewing machines, off-highway vehicles
Bilateral Tied Aid Program	- feed grains, powdered skim milk, electrical machinery and equipment, rail transportation equipment.

Standing non-tariff measures can also be used to support and promote exports. Export non-tariff measures include export production subsidies, subsidized export financing, and the tying of bilateral aid to Third World countries. As in the case of import restrictions, the use of export non-tariff measures not only distorts the allocation of a nation's resources but also erodes the international trade system and invites retaliation from other trading nations.

The second group of non-tariff measures is referred to as contingent measures because they are used only in certain prescribed circumstances regarding either foreign trade practices or the impact of imports on domestic industries. The main instruments of contingent protection are anti-dumping duties, countervailing duties and safeguard or escape clause measures in the form of quantitative restrictions or import surcharges. Their use is sanctioned in prescribed circumstances under the GATT, and considerable efforts in past GATT negotiations have been directed to establishing the conditions and rules for their application.

As indicated earlier, there are numerous problems in analysing non-tariff measures. In addition to the identification problem, there are also the research problems associated with determining the economic impact of any particular non-tariff measure, estimating the protective effect of that barrier, and comparing its impact to the impact of other non-tariff measures. To develop the basic theoretical tool for measuring the degree of protection, two general assumptions are usually applied: all markets are characterized by perfect competition and the economy is a small, open economy. This has allowed the

development of the conceptual tool of the tariff equivalent of a non-tariff measure. Bhagwati (1965) and Glissman and Nel (1971) and others have shown that under the perfect competition assumption, the impacts of a quota on imports, domestic prices and domestic production are the same as the impacts of a tariff. This conceptual tool is used by Morici and Megna (1983) to measure the protective effect of U.S. non-tariff measures and is employed in an ongoing research project of the Institute for Research on Public Policy on measuring the protective effect of Canadian non-tariff measures. However, as pointed out by Moroz (1984), there are major conceptual and data problems involved in estimating the tariff equivalent of a particular non-tariff measure in order to compare it to the tariff equivalent estimate of another non-tariff measure. As McCulloch (1973), Shibata (1968), Yadau (1968) and others have shown, the equivalence between tariffs and quotas breaks down once imperfect competition, scale economies and imperfect substitutes are included in the analysis, and these factors, as has been seen, are major economic considerations in assessing the impact of bilateral trade liberalization, especially in the manufacturing sector.

Even if the basic data and conceptual problems involved in measuring the tariff equivalents of diverse non-tariff measures can be solved, any analysis of the bilateral trade-policy options must take into account the different impacts on economic behaviour of different types of policy instruments. For example, a pure production subsidy and a quota can have the same impact on domestic output; however the impact on the domestic price and the volume of imports is quite different. At the same time the impacts of different types of subsidies on economic activity and trade flows are difficult to measure and, hence, to

compare. For instance, regional development subsidies, transportation subsidies and provincial subsidies may simply shift production from one region to another and have little or no affect on the national level of output, exports or imports. Labour and energy subsidies may significantly alter the factor mix of production with little effect on the level of production and trade but with significant effects on labour or energy use in production. Capital equipment and R&D subsidies may not alter current levels and patterns of production and trade, but can have significant impacts on future levels and patterns. While it is likely that most Canadian subsidies directly affect trade flows--if only because of the smallness and openness of the Canadian economy--the impact of removing each subsidy will vary depending on its type. Nevertheless, it is difficult to evaluate the impact of different types of subsidy programs on domestic production, employment and other economic variables.

A related and quite important problem is that current work on the interrelationships between industrial structure, pricing behaviour and trade barriers does not incorporate non-tariff measures. The work by Baldwin and Gorecki, Caves, Hazledine and others in this area has only looked at the influence of tariffs. The reason for this is the relative paucity of estimates for non-tariff measures; it may be that the influence of non-tariff barriers on firm and industry behaviour can be much different than that of tariffs in a world of imperfect competition, product differentiation and scale economies.

While in the end the impact of most non-tariff measures can be evaluated theoretically, the work by Morici and Megna (1983), Moroz (1984) and others

illustrate the major empirical problems in quantifying their protective effect and their impact on economic variables. Illustrating the two problems of data and theory is the example of government procurement policies. It is exceptionally difficult to estimate the tariff equivalent of government procurement policies. Moroz (1984) and Morici and Megna (1983) have made some estimates of the tariff-equivalent of government procurement policies in Canada and the United States respectively; however, as they point out, the approach is only second best for a number of reasons. As shown theoretically by Baldwin and Richardson (1971), government procurement policies may provide little or no protection to domestic industries if the industry is competitive and faces upward-sloping cost curves because they only cover part of the market for any good. On the other hand, if scale economies are present, then the protective effect might be significant. In order to obtain their estimates, Morici and Megna (1983) and Moroz (1984) ignore defense purchases, use strong assumptions about how the policies affect economic behaviour, and rely on less-than-optimal data. The results suggest that procurement policies do not provide substantial protection, mainly because of the small share of government purchases in total consumption in most product markets. Nevertheless, for an individual firm, government procurement policies may be quite important, and in the bilateral context, U.S. government procurement policies can represent major export obstacles in some industries.

Tariff-equivalent estimates are available for certain non-tariff measures, but they must be treated with caution. Existing general equilibrium models can deal with some of the economic impacts relating to their removal, including the

impact of removing input-specific non-tariff measures such as labour subsidies as well as output-specific non-tariff measures such as quotas. But, given the nature of some of the more important bilateral non-tariff measures, particularly anti-dumping and countervail actions, empirical work is severely constrained. It is easy to measure the protective effect once an anti-dumping or countervailing duty is imposed. However, the critical issues in assessing the impact of contingency protection are the increased risk and transaction costs involved in exporting to the United States from Canadian locations arising from the potential of facing unfair or fair trade-practice petitions under U.S. trade law by a U.S. competitor. Although some work in this area has been undertaken by Finger (1977) and others, estimating contingency protection is an ongoing problem.

2.6 The Sectoral Approach

The across-the-board bilateral trade liberalization option would appear to offer potentially large and permanent economic benefits. Concerns have been raised about the magnitude of structural adjustments and potentially large short-term dislocation costs that would arise under a broad bilateral trade liberalization arrangement. These concerns have prompted discussions about the desirability of including in any broad bilateral arrangement a relatively long, perhaps 5 to 10 year, transitional period for reduction of trade barriers on bilateral trade, and production and investment safeguards. There have also been suggestions that certain industries be excluded from any bilateral trade negotiations. At the same time, the bilateral trade liberalization option has also

raised fears about Canadian economic, political and cultural sovereignty. The economic and non-economic concerns over comprehensive bilateral trade liberalization arrangement have led to suggestions for an alternative approach, namely the sectoral approach.

The concept of sectoral bilateral trade liberalization is not dealt with in trade theory as a distinct trade-policy option. Nevertheless, the new trade theories, which show the potential economic gains from intra-industry rationalization and intra-industry trade, when combined with the political-economic arguments advanced by Fry (1984), Wilkinson (1984) and others make the sectoral approach attractive. The sectoral approach is also alluring because it entails smaller problems of identifying and measuring the sectoral economic impacts, managing the negotiating process, and managing the adjustment process. Moreover, Wilton (1976) and Moroz (1978) have shown that the sectoral agreement established under the Canada-United States Automotive Products Trade Agreement (APTA) provided Canada with significant positive economic benefits in terms of automotive production and employment, and higher national real income and total employment. Under the APTA, Canadian productivity in the automotive industry increased dramatically because of the rationalization of automotive production in Canada to serve the North American market; the large benefits from this sectoral agreement attract many to the sectoral approach. Observers are also attracted by the APTA safeguards; however, there are good economic and non-economic reasons to be wary of the sectoral approach and, as will be discussed shortly, the APTA has not been without its problems.

The literature on the political-economy of negotiating sectoral free trade agreements points to numerous problems, including determining which sectors to include in any sectoral negotiations, balancing the bilateral trade-offs within and between sectors, meeting Canadian and U.S. GATT obligations, and avoiding third-party retaliation. With regard to the economic considerations, limiting trade-policy options to bilateral sectoral trade liberalization means that one source of the efficiency gains is lost, thus affecting the size of the potential long-run economic benefits, the short-term dynamic adjustment process and adjustment costs. The large potential long-run benefits from full bilateral trade liberalization come from the net outcome of inter-industry and intra-industry resource reallocation. The sectoral approach limits these efficiency gains to intra-industry resource shifts. Moreover, a sectoral agreement can cause undesirable inter-industry resource shifts as one set of industries operate in a liberalized environment and the other set of industries continue to be protected, causing the protected industries and non-protected industries to compete for resources. If, from the perspective of national economic efficiency, the wrong sectors are chosen for bilateral sectoral trade liberalization, the chosen industries may come out ahead at a significant cost to other industries and to the national economy as a whole. Moreover, by limiting the trade liberalization option to selected industries, there are the potential problems of disrupting and distorting the process of structural adjustment. These adverse short-run economic consequences should be added to long-run distortions in resource allocation inherent in the bilateral sectoral trade liberalization option. Overall, the question of whether or not bilateral sectoral trade liberalization leads to a net long-run economic benefit to Canada--particularly when the issues of inter-

industry and intra-industry resource shifts are considered--breaks down to an empirical question.

Cox and Harris (1984a and 1984b) use the Harris model to assess quantitatively the impact of bilateral sectoral trade liberalization on the Canadian economy. Five industries are designated as candidates for bilateral sectoral trade liberalization: Textiles, Steel, Agricultural Equipment, Urban Transportation Equipment, and Chemical Products. These sectors generally conform to those that were under consideration when the sectoral initiative was first raised, although as Cox and Harris point out, they do not match precisely to the products under consideration in the sector initiative. The aggregate and industry estimated impacts are reported in Tables 6 and 7 together with the estimated industry impacts for the across-the-board bilateral trade liberalization option.

