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Canadian Agriculture and GATT: An Economic Analysis of Article XI

W. Cymbal and M.M. Veeman (Project Manager)

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July 1994

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Table of Abbreviations

AAA	Agricultural Adjustment Act
CSE	consumer subsidy equivalent
EEC	European Economic Community
GATT	General Agreement on Tariffs and Trade
IBRD	International Bank for Reconstruction and Development
IMF	International Monetary Fund
ITO	International Trade Organization
LDC	less-developed country
NTB	nontariff barrier
OECD	Organization for Economic Cooperation and Development
PSE	producer subsidy equivalent
UNCTAD	United Nations Conference on Trade and Development
USDA	United States Department of Agriculture

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Abstract

The objectives of this study are threefold. The first is to document the origins and evolution of Article XI. The second objective is to assess the apparent economic implication of Article XI exemptions and GATT panel decisions regarding the Article for Canadian agriculture, specifically for poultry products. The third purpose of this study is to analyse the economic effects of selected tariffication proposals for change in Article XI provisions to the Canadian egg and poultry industries.

Our documentation of the origins and evolution of Article XI shows that this article emerged from the initiatives of US policymakers who attempted to ban quantitative restrictions without violating existing US legislation pertaining to agriculture. However, Article XI was soon found to be inconsistent with the US Agricultural Adjustment Act. To satisfy Section 22 of the Act, the United States requested and obtained a waiver to the provisions of Article XI from the Contracting Parties of the GATT. The exemption clauses of Article XI also became a consideration in some domestic agricultural policies. This was the case for Canada in the development of national supply management programs for eggs and poultry in the 1970s. These programs provided a politically palatable solution to the interprovincial conflicts that had arisen from provincial supply management programs. In effect Article XI justified the existence of supply management and legitimized domestic policies to control supplies and restrict imports. These provided for considerable transfers to producers, as demonstrated by OECD producer- and consumer-subsidy equivalent calculations. However, international concern regarding global distortions in agricultural trade, and the limitations of Article XI, led to this

Article, and other agricultural trade issues, being a focal point of the Uruguay Round trade negotiations. While disagreements over export subsidies were the major stumbling block in the agricultural negotiations of the Uruguay Round of GATT negotiations, greater access to markets also held a high profile at the negotiating table. Canada was not able to raise sufficient support for her negotiating strategy of pushing to maintain and strengthen the exemption provisions of Article XI and the outcome of the negotiation included agreement to tariff quantitative import restrictions and other non-tariff restrictions to agricultural trade.

This study examines a number of empirical issues related to tariffication and provides some recommendations that relate to methodology of tariff equivalent calculations. These concern the appropriate methodology to calculate tariff equivalence, specifically the definition and level of reference prices, the variability of the measure, and the application of tariff equivalent estimates under imperfect competition in a manner that preserves the level of imports.

We conclude that if the objective of tariff equivalence is to identify the magnitude of a non-tariff barrier, the appropriate tariff equivalance methodology will net out tariffs and account for costs of transportation and handling. Another methodological issue concerns the choice of market level of domestic and reference prices for tariffication calculations. If there are competitively determined marketing margins and assuming that the tariff and transportation and associated costs do not vary at the different levels of the marketing chain, the NTB tariff equivalent estimates should be equivalent at the wholesale and farmgate levels. However, statistical tests for Canadian eggs, chicken, and turkey

reveal that for these cases the wholesale-based estimates are significantly higher than the farmgate-based estimates. The feature that the implicit import protection is relatively higher at the wholesale level than at the farmgate level suggests that there is a relatively high cost processing and wholesaling sector. Alternatively, the sector may be exerting imperfect market power against consumers.

Variability of NTB tariff equivalent estimates over time has been observed and is explored at a preliminary level in the study. The tariff equivalent estimates for eggs, chicken, and turkey vary considerably over time as do the individual domestic and external reference price series. The US annual average wholesale price series are not significantly more variable than the Canadian price series. Comparisons of annual average farmgate prices of eggs and turkey, however, indicate that the US price series are more variable than the Canadian price series. US-Canadian exchange rate variability would not have substantially influenced the variability of the tariff equivalent measures during the study period.

A complication of tariffication under conditions of imperfect competition, as with the supply-management programs, concerns the non-equivalence of tariffs and quotas under these conditions. Following Moschini and Meilke, import-preserving tariff equivalent measures are calculated to assess the tariffication schedules that would maintain imports rather than allowing these to be squeezed out by prohibitive tariff levels. The value of the import-preserving tariff equivalent measures does pose certain difficulties however, since their calculation depends on assumed elasticities and the deviation from marginal cost pricing. The latter is difficult to estimate. In practice, the application of

the tariff-rate quota as adopted in the final negotiations of the Uruguay Round of GATT will apply as a clear and reliable method of ensuring specified levels of imports are maintained.

In the final section of the study, in order to analyse the effect on the Canadian poultry industries of the tariffication schedules to be applied by Canada from 1995 to 2000 under the recently-concluded GATT agreement, we assess the extent of protection that these schedules provide. For this analysis, we calculate the "limit price", that is, the maximum domestic price that could be charged to consumers, under the specified levels of tariffs and agreed access conditions. The specified tariffication schedules embody appreciable potential increases in the level of protection afforded these sectors. We conclude that the tariffication schedules for poultry products will have no appreciable impact on these supply-managed sectors during the period to be covered by the agreement.

CHAPTER 1

1. Introduction: The Scope and Focus of the Study

A major concern in international commercial relations for the last decade has related to trade in agricultural commodities. From the inception of the General Agreement on Tariffs and Trade (GATT), regulations governing international trade have tended to exempt or exclude farm products. Over forty years of exemption led to considerable intervention and little liberalization of trade in agricultural products. By the mid-1980's and subsequently, there was increased recognition of the costs of exemption. Subsidy wars over export markets reduced returns and increased risk for numbers of major farm commodities. World markets for most farm products have exhibited lower and less stable prices while trade patterns tended to reflect the distortions of government intervention rather than market responsiveness to comparative advantage. Recognizing these concerns at the Midterm negotiations of the Uruguay Round in Geneva on April 8th, 1989, Contracting Parties to GATT agreed, *inter alia*, to address how to strengthen and make more operationally effective the rules and disciplines of the *General Agreement* (GATT 1989b).

One area in agricultural trade of particular interest to Canada was the special exemption granted to agricultural products in Article XI of the *General Agreement.* Despite the stated objective of Article XI to eliminate the use of quantitative restrictions in world trade, the Article permitted the use of quantitative restrictions for agricultural and fisheries products in compliance with certain conditions. These conditions included

the temporary application of export restrictions to relieve critical shortages (Article XI 2(a)) and the application of import or export restrictions necessary to the applications of standards or grading (Article XI 2(b)). The most frequently invoked clause, Article XI 2(c), allowed import restrictions on agricultural or fisheries products (in an early stage of processing and still perishable) necessary to the enforcement of governmental programs that reduce production or marketing of the like domestic product provided that the total of imports, relative to domestic production, were not unreasonably reduced.[1] Through the Farm Products Marketing Agencies Act (1972), the federal government authorized the formation of national commodity-based agencies to regulate poultry and egg production and marketing throughout Canada with the use of supply management powers that included quotas on production and imports. The establishment of import quotas was viewed as being consistent with GATT obligations, a situation that was, however, specific to poultry products, rather than dairy products. Following the bilateral Free Trade Agreement with the United States, Canada extended the list of longer-standing import quotas for dairy products to ice cream and yoghurt. The import quotas for ice cream and yoghurt were successfully challenged by the United States in 1989. Changes to strengthen and clarify Article XI were unsuccessfully sought by Canadian negotiators in the just-concluded Uruguay Round GATT negotiations.

As a result of the Uruaguay Round negotiations, the principle of conversion of nontariff agricultural trade barriers to tariffs was adopted and will apply to the import quotas that have been used in Canada in support of national supply management

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[1] The full text of Article XI is given in Appendix A.

programs. Through tariffication, tariffs expressed as specific or *ad valorem* rates will replace nontariff barriers affecting agricultural products. These are to be reduced by 15 percent over the implementation period (from 1995 to 2000). The major focus of this study is to examine economic questions related to tariffication of Canadian import quotas for eggs and poultry.

A. Objectives

The objectives of this study are threefold. The first is to document the origins and evolution of Article XI. The second objective is to assess the apparent economic implication of Article XI exemptions and GATT panel decisions regarding the Article for Canadian agriculture, specifically for poultry products. The third purpose of this study is to analyse the economic effects of selected tariffication proposals for change in Article XI provisions to the Canadian egg and poultry industries.

B. Scope and Outline

The first objective of the study is pursued through a descriptive and qualitative analysis of the historical evolution of Article XI and an assessment of panel findings relating to it. This involves an examination of inquiries, negotiations, and disputes related to quantitative restrictions and agriculture and a discussion of the set of criteria that evolved in interpreting Article XI. Both of these components are given in Chapter 2. The second and third objectives are pursued though a number of research questions that are presented in Chapter 3. Previous tariff equivalent measures are compared and tariff

equivalent measures are calculated for eggs, chicken broilers and turkey broilers. Alternate procedures for calculation of tariff equivalents are considered, including the implications of use of tariffication based on farmgate versus wholesale-level prices and some potential sources of variability over time of tariff equivalent estimates. To assess the economic effects of Article XI exemptions and the implications of tariffication of import quotas for poultry products, import-preserving tariff equivalents are also calculated, building on the partial-equilibrium linear demand and supply model applied by Moschini and Meilke (1991). Related sensitivity analysis involves three sets of assumptions corresponding to the price elasticity of demand, the price elasticity of supply, and the departure from marginal-cost pricing. In pursuit of the third objective of the study, the potential impact on Canadian poultry sectors of the actual tariffication schedules proposed by the Canadian Government in December 1993 during the final stages of the Uruguay Round GATT negotiations is assessed. This analysis is reported in the last section of Chapter 3. A final chapter summarizes the conclusions of the study.

C. Background

1. Regulated Marketing in the Canadian Egg and Poultry Industries

Canadian agriculture during the 1950s and 1960s exhibited unusual market instability and persistent excess capacity (Forbes, Hughes, and Warley 1982, 15). Rapid technological change and developments in marketing greatly increased agricultural productivity during the 1950s and 1960s. Demand for agricultural products, especially products sold mainly in domestic markets, did not increase as rapidly as production. Real

output prices tended to fall relative to input prices. Governments showed an increased commitment to farm price and income stabilization, as with the introduction by the federal government of the Agricultural Stabilization Act in 1958. New production and marketing techniques originated from the larger, more advanced broiler and egg industry in the United States[2] were seen as a threat to Canadian markets by Canadian poultry producers who feared the extensive structural and organizational changes occurring in US poultry markets.

In response to producer concerns, several provinces established producer marketing boards for broilers and for eggs in order to increase the market power of producers and to reduce the level of horizontal competition that, it was feared, might drive large numbers of the small-scale and less efficient producers out of business. These boards were empowered to allocate quotas to producers to restrict the production or marketing of poultry products, enabling effective increases in price levels. To maintain these higher price levels, numbers of provinces used restrictive packaging and licensing regulations which curtailed the sale of like or similar products from other provinces. These administratively-based provincial trade barriers provoked other provinces to retaliate, leading to "chicken and egg price wars" in the early 1970s (Veeman and Veeman 1980, 6-7).

In an effort to "restore market order and preserve the integrity of the common market", the federal government passed the Farm Products Marketing Agencies Act in

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[2] Among the advances made in the efficiency of poultry production were improved genetics of laying and broiler birds enhancing the rate of lay, muscular growth, and disease resistance; improved feed and feeding programs; automation of all operations; and new methods of housing, breeding and disease prevention (Moncrieff, Weaver, and Fawcett 1978, 13.2).

1972 (Forbes, Hughes, and Warley 1982, 46). This Act established the National Farm Products Marketing Council and authorized the establishment of national marketing agencies for farm products (Agriculture Canada 1989a, 23). It led to the creation of national marketing agencies to administer the production and marketing of poultry products in Canada. The Canadian Egg Marketing Agency became operational in 1973, the Canadian Turkey Marketing Agency in 1974, the Canadian Chicken Marketing Agency in 1979, and the Canadian Broiler Hatching Egg Marketing Agency in 1986. These agencies administer federal-provincial agreements that provide for the regulation of production and marketing and the determination of national and provincial quota levels. In an effort to provide for public accountability, the National Farm Products Marketing Council monitors the activities of the national poultry agencies. The programs have involved the use of quantitative import restrictions. Tariffs have provided additional support. Under the bilateral US-Canada trade agreement, these are diminishing in level.

2. *Producer and Consumer Subsidy Equivalents*

One method of assessing the economic impact of government intervention in agriculture is to examine aggregate measures of support such as the producer subsidy equivalents (PSEs) and consumer subsidy equivalents (CSEs). PSEs are commonly defined as the income transfer from domestic consumers and taxpayers to producers as a result of government policies and programs, including the implementation of price supports, import quotas, or tariffs (Cahill and Legg 1990, 15). Similarly, the CSE corresponds to the tax or subsidy implicitly attached to consumption resulting from a set

of policies and programs. Like other aggregate measures of support, the main purpose of the subsidy equivalent ". . . is to aggregate, in a manageable way, a wide range of different price and non-price policies whose effects are not otherwise comparable" (Tangermann, Josling, and Pearson 1987, 266). The Organization for Economic Cooperation and Development (OECD) has made considerable effort to estimate and assemble subsidy equivalents for a number of countries covering a wide range of commodities.

3. *Subsidy Equivalent Methodology*

The generalized methodology to calculate subsidy equivalents, (Cahill and Legg 1990, 17), expressed as the percentage PSE and percentage CSE, are:

$$\textbf{Percentage PSE} = \frac{Q_p(P_d - P_w) + D - L + B}{(Q_p \times P_d) + D - L} \times 100 \qquad (1)$$

$$\textbf{Percentage CSE} = \frac{-Q_c(P_d - P_w) + G}{Q_c \times P_d} \times 100 \qquad (2)$$

where Q_p is the quantity of the commodity domestically produced;
Q_c is the quantity of the commodity domestically consumed;
P_d is the domestic market price received by producers;
P_w is the external reference price denoted as the world price;
D is the sum of direct payments to producers;
L is the sum of levies on producers;
B is the sum of all other budgetary outlays for producers;
G is the sum of subsidies to consumers.

Subsidy equivalents expressed in percentages are commonly used to compare support levels across countries and across commodities. Percentage PSEs can be greater

than 100 because the denominator does not include indirect government transfers such as research and extension services, among others. Strategies to avoid high percentage PSEs could impose limitations to comparisons of support levels over time.

4. Subsidy Equivalent Estimates for Selected Canadian Poultry Products

Annual percentage producer and consumer subsidy equivalents for selected Canadian poultry products for the period 1979 to 1987, calculated by the OECD, are provided in Tables 1 and 2. Although the "All" commodity group includes an arbitrary combination of commodities, the category provides relative estimates of the general level of support to Canadian agricultural producers.

The PSEs for livestock commodities (including poultrymeat and eggs, and implicitly included in the "All" categories of Table 1) net out the effect of higher feed costs incurred as a result of Canadian transportation policies. Taxes or subsidies applied to imported animal feeds (namely wheat, coarse grains, soybeans, and skimmed milkpowder) are also factored in the calculations.[3] The external reference prices used in the subsidy equivalent calculations are adjusted for transport costs to derive a landed price in Canada. The OECD "Poultry" category represents chicken and turkey meat. The producer price is derived by weighting average prices of chicken and turkey broilers. To estimate the market support component for poultry, the OECD calculates separate price differentials (between domestic and external reference prices) for chicken and turkey and

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[3] Excess feed costs in 1986 were considered to represent on average ten percent of the total livestock PSEs (OECD 1989a, 9).

Table 1. PSEs for Selected Canadian Commodities, in Percentages

Commodity	Source[a]	1979-86 (average)	1987	1988	1989	1990	1991[e]	1992[p]
Poultry	OECD	26	42	36	37	40	44	37
Eggs	OECD	27	42	54	46	41	47	57
All[b]	OECD	34	49	43	40	49	48	44

Notes:

a. OECD 1993.

b. Commodities included in the "All" category of the OECD PSEs are beef and veal, coarse grains, eggs, milk, oilseeds (other than soybeans), pigmeat, poultrymeat, soybeans, sugar, and wheat.

e. estimated

p. provisional

Table 2. CSEs[a] for Selected Canadian Commodities, in Percentages

Commodity	Source[b]	1979-86 (average)	1987	1988	1989	1990	1991[e]	1992[p]
Poultry	OECD	-14	-26	-18	-19	-23	-28	-21
Eggs	OECD	-15	-27	-37	-29	-25	-31	-42
All[c]	OECD	-24	-31	-26	-25	-30	-31	-29

Notes:

a. The OECD CSEs are a ratio of total net transfers from consumers to the value of consumption.

b. OECD 1993.

c. Commodities included in the "All" category of the OECD CSEs are beef and veal, coarse grains, eggs, milk, oilseeds (other than soybeans), poultrymeat, sugar, and wheat.

e. estimated

p. provisional

then applies the differentials to the respective levels of production (*ibid.*, 12). The producer price is applied uniformly as the domestic price to value production in the PSE calculations and as the price used to value consumption in the CSE calculations (*ibid.*, 9).

