The Perfect Food in a Perfect Mess: The Cost of Milk in Canada

by Owen Lippert

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The Perfect Food in a Perfect Mess: The Cost of Milk in Canada

Executive Summary

This study examines the effects of the supply management of milk on Canadian consumers. Supply management is the legal framework for producing and marketing raw milk. The study also examines the potential impact of global trade liberalization on Canada's supply management system.

Current milk consumption poses a health issue. If milk is the "perfect food," why are Canadians drinking less of it? Per capita consumption of milk has dropped by 14 percent since 1980. Families with children under 15 on a per capita basis now consume less milk than households without children.

This health issue is an economic issue if the high price of milk contributes to under-consumption, though many reasons may explain why Canadian children now drink less milk.

Evidence of higher milk prices in Canada

The question of whether the price of milk has depressed consumption hinges on whether Canada's milk market has been distorted by monopolistic pricing. Preliminary evidence of monopolistic pricing lies in whether Canadian prices are higher than in other comparable jurisdictions.

At the farm gate, Canadian fluid milk prices are 41 percent higher than in the US, itself a distorted market. Canadian farm gate milk prices are 135 percent higher than the world reference price set by New Zealand.

The retail price of milk in Canada has gone from being roughly the same as in the US in 1980 to being 34 percent higher in 1991 and to 6 percent higher in 2000. The major reason for the change is the depreciation of the Canadian dollar. In 2000, the retail price of a liter of fluid milk is 9 cents higher than in the US as measured by the Statistics Canada and US Bureau of Labor Statistics.

If in 2000 Canadians paid US prices for fluid milk, they would have paid just under \$1 billion less. In 1993, they would have paid \$2 billion less. Accounting for the Purchasing Power Parity, Canadians pay 25 percent more for milk than Americans, or 36 cents per litre.

The Organization for Economic Co-operation and Development (OECD) calculates what Canadian consumers transferred to milk producers through higher than world milk prices. They estimate the transfer in 2000 to be \$2.47 billion. For fluid milk, consumers transferred \$987 million.

OECD figures suggest that since 1980, Canadian consumers have transferred \$50 billion (as measured in constant 2000 dollars) to milk producers. Total taxpayer and consumer support has reached \$55 billion (constant 2000 dollars). The OECD calculates that 70 percent of all Canadian consumer agricultural subsidies to agriculture go to milk producers. Of that, 97 percent is due to supply management.

Canadian consumers and taxpayers face the same size agricultural subsidy bill and Americans, around \$3 billion a year. Individual Canadians pay ten times more in agricultural subsidies than individual Americans.

For Toronto consumers, the cost of not paying US or international prices for milk range from \$26 million to \$104 million.

How supply management operates

Supply management operates through complex regulations to restrict the supply of milk to achieve a target price for the product. Federal regulations govern industrial milk used for cheese, butter and other processed products. Provincial regulations govern fluid or table milk.

Canada's dairy supply management system has four parts: domestic production and marketing controls, administered pricing, direct government payments to producers and import controls.

The milk supply management system represents decades of provincial and federal encroachment over agricultural markets. In 1966, the federal government created the Canadian Dairy Commission (CDC) to enforce national milk supply management.

The relevant federal legislation, the *Canadian Dairy Commission Act*, describes the objectives of the system as a "fair return for efficient producers" and "adequate supply" for consumers.

The Canadian Milk Supply Management Committee (CMSMC) determines the supply of industrial milk. It consists of provincial milk marketing boards and provincial government (producers and processors) representatives, The Canadian Dairy Commission (CDC) determines the price. The federal government appoints the members of the CDC.

The Uruguay Round of trade negotiations led to significant changes in supply management. The federal government ended its direct export subsidies, switched from import controls to tariffication (Canada has import duties as high as 299 percent for butter, 246 percent for cheese, and 202 percent for skim milk powder), and began to phase out the direct \$200 million subsidy to milk producers.

To take advantage of the export potential created by the Uruguay Round, the CDC and provincial boards introduced price discrimination for different end uses of milk. They also instituted a system of regional and national pooling of revenues from the sale of milk.

Economic analysis

The comparison of Canadian prices to US prices and to international prices shows price distortion. Statistical evidence suggests that supply management raises the price of milk beyond free market prices. From 1990 to 2000, all prices as measured by the Consumer Price Index rose 21.7 percent. Food prices rose 17.1 percent. The retail price of fluid milk by 37.7 percent. From 1994 to 2000, the measured cost of production of milk has decreased by 8.1 percent.

Economists have examined the effect of supply management on the competitive nature of markets through standard welfare analysis and "public choice" analysis.

Canada's supply management system is not a monopoly in that milk production remains a contestable market. It is a government-supervised cartel. The effect is the same: restricted supply and higher prices transfers income from consumers to producers. The restriction of supply causes consumers to under-consume the product (deadweight loss). Through price discrimination and pooling, producers take advantage of different consumer demand preferences for fluid milk and processed products (industrial milk). Supply management boosts the price of high demand

fluid milk in order to cross-subsidize a lower price for industrial milk (which boosts demand for processed products). As a result, production expands and revenues decline only slightly.

Producers spend considerable sums to protect the status quo ("rent-seeking") above average returns. Milk producers have the highest operating profit margins of all farm types. Producers also engage in "rent-seeking" from other producers through the sale of production quota. The initial quota holder prices the value of quota in order to capture the purchaser's future above average gains. The resulting high price of quota creates a disincentive for expansion and thus the achievement of efficiencies of scale. As producers borrow money from the banks to finance quota purchases, any change to the system could leave them with a "stranded asset" debt. That potential loss leads to even further lobby efforts to preserve supply management.

Economic analysis suggests why prices are distorted. The use of economic tools allows for an economic estimation of the consumer loss due to supply management. The key to this measure is estimating the difference between the administered price and the actual marginal cost of production. Dairy economists have sought to estimate the unknown marginal cost of production through analyzing the value of production quota as the aggregate difference between the administered and the price in a competitive market.

The current value of quota in Canada has now reached \$16 billion, an increase of 35 percent since last calculated in 1996. Each milking cow in Canada is now worth \$18,000. The current estimated value of quota is currently 13 cents, or 8.7 percent, of every liter of milk sold in Canada and 46 cents, or 9.8 percent, of every 500 grams of Cheddar cheese sold.

By setting the value of quota at zero, one can calculate that in 2000 consumers transferred to producers \$839 million. The estimated deadweight loss is \$200 million.

Trade pressures for reform

A choice will soon have to be made about supply management. A World Trade Organization dispute panel may soon rule that supply management's price discrimination and pooling features constitute a non-conforming export subsidy. Canada will have decide between reforming the system or retreating from export markets.

Also, Canada may make new trade commitments as a result of new round of trade negotiations starting in Doha, Qatar. Three issues will be negotiated: elimination of export subsidies, reduction or elimination of trade distorting domestic subsidies, and improved market access. On each issue, Canada's negotiating position has inconsistencies due to supply management.

If Canada liberalizes trade in milk products, economists predict that consumer will benefit while producers will face a short period of adjustment. Producers in Quebec and Ontario could soon expand their exports of Cheddar cheese. Production in Western Canada could also grow.

Recommendations

- Canada should move to full trade liberalization in milk and milk products.
- The federal and provincial governments should dismantle the legislative and regulatory instruments of supply management.
- Further research is necessary to determine the feasibility of compensating producers for the loss in quota values as a result of a return to a competitive milk market.

Introduction

Milk has been called the "perfect food." Milk provides an easy way to ingest calcium and several important proteins considered necessary for strong bones and disease resistance. The US health guidelines, the Dietary Reference Intakes, recommend that children ages 4 to 8 get 800 mg of calcium per day, or the equivalent of 2 to 3 glasses of low-fat milk.1 Adolescents and young adults, ages 9 to 18, whose bones are growing very fast, need more calcium. They should have 1300 mg, or about 4 to 5 glasses of low-fat milk per day. A University of Saskatchewan study reports that "on average that, among eight to 18-yearolds, 78 percent of girls and 60 percent of boys failed to consume 1300 mg calcium daily."2 If milk is the "perfect food," Canadians might ask, "Why we are drinking less of it?"

Under-consumption of calcium-rich dairy products is a health problem. Is this an economic problem? Many reasons explain may why Canadian children are drinking less milk, cultural attitudes, social pressures and lack of proper dietary information. Under-consumption is an economic problem if it is related to the price of milk and other milk products.

Economics teaches that the price of a product influences the amount purchased. If the price of a product is high relative to its substitute goods, consumers will buy less. If the price is low relative to substitutes, consumers will buy more.

The problem for economic research then is to determine the relative price of milk in Canada and whether that cost results from a "market failure," a "government failure," or both.

The economic research problem this study addresses is whether the current market for milk

and dairy products, as a result of private or government interventions, has generated prices higher than would be found in a free market. If so, how, and what is the affect on the welfare of the consumer and society at large? What policy changes might correct any welfare loss?

This study starts from the assumption that the price of milk in Canada is not determined through a free market. Supply and price is set by government agencies through a complex system called milk supply management.

The purpose of this study is to measure, to analyze and to evaluate the loss or benefit to the welfare of Canadian consumers and society resulting from milk supply management.

This study has the following objectives:

- 1. To estimate the cost of supply management to Canadian consumers by comparing Canadian wholesale (farm gate) and retail prices
 - to farm gate and retail price in the United States, and
 - to international farm gate prices.
- To identify and appraise how milk supply management affects consumer welfare, and
- To assess the consequences for supply management of forthcoming World Trade Organization rulings and the new round of trade liberalization negotiations.

The study will conclude by proposing policy changes and assessing their impact upon the Canadian dairy industry and consumers.

The time has come to identify the strengths and weaknesses of Canada's dairy supply management system.

¹ See report at http://www.nichd.nih.gov/milk/milk_fact.htm.

² See report at http://www.dairyfarmers.org/engl/nutrition/edito_pro-09-00.html.

Why now?3

The system has existed for 30 years and withstood much criticism.

There are three reasons.

The *first* reason is that the income transferred from consumers to milk producers is now more easily measured.

The Organization for Economic Cooperation and Development (OECD) now measures how much Canadian consumer transfer to milk producers through higher than world milk prices.

According to the OECD, consumers transferred \$2.47 billion to producers in 2000.

Since 1980, consumers has transferred \$50 billion (measured in constant 2000 dollars) to milk producers.

Total taxpayer and consumer support has reached \$55 billion (constant 2000 dollars). (See Table 1)

The other two reasons stem from Canada's current and potential international trade obligations. Those obligations in 1994 led to significant changes in the pricing and classification policies of supply management. New trade commitments will likely bring even more profound consequences.

The *second* reason is that the World Trade Organization may shortly rule that features of pricing within Canada's milk supply management system violate our international trade commit-

TABLE 1
Aggregate Consumer and Producer Estimates of Support in \$C 2000: 1980-2000

	40 2000.	1000 200		
Consumer Estimate of Support	CPI Adjustment	CSE \$ 2000	Producer Support Estimate	PSE \$ 2000
-935	2.17	2026	1095	2371
-963	1.93	1856	1154	2225
-1092	1.74	1898	1283	2230
-1350	1.64	2218	1458	2394
-1675	1.57	2637	1834	2888
-2136	1.51	3232	2155	3261
-2291	1.45	3329	2437	3542
-2125	1.39	2961	2301	3204
-1765	1.34	2362	2138	2861
-1823	1.28	2325	2140	2728
-2134	1.22	2596	2496	3037
-2169	1.15	2499	2489	2868
-2057	1.14	2335	2203	2501
-2135	1.12	2380	2217	2472
-2114	1.11	2352	2209	2458
-1754	1.09	1911	1893	2062
-1717	1.07	1840	1838	1969
-1976	1.06	2084	2167	2286
-2310	1.05	2414	2436	2546
-2316	1.03	2378	2412	2477
-2469	1.00	2469	2543	2543
		50103		54923
	-935 -963 -1092 -1350 -1675 -2136 -2291 -2125 -1765 -1823 -2134 -2169 -2057 -2135 -2114 -1754 -1717 -1976 -2310 -2316	Estimate of Support CPI Adjustment -935 2.17 -963 1.93 -1092 1.74 -1350 1.64 -1675 1.57 -2136 1.51 -2291 1.45 -2125 1.39 -1765 1.34 -1823 1.28 -2134 1.22 -2169 1.15 -2057 1.14 -2135 1.12 -2114 1.11 -1754 1.09 -1717 1.07 -1976 1.06 -2310 1.05 -2316 1.03	Estimate of Support CPI Adjustment CSE \$ 2000 -935 2.17 2026 -963 1.93 1856 -1092 1.74 1898 -1350 1.64 2218 -1675 1.57 2637 -2136 1.51 3232 -2291 1.45 3329 -2125 1.39 2961 -1765 1.34 2362 -1823 1.28 2325 -2134 1.22 2596 -2169 1.15 2499 -2057 1.14 2335 -2135 1.12 2380 -2114 1.11 2352 -1754 1.09 1911 -1777 1.07 1840 -1976 1.06 2084 -2310 1.05 2414 -2316 1.03 2378 -2469 1.00 2469	Estimate of Support CPI Adjustment CSE \$2000 Support Estimate -935 2.17 2026 1095 -963 1.93 1856 1154 -1092 1.74 1898 1283 -1350 1.64 2218 1458 -1675 1.57 2637 1834 -2136 1.51 3232 2155 -2291 1.45 3329 2437 -2125 1.39 2961 2301 -1765 1.34 2362 2138 -1823 1.28 2325 2140 -2134 1.22 2596 2496 -2169 1.15 2499 2489 -2057 1.14 2335 2203 -2135 1.12 2380 2217 -2114 1.11 2352 2209 -1754 1.09 1911 1893 -1717 1.07 1840 1838 -1976 1.06

Source: OECD dairy spreadsheet MKCAN1.xls provided to author by OECD Secretariat.

ments made in 1994. Further violation may lead to trade penalties against both Canadian dairy products and other agricultural products.

At issue are the commitments Canada agreed to in the 1994 Uruguay Round of world trade talks. Canada pledged that it would reduce its export subsidies. An export subsidy is when a country provides producers with direct or indirect payments to promote sales abroad. In 1997, the US, joined by New Zealand, brought a complaint against Canada to the World Trade Organization (WTO). They asserted that parts of Canada's milk supply management system provided an export subsidy in excess of Canada's commitments. An

³ The Fraser Institute last looked at the milk cartel in 1977. At that time, Professors Herbert Grubel and Richard Schwindt examined the supply management system of British Columbia. In *The Real Cost of the B.C. Milk Board*, they calculated that the milk cartel led to BC's having the highest milk prices in all of North America. They estimated that milk prices then were some 13 percent higher than would exist in a free market.

appeal WTO dispute settlement panel has ruled against Canada, as did the initial panel.

The dispute has reached the last stages of appeal. A final decision will be released in December 2001. If features of supply management are deemed to provide a non-conforming export subsidy to Canadian milk products, Canada will face three options.

- Make no changes to supply management and continue to export. The US and New Zealand can then apply punitive tariffs to a wide variety of Canadian agricultural exports.
- Make no changes but stop all but the permitted modest exports of dairy products. Supply management survives but Canadian dairy producers (and dairy food processors) forgo opportunities for growth arising from international trade.
- Reforms supply management to allow both greater exports and lower prices to consumers.

The Government of Canada will soon have to make a decision. Canada could choose to reform its dairy markets and to re-establish its historic role as a dairy exporting nation. Alternatively, it could decide to defend the current system of fixed domestic supply and prices and to retreat from the international market for milk products.

A *third* reason is that supply management appears inconsistent with the federal government's stated agenda of pursuing further international agricultural trade liberalization. Canada has called for major reforms in other countries. Prime Minister Jean Chretien recently stressed "the need to continue pushing aggressively for an end to price-distorting agricultural subsidies through the World Trade Organization negotiations." ⁴ To this end, Canada participates in the Cairns Group,

a coalition of countries seeking to liberalize trade in agriculture. Agricultural trade negotiations are scheduled to resume at the WTO meeting on November 9 in Doha, Qatar.

Milk supply management contradicts Canada's commitments to less-distorted international trade in agriculture in two ways. First, the federal government has not shown any similar favoritism to other Canadian agricultural producers such as beef, wheat and oilseeds farmers. Second, the Cairns Group proposes to measure domestic subsidies as international trade distortions: milk supply management falls squarely in that category.

How at odds is the Cairns Group proposal with Canada's current milk policies. Mr. Jean Grégoire, Chairman, Federation de Produceurs de Lait Quebec (FPLQ), explains it best.⁵

"Specifically, what is the Cairns Group proposing regarding domestic support that is so threatening for supply management? It is proposing a formula that would lead to complete elimination of the domestic support category calculated in the AMS (aggregate measurement of support), over a period yet to be negotiated, but to be on a disaggregated basis (commodity-specific) and no less than 50 percent the first year."

"How does such a proposal endanger supply management? Isn't Canada already one of the countries that subsidizes its farmers the least? Didn't it reduce the subsidies considered trade distorting by the WTO (subsidies calculated in the AMS) by about 90 percent, even though its reduction commitments called for only 20 percent? And won't our only direct dairy subsidy be completely phased out in early 2002?"

 $^{4 \}quad \ \ Agriculture\ and\ Agri-food\ Canada\ online\ information.\ Available\ at:\ http://www.agr.ca/cb/news/\ n000224be.html.$

⁵ Jean Gregoire, "Cairns Group: Canada must Affirm its Convictions," Le Produceur de Lait, Volume 21, Issue 2, October 2000.

"The problem is that nearly 99 percent of the remaining support included in the AMS declared by Canada is granted to dairy farmers. [emphasis added by author] In effect, Canada indicated to the WTO that its support price mechanism, represented by its dairy product buy-back programs, constitutes a subsidy within the meaning of the AMS rules (even though producers are responsible for these programs)." Canada could soon find itself isolated among agricultural exporting countries.

For all these reasons, the federal and provincial governments should assess seriously continuation of supply management in milk.

Dairy Industry: Key Facts⁶

Number of producers 2000:	20,576 dairy producers
Raw milk production 2000	8.1 million metric (m.m.)tons
Change from 1998/99	1 percent decrease
Value of production 2000	\$C 4.187 billion
Change from 1998/99	2.6 percent increase
Number of farms 1980	80,000 dairy farms
Raw milk production 1980	7.996 m.m. tons
Value of production 1980	\$C 4.78 billion (2000 dollars)
Average herd Canada	56 cows
Average herd US	82 cows
Fluid milk	40 percent, 2.8 m.m. tons
Change from 1998/99	1 percent increase
Industrial milk	60 percent, 4.8 m.m. tons
Change from 1998/99	2.3 percent decrease
Number of processing plants	270 plants
Value of processed production 2000	\$C 9.2 billion
Value of exports 2000	\$C365 million
Change from 1998/99	11 percent decrease
Per capita milk consumption	88.2 liters (2000)
Cost of production (industrial milk) change 1994 to 2000	decrease 8.1 percent
Industrial milk price change from 1994 to 2000	increase 18.8 percent
Net operating income milk producers as percent of all producers	200 percent higher

Dairy Snapshot 2000 available from Agriculture Canada website; OECD data in MKCAN1;spreadsheet available from author John Wainio, "Canada Subsidized Dairy Exports: A Case of WTO compliance" special report in USDA ERS Agricultural Outlook, August 2001; and "Distributional Effects of Agricultural Subsidies in Selected OECD Countries," OECD report AGR/CA (99) 8 (1999).

Overview

Dairy supply management is the term used to describe the legal framework through which raw milk is produced and marketed in Canada. (See Figure 1) The relevant federal legislation, the *Canadian Dairy Commission Act*, describes the objectives of the system as a "fair return for efficient producers" and the "orderly marketing" of their products. The *Act* promises consumers an "adequate supply."

Canada's dairy supply management system has four parts.

- domestic production and marketing controls,
- · administered pricing,
- direct government payments to producers, and
- import controls.

The goal of the production and marketing controls is to match supply with estimated demand, plus a small surplus in case of unexpected demand. The raw milk produced has two destinations:

- Fluid milk used as table milk, (homogenized, 2 percent, 1 percent, skim, buttermilk and flavored milk) and table cream, and
- industrial milk that is further processed into butter, cheese, ice cream, yogurt and powdered milk often used in baked goods.

Historically about 60 percent of all milk produced is used for industrial purposes. Fluid milk accounts for the other 40 percent.⁷

Provincial legislation largely governs the marketing of fluid milk. Each province's production

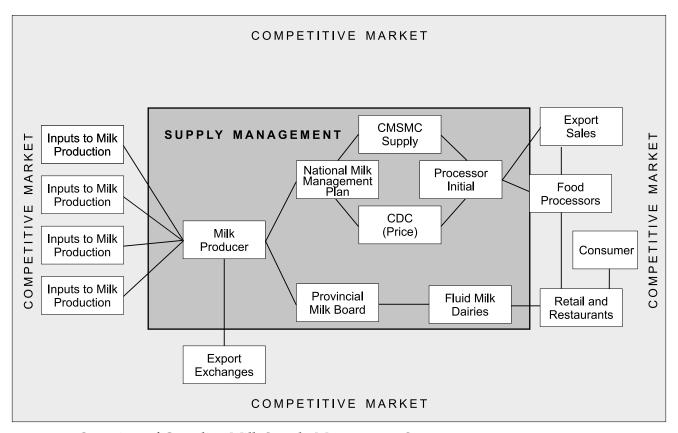


FIGURE 1 Overview of Canadian Milk Supply Management System

⁷ The Dairy Review, Statistics Canada, Agriculture Division, January - March 2001.

of fluid milk is largely consumed within the province. With the recent consolidation of the fluid milk processing industry, cross-province fluid milk sales may have increased. Each province's milk marketing board sets the production of fluid milk, based on its estimates of local demand, and markets the product on behalf of the producers. That is it buys the milk from the milk producers and sells it to the processors.

Federal legislation governs the marketing of industrial milk. The final products of industrial milk are sold between provinces according to a complex formula governed by both federal and provincial legislation. There are two steps:

- determining the supply, and
- setting the price.

Processors of fluid milk on average pay higher prices than the processors of industrial milk.⁸

The Canadian Milk Supply Management Committee (CMSMC) sets the supply of industrial milk. The committee is composed of producer representatives from the provincial milk marketing boards and provincial government representatives. The provincial representatives include both a representative from the producing and the processing industries. The committee forecasts the demand for industrial milk and based on this forecast sets the national production target called the Market Sharing Quota (MSQ).⁹ It then assigns to each province its portion of the MSQ largely on historical shares. For the year 2000-2001, forty-seven percent of the MSQ goes to Quebec producers.¹⁰

The Canadian Dairy Commission (CDC), a federal Crown Corporation, determines the price of industrial milk. The CDC has three commissioners and a staff of approximately 60 people. Each year, the CDC determines the target price for milk that producers receive. They do soon the basis of a Cost-of-Production (COP) formula. The formula is based on surveys of production costs among a sample of producers. Each province uses this as the base for their own confidential pricing systems for fluid and industrial milk. The CDC guarantees the target price for industrial milk by offering to purchase butter and skim milk powder at predetermined prices. The processors of industrial milk may pay slightly different prices than the target price. The provincial marketing boards may set the processor price, with reference to the target price, depending on the end use of the industrial milk.

Provinces allocate quota among the producers on a percentage basis. That is each producer receives a percentage of the total allowable production in the province. The initial allocation of quota among producers was guided by their levels of historical production. Quota utilization levels vary from province to province.