As shown in Table 6, the net welfare gain from sectoral free trade is only in the range of 1.5 to 1.9%, which is considerably lower than the 9.0% gained from full bilateral trade liberalization. Nevertheless, the positive impact offers encouragement for the proponents of the sectoral approach, and overall aggregate income, wages, labour productivity and trade does increase when free trade is allowed in the five sectors. Overall, the main effects of removing bilateral trade barriers--whether they are the trade diversion effect, the inter-industry labour shift or, the productivity gain--are smaller in the sectoral approach than in the full bilateral trade liberalization approach, as are the inter-industry and intra-industry adjustments. However, as Cox and Harris point out,

the positive net benefits from the sectoral approach may be due to the industries chosen for examination, as opposed to features of the sectoral free trade option itself.

With the one exception of Agricultural Machinery, the designated industries gain in terms of production and employment. Moreover, as shown in Table 6, the gain to the four designated industries is larger than under the full bilateral trade liberalization option. This is due in part to two factors: limiting the trade liberalization to these industries puts them in a better position to compete for labour; and wages do not increase as much as under full bilateral liberalization. The non-liberalized industries also show productivity gains, but this occurs because the increase in wages causes some firms in these industries to leave and the remaining firms are able to lower costs by increasing the level of output. This phenomenon demonstrates the importance of evaluating trade-policy options within general equilibrium models because the partial equilibrium approach would miss the efficiency gain in the non-liberalized industries. Overall, the liberalized industries experience greater U.S. competition in the Canadian market, but because of this competition and due to enhanced access to the U.S. market, they rationalize their production activities to capture the available scale economies, thus improving productivity and cost competitiveness.

The experiments by Cox and Harris for the designated industries would indicate that the sectoral approach could be fruitful. However, the empirical work by Wilton (1979), Martin and Moroz (1979) and Moroz (1978) on the APTA

using the Economic Council of Canada's CANDIDE model of the Canadian economy suggests there are other concerns about the sectoral approach. It must be appreciated that the Harris model and the CANDIDE model are very different in that the latter model is a dynamic macroeconomic model with an input-ouput table incorporated in order to account for the production side of the economy. Unlike the Harris model, changes in industrial structure, unless exogenously introduced as is the case when estimating the impact of the Auto Pact, can not be captured when policy simulations are undertaken.

Four important conclusions emerge from the work on the APTA which raise questions about the desirability of the sectoral approach. First, as discussed in Moroz (1978), a number of industries are adversely affected by the APTA because the resulting higher real wages throughout the economy make imports more competitive in other industries; industries such as textiles are, therefore, less able to compete against foreign competition. While Cox and Harris show that some productivity gains can be expected in the non-liberalized sectors, partial liberalization can lead to a skewed domestic economy. Second, Martin and Moroz (1979) found that the regional impacts on output and jobs varied considerably, again partially due to higher real wages affecting other industries, sometimes adversely. Third, a number of industries--for example steel and plastics--have likely become much more dependent on the automotive sector as a result of the APTA, further increasing the dependency of the Canadian economy on this industry. And fourth, Canadian macroeconomic performance is now probably much more sensitive to the U.S. automotive market than it would have been in the absence of the APTA.

To these economic impact concerns over the APTA, two other considerations should be added when evaluating the sectoral approach. As discussed by Hay and Sulzenko (1982), Perry (1982) and others, the usefulness of the Auto Pact is now questionable in light of the dramatic changes in both the world economy and the world automotive market. What might have been a "winning industry" in 1965 has now been protected from Japanese competition in both Canada and the United States for a number of years, with demands in both countries for more severe trade protection in the form of content legislation. The second concern is more in the political-economic realm. Even a brief review of this history of the Auto Pact indicates the political problems of managing a sectoral free-trade policy. As discussed by Moroz (1985), since 1968 both countries have been caught up in squabbles over what the objective of the Auto Pact is, over the bilateral automotive trade pattern and trade balances and over low level of automotive R&D in Canada. Consequently, there are numerous questions to be raised about tying Canada's future to a few industries thereby exposing Canadian policy interests to narrow disputes over bilateral trade balances and economic activity in these few industries.

2.7 Functional Approach

The concerns about negotiating a full bilateral trade liberalization package, the complex nature of many non-tariff measures and the experience at the Tokyo round of trade negotiations in dealing with non-tariff measures has prompted some observers to suggest that bilateral trade negotiations should concentrate on removing one or two barriers at a time. Tariffs reductions for

various products could be part of the first step, and Canada and the United States have expressed particular interest in addressing government procurement policies and contingent-protection measures. This approach, commonly referred to as the functional approach, suffers from many of the problems associated with the sectoral approach, partly because certain non-tariff barriers are for the most part industry-related; and partly because removing one distortion while leaving other distortions in place may result in adverse national and/or regional impacts. Nevertheless, the proposed functional approach reflects the reality of trade negotiations and acknowledges the growing importance of non-tariff barriers in bilateral trade. It also recognizes that many of the non-tariff measures cited by one of the trading partners are likely to involve important domestic concerns of the other trading partner; dealing with such issues might be best done on a case-by-case basis. The basic problems of evaluating the economic consequences of any one non-tariff barrier have already been raised. They range from the theoretical problems of determining the impact of a particular policy on the relevant economic variables, to collecting data and estimating the degree of protection. If these problems can be solved, then to a large extent general equilibrium trade models can be used to evaluate the long-run equilibrium impact of their removal on various economic variables.

PART 3: OTHER IMPORTANT CONSIDERATIONS

Introduction

The introduction of scale economies, imperfect substitutes and product differentiation into the theory of international trade suggests that the potential long-run economic benefits to Canada from bilateral trade liberalization are much larger than traditionally thought. The empirical testing of this proposition in a general equilibrium model further reinforces the theoretical conclusion that the potential long-run benefits can be quite large. This conclusion, however, refers solely to the potential economic long-run gains. But given the nature and extent of the required structural adjustments, the dynamic adjustment process and the related adjustment costs are important issues. At the same time, other factors such as labour market operations, regional markets and aspects of corporate behaviour may not only affect the dynamic adjustment process and hence the adjustment costs, but also hinder the full realization of the long-term benefits from trade liberalization. Consequently, these factors warrant special attention.

In this part of the paper, five specific areas are discussed. They are the structural adjustment process, labour and labour market operations, regional considerations of trade liberalization, technology performance and other non-production aspects of corporate behaviour, and intra-corporate trade. In large part, many of the salient considerations in these areas spill over into economic issues outside the strict confines of trade theory. Yet they raise

important questions and considerations for the evaluation of the economic consequences of bilateral trade liberalization whether it is sectoral, functional or across-the-board.

There are, of course, other important issues. For example, the vast literature on taxation shows the importance of taxation on economic behaviour. Melvin (1975) and others have further shown that taxation plays a major role in determining the direction and structure of trade flows through its impact on static and dynamic comparative advantage. As tax considerations are given great weight in every business decision, research such as that underway at the Conference Board of Canada on Canadian and U.S. taxation and its impact on trade and investment will be an important contribution to existing information on the consequences of trade liberalization.

Another important area concerns locational and infrastructural costs and the role they play in determining the location of activity and the competitiveness of firms and industries. The fundamental investment criterion may be efficiency; however, such factors as the proximity of markets, labour, raw materials, financing, transportation services, and education, vocational and recreation facilities play important roles in corporate decision-making. For the most part, the issues of taxation, locational factors, transportation costs and infrastructural costs, can be incorporated into trade and trade-policy analysis. Notwithstanding the various technical and data problems, many of these issues can also be evaluated quantitatively in general equilibrium trade models, such as the model constructed by Harris (1983). These issues, furthermore, deal more

with the determination of the size and nature of the potential long-run costs and benefits of bilateral free trade, and with what domestic policy changes might be needed to increase the potential net benefits to Canada from resource reallocation and structural change. In this sense they are issues which relate more directly to the long-term economic considerations of bilateral trade liberalization.

The five areas discussed below deal more with the short-run policy considerations, although such areas as technology performance and intra-corporate trade can influence significantly the nature and size of the long-run net benefits of trade liberalization. As is indicated in the discussion on the structural adjustment process, trade theory is not especially helpful in making assessments in many of these areas. Nevertheless, these are important public policy issues with regard to the bilateral trade policy question. Moreover they are factors that may not only affect the process, time-frame and costs of economic adjustment, but may also affect significantly the degree to which the potential long-run benefits are realized. As the research by Whalley and Wigle (1982) and others indicates, price and quantity rigidities can significantly affect the direction and process of resource allocation and, at the same time, lead to lower net welfare gains from trade liberalization. Consequently, the five issue areas addressed below are important considerations from both the short-run and long-run viewpoints of policy-making.

3.1 Structural Adjustment and Adjustment Costs

The first issue concerns the difference between static and dynamic analysis. International trade theory is about the change in economic equilibrium positions when something—for example trade policy—changes. Theoretical analysis predicts what changes are likely to occur and empirical work offers estimates of the magnitude of the changes. However, both say little about how the economy makes these changes or what the economic costs of adjustments are, even though many of the public policy issues revolve around the process of adjusting to the new equilibrium position. In particular, the transitional effects on the economy as a whole, and on individual economic industries, are not well understood. The process of adjustment from one equilibrium position to another also involves real costs to workers, owners of capital, and to the economy as a whole.

