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AN ASSESSMENT OF THE ECONOMIC EFFECTS OF THE CANADIAN-U.S. FREE TRADE AGREEMENT

by

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Introduction

The purpose of this brief note is to provide some information on the potential

economic effects of the elimination of tariffs and nontariff barriers (NTBs) that will be

implemented in the U.S.-Canadian Free Trade Agreement (FTA). It should be emphasized

in this regard that the FTA deals with a number of other important issues besides tariffs

and NTBs. These other issues include new and possibly more liberal rules and procedures

involving bilateral trade and investment in automobiles and parts, energy products, and

services, certain clarifications and guarantees involving nondiscrimination in foreign direct

investment, and some potentially very important arrangements for the handling of trade

and investment disputes that might arise in bilateral relations. The analysis of the effects

of bilateral removal of tariffs and certain NTBs is something that can be done in

quantitative terms. However, it is unfortunately very difficult to quantify the economic

benefits that may arise from improvements in the rules and procedures governing

international trade and investment transactions. This is important since the

nonquantifiable benefits of the U.S.-Canadian FTA could be of substantially greater

significance to the United States (and Canada as well) as compared to the quantifiable

benefits arising from the removal of tariffs and NTBs. I shall return to the

nonquantifiable aspects of the FTA below. Let us then concentrate on the effects of

bilateral removal of the existing tariffs and NTBs.

II. Analyzing the Economic Impacts of the FTA

An indication of the size and sectoral characteristics of bilateral tariffs and NTBs

is given below in Table 2, which is reproduced from a 1988 study of the FTA by the

Canadian Government's Department of Finance. It is evident from this table that

Canadian bilateral tariffs and NTBs are noticeably higher overall and for most sectors as

compared to the United States. If we assume that these tariffs and NTBs are going to

removed in the course of the implementation of the FTA, what will the effects be?

It is possible analytically to identify five main channels by which the removal of tariffs and NTBs will affect the two countries. These are as follows:

1. There will be reductions in consumer prices due to the lower costs of imported goods.

2. There will be reductions in the prices of imported inputs that firms use in the production process. Lower prices of inputs will result in lower costs to firms and possibly lower prices of goods to consumers as well.

Both of the foregoing effects will result in a shift towards tradable goods whose prices will fall relative to nontradables (e.g., goods and services that are limited spatially because of transportation costs and other characteristics that require close proximity between production and consumption). Some of the tradable goods sectors will expand whereas others will contract as the FTA liberalization takes effect. Productive resources will thus be allocated more efficiently as compared to the pre-FTA position. The effects in the two countries will depend on the relative heights of their tariffs and NTBs.

In analyzing these various effects, there is an interesting and important issue of how to portray the Canadian economy. For example, if we consider that Canada is a small country economically speaking, this would imply that Canada would gain unambiguously from a FTA since it would be able to trade at more favorable prices in the U.S. market because of the disparities in the sizes of the two nations. However, if we take into account that the products of the two nations are differentiated nationally according to where the products are produced, it turns out that the relative sizes of the national tariffs will determine how the two countries might be affected by a FTA. Since, as we have seen, Canadian tariffs are noticeably higher than U.S. tariffs, the United States might well penetrate Canadian markets more in a number of sectors as compared to Canada's penetration of U.S. markets. In these circumstances, Canada may possibly experience unfavorable terms-of-trade effects and its currency may depreciate. The United States

might thus benefit from the FTA, and it is conceivable that Canada's welfare could decline for the reasons just mentioned.

3. Manufacturing firms in Canada may be able to take advantage of economies of scale as the result of the FTA. The reason is that Canadian tariffs may have sheltered domestic firms, with the consequence that plants may be of suboptimal size and a large variety of products may be produced by individual firms. With the removal of bilateral tariffs and NTBs, firms will be induced by profit considerations to take advantage of enhanced market opportunities by expanding output and reducing the number of product varieties. As a result, they may able to realize economies of scale in terms of lower average costs per unit of output. These gains from industry rationalization may be potentially large for Canada for the reasons mentioned above. It is less likely that the United States would stand to gain because the attainment of optimal plant size and concentration on a limited number of product varieties are more feasible in the U.S. market because of its size.