The percentage subsidy equivalents in Tables 1 and 2 indicate that producers of poultry and eggs have received appreciable income transfers from government intervention and that consumers have borne a substantial share of the costs. Although the principle of supply management has been widely supported by Canadian producers' organization and Canadian political parties, there has been increasing public concern that high levels of support provided by supply management constitute an economic and political problem. Until recently, however, this was not considered to be an international trade problem (Meilke and Warley 1989, 17). Certainly the 1975 GATT ruling on import quotas for eggs established that the supply management regulations affecting trade in eggs was in conformity with international obligations.[4]

Despite the federal government's longstanding support of agriculture in Canada, changes in attitudes and in the domestic and global economic environment as well as the pressures within the supply managed sectors themselves, suggest that supply management adapt to be more responsive to market pressures and remove several inflexibilities. In March of 1991 the National Poultry Task Force released its final report, *Towards the Development of a Second Generation of Poultry Supply Management Systems* (Canada, National Poultry Task Force 1991) providing numbers of recommendations for changes

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[4] The panel concluded that import restrictions administered by the Federal government of Canada were in accord with Article XI of the *General Agreement*. For more detail see Chapter 2 of this study.

in the system. A generally unsuccessful attempt to stimulate adoption of the recommendations of two task forces (for dairy as well as poultry) was subsequently pursued through an Interdepartmental Steering Committee chaired by the Federal Deputy Minister of Agriculture. The most recent initiative to facilitate change is being undertaken by a Federal-Provincial Task Force on orderly marketing, established in early 1994, following the concluding negotiations of the most recent GATT Round.

CHAPTER 2

2. Documenting the Origins and Evolution of the Article XI Exemptions

A. The Pre-GATT Era

At the turn of the century most countries protected agriculture. Tariffs were used as the primary instrument of protection for both agriculture and industry. For the most part, it appeared that countries were disinterested in reducing trade barriers. Great Britain, which had embraced free trade with the repeal of the Corn Laws in 1846, was perhaps the exception. France and Germany both adopted protectionist agricultural policies after brief experiences with free trade. The United States maintained protectionist policies for industry and agriculture alike dating back to the eighteenth century. In the nineteenth century tariff rates increased in both the United States and Canada. Bilateral trade arrangements granting preferential treatment between countries, especially between imperial powers and their respective colonies or dependencies, were prevalent. The era of multilateral trade agreements had not yet arrived (Nagle 1976, 1-5).[5]

Despite high tariffs and agricultural protection, world agricultural production and trade greatly expanded in the latter half of the nineteenth century and in the early 1900s. Europe's rapidly developing economies stimulated imports of food and raw materials. Prior to World War I, Europe was a dominant producer of agricultural products and also one of the biggest net importers of both temperate and tropical products.

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[5] This section draws heavily on *The United States and Restoration of World Trade: An Analysis and Appraisal of the ITO and the General Agreement on Tariffs and Trade* (Brown 1950) and *A Charter for World Trade* (Wilcox 1949).

1. World War I

The upheaval of World War I soon altered the patterns of world agricultural production and trade. European agriculture was severely disrupted. Areas not afflicted by war, however, particularly South America, Oceania, North America, and Africa, substantially increased crop production. Although most countries exercised protectionist practices through the use of tariff barriers and bilateral treaties, special treatment for agriculture was not a rule. In the United States, for instance, wartime price guarantees to US farmers during World War I were not "inaugurating a new policy of special treatment for agriculture, but carrying out a definite and binding wartime commitment" (Brown 1950, 36-37). One historian suggests that the existing trading system, based on tariffs, facilitated the changes in world agriculture at this time. Domestic agricultural programs in Europe and North America had not yet developed into the elaborate and comprehensive import restricting systems that were to follow in the 1930s (Nagle 1976, 5). For nearly the entire decade following World War I, however, world agricultural prices fell drastically. Unlike the industrial sectors of most countries, agriculture did not benefit from the post-war economic recovery.

In addition to plummeting prices, tariff instability marked the 1920s. In 1921 in the United States, for example, the US government levied emergency duties on agricultural imports. Within a year the US Congress passed the Fordney-MacCumber Tariff, further increasing tariff rates (Brown 1950, 36). Many countries' trading objectives began to emphasize both a search for new export markets and the protection of domestic markets. European nations eager to rebuild dislocated productive facilities

may have contributed to the turn to more inward-oriented policies, but in general, growing nationalism and a spreading belief in protection for prosperity greatly influenced the global trade perspective.

2. *The First Effort*

The shock of World War I on the economies of Europe followed by the protectionist turn inward instigated a concerted effort to re-establish former international commercial relations. These attempts, which culminated in a series of conferences under the auspices of the League of Nations held in 1920, 1922, and 1927, became known as the First Effort. Mainly European nations attended the initial conferences, as the United States and the Soviet Union did not hold membership in the League. For the first time countries addressed the reconstruction of the world economy in a *multilateral* context during the World Economic Conferences held in May and October of 1927. Tariff discussions dominated the May Conference. Not surprisingly, agriculture was also a prominent item on the agenda. At the close of the Conference, however, participating countries managed to declare only the following with respect to agricultural protection:[6]

> It is desirable that all hindrances to the free circulation of and trade in agricultural products should be removed, in so far as their removal does not endanger the vital interests of the different countries and their workers (League of Nations 1927, 45).

After World War I, Britain was unable to regain its position in the world economy. Britain's increased wartime purchases of imports and reduced exports amassed

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[6] This does not preclude success in reducing and stabilizing tariffs in general after the Conference. Sir Arthur Salter recounts, "At the end of the year [1927] the situation, instead of being, as without the Conference it would certainly have been, very much worse, was definitely better" (Salter 1932, 200).

a sizable sterling debt owing to the Commonwealth Dominions. In contrast, the US economy was not afflicted by the war. Richly endowed with natural resources and capital-abundant, the United States emerged not only as the most powerful nation, but also as the most important international creditor. Nevertheless, increased instability and economic crisis at the beginning of the 1920s put pressure on US policymakers to focus inward on domestic concerns.

3. *The Great Depression*

The onset of the Great Depression of the 1930s crushed any prospects of reducing agricultural protectionism. International agricultural prices continued to fall and trade stagnated. Countries protected both agriculture and industry to an even greater extent (Nagle, 1976, 7). Without any international guidance or commitments, countries began introducing various measures to cope with their domestic problems. In the case of agriculture, most countries introduced some form of quantitative import restrictions in order to maintain high domestic support prices. In retrospect, it may have been unrealistic to expect much progress with respect to trade liberalization in the 1930s, a period of international anarchy, as characterized by the League of Nations, fraught with regionalism, discrimination, bilateralism, and instability (Brown 1950,44).

4. *The Second Effort*

The League of Nations organized another attempt to liberalize world trade culminating in a series of Commercial Conventions of mostly European nations which

took place during the winter of 1929-1930. These attempted to obtain a tariff truce, reduce tariff rates, and achieve an agreement for a more organized and rational mode of production and distribution of products. By the end of 1930, however, special problems of negotiating agricultural reform had obstructed any substantial advancements that had been agreed upon earlier (Brown 1950, 39; Salter 1932, 203-204).

Soon after the Commercial Conventions, Britain abandoned its policy of free trade. By October of 1932 Commonwealth nations concluded the Ottawa Agreements, twelve treaties which expanded an elaborate system of reciprocal trade agreements increasing protection and discrimination outside of the Commonwealth while establishing lower preferential tariff rates among members of the Commonwealth (Crane 1980, 249). In particular, the Dominions received preference in Britain for their agricultural products and raw material exports in return for an agreement to keep tariff rates low for British manufactures (Brown 1950, 42). Agricultural protection intensified further in Germany, France, and Italy (*ibid.*, 38).

Inward-oriented trade policies were also becoming more prevalent in the United States. In June of 1930 the United States raised tariff rates to unprecedented levels on close to 900 items through the implementation of the Smoot-Hawley Act. This set off a global wave of tariffs which was followed by countries directly invoking quantitative restrictions on imports. Product diversion became a major feature of US agricultural legislation during the 1930s (*ibid.*, 25). Inter-war agricultural legislation embodied in the US Agricultural Adjustment Act (AAA) introduced special measures to restrict imports and subsidize exports. The 1933 AAA initiated the first major US agricultural price

support and acreage reduction program. Producers regulated certain basic agricultural commodity markets through voluntary agreements with processors and other participants in the food system. Taxes on processors offset the costs of the program. In 1935, the US Congress amended Section 22 of the AAA. This amendment became of great significance in determining the outcome of Article XI in the *General Agreement.* It

> . . . granted the President authority to limit imports whenever any commodity was being imported in sufficient volume to interfere with the operation of any agricultural adjustment program. The only limitation imposed was that imports from any one country could not be reduced to less than 50 per cent of the annual average imports from that country for the period 1928-33 (*ibid.*, 25).

Further amendments ". . . conferred administrative authority on the Executive to use subsidies and dumping, import quotas, import fees, and compensating import and processing taxes as forms of agricultural protection" (*ibid.*).

5. *World War II*

During World War II there remained an overhanging fear from the inter-war period of world surplus production coupled with declining agricultural prices. Agricultural production in Canada and the United States increased by sixteen percent from pre-war levels of production. Even so, overall net *per caput* world agricultural production declined. Like World War I, the Second World War impeded agricultural production and disrupted distribution and trade (League of Nations 1946, 72-73). Throughout the war European nations rationed food. With the exception of a few developing countries considered to be self-sufficient in food production (albeit at subsistence level), most countries were net importers of food before the two world wars. After the onset of the

war, however, many of these nations were unable to increase their imports and as a result, experienced food shortages. In the severest cases, such as India and China, widespread famines occurred (*ibid.*, 69-70).

Near the end of the war Canada and the United States also rationed food in order to curb growing demand. The needs of the armed forces, the requirements of the lend-lease agreements between the United States and Great Britain, and prospering conditions in North America, namely rising employment, higher wages, and growing exports, increased the demand for food at a relatively rapid rate (*ibid.*, 64). In spite of food rationing, acute starvation and famine in parts of Europe and the Far East could not be averted. In 1946 in a report entitled *Food, Famine, and Relief*, the League of Nations attributed the plight to more than simply the war. "The intensity of the present crisis is due in part to adverse natural forces such as droughts, and to the upheavals of the closing phases of battle, but fundamentally it reflects the dangerous unbalance that has developed in the world's agriculture" (*ibid.*, 5-6). This imbalance persisted, however, as governments of several countries, including Canada, Great Britain, and the United States, made further commitments to their rural constituents for post-war agricultural price and income supports (Brown 1950, 53). With the absence of an international agreement on agriculture after World War II, some countries undertook ambitious support schemes of their own.

Not even the League of Nations was prepared to condemn the protectionist measures taken by countries. A League of Nations document examining the economic instability of the 1930s reported that

> In the situation of mass unemployment and mass poverty which developed in the Great Depression, it would have been morally impossible for the governments of the world to have stood idly by and to have waited for "natural economic forces" to cure the situation . . . In the event, each government took separate steps to alleviate distress and to revive agriculture and industry within its own frontiers . . . (League of Nations 1945, 17-18).

The report pointed out, however, that "in the international field the policies adopted . . . like the depression itself, inevitably contributed to the fractionalization of the world economic system and were of a type which aggravated the economic difficulties of other countries" (*ibid.*).

Given the lack of adequate international reserves, many small nations imposed restrictive controls on imports. Large nations also increased import restrictions by raising tariffs, fixing import quotas, and devaluing their currencies despite the criticisms and condemnations of other nations. The critics felt that the economically more powerful nations had a special responsibility to maintain economic activity which the size of their markets imposed on them (*ibid.*, 19).

6. *The Third Effort*

Despite the turn to inward-oriented commercial policies in the United States, a growing commitment to a more liberal international economic order was becoming prominent among US state officials. The American Administration was determined to lower trade barriers, eliminate discrimination, and establish currency convertibility (Krasner 1977, 656). Perhaps the first sign of a division in US commercial policy was the passage of the Reciprocal Trade Agreements Act of 1934. This Act removed the

responsibility of handling trade concerns from the US Congress and delegated it to the executive branch associated with the Reciprocal Trade Agreements Act. In other words, "Congress legislated itself out of the making of trade policy" (Culbert 1987, 383). The commitment to a more liberal trading regime encompassing a new vision of global order has been attributed, in part, to the convictions and the intense lobbying efforts of Cordell Hull, Secretary of State in the Roosevelt Administration from 1933 to 1944. Secretary Hull believed that lower trade barriers would bring prosperity accompanied by peace and stability.[7]

Thus, initiatives of the Roosevelt Administration spearheaded the third effort to reconstruct a liberal world trading system. In the United States, policymakers commenced the drafting of post-war planning and reconstruction even before the end of World War II. The Atlantic Charter, signed by the United States and Great Britain in August of 1941, was a first promising step toward multilateralism. The Charter declared the intention of the two governments to " . . . endeavor, with due respect for their existing obligations, to further the enjoyment by all states, great or small, victor or vanquished, of access, on equal terms to the trade and to the raw materials of the world which are needed for their economic prosperity" (Wilcox 1949, 37).

Although, to the dismay of Secretary Hull, the "existing obligations" clause of the Atlantic Charter appeared to shield the Imperial Preference system, the general

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[7] Other factors that have been suggested as the source of the American desire to construct a liberal international order are the historical American experience identifying economic nationalism with the threat to both peace and prosperity; the United States' new found hegemonic power in the global economic structure; definable American interests anticipating to benefit from a laissez-faire system; and an predominant ideology which foresaw a new world economic order (Krasner 1977, 638-639).

interpretation given later was to permit "a short-run exception to avoid violation of the temporary preferential agreements then in force" (Gardner 1969, 52).

Anglo-American talks continued during the 1940s. In February of 1942 following the Atlantic Charter, Great Britain and the United States signed the Mutual Aid Agreement. This primarily set forth the terms of the Lend-Lease arrangements to provide American aid to Britain in exchange for "British cooperation in the post-war reconstruction of multilateral trade" (Culbert 1987, 386). Article Seven of the Agreement calling for " . . . the elimination of all forms of discriminatory treatment in international commerce, and to the reduction of tariffs and other trade barriers . . ." was to become the cornerstone of post-war trade policy (*ibid.*, 387).[8]

B. The GATT Era

Before the end of World War II the multilateralist vision of global economic order had begun to take form. With the signing of Article Seven, the world moved closer to common objectives of post-war economic recovery. Throughout the 1940s the principal trading countries among the United Nations met to address the problems of currency, finance, and trade. The plan for recovery included the establishment of three distinct sister organizations: the International Monetary Fund (IMF), the International Bank for Reconstruction and Development[9] (IBRD), and the International Trade Organization (ITO). *The Final Act of the United Nations Conference on Trade and Employment*, also

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[8] Negotiations of Article Seven extended beyond the signing of the Mutual Aid Agreement. See Chapter IV of Gardner (1969).

[9] The International Bank for Reconstruction and Development is also known as the World Bank.

known as the *Havana Charter*, laid out the protocol for the International Trade Organization (International Trade Organization 1947). Although governments agreed on the creation of the IMF and the IBRD, the US Congress did not ratify the *Havana Charter* for the ITO; consequently, it was not established.[10]

In the meantime, while countries were awaiting the formation of the ITO, twenty-three countries signed a provisional document, the *General Agreement on Tariffs and Trade*, which emerged from the text of the *Havana Charter*. The Contracting Parties to the *General Agreement* eventually formed the body which took the place of the proposed International Trade Organization.

1. The Formation of Article XI

The United States played a major role in the world plan for post-war economic recovery. During the Anglo-American negotiations, the US government drafted a number of proposals for guidelines on international commercial policy and to establish an organization to oversee international trade. These proposals were revised and further developed between 1943 and 1945 with participation from several countries, including Great Britain and Canada, until the final draft was published by the US government in December of 1945. Copies of this document, known as the *Proposal for the Expansion of World Trade and Employment* (referred to hereafter as the *Proposals*) were sent to every country. "Between October 1945 and December 1946, the governments to Belgium,

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[10] The establishment of a permanent Multilateral World Trade Organization to succeed the GATT Secretariat was, finally, agreed in the concluding phases of the Uruguay Round negotiation of GATT.

Greece, Poland, France, Turkey, Czechoslovakia, and the Netherlands endorsed the purposes of the *Proposals* and agreed to avoid action that would prejudice the outcome of the projected negotiations" (Wilcox 1949, 39).

The original text of Article XI in the *General Agreement on Tariffs and Trade* banning quantitative restrictions first appeared in the US *Proposals* with special provisions exempting agriculture (Buchanan and Lutz 1947, 401). Later in the spring of 1946, interdepartmental committees of the US government elaborated the *Proposals* in a document called the *Suggested Charter for an International Trade Organization* (referred to hereafter as the *Suggested Charter*). The *Suggested Charter* was circulated to member countries of the Preparatory Committee appointed by the United Nations to work out an agenda for the International Conference on Trade and Employment. Provisions to exempt domestic agricultural price support programs that restrict produced or marketed supplies in the US *Proposals* were carried over in the *Suggested Charter* (Wilcox 1949, 85). After prolonged debate between November 1947 and March 1948 at the International Conference on Trade and Employment sponsored by the Economic and Social Council of the United Nations, the final act of the *Havana Charter* accommodated the ban on quantitative restrictions along with provisions to exempt agriculture. The provisions concerning quantitative restrictions and agriculture were written into Article 20 of the *Havana Charter*. Later, with the creation of the GATT, Article 20 of the *Havana Charter* was abridged and appended to the *General Agreement* as Article XI. Paragraph 1 of Article XI closely follows both the *Havana Charter* and the US *Suggested Charter* stating that no prohibitions or restrictions other than duties, taxes, or other charges can be applied

to any product. As this was not initially agreeable to several nations at the various negotiations of the International Conference on Trade and Employment, participants agreed to include the special exemptions for agricultural and fisheries products provided for in the *Havana Charter* (Brown 1950, 193-195). With the intention that the agricultural exemption would not be abused, they also agreed to include safeguards (Wilcox 1949, 85).

Thus, the United States played a major role in formulating the text banning quantitative restrictions. It was also fundamental in formulating special treatment for trade in agricultural products. On the one hand, American policymakers were prescribing an outright ban of all quantitative restrictions, while on the other, they were reluctant to violate existing US legislation. Consequently, US negotiators successfully accommodated US farm and food policies by exempting agricultural trade in the *General Agreement* and its preceding documents.