The problem of the dynamic process of adjustment has been recognized, particularly in the area of labour adjustment, and some attempts have been made to establish theoretically and empirically how individuals and organizations adapt to changes in the economic and policy environment and how government programs affect the process of adjustment. In most cases the research has been based on examining the response of economic actors to past changes and has concentrated on labour adjustment. Examples of such studies are Alam (1985), Bale (1976), Department of Industry Trade and Commerce (1979), Glenday, Jenkins and Evans (1982), Pearson and Salembier (1983), and Robertson and Grey (1984).

Pearson and Salembier (1983) note the important distinction to be made in discussing transitional adjustment costs between social and private adjustment costs. Social adjustment costs are the costs borne by society as a whole during the adjustment period. They are due to the loss of output to the economy when resources are temporarily unemployed as a result of a change in the derived demand for factors of production. Overall, from an efficiency viewpoint, social adjustment costs give rise to two principal policy considerations. First, do the long-run benefits of adjusting to bilateral trade liberalization outweigh the temporary adjustment costs? Second, are there government measures that tend to reduce the period of unemployment and, hence, minimize adjustment costs or are there any measures which tend to increase the period of unemployment and the adjustment costs?

Private adjustment costs are conceptually distinct from social adjustment costs. For displaced workers, the private costs are the net losses in wages and other benefits, after adjusting for transfer payments, borne directly by the workers themselves during the adjustment period. Private adjustment costs are important for two reasons. First, to understand resistance to adjustment--in particular protectionist pressure--one must look to private rather than social adjustment costs. Second, for reasons of equity or social justice, society may feel an obligation to compensate workers for losses due to an adjustment that is in the general interest. This obligation may be more strongly felt when the losses are the direct result of a deliberate government action such as bilateral trade liberalization.

While their methodologies differ significantly and their results are therefore not easily compared, the results of a variety of studies on labour adjustment costs and on government adjustment assistance programs in both Canada and the U.S. are summarized below:

- social adjustment costs may significantly exceed private adjustment costs, since the latter are offset to an extent by Unemployment Insurance (U.I.) and other benefits which merely represent transfers from the economy-wide perspective;
- adjustment costs differ considerably by industry and by region;
- higher adjustment costs are borne by older, and higher wage workers, female workers, minority workers, workers with job-specific skills, and by workers in rural "boomtowns" and in older central urban core areas;
- the general level of economic activity is important in determining the duration of unemployment and the subsequent wage level of people re-employed after adjustment, in turn strongly influencing adjustment costs;
- adjustment assistance benefits programs may prolong unemployment for secondary income earners;
- the majority of workers receiving adjustment assistance benefits incurred temporary unemployment and are usually recalled to their old jobs;
- there is a major difference in adjustment costs to workers who returned to their initial jobs as compared to those who did not;
- workers who are not recalled suffered large real earnings losses that were not offset by U.I. benefits or other assistance received;
- lower subsequent wages may be an important part of private adjustment costs due to a loss of job-specific human capital value;
- earnings losses are highest in industries with low turnover and high wages; and
- the role of attrition versus involuntary separation in reducing industry employment due to trade change is unresolved.

A complete review of the various methodologies used to study labour adjustment and employment dislocation is provided by the Institute for Research on Public Policy (IRPP) (1984a).

While most analyses of structural adjustment have dealt with the labour side, capital is also subjected to pressures for adjustment as a result of bilateral trade liberalization. Recent studies by the Economic Council of Canada (1983) and by the Department of Regional Industrial Expansion (DRIE, 1984) have identified some important aspects of the adjustment process at the level of the firm in the Canadian manufacturing sector. Most striking is the very high rate of turnover of firms. According to the DRIE study, although the total number of firms increased only 11.4% between 1971 and 1980, of those active at the end of the period, only 52.5% were firms that had existed since 1971. In other words, almost half of all manufacturing firms active in 1980 had been created during the previous nine years. Even more pertinent to the question of adjustment is the fact that in this dynamic environment, differences between fast-growing industries and declining industries show up not as higher exit rates for firms in the latter group, but as lower entry rates. That is, the contraction of an industry seems to take place not through the death of business but through the failure of new business to enter that industry.

With respect to the particular impact of trade flows on capital adjustment, as illustrated by firms' entry and exit rates, two findings are of particular interest. First, while an increase in imports might be expected to correlate with a higher exit rate, this turns out not to be the case. Exit rates are, in fact,

lower in industries experiencing high-import growth. This suggests the presence of significant resistance to adjustment pressures that inhibit the reallocation of capital in response to trade changes. Second, when increased exports are associated (as would be expected) with higher entry rates into an industry, and increased imports with lower entry rates, the changes in entry rates are observed primarily and most markedly for Canadian-owned firms. Foreign-owned firms appear to respond relatively little to changes in trade flows in terms of their entry and exit rates. Moreover, Canadian-owned firms tend to enter via plant construction (as opposed to acquisition) and to exit via scrapping (rather than divestiture) to a much greater extent than foreign-owned firms. Capital adjustment for Canadian-owned firms evidently follows a more painful and expensive path. Finally, all of the above comments apply especially to small businesses. They account for most of the firm births and deaths, they are highly responsive to trade flows, and they show a markedly greater tendency than medium-sized or large firms to enter via plant construction and to exit via scrapping.

In summary, the adjustment process on the capital side may be characterized as follows:

- the adjustment process is extremely dynamic, especially with regard to small firms;
- adjustment takes place via changes in birth rates (not death rates) which are, a priori, less likely to result in private adjustment costs;
- transitional social adjustment costs for capital are largely a non-issue, since any capital stock made obsolete by bilateral trade liberalization has lost its social value, while capital stock that retains its usefulness will likely be put to use very quickly, given the dynamism of the environment in terms of firm entry and exit rates;

- some resistance to adjustment is evident in industries affected by increased imports;
- the opportunities for new firms in industries where exports are increasing are taken up mainly by Canadian-owned firms; and
- Canadian firms, though they adjust via the presumably more painful and expensive route of plant construction and scrapping--as opposed to acquisition and divestiture--probably become more rationalized and more competitive as a result.

There are numerous methodological and empirical problems in determining the dynamic adjustment of economic actors; nevertheless, the private and social adjustment costs are a key consideration in the evaluation of the economic costs and benefits of entering into a bilateral trade-liberalization arrangement with the United States. While it is frequently pointed out that the static gains from trade liberalization are permanent and the adjustment costs are temporary, information about the private and social costs of adjustment is required to identify and evaluate the nature and costs of policies which are designed to facilitate as smooth and low-cost a process of adjustment as possible. Knowledge of the nature and magnitude of private adjustment costs in particular, is important to an understanding of the pressures behind proposed and existing policies that may hinder the adjustment process and which may reduce the full realization of the long-term benefits. Equally important, knowledge about the dynamic adjustment process offers valuable insights for answering important policy questions such as the time-frame that might be considered for removal of bilateral trade barriers. Questions regarding the extent and duration of any potential safeguards as well as policies outside the trade policy arena that may need to be changed in order to accommodate the dynamic process of adjustment would also benefit from more information on adjustment costs. At

the same time, work on the role and influence of existing social assistance and income distribution programs on the process of adjustment would be useful in evaluating the short-run economic consequences of bilateral trade liberalization.

It may be that the implementation of adjustment policies is, for both economic and political reasons, the most important pre-condition for trade liberalization to result in long-term gains in economic welfare, efficiency and competitiveness. What may ultimately be required is a much more intensive research effort into the social and economic mechanisms which are brought into play when job displacement occurs and when job opportunities are threatened. The most promising type of research offering this sort of in-depth analysis are the labour-tracking and plant-closing studies. Labour-tracking studies are probably easier to perform in Canada than in other countries, due to the wealth of data provided by the administrative files of the Canada Employment and Immigration Commission. CEIC has already applied labour-adjustment cost methodology to labour-tracking data for several sectors, and more studies are contemplated for other sectors, including the service sector.

While plant-closing studies would be particularly useful for investigating the response of both capital and labour to bilateral trade liberalization, they would require extensive data-collection exercises and research activities. These could include economic impact studies--similar to those required of U.S. defence establishments--prior to plant closures or other major changes, and the regular inclusion of plant-closing questions in the national census and other surveys. At least one major nation-wide detailed study would also be useful,

extending over at least four years and including analysis of the pre-closing period in plants expected to be shut down and a follow-up study of facilities that have closed and relocated. This would be aimed at assessing actual improvements obtained in economic efficiency and profitability. At the same, the analysis of labour adjustment would benefit from an evaluation of the effects of existing labour adjustment policies on the incentives and disincentives to displaced workers to retrain, relocate, and improve the effectiveness of job search strategies. An assessment of the quality and availability of labour-market information provided through both public and private mechanisms is also essential, since the adjustments that would accompany bilateral trade liberalization would place additional demands on these mechanisms.

3.2 Labour and Labour Markets

In considering the impact of trade liberalization on labour markets, a wide range of issues must be dealt with, including labour-management relations, temporal and occupational aspects of the operation of labour markets, job search, technological unemployment and the impact of technological change on labour requirements, skill-needs, retraining, labour compensation, and the private and social costs of labour adjustment. There is a fairly large body of research, both theoretical and empirical, on various issues in labour economics, as indicated by even a brief survey of the publication lists of academic journals and such agencies as the Conference Board of Canada, the Economic Council of Canada, the Institute for Research on Public Policy, and federal and provincial departments. Much of this work could be synthesized in order to bring out the

major economic and policy considerations regarding the economic consequences of bilateral trade liberalization.. The main effort should be focussed on establishing where and how many jobs will be affected and on identifying the source and location of existing rigidities in labour markets that would influence the nature, scope and cost of adjusting to bilateral trade liberalization.