Each producer's quota is denominated in kilograms of butterfat to be produced a day. The production quota is the right to produce a certain quantity of milk containing that much butterfat. For example, a dairy producer with a production quota of 100 kilograms of butterfat a day would ship 2500 liters of milk a day.

Alberta and Newfoundland have slightly different systems. Their provincial marketing boards

⁸ The OECD has calculated that the 1994 to 1998 average price in Canadian dollars for a liter of fluid milk as 60.6 cents and for industrial milk as 53.9 cents. *OECD Agricultural Outlook* 2000-2005, (OECD 2000), page 151. Most provinces do not distinguish between the price paid for industrial as opposed to fluid milk consumption.

⁹ The actual technical analysis of the forecast demand for industrial milk is performed by economists with the Canadian Dairy Commission.

¹⁰ Canadian Dairy Commission website.

allocate two separate production quotas — industrial and fluid — among the provincial producers.

In all provinces, if a producer produces more than the allowed quota, they will either not be paid for the surplus amount and may be assessed a penalty for its disposal.

Milk producers at first bought and sold production quota among themselves. Now provincial milk boards administer quota exchanges.

The value of quota is **not** included directly in the Cost of Production formula used by the CDC to price raw milk. Economists analyze the value of the production quotas as the difference between the price producers receive for raw milk and the marginal cost of producing another unit of milk.

Justification for supply management

The CDC provides the following justification for supply management:¹¹

"Canada's agricultural supply management system, employed by the dairy, poultry and egg industries, attempts to match production of the commodity to the demand for finished products. Supply management enhances income stability for milk producers and provides for a continuous supply of high quality dairy ingredients and products at reasonable prices to processors and consumers. Over the years, dairy industry stakeholders have benefited from this stability and consistency."

Proponents of milk supply management cite several reasons for the policy including the large number of potentially quarrelsome producers, the weather and the social need to preserve family farms in rural areas. Ms. Cynthia Currie, Chair

of the National Farm Products Council, suggests also that "Producers found that when they came together and operated under the disciplined structure of marketing boards, they could also become actively involved in improving production and marketing efficiencies, in development and research of both products and markets." ¹²

Measuring the Cost

The price of a good, baring any market intervention, will reflect levels of supply and demand, assuming, of course, no currency inflation. In a free market, the price of a good increases or decreases as a result of scarcity and the availability of substitute goods. One way to tell if prices in a particular market are being manipulated is if prices are higher or lower than in comparable markets with no known distortions.

The question then is how do Canadian milk prices compare with other markets. Two reference markets suggest themselves against which to compare Canadian prices.

- A US market, (some price distortion), and
- A world market (relatively little price distortion)

By comparing Canadian farm gate, and, where possible, retail prices with the prices in these markets, one is able to determine is the Canadian milk market distorted and, if so, by what magnitude.

Measuring the Cost: Canada vis á vis the United States

Surprisingly, it is not easy to compare the retail prices for dairy products in Canada and the US. border. The selection of dairy foods for

¹¹ CDC, "Supply Management in Canada," found at http://www.cdc.ca/supply.html

¹² Cynthia Currie, Presentation, October 2000 found at http://nfpc-cnpa.gc.ca/english/speech_021000.html

which Statistics Canada tracks the prices varies considerably from that of the US Bureau of Labor Statistics.¹³ Milk, butter and processed cheese are among the comparable items. Cheddar cheese prices can also be compared by using Statistics Canada price index for the product.

Unlike private surveys, the price surveys of Statistics Canada and the US Bureau of Labor Statistics employ a broad national sample.

Any comparison of Canadian and US prices should also take into account currency and productivity differences between the two countries. A conceptual means to correct for these differences is called Purchasing Power Parity (PPP). The application of PPP, as done at the end of this section, suggests that milk retail prices should be substantially lower in Canada than the US, as virtually all price in Canada are lower than in the US. John Graham in looking at this issue concludes, "One cause of different prices in the two countries is the fact that Canadians (and their governments) can afford to pay less than Americans can."¹⁴

One should note that a comparison between Canadian and US dairy prices is not one between a supply managed market and a free market. The US market in milk has numerous state interventions. ¹⁵ For example, the Northeast Dairy Pact closely resembles Canada's supply management system. US Economists Peter Helmberger and Yuhui Chen calculated that in 1990 the Federal Milk Marketing Order program cost fluid milk consumers just over \$1 billion a year. ¹⁶ That program however is not applied throughout all of the US.

The western US states, with the exception of California, either have different or no milk marketing programs. Helmberger and Chen demonstrated that in areas under the Federal Milk Marketing Order program, fluid milk prices were 13 percent higher.

Farm gate price differences

Farm gate prices provide one measure of the difference in costs between Canada and the US as a result of supply management. Data on farm gate prices is more complete and accurate than retail price data due to greater government involvement with the compilation of the wholesale prices.

TABLE 2
Difference between Canadian and US Farm
Gate Prices for Raw Milk (Per Litre) in \$C

	Can Farm Gate (\$ / litre)	US Farm Gate (\$ / litre)	Price Difference (\$)	Percentage Difference (%)
1986	0.38	0.37	0.01	2.8
1987	0.39	0.36	0.03	8.3
1988	0.40	0.32	0.07	22.4
1989	0.40	0.34	0.06	17.4
1990	0.41	0.34	0.07	19.3
1991	0.42	0.30	0.12	39.0
1992	0.43	0.34	0.10	28.1
1993	0.44	0.35	0.09	24.7
1994	0.46	0.38	0.08	20.2
1995	0.46	0.37	0.09	23.4
1996	0.46	0.43	0.03	7.4
1997	0.46	0.40	0.07	16.8
1998	0.47	0.49	-0.02	-3.7
1999	0.48	0.46	0.02	4.7
2000	0.50	0.39	0.11	28.4

Source: OECD MKCAN1.xls

The average prices of the US Consumer Price Index can be found at the Bureau of Labor Statistics website at http://146.142.4.24/labjava/outside.jsp?survey=ap

¹⁴ John Graham, "Prescription Drug Prices in Canada and the United States – Part 2: Why the Difference?" *Public Policy Source* No. 43, 2000, The Fraser Institute.

¹⁵ Kevin Mcnew, "Milking the Sacred Cow: A Case for Eliminating the Federal Dairy Program" *Policy Analysis*, 362, December 1, 1999, Cato Institute.

¹⁶ Peter Helmberger and Yu-hui Chen, "Economic Effects of US Dairy Programs," *Journal of Agricultural and Resource Economics*, 19 (December 1994) pp. 225-38.

Table 2 shows the difference between Canadian and US farm gate prices for fluid and industrial milk.

Except for 1998, Canadian farm gate prices have consistently been higher than in the US. In 1991, the difference between Canadian and US farm gate prices reached its maximum, 39 percent. In 2000, the difference was 28 percent.

The OECD also measures the difference in farm gate milk prices for fluid and industrial purposes between Canada and the US.

In 2000, liquid milk prices (farm gate) were 41 percent higher in Canada and industrial milk prices (farm gate) were 16 percent higher in Canada. (See Table 3)

Some explanation here is necessary since all provinces, except Alberta and Newfoundland, record only a single producer-level pooled price for raw milk. What the OECD calculations reflect is the discounted price some Canadian dairy processors pay for industrial milk. These processors are purchasing the special classes of milk that are sold

at US or international prices. The result is that the average price of industrial milk is less than that of fluid milk.

Thus in Canada, on average from 1994 to 2000, the price of industrial milk (adjusted downward to remove the distortion of pooling) has been 12 percent cheaper than fluid milk. This reflects in small part the pressures brought on the cost of raw milk by Canada's limited exposure to international trade in dairy products.

Retail prices

Overview

Overall, prices for dairy products did not differ greatly between Canada and the US in the early 1980s. The exception was, and still is, that butter is significantly cheaper in Canada. Throughout the late 1980s, dairy prices rose significantly in Canada relative to the US. By 1991, Canadian milk prices were 34 percent higher, butter 22 percent higher, and processed cheese 17 percent higher than in the US. The early 1990s appear to be have witnessed a dairy price bubble.

	Т	ABLE 3				
Difference in Canadian a	nd US Liquid and	Industrial Milk F	Prices (Fai	rm Gate) \$	C per Litr	е
		1994-98 Average	1997	1998	1999	2000
Liquid Price *	(\$C cents/litre)	60.6	60.8	61.7	62.7	62.9
Industrial Price**	(\$C cents/litre)	53.9	54.6	55.3	55.8	56.5
US liquid Price ***	(\$US cents/litre)	28.8	27.4	32.2	30.0	30.1
US Industrial Price ****	(\$US cents/litre)	31.4	30.3	35.0	32.6	32.7
US liquidPrice in \$C	(\$C cents/litre)	40.1	37.9	47.8	48.4	44.7
US industrial Price in \$C	(\$C cents/litre)	43.7	42.0	51.9	48.4	48.6
Difference Can/US Liquid	(\$C cents/litre)	20.5	22.9	13.9	14.3	18.2
Difference Can/US industrial	(\$C cents/litre)	10.2	12.6	3.4	7.4	7.9
Liquid Percentage higher in Canada	(%)	51.2	60.2	29.1	29.4	40.7
Industrial Percentage higher	(%)	23.3	30.1	6.5	15.2	16.4

 ^{*} Fluid milk price, class 1, Ontario

Source: OECD, Agricultural Outlook 2000-2005

^{**} Industrial milk target return

^{**} Average farm price, manufacturing milk, 3.5% fat, Minnesota-Wisconsin

Average received by farmers for all milk

The reason for the price bubble appears related to the value of the Canadian dollar. In 1991, the Canadian dollar was worth \$US 90 cents. That year also saw the strongest political concern over cross-border shopping as Canadians made 59 million same day trips to the US. The Canadian responded to the incentive of lower prices in the US. After the peak in 1991 to 1993, price differences began to shrink. The Canadian dollar hovered in the \$US 70 to 75 cent range until the summer of 1998 when it plunged to \$US 65 cents. By 1998, Canadian same day trips to the US were only 2.2 million.

By 1999 and 2000, dairy prices — with the important exception of milk — were lower in Canada than in the US.

There are two likely causes for the current price differential.

First and foremost the Canadian dollar depreciated relative to the US dollar. In five years, the Canadian dollar depreciated 15 percent against the US dollar. A meaningful comparison between retail prices in Canada and the US must account for exchange rate differences. Nonetheless, the rapid depreciation of the Canadian dollar since 1998 distorts the comparison because while Canadian prices have fallen relative to US prices they have stayed constant in Canadian dollars.

The second cause for the price differential in that over the last 5 years US prices for the comparable basket of dairy products shot up by roughly a third while Canadian prices for that limited number of items increased by only approximately 10 percent.

Currently US prices have started to moderate as a result of increased production of raw milk.¹⁸

As Canadian prices for raw milk are not set by markets but by administrative fiat, they cannot be predicted, except for the fact that they have never gone down under supply management.

US prices do fluctuate as markets adjust. Canadian prices generally do not. Where as US prices have the potential to decrease, Canadian ones do not. While price stability may assist the milk producer, it does little to assist the dairy consumer hoping to see competitive pressures reduce prices.

Milk

In the comparison below, the US prices come from major cities all across the country.

The price of milk in Canada has gone from being roughly the same as in the US in 1980 to being 34 percent higher in 1991 and back down to 6.5 percent higher in 2000. (See Table 4)

In 2000, the price of a liter of whole milk is 9 cents higher than in the US as measured by the Statistics Canada and US Bureau of Labor Statistics price indices.

In the last decade, 1990 to 2000, all prices rose by 21.7 percent. Food prices rose by 17.1 percent. The retail price of fluid milk increased by 37.7 percent — twice as much as for all food. (See Table 5)

Butter

Canadians historically have paid less for butter than Americans. In 1980, Canadians paid 20 percent less for butter. By 1995, they were paying 22 percent more. As the Canadian currency began its decline in 1998, Canada's traditionally lower price for butter re-emerged. (See Table 6)

¹⁷ Susan Thorne, "Dollar differential keeping Canadian shoppers home," Shopping Centers Today, February 1, 1999.

¹⁸ Economic Research Service, USDA, "Livestock, Dairy and Poultry Situation and Outlook," July 25, 2001.

TABLE 4
Retail Price of Milk: Canada and the US

Year	US Price per Half Gallon (\$)	US Price per Litre .5 Gallon = 1.8921 Litres (\$)	\$C-US Exchange Rate	US Price per Litre in \$C (\$)	Canadian Price per Litre Whole Milk (\$)	Difference in Canadian Price from US Price (\$)	% Difference in Canadian Price from US Price (%)
1980	1.05	0.56	1.17	0.65	0.66	0.01	1.8
1981	1.12	0.59	1.20	0.71	0.77	0.06	8.8
1982	1.13	0.59	1.23	0.73	0.83	0.10	13.2
1983	1.13	0.60	1.23	0.73	0.88	0.15	19.8
1984	1.13	0.60	1.30	0.77	0.89	0.12	15.4
1985	1.13	0.60	1.37	0.82	0.99	0.17	20.9
1986	1.11	0.59	1.39	0.82	1.02	0.20	24.7
1987	1.14	0.60	1.33	0.80	1.04	0.24	30.6
1988	1.16	0.62	1.23	0.76	1.08	0.32	42.6
1989	1.27	0.67	1.18	0.79	1.15	0.36	44.9
1990	1.42	0.75	1.17	0.88	1.20	0.32	36.6
1991	1.37	0.72	1.15	0.83	1.26	0.43	52.0
1992	1.39	0.74	1.21	0.89	1.34	0.45	50.7
1993	1.39	0.74	1.29	0.95	1.37	0.42	44.1
1994	1.44	0.76	1.37	1.04	1.36	0.32	30.8
1995	1.43	0.76	1.37	1.04	1.34	0.30	29.3
1996	1.56	0.82	1.36	1.12	1.33	0.21	18.4
1997	1.59	0.84	1.39	1.16	1.38	0.22	19.0
1998	1.62	0.86	1.48	1.27	1.41	0.14	11.0
1999	1.70	0.90	1.49	1.34	1.43	0.09	7.1
2000	1.73	0.92	1.49	1.36	1.45	0.09	6.6

Source: Statistics Canada, Consumer Price Survey and Bureau of Labor Statistics

Price Indices: All, All Food and Fluid Milk						
	All Prices	Food Prices	Fluid Milk			
1990	93.3	95.8	92.2			
1991	98.5	100.4	96.6			
1992	100	100	100			
1993	101.8	101.7	101			

TABLE 5

1994 102 102.1 105.4 104.2 104.5 109.1 1995 1996 105.9 105.9 112.1 1997 107.6 107.6 115.8 1998 108.6 109.3 120 1999 110.5 110.7 122.2 126.9 2000 113.5 112.2

21.65%

17.12%

37.64%

Source: Statistics Canada Consumer Price Indices

Percentage increase

Processed cheese

For processed cheese, Canadians have historically paid more than Americans. By 1993, Canadians were paying 20 percent more. Again the decline in the Canadian dollar erased this difference. Currently Canadians pay 42 percent less. (See Table 7)

The decline in the price of processed cheese may reflect the increasing substitution of US market-priced butteroil for domestic butterfat in the manufacture of processed cheese. ¹⁹ Butteroil is what it sounds like processed butter in the form of a liquid which you could then mix with liquid sugar or other substances. Butteroil blends are less than 50 percent butter therefore they not qualify

¹⁹ The source for this section is largely, Canadian International Trade Tribunal, *An Inquiry into the Importation of Dairy Product Blends Outside the Coverage of Canada's Tariff Rate Quotas*, June 1998, Reference number GC 97 001.

TABLE 6
Canada and US Retail Price:
Butter 454 Grams 1 Pound

Year	US Price in \$C (\$)	Canadian Price (\$)	Price Difference (\$)	Difference as % of \$US Price (%)
1980	2.20	1.69	0.51	-23.0
1981	2.39	1.94	0.45	-18.8
1982	2.52	2.11	0.41	-16.4
1983	2.55	2.23	0.32	-12.4
1984	2.73	2.37	0.36	-13.2
1985	2.90	2.47	0.43	-14.8
1986	2.99	2.52	0.47	-15.7
1987	2.88	2.61	0.27	-9.3
1988	2.66	2.60	0.06	-2.1
1989	2.52	2.68	-0.16	6.1
1990	2.32	2.74	-0.42	17.9
1991	2.22	2.87	-0.65	29.4
1992	2.21	2.82	-0.61	27.5
1993	2.14	2.80	-0.66	30.9
1994	2.19	2.81	-0.62	28.4
1995	2.21	2.83	-0.62	28.2
1996	2.79	2.87	-0.08	2.8
1997	3.00	2.94	0.06	-2.1
1998	4.25	2.99	1.26	-29.6
1999	4.31	3.02	1.29	-29.9
2000	4.38	3.03	1.35	-30.8

Source: Statistics Canada, Consumer Price Survey and Bureau of Labor Statistics

as a dairy product. Hence none of Canada's protective dairy tariffs apply. The price of butteroil in Canada is roughly that of the US, a dollar less than price of domestic butterfat. Butteroil imports have surged to 2 percent of the MSQ. Some predict that butteroil blends may reach up to 25 percent of all the butterfat used in ice cream and processed cheese.²⁰

Cheddar cheese

A direct comparison of cheddar cheese prices between Canada and the US is hampered because Statistics Canada does not report the price of cheddar cheese. Statistics Canada does, however,

TABLE 7
Canada and US Retail Price:
Processed Cheese 250 Grams

				_
Year	US Price 250 grams (\$)	Can Price 250 grams (\$)	Price Difference (\$)	Percentage Difference (%)
1984	1.79	1.94	0.15	11.8
1985	1.90	2.08	0.18	12.8
1986	1.99	2.10	0.11	7.9
1987	1.80	2.13	0.33	24.9
1988	1.88	2.23	0.35	28.3
1989		2.33		
1990		2.49		
1991	2.17	2.60	0.43	37.7
1992	2.21	2.67	0.46	38.0
1993	2.20	2.74	0.54	42.0
1994	2.31	NA		
1995	2.32	2.49	0.17	12.7
1996	2.51	2.59	0.08	6.2
1997	2.63	2.78	0.15	10.8
1998	2.93	2.77	-0.16	-11.0
1999	3.12	2.64	-0.48	-32.4
2000	3.14	2.53	-0.61	-41.3

Source: Statistics Canada, Consumer Price Survey and Bureau of Labor Statistics

report a Consumer Price Index for Cheddar cheese. The retail numbers reported are based on applying the Cheddar cheese CPI, both back and forward in time, to the price reported in 1998.

By this measure, Canadian cheddar cheese prices were roughly the same as American prices in 1980. In the dairy price bubble of the early 1990s, Canadian prices exceeded US prices by 12 percent. The difference persisted to as late as 1998 when Canadian prices were still 16 percent higher. As a result of the currency depreciation starting in 1998, Canadian Cheddar prices by 2000 declined sharply to end up 18.5 percent below US prices. (See Table 8)

²⁰ For this point and other discussion of the case, see Jean-Denis Frechette, "Importation of Butteroil/Sugar Blends" Parliamentary Research Branch, October 1998, revised August 1999, found at http://www.parl.gc.ca/information/library/PRBpubs/prb985-e. htm

TABLE 8
Canada and US Retail Price: Cheddar Cheese 454 Grams 1 Pound

Year	US Price (\$)	Exchange Rate	US Price in \$C (\$)	Canadian CPI for Cheddar Cheese	Canadian Price in Lbs (\$)	Difference in Price (\$)	Difference in Price as % of US Price (%)
	* *						
1991	3.54	1.15	4.06	1.15	3.94	0.11	-2.8
1992	3.58	1.21	4.33	1.14	4.00	0.33	-7.6
1993	3.34	1.29	4.31	1.12	4.08	0.23	-5.4
1994	3.35	1.37	4.58	1.11	4.08	0.49	-10.8
1995	3.39	1.37	4.65	1.09	4.17	0.48	-10.2
1996	3.25	1.36	4.43	1.07	4.24	0.19	-4.3
1997	3.22	1.39	4.46	1.06	4.31	0.15	-3.4
1998	3.55	1.48	5.27	1.05	4.55	0.72	-13.7
1999	3.77	1.49	5.60	1.03	4.67	0.93	-16.7
2000	3.87	1.49	5.75	1.03	4.68	1.07	-18.6

Source: Statistics Canada, Consumer Price Survey and Bureau of Labor Statistics

Purchasing power parity and the price of milk

Definition of Purchasing Power Parity

It is misleading simply to compare the retail price of milk and other dairy products between Canada and the US without taking into account affordability. Affordability refers to the price of a product proportional to the consumer's ability to pay. Retail prices could be the same in Canada and the US, expressed in a single currency, but the products could be less affordable in Canada because of our relatively lower level of disposable income. To understand this point, it is necessary to explain the concept of Purchasing Power Parity.

Purchasing power parity (PPP) is one way to understand the differences among countries in prices and affordability. The theory states that exchange rate between two currencies are in equilibrium when the purchasing power of the currency units are the same. "This means that the exchange rate between two countries should equal the ratio of the two countries' price level of a fixed basket of goods and services. When a country's domestic price level is increasing (e.g.,

a country experiences inflation), that country's exchange rate should depreciate in order to return to PPP."²¹

Purchasing Power Parity rests upon the assumption of "one price." That is competitive markets will bring the relative price a good or service to parity with that in another country when prices are expressed in the same currency, subject to transportation cost differences alone. The process is known as arbitrage.

As an example, let us suppose that people spend most their money on cars. The price of the same car in Vancouver is substantially less than in Seattle, even after taking into account the exchange rate. (The reason for the car being less in Vancouver, is that the Vancouver price is as high as it can be and still sell cars to less prosperous Vancouverites.) One would expect to see a lot of people from Seattle coming to Vancouver to buy their cars.

Car purchases ultimately bid up the value of the Canadian dollar, as the Seattle residents would need to first purchase Canadian dollars in order to purchase a car in Vancouver. The price of cars

²¹ Explanation by Professor Werner Antweiler, University of British Columbia, Commerce faculty found at http://pacific.commerce.ubc.ca/xr/PPP.html.

in Seattle and Vancouver, expressed in a single currency, begins to converge:

- as the value of the Canadian dollar goes up and the value of the US dollar goes down,
- as more Canadians find high paying jobs selling cars, and
- as more Seattle car dealers offer lower prices to keep their jobs.

For this to occur, the arbitrage has to take place on a large scale. Other conditions must also be present. Transportation costs, taxes and tariffs and transactions costs should remain relatively comparable. Markets in both countries should remain competitive in order to ensure the price reflects actual supply and demand.

In reality, these conditions are rarely met. The price of goods across borders converge slowly, fitfully, if at all. Domestic market conditions, (e.g., sellers charging prices at "what the market can bear") play a large role because buyers have difficulties in shopping across a border, even one as relatively easy to cross as the Canada-US border. These domestic considerations include how the relative wealth of a country. Canada is not as wealthy a country as the US. The other consideration is taxes. If the government in one country compared to another takes a larger share of the national income, the citizens of the first country have less to spend thus pushing prices down. Canadians pay more than Americans in taxes. If prices reflect what the market can bear, one would expect to find lower prices in Canada than in the US.

PPP for Canada

Let us look at Canada's PPP for the year 2000. The OECD calculates PPP. It does by first calcu-

lating what a countries level of prices relative to its GDP. In high output countries with high incomes, one expects to find high prices.