4. The reductions in consumer prices due to the bilateral elimination of tariffs and NTBs may result in an increase in the real disposable income of consumers. If this leads to increased consumer spending, it will increase real GNP, output, trade, and employment in both countries in the short-to-medium run. These macroeconomic benefits may thus reinforce the microeconomic benefits stemming from lower consumer prices, improvements in resource allocation, and the realization of economies of scale.

5. There will be a reduction in the uncertainty of policies in both countries. This will be beneficial because it will remove existing ambiguities in the interpretation and enforcement of the rules and procedures governing bilateral trade and investment. Several examples of the potential benefits from the FTA can be cited here. These include the agreements that limit the use by Canada of investment performance requirements for foreign affiliates of U.S. firms, the guarantee of national treatment and rights of establishment for foreign firms investing in most industries, the removal of Canadian duty

remission schemes that had been condoned in the U.S.-Canadian Auto Pact, and less

nationalistic and potentially discriminatory Canadian energy and agricultural policies.

Also of potentially great importance especially to Canada is the establishment of new

dispute settlement procedures that are designed to depoliticize the investigation of trade

and investment disputes and to reduce the likelihood that politically driven and therefore

damaging actions will be taken. The costs of undertaking trade and investment

transactions may thus be materially reduced as the result of the FTA.

It would of course be desirable if we could measure the benefits that will accrue

from all of these changes, but, as already indicated, they are extremely difficult to

quantify. Measurement difficulties do not belie the potential importance of the various

changes in rules and procedures, however. Indeed, it is quite conceivable that the

nonquantifiable benefits stemming from the FTA may substantially greater than the

quantifiable benefits.

III. Analytical Methods for Assessing the Economic Effects of the FTA

In order to obtain a quantitative assessment of the benefits and costs of the FTA,

it is necessary to rely on economic models. We need an economic model so as to establish

the orders of magnitude concerning the importance of existing restrictions and policies and

thus to determine what the economic effects might be of removing the restrictions and

bringing about changes in policies. In choosing an economic model for purposes of

analyzing the FTA (or any other change in policies), it is imperative that the analyst make

clear what the important assumptions and limitations of the model are. This includes a

complete and careful statement of the theoretical foundations of the model being used, how

the parameters of the model have been chosen, and a description and documentation of the

data used in implementing the model. These are very important matters that should be

insisted upon by those who will be using the model in question and are depending on it to

obtain numerical results that are to be trusted in evaluating different policy options.

Broadly speaking, there are two classes of models that can be used. The first is an econometric model that is based on historical relationships that can be presumed to remain unchanged in the relevant policy horizon. If an econometric model is constructed and it fits the data well, it can then be used to make forecasts of how important variables such as output, trade, and employment might be affected by the FTA. It should then be possible ex post to compare the model forecasts with actual values to determine how accurate the forecasts may have been.

Unfortunately, because many of the changes that will come about as the result of the FTA depend on a variety of complex microeconomic behavioral relations and intersectoral and intercountry interactions, it is not feasible to construct an econometric model. An alternative is to construct a simulation model that will incorporate the important behavioral and interaction effects and that can be solved computationally so as to yield numerical results relating to the potential impacts of the FTA. In recent years, there has been considerable progress made in developing and using such computational models, and three such models have been adapted to analysis of the FTA. It should be emphasized that these computational models do not provide actual predictions that can be compared against actual values. Rather, the numerical results of the models are to be interpreted in the light of their assumptions, parameters, and data. This means that, in evaluating model results, tests should be conducted to determine how sensitive or robust the results are to changes in different aspects of the model.

What Do The Models Suggest About The Effects of the FTA?

We can now consider what the models suggest may be the potential economic effects of the FTA. The potential effects on Canada are noted in Tables 4 and 5 that have been reproduced from the aforementioned 1988 study by the Canadian Department of Finance. The results in Table 4 are based on a computational-general-equilibrium model developed by Richard Harris of Queen's University in Kingston, Ontario. Harris's model incorporates the possibility of scale economies in Canadian manufacturing industries. It is

evident that these scale economies are the main driving force in the estimated 2.5% increase in Canadian real income and the sectoral changes in real output that may result from the FTA. In Table 5, the Department of Finance results are compared with estimates contained in 1985 studies of the FTA by Bob Hamilton and John Whalley and by Harris and David Cox. In Harris's earlier study, the real income gains for Canada were nearly 9%, which reflects the powerful effects of how he modeled scale economies. The results obtained by Hamilton and Whalley are considerably smaller insofar as they made no allowance for scale economies but did allow for national product differentiation.