Indeed, the conflict between general foreign trade policy and agricultural policies of the United States weakened its bargaining position in the Geneva negotiations and posed a major handicap to the development of a consistent policy. Even the Director of the Office of International Trade Policy in the US State Department, acknowledged the "beam in their eye". He wrote,

> We are no more willing than any other country to leave production in agriculture to the mercies of the market. The maintenance of farm prices at levels unrelated to those obtaining elsewhere in the world is a settled policy of our government. When supplies are ample, this means that we control production and marketing. When we produce a surplus to sell abroad, we subsidize in order to compete. When we produce less than we consume at home, we restrict imports so that they will not undercut the established price. The wisdom of our agricultural policy is not here in

> question, but the fact that it is inconsistent with our belief in private enterprise and with our efforts to restore a freer trading system should be clear (Wilcox 1949, 35-36).

The groundwork devoted to commodity agreements in the US *Proposals*, the *Suggested Charter*, and the *Havana Charter* suggest that it was the US negotiators' intention from the start to protect and maintain their domestic agricultural policy (Brown 1950, 25-27: Jackson 1969, 733).

2. *Opposition to Development of Article XI Exemptions*

The majority by far of net agricultural exporters in the 1940s were the world's poorest countries, but Canada, Argentina, Australia and New Zealand were also major exporters. Initially, of course, most of these nations, including Canada, opposed the exemption for agriculture in Article 20 of the *Havana Charter* (Jackson 1969, 311-312, 318).

In contrast, Western European countries in dire need of relief from the post-war food crisis, together with several food importing nations, relied on cheap agricultural surpluses that resulted from policies such as the American price-support programs (Curzon 1965, 173). Consequently, these nations remained largely unopposed to the exception put forward for agriculture in Article 20 of the *Havana Charter* and later Article XI of the *General Agreement* (Stone 1984, 158).

Of course, exemptions for agriculture were not the only issue. It appears that the balance of payments justification for quantitative restrictions covered in Article XII of the *General Agreement* was of considerably greater importance and urgency for both the

Western European and food-importing nations than the agricultural exemption. For example, France was concerned that many countries were not on an equal footing because the productive capacity of some nations increased during the war whereas others torn by war required reconstruction and modernization (Jackson 1969, 310-311).

Less-developed countries (LDCs), following the initiative of India, were more concerned with achieving an exemption for industrialization purposes than for agriculture (Wilcox 1949, 45). By 1954 some developing countries, including India and Brazil, expressed dissatisfaction with the developed countries' use of quantitative import restrictions for agricultural and fisheries products, while there was no provision in the *General Agreement* allowing developing countries to use quantitative restrictions for development purposes (Gupta 1967, 15).[11] Since the European nations and the LDCs were absorbed in the dispute over the balance of payments exemption, the only countries free to contest Article XI 2(c) were Canada, Australia, and New Zealand.

3. *The US Waiver of Article XI*

Notwithstanding US efforts to accommodate the *General Agreement* to its agricultural policies, Section 22 of the US Agricultural Adjustment Act of 1933 appeared to be inconsistent with Article XI. Congress revised and amended Section 22 several times between 1933 and 1950. Essentially, Section 22 called for the Secretary of Agriculture to notify the President if he believed any imports were rendering ineffective

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[11] Later attempts were made at improving the trade relations between the LDCs and the more developed countries. In 1965 Contracting Parties introduced Part IV into the *General Agreement.* In the 1970s a generalized system of tariff preferences was adopted, largely resulting from the efforts of the United Nations Conference on Trade and Development (UNCTAD) (Ethier, 1983, 231; Blake and Walters 1987, 41).

or materially interfering with any programs or operations undertaken by the Department of Agriculture. The President would then investigate the allegation and, depending on his findings, could impose import restrictions in the form of fees or quotas as deemed necessary. In 1950 and again in 1951, the US Congress further amended Section 22 with the addition of subsection (f) which gave Section 22 considerably more strength. The 1951 amendment established a precedent for US legislation to overrule international agreements, including the GATT. It stated, "No trade agreement or other international agreement heretofore or hereafter entered into by the United States shall be applied in a manner inconsistent with the requirement of this section" (Hillman 1978, 211). Clearly, Section 22(f) contravened Article XI of the newly formed *General Agreement.*

The United States, therefore, sought to obtain a waiver of its obligations to Article XI. On March 5th, 1955 the Contacting Parties granted the request (GATT 1955). In the view of some, the other Contacting Parties had no choice but to approve the US request: failure to do so would have either damaged the legal principles of the *General Agreement* or risked US withdrawal from the GATT (Jackson 1969, 735).

A study commissioned by the GATT in 1959 to compare farmgate prices internationally concluded that the United States did not need to pursue its agricultural support programs for economic reasons (GATT 1959). Some considered the 1955 waiver and the variety of other exemptions granted to agriculture merely a reflection of ". . . an earlier influence which has faded with US hegemony in world markets . . ." (Runge, vonWitzke, and Thompson 1989, 109). Others argued that the waiver came to be of

greater qualitative significance than quantitative (Zietz and Valdés 1988, 12). Nevertheless, as one expert pointed out,

> The breadth of this waiver, coupled with the fact that the waiver was granted to the contracting party that was at the same time the world's largest trading nation and the most vocal proponent of freer international trade, constituted a grave blow to GATT's prestige (Dam 1970, 260).

It was clear that by the end of the 1950s the problems of integrating agricultural trade into GATT were not simply an aftermath of two world wars, but intrinsically linked to the pursuits of agricultural policymakers in industrial countries, particularly in the United States (Curzon 1965, 176).

C. Inquiries, Negotiations, and Disputes

Unfortunately, the record of adherence to the rules of Article XI for agricultural products is poor. The rules are often simply ignored (Zietz and Valdés 1988, 25). Some authors attribute this to a perceived unfair and inequitable application of the obligations of Article XI. Jackson points out, for example, that "No other major nation was willing to abide by the GATT rules as long as the United States had its privileged position in agriculture" (1969, 718). Soon other countries requested special exemptions from Article XI. These included Belgium (December 3, 1955), Luxembourg (December 3, 1956), and Germany (May 30, 1959) (*ibid.*, 549-552).

1. The Haberler Report, 1958

In 1958, a panel of experts reporting to the GATT indicated that a number of highly industrialized countries no longer in balance-of-payments difficulties engaged in the improper use of quantitative restrictions in agricultural products (GATT 1958, 123). Following its release, the Contracting Parties assembled to debate the findings of the report in late 1958. According to one writer, each country read the same text differently to its own liking. In dismay, Curzon (1965) reflected,

> Thus every one found a justification for his policies however protectionist or free-trading and however much they contradicted each other. It could hardly have been the object of the experts to provide each protagonist with a set of arguments with which to beat the other. This was a disappointing first result (1965, 185).

The Haberler Report concluded that further progress towards trade liberalization ultimately depended ". . . upon the willingness of the industrial and the non-industrial countries to negotiate on a wide range of their economic and financial policies" (GATT 1958, 12).

2. Committee II

Following the Haberler Report, Committee II was established to look at protection of agriculture in countries willing to undergo scrutiny. It documented its findings for thirty-eight countries, especially with respect to the use of quantitative restrictions. It observed that the widespread use of quantitative restrictions, *inter alia*, "have frustrated benefits which many countries expected to receive as a result of the obligations arising from the *General Agreement*" (GATT 1962, 23).

3. *Multilateral Trade Negotiations*

The early rounds of multilateral trade negotiations of the GATT primarily focused on tariff reductions of nonagricultural products (Hanrahan, Cate, and Vogt 1984, 13). Agricultural trade issues and nontariff barriers gradually received more attention throughout the Dillon, Kennedy, and Tokyo Ronds of negotiations, and were a major focus of the Uruguay Round.

The Dillon Round, 1960-62

The Contracting Parties agreed to direct the primary aim of the Dillon Round of Negotiations towards tariff reductions and ". . . the exchange of reciprocal and mutually advantageous concessions" (GATT 1960, 115). The scope of the negotiations also provided for the negotiability of, *inter alia,* import restrictions covered by Article XI:2(c). Contracting Parties had the option to choose the measures which they wished to negotiate through the "freedom of action" rule. Although some success was made in reducing tariff barriers, this rule stymied progress in the reduction of quantitative restrictions. One writer observes, "Some industrial countries, including the European Economic Community (EEC), declared before the beginning of the Conference their intention not to enter into negotiations in respect of nontariff measures and no agreement of this kind came out of the Conference" (Gupta 1967, 71-72). Negotiations on trade in several agricultural products between the United States and the newly formed European Economic Community were deferred to future bilateral or multilateral negotiations. Ultimately, the

Dillon Round resulted in tariff reductions for mostly industrial products (Hanrahan, Cate, and Vogt 1984, 15).

The Kennedy Round, 1964-67

Like the Dillon Round, the Kennedy Round is known for its successes in reducing tariff barriers which were achieved, in part, by setting tariff reduction targets. Unlike the Dillon Round, however, the Ministers agreed that the scope of the trade negotiations was to cover all classes of products, including agricultural and primary products and that the negotiations would encompass not only tariff but also nontariff barriers (GATT 1964, 47). The growing predominance of special treatment for agriculture through the frequent use of quantitative restrictions tended to make tariffs irrelevant in determining international trade flows for agricultural products and thereby heightened the importance of negotiations in this area (Dam 1970, 70). The Trade Negotiations Committee, in opening the trade negotiations of the Kennedy Round, recognized the link between achieving the tariff reduction targets and finding solutions to other problems in the areas of agriculture and nontariff barriers, among others. Nevertheless, the Committee pointed out that it had not been possible to formulate agreed rules to govern and methods to be employed in the trade negotiations on agriculture (GATT 1965, 110).

During the Kennedy Round, the French introduced the concept of a margin of support, usually referred to as the *montant de soutien.* It expressed an equivalent tariff

rate of nontariff barriers in the form of a quantifiable measure.[12] A deadlock emerged between the United States and the European Economic Community, however, possibly as a result of a lack of common ground on the philosophy of agricultural trade policy. It could not be agreed as to whether the *montant de soutien* should be a baseline for reducing protection in agriculture or a measure to consolidate existing levels of support (Golt 1974, 25-27). In the end, the trade negotiations in agriculture appeared to achieve "negligible accomplishments" (Jackson 1969, 718).

The Tokyo Round, 1973-79

Agriculture and nontariff barriers to trade took a prominent place on the agenda of the Tokyo Declaration which opened a new round of comprehensive trade negotiations in 1973 (GATT 1974, 7). By the 1970s, the Contracting Parties recognized that agriculture tended consistently to be ignored. In the report, *GATT Activities in 1973*, it was pointed out that trade in agricultural products continued to be among one of the most difficult problem areas in international economic relations (*ibid.*, 31). The initial difficulty in determining negotiating procedures together with the uncertain and volatile economic conditions of the 1970s led to minimal gains in the agricultural negotiations of the Tokyo Round. Despite the major focus of the Round on the definition of an international code of conduct, the Contracting Parties did manage to negotiate two multilateral commodity agreements and agreed to further ". . . develop active co-operation

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[12] Golt reports that the *montant de soutien* is defined as follows: "The margin of support for a given agricultural product is equal to the difference between the price of the product on the international market and the remuneration actually obtained by the national producer" (1974, 26).

in the agricultural sector within an appropriate consultative framework . . ." to be outlined at the earliest possible date (GATT 1979a, 43).

The Uruguay Round, 1986-1993

In 1982 the Contracting Parties of the GATT issued a Ministerial Declaration setting out the work program and the priorities of the 1980s. In it they agreed to undertake, *inter alia,* ". . . to bring agriculture more fully into the multilateral trading system by improving the effectiveness of GATT rules, provisions, and disciplines . . . through their common interpretation; to seek to improve terms of access to markets; and to bring export competition under greater discipline" (GATT 1983, 11-12). They established a Committee on Trade in Agriculture to carry out the tasks outlined in the declaration and to make recommendations to the Council and to the Contracting Parties over a two year period (*ibid.*, 17).

The 1982 Ministerial Work Program laid the groundwork for launching the Uruguay Round in September of 1986. Its recommendations for agriculture were carried over to the Punta del Este Declaration (GATT 1987a, 21). The Contracting Parties established fourteen negotiating groups to carry out the program of the Punta del Este Declaration, including one for agriculture (GATT 1987, 34). "For the first time in the history of GATT rounds," the Director-General of the GATT later pointed out, "agricultural trade is . . . considered to be at the centre of negotiations and not at the periphery" (GATT 1989c, 8). The marked differences between the United States and the European Economic Community concerning multilateral approaches to the long-term

problems of the farm sector and international trade hampered progress in agricultural trade reform throughout the Uruguay Round (GATT 1989d, 7). The Round had been scheduled to conclude with final talks in Brussels in December 1990 but conclusion was not reached, primarily due to the standstill on agricultural trade reform (Eisler 1990). In December 1991, in an attempt to conclude the negotiations, GATT Director General Arthur Dunkel tabled a draft Act that incorporated his proposal for a potential compromise agreement on agriculture. Further negotiations between the US and EC led, in November 1992, to the "Blair House Agreement" on agriculture. This was subsequently modified in the final phases of negotiations of the round, which continued to December 15, 1993. The resulting Agreement on Agriculture requires the conversion to tariffs of quantitative import restrictions, variable import levies, minimum import prices, discretionary import licensing, non-tariff measures maintained through state trading enterprises, voluntry export restraints, and similar border measures (GATT 1993).

4. *Panel Rulings Relating to Article XI.2(c)*

The integrity of the GATT as an effective institution is maintained by the Contracting Parties' observance of and compliance to the rules and disciplines of the *General Agreement.* While the GATT does not have any legal or binding authority to uphold the rules and discipline of the *General Agreement*, this institution does provide for a process of dispute resolution. The first step involves alerting the country of the objectionable trade practices. The offending country, in turn, is to give sympathetic consideration to the issues raised by the parties concerned. If a satisfactory resolution can

not be achieved, the country or countries contesting the practice may make a formal complaint to the Contracting Parties. A panel or working party is usually established by the Contracting Parties to investigate the dispute and to follow up with a preliminary report to be presented to all the Contracting Parties. A final decision is then taken by the entire body. With respect to the application of Article XI, the Contracting Parties have established a number of GATT panels to resolve disputes between nations. The text of Article XI is provided in Appendix A for reference purposes.

Canadian Import Quotas on Eggs, 1975

In 1975, for example, the United States requested that the Council of Representatives of the GATT establish a working party to determine if Canada's import quotas on eggs were consistent with Article XI. After considering the points at issue raised by the United States, the working party consulted with Canada and concluded that the Canadian supply management scheme for eggs was in conformity with the obligations of Article XI:2(c)(i) (GATT 1977, 91-93).

European Tomato Concentrates Case, 1976

Acting on another US complaint, in 1976 a GATT panel convened to investigate the European Economic Community's implementation of a minimum import price system for tomato concentrates and a licensing and deposit system for certain processed fruits and vegetables (GATT 1979, 68-107). The Panel ruled that the EEC's practice was inconsistent with Article XI:2(c) because the measure which operated to restrict the

production or marketing of the fresh product was considered ineffective, and therefore, could not qualify as a legitimate governmental measure. Ironically, the EEC's measures were, as the EEC representative pointed out, less illiberal than the obligations of Article XI:2(c). Nevertheless, the minimum import price system implemented was more protective than if no barriers to imports existed, as argued by the United States.

Japanese Restrictions Case 1986

In 1986 the United States requested an investigation into Japan's use of import restrictions on twelve different agricultural products (GATT 1987a, 56-57). These products were: preserved, concentrated, or sweetened milk and cream; processed cheese; dried leguminous vegetables; starch and inulin; groundnuts; prepared or preserved meats of bovine animals; other sugars and syrups not containing added flavouring or colouring; fruit puree and pastas; fruit pulp and pineapple; fruit and vegetable juices; tomato ketchup and sauce; and certain food preparations. In this case, the Panel ruled against Japan. In particular, the Panel found that Japan's use of prohibitions were contrary to Article XI based on the following:

- It found that some import restrictions applied by Japan were not justified under Article XI:2(c)(i) which provides for import restrictions necessary to the enforcement of governmental measures which restrict quantities of the like domestic product or substitute (refer to Appendix A). This is because no measures were taken to restrict domestic production.

- The Panel ruled that certain import restrictions were not justified by Article XI:2(c)(i) for three reasons: (1) import restrictions should not exceed levels necessary for the operation of domestic governmental measures; (2) they cannot normally be applied during the off-season when domestic supplies are not available; and (3) the domestic production of the fresh product and earlier-stage products processed from the product must also normally be restricted.

- Some restricted imports did not qualify as fresh products or as ". . . those processed agricultural and fisheries products that are in the early stages of processing and still perishable which compete directly with the fresh product and, if freely imported, would render ineffective the restrictions on the fresh product" (GATT 1987b, 81).

- The Panel also found Japan's import restrictions to be contrary to the last sub-paragraph of Article XI:2(c) which requires public notice of the import restriction and that the restriction must not reduce the proportion of imports relative to total domestic production. It found that Japan did not give sufficient ". . . public notice of the total quantity or value of each product permitted to be imported during a specific period" (*ibid.*, 81) and that Japan was unable to show that, for certain import restrictions, import ratios relative to domestic production did not decrease.

Canadian Import Quotas on Ice Cream and Yoghurt 1989

In 1988 the United States requested that a panel be formed to investigate Canada's addition of ice cream and yoghurt to its Import Control List (GATT 1989). The Panel reported that:

> . . . ice cream and yoghurt do not meet the requirements of Article XI:2(c)(i) for "like products" "in any form" to Canadian raw milk nor would their free importation be likely to render ineffective the Canadian measures on raw milk production (*ibid.*, 30).