The OECD calculated Canada's 2000 Comparative Price Level for GDP at 84 percent of what one would expect for our level of GDP.²² That calculation measure how much Canada's taxes and productivity force down incomes and thus force down prices. In contrast, the Comparative Price Level for the US stands at 105 percent of what one would expect for their level of GDP. In the US, higher prices have accompanied higher incomes

Comparing Canada to the US, Canada has a relative Purchasing Power Parity of 1.19. Restated, prices in Canada are 19 percent lower than in the US. That is cross-border arbitrage has not reduced a 19 percent difference because of income disparities, tax and tariff levels and transportation and transaction costs. As a result a Canadian, buying the same representative basket of goods in Canada and in the US, will spend 19 percent less in Canadian dollars on the Canadian basket.

The rate of exchange between the US and the Canadian dollar plays a major role. As the rate of exchange widens, it increases the distance prices have to change in order to reach Purchasing Power Parity. Over the last decade Canadians have experienced substantial price savings compared to US as the value of our dollar has lost nearly a quarter of its value, dropping from 87 US cents in 1990 to 67 US cents today. In every category of expenditure except purchases on the Internet, Canadians pay less than Americans do.²³

The real mystery is why US companies do not raise their prices of goods sold in Canada in order to compensate for the drop in our dollar. The

²² OECD, Purchasing Power Parities: Comparative Price Levels, available at www.oecd.org/std/ppp/pps.htm.

²³ Katherine Kemp, "Purchasing Power Parities and Real Expenditures - An Update to 1998," *National Income and Expenditure Accounts*, Third Quarter 1999 47, 3 (February 2000): 98-138. Cat. No. 13-001-XPB. Statistics Canada...

TABLE 9
Purchasing Power Parity: Adjusted Prices and Aggregate Difference Between Canada and US Costs

Year	Total per Capita Spent Over \$US Price in \$2000 (\$)	Aggregate Spent Over US Price in \$C 2000 (\$)	PPP Rate	PPP Adjusted Price (\$)	Expected Difference Due to PPP (\$)	PPP and US Difference (\$)	Difference as % of Price (%)	Savings per Capita (\$)	Savings Total (\$)
1980	2.56	5,064,837							
1981	11.87	23,510,847	111.20	0.68	0.09	0.15	19.25	14.73	362,286,317
1982	16.65	33,003,724	112.30	0.73	0.10	0.20	23.94	19.70	489,031,484
1983	23.45	46,493,519	114.50	0.75	0.13	0.27	31.02	26.80	673,236,399
1984	18.24	36,196,251	116.60	0.74	0.15	0.27	29.94	26.01	659,869,525
1985	24.99	49,604,990	118.40	0.81	0.18	0.35	35.69	34.08	872,837,698
1986	28.57	56,730,105	120.90	0.81	0.21	0.42	40.70	40.40	1,044,140,750
1987	33.31	66,194,579	120.40	0.83	0.21	0.46	43.81	44.77	1,168,575,199
1988	41.70	82,891,577	121.70	0.85	0.23	0.56	51.57	53.78	1,422,601,009
1989	42.60	84,735,449	123.10	0.88	0.27	0.62	54.07	58.33	1,563,005,652
1990	36.38	72,389,383	126.20	0.89	0.31	0.64	53.01	59.13	1,613,421,457
1991	45.78	91,145,186	125.70	0.94	0.32	0.75	59.92	69.57	1,927,113,716
1992	46.12	91,873,892	125.90	0.99	0.35	0.80	59.53	71.93	2,016,268,521
1993	40.94	81,591,245	125.30	1.02	0.35	0.77	55.92	67.06	1,902,927,445
1994	31.52	62,851,885	122.70	1.05	0.31	0.63	46.26	55.62	1,596,357,810
1995	29.10	58,055,598	119.70	1.08	0.26	0.57	42.39	49.92	1,449,371,193
1996	19.58	39,075,427	118.50	1.08	0.25	0.45	34.04	40.01	1,174,341,529
1997	20.09	40,128,091	118.30	1.13	0.25	0.47	34.24	40.93	1,214,332,931
1998	12.55	25,071,312	119.90	1.13	0.28	0.42	29.79	36.17	1,084,676,569
1999	8.31	16,604,258	118.40	1.17	0.26	0.36	25.03	30.52	923,023,378
2000	7.70	15,400,053	119.00	1.17	0.28	0.36	25.14	31.51	960,930,313

reason lies in the "stickiness" of prices. Companies charge what the market can bear. If US companies raised the prices charged Canadians by too much, they would lose sales. The problem is exacerbated by Canadian after-tax incomes not having grown substantially in the 1990s.²⁴

The point of all this is simple. It is not just enough to compare Canadian retail dairy prices to US dairy prices. You have to consider Canadian retail dairy prices in the context of all Canadian prices. Canadians pay what Canadians can afford.

Price of milk adjusted for Purchasing Power Parity

Adjusting for Purchasing Power Parity, Canadian retail dairy prices would have to be 19 percent lower than US retail dairy prices to be as affordable to the average Canadian as to the average American.

By adjusting for affordability, current domestic milk prices are dearer for Canadian families than for American families.

For milk, the difference is the highest. Accounting for the PPP, Canadians are paying 25 percent more for milk than Americans. That is Canadians are spending about 36 cents more for a litre of milk than they would in the US.

The total amount all Canadians pay more than Americans for all fluid milk consumed in 2000 is \$1 billion. The only good news is that amount is half what it was in 1993. (See Table 9)

Dairy Farmers of Canada "basket" survey

Mention should be made of the Dairy Farmers of Canada "basket" survey of relative Canadian and US retail prices. A.C. Nielsen conducts. The

²⁴ Income in Canada, 1998, Statistic Canada Cat. No. 75-202-XPE.

survey released in January 2001 claims Canadian prices are 32.7 percent lower than in the US.²⁵

The survey has generated unanswered questions. Some observers suspect the survey is only conducted in border cities with historically high prices. ²⁶ Others wonder whether they are surveying comparable stores. The "basket" itself is in question because it seems weighted towards products, such as skim milk powder, where the Canadian price is closer to the world price. As one cannot disentangle prices for individual items such as milk from the whole basket, it is very difficult to figure out just what is what.

However, the DFC survey is probably correct in revealing that Canadian prices have decreased *relative to US prices*.

The DFC attributes the relative decline to the price stability in Canada brought about by supply management. The January press release reads:

"DFC believes that the difference between Canadian and U.S. retail prices is a result of the Canadian supply management system, which ensures that producers receive relatively stable prices for milk they produce and processors receive a predictable supply of milk. As a result, consumers in Canada do not experience drastic price increases at the retail level."

It is correct that prices in the US have increased substantially. The reason lies in lower supply relative to demand. As the US market adjusts and supply increases, prices could drop substantially. The US market has already started to adjust and retail prices are expected to moderate.²⁷

In Canada, milk prices do not respond to supply and demand. As a result, they may not increase dramatically, but they have never declined either.

Measuring the Cost: Canada vis á vis world reference price

This section measures the impact of supply management through use of the statistics and analysis supplied by the Organization for Economic Cooperation and Development (OECD).

The OECD is based in Paris, France and serves as a central statistical agency for the 29 most developed countries in the world. They rely on the statistical agencies of these countries for the base data. In the case of Canada, they rely on Agriculture Canada and Statistics Canada.

It should be stated from the outset that the OECD does not deal with retail prices. Its calculations are based solely on the farm gate price of milk and the processors' factory gate price of butter and cheese.

The OECD's 2000 report on agricultural policies had this to say of Canada's milk markets.²⁸

"No major policy changes were introduced in the **dairy sector**. The sector continues to be the least reformed and most heavily supported agricultural sector in Canada, accounting for over 40 per cent of Canada's total producer support and around 90 per cent of market price support. Industrial milk production continues to be restricted through the use of production quotas determined by the Canadian Milk Supply Management Committee. The Market Sharing

²⁵ DFO press release, January 31, 2001 for November 2000 found at http://www.newswire.ca/releases/January2001/31/c3524.html

See comments by Michele Veeman in "Policy Developments in Canadian Agriculture: Report Card on Trade Liberalization," page 6 found at http://www.farmfoundation.org/sandiego/veeman.pdf.

²⁷ Annette Clauson, "Food Price Inflation Should Moderate in 2002," *Agricultural Outlook*, October 2001 at http://www.ers.usda.gov/publications/agoutlook/oct2001/ao285i.pdf

²⁸ OECD, Agricultural Policies in OECD Countries: Monitoring and Evaluation 2000, (Paris: 2000).

Quota for the 1999/2000 dairy year was unchanged compared with the previous year. The federal dairy subsidy was cut by 25 per cent to \$C 2.28 per hectoliter (\$C 22. 10 per tonne) and will be phased out over a five-year period from February 1998. The target prices for industrial milk were increased by 0.5 per cent to \$C 55.82 per hectoliter (\$C 541.50 per tonne) in February 1999; support prices for butter and skimmed milk powder were raised, respectively, to \$C 5 467 and \$C 4 525 per tonne. The resulting increase in the domestic price for milk exceeded the increase in the world price and, market price support for milk rose by 2 per cent."

The above quotation contains some terms that need explanation. The OECD calculations seek to find the total Producer Support Estimate—the difference between what a producer currently receives in income and benefits and what he or she would receive in a free market without subsidies and government support.

The critical elements of the Producer Support Estimate (PSE) are

- Transfers from consumers to producers,
- Transfers from taxpayers to producers, and
- Transfers to consumers from taxpayers.

The last item is state-paid subsidies paid to consumers to finance consumption of a product. That is not a relevant transfer in the case of dairy products in Canada.

In simple terms, the Producer Support Estimate (PSE) has three parts,

- Market Support Estimate,
- Direct payments, and
- General Services Support Estimate (GSSE)

The Market Price Support (MPS) measures consumer transfers to producers as a result of government policies that create a gap between

domestic prices and the world reference price. In the Canadian dairy context, the MPS measures the impact of supply management. The MPS is measured at the farm gate. The MPS nets out producer levies (to fund storage, for example) and penalties for producing over the quota level. The world reference price used by the OECD in milk products is the price of milk in New Zealand. New Zealand prices are used because they are considered the least distorted by government interventions. In other words, if you had a relatively free market in dairy products, — no supply management and import restrictions—you would conceivably end up with New Zealand prices.

Direct payments are subsidies sent directly from the government to the producer.

The General Services Support Estimate (GSSE) includes government-funded research and development, inspection services and specific regulatory agencies.

The OECD also calculates the cost to consumers incurred by government policies. The Consumer Support Estimate (CSE) measures the value of all the transfers from consumers and taxpayers to producers. This includes the MPS and tariffs applied to the import of goods.

The Market Price Support for milk in Canada is a critical measure. First, it is the largest by far component of the Consumer Support Estimate in milk and milk products. Second, the Market Price Support estimates are due solely to the supply management system's restrictions.

OECD evidence of higher farm gate prices

The OECD data reveals that Canadian farm gate prices for milk are currently 135 percent higher than the world reference price (New Zealand). (See Table 10)

The OECD Agricultural Outlook 2000-2005 projects that for raw milk, butter, cheese and skim

TABLE 10

Difference between Canadian Farm Gate Price for Raw Milk and World Reference Price \$C per Ton

	Canadian Farm Gate (\$C/t)	Reference Farm Gate (\$C/t)	Percentage Difference (%)
1979	251.60	138.14	82.1
1980	284.02	163.74	73.5
1981	320.62	196.04	63.6
1982	342.25	100.00	71.1
1983	350.91	180.04	94.9
1984	371.56	159.19	133.4
1985	382.95	116.99	227.3
1986	393.70	111.33	253.6
1987	396.97	142.00	179.6
1988	407.31	186.26	118.7
1989	415.69	192.62	115.8
1990	419.98	151.64	177.0
1991	429.78	150.71	185.2
1992	447.09	177.44	152.0
1993	454.01	182.91	148.2
1994	469.42	205.55	128.4
1995	475.67	256.80	85.2
1996	475.95	261.45	82.0
1997	475.88	233.61	103.7
1998	485.80	209.62	131.8
1999	492.74	218.04	126.0
2000	517.05	219.59	135.5

Source: OECD MKCAN1.xls

milk powder that prices in Canada will continue to climb for these products, but remain more or less stable in New Zealand and Australia, the two freest milk markets.²⁹

Producer Support Estimate

In calculating the PSE, the OECD does not break the analysis down to different milk products. It simply reports on the support for raw milk. Both fluid and industrial milk are included.

The OECD data reveals that in 2000 producers of raw milk received \$2.452 billion worth of

support through various means.³⁰ That amount represented 58 percent of the farm gate price of milk. That amount is almost entirely due to supply management.

Consumer Support Estimate

The Consumer Support Estimate (CSE) measures the amount consumers transfer involuntarily to producers as a result of government support for fixed prices and supply.

According to the OECD, Canadian consumers transferred \$2.47 billion to producers in 2000.

Since 1980, consumers has transferred \$50 billion (measured in constant 2000 dollars) to milk producers. Total taxpayer and consumer support has reached \$55 billion (constant 2000 dollars).

If you compare the 1999 CSE for milk with the CSE for all agricultural products, you find that 70 percent of all the consumer support to agriculture goes to milk producers.³¹ To repeat, of the US \$3 billion transferred from consumers in 1999, 70 percent is due to government policies in dairy products. The other 30 percent goes mostly to Canadian chicken and egg producers.

Of that amount of consumer support going to the dairy industry, 97 percent is due to the supply management system. Only 3 percent is due to direct government support or tariffs.³²

There is an interesting comparison to make between the total CSE in Canada and the US for agricultural products. In 1999, the total CSE in each country rounds out to US \$3 billion.

²⁹ OECD, OECD Agricultural Outlook 2000-2005, (Paris: 2000), Tables 23-27.

³⁰ OECD, MKCAN1.xls, spreadsheet provided to author.

This represents the difference between the CSE in MKCAN1.xls and the total CSE reported in OECD, *Agricultural Policies op. cit.* Pp. 197-200.

³² OECD, MKCAN1.xls.

The US distributes the burden of agricultural subsidies over 300 million people. Each American pays in addition to higher prices about \$US 10 as a taxpayer. Canada distributes that amount over 30 million people. Canadians pay about \$US 100 per person, but more as a consumer than as a taxpayer. A Canadian pays ten times more than an American in direct and indirect subsidies to agricultural producers.

Each Canadian in effect write a \$100 check each year to the milk producing industry.

Just to bring this back to what the average Canadian pays for milk, if you divide \$2.47 billion by 40 percent, the percentage of the fluid market of the total dairy market. The result is \$987 million. That is Canadian consumers transferred in 2000 nearly \$987 million to milk producers because of higher than international prices. Canadians pay higher than international prices because of the supply management system.

Nominal Assistance Coefficient

The OECD has another measure of the agricultural subsidies. It is called the Nominal Assistance Coefficient (NAC). The consumer NAC is the ratio between the sum of the government-induced consumer transfers to the producer and the sum of the amount of the good purchased at the world reference price. For milk, the world reference country is New Zealand. The OECD has judged New Zealand to have the least government distortions in its milk industry.

It works like this. If the consumer NAC for a product is zero that means that the consumer is not transferring income to the producer because he or she is paying the world price for the good. The higher the consumer NAC is, the more the consumer is transferring income to the producer by paying higher than world prices.

Looking at 1986, the first year for which the consumer NAC is calculated, both Canada and the US have very interventionist milk policies. The consumer NAC for the US was 3.13 and for Canada 3.54. In short Americans were paying three times the world price and Canadians were paying four times the world price. (See Table 11)

By 2000, the US had halved the consumer NAC to 1.59. In contrast Canada's consumer NAC had dropped only to 2.35. That is Canadians continue to pay over two times the world price for raw milk.

It is interesting to compare dairy with other Canadian agricultural products. Virtually every other Canadian agricultural commodity has an NAC of 1.00 meaning that they receive no subsidy as measured by the OECD.³³ There are some exceptions. The OECD calculates that eggs have an NAC of 1.76. Eggs in Canada are also subject to a supply management regime.

TABLE 11

Canada and US Nominal Assistance Coefficient

	US Consumer NAC	Canadian Consumer NAC	Difference between Canada and US Consumer NAC	Percentage Difference between Canadian and US Consumer NAC
1986	3.13	3.54	0.41	13.1%
1987	2.34	2.80	0.46	19.7%
1988	1.60	2.19	0.59	36.9%
1989	1.67	2.16	0.49	29.3%
1990	2.09	2.77	0.68	32.5%
1991	1.78	2.85	1.07	60.1%
1992	1.71	2.52	0.81	47.4%
1993	1.71	2.48	0.77	45.0%
1994	1.64	2.28	0.64	39.0%
1995	1.29	1.85	0.56	43.4%
1996	1.50	1.82	0.32	21.3%
1997	1.51	2.04	0.53	35.1%
1998	2.15	2.32	0.17	7.9%
1999	1.91	2.26	0.35	18.3%
2000	1.59	2.35	0.76	47.8%

Source: OECD MKCAN1.xls and USAPSE1.xls (OECD data for US)

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³³ OECD, Agricultural Policies, op. cit, page 199.

Canada otherwise a relatively free market in agricultural products

What is most striking when looking at the OECD data is how relatively free Canadian agricultural markets are from policy distortions-with the exception of the dairy market. Canada has the highest degree of trade openness to agricultural products among the European Union, Japan and the US. At 80 percent trade openness, according to the OECD, Canada is twice as free a market as these other countries.³⁴ Canada distorts its farm markets far less than the European Union countries. If you look at all agricultural markets other than dairy, Canada outshines the United States. According to the OECD, total farm support in OECD members reached an estimated US\$361 billion in 1999, up by US\$30 billion since 1997.35 Canada's share in the total amount of global subsidies is minor. Canada's agricultural support relative to agricultural receipts averages 20 percent. The OECD average is 40 percent with Europe responsible for most of the difference.

How did Canada end up with milk supply management?

The current structure of milk marketing in Canada owes a great deal to incremental federal and provincial government intervention since 1890.³⁶

The early activities of the federal government were relatively benign. In 1890, the Government of Canada appointed the first Dominion Dairy Commissioner to act on the industry's behalf. Early federal initiatives included an iced butter railway car service (1895), funding for cool cheese curing rooms (1902), cow testing programs (1902)

and the grading of butter and cheese for export (1923).

Producer pressure on the provincial and federal governments led to the current system of supply management. Beginning in the 1890s, dairy and wheat producers associated with Grange and Cooperative movements attempted to regulate supply. The purpose stated was to protect producers from sharp practices of middlemen who purchased their products for processing and resale. The schemes fell prey to the "free rider" problem. Not every producer would join the association. Those who did agreed to cut supply and charge a set price. In the absence of enforcement, the non-member producers would just sell more at lower prices. Producers soon returned to competitive behavior.

Marketing boards first appeared in Queensland, Australia in 1921. The first marketing board was for wheat. Its characteristics were state enforcement of imports and exports levels, quota allocations and fixed prices. British Columbia was the first Canadian province to attempt to imitate this Australian innovation. In 1927, the BC legislature passed the *BC Produce Marketing Act* and in 1929, the *Dairy Relief Act*. The legislation sought to set prices and to equalize prices among producers.

The federal government successfully overturned both of them in the Supreme Court of Canada. Their motive was as much constitutional as economic. The federal position was that the marketing boards violated Section 121 of the *British North American Act* that prohibited restrictions on inter-provincial trade and Section 91 giving control of commerce to the federal government. The justices sided with the federal government

³⁴ OECD, "Workshop on Emerging Trade Issues in Agriculture," graph 7 on page 8, available at www.OECD.org

³⁵ OECD, Agricultural Policies, op cit, page 163.

The source for much of the historical information in this section is Chapter 1 of Thomas Borcherding with Gary W. Dorosh, *The Egg Marketing Board: A Case Study of Monopoly and its Social Costs*, (Fraser Institute: 1981).

against BC. They agreed with Ottawa that both the federal and provincial governments shared jurisdiction over agricultural and civil rights, sections 95 and 93 of the *BNA Act*.

In the wake of the US's protectionist Smoot-Hawley tariffs, the Canadian government in 1935 introduced a temporary subsidy on cheese and butter. More significantly, the 1934 Royal Commission on Price Spreads blamed the depression in agriculture on weak marketing conditions and the monopolistic practices of secondary processors. The Commission recommended that milk producers create their own monopoly to counteract the processors' monopoly. The federal government took up this suggestion and created the *National Products Marketing Act* of 1934.

The resulting Dominion Marketing Board, which spawned provincial sub-boards, did not survive a 1935 challenge in the Supreme Court launched by food processors. The Supreme Court ruled that while the federal government could act to remove restrictions on inter-provincial trade, it could not itself regulate such trade.

The decision left the door open for the provinces to regulate their internal trade, if the federal government did not object. BC was the first province to use this loophole, passing the *Natural Products Act* of 1936. It permitted local producers boards to enforce production levels and prices within the province as long as they did not restrict interprovincial trade. The *Act* withstood the courts' scrutiny. BC's law became the model for the many boards that sprung up before the Second World War. Quebec was the only province to resist creating agricultural cartels.

The federal government intervened further in agricultural markets during the Second World War. Various efforts were made to support prices, export surplus products, and to limit imports. The Wartime Prices and Trade Board and the Agricultural Prices Support Act tried to balance

consumer concerns with the perceived necessity of bringing stability to farm production to assist the war effort. A key development was the 1949 *Agricultural Products Act*. This measure allowed the provincial marketing boards some leeway in restricting the import and export of agricultural products. The provinces quickly amended their laws to give their marketing boards these new powers. In 1958, Ottawa sought to coordinate all these measures by creating the Agricultural Stabilization Board (ASB).

The provincial milk boards and their producer members argued that the ASB lacked two powers necessary to produce an "orderly" national market:

- it had no influence over (other) provincial policies, and thus
- it had no means to control national milk production and inter-provincial trade.

A source of grievance was the increasing competition among provinces and among dairy producers themselves.

In 1963, the federal government established the Canadian Dairy Conference to examine the available options. The resulting Canadian Dairy Advisory Committee recommended in its 1965 final report the creation of the Canadian Dairy Commission (CDC). In its initial years, the CDC simply administered existing federal price support and subsidy programs for butter, skim milk powder, industrial milk, cream and cheese. The CDC also operated the export programs. That is the provincial boards would sell to the CDC milk powder and cheese for sale in other countries. Cuba, after the US embargo, and Morocco became at this time historic markets for surplus Canadian dairy products.

The provincial marketing boards retained their control over provincial production and prices. Yet without substantial enforcement at the federal

level, the provincial boards were limited in their effect on milk supply and prices. For example, the provincial milk boards issued Subsidy Eligibility Quotas (SEQs). The SEQ was the forerunner of the current Market Sharing Quotas (MSQs). Producers, however, could still ship milk in greater volumes than their assigned SEQ. What they gave up on these over-quota shipments was the federal subsidy. Over-quota production led to surpluses of milk. The provincial boards were responsible for disposing of the milk surpluses. They often did so by selling milk to processors in other provinces thus upsetting the plans of the milk boards in those provinces.

To control inter-provincial milk sales, the provinces required the assistance of the federal government. After lengthy negotiations, Ontario, Quebec and the federal government devised the Interim Comprehensive Milk Marketing Plan in 1970. The centerpiece was the creation of the Canadian Milk Supply Management Committee (CMSMC). The remaining provinces joined by 1975 with the exception of Newfoundland. Newfoundland joined the CMSMC on August 2, 2001.

The plan, renamed the National Milk Marketing Plan, has the following features which remain largely in effect today: supply management marketing boards, administered pricing, and import controls through tariff rate quotas.

How does supply management work?