To illustrate the importance of the latter, bilateral trade liberalization would affect significantly the production structure of Canadian industries, which in turn could alter significantly the labour requirements of Canadian firms, in terms of the types of skilled and trained labour demanded. The research by Betcherman (1982) on skilled-labour needs, shortages and the methods by which firms fill their needs indicated that as of the late 1970's there were critical shortages in a number of categories of skills, particularly in the technology-related categories. Moreover, these shortages were forecast to persist into the second half of the 1980s. Although many of the Betcherman conclusions are now out of date, his research tends to confirm that skilled labour needs could significantly change if bilateral trade is liberalized. Should this change occur, then the length and costs of adjustment could increase significantly as workers undertake retraining. Who will bear these costs of retraining is one important question. Moreover, any skilled labour shortages that develop could act as a significant bottleneck to the adjustment process and to the realization of the long-term economic benefits from trade liberalization.

Skilled labour shortages are but one possible type of labour market rigidity; other possible rigidities include the spatial immobility of labour, the lack of job

information, inflexibility of wages and other terms of employment, and the extent of union and mangement co-operation in implementing changes in production processes and facilities.

An important objective of any research on labour markets is to identify where and what types of jobs will be lost and created by bilateral trade liberalization. For example, estimates of the gross number of potential job losses are required for any labour adjustment analysis. General equilibrium models provide one source of estimates of where jobs are lost and gained under the assumption of full employment. An alternative approach would be to use the recently developed Canada-U.S. input-output model to obtain estimates of the employment impacts. The estimates of the number of jobs affected would reflect the existing production and employment co-efficients of the Canadian input-output table and this may pose problems. At the same time, trade analysis with input-output tables are usually based on the assumptions underlying the traditional theory of trade. Since bilateral trade liberalization would likely lead to significant changes in the production and input structure of Canadian industries, the resulting estimates of the employment impact would have to be treated with some caution. Likewise, bilateral trade liberalization would be expected to alter significantly the intermediate input-use of Canadian industries. The most fruitful approach might be to generate these estimates and then amend them on the basis of other work on the impact of bilateral liberalization. Estimates of two employment impacts are needed: The first being the potential gross number of jobs lost in each industry and second, the potential gross number of jobs created in each industry. The estimates from existing Canadian

input-output tables might offer a reasonable approximation of the former. The latter estimates, in turn, might be inferred from the U.S. input-output table since the production structure in each U.S. industry could be argued to represent a close approximation of the Canadian structure after bilateral trade is liberalized. There are, of course, numerous technical problems in conducting such experiments with input-output tables; however, they provide a wealth of detail on production characteristics and intermediate and final demand, and they can be used for a variety of policy experiments.

3.3 Regional Considerations

The third area for consideration in evaluating the economic consequences of bilateral trade liberalization concerns the regional impacts. Regional considerations are a major concern for public policy-makers and the regional impacts of trade liberalization could encompass a wide range of issues. Five sub-areas can be identified as important to the evaluation of the bilateral trade-policy options. They are: the impact of liberalizing bilateral trade on regional output, income and employment; the impact on inter-regional economic flows within Canada and between regions in Canada and the United States; the differences in the dynamic adjustment process in each Canadian region; the dynamic adjustment process across regions; and the impact of the federal government's regional programs and provincial barriers to flows of goods, services, capital and people on both the dynamic adjustment process and the realization of the long run economic benefits. There has been considerable research on regional economic differences and regional economic policies in

Canada, including major studies by the Economic Council of Canada (1977) and Trebilcock et al (1983). At the same time, researchers have access to the provincial input-output table and Pinchin (1979), Dauphin (1978), Hazledine (1979), Martin and Moroz (1979), Tremblay (1985) and others have attempted to measure quantitatively the regional impacts on output, income and employment of tariffs and other trade barriers. These studies, however, should be viewed as starting points because of the numerous technical and data problems inherent in attempting to undertake quantification of the regional impact on economic activity.

The conventional wisdom on the regional impact of trade liberalization--unilateral, bilateral or multilateral--is that in the short run the Atlantic and Western provinces will gain because consumers in these provinces will no longer pay the tariff on imports and because resource-based exports will increase. At the same time the central provinces will experience a net short-run economic cost, because the gain to Ontario and Quebec consumers from lower prices will be offset by stronger import competition and the resulting output and job losses in these provinces. In the medium run, it is generally agreed that the central provinces will experience greater economic gains as industries adjust. In short, the central provinces will bear the brunt of the dynamic adjustment costs, but will experience the largest long-run gains from bilateral trade liberalization.

There are, of course, industries in the Atlantic and Western provinces that are protected by the tariff and by federal and provincial non-tariff barriers. This fact needs to be incorporated into the conventional wisdom. A simple

method to obtain estimates of the regional impact of bilateral trade liberalization would be to allocate the industry-by-industry impacts on production and employment across provinces according to their share in national output and employment. In the case of the primary industries, this would be a useful exercise because land and other natural resources are immobile. However, the results for the manufacturing and service industries could be quite misleading. Firms, labour markets and other economic factors are not identical across provinces. While the estimates might provide a snap-shot of the initial impact of bilateral trade liberalization, the adjustments to industrial structure predicted by the new trade theories portend important shifts in industries across provinces. At the same time, the impact on regional industries of federal and provincial policies which might be included in bilateral trade negotiations is not the same in each province. Bilateral trade liberalization would also be expected to significantly alter the pattern of inter-regional trade in Canada, and between Canadian and U.S. regions.

This could be a significant issue: bilateral trade liberalization is likely to alter the regional North American flow of goods and services, which suggests that the medium-run economic costs and benefits in each Canadian provinces could be significantly different from those predicted by the conventional wisdom. The analysis of the various bilateral trade-policy options examines the economic consequences of each option in terms of economic activity at the national level economy. Yet, for many firms and industries, the consequences of bilateral trade liberalization would likely depend on what happens at the regional North American level. Bilateral trade liberalization would allow Canadian firms

access to a larger regional market, but would also expose them to regional competition from U.S. firms. To some extent, trade theory can be used to evaluate theoretically the impact of removing national barriers on intra-regional and inter-regional trade within North America. However, the nature, scope and extent of trade within and between regional North American markets is not well known.

Pierre-Paul Proulx and researchers at Harvard University have attempted to quantify the flow of goods between Canadian provinces and U.S. states in order to map existing regional markets and their main characteristics. This work is important because it allows a preliminary assessment of what might happen to trade flows and to economic activity at the regional level if bilateral trade is liberalized. Moreover, the data on regional North American trade flows and the analysis of the impact of bilateral trade liberalization at the regional North American market level would provide important insights into the impact of the various bilateral trade policy options on the political-economic structure of Canada.

Unfortunately, any regional analysis of the impact of bilateral trade liberalization, whether on Canadian provinces or at the regional North American market level, faces major analytical, methodological and data problems. The provincial input-output table is only available for a few years, although data on intra- and inter-provincial domestic shipments are more up to date. However, regional production shares, intra-regional and inter-regional trade patterns, and the input-output production and employment coefficients in provincial tables

reflect the existing structure of Canadian industries and the current pattern of internal Canadian trade. Both would be expected to change significantly under bilateral free trade. With varying exceptions, the existing empirical work on the regional impact of removing trade barriers tends to focus on the effects of a unilateral tariff reduction by Canada. Most of this work also tends to assume perfect competition in all markets and/or uses the existing national and regional input-output coefficients to measure the impacts on output, input demand and employment.

If regional employment estimates are available, then there is good potential for assessing the regional differences in the process and cost of adjustment in the by applying labour-adjustment cost methodologies to existing data on regional labour markets. These methodologies are quite sensitive to the specific characteristics of regional labour markets and are, therefore, ideally suited to the task. Empirical estimation of capital adjustment at the regional level is as yet scarce. A larger problem is the estimation of the movement of resources between regions in the Canadian economy under trade liberalization. This is a multi-dimensional problem of predicting where resources will be needed and where resources will be displaced, how these resources will adjust over space and which existing government programs will facilitate or hinder the process of trade liberalization.

There does exist a wide body of theoretical and empirical work on the determinants of labour migration. For example, the work by Courchene (1980), Lithwick (1979), Stone (1979), and Wilner and Gauthier (1982) offer valuable

insights into how the labour-adjustment process operates over space. This work needs to be related directly to the process of bilateral trade liberalization. Given the difficulties of quantifying the regional impacts of removing national trade barriers and of quantifying spatial-adjustment costs, there remain major hurdles to the measurement of the adjustment costs associated with the reallocation of resources over space.

The same types of problems exist for the evaluation of the effect of provincial barriers on economic flows and on the realization of the long-run economic benefits of bilateral trade liberalization. The existing literature on the balkanization of the Canadian economy suggests that the distortions in terms of economic efficiency and resource allocation arising from federal government regional programs and from provincial barriers to economic flows may be significant. It is therefore likely that these policies will affect significantly both the ability to realize the long-term benefits from bilateral trade liberalization and the adjustment process that occurs along with it. Research on regional barriers to economic flows is still in the developmental stage and there are numerous conceptual and theoretical problems in evaluating the economic impact, both nationally and regionally, of these regional policies. As suggested above, quantification of the economic impacts faces major obstacles, starting with the identification and estimation of the protective effect of regional trade barriers, including the problems of quantifying regional flows of goods, services, capital and people. An initial attempt to estimate the impact of provincial barriers is now being undertaken by John Whalley of the University of Western Ontario. The need to sort out the economic impacts of regional barriers is

further reinforced by the fact that some of these barriers, such as regional subsidies and provincial procurement policies, might be included in any bilateral trade negotiations.

3.4 The Role of Technology, Managerial Expertise and Corporate Behaviour

The fourth economic issue concerns what are sometimes referred to as non-production factors but which are in effect features of the microeconomic behaviour of firms. This includes administration and corporate planning, marketing, advertising, product distribution, financing, inventory control, research and development, and technological adaptation and diffusion. Other than the consideration of technological differences, trade theory and empirical analysis ignores most of these factors. Yet these account for a significant portion of the costs of supplying goods to a market and are important factors affecting the current competitiveness of Canadian industries. They are, therefore, important factors for the evaluation of the economic impact of bilateral trade liberalization.