Furthermore, "the Panel found further that the restriction of imports of ice cream and yoghurt is not necessary to the enforcement of the Canadian programme for raw milk" (*ibid*). The Panel recommended that "the Contracting Parties request Canada either to terminate these [import] restrictions or to bring them into conformity with its obligations under the *General Agreement*" (*ibid.*).

5. Interpreting Article XI Exemptions

These rulings have had a considerable impact on the interpretation of Article XI:2(c) by identifying several criteria that must be met in order to conform to the conditions in Article XI (GATT 1989a, 6-7). They are as follows:

(i) the measure on importation must constitute an import restriction (and not a prohibition);

(ii) the import restriction must be on an agricultural or fisheries product;

(iii) the import restriction and the domestic marketing or production restriction must apply to "like" products in any form (or directly substitutable products if there is no substantial production of the like product);

(iv) there must be governmental measures which operate to restrict the quantities of the domestic product permitted to be marketed or produced;

(v) the import restriction must be necessary to the enforcement of the domestic supply restriction;

(vi) the contracting party applying restrictions on importation must give public notice of the total quantity or value of the product permitted to be imported during a specified future period; and

(vii) the restriction applied under (i) must not reduce the proportion of the total imports relative to total domestic production, as compared with the proportion which might reasonably be expected to rule between the two in the absence of restrictions (*ibid*).

Working parties have tended to scrutinize these areas when they evaluate the consistency of a country's quantitative restrictions with the requirements of Article XI exemptions.

6. Additional Difficulties with Article XI Exemptions

Dispute resolution has not been a flawless process. The ambiguity of the Article XI exemptions created tension. As the criteria list suggests the meaning of several terms

and phrases found in Article XI are unclear. These include "in any form", "perishability", "early stage of processing", "like products", and "proportionality of market access". After more than forty years it became evident that the evolution of food processing technology had changed the original meaning of these concepts.

The question of what an agricultural or fisheries product *in any form* is, has not been resolved, although the previous panel findings indicate that the product must be perishable and also in an early stage of processing. Conversely, the term "like products" has several different meanings, depending where it is applied. The League of Nations defined a "like product" as "practically identical with another product" (Jackson 1969, 260). "Like product" as used in Article I (the Most Favoured Nation Clause) of the *General Agreement* has been interpreted more broadly to mean those products within a tariff classification. The interpretation of "like product" as it appears in Article VI covering antidumping and countervailing duties has been deemed to mean the *same* product. Similarly, the "like domestic product" usage in Article XI has been interpreted to be more narrowly defined than Article I. The question of market access is even less clear than other terms previously mentioned. In general, working parties have tended to recommend that the disputing countries work out a compromise between themselves.

In addition to imprecise wording, the exemptions in Article XI that allowed the use of quantitative restrictions on imports exhibit notable omissions. Variable levies, voluntary export restraints, and minimum import price arrangements are some of the contentious policy tools used to restrict imports that have not been explicitly covered by the General Agreement. Previous rulings suggest, moreover, that these measures are

inconsistent with Article XI exemptions because domestic marketing and production of the product in question are not, in general, restricted. By the 1990s Article XI was being questioned on numbers of fronts. Article XI had matured as an ambiguous and deficient part of the *General Agreement.* Few, if any, parties believed that Article XI should be retained unchanged.

The approach to liberalize agricultural trade, and the disposition of Article XI that eventually prevailed in the Uruguay Round negotiations evolved from the comprehensive long-term proposal (referred to hereafter as the *US Submission*) submitted in July, 1989 to the Contracting Parties of the GATT by the United States (GATT 1989e). The unsuccessful Canadian proposal relating to the Article XI exemptions called for strengthening and clarifying the article. The high priority, in the Canadian position, on retention and strengthening of the exemptions clauses in Article XI was influenced in large measure by the active lobbying efforts of producer organizations and other interest groups associated with the supply-managed dairy and poultry products. An examination of some further details of the provisions of the December 1993 agreement on agriculture relating to Article XI are given later in this report.

CHAPTER 3

3. Tariffication as an Approach to Agricultural Policy Reform: Background, Theory, Research Questions and Issues

In July of 1989, the United States submitted a comprehensive proposal to the GATT's Negotiating Committee on Agriculture outlining four major areas of agricultural policy reform: import access, export competition, internal support, and sanitary and phytosanitary measures. Tariffication was proposed by the United States as one component of the approach to reforming policies which restrict market access to agricultural trade (GATT 1989e). As stated in the *US Submission*:

> The objective is to orient domestic production to market forces through conversion of all nontariff barriers to bound tariffs and ultimately reduce all agricultural tariffs to zero or low levels. After an agreed transition period, all import protection would be in the form of tariffs (*ibid.*, 3).

The submission proposed termination of all derogations to existing GATT rules including waivers; the prohibition of import barriers not explicitly provided for the GATT; and the elimination of Article XI:2(c) of the *General Agreement.*

The concept of tariffication was not new. During the Kennedy Round of trade negotiations, France proposed the *montant de soutien*, a similar measure intended to quantify the gap between domestic and world prices and to bind the level of protection.[13] Converting quantitative restrictions to bound nondiscriminatory tariffs had been proposed as a means to liberalize trade in textiles and clothing regulated by the Multi-fibre Arrangement (Wolf 1985). Veeman (1987) proposed replacement of import quotas by

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[13] Granted, France had hoped that the *montant de soutien* would secure this level of protection rather than be used to negotiate its reduction (Golt 1974, 26).

tariffs for Canadian supply-managed agricultural commodities. Support of tariffication as an alternative proposal for international trade reform, endorsed for its capability to fully integrate agriculture into the GATT framework, can be found in Zietz (1988).

The first section of this chapter examines the economic theory behind tariffs and their relationship to quotas under conditions of perfect and imperfect competition. Some limitations to tariffication are then identified. Tariff equivalent measures are calculated, and the methodology used is discussed, as are the findings of other studies that calculate tariff equivalent measures of nontariff barriers (NTBs) Some initial research questions related to the use of prices from the wholesale versus farmgate market level, to the variability of tariff equivalent estimates, and the derivation of import-preserving tariff equivalent estimates are also examined in this chapter. Finally, economic implications of the outcome of the Uruguay Round of GATT negotiations for the Canadian poultry sector are explored in the last section of this chapter.

A. Theoretical Issues Related to Tariffication

1. The Preference for Tariffication

An important feature of the principle of tariffication as a means of international agricultural policy reform is that it simplifies the treatment of a wide range of existing trade barriers, can be relatively easy to compute, may have limited data requirements, can be relatively easy to implement and monitor, and has the advantage of "recoupling" importer markets to world markets (International Agricultural Trade Research Consortium 1989).

Tariffication is consistent with GATT principles. In general, the preference for tariffs is based on three principles: nondiscrimination, transparency, and market responsiveness.

B. The Effects of a Tariff

Under competitive conditions, the production, consumption, and trade effects of the introduction of a tariff equivalent to nontariff barriers are analogous to the effects of imposing a tariff. These effects are analyzed graphically using a comparative static partial equilibrium framework. The following assumptions are made:[14]

(1) Unless indicated otherwise, the market is for a small country at some specific market level for a particular homogeneous commodity or commodity group.

(2) The substitutive and competitive responses of other commodities or commodity groups linked to the market under consideration can be suppressed.[15]

(3) The demand function for the commodity can be represented by the horizontal summation of all the individual, independent, short-run demand functions of the consumers of the commodity in the country, where other prices, income, tastes, and preferences are held constant.

(4) The supply function for the commodity can be represented by the horizontal summation of numerous independent, short-run supply functions of the producers of the commodity in the country, where other prices, input supply schedules, and technology are held constant.

(5) A relationship exists between the demand and supply function such that exchange of the commodity can occur only between the consumers and

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[14] This section draws on Chapter 4 of Houck (1986).

[15] This assumption is required only to the extent that it simplifies the analysis.

producers implicitly represented by the respective functions except where there is excess demand or excess supply.

(6) Competitive conditions exist in this market stemming from a sufficient number of small buyers and sellers who are essentially pricetakers and also from the absence of significant barriers to market entry or exit.[16]

(7) The market is open; hence, excess demand can be met by imports whereas excess supply can be exported, thereby allowing trade between countries.

The partial equilibrium construction is static. In Figure 1 panel (a) represents the domestic market and panel (b) represents the international market. In panel (a), domestic production (Q_p) is determined by the domestic supply function (S_d). Domestic consumption (Q_c) is determined by the domestic demand function (D_d). In an open market the domestic price (P_d) is determined by international market forces and, therefore, equals the world price plus some margin for transportation and distribution. For the purposes of keeping the diagram uncluttered, these costs (while important) are not shown, and therefore $P_d=P_w$.

In the context of the small country assumption, the world price essentially serves as a perfectly elastic excess supply function [*ES (R)*] for the rest of the world as shown in Figure 1 (b). From Figure 1 (a), domestic production is represented by (Q_p), domestic consumption is represented by (Q_c), and the quantity imported is assumed to be the difference between consumption and production, that is, (Q_c-Q_p), or equivalently, (Q_m) in panel (b).

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[16] This assumption may not extend into the longrun as the tariff barrier might alter the market structure.

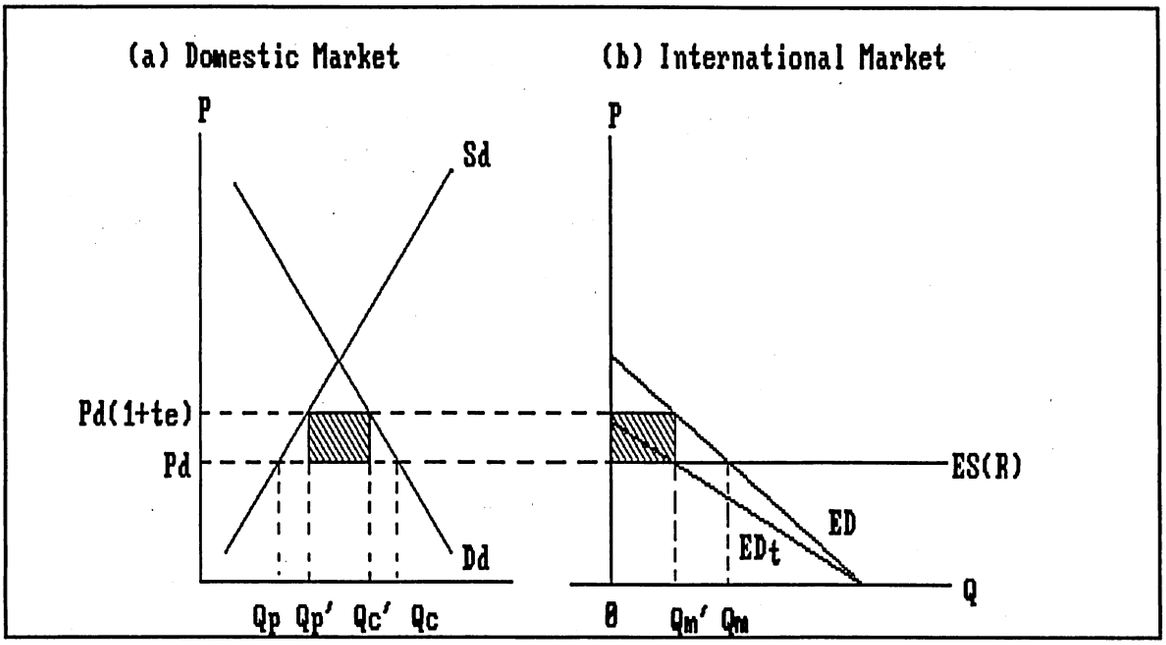

Figure 1. Effects of an *ad valorem* Tariff

Applying an *ad valorem* tariff to this small-country, open market case essentially displaces the excess demand function (*ED*) by the percentage amount of the tariff, increasing the domestic price (P_d) by (*te*). The country's excess demand function depicted in the international market shifts to the pivotal position (ED_t) after the tariff is imposed. Domestic production is increased to (Q_p'), domestic consumption is decreased to (Q_c') and imports are displaced to (Q_m'), or alternatively, to (Q_c'-Q_p'). The revenue from the tariff that would accrue to the government is represented by the hatched area. Of course, if a nontariff barrier were already in place, the initial domestic price could be represented by $P_d(1+te)$ with all the appropriate corresponding levels of production, consumption, and imports. A tariff having an *ad valorem* rate equivalent to the rate at which the nontariff barrier would cause the domestic price to exceed the world price

could be applied to the market to replace the nontariff barrier. The tariff equivalent would simply reflect the price gap resulting from the nontariff barrier.

C. The Equivalency of Tariffs and Quotas

Under conditions of perfect competition, an equivalency exists between tariffs and quotas. A nontariff barrier such as a binding import quota, as shown in Figure 2(b), forces the excess demand function to shift to the vertical position (ED_q). The quantity restriction imposed on imports, therefore, is at (Q_m').

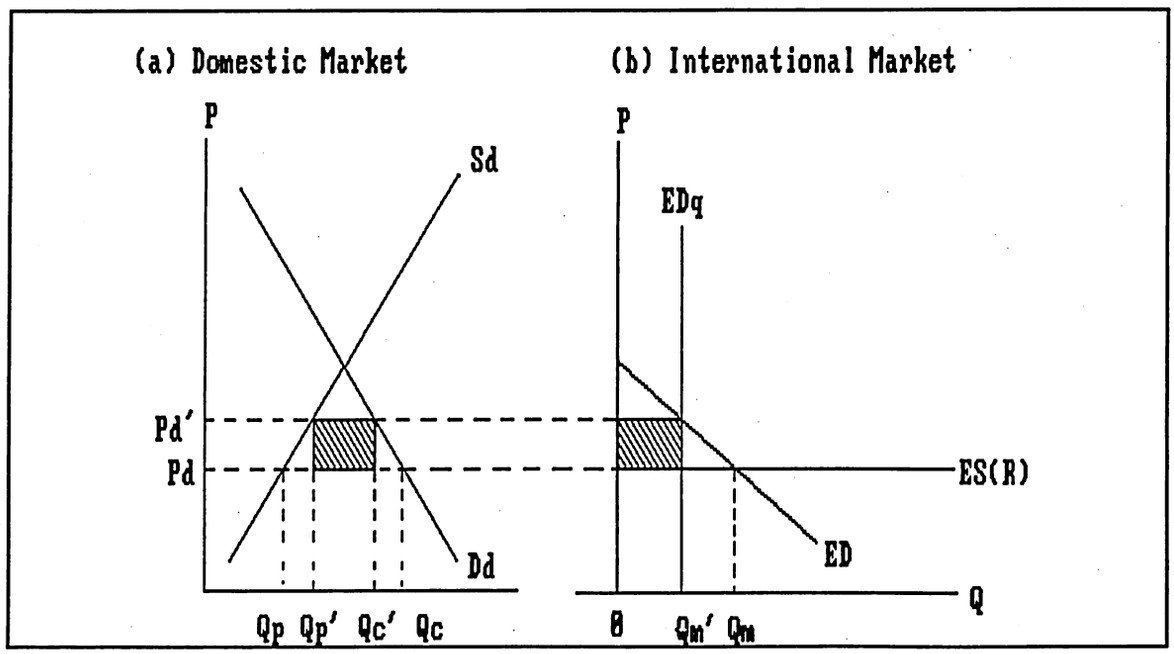

Figure 2. Tariff and Quota Equivalency

In the small country case, the price effect of imposing a tariff or a quota is the same. That is, at (P_d'), an equivalent tariff (te) can be found such that $P_d'=P_d(1+te)$. The

quota restriction on imports has a scarcity value which accrues as economic rent. This rent can be expected to have the same value as the government revenues generated by the tariff. The government can capture this rent if it auctions the rights to hold the import quota. It may choose to distribute the rights free of charge on the basis of first-come first-served, historical production or importation, or some other basis. In these cases, the importer typically would gain the rent. However, should imports be restricted by a variable export restraint agreement, the foreign exporter would be expected to appropriate the rent.

D. Nonequivalency Under Imperfect Competition

The equivalency between tariffs and quotas no longer applies under conditions of imperfect competition. Bhagwati (1965) demonstrates that the equivalency breaks down with the presence of monopoly elements in any one or more of the areas of foreign supply, domestic production, or quota allocation.

This situation applies for Canadian supply management marketing boards. These boards exercise monopoly power in the domestic market. They are able to control market entry by restricting production rights through the use of production or marketing quotas. By limiting output levels, product prices are increased. Import quotas play an important role in this price enhancing ability. Without the import quota restrictions, imports would increase the total supplies available to consumers and thereby depress the domestic price of the import-competing commodity. Thus, import quotas permit producers to be price

makers by monopolizing the domestic market whereas tariffs leave producers as price takers (Anderson 1988, 4).

The nonequivalence of tariffs and quotas raises potential problems for tariffication in imperfectly competitive markets such as those covered by national supply management schemes. One possible scenario of this nonequivalency is depicted in Figure 3. Here, the global import quota is depicted as a predetermined percentage (m) of the level of production.[17] The global import quota schedule is represented by a pivotal shift of the domestic supply function (S_d) to the position $S_d(1+m)$ to reflect the new schedule of total quantities available to domestic consumers at each price level in the domestic market (panel (a)). This is reflected in the international market by a pivotal shift of the country's excess demand curve for the product (ED) to the position (ED_m) in panel (b). In panel (a), the domestic production quota is represented by the vertical domestic supply schedule (S_q). Given the domestic production quota (S_q), the total supply available to the domestic market (domestic production plus the imports determined by the global import quota) is at the vertical position (S_q+M_q). The revenue from the global import quota is represented by the hatched area. Domestic production is fixed at (Q_p), domestic consumption at (Q_c), and imports at (Q_c-Q_p) or alternatively, at (Q_m) in Figure 3 (b). The domestic market is cleared at the domestic price (P_d'). Note that a tariff applied in this case to result in the price level (P_d') would be prohibitive; that is, it would shut out imports entirely since

[17] Note that in the case of poultry and eggs in Canada, the global import quota rate is applied to the previous year's production.