Supply

The NMMP

The provincial marketing boards cooperate under the National Milk Marketing Plan (NMMP)

to determine the supply of raw milk. The supply management boards of ten provinces, their provincial government representatives and the CDC are signatories to the NMMP.³⁷

The NMMP sets out the structure for the calculation of an annual national production target for industrial milk - the national Market Sharing Quota (MSQ).

The CMSMC and the MSQ

The Canadian Milk Supply Management Committee (CMSMC), established under the NMMP, is the lead decision-making body as to annual supply of milk produced. A representative of the CDC serves as the chair of the CMSMC. The CDC has its own responsibilities for setting industrial milk prices.

The CMSMC is composed of representatives of each provincial marketing board and the respective provincial governments. Producers and processors form part of each provincial contingent. Representatives of the Dairy Farmers of Canada and the Consumers Association of Canada also participate or observe in the meetings, but they do not have voting rights. The National Dairy Council of Canada, the industry group of further processors, used to be a consulting member. In August, that organization shut down as its membership had shrunk considerably.

It should be noted that members of the DFC are also often the representative from the provincial marketing boards and provincial governments. Usually they act as the provincial spokesperson. The non-voting DFC members of CMSMC provide additional support to the producers' policy positions.

³⁷ NMMP, A. (Introduction) cited in World Trade Organization Panel Report, *Canada – Measures Affecting the Importation of Milk and the Exportation of Dairy Products*, 17 May, 1999.

In general, CMSMC decisions are taken by consensus. When votes occur, each province that is a member of the NMMP (provincial government representative and producer marketing board representative together) receives one vote. Some votes require a majority while others require unanimous consent. The CDC is empowered to take a decision in the event of a failure by members to agree at two meetings, with some exceptions.

The Secretariat to the CMSMC organises the decision-making on the future supply of industrial milk. The Secretariat receives information from the economists of the CDC, the provincial boards and the Dairy Farmers of Canada and some processors as to the forecast levels of production and demand that could apply at administered price levels in the coming year.

The goal is to set the total production for a year at 105 percent of expected demand. The extra five

percent is supposed to act as buffer should increase unexpectedly increase. This is called the "sleeve."

The Secretariat then presents to the full CMSMC the proposed level of the following year's Market Sharing Quota.

There can be extensive cross-membership between the committees dealing separately with supply and price decisions.

It is possible for a dairy producer who was the head of his provincial chapter of the Dairy Farmers of Canada and who was also the representative of the provincial marketing board would contribute to the recommendation in the Sub-Committee then vote to accept the recommendation in the full CMSMC by virtue of being the provincial representative. (See Figure 2³⁸) At the same time, he may serve on a committee consulting the CDC on the appropriate price level.

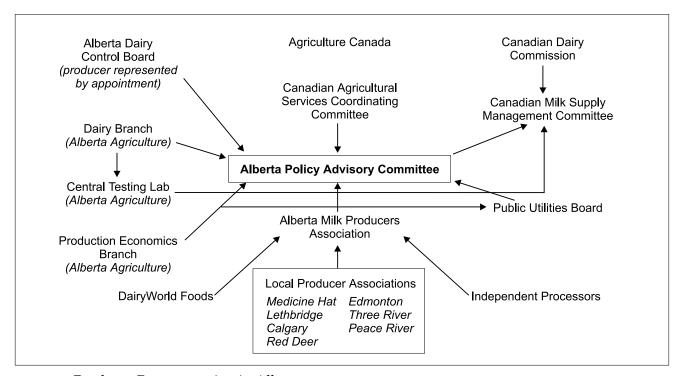


FIGURE 2 Producer Representation in Alberta

Figure 2 is "Schematics of producer representation in government control agencies," found at http://www.afns.ualberta.ca/drtc/dp472-1b.htm

He may sit on that committee either by virtue of being the representative of his provincial marketing board or as an official of the Dairy Farmers of Canada.

The lone representative of the Consumers Association of Canada does not have access (except as an observer) to the multiple committees with overlapping memberships that deal with technical and standards issues. Even if she did, the policy implications of technical decisions would be not obvious to someone from outside of the industry.

Various interests compete for influence within the CMSMC. Former CDC Chairman, Guy Jacobs put it this way in a 1998 speech:³⁹

"Everyone claims to want to establish a true partnership among all the stakeholders, but there is still a lot of distrust among various groups. Dairy farmers still refuse to allow processors to play a more active role within the CMSMC and, in some cases, still consider processors and further processors to be exploiters with only one thing on their minds: getting milk for the lowest price possible. Conversely, certain processors sometimes seem to be doing everything possible to destroy the supply management system."

One cannot help but note that the dairy producers are trying to get the highest price possible while the processors are trying to get the lowest price possible. This is true of every industry. What is not clear is why the federal government should mediate this or any commercial relationship.

Provincial Milk Marketing Boards

A milk marketing board exists in each province. The provincial milk marketing boards operate within a framework established under federal and provincial legislation. ⁴⁰

The provincial milk marketing boards have all been given general authority by the federal and provincial governments in respect of the issuance and administration of quota, the pooling of returns, pricing, producer records keeping and reporting, inspection, and agreements to cooperate with other provinces and the CDC.

The membership of the provincial milk marketing boards is made up mostly or exclusively of dairy producers.⁴¹

It is prohibited for milk producers to sell any milk outside of the provincial milk board's control.

Distribution of quota among provinces

Each province's share of the total in-quota milk market is the sum of its share of the MSQ and the fluid milk market. (See Table 12)

Once the CMSMC has decided the overall level of the MSQ, it then proceeds to *allocate* the MSQ between the provinces. This is done essentially by a ratio between a province's historical market share and its population growth. The traditional ratio was 90:10 historical market share to population growth. As a result, Quebec currently has 47.3 percent of the industrial milk MSQ and Ontario has 31.3 percent. This has lead to some

³⁹ Speaking Notes for an Address by Mr. Guy Jacob, Chairman of the Canadian Dairy Commission for the 1998 Annual General Meeting of the 'Fédération des producteurs de lait du Québec' in Quebec City, Quebec on April 15-16, 1998, found at http://www.cdc.ca/fplq98_annual.html

⁴⁰ CDC Act, Section 2 (Definitions).

⁴¹ This is true for Ontario and Quebec and all other provinces except Nova Scotia, Alberta and Saskatchewan. In Nova Scotia, the board members are appointed by the provincial government with one member of five to be a producer. In Alberta and Saskatchewan, the provincial governments also appoint the members but historically producers are well represented on the boards. Currently, each five-member board includes two producers, one consumer representative and one processor representative.

TABLE 12
Provincial Shares of Market Sharing Quota¹
(MSQ) as of July 31, 2000 (in Millions)

July 31, 2000	Kilograms of butterfat	Hectolitres of milk (3.6 b.f.)	%
	O' Buttoriut	(0.0 5)	
Prince Edward Island	3.009	0.836	1.8
Nova Scotia	2.023	0.562	1.2
New Brunswick	2.043	0.568	1.3
Quebec	77.044	21.401	47.3
Ontario	51.055	14.182	31.3
Manitoba	5.631	1.564	3.5
Saskatchewan	4.460	1.239	2.7
Alberta	10.220	2.839	6.3
British Columbia	7.454	2.070	4.6
Canada	162.939	45.261	100.0

¹ Before market sharing under pooling agreements

Source: Canadian Dairy Commission website at http://www.cdc.ca/msq_table.html

inter-provincial tension as the western provinces seek a larger share of the national quota.

British Columbia after the Second World War had only a small dairy industry. When the quota system was established in 1966, BC gave part of its industrial milk quota to Quebec to fill. Though the population of BC has grown as a percentage of the national total, the expansion of its quota remains based on this initial adjusted distribution of quota. Though the milk producing industry in BC expanded, the province, some have argued, has not recovered the share of quota transferred initially to Quebec.

The ratio has now changed. The CMSMC, as of August 2000, reversed the ratio. John Jansen, Chairman of the BC milk board wrote in his 2000 annual report:⁴²

"Essentially, the former 90:10 ratio (historical share of MSQ versus provincial population as a percent of Canada) has been reversed to become a 10:90 ratio. With more weight now on provincial population, the anticipated rate of growth in British Columbia's MSQ will be a definite improvement."

There is some irony that this change occurs now that British Columbia has started to lose population rather than gain population.

Very little quota has transferred between provinces. In August 1998, an inter-provincial quota exchange was established among Ontario, Quebec and Nova Scotia. Ontario pulled out after a few months. In the first six months, 1.47 percent of Ontario's quota had gone to Quebec and Nova Scotia.⁴³ A study of inter-provincial quota transfers found that Quebec producers believed quota prices will go higher and that they benefited from the Quebec's provincial government capital loan guarantee program for dairy producers.44 The availability of provincial loan guarantees for the purchase of quota encouraged Quebec producers to bid for Ontario quota. This caused some resentment in Ontario.45 Nova Scotia soon withdrew as well from the exchange.

Distribution on Quota within provinces

Provincial milk marketing boards allocate quotas to individual producers. In most provinces⁴⁶, the board makes a single allocation⁴⁷ to each producer. The producer's quota allocation represents that producer's percentage share of the province's

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⁴² Chairman's Statement, Annual Report of the British Columbia Milk Marketing Board 1999-2000.

⁴³ Don Stoneman, "Ontario milk quota heading east," Farm and Country, March 16, 1998.

⁴⁴ Maurice Doyon, Gary Grant and George Brinkman with Stephen Clark, "A Review of Factors Influencing the P-5 Intra-provincial and Inter-provincial Quota Exchange" (Canadian Dairy Commission, 2000).

⁴⁵ Don Stoneman, "Producers go beyond the board," Farm and Country, November 1996 found at http://www.agpub.on.ca/text/nov96/dairy.htm

In Alberta, producers receive two quotas, one for fluid milk, expressed in liters per day, and one for industrial milk, expressed in kilograms of butterfat per annum.

⁴⁷ This is usually expressed in kilograms of butterfat per day.

share of the national milk market as determined by the CMSMC and the domestic fluid market as determined by the provincial milk marketing board.

The actual level of production allowed by an individual producer's share of the provincial quota will fluctuate in response to changes in the province's Market Share Quota. As a result of the possibility that an individual producer's actual level of production will decrease, though his or her quota remains the same, banks will not accept 100 percent of the value of producer's quota as collateral for a loan.

If a province exceeds its share of the MSQ, the milk that is in excess of the province's share of the MSQ is referred to as "over-quota" milk. If a province does not exceed its share of the MSQ, all of the province's milk is referred to as "in-quota" milk.

Prior to 1995, the number of farmers producing in excess of 105 per cent of their allocated quota was reportedly small.⁴⁸ In 1994-95, only 10 per cent of producers were in this group. A year later, under the new system, 25 per cent of farmers produced over 105 per cent of quota.⁴⁹ By 1997-98, 34 per cent of Canadian producers were producing over 105 per cent of their quota. The over quota production of raw milk was exported as industrial milk products.

When supply management began in 1966, quota was neither bought nor sold. No market for quota existed through which to generate information as to price. Also the renting out of quota was expressly forbidden. That prohibition remains intact

today, except that one can rent another producer's quota for the next year. Over time, some producers wanted to leave the industry, some wanted to enter, and some wanted to expand. An informal market in quota arose. As it was informal, nobody knew whether one price reflected the general level of prices.

As the provincial milk marketing boards controlled (indeed owned) quota, they wanted more control over the exchange of quota. As a result, the milk boards began to run quota exchanges, starting in Ontario in 1980.50 The milk boards by operating the exchanges could exert some control over the amount of quota circulating. For example, Ontario extracts as a charge 10 percent of any quota sold to a non-family member. Quebec charges 7 percent except when the quota is purchased from another province. By doing so, the milk boards can more easily contract the amount of milk produced in the system without actually contracting the size of quota for producers. (Remember quota is a share in the provincial MSQ and contracts and expands according to the amount of the MSQ.)

Pricing

The Canadian Dairy Commission

The price of industrial milk is determined by the Canadian Dairy Commission (CDC) is a Crown corporation established under the *Canadian Dairy Commission Act*. The Act reads:

"The objects of the Commission are to provide efficient producers of milk and cream with the opportunity of obtaining a fair re-

⁴⁸ The following statistics come from the World Trade Organization Panel Report, Canada – Measures Affecting the Importation of Milk and the Exportation of Dairy Products, 17 May, 1999.

In 1996-97, Quebec dairy farmers produced close to 5 million kilograms of butterfat that was surplus to domestic requirements, which is equivalent to an over-quota production of 7.3 percent. Close to three-quarters of producers exceeded their quota to some extent, and almost 40 percent exceeded it by more than 10 percent. See speech by Guy Jacobs at footnote 39.

⁵⁰ See Dairy Farmers of Ontario webpage http://www.milk.org/quota1.htm

turn for their labour and investment and to provide consumers of dairy products with a continuous and adequate supply of dairy products of high quality."51

The CDC in theory only advises the dairy industry. The CDC describes itself as a "instrumental industry facilitator." In practice, it has significant control over the industry by virtue of running the regulatory apparatus that restricts the supply of industrial milk and sets its price. The powers of enforcement given to the CDC are extensive. These include the power to enter into any dwelling suspected of unregulated milk production and to use force if necessary provided a peace officer is present.⁵²

The federal government appoints the Chairman, Vice-Chairman and Commissioner of the CDC. The Commission is accountable to Parliament and reports to the Minister of Agriculture and Agri-Food. The current minister is Lyle Vanclief, a Member of Parliament from Ontario. The current chairman is Michel Pagé, a former Quebec minister of agriculture (1985-1990). In April 2001, he replaced the long-serving chairman, Guy Jacobs.

CDC and setting prices

The main task of the CDC is to set the national target price for industrial milk. Using the target price as a basis, the CDC also establishes support prices for butter and skim milk powder. The bulk of the CDC's attention over the years has focussed on refining the price support program. ⁵³

In 1975, a Returns Adjustment Formula was devised, but did not prove popular with producers

as they contended it under-counted their contribution to processed dairy foods. This is a long-standing complaint of dairy producers going back to the Commission on Price Spreads in 1934.

In 1988, another pricing method was adopted. Its goal was to capture through the cost of production at the farm level. It relied on provincial officials to survey a representative sample of producers.

Cost of Production formula

The general outlines of how milk is priced was set in 1966 with the creation of the Canadian Dairy Commission. The CDC standardized the various provincial calculations into a single national calculation. The provinces continue to calculate their own Cost-of-Production (COP) formulas and share the results with the CDC. The COP formula is designed to provide dairy producers with the cost of production plus a profit markup.

The Cost of Production formula, it should be noted, is an accounting formula and not an economic formula. It does not provide a measure of the marginal cost of producing one more unit of milk. The COP simply reports what the producer spent on various inputs and how many hours of labor were required.

To simulate the average costs of production, the COP sample does not include the 30 percent of the producers with the highest reported costs of production.⁵⁴ Nor does the survey include producers who produce less than 60 percent of the annual average shipment. On the basis of the

⁵¹ CDC Act, Section 8 found at http://lois.justice.gc.ca/en/C-15/.

⁵² Section 18, CDC Act.

A Brief History of Supply Management in Canada: Evolution of the Canadian Dairy Commission" in Western Dairy Digest, Fall 1999, volume 1, number 1 at http://www.dairywest.com/html/WDDigest/WDD%201.1%20Fall%201999/html/1102aSupplyMgmnt.html

⁵⁴ CDC, National Cost of Production Input to the Pricing of Industrial Milk: Handbook of COP Principles and Practices, April 1994.

survey restrictions, the Dairy Farmers of Canada (DFC) argues that those excluded equal the number of dairy farmers who do not receive a price for milk equal to the cost of their production. They claim, "At this time, a small percentage of producers are receiving their cost of production. Only 29 percent of Canadian dairy producers are covered by the average price that producers have been receiving for their milk." 55

Of course, if this were true then these farmers would go out of business because no private enterprise can run forever at a loss. One suspects that DFC claim provides a rationale for continued lobbying to increase the target price of raw milk. Dairy producers have the highest profit margins and the highest average net cash income

TABLE 13
Comparison of Industrial Milk Prices,
Consumer Price Index and Cost of Production
1993 to 2000

1993 to 2000					
	Industrial Milk Prices	Consumer Price Index	Cost of Production		
1993	\$45.33	101.8			
1994	\$46.85	102.0	\$61.91		
1995	\$48.61	104.2	\$60.54		
1996	\$50.77	105.9	\$62.10		
1997	\$50.77	107.6	\$61.15		
1998	\$52.87	108.6	\$61.87		
1999	\$53.99	110.5	\$56.83		
2000	\$55.67	113.5	\$56.90		
	Industrial Milk Prices	Consumer Price Index	Cost of Production		
1994	100.0	100.0	100.0		
1995	103.8	102.2	97.8		
1996	108.4	103.8	100.3		
1997	108.4	105.5	98.8		
1998	112.8	106.5	99.9		
1999	115.2	108.3	91.8		
2000	118.8	111.3	91.9		

Source: Conference Board of Canada and Canadian Dairy Commission

of all Canadian agricultural producers.

Between 1994 and 200, the price paid for industrial milk has risen by 18.8 percent. The overall consumer price index has risen by 11.1 percent. By the CDC's own calculation, the Cost of Production has decreased by 8.1 percent. (See Table 13)

Labor charges

The major change to the COP formula involved labor costs. ⁵⁶ In 1994 the formula was changed to reflect a different means of calculating labor costs. The COP originally estimated labor costs according to a survey conducted by the provincial governments.

Quebec was the first province to shift from the provincial survey to a producers' self-reporting timesheet. Producers self-report the hours of work of themselves and their employees. With the timesheet system, Quebec began to report much higher work hours. The Quebec government requested that the federal COP formula reflect these "increased" costs. The other provincial milk boards quickly saw the advantage in self-reporting for their producers.

In 1994, the CDC requested the existing minister-appointed Consultative Committee, comprised of producer, processor and for the first time a consumer representative, to examine the COP formula and make recommendations. No national consultations were held. The Canadian public knew little about the impending changes. In that same year, the CDC approved use of the self-reporting timesheets in calculating labor charges in the COP.

⁵⁵ Dairy Farmers of Canada news release, December 5, 2000 at http://www.newswire.ca/releases/December2000/05/c1161.html

⁵⁶ The CDC has also devised a change in how the payments to dairy producers are measured. Since 1997, dairy producers are paid for their milk on the basis of its component parts: butterfat, protein solids and other solids. Under the present formula, a farmer can increase total and net revenue by altering the feed of cows to increase volume at a lower butterfat rate e.g. 3.2 percent instead of the "standard" 3.6 percent used to calculate the mass of raw milk. The butterfat content or raw milk regardless of animal breed and feeding is greater than 3.2 percent.

(The Consultative Committee has not been reappointed since 1994 though the CDC does conduct informal consultations prior to a price-setting decision. Nonetheless, there no longer exists a formal venue for the review of the COP formula.

The Auditor General recently noted that the CDC could "strengthen the credibility of the pricing process" through re-activating the Consultative Committee to discuss issues including the Cost of Capital, the measurement of Returns, the Potential Bias in the sample, the Cost of Labor, and the value of Intangible Assets (Quota).⁵⁷

The new formula posed a dilemma to the CDC. If strictly applied, the revised formula would have led to increases in the price of milk in the range of 30 to 40 percent. Such a sudden increase would create the risk of a processor and consumer backlash.

To resolve the issue, the CDC informally asked the producers and processors to decide among themselves. If they could agree to a price between themselves that was not excessive. Evidently the two sides agreed on how to "jig" the formula. Their informal understanding may still guide the application of labor charges in the COP formula.

The re-jigged formula is nonetheless prone to revision. As Barry Wilson reports in *The Western Producer*,⁵⁸

"For the second consecutive year, the CDC had to tinker with its cost-of-production formula to find a result it thought was reasonable. The issue both years has been to figure out how much to add for farmer labor costs."

Constant exceptions and changes to any formula add complexity and reduce transparency.

Cost of Production formula for export processors

In July 1990, the federal government instructed the CDC that it should devise a separate pricing formula for industrial milk destined for export as processed food. This complex formula not only sets the price producers receive, but also fixes the profit margins of the processors.

The formula anticipated Canada's signing of the North American Free Trade Agreement (NAFTA). In the original Canada-US Free Trade Agreement, Canada's trade barriers to dairy products and related processed foods remained in place. NAFTA removed the trade barriers on processed foods, though not on dairy products. Processed food processors, such as the baking industry, had to prepare to compete in a continental market. The federal government realized that if food processors paid the fixed domestic price for industrial milk, but sold the finished product into a relatively free market, they would be at a disadvantage.

Import controls and state trading enterprise

Overview

The whole effort to restrict domestic supply is lost if the consumer has access to imports from other countries or markets. Consumers will buy imported products if priced lower. As a result, supply management systems are generally accompanied by import controls. The three import controls are:

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⁵⁷ Office of the Auditor General, "Special Examination Report on Canadian Dairy Commission," May 10 2000, page 5. As a Crown corporation, the CDC does not have to make public the audits of its activities.

⁵⁸ Barry Wilson, "Processors Infuriated over Price Increases," The Western Producer, December 23, 1999.

- Import prohibition of sales,
- Quota restrictions that provide for a specific limited level of imports, and
- Tariffs.⁵⁹

State Trading Enterprises

The most effective way to maintain import controls is to require that producers in other countries can only sell to the host government through a specialized agency. They are called State Trading Enterprises or STE.

A major research report prepared for Agriculture Canada contains the following assessment of the economic impact of STEs:⁶⁰

"Literature to date generally assumes that the state-based nature or the grant of an "exclusive or special privilege" to STE automatically confers to them monopoly power, or at the least gives them considerable market power. Based on this presumption, STE are shown to result in poor market performance, cause undesirable trade outcomes or to be unfair competition to other world market traders."

A STE can have one, or some combination, of four functions. First, they can be responsible for selling a product outside the country. An example would be Canada's Wheat Board. Second, they can be responsible for buying products from abroad. Third, a STE may also serve as the purchasing agent for all quantities of a good entering the country. Finally, the STE may engage in promoting of export sales.

The Canadian Dairy Commission performs two of these functions. It coordinates sales abroad.

That is the CDC monitors all export sales conducted by the provincial milk boards. The CDC also purchases most of the dairy products imported into Canada, for instance, butter. The CDC does not concern itself with already expensive specialty cheeses such as French Brie or English Blue Cheese or Italian Parmesan.

The CDC does not shop for external dairy product sources nor does it any longer actively promote exports.

A recent OECD studies ranked the CDC as among the most restrictive of STE in the world in terms of import controls. ⁶¹ The Agriculture Canada study on STEs did not deal with the CDC directly, but the authors concluded, "import STE which have monopoly power on domestic production and which have some control/ownership of imports can distort trade." ⁶²

Changes arising from Uruguay Round

Overview

Since the end of World War II, nations have negotiated international treaties to allow for the freer trade in goods and services. The last agreement is called the Uruguay Round because negotiations began in 1987 in Punta Del Este, Uruguay. The treaty was signed in April 1994.

Trade in agriculture figured prominently in the Uruguay Round. Three key issues were agreed upon.

- To cap and reduce export subsidies
- To replace import controls with tariffs, a process called "tariffication,"

⁵⁹ WTO, Trade Report on Canada 2000 available at www.wto.org.

⁶⁰ Michele Veeman, Murray Fulton and Bruno Larue, "International Trade in Agricultural and Food Products: The Role of State Trading Enterprises," Agriculture and Agri-Food Canada, April 1999, page 13 available at http://www.agr.ca/policy/epad/english/pubs/wp-tp/tms/99025tp/statetra.pdf.