Drusilla Brown and the present author have developed a computational model of U.S.-Canadian trade and investment relations. Their results are summarized in the aggregate in the Table 4 that has been reproduced from the 1987 Brookings Institution volume on the FTA edited by the present author, Philip H. Tresize, and John Whalley. Brown and Stern do not make allowance for scale economies, but they do take product differentiation into account. Since, as mentioned already, Canada's tariffs are noticeably higher as compared to the United States, Brown and Stern conclude (Table 4, Section B) that the United States might experience a small rise in its economic welfare and Canada a small decline as the result of the elimination of bilateral tariffs.

Given the comparatively small estimates of the aggregate effects that might occur according to Brown and Stern, it is to be expected that the effects on individual sectors will also be comparatively small in the United States especially. This can be seen in Tables 5, 6, and 7, which are also reproduced from the volume edited by Stern et al. Some sectors would evidently experience an expansion in output, trade, and employment, and others would experience a decline. This would depend on the pattern of tariffs (and NTBs) that are to be removed in the implementation of the FTA. It can be seen that the effects of the tariff removal are somewhat larger for Canada, especially in percentage terms. This is because the Canadian economy is only about one-tenth the size of the U.S. economy. The larger effects on Canada should not be taken literally, however, because it was assumed in

the analysis that all of the existing tariffs were to be removed at once. If we take into account that the tariff elimination is to be phased in over a period of ten years, the effects on sectoral employment in both countries would not be particularly large especially in relation to the normal turnover in labor markets that is going on all the time. One other set of sectoral results is presented in Table 2.1 that has been reproduced from a 1987 Institute for International Economics study by Paul Wonnacott. His results also suggest comparatively small sectoral effects of bilateral free trade.

The results described refer to the effects of the FTA for the United States and Canada nationally. It would be interesting to try to decompose these results in order to assess how states/regions/provinces will be affected. The Canadian Department of Finance has made some estimates along these lines and concluded that the benefits of the FTA will be spread across all of Canada's provinces. Comparable calculations have not been made for the United States, although it seems fair to say that effects of the elimination of bilateral tariffs and NTBs on particular states/regions will be fairly small.

Finally, how will the FTA affect third countries? Here again, except for Brown and Stern, no estimates of third-country effects have been made. But if the bilateral results are indicative, it seems reasonable to conclude that third countries will not be materially affected in the aggregate by the FTA. Some particular sectors in third countries could be affected by the FTA, but more detailed sectoral analysis would be called for in such cases to determine the magnitudes involved.

Conclusion

It seems reasonable to conclude that there will be small, but positive, benefits of the FTA to the United States as the result of the bilateral removal of existing tariffs and selected NTBs. This conclusion rests on the observation that the existing bilateral tariff rates and NTBs are fairly small overall. Some sectors will expand or contract, depending on the relative sectoral pattern of the existing barriers, but the orders of magnitude appear quite small. While direct information on the state/regional impacts is not available, it

would appear that these impacts would also be small in light of the sectoral estimates. The preceding suggests further that third-country effects would be small.

Depending on the assumptions made about the scope for the realization of scale economies in Canadian manufacturing industries, Canada could experience anywhere from a small decline in its real income and welfare to a gain of 2–3%. Because Canada is relatively small compared to the United States, there could be more pronounced sectoral effects. However, these sectoral effects do not seem to be large in relation to the sectoral changes that would be occurring in the normal course of the evolution of the Canadian economy. This would be the case especially since the removal of tariffs and NTBs would be phased in over a period of up to ten years.