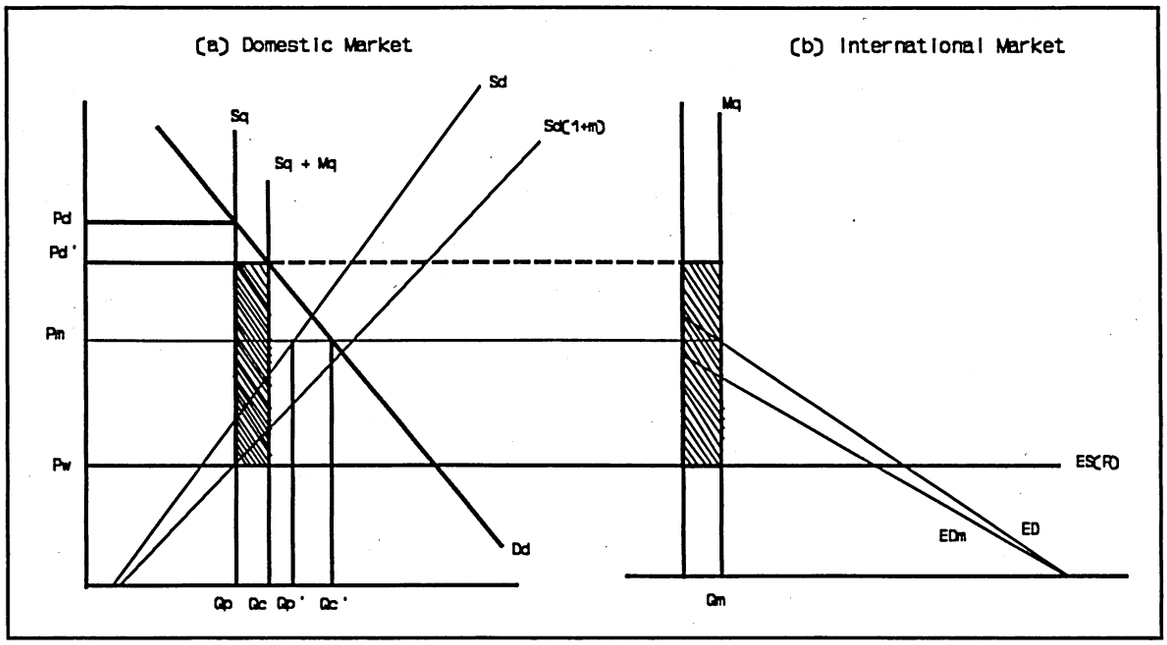

Figure 3. Tariff and Quota Nonequivalency

there is no excess demand at (Pd'). To achieve the same level of imports as (Qm) through the use of a tariff, would require the domestic market to be cleared at (Pm).[18] This price, however, is associated with a higher level of domestic production (Qp') and a higher level of domestic consumption (Qc').

Thus a tariff-quota equivalency does not exist in this imperfectly competitive situation. On the one hand, a tariff levied at the rate corresponding to the price level (Pd') is associated with a level of consumption that could be met entirely by domestic production (imports would be squeezed out). On the other hand, a tariff levied at the rate corresponding to the level of imports (Qm) is associated with a different price level (Pm).

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[18] Note that this level of imports is not consistent with the amount of imports that would be required by the global import quota.

Moschini and Meilke (1991) examined Canadian chicken broilers for the three year averaged period 1987-1989, and concluded that the tariff associated with the domestic price level maintained by the support of production and import quotas is close to three times higher that the tariff which would preserve market access. We further explore this issue in a later section of the chapter.

To ensure that a minimum level of imports is guaranteed, the December 15, 1993 GATT agreement provides for specification of minimum market access commitments. Thus, tariffication will involve the use of tariff-rate quotes. An analysis of the major implications of the specific tariff schedules proposed by Canada for poultry products under the agreement is given in the last section of this chapter.

E. Limitations to Tariffication

Aside from a possible implication for market access under conditions of imperfect competition, limitations to tariffication have been noted concerning policy coverage, domestic policy objectives, and some empirical issues. The underlying rationale of the principle of tariffication is to quantify, in either specific or *ad valorem* terms, all nontariff import barriers to trade. Specified import barriers include quotas, variable import levies, minimum import prices, discretionary (restrictive) import licensing, nontariff measures mainained through state trading enterprises, and voluntary export restraints. Since tariffication is specifically designed to deal with agricultural import protection it may be expected to capture only those barriers which distort the domestic price of a commodity relative to the world price (or external reference price). For example, the indirect trade

effects of some subsidies (such as input subsidies) are not likely to be amenable to quantification by the tariffication procedure. Subsidies used to enhance export competition may also interfere with the implementation of tariffication. If an input, production, or export subsidy is applied in a large exporting nation (or the external reference country), the subsidy could depress the world price (or the external reference price). If large countries (or the external reference countries) are permitted to implement policies which depress world prices after the computation and binding process of the tariffication procedure has been carried out, other countries will appear to be increasing their levels of protection. Reform in these areas would require the concurrent implementation of other reform measures.

While tariffication exhibits relative computational ease and minimal data requirements, the process may also increase the margin for inaccuracy. Specifically, the precise value of the tariff equivalent to nontariff barriers depends entirely on the set of prices and assumptions employed in the analysis. Thus governments may choose price levels that exaggerate the level of protection as a means of binding very high protective tariffs. It appears that this may have been an outcome of the Uruguay Round of GATT negotiations Apart from such distortions, the optimal choice of data may not be available, requiring the use of alternate, possibly inappropriate, data. Another potential disadvantage of the tariffication approach, and others which rely on price comparisons, is the dependence of the measure on exchange rates (Zietz and Valdés 1988, 67). An appreciating exchange rate can increase the tariff equivalent of a particular nontariff barrier dramatically without any changes occurring in agricultural markets, import

protection, or world prices. Conversely, a depreciating exchange rate could allow a country to increase the level of protection it provides to producers through input or production subsidies, deficiency payments, or other means.

F. Tariffication Methodology

The most basic method to convert nontariff barriers to tariffs is to calculate the price wedge that exists between the domestic price of a product and the world price of the same product in a common currency. This price wedge is considered a tariff equivalent to the nontariff barrier (or barriers) because, as Baldwin points out, ". . . under perfectly competitive conditions, an *ad valorem* tariff at this rate would yield the same wedge between the domestic and input prices" (1989, 10).[19] The tariff equivalent thus measures the rate at which the domestic price exceeds the world price, inclusive of transportation and distribution costs and any duties applied by the importing country. It can be formulated as follows:

$$te = \frac{P_d - P_w}{P_w} \times 100 \qquad (3)$$

where *te* is the tariff equivalent,
Pd is the domestic price, and
Pw is the world price or external reference price adjusted for duties, transportation and distribution costs.

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[19] Note that the tariff equivalent is also called an implicit tariff, the nominal rate of protection, or the implicit rate of protection.

Once the rate at which the domestic price exceeds the landed world price is determined, it can be applied as a tariff to imports, replacing the nontariff barrier or barriers.

G. Tariff Equivalent Model Specifications for Supply Managed Sectors

As previously discussed, under imperfect competition the effects of a tariff are not analogous to the effects of a quota. The estimated tariff equivalent to nontariff barriers under supply management captures both the effects of the import quota and the price enhancing effects of production quotas. We adapt features of the simple linear demand and supply model used by Moschini and Meilke (1991) to estimate the market price that would preserve the level of imports associated with the import quota (Pm in Figure 3). This estimate of the import-preserving price is then used to estimate the import-preserving tariff equivalent. The linear demand and supply functions can be represented as: $D = \alpha - \beta P$ and $S = \gamma + \delta P$ respectively; so, for specific levels of prices and quantity Q_D, P_D, Q_S *and* P_S:

$$D = Q_D + \varepsilon \frac{Q_D}{P_D}(P - P_D) \qquad (4)$$

$$S = Q_S + \eta \frac{Q_S}{P_S}(P - P_S) \qquad (5)$$

where
- D is defined as the linear demand curve for the product,
- Q_D is defined as the actual quantity of the product domestically consumed,
- P_D is defined as the realized domestic price at which the product is sold,

	ε	represents the price elasticity of demand, expressed in absolute value terms,
	S	is defined as the linear supply curve for the product,
	Q_S	is defined as the actual quantity of the product domestically supplied to the market,
	P_S	is defined as the domestic supply price of the product,
and	η	is the price elasticity of supply.

P becomes the import-preserving price (Pm) when $D\text{-}S=Q_D\text{-}Q_S$ is solved. That is,

$$P_m = \frac{\varepsilon Q_D - \eta Q_s}{\frac{\varepsilon Q_D}{P_D} - \frac{\eta Q_s}{P_s}} \qquad (6)$$

and $P_S = \theta P_D$ where (θ), the supply price coefficient, represents the departure from marginal cost pricing at the wholesale level as a result of noncompetitive market conditions at the production level. Since supply management restricts output below the competitive level and a scarcity value accrues to quotas, the relevant supply price reflecting marginal costs at the wholesale level is clearly lower than the observed wholesale price. Essentially, θ indicates the "location" of the supply curve. Since the supply price is not observable, it must be derived. We follow Moschini and Meilke in defining θ as a constant proportion of the observed market price.[20]

Once the import preserving market price (P_m) is derived, the import-preserving tariff equivalent estimate (t_m) can be calculated by substituting (P_m) into equation 3 such that,

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[20] Note that when $\theta=1$, $P_S=P_D$.

$$t_m = \frac{P_m - P_w}{P_w} \times 100 \qquad (7)$$

H. Findings of Previous Studies

Canada [1990] calculated annual tariff equivalent estimates for a number of products including eggs, chicken, and turkey for 1986 to 1988. In their study examining tariffication with supply management, Moschini and Meilke (1991) calculated annual tariff equivalent estimates for chicken for 1980 to 1989. As well, the US International Trade Commission (United States 1990) calculated annual tariff equivalent estimates for several commodities, including Canadian eggs, chicken, and turkey for 1986 to 1988 in conjunction with the United States' agricultural trade reform proposal. These studies compute specific and *ad valorem* tariff equivalent estimates of both tariff and nontariff barriers. A summary of the results of these studies is presented in Table 3. The estimates should be compared with discretion as dissimilarity in data and methodology has resulted in differences in them. The sources of the differences are discussed below.

The Agriculture Canada and Moschini and Meilke studies apply the transportation costs to the US price after conversion to Canadian currency. Moschini and Meilke base transportation costs on an estimate of US $1,450 per 40,000 pound truckload which is about US $0.08 per kilogram. This value is assumed to be constant for the period 1980-1989 except where annual differences occur as a result of the conversion to Canadian currency. Although their estimates differ, the Agriculture Canada and U.S. International

Table 3. Summary of Tariff Equivalent Estimates from Different Studies for Eggs, Chicken, and Turkey, 1986 - 1988[a]

	Agriculture Canada		Moschini and Meilke		US International Trade Commission[b]	
Nontariff Barriers to Trade Only						
	CN¢/unit[c]	%			CN¢/unit	%
Eggs						
1986	9.21	8.58			8.90	8.99
1987	24.32	26.97			24.28	31.83
1988	40.87	48.12	Not examined		23.91	30.40
Average	24.80	27.89			19.03	23.70
Chicken						
1986	12.70	6.18	10.90	6.25	4.90	18.18
1987	42.12	25.39	41.22	29.66	24.56	45.57
1988	29.88	16.43	29.91	19.59	-1.08	12.68
Average	28.23	16.00	27.35	18.5	9.46	25.48
Turkey						
1986	32.81	12.98			42.25	18.18
1987	72.12	36.04			80.23	45.57
1988	77.45	39.41	Not examined		21.99	12.68
Average	60.79	29.48			48.16	25.48
Tariff and Nontariff Barriers to Trade						
Eggs						
1986	12.71	12.3			12.40	12.5
1987	27.82	32.1			27.78	36.4
1988	44.37	54.5	Not examined		27.41	34.9
Average	28.30	32.9			22.53	27.9
Chicken						
1986	34.49	18.8	32.70	18.7	26.95	14.6
1987	59.44	40.0	58.60	42.1	43.08	29.1
1988	48.97	30.1	49.00	32.1	19.14	11.8
Average	47.63	29.6	46.77	31.0	29.72	18.5
Turkey						
1986	54.86	23.8			64.30	27.7
1987	93.24	52.1			102.23	58.1
1988	98.17	55.9	Not examined		43.68	25.2
Average	82.09	43.9			70.07	37.0

a. Slight differences may occur due to rounding.
b. These specific tariff equivalent estimates have been converted to Canadian currency. Appendix).
c. Specific tariff units for eggs are per dozen and per kilogram for chicken and turkey broilers

Trade Commission studies both use estimates of refrigerated trucking costs obtained from Ward and Farris (1990) for chicken and turkey broilers and estimates provided by industry sources for shell eggs. The average transportation cost estimates used in these studies for the period 1986-1988 are presented in the notes of Table 4.

To determine the tariff that would be required to maintain the level of imports permitted to cross the border under the import quota restriction, Moschini and Meilke (1991) also estimate import-preserving tariff equivalents for Canadian chicken broilers. They estimate an average *ad valorem* import-preserving tariff equivalent of 15.4 percent for the period 1987-1989 ranging from -0.4 percent to 29.6 percent, depending on the set of assumptions utilized in the model.

Differences in the *ad valorem* tariff equivalent estimates are partly due to the method used to calculate the estimates. In particular, the US International Trade Commission and the Moschini and Meilke studies divide the specific tariff equivalent by the US price unadjusted for transportation costs (T) to calculate the *ad valorem* tariff equivalent, that is, $te=(P_D-P_{US}-T)/P_{US}$), whereas Agriculture Canada divides the specific tariff equivalent estimate by the transport-adjusted US prices, that is, $te=(P_D-P_{US}-T)/(P_{US}+T)$. The tariff is not netted out from these calculations. Thus, the differences in the estimates of the previous studies summarized in Table 3, are for eggs, a result of the different methodologies used. Differences in the estimates for chicken between the Agriculture Canada and the Moschini and Meilke studies are the result of differing methodologies and slightly different transportation cost estimates. The difference between the Moschini and Meilke and the US International Trade Commission estimates for chicken

Table 4. Methodology and Data Specifications of Selected Studies for Tariff Equivalent Estimates of Eggs, Chicken, and Turkey 1986 - 1988[a]

	Agriculture Canada	Moschini and Meilke	US International Trade Commission
All			
ad valorem tariff equivalent formula	$te=(Pd-Pus-T)/(Pus+T)$	$te=(Pd-Pus-T)/Pus$	$te=(Pd-Pus-T)/Pus$
exchange rate	US prices converted to Canadian currency	US prices converted to Canadian currency	Canadian prices converted to US currency[c]
Eggs			
Canadian prices (Pd)	Toronto weighted average wholesale grade A large shell eggs	n/a	Toronto weighted average wholesale grade A large shell eggs
US prices (Pus)	US average wholesale grade A large shell eggs		US average wholesale grade A large shell eggs
transport costs[b] (T)	From major canadian egg importers		From an official of US Egg Marketers
Chicken			
Canadian prices	Weighted average wholesale Canada grade A eviscerated chicken <2 kg	Ontario average wholesale chicken	Toronto weighted average processor prices for Canada grade A eviscerated chicken <2 kg
US prices	US 12-city composite average wholesale chicken broilers	US 12-city composite average wholesale chicken broilers	US 12-city composite average wholesale chicken broilers
transport costs[b]	From Ward and Farris (1990) converted to Canadian currency	8 US¢/kg converted to Canadian currenty	From Ward and Farris (1990)
Turkey			
Canadian prices	Toronto average wholesale consumer-pack Canada grade A hens 5-8 kg	n/a	Toronto weighted average wholesale heavy toms ≥ 8 kg eviscerated
US prices	New York wholesale frozen consumer-pack US grade A hens 8-16 lbs		Eastern US average wholesale young toms 14-22 lbs
transport costs[b]	From Ward and Farris (1990) converted to Canadian currency		From Ward and Farris (1990)

a. Prices are annual averages of monthly-averaged prices

b. Average of the transportation cost estimates for the 1986-1989 period calculated from figures utilized in the studies for eggs, chicken, and turkey respectively are:
Agriculture Canada 5 CN¢/doz, 10 CN¢/kg, 10 CN¢/kg;
Moschini and Meilke n/a, 11 CN¢/kg, n/a;
US Trade Commission 5 CN¢/doz, 7 CN¢/kg, 6 CN¢/kg.

c. For comparison purposes in this paper, the specific tariff equivalent estimates are converted to Canadian currency.

can be attributed to lower transportation cost estimates and higher US prices in the US International Trade Commission estimates. Differences in the chicken and turkey estimates between Agriculture Canada and the US International Trade Commission can be attributed to different methodologies, considerably lower transportation costs estimates used in the US International Trade Commission estimates, and differing price series. Clearly these factors influence the estimates. These differences are summarized in Table 4.

I. Tariff Equivalent Estimation Procedures

The following section describes the tariff equivalent estimation procedures applied in this study. The choice of price series used in calculating the tariff equivalent estimates has a direct impact on the value of the measure; these choices include the market level and the domestic and the external reference country price series. The market level choice can raise problems of isolating the effects of nontariff barriers from the effects of other factors that also contribute to the price spread. Retail prices are not likely to be appropriate series to compare because retailers in Canada and the United States are known to use eggs, chicken, and turkey as loss leaders to attract consumers to their stores (Katz 1990, 40; Smith 1990, 20). A closer examination of the appropriateness of wholesale and farmgate market prices is pursued empirically later in this chapter.