⁶¹ OECD, State Trading Enterprises in Agriculture, (Paris: OECD, 2001) page 85.

⁶² Veeman et al (1999) page 13.

 To institute minimum levels of market access for agricultural products

As a consequence of the Uruguay Agreement on Agriculture, the federal government made the following policy changes:

- It ended its direct export subsidy program for milk products,
- It applied high tariffs on milk and milk products, and
- It began to phase out its direct subsidy of milk producers.

Another consequence was that the Canadian Dairy Commission in conjunction with the provincial marketing boards altered the supply management system:

- They introduced a more elaborate classification system for the end uses of milk.
- They began a system of regional and national pooling of revenues from the sale of milk.

It should be noted that in the Uruguay Round, Canadian negotiators, while they supported ending export subsidies, opposed "tariffication" and minimum levels of market access. The reason they did so was to protect supply management. ⁶³ After seven years of negotiations, Canada had lost influence and had to accept "tariffication" and market access levels. Canada's lead agricultural negotiator, Michael Gifford, later explained: ⁶⁴

....we wanted to maintain import quotas in support of supply management. We held that position until literally the last couple of weeks in the negotiation. When the European Union agreed with the Americans that the name of the game was going to be tariffication and that all these import quotas, irrespective of whether they were legal or illegal, were going to be converted into tariffs, that position no longer became sustainable.

Mr. Gerald Shannon, another key negotiator and a former Deputy Minister of International Trade, provided a similar analysis to Members of Parliament. ⁶⁵

I personally wish we could have done more on European subsidies, but the fact of the matter is, we ourselves did have our hands tied behind our backs because of supply management. There's no question that at one point we were frozen out of negotiations between the U.S.A., Europe, Japan, and, God bless them, Australia, because the Americans didn't want us at the table reinforcing the Japanese supply management processes on rice.

This section will present the policy changes made as a result of Uruguay Round. The following section will then provide an economic analysis of the existing system.

Export subsidies

In the Uruguay Round, developed countries agreed to cap export subsidies and to subject them to annual reductions throughout the implementation period. By the end of 2000, the developed countries were to have reduced the expenditure upon and quantity levels of subsidized exports to respectively 36 per cent and 21 per cent below

The Canadian Statement on Implementation of the Agreement Establishing The World Trade Organization, Canada Gazette Part I, December 31, 1994, page 4871.

⁶⁴ Evidence to The Standing Committee on Agriculture and Agri-Food of Mr. Michael Gifford, Director General, International Trade Policy Directorate, Department of Agriculture and Agri-Food, December 2, 1997.

Evidence to The Standing Committee on Foreign Affairs and International Trade of Mr. Gerald E. Shannon, Former Deputy Minister of International Trade and GATT Uruguay Round Negotiator of the Government of Canada, March 2, 1999, page 13.

those of the base period (1986-88). At the same time, they agreed to allow small quantities of agricultural imports, including dairy, to enter their countries at preferential tariff rates.

Before the conclusion of the Uruguay Round, the CDC provided a direct export subsidies to assist in the sale

abroad of Canadian dairy products. The CDC used to collect through the provinces a levy from producers in order to reimburse dairy product exporters for some of the difference between the world and domestic prices. As well, the CDC offered rebates to countries purchasing Canadian dairy exports.

The CDC in 1994 ended its direct export subsidies and rebates.

Tariffication

Prior to the Uruguay Agreement, Canada had import quotas on milk, cheese and yogurt. Some quota was available for certain kinds of specialty cheeses.

The Uruguay Agreement required that Canada adopt "tariffication." Thus Canada shifted from import quotas to tariff rate quotas. The tariff rate quota divides imports into under quota imports and above quota imports. Low tariffs applies to under quota imports. High tariffs apply to over quota imports. Canada set its above quota tariffs at 299 percent for butter, 246 percent for cheese, and 202 percent for skim milk powder. (See Table 14)

TABLE 14						
Canadian	Tariffs	On	Selected	Dairy Products		

Products	Base Tariff	Final Bound Rate (2000)
Milk	283.8%, minimum \$40.6/hl	241.3%, minimum \$34.5/hl
Cheddar Cheese	289.0%, minimum \$4.15/kg	245.6%, minimum \$3.53/kg
Butter	351.4%, minimum \$4.71/kg	298.7%, minimum \$4.00/kg
Yoghurt	279.5%, minimum \$0.55/kg	237.5%, minimum \$0.47/kg
Ice Cream	326.0%, minimum \$1.36/kg	277.1%, minimum \$1.16/kg
Skim Milk Powder	237.2%, minimum \$2.36/kg	201.6%, minimum \$2.01/kg

Source: World Trade Organization, Canada Trade Review 2000

Minimum levels of market access

In the Uruguay Round, Canada with other developed countries agreed to allow imports of up to 5 percent of total domestic consumption to enter Canada at lower tariff rates.

While Canada agreed to a small quota of fluid milk to be imported, the government has never allowed any to enter formally. Instead the government declared that it had fulfilled its obligation by allowing cross-border imports by travellers and Canadians engaged in cross-border shopping with the US because "This quantity represents the estimated annual cross-border purchases imported by Canadian consumers." 66

Initially, Canada imposed a limit of \$C20.00 per entry on Canadians shopping for milk in the US. It never monitored this limit. No records were kept.⁶⁷ In 1999, Canada dropped the limit on what Canadians could buy but still maintained its fluid milk import quota was being met by cross-border shopping.

If the Dairy Farmers of Canada are correct and milk is cheaper in Canada, then no one would buy milk in the US. ⁶⁸ In that case, Canada has

⁶⁶ WTO Panel Report Canada – Measures Affecting the Importation of Milk and the Exportation of Dairy Products, 17 May, 1999, page 18 available at www.wto.org.

⁶⁷ WTO Panel Report Canada - Measures Affecting the Importation of Milk and the Exportation of Dairy Products, 17 May, 1999, page 18.

nothing to lose by allowing the quota for imported milk to be filled.

Direct subsidies

For reasons of both trade obligations and changes in overall agricultural policy, the federal government also decided to eliminate the direct subsidy to industrial milk producers. ⁶⁹ In 1994, a producer received approximately 10 percent of the target price of industrial milk as a direct payment. ⁷⁰ The value of the direct subsidy in 1994 was \$230 million. In 2000, a producer received only 2 percent of the target price as a direct payment and the program cost had decreased to \$60 million a year. After several postponements, the payments are scheduled to end on July 31, 2002.

From a consumer's point of few, the most troubling aspect of the withdrawal of direct subsidy payments is the question of whether the CDC will compensate producers for the loss of the subsidy by raising milk prices. The CDC's dilemma is that the removal of the direct subsidy is not explicitly part of the Cost-of-Production formula. A strict application of the COP formula would, therefore, lead to the producers' revenues declining by the same amount as the removed direct subsidy.

Concern is warranted given the following report in the Quebec producers magazine of the 2001 meeting of the Dairy Farmers of Canada.⁷¹

"Delegates took advantage of the presence of the CDC's chairman, Guy Jacob, at the DFC Conference to denounce this situation. They also pointed out that it was really the producers who were footing the bill for the government's consumer subsidy reduction policy. Initiated in 1993 as part of the federal government's budget cutting measures, the subsidy has been gradually cut from \$6.03 per hectoliter in 1993 to \$0.76 per hectoliter on February 1, 2001 and will be completely phased out on January 31, 2002. When the subsidy reduction policy was implemented, however, the Government had made a commitment to allow producers to recover the cutback from the marketplace through an equivalent hike in the target price. But, as a delegate from Quebec noted, the CDC added the subsidy recovery to the net price increase granted producers to cover rising production costs and made sure that the total of both amounts did not exceed the General Consumer Price Index. so, producers were actually subject to the subsidy cuts without really recovering them."

At present, it is unclear whether the CDC has made a commitment to the producers to replace the subsidy with higher prices. It should be noted that in 2000, the CDC raised the price of industrial milk by 3.5 percent while the cost of production only increased by 0.1 percent and the Consumer Price Index rose by only 2 percent.

Special Class of Milk and Regional Pooling

As a result of the Uruguay Round commitment, The CDC had to devise an alternative to its previous policy of subsidizing exports.⁷² A Dairy

⁶⁸ DFO press release, January 31, 2001 for November 2000 found at http://www.newswire.ca/releases/January2001/31/c3524.html

⁶⁹ Canada has had a long history of providing direct payments to dairy producers. From 1958 to 1975, 80 percent of the direct subsidies provided to agricultural producers through the Agricultural Stabilization Board went to dairy producers. From 1975 to the mid-1990s, the federal government through the Canadian Dairy Commission transferred over \$200 million a year to producers of industrial milk and cream. In total during these years, taxpayers provided dairy producers with more than \$2 billion.

⁷⁰ All data from OECD MKCAN1.XLS.

⁷¹ Jean Vigneault, "Dairy Farmers of Canada Policy Conference," *Le Producteur du Lait*, Volume 21, Issue 6, March 2001 at http://www.lait.org/en/zone3.

^{72 1994/1995} Annual Report of the Canadian Dairy Commission, page 4.

Industry Strategic Planning Committee was established. It was largely made up of members of the CMSMC. The CDC chaired the committee and did the research. In October 1994, the committee recommended the implementation of a "classified pricing system based on the end use of milk, national pooling of market returns, and coordinated milk allocation mechanisms."⁷³ The CDC alternative was to create formal categories of milk and to pool the proceeds from their sale.

The federal and provincial Ministers of Agriculture agreed in December 1994 to the new classification and pooling plan. They also agreed that the CDC Act should be amended to allow the CDC to administer the plan. The Comprehensive Agreement on Special Class Pooling came into effect on 1 August 1995.

Under that system, industrial milk is classified and priced according to the end use of raw milk. Prices for domestic bound products reflects the target return for producers. Although the prices for these classes are established independently in each province by the provincial marketing boards, the boards have agreed in the regional pooling arrangements not to have large differences in these prices.

Under the pooling agreements, individual producers receive the average of all the different kinds of milk prices weighted by the particular amounts sold. For instance if a producer only sold his milk for sale as powdered skim milk, a lower-priced end use, he would still receive the same return as if he sold his milk in the same proportion as overall milk sales. As well, milk that is within a producers' quota is paid at the high domestic price. Production above the quota is paid the much lower world market price.

The CDC administers the Special Classes and the Pooling system on behalf of the industry. It does not technically have responsibility for it. The Canadian Milk Supply Management Committee oversees the implementation of the Comprehensive Agreement on Special Class Pooling.

The Special Classes⁷⁴

The reader does not really need to know the various classifications of industrial milk to appreciate that the goal is to treat separately raw milk for export production from raw milk for domestic consumption. (They are however contained in Table 15.) Classes 1 through 4 are for dairy products for domestic use. Class 5 covers milk destined for further processing and export. Raw milk priced under Class 5 includes:

- Class 5(a) Cheese ingredients for further processing for the domestic and export markets.
- Class 5(b) All other dairy products for further processing for the domestic and export markets.
- Class 5(c) Domestic and export activities of the confectionery sector.
- Class 5(d) Specific negotiated exports including cheese under quota destined for United States and United Kingdom markets, evaporated milk, whole milk powder and niche markets.
- Class 5(e) Surplus removal.

Class 5(a) and (b)

The purpose of the 5(a) and 5(b) category was to prevent Canadian food processors finding themselves at an overwhelming disadvantage in the

^{73 1994/1995} Annual Report of the Canadian Dairy Commission, pages 3-4.

There has been a recent change in the classifications which can be found in the table 4. For the purposes here, it would only serve to confuse to shift back and forth between the old categories which are now being contested in the WTO and the new categories.

TABLE 15
Milk Class Definitions and Volumes

Milk Volumes and Component Quantities Calendar Year 2000 Cumulative (January 2000 To November 2000)

		Total (hl)	Canada (%)
1A	Fluid milks	22,774,246	33.6
1B	Fluid creams	1,503,413	2.2
1C	Milk-based beverages	1,237,481	1.8
1D	Fluid milks for the Yukon, Nunavut		
	and the Northwest Territories	51,399	0.1
2	Yogurt and ice cream	2,492,905	3.7
3A	Specialty cheeses	13,446,476	19.8
3B	Cheddar	9,854,345	14.5
4A	Butter, powders and condensed milk		
	for ingredient purposes	2,494,017	3.7
4B	Condensed milk for retail	486,477	0.7
4C	New products for the domestic market	1,366	0.0
4D	Inventory milk and plant losses	330,905	0.5
4M	Domestic marginal markets	28,483	0.0
5A	Cheese for further processing	1,671,692	2.5
5B	All other dairy products for further		
	processing	730,993	1.1
5C	Confectionery	933,487	1.4
5D	Planned exports	3,516,176	5.2
5E//	Adjust.	1,782,635	2.6
OEF	•	1,133,071	1.7
TOT	TAL .	67,827,853	

Source: Professor Danny Le Roy and www.dairyinfo.agr.ca

competitive continental retail market. To do so, the CDC linked Class 5(a) and (b) prices to US industrial milk prices.

Complicated rules govern who pays for 5(a) milk at US industrial prices and who pays the higher domestic prices. For instance, manufacturers of frozen pizzas receive US-priced industrial milk to make mozzarella. They contend correctly that they compete in a continental market. Some industries who do not face international competition also get industrial milk or butter at US-based prices. The criteria is whether they can use butteroil as an alternative to industrial milk. The CDC allows these processing companies to

pay US-based prices in order to prevent them from switching to butteroil.

Canadian industries held hostage to higher domestic prices have complain. For example, the Canadian Restaurant and Food Association requested the CMSMC to grant a US price permit to the processing companies who make mozzarella for use by domestic pizza restaurants. The CMSMC turned them down. The CRFA complained and launched a suit in the Federal Court of Canada.

The Federal Court ultimately ruled that it had no jurisdiction over the CMSMC as it was comprised of provincial officials.⁷⁵ The justice found that the CMSMC was not a federal agency. This raises the question of why the federal government contributes to its activities.

Class 5(e)

The Class 5(e) is made up of both in-quota and over-quota milk. The *over-quota* portion of Class 5(e) represents the production that is in excess of the MSQ. The *in-quota* portion of Class 5(e) exports represents the milk production that is surplus to domestic and planned export needs.

The CDC collects the data and does the necessary calculations for the consideration of the CMSMC. The price of milk in Class 5© is negotiated between the CMSMC and the confectionery manufacturers.

⁷⁵ Federal Court of Canada, *Canadian Food and Restaurant Association vs. Canadian Dairy Commission*, July 7, 2001 found at http://decisions.fct-cf.gc.ca/fct/2001/t-1916-99.html.

Prices for Classes 5(d) and (e) are negotiated and established on a case-by-case basis with the processors/exporters. The CDC conducts these negotiations.

The last two classes of milk 5(d) and 5(e) led to the trade dispute with the US and New Zealand. The disagreement is discussed later under the section *Trade Implications*.

Pooling

There are three major pooling agreements in Canada:

- the Comprehensive Agreement on Special Class Pooling, (the "P9") which deals with the pooling of revenues from the Special Classes;
- the Western Milk Pooling Agreement (the "P4"); and
- the Agreement on All Milk Pooling (the "P6").

The Comprehensive Agreement on Special Class Pooling deals with industrial milk for domestic and export processing. It now includes all ten provinces. The pool of returns for Class 5 industrial milk also has a small share of the returns from sales in other classes.

The CDC uses Quebec as its standard for determining the percentage of milk returns to be pooled. Quebec has the highest percentage of milk in Class 5. Thus, if Quebec sells 20 percent of its MSQ (Market Sharing Quota) milk into Class 5 while the other provinces are in the 4 to 5 percent range, then 20 percent of all MSQ milk will be in the national pool for Class 5 milk. This has the effect of transferring income from provinces

that have a larger percentage of higher priced fluid milk production for domestic consumption to provinces with a bigger percentage of lower priced industrial milk production for export.

Pooling of returns in this fashion results in a "sharing of the burden." Every province pays for the export of the "structural" surplus of milk whether they generated any surplus or not.

Revenues from all other in-quota sales of milk are pooled between provinces in two regional pools.⁷⁶

The result is that each provincial board in a regional pooling arrangement receives:

- a regional average return for all its Class 1-4 sales;
- a national average return for all of its adjusted Class 5 sales derived from in-quota milk; and
- an average world market return for any overquota shipments.

It is difficult to understand why there is not just one national pool as that would lead to the most complete "sharing of the burden." One can only guess that regional rivalries still play some role in supply management policies.

Economic analysis of supply management: how it affects consumer welfare

Overview

Economists have examined the effect of supply management on the competitive nature of

There are some small exports of industrial milk products, mostly skim milk powder, that come from milk produced outside of the quota system and are not pooled. For instance, Quebec sends skim milk powder to Cuba and Morocco. Both the Ontario and Quebec milk boards previously ran an Optional Export Program (OEP). OEP contracts were negotiated between the provincial marketing board and a processor. The board then offers the agreed terms to the producers who can voluntarily accept to produce for the OEP contract. The revenues from over-quota sales at international prices were not pooled with that from domestic sales or in-quota export sales. The OEP programs were discontinued as they were cited in the US-New Zealand trade complaint before the WTO. Milk produced and sold for export outside of the classification system is now simply called Milk for Export Contracts.

markets through standard welfare analysis and "public choice" analysis. The first approach seeks to explain and quantify the consumer loss resulting from imperfect competition whether market or government induced. The second approach seeks to explain the associated and additional costs of "rent seeking" behavior. The following description employs both approaches.

There are seven welfare effects associated with supply management

- Consumer welfare transfer from monopoly
- Deadweight loss from under supply of product
- Consumer welfare transfer from price discrimination
- Social loss (consumer and producer) of "rentseeking" expenditures
- Producer loss from "transitional gains trap"
- Producer loss of efficiency
- "Transition Gap"

Supply management is a cartel not strictly a monopoly

The best known definition of imperfect competition is that one market actor holds a monopoly over the sale or purchase of a good. One actor either buys or sells all of a product and, therefore, by virtue of market power can determine the price. No other actors can enter the market. Canada's supply management system is not a monopoly in the strict sense, but the effect on consumer welfare is largely the same.

Milk production remains a contestable market in that new entrants can purchase quota and other assets, such as cows, from existing quota holders in order to enter the industry. Dairy producers do not receive monopoly rents in that they do not control entry and access to the market. Milk producers receive producer rents as a result of the

federal and provincial governments artificially controlling supply and fixing the prices charged.

The milk market may be best described as a government-supervised cartel. A cartel is an agreement among producers to fix the supply produced and to price the good in response to this artificial scarcity.⁷⁷ The essence of the cartel is to set a target price for producers above the marginal cost of production, what it costs to produce one additional unit, then restrict production to the level demanded at that price.

Producers on their own could, of course, agree to create a cartel. The difficulty in sustaining private cartels is described as the "free rider" effect. Producer are tempted to increase their revenues by sell more than their allotted production quota at a slightly reduced price. A producers seeks a "free ride" to gain additional profits from the situation in which other producers restricts their supply at a fixed price. As soon as one producer defects from the discipline over supply, others tend to follow and competitive behavior returns. This has been claimed to have been the experience of various private cartels before the advent of government-sanctioned supply management.

For a cartel whether in milk, oil or sugar to be sustainable, producers must rely on an external enforcement. Canada milk producers relied first on the provincial governments. In order for the various provincial cartels to control the inter-provincial sale of milk, it was necessary to enlist the federal government as an overall enforcement agent.⁷⁸

The effect on prices of a government-supervised cartel often, though not always, resemble that of private or public monopoly: prices increase above the level found in competitive markets.

⁷⁷ Geoff Stewart, "Cartels", Economics of Industry, 18(1), September 2000.

⁷⁸ See "Evolution of the Canadian Supply Management System," at CDC website http://www.cdc.ca/supply.html .

Consumer welfare effect from monopoly

The theory of monopoly states that a monopolist extracts above average profits by restricting output and hence increasing prices above its perfectly competitive level.

A simple supply and demand figure illustrates the point. (See Figure 3) In a free market, supply and demand are in equilibrium at Pc and Qc. At that point the marginal cost of production equals the marginal value of output to consumers. The quantity of product the consumer wants at that price is the same as the quantity of the product the producer is willing to supply at that price. The consumer's surplus is measured by the triangle b Pc B and the producer's surplus by the triangle as a Pc B. The total or social gain is represented by triangle a B b.

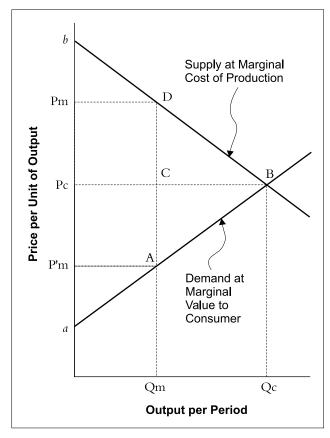


FIGURE 3 Supply-Demand Measurement of Consumer Welfare Effect

The effect of supply management is to move the market from equilibrium at point B to an artificial conjuncture of quantity and price, point D. The quantity supplied decrease from Qc to Qm and the price increases from Pc to Pm. The distance between Pc and Pm represents the difference between the price the producer now receives and the actual marginal cost of production under competitive conditions.

As a result, consumer surplus triangle shrinks from *b* Pc B to *b* Pm D. The producer surplus expands from *a* Pc B to *a* Pm D A.

Observe that as the consumer surplus decreases and the producer surplus increases, the total or social gain shrinks from *a* B *b* to *a b* D A. The net loss is represented in the triangle A B D.

Under conditions of monopoly supply, a net loss occurs for everyone, consumer and producer alike. That loss is called the deadweight loss and discussed next.

Finally one should bear in mind that society has all sorts of income transfers through taxation. An income transfer is not necessarily a loss unless it is coercive. Canada is a democratic country. If citizens organized against supply management, they would vote out of office whatever politician supported it.

The role economics can play in the broader public policy debate is to identify the size of the transfers so that elected representatives can make an informed decision.

In order to measure the consumer loss and deadweight loss resulting from milk supply management, there is only one missing number from the above figure. What we do not know is the marginal cost of production for Canadian milk producers. There is a way to estimate and that is discussed.

Deadweight loss

The loss known as the deadweight loss is represented by the triangle, A B D, in the above diagram. The loss occurs because people stop buying the product. In the diagram, the triangle represents the consumer surplus that would have been generated by consumption of the good, now neither produced nor consumed.

Restated, the dead-weight loss represents how much consumers do not buy (and thus producers do not produce) as a result of artificially set prices and administered supply.

The deadweight loss generates a net loss for the consumers larger than the net gain of farmers. The reason is that the marginal benefit to the consumer of consuming one more unit is greater than the marginal cost of producing one more unit. Stated another way, consumers lose more than farmers gain from policy intervention.

Price discrimination and revenue pooling

A distinguishing feature of the current supply management system is the higher price paid for fluid milk than for industrial milk and the pooling of revenues from both.⁷⁹ Price discrimination occurs between types of milk and between domestic and international markets.

One might legitimately ask, "Why have two or more prices for milk products?" It is not as if there are industrial milk cows producing industrial milk and table milk cows producing table milk. Cows are cows and milk is milk.

The following explanation for the consumer loss for price discrimination between fluid and industrial milk applies equally to price discrimination between domestic and international markets. The reason for the consumer loss lies in the different elasticities of demand for fluid milk and industrial milk as described above. Consumers will continue to consume fluid milk steadily even if the price increases. Consumers will switch to substitute products if the price of industrial milk (and its derivative products) increases.