The U.S.-Canadian FTA covers many other issues besides tariffs and NTBs. As already indicated, it would appear that there may be important benefits accruing to both nations as the result of the clarification and liberalization of existing rules and procedures governing bilateral trade and investment in a number of important sectors and the security of market access in the event of disputes. These potential benefits unfortunately do not lend themselves readily to quantification, but that does not belittle their importance. In my view, a strong case can be made that the United States will gain from the changes in rules and procedures to be instituted by Canada in connection with the FTA, and Canada will gain from the security of market access that may emerge from the arrangements for dispute settlement. If this judgment is correct, the realization of this FTA between the United States and Canada can be viewed as being beneficial both for North America as well as for the world as a whole.

Table 2

Canadian and U.S. Trade Barriers
by Industry: Rates of Price Protection[1]

Industry	Canada	U.S.
Agriculture	11.6	12.7
Forestry	0.0	0.8
Fishing	0.2	1.7
Mining	0.3	0.4
Manufacturing (total)	**6.5**	**4.6**
Food and beverage	12.1	12.1
Tobacco	16.5	20.7
Rubber and plastics	9.4	4.6
Leather	15.8	7.5
Textile	11.4	8.6
Knitting mills	22.7	12.3
Clothing	19.7	10.9
Wood	2.5	1.5
Furniture	12.6	2.5
Paper and allied	3.5	2.5
Printing and publishing	2.7	0.7
Primary metals	4.2	3.3
Metal-fabricating	7.6	2.7
Machinery	7.0	3.2
Transportation equipment	2.4	0.9
Motor vehicles	1.8	0.3
Motor vehicle parts	1.1	0.6
Aircraft	0.6	1.7
Shipbuilding	11.4	0.3
Other transportation	8.6	4.3
Electrical products	8.7	5.0
Non-metallic mineral	6.3	2.6
Petroleum and coal	0.8	0.5
Chemicals	6.0	4.4
Miscellaneous manufacturing	6.1	4.4
Total goods	**6.1**	**4.7**

[1] The rate of price protection is defined as the potential increase in domestic prices made possible by trade barriers.

Sources: Department of Finance and the Institute for Research on Public Policy

Source: Canada, Department of Finance, "The Canada-U.S. Free Trade Agreement: An Economic Assessment," Ottawa, 1988, p. 20.

Table 5

Results of Other Studies[1] on the Long-Run Economic Impacts of Canada-U.S. Free Trade

	Percentage change in real income
General equilibrium models[2]	
Finance	2.5
Hamilton-Whalley	0.7
Harris-Cox	8.9
Macroeconometric models[2][3]	
Economic Council of Canada	3.3
Informetrica	3.0
Institute for Policy Analysis	3.3
Wharton Econometrics	3.1

[1] R. Hamilton and J. Whalley, "Geographically Discriminatory Trade Arrangements", *Review of Economics and Statistics*, (1985) pp. 446-55; R. Harris and D. Cox, "Summary of a Project on the General Equilibrium Evaluation of Canadian Trade Policy", in John Whalley (ed.). *Canada-United States Free Trade*, Volume 11, Research Studies, Royal Commission on the Economic Union and Development Prospects for Canada. Toronto, University of Toronto Press, 1985, pp. 157-177; Economic Council of Canada, "Impact of Canada-U.S. Free Trade on the Canadian Economy", Discussion Paper No. 331, August 1987; and *Reaching Outward*, Twenty-Fourth Annual Review, Minister of Supply and Services Canada, Ottawa. 1987; Informetrica Ltd. *Economic Impacts of Enhanced Bilateral Trade: National and Provincial Results*. prepared for the Department of External Affairs, 1985; and Peter Dungan, Institute for Policy Analysis. *The Macroeconomic Impacts of Free Trade with the United States: Lessons from the FOCUS-PRISM Models*. University of Toronto, Working Paper, DP 85-86, November 1985; and, Wharton Econometrics. "Canada-U.S. Free Trade: Opportunities, Risks and Prospects", September 1987, The WEFA Group.

[2] Estimates reported in these studies are sensitive to the degree of response of exports and imports to changes in relative prices. The results in the Harris-Cox and Department of Finance analyses are also sensitive to the price response of import-competing manufacturing firms to the reduction of domestic trade barriers. These issues are discussed in Annex 2.