The study uses average prices from the Ontario market (Toronto, where specified) to represent the Canadian price series at the wholesale level. The Canadian price series at the farmgate level is represented by nationally-weighted average prices paid to

producers for eggs, and by average prices from the Ontario market for chicken and turkey broilers. Ontario prices appear to be the most appropriate to represent the Canadian price series used in the tariff equivalent estimate calculations since, in addition to being a major production region, Ontario is also a major domestic market for consumption of poultry and eggs.

As external reference country prices this study uses average prices from local US markets (New York), combined markets (12-city composite average), and regionally-weighted average prices to represent the external reference prices at the wholesale level. Nationally-weighted average prices received by producers are used to represent the farmgate level. US prices appear to be the most appropriate external reference prices since, due to the perishability of poultry products and the proximity and scale of US production facilities, the United States is a major potential and actual source of poultry and egg imports to the Canadian market. US prices are converted to Canadian dollars using the average annual market exchange rate reported in the *Bank of Canada Review* (Bank of Canada).

The US price series are adjusted to approximate import prices by conversion to Canadian dollars and adjustment for transportation cost estimates between likely US points of origin and Toronto. In addition to import and production quotas, import tariffs also applied during the period under study.[21] The import tariff rates were constant from 1980 to 1989, but are scheduled to be phased out by 1998 in accordance with the Canada-

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[21] Global import quotas are set at a percentage of the previous year's domestic production. The rates are as follows: 1.67% for shell eggs, 7.5% for chicken, and 3.5% for turkey.

United States Free Trade Agreement (Agriculture Canada 1980; 1987). Canadian import tariffs (t) are added to the US price series after conversion to Canadian dollars in order that the tariff equivalent estimates measure the nontariff barriers to trade only. Thus our methodology varies from that of Moschini and Meilke, U.S. Trade Commission and Agriculture Canada but is more closely related to the work by Deardorf and Stern (1985) and Baldwin (1989). We calculate $te=(P_D-P_{US}-T-t)/(P_{US}+T+t)$. The procedure allows us to distinguish the impact of the non-tariff barrier by isolating this from the impacts of transportation costs and import tariffs. For comparability with previous studies, we also calculate tariff equivalent estimates from which import tariffs are not netted out.

Accurate transportation costs are difficult to determine because these are location- and time-specific and because information on refrigerated trucking rates is difficult to obtain due to the confidentiality of the data. In this study, the cost of transportation is assumed to be a percentage markup of the price per unit for each product over the ten year period. Refrigerated trucking cost estimates for chicken and turkey broilers are taken from Ward and Farris (1990) and shell egg transportation cost estimates are from US industry sources, all of which are provided in *Estimated Tariff Equivalents of Nontariff Barriers on Certain Agricultural Imports in the European Community, Japan, and Canada* (United States 1990). These estimates are based on average rates for various shipping distances converted to a cost per unit basis. Georgia, Northwest Arkansas, and Carolina are taken to be the points of origin for shell eggs, chicken broilers, and turkey broilers, respectively. Toronto is taken to be the destination for all three poultry products. The annual per unit transportation costs are divided by the annual US prices provided in the

US tariff equivalent study cited above in order to obtain a percentage and then averaged over the three year period 1986-1988 to derive an average percentage transportation markup. This is a six percent markup for eggs, a four percent markup for chicken, and a three percent markup for turkey.[22] While this method accounts for inflation to some degree, it abstracts from possible technological change in the refrigerated trucking industry that would alter the costs of trucking and also from variations in fuel costs, distance, and other variables that affect transportation.

Data for Eggs

Tariff equivalent estimates for the wholesale egg market are calculated using annual averages of monthly-averaged wholesale prices (expressed in dollars per dozen). The domestic price series is represented by the annual weighted average wholesale price for Grade A large eggs in the Toronto market reported by Agriculture Canada in annual issues of *Poultry Market Review*. The world price series is represented by the US average wholesale price for Grade A large eggs in the New York City market reported by the United States Department of Agriculture (1990) in *US Egg and Poultry Statistical Series*. The US price series has been converted to Canadian dollars and adjusted by a markup of six percent for transportation costs and an additional 3.5 cents per dozen to account for the import tariff in effect until 1989.

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[22] The USDA transportation cost estimates for chicken broilers approximate estimates derived by Easterling *et al* (1986). The Easterling *et al* study uses a constant cost factor of US $1.1602 per mile for a 35,000 pound truckload of ready-to-cook broilers.

Tariff equivalent estimates for the egg market at the farmgate level are calculated using annual averages of monthly-averaged FOB farmgate prices of all grades of shell eggs (including eggs for hatching), from 1980 to 1989. The domestic price series is represented by the nationally-weighted average price per dozen paid to producers reported by Agriculture Canada. The world price series is represented by the nationally- weighted annual average US FOB farmgate price of shell eggs per dozen received by producers. This series is reported by the United States Department of Agriculture. Like the wholesale price series, the US farmgate price series is converted to Canadian dollars and adjusted by a markup of six percent for transportation costs and an additional 3.5 cents per dozen to account for the import tariff in effect until 1989.[23]

Figures for egg production, beginning and ending stocks, imports, exports, and eggs used for hatching are reported by kilotonnes in the *Handbook of Food Expenditures, Prices and Consumption* (Agriculture Canada 1990). Disposition of supplies, given as production plus net stocks plus imports less exports and eggs used for hatching, is treated as the quantity of the product domestically consumed. The quantity of the product domestically supplied to the market is defined as production plus net stocks less exports.

Data for Chicken

Tariff equivalent estimates for the wholesale chicken market are calculated using annual averages of monthly-averaged wholesale prices (expressed in dollars per kilogram)

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[23] The relative rate of transportation costs is maintained to ensure comparability between the estimates of different market levels.

from 1980 to 1989. The domestic price series is represented by the annual weighted average processor price for Grade A fresh eviscerated chicken broilers under four pounds (two kilograms) in the Toronto market reported by Agriculture Canada. The external reference price series is represented by the US 12-city composite wholesale price for ready-to-cook chicken broilers reported by the United States Department of Agriculture (1990). The US price series is converted to Canadian dollars and adjusted by a markup of four percent for transportation costs and an additional 12.5 percent to account for the import tariff in effect until 1989.

Tariff equivalent estimates for the chicken market at the farmgate level are calculated using annual averages of monthly-averaged FOB liveweight farmgate prices of chicken broilers under five pounds (2.3 kilograms) converted to an eviscerated basis for the period 1980 to 1989. Both the Canadian and the US price series were converted to eviscerated equivalents using a conversion factor for chicken for each year defined as:

$$CF_t^{chicken} = 1.23 + (n-1)\left(\frac{1.33-1.23}{29}\right) \qquad (8)$$

where $t=1960,..,1989$ indicates the year of the particular conversion factor;

$n=1,..,30$ represents the number of years that correspond to t (for example when $t=1960$, $n=1$, etc.);

1.23 is the conversion factor for chicken broilers in 1960 (Agriculture Canada 1978).

1.33 is the conversion factor for chicken broilers in 1989 (Agriculture Canada 1989).

The domestic price series is represented by prices received by producers of Ontario broilers less than five pounds (2.3 kilograms) liveweight reported by Agriculture Canada. The world price series is represented by nationally-weighted average US FOB farmgate prices from two to five pounds (0.9 to 2.3 kilograms) liveweight. This series is reported by the United States Department of Agriculture (1990). Like the wholesale price series, the US price series is converted to Canadian dollars and adjusted by a markup of four percent for transportation costs and an additional markup of 12.5 percent to account for the import tariff in effect until 1989.

Figures for chicken production, beginning and ending stocks, imports, and exports are reported by kilotonnes based on eviscerated weight from Agriculture Canada (1990 Table 162). Disposition of supplies, given as production plus net stocks plus imports less exports, is treated as the quantity of the product domestically consumed. The quantity of the product domestically supplied to the market is defined as production plus net stocks less exports.

Data for Turkey

Tariff equivalent estimates for the wholesale turkey market are calculated using annual averages of monthly-averaged wholesale prices (expressed in dollars per kilogram). The domestic price series is represented by the annual weighted average processor price for Grade A fresh eviscerated turkey broilers between ten and 16 pounds (five to eight kilograms) in the Toronto market reported by Agriculture Canada. The world price series is represented by the US wholesale price in the East for eviscerated young hen turkeys

between eight and 16 pounds (3.6 to 7.3 kilograms) reported by the United States Department of Agriculture. The US price series is converted to Canadian dollars and adjusted by a markup of three percent for transportation costs and an additional 12.5 percent to account for the import tariff in effect until 1989.

Tariff equivalent estimates for the turkey market at the farmgate level are calculated using annual averages of monthly-averaged FOB liveweight farmgate prices of turkey broilers between 4.5 and nine kilograms converted to an eviscerated basis for the period 1980 to 1989. Both the Canadian and the US price series were converted to eviscerated equivalents using a conversion factor for turkey for each year defined as:

$$CF_t^{turkey} = 1.18 + (n-1)\left(\frac{1.22-1.18}{29}\right) \qquad (9)$$

where $t=1960,..,1989$ indicates the year of the particular conversion factor;

$n=1,..,30$ represents the number of years that correspond to t (for example when $t=1960$, $n=1$, etc.);

1.18 is the conversion factor for turkey broilers in 1960 (Agriculture Canada 1978).

1.22 is the conversion factor for turkey broilers in 1989 (Agriculture Canada 1989).

The domestic price series is represented by prices received by producers of Ontario broilers from ten to 20 pounds (4.5 to nine kilograms) liveweight reported by Agriculture Canada. The world price series is represented by nationally-weighted average US FOB farmgate liveweight prices for turkey broilers from United States Department of Agriculture. Like the wholesale price series, the US price series is converted to Canadian

dollars and adjusted by a markup of three percent for transportation costs and an additional markup of 12.5 percent to account for the import tariff in effect until 1989.

Figures for turkey production, beginning and ending stocks, imports, and exports are reported by kilotonnes based on eviscerated weight from Agriculture Canada. Disposition of supplies, given as production plus net stocks plus imports less exports, is treated as the quantity of the product domestically consumed. The quantity of the product domestically supplied to the market is defined as production plus net stocks less exports.

J. Tariff Equivalent Estimates, 1980-1989

Using the method, assumptions, and data described in the previous sections, annual tariff equivalent estimates of nontariff barriers were calculated for Canadian shell eggs, chicken broilers, and turkey broilers for 1980 to 1989. The estimates, expressed in *ad valorem* rates and based on wholesale prices, are presented in Table 5.[24]

1. Comparison with Previous Results

The NTB tariff equivalent estimates provided in Table 5 are based on the percentage difference between the domestic price and the US price adjusted for transportation costs and the current tariff (that is $te=(P_D-P_{US}-T-t)/(P_{US}+T+t)$). For comparison purposes with Table 3, the tariff equivalent estimates reflecting both the tariff

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[24] Specific NTB tariff equivalent estimates are represented by the spreads between the Canadian and the US prices, adjusted for transportation costs and the import tariffs; graphical presentations of these are given in Cymbal (1991).

Table 5. Results: Tariff and Nontariff Barrier (NTB) Equivalent Estimates Expressed as *ad valorem* Rates for Selected Canadian Poultry Products Based on Wholesale Prices, 1980-1989

	Eggs		Chicken		Turkey	
Year	NTB only	tariff & NTB	NTB only	tariff & NTB	NTB only	tariff & NTB
1980	17.43	22.39	5.37	18.03	6.70	19.65
1981	18.70	23.17	33.62	49.68	35.64	52.10
1982	17.33	21.81	30.11	45.75	33.19	49.35
1983	13.00	17.02	30.41	46.09	26.25	41.57
1984	19.66	23.43	24.72	39.71	6.49	19.41
1985	19.26	23.61	14.15	27.87	11.08	24.56
1986	7.76	11.37	7.66	20.60	11.99	25.58
1987	27.55	32.71	29.30	44.85	45.12	62.73
1988	47.88	54.27	18.89	33.18	42.67	59.99
1989	28.29	32.66	38.12	54.72	35.42	51.86
Standard Deviation	11.00	11.71	11.21	12.55	15.08	16.91
Coefficient of Variation	50.71	44.61	48.26	33.00	59.25	41.56
(%)	21.69	26.24	23.23	38.05	25.45	40.68
Average (1980-1989)	27.73	32.78	18.62	32.87	33.26	49.43
Average (1986-1988)	27.87	32.75	23.49	38.33	33.80	50.04
Average (1986-1989)	34.58	39.88	28.77	44.25	41.07	58.19
Average (1987-1989)						

and the nontariff barriers are also presented (in this case $te=(P_D-P_{US}-T)/(P_{US}+T)$). The differences that occur between the tariff and NTB tariff equivalent estimates in Tables 5 and 3 are largely due to lower transportation cost estimates used in this study.[25] Note that the average tariff equivalent estimates are higher than the previously estimated measures in Table 3 for all commodities once the current import tariff is added to the NTB tariff equivalent estimates. The methodology used here deviates from the studies of Moschini and Meilke and the International Trade Commission which calculate the percentage difference using the unadjusted US price in the denominator. There is

[25] The 1986-1988 average transportation costs used in this study were $0.05 per dozen for eggs, $0.06 per kilogram for chicken, and $0.05 per kilogram for turkey.

variation in the results of the two methods. Since the denominators in the Moschini and Meilke and the US International Trade Commission studies are smaller, their calculations of *ad valorem* rates are larger than those calculated using the adjusted US price in the denominator. Nevertheless, the assumed transportation costs for chicken and turkey broilers are lower in the measures of this study than in the Agriculture Canada, Moschini and Meilke, or the US International Trade Commission studies, which results in higher estimates overall. Effectively, the method employed here, which includes transportation costs and the current tariff in the denominator, measures the protection provided from nontariff barriers determined by the price gap between two products designated to be in the same location.

2. *Discussion of Tariff Equivalent Calculations*

The following observations can be made from Table 5. The estimated NTB tariff equivalent estimates for eggs and turkey broilers appear to have trended upward while the trend of the estimates for chicken broilers is less clear. On average, the estimated NTB tariff equivalents were highest for turkey, followed by chicken and eggs. Provided that an adequate markup was applied to account for the costs of transportation and distribution, the higher tariff equivalent estimates suggest that the Canadian turkey broiler industry may be less competitive relative to its US counterpart than either the egg or the chicken broiler industries. The general decline of the estimates in 1986 coincides with an exchange rate of CN $1.39 per US dollar -- the highest average rate of the decade. This exchange rate may have been the major factor contributing to the narrowing price

spread in 1986. Demand and supply conditions also appear to have influenced the price series of these commodities.

The increases in both Canadian and US prices of chicken between 1980 and 1984 appear to be demand-driven, resulting from higher sales of fast food and further-processed chicken. In 1984 Canadian imports of chicken increased substantially. This may be because domestic production lagged behind a rapidly expanding demand (Miller 1984, 35). Per capita consumption of chicken in the United States has expanded at a faster rate than in Canada. The success of the US turkey industry in developing and promoting new turkey products may be a factor in the rapid growth of per capita consumption of turkey in the United States, shown in Table 6.

The first two of the following sections investigate several research questions that arise from the results of the tariff equivalent estimates and procedures. First, the appropriateness of basing tariff equivalent measures on differences in using farmgate prices is addressed. NTB tariff equivalent estimates are recalculated using farmgate prices to compare to the wholesale estimates. Since the sets of tariff equivalent estimates reveal a considerable degree of variability from one year to the next, the issue of possible sources of variability is also explored. The last sections focus on issues which arise from tariffication under imperfect competition and the impact of the tariffication schedules to be applied following the Uruguay Round negotiations of GATT.

Table 6. Per Capita Disposition of Selected Poultry Products in Canada and the United States Expressed in Kilograms, 1980-1989

Year	Eggs		Chicken		Turkey	
	Canada	US	Canada	US	Canada	US
1980	12.9	15.6	17.2	22.6	4.3	4.8
1981	12.7	15.2	17.0	23.3	4.2	4.9
1982	12.7	15.2	17.3	23.9	4.0	4.9
1983	12.4	15.0	17.3	24.2	4.1	5.1
1984	11.9	14.9	18.3	25.0	4.0	5.1
1985	11.6	14.7	19.8	26.1	4.0	5.4
1986	11.8	14.5	20.5	26.6	4.2	6.0
1987	11.5	14.6	21.7	28.4	4.4	6.9
1988	11.4	14.1	22.7	29.3	4.5	7.2
1989	11.1	13.5	22.1	30.9	4.5	7.7
Standard Deviation	0.6	0.6	2.2	2.8	0.2	1.1
Coefficient of Variation (%)	5.1	4.2	11.5	10.6	4.8	18.7
Average (1980-1989)	12.0	14.7	19.4	26.0	4.2	5.8

K. Some Research Questions Relating to Calculating Tariff Equivalence

1. Wholesale versus Farmgate Prices

As previously noted, it is appropriate to isolate in the tariff equivalent measure the effects of nontariff barriers without capturing the effects of other factors that also contribute to the spread between the domestic and the external reference prices. Intuitively, the further along the marketing channel the prices are chosen, the more likely other factors contributing to the price spread are to occur. In the case of supply-managed poultry products, a production distortion occurs at the producer level through a system of production quotas and administered pricing which is reinforced at the wholesale level by import quotas. Processors and wholesalers pay higher prices to producers for poultry

products than would be expected under more competitive market conditions.[26] This suggests that the difference between the domestic and the world or external reference price of a product at the farmgate level may reflect the nontariff barrier captured by the tariff equivalent estimates. Additionally, domestic and foreign poultry products are likely to be more comparable at the farmgate level than at market levels further along the distribution channel where the product may be differentiated and may have added value. Nevertheless, the import quota also contributes to the price distortions of supply management. These effects might not be captured at the farmgate level. Moreover, most international trade in poultry products occurs at the wholesale level which suggests that the use of wholesale prices may be more appropriate. Opposing this, if the wholesale prices reflect other market peculiarities such as vertical integration, the value of the spread between the domestic and the external reference price could be inaccurate.