For the milk marketing boards, the differences in demand pose a significant problem because producers would want to produce milk for the fluid market to receive the higher price. That could lead to potential competition among producers.

Price discrimination and pooling solves the problem for the producers. A price discrimination policy charges a higher price for fluid milk because the demand is relatively inelastic, thus the price difference will lead to only a small decline in consumption.

At the same time, a lower price for industrial milk can lead to an increase in consumption of industrial milk products. At the aggregate level, the total milk supply increases.

To prevent competition breaking out among producers, the milk marketing boards pool the revenues from fluid and industrial milk. The burden of everyone not receiving the fluid milk price is shared among all producers. The blended price still remains above the competitive price.

The shaded areas show the effect of the price-discrimination policy on each market group. Fluid-milk consumers will lose as a result of higher prices at the same level of consumption. The loss to the fluid consumer can be substantial. Consumers of industrial milk products (such as cheese, butter, and dry milk) do benefit from price discrimination because of lower prices. This benefit could be relatively small, however, since

⁷⁹ See appendix in Kevin McNew, "Milking the Sacred Cow: A Case for Eliminating the Federal Dairy Program" *Policy Analysis*, 362, December 1, 1999, Cato Institute.

under a discrimination policy the industrial milk price may be only marginally lower than the competitive market price.

Producers gain because they are able to sell more milk at the higher blend price than they could sell at the competitive price. The small benefit received by the consumers of processed products is outweighed by the larger loss incurred by fluid milk consumers.

Economic effects of price discrimination (domestic and international pooling)

The economic distortions from price discrimination between different kinds of domestic milk are essentially repeated when the proceeds of domestic and international sales are pooled. In the domestic market, fluid milk prices respond to the inelastic demand for the product and industrial milk prices reflect a more elastic demand: thus, producers try to maximize their returns with a single price. In the global market, domestic prices reflect relatively inelastic demand (in a supply management system) and international prices reflect a market with highly elastic demand. Producers cannot force a single price. Therefore, they pool the revenues of international and domestic sales in order to share the burden of expanded sales (at lower prices) into inelastic international markets. In short high domestic prices subsidize expanded international sales.

Economists, D.P. Blayney and R. Fallert, have modeled the impact of pooling domestic and international returns using a two-country example. Country A has a pooling and export subsidy in place. They found the following results.⁸⁰

 Country A's consumers paid the lower prices before price supports and the export subsidy program were introduced.

- Country A's export subsidy depresses world prices for dairy products. Consumers in the world market purchase dairy products at lower prices while milk producers in the world market receive lower prices for their products.
- The government of Country A finds it cheaper to subsidize the exports of dairy products rather than purchase the entire quantity of dairy products produced at the support price.

US government economist, John Wainio explains below how exports from a supply-managed country distort international prices.⁸¹

"It (supply management) prevents efficient distribution of production and processing across countries, or across regions within a country. By introducing a wedge between domestic and world prices, supply management raises consumer prices, while requiring import restrictions to prevent an influx of lower priced foreign goods. Were it not for production quotas, surplus stocks would likely accumulate in the face of high domestic price supports. Occasional and inevitable surpluses still occur, but under pure supply management these are controlled through quota or stock adjustments or by subsidizing exports.

When a country is a net importer at the world price, supply management results in trade distortion. If supply management imposes no controls over the amount farmers produce, and if over-quota production is exported at a lower price, trade distortion increases. High domestic prices from supply management distort trade both by reducing consumption and providing some producers a solid base on which to expand output. Trade distortion continues whether or not the government is directly involved

⁸⁰ Blayney, D.P. and R. Fallert, "The World Dairy Market – Government Intervention and Multilateral Policy Reform," ERS-USDA Staff Report No. AGES 9053, August 1990.

⁸¹ John Wainio, "Canada's Subsidized Dairy Exports: A Case of WTO Compliance," ERS, USDA Special Report, *Agricultural Outlook*, August 2001.

in allocating product between the domestic and export markets."

Price discrimination and pooling provide producers with returns above the marginal cost of production. The prospect of that return stimulates more production than would occur if the price received was the world price. As production increases while domestic consumption remains sheltered from import competition, imports fall and exports increase further distorting the market.

Social loss from rent-seeking

The deadweight loss calculated above underestimates the total social cost of the supply management system because it hinges on the assumption that the system can be maintained costlessly. Producers will spend a great deal to preserve their above average returns (or rents).

The government faces a barrage of pressures from "rent-seeking" producers. ⁸² The public's interest in contrast rarely finds articulate expression as the loss to any one individual is small. Consumers are not sufficiently motivated to counteract the producer groups.

Economist Gordon Tullock employed the analogy of theft to explain the problem of rent seeking.⁸³ The transfer of wealth from victim to thief involves no social loss. It is a direct transfer

and society's wealth remains unchanged. However, the opportunity for such transfers encourages the thief to invest his resources (human capital and tools) in theft. The thief invests in "rent seeking." The public meanwhile, aware of the possibility of theft, will invest in locks, and alarms to prevent the transfer of wealth. Both the thief and the homeowner have employed resources unproductively regardless of whether or not a theft takes place. Society would benefit more if both parties invested in the production of goods and services for consumption. The net result is the inefficient use of resources.

Judge and economist Richard Posner has argued that producers will pay up to the sum value of the rent and the deadweight loss in order to maintain the rent. He estimated that some industries pay up to 30 percent of annual sales in "rent-seeking" expenses.⁸⁴

The cost of rent-seeking activities is difficult to calculate because many different actors are seeking to influence government policy. At a bare minimum, one would include the costs of all the regulatory agencies involved with supply management as they represent the outcome of previous lobbying. The Canadian Dairy Commission, itself, has a budget of \$5.5 million. The Dairy Farmers of Ontario spend \$14 million a year. ⁸⁵ The Quebec producer association spends \$40 million a year in administration and promotion. ⁸⁶

⁸² There is an extensive literature analyzing this process, called "Public Choice" analysis. See Chapter 3, "Public Choice Theory," in Nicholas Mercuro and Steven G. Medema, *Economics and the Law: From Posner to Post-Modernism*, (Princeton: Princeton University Press, 1997). A critical essay is James M. Buchanan, "Rent Seeking and Profit Seeking," in *Towards a Theory of the Rent-Seeking Society*, edited by James M. Buchanan, Robert Tollison and Gordon Tullock, (College Station: Texas A&M University Press, 1980), pp.3-15.

⁸³ Gordon Tullock, "The Welfare Costs of Tariffs, Monopolies and Theft' Western Economic Journal, 5, 1967, pp. 224-232. For Tullock's discussion of the impact of the article see his "The Fundamentals of Rent-Seeking," The Locke Luminary Vol. I, No. 2 (Winter 1998) Part 2found at http://www.thelockeinstitute.org/journals/luminary_v1_n2_p2.html.

⁸⁴ Richard Posner, "The Social Costs of Monopoly and Regulation," Journal of Political Economy, 83 (4) August 1975, pp. 807-827.

Dairy Farmers of Ontario, "Statement of Operations" in *Annual Report* 2000 found at http://www.milk.org/download/ DFOfinancials.pdf

⁸⁶ Association of Quebec Milk Producers, Annual Report 1998, Resultats, p. 43 at http://www.lait.org/en/zone3/index5.asp

Producer losses from "transitional gains trap"

Producers in their "rent-seeking" activities not only seek rents from the consumer, but also from other producers. The sale of quota presents the opportunity for producer upon producer "rent-seeking."

Economists have observed the following economic consequence of production quotas resulting from government policies. Quotas become "capitalized" and thus the gains become "transitional." Capitalized means that quotas take on a value greater than zero as producers successfully lobby the government. However, the capital value of this regulatory asset does not last beyond one or two sales of the quota. Economist Gordon Tullock described the effect as the "transitional gains trap." 87

In simple terms, the initial quota holder receives the greatest benefit. As the initial holder received the production quota either for free or for a small amount as a consequence of joining the supply managed market, they stand to receive a "windfall" capital gain when they sell the quota.

The subsequent quota holder, however, will receive a lower return for two reasons. First, the value of the quota upon purchase has already incorporated the expected value of long-term above marginal cost returns. The new purchaser of quota will only receive an average return. At the same time, they have taken on the risk of a loan to pay for the value of quota. Thus the capital gain upon the subsequent re-sale of the quota will be reduced by the service costs of the loan.

After the quotas were sold, the new owner does not benefit at all, unless the burden on consumers is *increased* further. The money taken away from the consumer goes to the bank through interest on the loan serviced by the buyer of the quota. The bank in turn implicitly passes these payments on to the seller of the original quota, likely to be retired.

The possibility of a "windfall" capital loss due to the removal of quota, however, makes it difficult for future governments to do so. Professor Richard Barichello has found that the risks associated with holding agricultural production quotas leads to considerable instability in their value.⁸⁸

Producer loss of efficiency

Another side effect of a supply management cartel is that it discourages expansion and thus, in the case of dairy production, decreases efficiency. How this works is that once the value of the quota rises reflect long term above marginal cost returns, a producer can no longer achieve a higher rate of return by expanding production. The potential increased profits from greater economies of scale transfer to the quota seller.

In a competitive milk market, herd size correlates directly to efficiency and profitability. ⁸⁹ The larger the herd size, thus the greater the income, the stronger the incentive to boost efficiency by adopting new technologies. A producer needs a large herd to generate sufficient income to finance large capital expenditures on improved dairy barns and milking machinery.

In the 1980s, the value of quota, paradoxically, may have provided an incentive for increasing herd size and thus efficiency among Canadian producers. The value of quota provided an "exit

⁸⁷ Gordon Tullock, "Transitional Gains and Transfers," Cato Journal, Vol.6 (1), Spring/Summer 1986, pp. 143-154.

⁸⁸ Richard Barichello, "Capitalizing Government Program Benefits: Evidence of the Risk Associated with Holding Farm Quota," in J.M. Antle and D.A. Sumner, eds. *The Economics of Agriculture, Vol. 2, Papers in Honor of D. Gale Johnson*, (Chicago: University of Chicago Press, 1996), pp. 283-299.

For discussion of this effect see Sara B. Short, "Structure, Management and Performance Characteristics of Specialized Dairy Businesses in the United States," ERS, USDA, Agricultural Handbook, No. 720, September 2000.

incentive" for producers, who had received the quota for free a decade earlier, to leave the industry, but still keep their properties. "As a result, Canada in the early 1980s lost more dairy farms and saw the faster growth of herd sizes than the United States," according to Jim Miller in charge of dairy research for the US Department of Agriculture. Today if a producer has purchased quota through a loan, the capital value of quota asset will net out to be quite small and thus not provide a strong incentive to exit the industry.

Another efficiency loss of a rigid quota system is the potential mal-distribution of production across a country. As regional market shares do not tend to change, production does not migrate to areas of either lower production costs or greater demand. Production quotas are now rarely transferred through inter-provincial exchanges. The efficiency loss comes from producers' not taking advantage of lower production costs.

"Transition Gap"

The "transition gap" is a simple idea to explain why it is so difficult to change bad policies. Individuals are reluctant to give up a steady, even if low, return for a higher, but not guaranteed, return. Individuals are often adverse to risk to a level beyond their own self-interest.

The classic example is as follows. An individual is offered the choice of 10 dollars right away or a one in ten chance of winning 1000 dollars. The value of taking the chance is the odds of winning times the pay out. In this case, it is 100 dollars. As 100 dollars is more then ten, it "pays" to take the chance. Considerable research has shown that more individuals than not will simply take the ten dollars.⁹¹

Milk producers have a significant stake in maintaining the status quo of supply management. They view the system almost as if it was an endowment. They have both a financial and an emotional stake in the continuity of the system.⁹²

They tend not to calculate correctly the chance to increase their income from free trade and the removal of supply management.

In the transition from supply management to free trade, however, there is the possibility of initial losses. It will take some time to earn the revenues to cover those losses, even though the eventual revenue may more than compensate for the initial losses.

Some form of compensation is often used to help individuals bridge the "transition gap" of initial losses. An example is that often governments will allow individuals leaving welfare for paid employment to keep certain benefits for a year or so.

What is the size of the consumer loss and the deadweight loss due to supply management?

Overview

The comparison of Canadian prices to US prices and to international prices shows price distortion. Economic analysis suggests why prices are distorted. The use of economic tools allows for an economic estimation of the consumer loss due to supply management.

The key to this measure is estimating the difference between the government-regulated target price for milk and the actual marginal cost of production. That is the difference between what

⁹⁰ Personal interview.

⁹¹ D.R. Kahneman and R.H. Thaler, "Economic Analysis and the Psychology of Utility: Applications to Compensation Policy," American Economic Review, Vol. 81, May 1991, pp. 341-346.

⁹² Daniel Kahneman, Jack L. Knetsch & R.H. Thaler "The Endowment Effect, Loss Aversion and Status Quo Bias: Anomalies," Journal of Economic Perspectives, Winter 1991, pp. 193-206.

the producers receives for a unit of milk and what it costs to produce that additional unit.

The value of the quota reflects the cartel's efficiency at transferring income to producers from consumers. The existence of production quotas does not necessarily lower consumer welfare. Quota only reflects the welfare loss caused by limitations on supply and fixed pricing. If the value of production quota is zero then the market will be competitive, thus the fixed price is the actual marginal cost of production.

If a cartel is successful in transferring income to producers, however, existing producers will wish to expand and new actors will seek to enter the market. Together, they will bid up the value of the quota.

Through the bidding process, the value of the quota will come to reflect:

- The difference between the set price and the marginal cost of production,
- The risk of the system being changed, and
- The number of years remaining in which the producer plans to operate.

If the Cost-of-Production formula reflected the actual marginal cost of production then the value of quota would be zero. Remember that the purchase and loan-service costs of quota are not directly included in the COP formula.

A simple explanation for how the COP formula is able to deviate from the actual marginal cost of production is that it uses fixed coefficients for the different inputs. It disregards the possible substitution of relatively cheaper inputs. As well, the COP formula does not take into account increases in productivity resulting from, for instance, the use animal pharmaceuticals, selective breeding or now the genetic modification of livestock.

That a unit of quota has any value at all means that the supply managed price of milk is higher than the marginal cost of producing one more unit of milk. Assume that the value of holding the right to produce an additional unit of milk is equal to the cost of producing that additional unit. The producer then would either not purchase (from another producer, though in theory from the government) an additional unit of quota. If he did, however, he would only pay a small price.

Across Canada, quota values are substantial and rising.

The value of quota and the marginal cost of production

Dairy economists in Canada ask this question: "What is the actual marginal cost of production of milk?"

If you know the marginal cost of production of milk, you can compare it to government set price of milk. That comparison will tell you two things that are really the same thing.

- The gain by the milk producer by having government-set prices rather than free market prices, and
- The loss to the consumers by having government-set prices rather than free market prices.

This cannot be made any more explicit than in the quota calculation toolbox offered by the BC ministry of agriculture. The template calculates the "Quota Investment to Avoid World Price Impact on Cash Flow."⁹³

To arrive at a more accurate estimate of the value of quota, you have to apply an appropriate discount rate. The discount rate would reflect not only the cost of borrowing money from a bank to purchase a unit of quota but also the political and

⁹³ Found at http://fbminet.ca/bc/tools/quota.xls.

trade risks to the supply management system, itself.

To repeat, the price of quota reflects the difference between the government-set price of a unit of milk and marginal cost of producing it, appropriately discounted.

For that reason, dairy economists have studied the prices of quota in Canada in order to understand the welfare gains and losses of supply management.

The theory is simple enough, but data gaps have forced economists in to making complicated estimations.

The first step is to recognize that quota is an asset that provides the producer an annual return.

As quota is an asset its value can be understood through a simple capital asset pricing equation.

The equation below states that the capitalized value of a quota is equal to the sum of its future returns adjusted for some discount rate.

$$V_0 = R/i$$

 V_0 is the current capital value of the asset. R is the average annual return and the i is the average discount rate.

It is basic algebra, if you know two variables in an equation, you can solve for the third.

The problem here is that only one value is known (and then only recently). That value is the current capital value of the asset, quota. Before coming back to discuss the other two values and put the formula, it is important to explain the price and value of quota.

The value of quota

Even though quota exchanges began in the 1980s, it is very difficult to understand the historical data. First of all there was an institutional reluctance to release quota prices. Then there was the difficulty that some provinces had a two quota system, one for fluid milk and one for industrial milk. Fluid quota was denominated in dollars per daily liter and industrial milk was denominated in dollars per annual kilograms of butterfat. To further complicate matters, industrial milk quota was sold as either used or unused quota. Unused quota as more expensive as it allowed farmers to produce industrial milk in the current dairy year. Used quota allowed farmers to produce industrial milk in the subsequent dairy year. The upshot is that given the complexity of the system prior to 1995, it is difficult to know the actual prices of quota.

Since 1995, quota prices have become a little easier to understand. For one, quota prices are now translated into production of kilograms of 3.6 percent butterfat. There is a daily butterfat production quota price and a yearly cumulative butterfat production price. Here are some useful "generalization" numbers.

- The quota to produce 1 kilogram of butterfat for one day allows a producer to ship 25 liters of milk.
- The yearly quota to produce 1 kilogram of butterfat daily allows a producer to ship 9125 liters of milk.
- The average cow produces 8960 kilograms of fluid milk in a year or 9216 liters a year.⁹⁴

Gerd Andres, Senior Business Analyst with the Alberta ministry of Agriculture, Food and Rural Development, maintains a website giving the price of quota in all the ten provinces. In giving the prices, he blends the industrial and fluid milk

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⁹⁴ The transformation of kilograms into liters uses the weight to volume conversion rates for milk found at Professor Kennelly's web page, http://www.afns.ualberta.ca/drtc/dp472-4.htm.

quota prices where appropriate. ⁹⁵ June 2001 quota prices are used as they are the latest available. Gerd Andres has also done a historical series back to August 1995.

In June 2001, the price of quota to produce 1 kilogram of butterfat a day for a year ranged from a high of \$70.68 in Nova Scotia and \$65.48 in Quebec to a low of \$40 in Saskatchewan. In Ontario it was \$49.04.

One then has to figure out how much milk under quota is produced in Canada. The CDC has a chart showing total milk production by province for 1999-2000 dairy year.⁹⁶

If you multiply the provincial prices of quota by the provincial production of milk, you end up with an approximate value of all the quota held in Canada. **The amount is quite large, \$16 billion.** (See Table 16)

Agriculture Canada calculates the average farm asset value in 1999 for a dairy producer at \$1.6

million.⁹⁷ The number of dairy producers is 20, 576. By multiplying the two, you get a total for the asset value of Canadian dairy producers of \$33 billion. The value of quota has now reached the point where it is half the value of all the other assets held by Canadian dairy producers. Supply management in milk has created an immense asset bubble based solely on regulatory restrictions on supply and price.

The value of quota is going up

The question is whether value of quota is going up or down?

Professor Bill Stanbury, formerly of the University of British Columbia, calculated the cost of quota for the dairy year 1996-1997 and presented his findings at a conference in Calgary in March 1998 sponsored by the Canadian Property Rights Research Institute. He estimated the value of quota then at \$11.85 billion.

TABLE 16
Value of Quota Across Canada in 2000-2001

Value of Quota Across Callada III 2000-2001						
	Kilograms of Butterfat (millions)	Hectolitres of Milk (3.6 bf) (millions)	Percentage of total quota	Pro	ovincial Value of Quota \$/kg.	
Prince Edward Island	3.66	0.84	1.8	\$53.70	\$196,590,685	
Nova Scotia	6.52	0.56	1.2	\$70.68	\$460,795,068	
New Brunswick	4.88	0.57	1.3	\$56.71	\$276,586,027	
Quebec	111.27	21.40	47.3	\$65.48	\$7,285,636,712	
Ontario	97.17	14.18	31.3	\$49.04	\$4,765,589,507	
Manitoba	10.80	1.56	3.5	\$43.84	\$473,556,164	
Saskatchewan	7.52	1.24	2.7	\$40.00	\$300,600,000	
Alberta	22.27	2.84	6.3	\$60.46	\$1,346,345,154	
British Columbia	21.98	2.07	4.6	\$52.20	\$1,147,095,000	
Canada	286.056	45.26	100.0	\$54.68	\$16,252,794,319	

Source: Canadian Dairy Commission and Gerd Andres, Alberta Ministry of Agriculture, Food and Rural Development.

If correct, the value of quota has increased by roughly 35 percent in five years.

If correct, what might explain the large increase.

Some research has documented the effect of higher prices on higher quota values. Professors Michele Veeman and Xiao-yuan Dong have shown that

⁹⁵ http://www.agric.gov.ab.ca/ministry/adb/quota_jun.html.

⁹⁶ http://www.cdc.ca/total_milk_ship.html.

⁹⁷ Farm Income, Financial Conditions and Government Assistance Data Book 2000, Statistics Canada and Agriculture and Agri-Food Canada, Table B 5 at http://www.agr.ca/spb/fiap/publication/databook/2001/db2001_e.pdf.

⁹⁸ W.T. Stanbury, "Property Rights Implications of Supply Management Marketing Boards," presented at Canadian Property Rights Research Institute conference, Calgary, March 20-21, 1998.

quota prices have tended to increase with increases in administered prices and also with increases in efficiency of milk production, as measured by larger average herd sizes. Thus a one percent increase in the target market price tended to lead to a six percent increase in the value of quota within five years. A one percent increase in herd size led to an 11 percent increase in quota values.⁹⁹ It appears that producers have been able to capture gains from efficiency increases as there is an arguable link between the size of a herd and the efficiency of the operation. On average Canadian producers may be less efficient than US producers because the average size of a Canadian herd is 56 cows as compared to 82 in the US.

There are three possible reasons for the increase in quota values and probably more.

- A substantive increase in the levels of administered prices as predicted in the Veeman model: (a 1 percent increase in price translates into an 6 percent increase in quota values.)
- Increases in per cow productivity due to technology and the ability of producers to buy more quota and thus to increase herd size.
- A sense among quota buyers that there is a lowered risk of threats to the quota system from changes either in government policy or international trade agreements.

At the end of the day, it is not even current dairy producers themselves who benefit from purchasing quota. The gains are captured by the sellers of quota. Moreover, as dairy producers borrow from banks to purchase quota, a portion of the profits from higher than free market milk prices flow to the banks in the form of interest payments.

Perspectives on quota

When Bill Stanbury presented his findings on the value of quota in Calgary, he used one measure that stole the show. Indeed, it garnered national attention when Terence Corcoran used it in an article.¹⁰⁰

He asked, "How much does quota make each milking cow worth?" Here is his answer.

It is useful to put the aggregate quota value (\$11.85 billion) into perspective. On a **per cow** basis, the quota value is \$10,161. That is based on the total number of dairy cows in Canada (1,166,200) in 1996/97. I am told that the average dairy cow has a value of about \$1000. On a **per farm** basis, the estimated quota value is \$497,889. This is based on the Canadian average of 49 cows per dairy farm. I am told that, on average, the value of the lands, buildings, equipment and cows for a dairy operation would be about the same amount, i.e., \$500,000. In other words, to enter the dairy farm industry one needs to spend as much on quota as on all of the other capital costs.

University of Lethbridge professor, Danny Le Roy, offers this re-calculation of Bill Stanbury's per cow estimation. 101 "After 1995 calculating the value of quota per cow is easier. Production quota is denominated in kg bf/day. A farmer who has 1kg of quota and whose herd has an average butterfat test of 4.0kg/hL can ship 25 liters of milk per day. The CDC web page states "The average production of cows enrolled in milk recording programs reached an impressive level of 8,960 kilograms of milk in 305 days of lactation. Protein and butterfat levels averaged 3.24 percent

⁹⁹ Michele Veeman and Xiao-yuan Dong, "The Economics of a Regulated Dairy Market: An Empirical Analysis of the Factors Determining The Values of Fluid Milk Quota," Staff Working Paper available at http://ideas.uqam.ca/ideas/data/wopalresp. html.