There is a well-known body of literature on the main determinants of R&D performance in Canadian industries. The relevant question here is whether or not R&D performance will improve under a bilateral trade agreement; however, the answer to this question is tied to the larger issue of the impact of bilateral trade liberalization on technological development, adoption, adaptation and diffusion in Canadian industries.

The issues of bilateral trade liberalization and Canadian technological performance raise numerous policy concerns. Particular concerns include the low level of R&D performed in Canada, the potential impact of bilateral trade liberalization on current government policies on adoption and diffusion, the high degree of dependence on "foreign-made" technology, the great reliance on technology transfers by foreign-owned multinational enterprises as the main means of importing foreign technology, and the impact of associated service payments on the balance of payments. The technology creation, adoption, adaptation and diffusion performance of Canadian industries and the importance of these technology factors have been examined to a considerable degree, particularly by Daly (forthcoming) and by the Economic Council of Canada (1983). The amount of actual R&D performed in Canada is significantly less than the amount available for use by Canadian firms. The option of buying technology, especially from abroad, raises a wide range of specific economic issues, including the speed and effort of adoption and adaptation of foreign technology, the means of importing foreign technology, (for example intra-corporate transfers, licensing, joint ventures, etc.), and the diffusion of technology within the domestic economy.

A major policy concern for Canada is that the diffusion of new technology into Canada and between Canadian firms and industries is slower than in other advanced countries. The reasons for the slowness of technological diffusion into and within Canada are numerous and varied. A list of economic reasons for both low R&D activity and slow technology diffusion could include the output mix of the Canadian economy, the market size and structure of individual industries,

foreign ownership, plant size, the diversity of plant production, the length of production runs, the source of financial capital and the magnitude of technology investment. These structural factors are likely to change significantly if bilateral trade is liberalized. Given the nature of these changes in the production structure, it would appear that Canadian technology performance could improve significantly under a bilateral trade arrangement. However, the poor Canadian technology performance to date may be an important obstacle to the realization of the long-run economic benefits in a world of dynamic comparative advantage.

The research on R&D and technology performance in Canadian industries also suggests that managerial behaviour is an important factor in explaining the poor Canadian cost-competitiveness as well as the poor R&D and technology performance. Notwithstanding the literature on differences in managerial practices between Canadian-owned and U.S.-owned firms, there is a general lack of scientific knowledge about managerial behaviour and performance, including how corporate leaders react to trade policy changes, to economic policy changes in general, and to macroeconomic changes in the economic environment. At the same time the microeconomics of firm investment behaviour is not well established theoretically or empirically, and this hinders the assessment of how Canadian firms will adjust to and exploit the opportunities created by bilateral trade liberalization. Nevertheless, managerial perceptions of the investment climate or of their own abilities to successfully market their products in the U.S. economy will influence significantly the impact of bilateral trade liberalization.

Since the efficiency and costs in performing non-production activities are greatly influenced by managerial abilities and attitudes, research on management behaviour and corporate planning would be quite useful for the assessment of the likely managerial response to changes in trade policy. This research could also provide valuable information on the role of management in adapting and changing production processes and activities in response to trade liberalization. In particular, research on managerial behaviour would provide for a better assessment of the potential for world product mandating in Canadian industries. Since realization of the long-term economic benefits from bilateral trade liberalization depends to a great extent on the reaction of firms, the willingness and ability of management to undertake fundamental structural changes is a key factor determining the potential benefits to Canada of freer trade.

3.5 Intra-Corporate Trade

Trade theory and trade policy deal with the movement of goods across national boundaries. These and other branches of economic theory and policy address the impact of these movements on the domestic economy. Trade theory in particular is predicated on assumptions that international transactions take place between separate entities negotiating in the open market--in other words, at arms-length. Thus, trade is found to conform to supply and demand conditions and to comparative advantage, among other factors. These factors become the concern of the policy maker when attempts are made to manage and promote the economic welfare of the country through micro- and macroeconomic instruments.

There is, however, a major portion of international trade which is not directly affected by these factors alone, and which therefore, is not affected directly by policy actions in the same way as are free market transactions. In Canada, nearly 73% of the imports, and close to 76% of the exports of the largest 300 or so foreign-owned firms consists of this type of trade. This trade is non- arms-length and is referred to as Intra-Firm (IF) trade or Related-Party (RP) trade.

Intra-Firm trade is trade across national boundaries in goods and services which begins in and is consumated by one firm, or is carried on between a parent firm and its affiliate, between two affiliates of the same parent or between corporate entities related in some other legal form. The problems raised for the analyst by IF trade are manifold and include the following: there is no separate theory of IF trade: there is little said about IF trade by conventional trade theory; there are conceptual problems with the role, composition and definition of IF trade; there is little solid data on IF trade; and there is little or no work related to IF trade which is transportable to the policy framework.

The first difficulty in assessing the importance of IF trade to a trade liberalization agreement is the lack of consensus on what constitutes IF trade. The important and key distinction between IF trade and open market transactions is that the latter are responsive, inter alia, to market and price signals which are, for the most part, transparent, observable and to some degree predictable. IF trade, in contrast, is motivated through command decisions which are responsive to a firm's perceptions of efficient internal resource allocation and is therefore, not as transparent, as observable or as predictable.

A second difficulty arises from the operational confusion surrounding the concept of IF trade. Some define IF trade as that taking place between firms related by ownership of 50% or more of the voting stock of one firm by another. This is called MOFA trade (Majority-Owned Foreign Affiliate trade). The U.S. Foreign Trade Bureau collects data at the Customs declaration-form level on imports by U.S. corporations from affiliates which have 5% or more of their voting stock owned by the parent corporation. This is called Related-Party (RP) trade. The U.S. Department of Commerce publishes in its Survey of Current Business data on royalty and service fee remittances of foreign affiliates which are 10% or more owned by U.S. corporations. These sources of data, and the problems associated with them, are reviewed below.

The area of economics encompassing IF trade has suffered from a lack of theoretically sound work and has not stimulated strong empirical work. The most fundamental building blocks--the data--are collected on an ad hoc basis by most countries, and in uncomparable form in other cases. The U.S. Bureau of the census (Foreign Trade Division, document IQ246) collects data on related party (RP) imports to the U.S. This data is highly disaggregate and is collected at the customs-form level. There are two U.S. surveys of MOFA trade of the top 300 or so U.S. corporations, for the years 1966 and 1970. The U.S. Department of Commerce publishes a quarterly report in its Survey of Current Business on the source and direction of trade of the affiliates of the top 300 or so U.S. corporations, though this is not collected on an IF trade basis. The U.N. Economic and Social Council (ECOSOC, 1978) and the U.S. Centre on Transnational Corporations (U.N. 1983, for example) publish ad hoc third party

data on IF trade. In Canada, the Department of Industry, Trade and Commerce/Regional Economic Expansion also publishes annually a review of foreign-owned subsidiaries in Canada, primarily to assess and monitor the performance of these firms against the criteria outlined in the Federal government's "Guiding Principles of Good Corporate Behaviour". The section in this publication on IF trade reports data on MOFA imports, exports and sales. The data are derived from voluntary surveys of between 280 to 300 or so cooperating corporations in Canada. Statistics Canada has recently instituted a program of MOFA data collection, which will compile data on all MOFA imports at the customs-form level at the point of entry of the goods into the country.

In general, however, these data noted above are exceptionally inadequate for the purposes for which policy makers need them. Listed below are some of the flaws and shortcomings of IF trade data in general:

- there are 4 important components of IF trade. These are: commodity trade; transactions giving rise to royalty payments for patents, technology, etc.; transactions giving rise to management and service fees; transactions arising from research and development expenditures. Data on these are rarely separately collected;
- where data are collected, there are real problems of comparability and concordance--from goods to industries, between countries and between imports and exports;
- data are often collected on small samples of corporations, making economy-wide comparisons difficult;
- the most disaggregate and comprehensive data--that which is collected at the customs declaration-form level--must rely on transaction prices. These are subject to transfer-pricing manipulation and may often not be directly comparable to arms-length prices. Comparisons of per-unit transfer prices with arms-length prices is difficult in higher value-added industries;

- volume data as a means of overcoming problems associated with price data are rarely collected. Even so, volume data are subject to the same problems as per-unit price data, including the effects of product differentiation;

- often no distinction is made between IF commodity or service transactions which are consumed by the importing affiliate and those which are resold to third parties; and

- the data are collected by different countries and at different times on different operational definitions of "affiliation". The most common benchmarks are Related-Party (RP) trade (related by 5 to 10% ownership of voting stock) and MOFA trade (related by 50% or more ownership of voting stock). Little or no data is collected on the basis of corporations wherein control is exerted through other legal forms.

- There are important conceptual implications resulting from this operational confusion. If the determining factor in IF trade is that it occurs outside the open market, then perhaps long-term contractual arrangements should also be included in the concept. In particular, corporations joined by licencing agreements, joint ventures and shared technology or long-term management, marketing or supply contracts may also be functionally subject to the same control as is exerted by partial or substantial ownership.

There is undoubtedly a large portion of international trade, the volume, pattern, composition and prices of which are most responsive not to open market forces, to policy changes such as trade liberalization or to domestic economic policy changes but to the decisions and the command-rules of the Multinational Enterprise (MNE). While these command allocations will respond to policy and trade-barrier changes, the policy maker cannot be assured this response emulates or even approximates open market responses. Therefore, investigation of the factors motivating the expansion of IF trade within the MNE, and indeed the expansion of the MNE itself will provide some understanding of the implications of IF trade for trade and economic policy. Some important factors are the following, as identified by Caves (1982), Lall, (1978) Bergston et al.