Annual NTB tariff equivalent estimates using farmgate prices were calculated for Canadian shell eggs, chicken broilers, and turkey broilers for 1980 to 1989. The estimates, expressed in *ad valorem* rates, are presented in Table 7.[27]

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[26] In some cases, lower prices may be charged for some products if the agency differentiates or discriminates in pricing.

[27] Specific NTB tariff equivalent estimates based on farmgate prices are also represented by the spreads between the Canadian and the US prices which are adjusted for transportation costs and the import tariff. Figures representing these spreads are reported in Cymbal (1991).

Table 7. Results: NTB Tariff Equivalent Estimates Expressed as *ad valorem* Rates for Selected Canadian Poultry Products Based on Farmgate Prices, 1980-1989

Year	Eggs	Chicken	Turkey
1980	7.20	12.58	8.44
1981	9.64	27.75	26.19
1982	9.36	26.01	24.33
1983	4.54	16.18	23.85
1984	-2.36	7.02	0.05
1985	8.72	2.80	-10.08
1986	-2.17	-11.22	-9.46
1987	14.37	8.47	19.86
1988	32.05	4.78	26.51
1989	11.23	7.14	24.15
Standard Deviation	9.67	11.38	14.90
Coefficient of Variation (%)	104.49	112.09	111.30
Average (1980-1989)	9.26	10.15	13.39
Average (1986-1989)	13.87	2.29	15.26
Average (1987-1989)	19.22	6.80	23.50

The following observations can be made from the preceding tables. The farmgate NTB tariff equivalent estimates are more variable than the wholesale estimates. The NTB tariff equivalent estimates for eggs based on farmgate prices reveal an increasing but volatile trend over the decade. The trend for the chicken NTB tariff equivalent estimates at the farmgate level declines over the decade while the trend for turkey is relatively more constant for the early and late 1980s. Tariff equivalent estimates for turkey were affected during 1983-1987 by a dramatic rise and fall of US prices.[28] As in the case of the wholesale NTB tariff equivalent estimates, the average farmgate estimates were highest

[28] Two major contributing factors to a drastic swing in US turkey prices between 1983 and 1987 were serious flock losses from an epidemic of avian influenza (Laflamme 1984, 36) and rapidly expanding demand in the United States for turkey and turkey products.

for turkey, then chicken and eggs. One research question that arises from these comparisons is: *Are the wholesale-based NTB tariff equivalent estimates significantly different from the estimates calculated at the farmgate level?* If it can be assumed that there is perfect competition in the provision of marketing services, then it would be expected that there should be no difference in the estimates on a wholesale or a farmgate basis. To test the equality of the two series of estimates, a new series is calculated by subtracting the annual farmgate estimates from the wholesale estimates. The null hypothesis can then be stated as:

(1) The mean (1980-1989) of the annual differences between the NTB tariff equivalent estimates calculated using wholesale prices and the NTB tariff equivalent estimates calculated using farmgate prices is equivalent to zero.

The results of this t-test indicate that the wholesale NTB tariff equivalent estimates are significantly higher than the farmgate NTB tariff equivalent estimates for the period 1980-1989 at a one percent level of significance for eggs, chicken, and turkey.[29] This suggests that there are higher implicit rates of protection at the wholesale level than at the farmgate level. One explanation is the possibility that inefficiencies at the processing and wholesaling market levels are greater than at the production level relative to the respective US market levels.[30] Another possibility is that the profit margins of the processing and wholesaling sector in Canada are higher than in the United States.

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[29] Results are more extensively reported in Cymbal (1991).

[30] Even so, one study concluded that Canadian poultry processors are a relatively competitive component of the food processing industry (Cahill and Hazledine 1989).

2. *Variability of Tariff Equivalent Estimates*

As is evident from Table 5, the average annual wholesale-based NTB tariff equivalent estimates calculated for eggs, chicken, and turkey fluctuate considerably from one year to the next over a ten year period. This may result from a number of factors. Domestic prices are affected by changing demand and supply conditions and by the actions of the respective national marketing agencies. The adjusted external reference prices used in the calculations are affected by demand and supply factors as well as by the exchange rate, the tariff, and by the assumed markup for transportation costs. These observations led us to a preliminary assessment of sources of variability in the tariff equivalent estimates provided in Table 5. *Specifically, are variability in the US price series, variability in the exchange rate, or variability over time factors that contribute to the volatility of the tariff equivalent estimates over the 1980-1989 period?* Tests are applied for variability in the domestic price series versus the external reference price series, variability in the exchange rate, and variability over time.

The issue of whether the annual percentage changes of the Canadian and US price series at the wholesale and the farmgate level for each commodity differ is examined by an F-test. The null hypothesis is:

(2) The variance of the US price series (1980-1989) is equivalent to the variance of the respective annual percentage changes in the Canadian price series (1980-1989).

At the wholesale level, the variance of the annual percentage changes in the US price series is not significantly different from that of the Canadian price series for any of the poultry products over the ten year period under study at a ten percent level of significance. However, at the farmgate level for eggs and turkey, the variance of the

annual percentage changes in the US price series is significantly more than the Canadian price series over the ten year period under study at a five percent level of significance. Of course, price variability in itself does not imply that the tariff equivalent estimates will also exhibit instability since these are based on the spread between Canadian and US prices. Thus, if the two price series move together, the tariff equivalent estimate could be relatively stable.

Another issue related to variability of tariff equivalent estimates is the dependence on exchange rates of the price-gap method of calculating tariff equivalents. *Does the exchange rate contribute significantly to the variability of the wholesale-based NTB tariff equivalent estimates over the period 1980-1989?* This question is addressed by the null hypothesis:

(3) The mean (1980-1989) NTB tariff equivalent estimate based on wholesale prices calculated using a constant exchange rate (1980-1989 average) is equivalent to the mean (1980-1989) NTB tariff equivalent estimate using the appropriate corresponding annual exchange rate value.

The results of the appropriate t-tests, outlined in more detail in Cymbal (1991) indicate that the means are not significantly different at a ten percent level of significance.

A second test compares the variances of the constant exchange rate and the annual exchange rate NTB tariff equivalent estimates. The null hypothesis is:

(4) The variance (1980-1989) of the NTB tariff equivalent estimate based on wholesale prices calculated using a constant exchange rate (1980-1989 average) is equivalent to the variance (1980-1989) of the NTB tariff equivalent estimate using the appropriate corresponding annual exchange rate value.

As in the case of the test of means, the results of F-tests of equality of variances suggests that these are not significantly different at a ten percent level of significance. It should

be pointed out, however, that over the ten year period 1980-1989, the exchange rate encompassed a considerable range with the first years of the decade cancelling out the latter years.[31]

A third area of concern pertaining to the issue of variability in the tariff equivalent estimates relates to time. *What length of time should the tariff equivalent measure represent?* Monthly or quarterly tariff equivalent estimates could reflect seasonal and shorter-run demand and supply conditions. The extent of year-to-year variability in tariff equivalent measures was noted earlier in this chapter, and may suggest that an average over several years of the tariff equivalent estimates is appropriate. However, the longer the period, the less likely the measure is to reflect relevant market conditions. A question is: *What is the relevant time period to use as a base averaging period in which to calculate the NTB tariff equivalent estimates?* Three year and four year tariff equivalent averages are compared to the ten year average. The null hypotheses are:

(5) The three year (1987-1989) average NTB tariff equivalent estimate is equivalent to the 1980-1989 average NTB tariff equivalent estimate.

(6) The four year (1986-1989) average NTB tariff equivalent estimate is equivalent to the 1980-1989 average NTB tariff equivalent estimate.

The t-tests indicate that none of the four year means or three years means are significantly different from the ten year means for each product at a ten percent level of significance. The test results are specific to the particular time periods indicated and, therefore, may differ when tested against a different period.

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[31] The Canadian-US exchange rate is more stable than for many other countries. For example, the coefficients of variation are higher for the British-US exchange rate (12.01%) and the German-US exchange rate (20.03%) over the same time period than for the Canadian-US exchange rate (6.35%).

L. Estimating Import-Preserving Tariff Equivalents, 1980-1989

In view of the non-equivalence of tariffs and quotas under imperfect competition, such as in the poultry supply management programs, we apply import-preserving tariff equivalent estimations using the model specified in equations 4 to 6 and the assumptions identified below, expanding on Moschini and Meilke (1991). Table 8 summarizes the assumed values for the price elasticity of demand (ε), the price elasticity of supply (η), and a supply price coefficient (θ) which correspond to the estimate of import-preserving tariff equivalents presented in Tables 9 to 11. To provide sensitivity analysis, three cases were examined: a "low tariff equivalent" case, a "high tariff equivalent" case, and a "midpoint" case. The sources and the bases for the assumed values in Table 8 are described below.

Previously estimated values of the price elasticities of demand are used for the high tariff case (Hassan and Johnson 1976) and the low tariff case (Curtin, Théorêt, and Zafirion 1987). The midpoint case is taken to be the midpoint value between these two cases. These demand elasticity estimates may be slightly higher than the demand elasticities that correspond to the wholesale market level since they are derived from retail prices rather than wholesale prices. Three types of supply responses are assumed: inelastic (high tariff case), unitary (midpoint case), and elastic (low tariff case).

Three approaches are used to derive supply price coefficients. One approach assumes that Canadian poultry producers are as efficient as US poultry producers (an assumption also utilized by Moschini and Meilke (1991)). The four year (1986-1989) average adjusted US wholesale price is divided by the four year (1986-1989) average

Table 8. Summary of Import-Preserving Tariff Equivalent Assumptions for Eggs, Chicken, and Turkey

	Low Tariff Equivalent Case		Midpoint Case		High Tariff Equivalent Case	
	parameter	source	parameter	source	parameter	source
Eggs	ε=-0.07	(1)	ε=-0.10	(4)	ε=-0.12	(7)
	η= 1.50	(2)	η= 1.00	(5)	η= 0.50	(8)
	θ= 0.79	(3)	θ= 0.81	(6)	θ= 0.92	(9)
Chicken	ε=-0.35	(1)	ε=-0.46	(4)	ε=-0.56	(7)
	η= 1.50	(2)	η= 1.00	(5)	η= 0.50	(8)
	θ= 0.79	(3)	θ= 0.89	(6)	θ= 0.91	(9)
Turkey	ε=-0.36	(1)	ε=-0.72	(4)	ε=-1.09	(7)
	η= 1.50	(2)	η= 1.00	(5)	η= 0.50	(8)
	θ= 0.76	(3)	θ= 0.94	(6)	θ= 0.94	(9)

Notes:

(1) Previously estimated (Curtin, Théorêt, and Zafirion 1987).

(2) An assumed elastic response.

(3) The 1987-1989 average US-to-Canadian annual wholesale price ratio.

(4) The midpoint value between the parameter for the low tariff case and the high tariff case.

(5) An assumed unitary supply response.

(6) The quotient of the observed wholesale price less the rental value of the production quota estimated for 1986 by Bollman, Smith, and Tomiak (1988) which is discounted for 9 years by 25% over the observed wholesale price.

(7) Previously estimated (Hassan and Johnson 1976).

(8) An assumed inelastic supply response.

(9) The 1985-1989 average ratio of US wholesale costs of production (taken from USDA 1990a and converted to Canadian dollars) increased by 30% for eggs and 50% for chicken and turkey over the respective domestic wholesale prices.

Canadian wholesale price. A second approach deducts the approximated rental value of the production quota (estimated for 1986 by Bollman, Smith, and Tomiak (1988)) discounted at a rate of 25 percent over nine years from the observed domestic wholesale price for 1986.[32] The difference is divided by the wholesale price to express the supply price coefficient as a ratio. A third method assumes that Canadian producers and processors are less efficient than producers and processors in the US egg and poultry industry based on relatively higher costs of production in Canada. Ratios are calculated by dividing the annual US wholesale costs of production (USDA 1990a), valued in Canadian dollars and increased by thirty percent for eggs and fifty percent for chicken and turkey broilers, by the annual domestic wholesale price for 1985 to 1989. These quotients are averaged over the five year period (1985-1989) to derive the supply price coefficient.

Support for the assumptions of higher costs of production can be found in reports of the Task Force on Competitiveness in the Agri-Food Industry (Canada, Task Force on Competitiveness in the Agri-Food Industry [TFCAFI] 1990). The task force's findings suggest that costs of production in the Canadian egg and poultry industry are higher at both the production and processing levels. Poultry and egg producers in Canada face higher input costs for chicks, commercial feed, and housing. In addition, supply management programs have been criticized for sheltering producers from market pressures that induce producers to find innovative methods to lower their costs (Canada, TFCAFI

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[32] The discount formula used is $DVQ = RVQ / (1+r)^t$ where DVQ is the discounted value of the quota, RVQ is the rental value of the quota, r is the discount rate, and t is the number of years. A fairly high discount rate has been justified in previous studies. See Moschini (1989).

1990, 20). Higher costs at the farmgate level are, in turn, passed on to poultry and egg processors. While processors pay significantly higher prices for poultry products, they also face higher costs for other inputs such as energy and packaging. Capital and taxes are more costly in Canada than in the United States. Higher costs can also be linked to the age and comparative scale of the plants, differences in productivity, and higher labour costs. For 1985 and 1986, average hourly earnings were about thirty percent higher for Canadian poultry processors than for processors in the United States (*ibid.*, 57). On this basis, wholesale costs of production of eggs are assumed to be thirty percent higher in Canada than in the United States. Since poultry processing is labour-intensive and given the limitations to achieving economies of scale in Canadian markets, wholesale costs of production for chicken and turkey broilers are assumed to be fifty percent higher in Canada than in the United States.

M. Results of the Import Preserving Calculations, 1980-1989

The import-preserving tariff equivalent estimates presented in Table 9 to Table 11 are *ad valorem* rates based on the percentage difference between the domestic price and the US price adjusted for transportation costs and the current tariff. These estimates are lower than Moschini and Meilke's results primarily because they reflect only the nontariff barrier effects. On inspection of Tables 9 to 11, it is seen that negative tariff equivalent calculations appear to apply in some years with some assumptions. Applying Moschini and Meilke's assumed values for θ increases the number of negative values. The negative estimates should be viewed with considerable caution; they imply negative levels of NTB

Table 9. Results: Import-Preserving NTB Tariff Equivalent Estimates Expressed as *ad valorem* Rates for Eggs Based on Wholesale Prices, 1980-1989

Year	Low Tariff Equivalent Case	Midpoint Case	High Tariff Equivalent Case
1980	-6.3	-3.2	9.8
1981	-5.3	-2.1	10.9
1982	-6.4	-3.3	9.7
1983	-9.9	-6.8	5.6
1984	-4.5	-1.3	11.9
1985	-4.9	-1.6	11.5
1986	-14.0	-11.1	0.8
1987	1.8	5.2	19.3
1988	18.0	22.0	38.3
1989	2.4	5.9	20.0
Standard Deviation	8.79	9.10	10.31
Average (1980-1989)	-2.92	0.37	13.77
Average (1987-1989)	7.38	11.03	25.86

Table 10. Results: Import-Preserving NTB Tariff Equivalent Estimates Expressed as *ad valorem* Rates for Chicken Based on Wholesale Prices, 1980-1989

Year	Low Tariff Equivalent Case	Midpoint Case	High Tariff Equivalent Case
1980	-13.2	-2.7	0.8
1981	10.1	23.4	27.8
1982	7.3	20.1	24.5
1983	7.5	20.4	24.8
1984	2.9	15.2	19.4
1985	-5.9	5.4	9.2
1986	-11.2	-0.6	3.0
1987	6.6	19.4	23.7
1988	-2.0	9.8	13.8
1989	13.9	27.6	32.2
Standard Deviation	9.26	10.36	10.74
Average (1980-1989)	1.61	13.80	17.92
Average (1987-1989)	6.19	18.92	23.23

Table 11. Results: Import-Preserving NTB Tariff Equivalent Estimates Expressed as *ad valorem* Rates for Turkey Based on Wholesale Prices, 1980-1989

Year	Low Tariff Equivalent Case	Midpoint Case	High Tariff Equivalent Case
1980	-14.9	2.9	4.6
1981	8.2	30.8	33.0
1982	6.2	28.5	30.6
1983	0,7	21.8	23.8
1984	-15.1	2.7	4.4
1985	-11.3	7.2	8.9
1986	-10.6	8.1	9.9
1987	15.8	40.0	42.3
1988	13.8	37.6	39.9
1989	8.0	30.6	32.8
Standard Deviation	12.03	14.54	14.78
Average (1980-1989)	0.09	21.01	23.03
Average (1987-1989)	12.55	36.08	38.34

protection, which is counterintuitive. The prevalance of these estimates for eggs, in particular, under the "low" and "medium" assumptions suggests that these assumptions are not, in fact, appropriate which in turn suggests that the industry is relatively inefficient. A less conspicuous observation is the dependence that the results have on the supply price coefficient. The departure from marginal cost pricing is perhaps the most difficult parameter to estimate of the three.

Comparisons with Previous Work

In order to facilitate comparison with the results from the Moschini and Meilke study (1991), import-preserving NTB tariff equivalent estimates for chicken are recalculated using the assumptions of Moschini and Meilke and the data and methodology developed for this study and described earlier. A cross-section of the Moschini and Meilke estimates along with the recalculated import-preserving NTB tariff equivalent estimates are presented in Table 12. The differences in these estimates are relatively minor and stem from differences in the estimated values for Pm and transportation costs. Again, when current customs duties are excluded from the estimates, for the low tariff case set of assumptions, counter-intuitive negative values occur, suggesting that the assumptions for that set of estimates are inappropriate and highlighting the difficulty for practical implementation of import preserving tariffication under conditions of imperfect competition that arises from the need to estimate the supply price.