[3] Estimates for a given study vary, due to different assumptions about the extent of trade liberalization and the size of the productivity gain resulting from freer trade

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Table 4

Long-Run Economic Impacts of the Free Trade Agreement: Department of Finance Estimates

	Percentage change
Real income[1]	2.5
Scale-related cost reduction[2]	2.1
Sectoral changes in real output[1]	
Primary	2.1
Manufacturing	10.6
Service	0.9
Total[3]	3.5

[1] Estimates are sensitive to the assumed response of exports and imports to changes in relative prices and the price response of import-competing manufacturing firms to the reduction of domestic trade barriers. These issues are discussed in Annex 2.

[2] Percentage reduction in total production costs due to the exploitation of economies of scale in the manufacturing sector.

[3] Real output changes are reported on a gross domestic product (GDP) basis whereas real income changes are measured on a gross national product (GNP) basis. GDP measures production within Canadian borders while GNP is a measure of income earned by Canadians, regardless of where they live.

Source: Canada, Department of Finance, "The Canada-U.S. Free Trade Agreement: An Economic Assessment," Ottawa, 1988, pp 31-32.

Table 4. Results of a U.S.-Canadian Free Trade Area: Changes in Country Imports, Exports, Exchange Rates, Trade Balance, Terms of Trade, and Welfare

Millions of U.S. dollars unless otherwise indicated

Country	Imports[a]	Exports[a]	Exchange rate[b]	Current account	Terms of trade (percent change)	Welfare
A. Pre-Tokyo round: bilateral tariffs only						
United States	1,456.6	1,307.1	−0.0	293.6	0.3	654.4
Other	−100.4	−197.2	0.2	−167.0	−0.0	−19.6
Canada	1,143.2	1,493.9	1.2	−126.1	−1.2	−684.3
B. Post-Tokyo round: bilateral tariffs only						
United States	1,017.8	913.3	−0.0	229.3	0.3	479.8
Other	−75.5	−143.7	0.1	−120.7	−0.0	−19.8
Canada	792.3	1,043.1	0.9	−108.2	−0.9	−499.3
C. Pre-Tokyo round: unilateral tariff removal on Canada						
United States	226.2	255.2	0.0	−136.6	−0.1	−259.2
Other	2.6	−0.4	−0.1	−8.6	0.0	−12.8
Canada	275.9	243.3	−0.7	145.5	0.5	166.5
D. Post-Tokyo round: unilateral U.S. tariff removal on Canada						
United States	137.1	157.2	0.0	−81.3	−0.1	−161.3
Other	1.4	0.5	−0.0	−4.3	0.0	−13.0
Canada	170.5	147.7	−0.4	85.9	0.3	102.8
E. Pre-Tokyo round: unilateral Canadian tariff removal on U.S.						
United States	1,230.4	1,051.9	−0.0	430.2	0.5	909.1
Other	−103.0	−196.8	0.3	−158.3	−0.0	10.0
Canada	867.3	1,250.6	1.9	−271.6	−1.7	−851.4
F. Post-Tokyo round: unilateral Canadian tariff removal on U.S.						
United States	880.8	756.2	−0.0	310.6	0.3	633.8
Other	−76.8	−144.2	0.2	−116.4	−0.0	0.5
Canada	621.9	895.4	1.3	−194.0	−1.2	−600.8
G. Pre-Tokyo round: multilateral tariffs only[c]						
United States	7,346.1	6,961.3	−0.0	162.0	0.4	−140.4
Other	8,953.9	9,867.9	0.0	59.3	−0.4	660.2
Canada	1,827.1	2,336.9	1.9	−221.1	−1.9	−1,092.3
H. Post-Tokyo round: multilateral tariffs only[c]						
United States	5,362.4	5,062.9	−0.0	224.8	0.4	−139.1
Other	6,757.7	7,562.0	0.1	−68.0	−0.4	809.0
Canada	1,349.8	1,699.8	1.3	−156.7	−1.3	−775.7

a. Dollar value of change in trade volume.
b. A positive value indicates depreciation of currency.
c. Refers to tariff removal by the United States, Canada, and the other industrialized countries only.