(1978), Economic Council of Canada (1983), Chudson, (1981), Murray, (1981), Helleiner (1979, 1981) and Helliner and Lavergne (1979):

- intangible assests, including technology, managerial skill and knowledge, marketing expertise etc. are internalized by the MNE in order to maximize economic rent; IF trade is one way to do this;
- horizontal integration and the internalization of intangible assests can encourage larger flows of IF trade primarily in combination with verticle integration. otherwise the output of affiliates would be highly substitutable;
- verticle integration--perhaps facilitated through post-investment IF trade--is used to internalize the market for intermediate goods and inputs, if there are conditions of failed market information, impacted information and opportunism, uncertainty in arms-length transactions or gains from backward or forward integration especially in terms of substantial marketing and after-sales service;
- IF trade may be one way by which specialized subsidiaries capture individual product- and plant-specific economies of scale; and
- mitigation of exchange-rate risk and avoidance of tax through transfer pricing are potentially important benefits or motivations for IF trade.

The problems associated with data collection, the conceptual difficulties and the lack of a formal theory on IF trade have yielded, understandably, relatively little strong empirical work. The work by Helleiner, Lall and Helleiner and Lavergne, shows weakly positive or not significant relationships between IF trade and firms or industries which embody certain features that can be a source of quasi-economic rents, including scale economies, technology, high human capital content, product differentiation and other entry barriers such as advertising costs. Clearly, the gaps in conventional trade theories are miniscule in comparison to the lack of hard empirical and theoretical work in the areaof IF trade.

In spite of these shortcomings, it is known that IF trade is a significant portion of total MOFA exports and imports in Canada, as illustrated in Tables 10 and 11. IF trade in exports accounts for 76% of the reporting corporations' total exports in 1981, the latest available year. This is up only moderately from the 1973 level and there is no clear trend on an industry-by-industry basis toward greater or lesser IF trade for the reporting MOFA's. It should be reiterated that these data are only those reported by the top 25 or 30 MOFA's in any given sector. They do not directly reflect economy-wide data, and they are sensitive to entry and exit of large firms over time. At the same time, Statistics Canada (1978) notes that on the import side there is a high degree of concentration, with the top 4 firms in each of the 182 sectors classified accounting for close to 45% on average of all imports of that sector. At the very least then, the data shown in Tables 10 and 11 are highly indicative of the import and export behaviour of Canadian MOFA's in general.

TABLE 10

Percentage of Exports to Parents and Affiliates Abroad, all Reporting Corporations, by Industry, Annually, 1973 to 1981

INDUSTRY	Exports to Parents and Affiliates as Percentage of Total Exports 1973	1981
Mining and Primary Metals	53.2	53.9
Gas and Oil	57.7	44.3
Machinery and Metal Fabricating	87.9	82.1
Transportation Equipment	93.3	90.8
Electrical Products	43.7	41.3
Chemical Products	43.7	41.3
Chemical Products	53.3	70.7
Food and Beverage	42.8	21.6
Pulp and Paper	49.4	46.8
Other Manufacturing	65.0	46.0
Wholesale Trade	43.1	86.4
Other Non-Manufacturing	66.7	47.1
TOTAL	73.0	76.0

Source: Department of Industry, Trade and Commerce/Regional Economic Expansion, Foreign Owned Subsidiaries in Canada. (Various years).

TABLE 11

Purchases Abroad as Percentage of Total Purchases, and as Percentage of Imports from Parents and Affiliates Abroad, All Reporting Corporations, by Industry, Annually 1973 to 1981

INDUSTRY	Imports from Parents and Affiliates as Percentage of Total Imports		Purchases Abroad as Percentage of Total Purchases	
	1973	1981	1973	1981
Mining and Primary Metals	70.1	77.4	23.8	28.6
Gas and Oil	93.3	56.4	23.2	23.7
Machinery and Metal Fabricating	80.9	84.6	51.8	48.6
Transportation Equipment	81.4	78.3	79.0	84.6
Electrical Products	63.8	59.3	34.0	38.1
Chemical Products	57.1	65.6	32.1	24.6
Food and Beverage	37.5	41.2	17.4	19.2
Pulp and Paper	27.6	30.4	7.0	7.5
Other Manufacturing	74.8	78.7	35.2	36.4
Wholesale Trade	83.0	77.8	25.8	23.1
Other Non-Manufacturing	41.2	68.5	4.5	3.6
TOTAL	78.2	72.8	39.5	39.7

Source: Department of Industry, Trade and Commerce/Regional Economic Expansion, Foreign Owned Subsidiaries in Canada. (Various years).

Imports from affiliates or parents abroad are also shown in Table 11 to be a significant portion--72.8%--of total reporting MOFA imports. This ranges from a low of 30.4% in the Pulp and Paper sector to over 84.6% in the Machinery and Metal Fabricating sector. Table 11 also shows that imports are a very significant portion of the total inputs of MOFA's in Canada, reflecting the often-stated propensity of foreign firms to source inputs abroad. More detailed information on import propensities can be found in Statistics Canada, Canadian Imports by Domestic and Foreign controlled Enterprises. (1978, 1981 forthcoming). These publications also provide some information on the service-import propensities of foreign-owned firms in Canada.

Undoubtedly, IF trade plays a significant role in MOFA imports and exports, which also account for a large proportion of total MOFA purchases and sales. Unfortunately, these data are limited in coverage and only cover MOFA trade (50% ownership) rather than the more detailed Related Party trade data available for U.S. imports. It is clear, however, that the significant role of IF trade in the Canadian economy raises many issues and concerns for the policy maker which are neither addressed by traditional trade theory nor closely examined in empirical literature. One of the most often cited issues associated with IF trade and MNE activity in general is transfer pricing. While most of the focus of work on transfer pricing has been on developing countries, Mathewson and Quirin (1979) have investigated this issue from a Canadian perspective and in the particular context of trade liberalization between Canada and the United States.

Though transfer pricing has acquired a strong pejorative meaning, it is simply a term applied to the pricing of services and goods which are traded between constituent parts of an organization. These prices can be real--giving rise to actual exchanges of money--or nominal--used primarily for accounting purposes. This pricing is generally designed to optimize the efficient allocation of resources within an organization, whether between divisions of one production unit, or between affiliates of a company in diverse locations around the globe. The source of the contention over the MNE's control over transfer pricing arises from this feature of the pricing logic--that it may be employed to maximize profitability in the overall network of firm-affiliates, rather than in the domestically located unit.

This logic gives rise to suspicions in host countries that subsidiaries of MNE's can avoid taxes or exchange controls, for example, by using transfer pricing to reallocate profit to other divisions or affiliates within the MNE. This potential is compounded if the host country provides industrial incentives, tax credits or subsidies which are related to or contingent upon such indicators of performance as profit levels, or expenditures on capital equipment, for example. One of the most recent and most egregious examples of transfer-pricing abuse in Canada was that uncovered by the Restrictive Trade Practices Commission during their investigation of the competitive practices of MNE oil companies operating in Canada (Restrictive Trade Practices Commission, 1981).

In spite of this, Mathewson and Quirin (1979) found that the scope for transfer price manipulation was relatively limited in Canada, the major

constraining factor being the offsetting effect of tariffs in one jurisdiction and taxes in our major trading partner's jurisdiction. In their simulations of corporate behaviour between Canada and the U.S. they found the tax and tariff policies of each country created much less incentive toward transfer pricing abuse. Perhaps the most important feature of their conclusions was that the self-correcting effect of tax and tariff policies in the two countries could be effectively reduced in a freer trade environment. Their simulations pointed to the automobile sector and certain resource sectors that have little or no ad valorem duties on the movements of their products as potentially sectors where transfer pricing would bear some scrutiny within a movement to freer trade. Experience with the pricing behaviour of petroleum companies, noted above, has shown that the potential does exist for significant abuse of transfer pricing when an industry is extensively linked by intra-corporate ties and is highly concentrated.

The policy implications of transfer pricing in particular and IF trade in general have not been well researched. The transactions which take place between affiliates of the same firm are, however, potentially less sensitive to policy changes than other open market transactions. Below, some of the other issues and potential concerns associated with transfer pricing and IF trade are summarized:

- where transfer pricing exists it can reduce the effectiveness of the tax and tariff systems as instruments of economic policy;
- sensitivity of trade flows to exchange rate fluctuations and, to policies designed to stabilize volume and price fluctuations may be reduced;

- the distribution of tax revenues and internally generated investment capital is subject to internal MNE decision-making;

- the ability of the firm engaged in IF trade to smooth over fluctuations in one country's business cycles, and to gain by rapid diffusion of technology through intra-corporate transfers might be a significant source of competitive advantage;

- the estimates of the magnitude and distribution of costs and benefits of freer trade may be subject to modification when IF trade is incorporated; and

- in general, micro- or macroeconomic policies designed and implemented in the context of traditional trade-theory expectations may have less than intended, or completely unintended results in an environment characterized by a high degree of intra-firm trade.

PART 4: SUMMARY AND CONCLUSIONS

The question of whether or not to negotiate a bilateral trade agreement with the United States has emerged once again as a major policy issue in Canada. Any bilateral negotiations would take place in a global economy characterized by increased global economic integration and policy interdependence, sluggish growth, high unemployment, major structural adjustments and rising protectionism. Many of the economic problems in Canada and the United States are related to global economic developments and reflect the on-going structural adjustments in the global economy.