Table 12. Comparison of Import-Preserving Tariff Equivalent Estimates Expressed as *ad valorem* Rates Based on Wholesale Prices for Chicken, 1980-1989

Assumptions	Moschini and Meilke	This Study
$\varepsilon = -0.3$ $\eta = 1.5$ $\theta = 0.67$	-0.4[a] (-12.9)[b]	4.1 (-8.4)
$\varepsilon = -0.5$ $\eta = 1.0$ $\theta = 0.74$	15.4 (2.9)	17.3 (4.8)
$\varepsilon = -0.7$ $\eta = 0.5$ $\theta = 0.80$	29.6 (17.1)	29.6 (17.1)

Notes: (a). Numbers without brackets indicate the tariff equivalent estimate to both *tariff* and *nontariff* barriers.

(b). Numbers in brackets indicate the tariff equivalent estimate to nontariff barriers only.

One implication of these observations is that in view of the difficulties of determining accurate values for the assumptions of ε, η, and θ, it may be more practical to implement import-preserving tariffication under conditions of imperfect competition with a tariff-rate quota that preserves the level of imports rather than with a single tariff. This procedure will, in fact, apply for the tariffication that will result from the recent GATT negotiations.

N. Analysis of the Impact of Canadian Poultry Tariffication Schedules

The revised GATT agreement achieved on December 15, 1993 provides, amongst other features, for a system of tariff-rate quotas to be applied to commodities previously protected by import quotas, a procedure that ensures the minimum access commitments

provided for in the agreement. The general features of the minimum access provisions are for initial imports of 3 percent of domestic consumption during the base period (specified as 1986 to 1989), to be applied when the agreement comes into effect in 1995, to be increased over the six year implementation period to 5 percent in year 2000. The commitments are given in Table 13. They are already exceeded for chicken, will likely involve only minor increases in imports for turkey (since currently imports exceed 3 percent but not 5 percent of base period consumption) and some increase in imports of eggs. Canadian tariff levels that will apply to imports that exceed the minimum access levels specified for poultry, are given in Table 14.[33] A provision for special safeguards applies for products subject to tariffication. This allows additional tariffs (equal to one-third of the applicable tariff) to be applied if imports exceed certain thresholds.[34]

Table 13. Canadian Access Commitments for Supply-Managed Products

Product	1992	1995	2000
Chicken ('000 tonnes)	46.9	45.9	56.0
Turkey ('000 tonnes)	4.4	4.7	5.6
Eggs (million dozen)	7.0	12.9	21.4

Source: Agriculture and Agri-Food Canada.

[33] Minimum import access commitments are also already exceeded for broiler hatching eggs and chicks.

[34] Thresholds are: 25 percent above the previous 3-year average import level when imports are less than 10 percent of domestic consumption; 10 percent above the previous 3-year average import level when imports are between 10 and 30 percent of domestic consumption; and 5 percent above the previous 3-year average import level when imports are over 30 percent of domestic consumption. However, in view of the relatively high levels of the tariffication schedules tabled by Canada, it is extremely unlikely that these safeguards will need to be invoked.

Table 14. Tariff Equivalents Proposed by Canada for Basic Poultry and Egg Products on December 15, 1993, to be Implemented for a Six Year Period From July 1995[a,b,c]

Product	1995 Tariff	2000 Tariff
Chicken	280.4%, minimum $1.96/kg	238.3%, minimum $1.67/kg
Turkey	182.1%, minimum $2.30/kg	154.8%, minimum $1.96/kg
Eggs	192.3%, minimum $0.94/doz	163.5%, minimum $0.80/doz
Chicks	180.4%, minimum $0.36/unit	238.3%, minimum $0.31/unit
Hatching Eggs	280.4%, minimum $3.43/doz	238.3%, minimum $2.92/doz

a. To be reduced in equal installments, by a total of 15 percent, to the level specified for year 2000. (The "within quota" tariff will decrease at a higher rate to meet the commitment of an average reduction of 36 percent).
b. The tariff rate that applies is the higher of either the percentage rate or the specific rate (e.g. $1.96/kg for chicken). The percentage rate applies to value of the imported product at the border.
c. Safeguard provisions will allow for the automatic application of additional duties should import volumes exceed or prices fall below pre-established trigger levels.

Source: Canada, "Press Release: GATT and Agriculture," December 15, 1993.

It can be observed, from comparison with previous studies and the calculations reported earlier in this chapter, that levels of the tariffication rates proposed for Canadian imports of supply managed commodities are considerably higher than those assessed as being equivalent to the actual nontariff barrier, irrespective of data, or methodology of assessment. To assess potential impacts of the proposed 1995 tariffication schedule for Canadian poultry products, we apply the proposed tariff rates for 1995 and 2000 to the actual wholesale price levels that applied in two recent periods. Data sources and methodology are as outlined previously. Calculations for the two recent periods are based

on averages over 3-year periods, a procedure that is pursued in order to abstract from the possibility of year to year variability. The two periods of analysis are 1986-1988, a time period that is chosen for two reasons; first because it encompasses the base period relating to tariffication that is specified in the Agricultural Agreement of December 15, 1993; and, second, because it enables comparison with results of previous studies, including that by Moschini and Mielke. The second period of analysis is the 3-year period 1990-1992, chosen on the basis of the most recently available data. Existing tariffs are not netted out in this procedure.

From the tariff schedule specified by Canada and given in Table 14, and our observation of US *cif* prices, derived as discussed earlier and expressed in Canadian dollars per unit of commodity, we derive estimates of wholesale limit prices. These can be interpreted as the maximum domestic price, relative to the specified external reference price, that could be sustained behind the protective barrier of the Canadian tariff schedules for 1995 and for 2000. These calculations are made for the proposed 1995 tariff schedules and for those that will apply in 2000. They are given in Table 15. The limit price estimates considerably exceed recent average Canadian wholesale prices for the commodities in question, being more than double current prices for eggs and broiler chicken or nearly double current prices for turkey. From this analysis we conclude that the protective tariffs to be applied by Canada for poultry products under the tariffication process embody an increased level of protection for the poultry producing and processing sectors than is currently being applied within the pre-tariffication regime of supply

Table 15. Potential Implications of Scheduled Tariffs of Canadian Tariff-rate Quotas on Domestic Wholesale Price Levels for Poultry Products

Commodity:	Eggs		Chicken		Turkey	
Time Period	1986-1988	1990-1992	1986-1988	1990-1992	1986-1988	1990-1992
US price *cif* ($C/unit)[a]	0.91	0.93	1.61	1.43	1.91	1.64
Canadian price ($C/ units)[a]	1.19	1.34	2.13	2.45	2.81	2.64
Equivalent tariff rate (%)[b]	31	44	32	71	47	61
Actual Consumption (kt)	325	320	555	624	112	127
Actual Production (kt)	323	319	520	574	112	129
Actual Net imports (kt)	3	0.02	34	50	0.18	-1[c]
GATT 1995 tariff rate (%)	192.3	192.3	280.4	280.4	182.1	182.1
Domestic limit price[d] ($C) with 1995 GATT tariff	2.65	2.72	6.14	5.44	5.39	4.62
GATT 2000 tariff rate (%)	163.5	163.5	238.3	238.3	154.7	154.7
Domestic limit price[d] ($C) with 2000 GATT tariff	2.40	2.45	5.45	4.84	4.86	4.18

a. Price per dozen for eggs and per kilogram for chicken and poultry, adjusted for transportation costs as described in section I.
b. Based on price gap
c. Net exports
d. Calculated as P_{US} (1 + GATTt)

management. It can be concluded that the levels of protection that have been embodied in the producer- and consumer-subsidy equivalent calculations of OECD that were reported in Chapter 1 of this report are not likely to be reduced within the provisions of recent GATT negotiations. In fact, the tariff provisions of the recent agreement would enable these levels of protection to be substantially increased.

CHAPTER 4

4. Conclusions and Recommendations

A. Conclusions

This study includes an examination of the historical evolution of Article XI in the formation of and changes over time in the *General Agreement on Tariffs and Trade.* Article XI emerged from the initiatives of US policymakers who attempted to ban quantitative restrictions without violating existing US legislation pertaining to agriculture. However, Article XI was soon found to be inconsistent with the US Agricultural Adjustment Act. To satisfy Section 22 of the Act, the United States requested and obtained a waiver to the provisions of Article XI from the Contracting Parties of the GATT. The exemption clauses of Article XI also became a consideration in some domestic agricultural policies. In particular, this was the case for Canada in the development of national supply management programs for eggs and poultry in the 1970s. These programs provided a politically palatable solution to the interprovincial conflicts that had arisen from provincial supply management programs. National supply management plans offered a national solution to the problem of escalating interprovincial trade barriers while it also conformed to international obligations set out in the exemptions to Article XI. In effect Article XI justified the existence of supply management and legitimized domestic policies to control supplies and restrict imports. While disagreements over export subsidies were the major stumbling block in the agricultural negotations of the Uruguay Round of GATT negotiations, greater access to

markets also held a high profile at the negotiating table. Canada was not able to raise sufficient support for her negotiating strategy of pushing to maintain and strengthen the exemption provisions of Article XI. Rewriting of Article XI was seen as a prerequisite for success in the negotiations on agriculture. The outcome of the negotiations included agreement to tariff quantitative import restrictions, variable import levies, minimum input prices, discretionary import licensing, non-tariff measures maintained through state trading enterprises, voluntary export restraints, and similar border measures (GATT 1993).

Advocates of trade reform had envisaged that tariffication would bring Canadian imports more in line with market forces and that this could be a first step toward a more nondiscriminatory, transparent, and market responsive pattern of global trade in agricultural products. These outcomes may arise from successive rounds of negotiations of GATT but the results of this study suggest that under the tariffication schedules that have been adopted for the Canadian poultry sector, at least, the levels of potential protection provided to these producing and processing sectors have increased.

This study also has raised a number of empirical issues related to tariffication. These concerned the appropriate methodology to calculate tariff equivalence, specifically the definition and level of reference prices, the variability of the tariff equivalent measure, and the application of tariff equivalent estimates under imperfect competition in a manner that preserves the level of imports. We conclude that if the objective of tariff equivalence is to identify the magnitude of a non-tariff barrier, the appropriate tariff equivalance methodology will net out tariffs and account for costs of transportation and handling. Another methodological issue concerns the choice of market level of domestic and

reference prices for tariffication calculations. A number of factors support the use of farmgate prices as opposed to wholesale prices, particularly if the products are not comparable within the marketing chain because of differences in quality or nature or if wholesale prices are distorted by vertical integration. If there are competitively determined marketing margins and assuming that the tariff and transportation and associated costs do not vary at the different levels of the marketing chain, the NTB tariff equivalent estimates should be equivalent at the wholesale and farmgate levels. However, statistical tests for Canadian eggs, chicken, and turkey reveal that for these cases the wholesale-based estimates are significantly higher than the farmgate-based estimates. The feature that the implicit import protection is relatively higher at the wholesale level than at the farmgate level may suggest that there is a relatively high cost processing and wholesaling sector. Alternatively, the sector may be exerting imperfect market power against consumers. The question remains as to whether such activities may be fostered by the supply management programs or are independent of these. If the former, this may constitute one factor suggesting that the calculation of protection measures be based on wholesale prices. The procedures to apply under GATT specify the use of wholesale price for this purpose.

Variability of NTB tariff equivalent estimates over time has been observed and was explored at a preliminary level in the study. The tariff equivalent estimates for eggs, chicken, and turkey vary considerably over time as do the individual domestic and external reference price series. The US annual average wholesale price series are not significantly more variable than the Canadian price series. Comparisons of annual

average farmgate prices of eggs and turkey, however, indicated that the US price series are more variable than the Canadian price series. While exchange rate variability is potentially a problem in contributing to instability in the tariff equivalent measures, the variability in annual average US-Canadian exchange rates, at least, would not have substantially influenced the variability of the tariff equivalent estimates for eggs, chicken, or turkey for the period 1980 to 1989. One issue arising from the variability over time in tariff equivalent measures is the question of the length of time over which tariff equivalent estimates should be averaged. We compared 3-, 4-, and 10-year average measures, and observed that some of the shorter-period average tariff equivalent estimates are not significantly different from the ten year average estimates. A complication of tariffication under conditions of imperfect competition, as with the supply-management programs, concerns the non-equivalence of tariffs and quotas under these conditions. Following Moschini and Meilke, import-preserving tariff equivalent measures were calculated to assess the tariffication schedules that would maintain imports rather than allowing these to be squeezed out by prohibitive tariff levels. The value of the import-preserving tariff equivalent measures does pose certain difficulties, however, since their calculation depends on assumed elasticities and the deviation from marginal cost pricing. The latter is most difficult to estimate. In practice, the application of the tariff-rate quota as suggested in the *US Submission* and adopted in the final negotiations of the Uruguay Round of GATT will apply as a clear and reliable method of ensuring specified levels of imports are maintained. Even so, the calculation of import-preserving tariffication

measures gives an indication of the general levels of tariff equivalents that are consistent with the maintenance of specified import levels.

In the final section of the analysis, we assessed the extent of protection afforded the poultry industries from the tariffication schedules to be applied by Canada under the recently-concluded GATT agreement by calculating the "limit price", that is, the maximum domestic price that could be charged to consumers, under the specified levels of tariffs and agreed access conditions. The specified tariffication schedules embody appreciable potential increases in the level of protection afforded these sectors.

B. Recommendations

A number of recommendations related to the methodology of calculation of the tariffication of nontariff barriers in the Canadian egg and poultry industries arise from the findings of the study.

- The choice of price should be location-specific rather than averaged over a large geographical area, primarily because regional averages complicate the estimate required to adjust for transportation and handling costs.

- The most appropriate pricing point is one which reflects a substantial level of production as well as consumption. Ontario market prices appear to meet these criteria for the domestic price series. Some of the US price series are regional averages weighted by production. If price series for smaller areas in close proximity to Ontario are available then these series may provide a better tariff equivalent estimate.

- Given that an accurate estimation of the tariff equivalent estimates is in the best interests of all parties affected, estimates of the costs of transportation and handling should be made more readily available by the industry.

- In the interests of transparency and in keeping with the recommendations of de Zeeuw (GATT 1990), tariff equivalent estimates should be calculated using published prices. In the case of the domestic price series, the most appropriate

source is Agriculture and Agri-Food Canada while the USDA is the most appropriate source in the case of the external reference price series.

- Unless the exchange rate exhibits unusual volatility, it should be applied to the external reference price without any adjustments. These rates are published and widely available. Altering the exchange rate might jeopardize the integrity of the tariff equivalent estimates.

- While the concept of import-preserving tariff equivalents is useful in exploring the economic implications of tariffication, this appears impractical to introduce into the specifications of tariffication procedures. Reasonable estimates for the price elasticities of demand and supply are necessary. A more critical requirement is appropriate estimates of the supply price. As indicated by this study, sets of apparently reasonable assumptions for these parameters can produce a broad range of tariff equivalent estimates, some of which are not useful. A more practical approach to tariffication under imperfect competition is to provide some form of minimum access guarantees, such as through a tariff-rate quota. This procedure has been adopted in the just-concluded GATT round.

It has become apparent that improvements in the operations of the supply-managed egg and poultry industries in Canada should occur, regardless of a resolution to Article XI and the Uruguay Round of negotiations, in order to rectify some inflexibilities and inefficiencies of these programs while retaining some of the benefits to producers of these programs. It is evident from the analysis presented here that the protective tariffs to be embodied in the tariff-quota rates that will apply following the Uruguay Round GATT negotiations will not force such changes, but will provide these industries with a considerable "breathing-space" within which they may make necessary adjustments.

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Appendix A: Article XI and Annex I

Article XI

General Elimination of Quantitative Restrictions

1. No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party.

2. The provisions of paragraph 1 of this Article shall not extend to the following:

(*a*) Export prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party;

(*b*) Import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade;

(*c*) Import restrictions on any agricultural or fisheries product, imported in any form,* necessary to the enforcement of governmental measures which operate:

(i) to restrict the quantities of the like domestic product permitted to be marketed or produced, or, if there is no substantial domestic production of the like product, of a domestic product for which the imported product can be directly substituted; or

(ii) to remove a temporary surplus of the like domestic product, or, if there is no substantial domestic production of the like product, of a domestic product for which the imported product can be directly substituted, by making the surplus available to certain groups of domestic consumers free of charge or at prices below the current market level; or

(iii) to restrict the quantities permitted to be produced of any animal product the production of which is directly dependent, wholly or mainly, on the imported commodity, if the domestic production of that commodity is relatively negligible.

Any contracting party applying restrictions on the importation of any product pursuant to sub-paragraph (*c*) of this paragraph shall give public notice of the total quantity or value of the product permitted to be imported during a specified future period and of any change in such quantity or value. Moreover, any restrictions applied under (i) above shall not be such as will reduce the total of imports relative to the total of domestic production, as compared with the proportion which might reasonably be expected to rule between the two in the absence of restrictions. In determining this proportion, the contracting party shall pay due regard to the proportion prevailing during a previous representative period and to any special factors* which may have affected or may be affecting the trade in the product concerned.

Annex I

Ad *Article XI*

Paragraph 2(c)

The term "in any form" in this paragraph covers the same products when in an early stage of processing and still perishable, which compete directly with the fresh product and if freely imported would tend to make the restriction on the fresh product ineffective.

Paragraph 2, last sub-paragraph

The terms "special factors" includes changes in relative productive efficiency as between domestic and foreign producers, or as between different foreign producers, but not changes artificially brought about by means not permitted under the Agreement.