Table 5. Sectoral Effects of U.S.-Canadian Free Trade, Tariffs Only, Post-Tokyo Round

Millions of U.S. dollars unless otherwise indicated

Sector	United States				Canada			
	Employment (number of workers)	Imports	Exports	Output	Employment (number of workers)	Imports	Exports	Output
Agriculture	−392.1	37.1	−2.1	2.6	2,807.9	13.0	47.2	23.9
Food	−701.0	27.9	25.9	101.7	192.9	17.5	30.8	−42.8
Textiles	3,616.5	7.2	78.4	119.4	−445.7	68.6	5.6	−17.0
Clothing	982.1	15.2	28.5	25.8	878.0	9.1	9.2	13.8
Leather products	130.2	6.9	7.3	3.9	377.5	4.6	9.3	8.7
Footwear	48.1	11.3	5.0	1.9	356.1	−0.2	6.3	8.2
Wood products	−772.0	42.9	16.5	−24.0	1,312.7	17.9	55.3	44.1
Furniture and fixtures	342.8	67.9	52.4	7.9	1,334.5	48.5	67.8	35.0
Paper products	371.6	73.0	63.0	33.3	961.0	66.7	100.4	39.1
Printing and publishing	1,236.9	2.4	39.1	55.9	−893.0	36.2	3.7	−23.5
Chemicals	1,483.2	96.0	186.4	189.4	−729.0	183.1	96.6	−66.4
Petroleum products	−454.9	107.8	−1.4	59.3	497.8	−19.5	90.2	105.2
Rubber products	216.3	120.1	135.9	24.0	726.8	112.1	121.9	32.9
Nonmetal mineral products	317.1	18.1	29.1	19.1	272.4	25.4	30.3	5.6
Glass products	226.6	12.1	19.1	10.8	−13.4	16.8	12.2	−1.4
Iron and steel	406.2	37.7	23.4	29.6	856.3	22.9	31.8	41.3
Nonferrous metals	−439.0	59.1	9.1	−46.3	1,693.4	6.1	95.8	95.9
Metal products	3,536.5	116.4	270.4	164.0	−2,391.7	253.6	112.1	−126.9
Nonelectric machinery	2,498.8	122.9	149.7	123.9	2,730.2	138.3	123.1	97.2
Electric machinery	4,298.9	86.4	206.3	174.1	−907.9	185.0	74.3	−59.4
Transport equipment	−5,369.8	297.4	−160.5	−398.9	6,195.8	−150.6	292.1	541.1
Miscellaneous manufacturers	2,246.0	90.8	125.6	76.9	1,267.5	88.1	78.0	37.1
Mining and quarrying	−742.1	...	...	−29.2	3,182.1	...	...	99.7
Utilities	336.9	...	...	11.8	−538.6	...	...	−17.0
Construction	1,001.7	...	...	76.6	−493.0	...	...	75.6
Wholesale trade	9,171.8	...	...	139.7	2,239.1	...	...	−138.2
Transportation	720.6	...	...	45.0	−1,435.5	...	...	−51.8
Financial services	4,896.3	...	...	187.7	381.6	...	...	−151.5
Personal services	1,075.4	...	...	1.5	−13,916.8	...	...	146.5

Table 6. *Sectoral Effects on the United States of U.S.-Canadian Free Trade, Tariffs Only, Post-Tokyo Round*
Percent