¹⁰⁰ Terence Corcoran, "The 'right' to gouge consumers," Globe and Mail, March 24, 1998.

¹⁰¹ Personal correspondence.

¹⁰²Found at http://www.cdc.ca/about_general.html..

and 3.69 percent respectively."¹⁰² Using these figures, the average cow produced 8960 kg of milk in 365 days (305 days lactating and 60 days dry). This implies the average cow produced 8960 kg milk/365d = 24.5 kg of milk per day. The average daily production of butterfat is 24.5kg milk*3.69 percent butterfat = 0.9 kg butterfat/day. If production quota is selling for \$20,000 kg bf/day, this implies the value of quota per cow in the milking herd is \$20,000*0.9=\$18,000."

By using this method, one finds that the value of cows is highest in Nova Scotia and Quebec and lowest in Saskatchewan and Manitoba.

When Professor Stanbury did this calculation in 1996, he found the per cow value of quota stood at only \$10,000. The difference in our the two calculations over a five year period may reflect differences in the quality of data. A lot more data about quota values is now available.

Gap between administered price of production and actual marginal cost of production

Going back now to the formula and uncovering how much Canadian consumers spend more for dairy products. In the formula, there were two unknowns.

They are the average annual return (which knowing the marginal cost of production would give you) and the appropriate discount rate. Professors Veeman, Barichello, Mielke and Le Roy have all at one time or another calculated these through a variety of ingenious methods. For example, first Barichello and then Mielke have made the calculation by imputing the value of the sale of unused quota as the implicit rental value.

1996 was the last time, professors Mielke, Sarker and Le Roy undertook this exercise systematically. They used 1993 data. They calculated the marginal cost of production a \$33 per hectoliter

TABLE 17 Marginal Cost of Production Estimate 2000

Production value 2000	\$4,817,000,000
As percentage of farm gate receipts	33.91%
Price to producers 1993 blended	\$50.92
Marginal cost of production 1993	\$33.00
Markup as percentage of market price	35.19%
Marginal cost of production 2000 –	
Estimate A	\$40.60
Current price blended	62.297
2000 markup	\$21.70
2000 markup as a percentage	34.83%
Value 2000	\$1,677,943,188

Source: Mielke, Sarker and Leroy (1996)

and the discount rate as 20 percent. The departure from the marginal cost of production was 35 percent given the 1993 farm gate price of milk of \$50.91 cents a hectoliter.

Re-running the same formula in 2000 and adjusting for inflation, you get a marginal cost of production of \$40.60. As the current blended price for raw milk is \$62.30, that gives a markup of \$21.70 or 34.8 percent. That is the same percentage of markup found by Mielke *et al.* (See Table 17)

That puts the annual value of quota at \$1.67 billion based on a total value of production in 2000 of \$4.817 billion. If you then apply an annual discount rate of 20 percent for seven years (the standard bank term for quota loans), you get an annual value of quota of \$1.4 billion. If you assume then that nothing will fundamentally alter the supply management system for the next ten years, that gives a cumulative value of quota of \$14 billion. That amount is in line with value of quota derived from current quota prices, \$16 billion.

Calculating the consumer loss

The important question is what impact does the value of quota have on retail milk prices. The calculation in Table 18 estimates the value of quota as 13 cents of the current price of a liter of milk. That is equal to 8.7 percent of the price.

103 Income in Canada, 1998, Statistic Canada Cat. No. 75-202-XPE, review at page 12.

\$335,618,009

\$839.045.022

TABLE 18	
Value of Quota in Litre of Milk and A	ggregate
Quota 1kg bf 3.6% one year –	
2000 Canada	\$19,958
Litres per year for 1 kg quota	9125
Quota value per litre	\$0.46
Yearly value of quota 7 year payout	
20 percent discount rate	\$0.13
\$C litre fluid milk farmgate target price	
February 1 2000	\$0.65
Quota payment percentage farm gate	19.45%
\$C retail 2000 est. 1 litre fluid whole milk	\$1.45
Quota payment percentage retail	8.75%
Quota payment \$C per litre	\$0.13

Source: Author's calculations and CDC

products

Value of quota paid for all dairy

Value of quota paid based on

per capita consumption of milk

Let me explain briefly how that estimate is calculated.

As of June 1, 2000 the Canada-wide value of the quota for producing one kilogram of 3.6 percent butterfat for one day was \$54.68. For the year, that totals \$19, 958. On a per liter basis, quota is worth 46 cents but discounted over 7 years, it is only worth 13 cents. As of February 1, 2000, the average fluid milk target price was 65 cents. That 13 cents represented 19.5 percent of the target price. The estimated retail price of 1 liter of milk in 2000 was \$1.45. The 13 cent quota payment represented 8.7 percent of the retail price.

The important thing to keep in mind is that extra 8.7 percent of cost serves no other purpose than to ensure Canadian dairy farmers under-produce the amount of milk demanded.

You can do a similar estimate for cheddar cheese. Five liters of whole milk are needed to make 500 grams of cheddar cheese. What you get is that 46 cents or 9.8 percent of the price of 500 grams of Cheddar cheese represents a payment to service the existence of supply management. The value of quota used is that of Quebec, rather than the

Canada-wide value, because production of Cheddar cheese is concentrated in that province. (See Table 19)

If you take the percentage of milk and cheddar cheese due to quota and you multiply it by amount of milk and cheese consumed by each Canadian, 88.2 liters and 4.03 kilograms respectively, times again the number of Canadians, you start to see some large numbers.

The existence of quota adds \$335.6 million to Canadian spending on fresh milk and \$111.5 million to Canadian spending on cheddar cheese. A large percentage of that \$447.1 million ends up going to bankers as a result of borrowing by dairy farmers to purchase quota.

To see how this estimate compares to previous ones, assume that fresh milk is 40 percent of the total dairy industry.

If the cost of quota for milk is \$335 million a year, then the cost for all dairy products is equal to two and a half times that, \$839 million.

TABLE 19 Value of Quota in .5 Kilograms of Cheddar Cheese and Aggregate

Quota 1kg bf 3.6% one year –	
2000 Quebec	\$27,450
Litres per year for 1 kg quota	9125
Quota value per litre	\$0.33
Yearly value of quota 7 year payout	
20 percent discount rate	\$0.09
\$C litre industrial milk farmgate target price	
Feb.1 2000	\$0.57
Quota payment percentage farm gate	16.22%
Cost of industrial milk needed	
for .5 kg cheddar	\$2.84
\$C retail 2000 est5 kg cheddar	\$4.68
Quota payment percentage retail	9.85%
Quota payment \$C	\$0.46
Value of quota paid based on per capita	
consumption of Cheddar cheese	\$111,496,373

Source: Author's calculations and CDC

This is in the ballpark of our two previous estimates of the cost of supply management. The \$923 million estimate derived from the difference from US prices and the \$968 million estimate from the difference from world prices.

That difference may explain why quota prices continue to rise! Producers have yet to bid the price of quota up to the full margin between the administered price and the actual marginal cost of production.

Calculating the deadweight loss

It is possible to measure the deadweight loss, the triangle A B D, if you know the quantities consumed and you know what economists call the elasticity of demand and supply. The elasticity of demand describes the behavior of the consumer when faced with an increase in price. If an increase in price leads the consumer to consume less then there is a high elasticity of demand for the product. In numerical terms it is given an elasticity of -1. If an increase in price does not lead the consumer to consume less the product has a low elasticity of demand. Again in numerical terms, the product has an elasticity of positive 1.

Elasticity also measures how consumers respond when prices decrease. For a product with a high (-1) elasticity of demand, a decrease in price will lead to a proportionate increase in consumption. For a product with a low (1) elasticity of demand, a decrease in price will not lead to a proportionate increase in consumption.

The elasticity of supply works the same way. If an increase in price leads a producer to produce leads a producer to produce more, then there is high elasticity of supply (-1). If an increase in price does not lead a produce more, then there is low elasticity of supply (1). For a product with a high elasticity of supply, a decrease in price will lead to a proportionate decrease in production. For a product with a low elasticity of demand, a decrease in price will not lead to a proportionate decrease in production.

A formula for measuring the deadweight loss simulates how the higher supply managed price affects consumer demand given the product's demand elasticity: at the same time it estimates how the higher supply managed price affects producer supply given the product's supply elasticity.

Thomas Borcherding in his study of egg marketing boards devised such a deadweight loss formula. ¹⁰⁴ (See Figure 4) It is used in this study with the estimates of demand and supply elas-

The triangle ABD in Figure 3 is the traditional measure of monopoly damage. As stated above, it is the cost of restricting output in the market below the competitive level.

The area of this triangle can be approximated by the formula:

$$W_{T} = \frac{1}{2} \cdot \left(\frac{\eta}{\eta/\sigma' - 1}\right) \left(\frac{\pi}{P_{m}}\right)^{2} \cdot E$$

where η is the demand price elasticity; σ' is the product of the supply price elasticity and the ratio of the monopoly price at Q_m to the supply price (P_m/P'_m) ; π , the monopoly markup, is the difference $(P_m-P'_m)$; and E, sales volume, is the product of P_m and Q_m .

FIGURE 4 Elasticity Equation

¹⁰⁴ The deadweight loss calculation used comes from Borcherding op. cit. at page 79.

ticity used by Karl Meilke, Rakhal Sarker and Danny Le Roy in 1996.¹⁰⁵

There is a fairly significant difference in demand elasticity for fluid milk and industrial milk. Fluid milk has a relatively lower demand elasticity. That is people consume milk steadily whatever the price. Fluid milk has few good substitutes. In simpler language, even though the price of fluid milk may rise, consumers will not cut back their purchases by a proportionate amount. Meilke et al. used a demand elasticity for fluid milk of -0.10.

In contrast, the consumer demand for processed dairy products is more elastic because there are other substitutes. For instance, consumers may substitute margarine for butter and soy-based products for cheese. Thus, if the price of processed dairy products rises, consumers will cut back their purchases and switch lower cost substitutes. Industrial milk which goes into butter and cheese has a relatively higher demand elasticity. The demand elasticity for industrial milk used in the 1996 study is -0.50.

The supply elasticity of milk is low in Canada, a positive 1. This means that milk producers set supply more or less regardless of price. This reflects a supply management system in which the supply of milk is determined by administrative fiat not market price signals.

The deadweight loss measured here is for 2000. The deadweight loss for fluid milk is 1.6 percent of current production and the deadweight loss for industrial milk is 6.4 percent of current production.

That represents 292,000 more metric tons of industrial milk and 48,000 metric tons of fluid milk. That represents 300 million liters of industrial milk and 49.4 million liters of fluid milk. The farm gate

TABLE 20

Deadweight Loss Calculation for Industrial Milk

	Deadweight loss (consumption) \$000's	Deadweight loss (production) \$000's	DWL as percentage of Sales VolumeUnits (%)
1993	265221.6	235546.7	6.91
1994	243707.9	220465.7	6.09
1995	158903.4	146968.3	4.00
1996	151726.9	140048.3	3.83
1997	201906.3	189254.6	4.95
1998	270012.9	247961.1	6.23
1999	264225.6	242217.3	5.98
2000	292935.7	268974.3	6.39
Average			
1993-2000	227593.4	208596.4	5.49

Source: Borcherding with Dorosh (1981) and author's calculations.

value of that foregone consumption (using the 2000 OECD price per liter of industrial and fluid milk) is \$170 million worth of industrial milk and \$31 million worth of fluid milk. (See Table 20)

This is obviously just an estimate but, if correct, the calculation suggests that consumers and producers forego \$200 million a year in milk products without supply management.

A completely accurate deadweight loss calculation would also add all the cost of "rent seeking" activities such as lobbying.

Summary:

Transfers and social costs of supply management

We now have all the estimates needed to reproduce the standard welfare analysis chart with numbers included. (See Figure 5)

The administered price is \$62.30 (blended fluid and industrial milk for simplicity's sake).

The marginal cost of production is \$40.60 for one kilogram of butterfat.

¹⁰⁵ See Table 7 in Karl Meilke, Rakhal Sarker and Danny Le Roy, "Analyzing the Potential for Increased Trade in Dairy Products: A Canadian Perspective," presented at the US/Canada Dairy Policy Trade Tensions Workshop, Clearwater, Florida, February 28 to March 2, 1996.

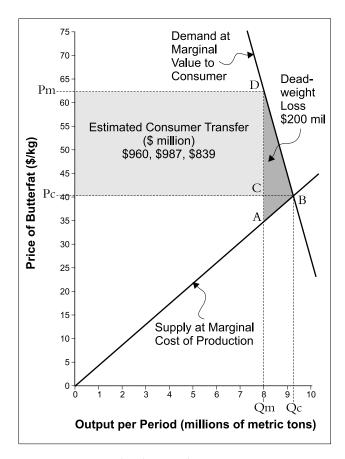


FIGURE 5 Supply-demand Measurement Of Consumer Welfare Effect with Estimates

The current level of production is 8,097, 000 metric tons.

The 2000 transfer from consumers to producers, the rectangle, Pm Pc C D, falls in the following range:

\$960 million (measured in difference from US prices)

\$987 million (measured in difference from international reference price, fluid milk only due to some international trade in processed products)

\$839 million (measured by setting the cost of quota at zero, marginal COP = marginal price)

The deadweight loss, the triangle A B D, equals \$200 million.

Who benefits the most?

Dairy producers somehow manage to do exceptionally well despite the contention of the DFO that 71 percent of them are not earning their cost of production.

For 1999, the operating profit margins for dairy producers was 25.9 percent compared to 14.4 percent for all agricultural producers. Dairy producers have the highest operating profit margins of all farm types. (See Table 21)

In 1999, the average net cash income for dairy producers was \$63,766. That amount was nearly three times the all farm average of \$22,758. The only comparable producers were poultry and egg producers who also benefit from supply management. Since 1995, the average net cash income of dairy producers has risen by 31.3 percent while for all farms it has declined by 3.4 percent. (See Table 22).

The average dairy producer has an average net worth of almost \$1 million compared to \$650,000 for all agricultural producers. 106

TABLE 21 Farm Operating Margins -1999					
Rank	Farm Type	Profit Margin			
1	Dairy	25.9%			
2	Tobacco	20.8%			
3	Livestock Combination	19.6%			
4	Grain and Oilseed	19.5%			
5	Potato	17.0%			
6	Fruit and Vegetable	16.6%			
7	Poultry and Eggs	13.0%			
8	Greenhouse and Nursery	12.5%			
9	Other Farm Types	9.8%			
10	Cattle	6.8%			
11	Hogs	6.3%			
n.a.	All Farms	14.4%			

Source: Statistics Canada, Farming operating revenues and expenses, The Daily, Wednesday December 6, 2000

^{106 &}quot;Farm Income, Financial Conditions and Government Assistance Data Book, October 2000 Update," at http://www.agr.ca/policy/epad/english/pubs/dbook/2000/oct2000/sect_b_e.pdf.

TABLE 22 Net Cash Farm Income, \$ per Farm 1995 1997 1999 '99/'98 '99/'95 1996 1998 48,558 Dairy 46,053 49,714 55,947 63,766 14.0% 31.3% All Farm Types 23,561 23,977 24,070 23,579 22,758 -3.5% -3.4% Cattle 8,773 8,019 7,121 8,842 9,788 10.7% 11.6% Hog 27,822 40,724 53,935 18,384 25,707 39.8% -7.6% Poultry and Egg 68,776 0.6% 37.0% 50,523 45,814 57,291 69,221 Grain and Oilseed 24,778 26,192 26,900 24,517 20,952 -14.5% -15.4% 34.2% Potato 58,560 58,607 49,589 70,376 78,593 11.7% Fruit and Vegetable 21,342 19,850 18,597 22,336 27,517 23.2% 28.9% Greenhouse and Nursery 39,556 41,019 60,409 12.4% 44.5% 41,799 53,748

Source: Data Book, Agriculture and Agri-Food Canada, March 2001, page 27

The largest distinction between dairy producers and most other agricultural producers is the level of government support.

Dairy producers are 10 percent of all Canadian farms. They receive roughly two and a half times more in direct payments than the average for all agricultural farms. Those transfers, however, only account for only 15 per cent of total support for dairy farms. Dairy producers also receive six times more support in terms of market price support. In all dairy producers receive eight times more direct and indirect government support than do other farmers.

The bulk of that assistance, some 80 percent, goes to the wealthiest quartile of dairy farmers who represent 57 percent of all dairy farmers. 107

As a result, dairy producers largely avoid the consequences of any fall in agricultural prices or demand.

Quebec and Ontario receive the most support overall, but the most prosperous operations are in BC and Alberta because of their relatively larger herd sizes.

Who bears most of the cost?

In the last decade, 1990 to 2000, all prices rose by 21.7 percent. Food prices rose by 17.1 percent. The retail price of fluid milk rose by 37.7 percent.

TABLE 23
Per Capita Consumption of Milk

		oapita	Ouisai	pto o.			
	2%	Milk	Whole	e Milk	Milk Total		
	(Ltr/yr)	% Change	(Ltr/yr)	% Change	(Ltr/yr)	% Change	
1980	53.71	n.a.	3.69	n.a.	102.2	n.a.	
1981	54.83	2.10	3.35	-9.20	101.43	-0.80	
1982	56.77	3.50	3.39	1.20	101.18	-0.20	
1983	58.02	2.20	3.45	1.80	100.2	-1.00	
1984	58.98	1.70	3.71	7.50	99.62	-0.60	
1985	59.39	0.70	4.21	13.50	98.43	-1.20	
1986	61.11	2.90	4.71	11.90	99.31	0.90	
1987	62.15	1.70	5.23	11.00	100.28	1.00	
1988	62.1	-0.10	5.38	2.90	98.54	-1.70	
1989	61.51	-1.00	5.75	6.90	95.72	-2.90	
1990	56.61	-8.00	6.29	9.40	94.86	-0.90	
1991	55.51	-1.90	6.34	0.80	94.03	-0.90	
1992	53.65	-3.40	6.22	-1.90	92.01	-2.10	
1993	51.29	-4.40	6.15	-1.10	89.32	-2.90	
1994	49.83	-2.80	6.56	6.70	90.2	1.00	
1995	47.98	-3.70	7.24	10.40	89.68	-0.60	
1996	47.14	-1.80	7.77	7.30	90.16	0.50	
1997	44.99	-4.60	7.98	2.70	88.39	-2.00	
1998	44.26	-1.60	8.12	1.80	87.88	-0.60	
1999	43.34	-2.10	8.35	2.80	86.98	-1.00	
2000					88.2	1.40	

Note: Year over year growth rates. Average is calculated from 1981 to 1999. Growth rates are from 1999 over 1980 for all categories.

Source: Source: Statistics Canada and http://www.dairyinfo.agr.ca/camilkcream.xls

¹⁰⁷ Distributional Effects of Agricultural Support in Select OECD Countries, Directorate for Food, Agriculture and Fisheries, OECD, 1999

The price of milk per ton rose by 82 percent, or 21 percent more than the 61 percent increase in the overall Consumer Price Index.

From 1980 to 2000, the production of milk in Canada (including liquid and industrial milk) rose by only 6.76 percent. The population of Canada rose by 25 percent. The per capita consumption of all milk released for sale dropped by just under 15 percent. Canadian per capita consumption of milk has gone from 102 liters a year in 1980 to 88.2 liters a year in 2000. (See Table 23) In constant 2000 dollars, each Canadian has gone from spending \$143 dollars a year on milk to \$125 dollars. (See Table 24)

A combination of reasons probably led to the decline in dairy consumption: the price of dairy products must surely be one of them.

There is also a question of equity. Canadians do not consume dairy products equally. Some consume more than others. As a result, some pay more than others of the costs associated with supply management.

From personal experience, young children drink six 250ml bottles of milk a day or roughly 10 liters a week. They fed like that for two years between the ages of 2 and 4. During those 2 years, they would each consume 520 liters of milk a year. That means they consumed 5 times as much milk as the average Canadian (and the highest priced milk as well, 3.25 percent). For those years, a family would incur five times the welfare loss of the average Canadian.

TABLE 24
Per Capita Expenditure nn Fluid Milk 1980-2000

			Per Capita Expenditure				
			Adjusted for				
	Per Capita		Blending of		Inflation	Per Capita	
	Consumption Canada	Per Capita Expenditure	Whole and Skimmed Milk	CPI	Adjustment factor	Expenditures 2000 \$	Population
		•					
1980	102.2	\$67.45	\$66.10	52.4	2.166	\$143.18	24593
1981	101.43	\$78.10	\$76.54	58.9	1.927	\$147.49	24820
1982	101.18	\$83.98	\$82.30	65.3	1.738	\$143.05	25117
1983	100.2	\$88.18	\$86.41	69.1	1.643	\$141.94	25367
1984	99.62	\$88.66	\$86.89	72.1	1.574	\$136.78	25608
1985	98.43	\$97.45	\$95.50	75.0	1.513	\$144.52	25843
1986	99.31	\$101.30	\$99.27	78.1	1.453	\$144.27	26101
1987	100.28	\$104.29	\$102.21	81.5	1.393	\$142.34	26450
1988	98.54	\$106.42	\$104.29	84.8	1.338	\$139.59	26798
1989	95.72	\$110.08	\$107.88	89.0	1.275	\$137.57	27286
1990	94.86	\$113.83	\$111.56	93.3	1.217	\$135.71	27701
1991	94.03	\$118.48	\$116.11	98.5	1.152	\$133.79	28031
1992	92.01	\$123.29	\$120.83	100.0	1.135	\$137.14	28377
1993	89.32	\$122.37	\$119.92	101.8	1.115	\$133.70	28703
1994	90.2	\$122.67	\$120.22	102.0	1.113	\$133.77	29036
1995	89.68	\$120.17	\$117.77	104.2	1.089	\$128.28	29354
1996	90.16	\$119.91	\$117.51	105.9	1.072	\$125.95	29672
1997	88.39	\$121.98	\$119.54	107.6	1.055	\$126.09	29987
1998	87.88	\$123.91	\$121.43	108.6	1.045	\$126.91	30248
1999	86.98	\$124.38	\$121.89	110.5	1.027	\$125.20	30493
2000	88.2	\$127.89	\$125.33	113.5	1.000	\$125.33	30750

Source: Statistics Canada, Consumer Price Survey and Bureau of Labor Statistics

However, one cannot assume that personal experience is representative of all families with children. Statistics Canada data on the consumption patterns of households with children under the age of fifteen reveals is that these households consume less milk and dairy products on a per capita basis than households without children! (See Table 25)

This is not surprising, however, if you consider that the price of milk relative to its substitutes may have driven down consumption.

At even this diminished level of per capita consumption, the question remains; "How much more are families paying for milk and other dairy products as a result of supply management?"

TABLE 25

Dairy Consumption Of Families With And Without Children

	Families with Children 4.00		Families without Children 1.96		2.04	
Household Size						
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fluid Whole Milk (L)	6.981	1.75	3.685	1.88	3.30	-0.13
Specialty Milk Products (L)	3.924	0.98	2.429	1.24	1.50	-0.26
Butter (kg)	0.774	0.19	0.694	0.35	0.08	-0.16
Cheddar Cheese (kg)	0.635	0.16	0.571	0.29	0.06	-0.13
Processed Cheese (kg)	0.704	0.18	0.681	0.35	0.02	-0.17
Ice Cream (L)	3.263	0.82	2.782	1.42	0.48	-0.60

Source: Statistics Canada special request data extraction from 1996 Consumer Food Expenditure Survey

Here is an answer just calculating for fluid milk. In 2000, there are approximately 4 million households with children under the age of fifteen. Per capita consumption of milk per week was 1.75 liters in 4 person families with children. Thus in a year the members of households with children consumed approximately 1.456 billion liters of milk.