Within the global context, one important consideration for evaluating the economic impact on Canada of bilateral trade liberalization is trade diversion. A bilateral trade agreement would allow Canadian producers to sell to the U.S. market under the umbrella of U.S. trade barriers against offshore producers. However, any benefits in terms of increased production, employment and so forth from trade diversion may be temporary as the United States continues to push strongly for a new round of multilateral trade negotiations. Canada is also calling for a new round, and to the extent a bilateral trade agreement allows Canadian industries to adjust to become more productive and competitive globally, such an agreement could be an important, positive first step.

Canadian interest in a bilateral trade arrangement has developed because of the growing mood of protectionism and the increased use of non-tariff measures, particularly contingent-protection measures, in the United States.

The bilateral trade issue now concerns securing the existing access to the U.S. market as well as enhancing this access. Since most major private sector investment projects in manufacturing require access to a large market, the terms and conditions of access to the U.S. market are an important policy issue for Canada. To a considerable degree the threat of reduced access to the U.S. market is caused by U.S. trade policy actions directed primarily against third countries which can spill over and affect Canadian exports. However, competitive Canadian industries have increasingly found themselves confronted by demands for protection from Canadian imports by their U.S. competition.

The specific bilateral trade issues vary considerably across sectors. In the Agricultural and Fisheries sector, many of the bilateral trade issues revolve around Canadian and U.S. domestic support programs. An important bilateral trade issue for Canada in both the resource and manufacturing sectors is to minimize the spill-over effects on Canadian exports of U.S. trade policy actions directed at third countries. Canadian bilateral concerns in these sectors have also increased because of the growing threat of U.S. trade policy actions directed specifically at Canadian exports and Canadian policies. While the future prospects and development of the Canadian resource and manufacturing sectors have always been a major consideration in Canadian trade-policy making, the area of trade in services is a new trade-policy concern, and many of the bilateral trade issues in trade in services fall outside the traditional boundaries of trade policy.

The issue of bilateral trade liberalization concerns directly the future performance and development of the Canadian economy. The traditional neoclassical theory of trade predicts that a small country will benefit from full trade liberalization. This prediction should be amended for the effect of trade diversion when applied to the question of bilateral trade liberalization; however, the traditional theory itself has been challenged on numerous grounds, ranging from its underlying assumptions and basic concepts, to its inability to explain many real-world events such as intra-industry trade. These challenges have prompted considerable research into the determinants of trade flows, and three important factors from industrial organization theory have been introduced into trade analysis--scale economies, product differentiation and imperfect competition. One important conclusion from the new trade theories is that a country's comparative advantage can be altered directly by trade policies and domestic economic policies. This has given rise to the term "dynamic comparative advantage."

The incorporation of scale economies, imperfect competition and product differentiation into the theoretical analysis of trade liberalization leads to very different conclusions than those found with the traditional theory. The theoretical prediction that trade liberalization results in net economic benefits for a small economy can no longer be made with certainty. On the other hand, the new trade theories show that the benefits of trade liberalization can be substantially larger than predicted by the traditional theory. Theoretical testing of the new theories suggests that the circumstances under which scale economies, imperfect competition and product differentiation may lead to

adverse affects from trade liberalization are special cases as opposed to the general case. In particular, the testing of the impact of scale economies on the theoretical outcome of trade liberalization concludes that only a relatively limited set of circumstances result in a loss for a small open economy. At the same time the new theories of international trade show that removal of foreign trade barriers are an important source of the gains from trade liberalization for a small open economy.

The introduction of industrial organization concepts into trade theory has generated considerable research on the various interrelationships between scale economies, product diversity, plant size, market size, pricing behaviour, concentration, ownership and trade barriers in Canadian manufacturing industries. The research on industrial structure and trade has shed considerable light on two important questions: why are Canadian manufacturing industries high cost, low productivity producers, and what are likely to be the changes in the industrial structural of Canadian industries should bilateral trade barriers be reduced or eliminated? As well as indentifying the importance of product-specific, plant-specific and company-specific scale economies, the research has shown that barriers in a small market contribute to the phenomenon of excessive product diversity, short production runs and small plant sizes in Canadian manufacturing industries, particularly in industries also characterized by high concentration. At the time, there is some empirical evidence that higher profits or higher costs, and not jobs, are protected by trade barriers. Overall, the research on industrial structure and trade barriers has provided valuable theoretical and empirical information that can be used in the assessment of the

economic consequences of bilateral trade liberalization. Nevertheless, there remains considerable scope for further work such as developing better and more detailed data on scale economies and other production and cost characteristics in Canadian industries, which in turn could be used in further empirical testing of the above industrial structure and trade interrelationships.

In large part, the issue of whether or not bilateral trade liberalization would lead to net economic benefits has become an empirical question. Cox and Harris (1984a and 1984b) have used a general equilibrium trade model which incorporates a number of features of the new trade theories to test empirically the impact of a broad bilateral trade liberalization arrangement. Their empirical work concludes that the net economic benefits to Canada would be in the order of 9.0% of gross national expenditure. The net economic benefits from bilateral trade liberalization are estimated to be slightly larger than those from multilateral trade liberalization largely due to the impact of trade diversion. As expected from bilateral trade liberalization, consumers benefit from lower prices and greater product variety. Cox and Harris also find that not only do real wages increase but labour is the major beneficiary from a bilateral trade liberalization arrangement, a conclusion which is contrary to that predicted by the traditional theory. Total production and employment in the manufacturing sector are also found to increase and this is due to the presence of scale economies, product differentiation and imperfect competition. While increased import competition from the United States acts as a catalyst, improved access to the U.S. markets allows Canadian industries to capture scale economies and improve productivity and cost competitiveness. Consequently, the gains in

national efficiency come from two sources: intra-industry rationalization and inter-industry resource reallocation.

The model is disaggregated to 22 manufacturing industries, 4 primary industries and 5 service industries. Since the model assumes full employment, the job gains in the manufacturing sector are offset by job loses in the primary and service sectors. Output, however, increases in all the primary and service industries, reflecting the increase in productivity in these industries. Within the manufacturing sector, 5 industries experience a decline in both output and employment--Agricultural Machinery, Non-Argicultural Machinery and Equipment, Furniture. Electrical Products, and Miscellaneous Products. Altnough output increases, employment also falls in 7 other industries. The level of production and employment increases in the remaining 10 manufacturing industries, and the increase in employment in these manufacturing industries offsets the job loses in the other industries. With the intra-industry rationalization and inter-industry reallocation, labour productivity increases dramatically in all industries. In general, industries which benefit from bilateral trade liberalization are characterized by unexploited scale economies and capital-intensive production technology, low levels of existing protection, high export elasticities, and a moderate degree of substitutability between imports and domestic goods. Industries which are adversely affected by bilateral trade liberalization are characterized by labour-intensive, mature production technology. On the whole, the empirical work by Cox and Harris supports the theoretical proposition by the new trade theories that the potential economic benefits of bilateral trade liberalization are much larger than traditionally expected.

The construction of the model by Harris (1983) requires data and estimates for wide range of economic variables and parameters, and its operation requires a number of technical assumptions. As Cox and Harris and others have pointed out, there are numerous problems with the data. For example, many of the estimates of the economic parameters reflect the economic conditions of the early to mid 1970's and there is a paucity of hard estimates of scale economies and non-tariff barriers. Some critics have also raised legitimate concerns over various aspects of the modelling of economic relationships within the model and the operational features of the model. For instance, issues are raised over the pricing mechanism and the manner in which scale economies are incorporated. One important area for further research would be to update the estimates of the relevant economic parameters. The testing of different assumptions about the relationships between economic variables would also be useful, and the incorporation of new research findings from future work on industrial structure may also be warranted. Regardless of their concerns, all commentators have acknowledged that the Harris model is a significant contribution to Canadian economics and policy analysis.

The issue of unemployment is also a major policy concern, and two questions regarding the impact of bilateral trade liberalization on employment are relevant: where and what types of jobs will be gained and lost, and how many jobs in total will be gained or lost in the short run and the long run. With regard to the first question, Cox and Harris estimate that up to 7.0% of the labour force could be expected to change jobs as industries contract or expand under a bilateral trade liberalization arrangement. The model identifies where

the jobs could be expected to be gained and lost, and the significant short-run displacement of workers raises numerous questions about the process and cost of labour adjustment.

The net impacts of bilateral trade liberalization on total employment in the short run and the long run are difficult to assess. Most trade models assume full employment and examine the impact of changes in trade policy on the structure of an economy and the allocation of resources--including labour--across industries. The question of total employment is primarily a macroeconomic issue. The impact on total employment of trade-policy changes would be primarily through its impact on the microeconomic structure of the economy and the affect that changes in the microeconomic structure would have on the performance and functioning of the economy.

The traditional trade theory shows that jobs can be created in one industry; however, these jobs come at the expense of jobs in other industries. The newer trade theories show that it is theoretically possible for a country to use trade barriers to increase the number of jobs in both an industry and the economy. This conclusion, however, relies on strong assumptions, including the assumption that no retaliation occurs. It is also argued frequently that the use of trade barriers in periods of persistent high unemployment can result in more jobs. But this argument overlooks the critical issue, which is the identification of the cause of the persistent high unemployment problem. If the cause of the problem is domestic economic policy rigidities, then the imposition of trade barriers may lead to further job losses because trade barriers are likely to add to these rigidities.

On balance, bilateral trade liberalization would likely result in the short-run decrease in total employment as labour moves from one job to another. This short-term reduction in jobs may not be as large as commonly thought because bilateral trade liberalization would likely lead to an increase in investment as existing firms adjust and new firms enter the economy. The increase in investment would offset to some degree the short-run reduction in consumption resulting from short-term job losses. Overtime, the total number of jobs would likely be higher if bilateral trade is liberalized. The resulting increase in real income and improvement in the efficiency and flexibility of the microeconomic structure could be expected to improve the potential and actual performance of the macro-economy. To assess empirically the impact of bilateral trade liberalization on total employment, Harris has used a macroeconomic model and the results from his general equilibrium trade model. The preliminary, unpublished conclusion is that the total number of jobs increases by 5.0% within two years of entering a bilateral trade arrangement. Since there exists a number of Canadian macroeconomic models which incorporate the input-output structure of the economy, further work into the consequences of bilateral trade liberalization for the performance and functioning of the macro-economy is possible and desirable.