Sector	Employ-ment	Exports	Imports	Output	Capital	Rental rate	Prices
Agriculture	-0.01	-0.01	0.46	0.00	0.01	-0.02	-0.08
Food	-0.04	0.49	0.50	0.05	0.13	-0.10	-0.08
Textiles	0.31	2.25	0.36	0.27	0.12	0.19	-0.04
Clothing	0.08	5.36	0.44	0.09	0.11	-0.02	-0.05
Leather products	0.14	0.74	0.84	0.13	0.02	0.10	-0.22
Footwear	0.03	8.93	0.61	0.03	0.06	-0.02	-0.13
Wood products	-0.15	0.68	1.91	-0.09	-0.01	-0.16	-0.21
Furniture and fixtures	0.09	20.86	11.90	0.06	-0.01	0.09	-0.24
Paper products	0.06	2.28	2.19	0.06	0.07	-0.01	-0.15
Printing and publishing	0.12	5.34	0.71	0.11	0.09	0.03	-0.04
Chemicals	0.14	1.62	1.83	0.17	0.22	-0.08	-0.09
Petroleum products	-0.26	-0.03	0.30	-0.07	0.08	-0.12	-0.11
Rubber products	0.08	15.10	7.42	0.15	0.26	-0.11	-0.19
Nonmetal mineral products	0.07	3.27	1.68	0.08	0.11	-0.03	-0.07
Glass products	0.13	3.86	3.33	0.13	0.14	-0.01	-0.14
Iron and steel	0.05	1.12	0.80	0.04	-0.01	0.04	-0.07
Nonferrous metals	-0.14	0.51	1.11	-0.11	-0.01	-0.10	-0.22
Metal products	0.23	9.60	5.10	0.22	0.21	0.03	-0.09
Nonelectric machinery	0.11	0.69	1.52	0.11	0.11	-0.00	-0.18
Electrical machinery	0.23	2.51	1.17	0.23	0.21	0.05	-0.11
Transport equipment	-0.30	-0.79	1.84	-0.28	-0.24	-0.17	-0.16
Miscellaneous manufacturers	0.17	1.36	0.79	0.14	0.12	0.05	-0.12
Mining and quarrying	-0.09	...	...	-0.03	0.00	-0.06	-0.05
Utilities	0.05	...	...	0.01	0.00	0.02	-0.01
Construction	0.03	...	...	0.03	0.03	-0.00	-0.05
Wholesale trade	-0.04	...	...	0.02	0.11	-0.07	-0.04
Transportation	-0.02	...	...	0.02	0.02	-0.00	-0.02
Financial services	-0.06	...	...	0.03	0.07	-0.08	-0.06
Personal services	-0.00	...	...	0.00	0.04	-0.04	-0.02

Table 7. **Sectoral Effects on Canada of U.S.-Canadian Free Trade, Tariffs Only, Post-Tokyo Round**
Percent

Sector	Employ-ment	Exports	Imports	Output	Capital	Rental rate	Prices
Agriculture	0.50	1.21	0.76	0.11	-0.01	0.64	0.01
Food	0.07	2.85	1.08	-0.19	-0.58	0.65	-0.20
Textiles	-0.41	3.06	5.49	-0.43	-0.49	0.11	-2.31
Clothing	0.75	15.14	1.27	0.50	-0.51	0.89	-0.95
Leather products	3.89	4.14	1.67	3.28	0.35	3.45	-1.93
Footwear	1.77	20.28	-0.07	1.53	0.09	1.63	-0.76
Wood products	1.08	2.62	3.76	0.85	0.13	1.21	-0.47
Furniture and fixtures	2.42	29.99	26.72	2.12	1.02	1.63	-1.51
Paper products	0.66	2.11	12.45	0.39	-0.07	1.05	-1.00
Printing and publishing	-0.87	4.58	7.48	-0.68	-0.20	-0.70	-0.82
Chemicals	-0.77	6.08	8.02	-0.88	-1.03	0.19	-1.60
Petroleum products	2.49	1.68	-0.45	1.52	-0.21	0.94	0.81
Rubber products	2.40	34.80	23.96	1.67	-0.88	0.69	-1.77
Nonmetal mineral products	0.58	3.67	6.46	0.24	-0.24	0.77	-0.75
Glass products	-0.09	13.69	6.97	-0.27	-0.62	0.49	-2.68
Iron and steel	1.17	4.21	3.24	0.91	0.13	2.59	-0.13
Nonferrous metals	3.06	2.15	0.72	2.90	2.37	1.73	-0.51
Metal products	-1.58	17.18	24.47	-1.54	-1.44	-0.20	-1.28
Nonelectric machinery	2.46	4.06	2.18	1.83	0.45	1.31	-2.88
Electrical machinery	-0.66	10.61	8.73	-0.81	-1.01	0.73	-1.95
Transport equipment	3.32	3.53	-1.54	2.88	1.86	2.37	0.51
Miscellaneous manufacturers	1.59	5.20	3.29	1.11	0.03	1.23	-2.24
Mining and quarrying	2.18	...	...	0.56	0.13	1.33	0.57
Utilities	-0.48	...	...	-0.16	-0.00	-0.21	-0.09
Construction	-0.08	...	...	-0.16	-0.30	0.20	-0.35
Wholesale trade	-0.14	...	...	-0.30	-0.61	0.21	-0.03
Transportation	-0.20	...	...	-0.17	-0.10	-0.07	-0.10
Financial services	0.08	...	...	-0.33	-0.54	0.37	0.06
Personal services	-0.49	...	...	-0.31	-0.03	-0.42	-0.19

Source: Drusilla K. Brown and Robert M. Stern, "A Modeling Perspective," pp. 177-178.

TABLE 2.1 Sectoral effects of bilateral free trade

Study by:	(1) Harris	(2) Brown-Stern	(3) Magun	(4) Royal Commission	(5) USTR
Aluminum products					Y
Chemicals	*	U	(U)		
Construction		(U)	*		
Consumer products				U	
Home appliances					Y
Cosmetics					Y
Electrical equipment	*	U		U	Y
Electronics				U	
Financial services		U	*		
Food and beverages	*e	(U)	*		
Footwear		*		U	
Forestry products		(C)		C	
Paper (and paper products)	(C)	*	*	C	
Furniture	(U)	*	(U)	U	Y
Informatics					Y
Nonferrous metals		(C)			
Leather	*e	*	}U{		Y
Leather products					N
Machinery				U	
Machinery equipment			C		
Agricultural equipment	(U)				Y
Nonagricultural equipment	(U)				
Metal fabrication	*e	U	*		

Study by:	(1) Harris	(2) Brown-Stern	(3) Magun	(4) Royal Commission	(5) USTR
Petroleum	*e				
Petroleum products		C			
Printing	*	(U)	*		Y
Rubber	(C)	*			
Rubber and plastic products			(U)		
Scientific equipment				U	
Steel and iron		*			
Steel	*e				
Carbon					N
Fabricated structural					N
Textiles	C	(U)	(U)	U	N
Clothing	C	*	(U)	U	N
Knitting	(C)		U		
Wool	*e				
Tires				U	
Tobacco	(C)e		*		
Transportation		(U)			
Transportation and storage			(C)		
Urban transportation equipment	(C)	}C{	(C)	C	N
Transport equipment	(C)				
Wholesale trade		U	(C)		
Miscellaneous manufacturing (coverage varies)	(U)	*	U		

Note: The symbols represent the following:

Harris (column 1):
- C   if predicted Canadian production up 200 percent
- (C) if Canadian production up 25 percent to 200 percent
- (U) if Canadian production down 10 percent to 20 percent
- U   if Canadian production down more than 20 percent
- e   if Canadian employment down in spite of increase in Canadian production
- *   if Canadian production effects less than specified above (that is, an increase of less than 25 percent or decrease of less than 10 percent)

Brown-Stern (column 2):
- C   if predicted Canadian production up at least US$100 million, and US output down at least $50 million
- (C) if Canadian production up at least US$30 million, and US production down at least $15 million
- (U) if US production up at least US$30 million, and Canadian production down at least $15 million
- U   if US production up at least US$100 million, and Canadian production down at least $50 million
- *   if production effects less than specified above (that is, an increase of less than $30 million, decrease of less than $15 million)

Magun (column 3):
- C   if predicted Canadian production up at least 10 percent
- (C) if Canadian production up 2.5 percent to 10 percent
- (U) if Canadian production down 2.5 percent to 10 percent
- U   if Canadian production down at least 10 percent
- *   if Canadian production effects less than specified above (that is, a change of less than 2.5 percent)

Royal Commission on the Economic Union and Development Prospects for Canada (column 4):
- C   for industries of Canadian strength
- U   for industries of Canadian weakness

US Trade Representative (column 5):
- Y   where US industry urged bilateral sectoral negotiation
- N   where US industry opposed bilateral sectoral negotiation

Sources: Harris (1985), p. 176; Brown and Stern (1987), table 5; Magun (1986), table 2; Royal Commission on the Economic Union and Development Prospects for Canada (1985), vol. 1, pp. 343–48; Hufbauer and Samet (1985), p. 185 (summary of industry responses to US Trade Representative).

DATE DUE

Oct 23			