As a result of the various concerns over negotiating a comprehensive bilateral trade agreement, two alternative bilateral trade policy approaches have been proposed--the sectoral approach and the functional approach. Cox and Harris have used the general equilibrium trade model to investigate the economic impact of the sectoral approach. To conduct the experiment, tariffs

on bilateral trade are removed in five industries--Textiles, Steel, Chemical Products, Urban Mass Transit Equipment and Agricultural Machinery and Equipment. With the exception of the last industry, production and employment is found to increase in these industries and these gains are generally greater than under full bilateral trade liberalization. The impacts on production and employment in other industries are much smaller, although the non-liberalized industries also show productivity gains because the increase in wages causes some firms in these industries to leave and the remaining firms are able to lower costs by increasing the level of output.

The net welfare gain from sectoral trade liberalization is only in the range of 1.5 to 1.9% of gross national expenditure, considerably lower than the 9.0% gained from full bilateral trade liberalization. Overall, the main effects of removing bilateral trade barriers--whether they are the trade diversion effect, the inter-industry labour shift, the productivity gain and so forth—are much smaller in the sectoral approach than in the full bilateral trade liberalization approach. At the same time, the inter-industry and intra-industry adjustments are smaller in the sectoral approach. Moreover, as Cox and Harris point out, the conclusion of positive net benefits from the sectoral approach may be due to the selected industries as opposed to the sectoral free trade itself.

Problems with the sectoral approach include determining which sectors to include in any sectoral negotiations, balancing the bilateral trade-offs within sectors as well as between sectors, meeting Canadian and U.S. GATT obligations, and avoiding third-party retaliation. With regard to the economic

considerations, the sectoral approach limits the major efficiency gains to intra-industry resource shifts. Equally important, it can cause undesirable inter-industry resource shifts as the protected industries and non-protected industries compete for resources. If, from a national economic efficiency criterion, the wrong sectors are chosen for bilateral sectoral trade liberalization, then the chosen industries may come out ahead at a significant cost to other industries and the national economy as a whole. There are also questions about the economic desirability of limiting bilateral trade liberalization to a few industries and exposing Canadian policy interests to narrow disputes over bilateral trade balances and economic activity in these few industries.

The functional proposal reflects both the complex nature and the difficulties of negotiating the reduction and/or elimination of non-tariff measures. Unlike tariffs, non-tariff measures rarely take the form of an explicit tax on imports, comprise a wide range of dissimilar measures, frequently involve administrative procedures, and are usually unpredictable and non-transparent. Nor are non-tariff measures limited to import-protection policies, as many nations now employ measures designed to boost exports. In federal countries, numerous non-tariff measures are also applied at the provincial or state level. In general, non-tariff measures can be divided into two groups: standing-protection measures, and contingent-protection measures.

Empirical research on the impact of removing non-tariff measures on bilateral trade has been severely limited by the paucity of reliable estimates of their protective effect. There are numerous conceptual problems and data

problems associated with estimating the degree of protection provided by non-tariff measures. The analysis of the impact of non-tariff measures is further complicated by the differences in the impact on economic activity of various types of non-tariff measures. There remains considerable scope for further research in this area, ranging from the construction of better data bases to the estimation of the protective effect and economic impacts of non-tariff barriers on industrial structure and economic activity.

The issues identified above pertain largely to the magnitude and nature of the potential net economic benefits from bilateral trade liberalization. The empirical work by Cox and Harris indicates that structural changes in the Canadian economy could be large and extensive. Unfortunately, trade theory is not particularly helpful in explaining how an economy undertakes these changes or what the economic costs of adjustment are. Yet, many of the public policy issues revolve around the process of adjusting to a change in the bilateral trade relationship. Moreover, factors such as the labour adjustment process, labour market operations, regional economic structure, technology performance, other non-production aspects of corporate behaviour, and intra-corporate trade can not only affect the process, time-frame and costs of economic adjustment, but may also effect significantly the degree to which the potential long-run benefits are realized. Consequently, these types of considerations are important for the short-run and the long-run view points of policy-making.

The process of adjustment to changes in the economic and policy environment are not well understood. Yet the social and private costs of

adjustment are central issues in the evaluation of the impact of bilateral trade liberalization. This has been recognized, particularly in the area of labour adjustment, and some attempts have been made to establish theoretically and empirically how individuals and organizations adapt to changes in the economic and policy environment and how government programs affect this process. There is a growing body of research on the private and social costs of labour adjustment; some studies have also looked at how firms adjust. Nevertheless, there are large gaps in the knowledge base of the adjustment process and its effects on economic performance.

With regard to the operation of the labour market, there are numerous considerations which relate to the issue of bilateral trade liberalization, including labour-management relations, job search and skill needs and retraining. There is a fairly large body of research, both theoretical and empirical, on various issues in labour economics, and much of this work could be synthesized in order to bring out the major economic and policy considerations regarding the economic consequences of bilateral trade liberalization. However, as this could easily become an overwhelming task, the pulling together of the various issues should be directed to establishing where and how many jobs will be affected and what and where are the existing rigidities in labour markets that would influence the nature, scope and cost of adjusting to bilateral trade liberalization.

The regional impact of trade liberalization on production, employment and other economic variables is also major policy issue. The conventional wisdom on the regional impact of bilateral trade liberalization is that the Atlantic and

Western provinces will gain because consumers in these provinces will no longer pay the tariff on imports and because resource-based exports will increase. The central provinces would experience short-run economic costs as a result of increased import competition and subsequent output and job losses in the manufacturing industries located in these provinces. In the medium run, the economic impact on the central provinces would become positive as the manufacturing sector adjusts, improves its productivity and competitiveness, and increases its exports.

A simple method of obtaining estimates of the regional impact of bilateral trade liberalization would be to allocate the industry impacts in production and employment across provinces according to their share in national output and employment. However, the results could be misleading, because firms, labour markets and other economic factors are not identical across provinces. Furthermore, the adjustments in industrial structure could lead to important shifts in industries across provinces. At the same time, the impact on regional industries of federal and provincial policies which might be included in bilateral trade negotiations is not the same in each province. Also, bilateral trade liberalization could be expected to significantly alter the pattern of inter-regional trade in Canada, and between Canadian and U.S. regions. Consequently, the existing work on the regional impacts offers a starting point, but there remains considerable scope and need for further work.

The ability of Canadian firms to take advantage of the opportunities created by secured and enhanced access to the U.S. market will depend in part

on their ability to improve their performance in areas such as corporate management and planning, marketing, advertising, product distribution, financing, inventory control, research and development, and technological adaptation and diffusion. These activities account for a significant portion of the costs of supplying goods to a market and, hence, affect the competitiveness of Canadian industries. With regard to Canadian R&D and technology performance, numerous concerns have been raised, focussing on the low level of R&D, the slow rate of technology adoption, adaptation and diffusion, the dependence on "foreign-made" technology, and the great reliance on technology transfers by foreign-owned multinational enterprises as the main means of importing foreign technology. Given the nature of structural changes in the Canadian economy, it would appear that Canadian R&D and technology performance could improve significantly under a bilateral trade arrangement. However, the poor Canadian technology performance to date may be an important obstacle to the realization of the long-run economic benefits in a world of dynamic comparative advantage.

Economic factors contributing to the poor R&D and technology performance in Canada have received considerable research attention. The research on R&D and technology performance in Canadian industries also suggests that managerial behaviour is an important factor in explaining the poor Canadian cost-competitiveness in a variety of non-production areas as well as the poor R&D and technology performance. This would suggest that research is needed on the managerial aspects of corporate behaviour and performance. In addition to insights on where or if Canadian management is under-performing in

these areas, this research could also provide valuable information on the role of management in adapting and changing production processes and activities in response to trade liberalization.

One area which requires a great deal of research is intra-firm trade. A considerable share of bilateral trade is conducted by the parents and subsidiaries of multinational enterprises. The process of intra-firm trade is not well understood in trade theory, and most trade models treat this form of transaction as identical to arms-length trade. Yet, the impact of bilateral trade liberalization on intra-firm trade may be a major factor in determining both the microeconomic and macroeconomic affects of bilateral trade liberalization on Canada's economic performance and development. At the same time, the policy issues that are raised by intra-firm trade extend beyond the trade-policy sphere to include issues in the area of taxation, corporate pricing behaviour, and industrial structure. Consequently, research in this area is a priority.

In sum, the main conclusion emerging from the paper is that bilateral trade liberalization could be expected to provide large, long-run economic benefits to Canada. It could also be expected to lead to a more efficient and flexible microeconomic structure which in turn could improve significantly the performance of the Canadian macro-economy and its ability to create more and better job opportunities. However, bilateral trade liberalization would involve significant structural changes in the economy. While these structural adjustments are a major source of the large potential long-term net economic benefits, the adjustment process could entail significant transitional costs.

These adjustment costs would include labour adjustment costs as workers move from one industry to another. There could also be various factors which would affect the adjustment process, adjustment costs, and the ability and speed by which the long-term economic benefits are realized. Nevertheless, it would appear that the bilateral trade liberalization option would provide the conditions and the environment for a healthier and sounder Canadian economy.

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* No longer available. Published in Canada Among Nations 1984: A Time of Transition, edited by Brian W. Tomlin and Maureen Molot. (Toronto: James Lorimer, 1985), Chapter 5.

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