Both the difference from US prices and the cost of quota estimates attributed 9 cents to the price of a liter of milk as a result of supply management. Both estimates yielded an equivalent result.

Thus, Canadian families with children are paying an additional \$131 million a year just for milk as a result of supply management.

If you account for Purchasing Power Parity, the supply management bill for milk may reach as high as \$524 million.

If you take just Toronto alone, with roughly onefifth of all Canadian households with children, the supply management bill for milk ranges from \$26 million to \$104 million, depending on the measure used, in 2000.

Even with the low end estimate, Toronto families may rightfully question why they should transfer \$26 million to the surrounding suburban and rural areas.

What lies ahead for supply management and world trade?

New round of WTO Agricultural Trade Talks

Negotiations on the liberalization of global trade in agricultural products were to have begun at the WTO meeting in Seattle in 1999. They did not. The reason why the negotiations failed to progress was not the demonstrations in the street. The reason lay in the failure of the developed countries to agree to open up their agricultural markets, particularly to developing countries.

The case for global free trade in agricultural products is a strong one. The Australian Bureau for Agricultural Research and Economics (ABARE) has calculated that "50 per cent reductions in barriers to market access, domestic support and export subsidies would raise annual global incomes (gross national product) by \$US 53 billion." Much of that increased income would go to developing countries.

Negotiations on liberalizing trade in agricultural products are scheduled to resume at the upcoming WTO meeting in Doha.¹¹⁰ Three critical issues for negotiation are:

¹⁰⁸ Custom data extraction from Statistics Canada Detailed Average Weekly Food Expenditures and Quantities per Household, user specified categories, 1996 - All Households.

¹⁰⁹ ABARE, "Export Subsidies in the Current WTO Negotiations," *Current Issues*, July 2001 found at http://www.abareconomics.com/pdf/CI01_5.pdf .

¹¹⁰ See for a good general discussion Food and Agriculture Organization, "The future of the agricultural trading environment: issues in the current round of negotiations on agriculture," in The State of Food and Agriculture 2001 found at http://www.fao.org/docrep/003/x9800e/x9800e06.htm .

- The elimination of export subsidies,
- The reduction or elimination of trade distorting domestic subsidies, and
- Improved market access for all products in all market.

On all three issues, Canada has created inconsistencies in its negotiating position in order to accommodate the policy gridlock over the pricing features of milk supply management system.

- The pending WTO case will likely judge the CDC's classification and pooling system as an export subsidy,
- The current classification of Aggregate Measures of Support identifies milk supply management as the single largest cause of Canada's trade distorting domestic subsidies, and
- The current high tariffs on dairy products clearly block market access.

The WTO's recent *Trade Policy Review of Canada* pointed to these inconsistencies in the federal government's negotiating stance.

"Canada is active in the ongoing negotiations in agriculture and services. In agriculture, it seeks on the one hand improved market access, export subsidy elimination, and reduced trade-distorting domestic support, while on the other it wishes to preserve its right to operate "orderly marketing systems" in the wheat, dairy, poultry and egg sectors....

A number of quantitative restrictions are maintained to protect domestic producers against foreign competition... Tariffs on products subject to tariff quotas (TQs) ranging to over 300% in the dairy and poultry industries continue to amount to de facto quantitative restrictions.

By shielding those industries from market opening, TQ's are perpetuating inefficiencies at the cost of Canadian consumers, and denying trade opportunities to more efficient foreign producers."¹¹¹

Canada risks repeating the mistakes it made during the Uruguay Round.

After a year of preliminary WTO agriculture negotiations, it is again clear that our major trading partners do not support Canada's position on supply management. For example, Canada has parted company with our Cairns Group allies on the critical issue of market access.

When the minister, Lyle Van Clief states, "Decisions regarding marketing system choices will continue to be made in Canada," he invites other governments to make decisions about Canadian imports in their own countries.¹¹²

Export subsidies

The government of Canada has made a clear statement that it seeks to end export subsidies. The public statement on Canada's initial negotiating position, released on August 19, 1999 reads:¹¹³

Canada will seek:

- agreement to eliminate all export subsidies in agriculture as quickly as possible.
- rules to ensure that government-funded export credit and export credit guarantee programs, export market promotion and development activities, certain types of food aid, or other forms of export assistance do not become a substitute for export subsidies.

Virtue begins at home.

¹¹¹ World Trade Organization Secretariat Trade Policy Review of Canada, November 15, 2000 [WT/TPR/S/78], pages vii-viii

¹¹² Government of Canada, *Initial Negotiating Position On Agriculture*, August 19, 1999 found at http://www.agr.ca/cb/news/1999/n90819fe.html.

¹¹³ Ibid.

US-New Zealand WTO challenge

After the Uruguay Round, Canada raised eyebrows by reporting that it no longer had any export subsidies in agriculture. Previously it had reported \$600 million in subsidies mostly in form of transportation subsidies for wheat farmers under the Western Grain Transportation Act, now abolished, and some \$150 million in dairy export subsidies. These subsidies were the producer levies and rebates operated by the Canadian Dairy Commission that were discontinued at the time of the shift to end-use classification and pooling.

At the same time, Canada was reporting that it no longer had any exports subsidies, a funny thing was happening. Canada's dairy exports shot up dramatically. ¹¹⁵ (See Table 26) Butter exports grew from less than 1,000 tons in 1994-1995 (August to July marketing year) to nearly14,000

TABLE 26
Canada Exports
Over Export Quantity Commitment Levels

Marketing	Export Quantity Commitment Level	Total Exports	Total Exports Over Limit	
Year	(tons)	(tons)	(tons)	(%)
Butter				
1995/96	9,464	13,956	4,492	47.5
1996/97	8,271	10,987	2,716	32.8
1997/98	7,097	10,894	3,797	53.5
Cheese				
1995/96	12,448	13,751	1,303	10.5
1996/97	11,773	20,409	8,636	73.4
1997/98	11,099	27,397	16,298	146.8
Other milk products				
1995/96	36,990	37573	583	1.6
1996/97	35,649	62,146	26,497	74.3
1997/98	34,307	71,023	36,716	107.0

Source: WTO dispute resolution panel, Canada-Measures Affecting the Importation of Milk and the Exportation of Dairy Products, October 13, 1999 page 194.

tons in 1995-1996, the first year under the new program. Cheese exports increased steadily from about 12,000 tons in 1994-1995 to 30,000 tons in 1998-1999. Unlike butter and cheese, skim milk powder exports did not increase, nor did they exceed the permitted subsidy limits. Exports of other milk products from 1995-1996 to 1998-1999 were also well above the agreed to limits.

For 2000-2001, Canada is limited to export subsidies on 3,500 tons of butter, 9,076 tons of cheese, 44,953 tons of skim milk powder, and 30,282 tons of other milk products.

The problem was this. In the Uruguay Round, Canada had committed not to export subsidized dairy products over and above agreed upon levels. These levels declined each of the last five years and are supposed to reach the bare minimum next year.

Now from Canada's perspective, there was no problem. They argued that since the exports were not subsidized, it made no difference if exports went up. They claimed that the exports of milk priced in classes 5(d) and 5(e) were private arrangements between Canadian producers and foreign buyers. There were no subsidies involved. Indeed, Canada went as far as to claim there was no direct or indirect government involvement.

The US and New Zealand smelled bull. New Zealand launched a complaint at the World Trade Organization. It was the first case before a WTO panel involving export subsidy provisions of the Uruguay Round.

The heart of the New Zealand and US challenge lay in the special milk classification and pooling program. The U.S. also requested that the WTO review Canada's restriction on fluid milk imports. They claim that Canada's position that the

¹¹⁴ All statistics in this section are from WTO Panel Report Canada-Measures op. cit. unless otherwise specified.

¹¹⁵ Trade data from W.D. Dobson, "Canada's Class 5 Pricing System, The EU Dairy Export Restitution Program, and the US's DEIP — An Update on Impacts of Dairy Export Subsidy Program," Babcock Institute, University of Wisconsin, 1999, page 17.

import levels were met by cross-border shopping violated WTO rules.

The US and New Zealand complaint focused on exports of milk products under Special Milk Class 5 (d) and (e). That is surplus milk not needed domestically and thus available for use in dairy products for export above the quantities destined for traditional markets. When pressed to say how much of Canada's surging exports was exported under Classes 5 (d) and (e), Canada said the information was confidential as it might reveal sensitive commercial information.

The initial WTO dispute resolution panel reported in May, 1999. The WTO panel found that this pricing system constituted an export subsidy, and that dairy exports provided through "classes 5(d) and (e)" were therefore subject to Canada's export subsidy reduction commitments.

According to the panel, the levels of export subsidies paid under the new system were roughly identical to those paid by the old system. They recommended that the WTO calculate them as equal. The panel also found that the government was directly involved in providing milk to exporting dairy processors. While producers played an important role in the provincial marketing boards, the panel found the boards acted under the explicit authority delegated to them by either the Federal or a provincial government. Accordingly, the panel presumed the boards to be an "agency" of one or more of Canada's governments.

The panel also found that Canada's restriction on access to its tariff rate quota on fluid milk was inconsistent with the Agreement on Agriculture and recommended Canada open the quota to commercial imports.

Canada appealed the panel's decision. The appeal tribunal reported on October 13, 1999. 116 It upheld the original panel's most important conclusion. Milk exported under Special Classes 5(d) and 5(e) did receive export subsidies and did violate Canada's export subsidy commitments. However, the appeals tribunal did overrule the finding that Canada had not fully met its fluid milk import requirements through cross-border shopping.

In October 1999, the WTO Dispute Settlement Body (DSB) adopted the Appellate Body report and requested Canada to bring its export subsidy practices into compliance with its WTO obligations.

The Canadian government then consulted the dairy industry. It did not seek substantive comment from either consumer groups or the processing industry. The dairy producers interpreted narrowly the WTO decision. They viewed the decision as vindicating lower prices for export-destined product as long as the government was not directly involved in arranging the sale. Out of this interpretation, the provincial marketing boards, beginning in August 2000, altered their export procedures.

Under the new system, Canada still retains the special milk categories and revenue pooling. Lower world prices continue to be paid for milk used for export under categories Special Class 5 (d) and (e). The substantive change lay in extricating the federal CDC and the provincial supply management boards from this process.

For example, in Ontario and Quebec, the boards appointed private companies to run a private auction system. Those who want industrial milk for export as products, the processors, post on an

¹¹⁶ Report of the Appellate Body, Canada-Measures Affecting the Importation of Milk and the Exportation of Dairy Products, October 13, 1999, WTO documents WT/DS103/AB/R and WT/DS113/AB/R.

¹¹⁷ DFC Press Release, "WTO ruling poses no threat to supply management," October 13, 1999.

electronic auction board their requirements. This includes price, volume and delivery dates. The producers then bid on fulfilling these tenders.

In Saskatchewan, Alberta and BC, the system is less advanced. The provincial milk boards simply refer processors to producers who could provide industrial milk for export purposes. On the basis of these changes, Canada informed the WTO in February 2001 that it had complied with the findings of the appellate decision.

The US and New Zealand remained unconvinced. They again challenged Canada at the WTO. In February 2001, they requested that a WTO compliance panel examine Canada's "new" arrangement.

In July 2001, the compliance panel determined that Canada continues to subsidize its dairy exports at levels exceeding its commitments under the Uruguay Round.

"In conclusion, the Panel finds that the payment is "financed by virtue of governmental action", in that lower-priced commercial export milk would not be available to Canadian processors but for the above federal and provincial actions:

- (i) restricting supply on the domestic milk market, obliging producers, at least de facto, to sell outside-quota milk for export, and
- (ii) obliging processors to export all milk contracted as commercial export milk, and penalizing diversion by processors of commercial export milk into the domestic market." 118

Canada is once again appealing. Oral arguments were made on September 15, 2001. A decision is expected some time in December 2001.

An unfavorable ruling would allow the US and New Zealand to then apply to a WTO arbitrator to increase tariffs on other Canadian agricultural exports to the level of the harm inflicted. Both countries estimate the harm at \$35 million.

Trade distorting domestic subsidies

Canada's position on eliminating trade distorting domestic subsidies is less resolute than on export subsidies. The August 19, 1999 public statement reads:

Canada will seek:

- the maximum possible reduction or elimination of production and trade-distorting support, including support under so-called "production-limiting" or "bluebox" programs.
- an overall limit on the amount of domestic support of all types (green, blue and amber).

Still Canada has supported the position of the Cairns Group on eliminating trade distorting subsidies. The Cairns Group is a coalition of 18 countries who together account for over one-third of all international agricultural exports. ¹²⁰ The US and European Union nations are not members, but closely observe the meetings.

The Cairns Group have had much success in putting agricultural trade liberalization on the WTO agenda. It did so in the previous Uruguay

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¹¹⁸ Canada-Measures Affecting The Importation of Milk and The Exportation of Dairy Products, July 11, 2001, Report of the Panel, WT/DS103/RW, paragraph 6.77.

¹¹⁹ Domestic support is currently divided into three categories: 1) green support, which has little or no production and trade effects, is not countervailable, and is not subject to reduction commitments; 2) amber support, which is subject to reduction commitments; and 3) blue support, which is not subject to reduction commitments but which is liable to countervailing duties.

¹²⁰ Members of the Group are: Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Fiji, Guatemala, Indonesia, Malaysia, New Zealand, Paraguay, the Philippines, South Africa, Thailand and Uruguay. See website at http://www.cairnsgroup.org/introduction.html.

Round of negotiations. Currently it is promoting three proposals for the upcoming round of negotiations scheduled to start in Doha.

Part of the lack of resolve in Canada's position may stem from milk supply management accounting for virtually all of its Aggregate Measure of Support (AMS). The AMS devised during the Uruguay Round of trade negotiations measures the amount of trade distorting subsidies in a country. It closely resembles the OECD's Producer Subsidy Estimate (PSE) in that it measures both direct government support and indirect transfers through market support programs such as supply management. Unlike the PSE, the AMS does allow for deductions from the total. There are three possible deductions:

- if the government spending or consumer transfers are below five percent of the value of the total production of that agricultural product,
- if the spending or transfers are not specific to a any one product, or
- if the spending or transfers can be proven not to affect international trade.

In the 1994, signatory countries agreed to reduce these subsidies. The base years from which they were to reduce levels of support were 1986 to 1988.

At that time, Canada committed to reduce its AMS to \$5.2 billion in 1995 and to about \$4.3 billion by 2000, remaining fixed thereafter.

In 1995, Canada's Total AMS amounted to \$777 million. ¹²¹ Canada's AMS was substantially lower than its target because many large support programs had ended, for example, the *Western Grain Stabilization Act* and the *Western Grain Transportation Act*. Canada also notified the WTO that \$2.1

billion of general government spending on agriculture was not trade distorting.

What was left to count in the Aggregate Measure of Support was basically three items:

- The butter support price
- The skim milk support price, and
- The direct subsidy to the milk producers.

Together these made up 99 percent of Canada's AMS or trade distorting subsidies. The first represent the Canadian Dairy Commission's target price for butter and skim milk used by Canadian processors for export products. They are the target prices for Class Five industrial milk. (The other one percent of Canada's AMS is composed of a Quebec provincial government subsidy to sheep producers.)

The OECD recently noted as well the concentration of Canada's support on the dairy industry. 122

"Furthermore, while overall support levels are still significantly below the OECD average, they remain very high for so-called supply-managed products. Support to the dairy sector, which accounts for almost half of overall producer support and nearly three-quarters of total market price support (one of the most distortive types), is now well above the OECD average.

Pressure from the WTO has contributed to the beginnings of reform in the sector. It is unlikely that Canadians can continue to protect the sector from foreign competition and expect market-opening measures by other countries in farm products where Canada has a competitive advantage."

¹²¹ See Chapter 4, "Canada's Domestic Support," in Lars Brink, Policy Branch, Agriculture and Agri-Food Canada, *Domestic Support Issues in the Uruguay Round and Beyond*, July 2000.

¹²² OECD Economic Survey of Canada: Assessment and Recommendations, September, 2001, page 19.

One might conclude that milk supply management may not face any disruption if Canada agrees to lower levels of trade-distorting domestic support because Canada's overall level of AMS is relatively low.

However, the Cairns Group proposals — which Canada has signed — hold three possible challenges. First, the Cairns Group calls not just for absolute reductions, but percentage reductions. Whatever the level of a country's AMS, they should agree to reduce it by a certain percentage. Also they call for 50 percent of that to-be-negotiated percentage reduction to take place in the first year. Finally, they call for the reductions to occur in each agricultural product. Countries could not shift subsidies to protect one product even though they reduced the total amount of subsidies.

Market access

Canada has the least liberal negotiating position on the question of market access. The 1999 initial negotiating position statement reads:

Canada will seek:

real and substantial market access improvements for all agricultural and food products through a variety of negotiating techniques. These will include approaches that substantially reduce and harmonize ordinary tariffs and, where appropriate, the elimination of all tariffs on a sector or sub-sector basis (the "zero for zero' approach). Where tariff rate quotas remain, effective liberalization will depend largely on the size of minimum access commitments, the level of the in-quota tariffs, and how the TRQs are administered.

The key words are "techniques" and "where appropriate." The government has made no clear

commitment to substantial reductions in tariffs. As to the range of products, the government has made clear it seeks to "cherry pick." The statement continues:

"Canada will seek the elimination of tariffs (as well export subsidies and export taxes) on oilseeds and oilseed products, barley and malt, and any other sectors where this approach is supported by Canadian industry and can be agreed on by a critical mass of major trading countries."

The litmus test is whether a specific Canadian industry supports reducing tariffs or not. One would be hard-pressed to find any industry that seeks tariff reductions in their own country. The more important point is that governments should serve a broader interest than just that of an industry which does not want tariff reductions.

Canada refused to sign the Cairns Group proposals on market access and filed a separate proposal.

The Cairns Group proposed:124

The general approach must ensure real market access improvements for all products and should involve:

- deep cuts to all tariffs using a formula approach which delivers greater reductions on higher level tariffs, including tariff peaks, and eliminates tariff escalation, and establishes maximum levels for all tariffs;
- additional steps to eliminate tariffs and other duties and charges, where possible;
- tariff reduction commitments on the basis of final bound tariffs:
- additional provisions to make tariff regimes simpler and more transparent; no bound duties containing specific minimum entry price schemes; tariff commitments expressed in ad-valorem terms;

123 See Cairns Group Negotiating Proposal on Domestic Support, 22 September 2000, G/AG/NG/W/35.

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124 Cairns Group Negotiating Proposal on Market Access, November 10, 2000, G/AG/NG/W/54.

- substantial increases in all tariff quota volumes;
- additional or strengthened rules and disciplines to ensure that tariff quota administration does not diminish the size and value of the market access opportunities provided by such tariff quotas. This should involve close examination of all administrative practices and other measures which act to prevent the full realisation of existing and expanded market access opportunities, including a mechanism to review and correct the cause of significantly under-filled tariff rate quotas.

At a bare minimum, one could expect the WTO negotiations to focus on increasing the Tariff Rate Quota import access levels. That is, the amount of agricultural products allowed to be imported under preferential tariffs. In the Uruguay Round, countries, including Canada, agreed to imports equal to five percent of the current market.

In the new round, countries could either repeat the Uruguay commitment and open up another five percent of their domestic market to imports with preferential tariffs. Other proposals are for much higher levels of up to 10 percent a year.

The negotiations may also focus on achieving annual reductions in the level of tariffs. Canada should expect to see proposals to reduce its dairy tariffs by 10 percent a year, thus phasing them out completely in ten years.

The scope for the Canadian government to carve out special exceptions for its dairy industry will be limited. The Cairns Group supports the principle that same treatment apply "for all agricultural and agrifood products covered by the Agriculture Agreement." If Canada seeks exemptions for milk

producers, it will lose negotiating leverage when the European Union claims the same for its wheat industry or the US for its sugar industry.

Canada should assess the long term value of defending its milk supply management through global trade negotiations. As the House of Commons Standing Committee on Agriculture and Agri-Food has recognized: ¹²⁵

A large majority of witnesses are supportive of some tariff reductions, but some witnesses, notably representatives of the processing sector, asked for substantial reductions in over–quota tariffs. Despite these opposite views with respect to the size of tariff reductions, almost everybody agrees that some reductions are inevitable, and that a transition is necessary.

Canada will likely have to accept some opening up of its milk markets. This market liberalization will put pressure upon the existing supply management system.

Doha: not the place or time to draw a line on supply management

At Doha, the Canadian government should avoid the mistakes it made in the last round. Agricultural trade will form an important part of the new trade negotiations. Canada may find itself isolated by a defiant defense of supply management. As a consequence, Canada may fail to achieve greater trade access for the full range of its agricultural exports. As Gerald Shannon further testified before the House of Commons Agriculture and Agri-Food Committee:¹²⁶

"Agriculture will be back, and Canadian negotiators will require instructions on

¹²⁵ Summary Report By The House of Commons Standing Committee on Agriculture And Agri-Food, Take Note Hearings on The Upcoming Multilateral Trade Negotiations on Agriculture, March 1999, page 4.

¹²⁶ Evidence to The Standing Committee on Foreign Affairs and International Trade of Mr. Gerald E. Shannon, Former Deputy Minister of International Trade and GATT Uruguay Round Negotiator of the Government of Canada, March 2, 1999, page 11.

whether we're going to fight the last war all over again with respect to protecting the dairy and poultry industries, or whether there are better places to spend our negotiating chips. I think there are.

At a minimum we can expect our negotiating partners to want to significantly reduce tariffication levels for our key agricultural import commodities. Some, such as our colleagues in the Cairns Group, will want tariffication removed entirely so that only normal tariffs would apply. Similarly, it will be a challenge to achieve even greater reductions in agricultural export subsidies than they managed the last time around. Clearly this prospect would be enhanced if Canadian negotiators did not have their hands tied behind their backs because of the supply management problem."

With the final WTO ruling due just after the Doha meeting, the federal government should assess how much negotiating capital to expend in defending milk supply management. Canada could look foolish if a few months later, the government had to alter the system.

Options for the future of supply management

The consequences of Canada's Uruguay Round commitments and gathering global political will to liberalize agricultural markets means that some changes to milk supply management will occur.

The three basic options for Canada are to

1. Make no changes and submit to whatever retaliatory tariffs are awarded in current and future Dispute Resolution Panel judgments.

- 2. Make the minimal changes necessary to conform to its Uruguay Round commitments and whatever new commitments come out of the Doha Round.
- 3. Undertake a thorough review and reform of milk supply management.

If Canada chooses to reform the supply management system, implementation will require legislative action at both the federal and provincial level.

These three choices will confront Canada as a result of the potential loss of the WTO appeal and if the WTO Doha Round achieves significant trade liberalization in agriculture.

Options if Canada loses WTO appeal

If the compliance panel rules against Canada in December, the federal government faces the following options.

- Canada makes no changes to supply management and it continues to export. In this case, the US and New Zealand can and will apply punitive tariffs to a wide variety of Canadian agricultural exports.
- Canada makes no changes but stops all but the permitted modest export of dairy products. In this case, supply management survives but the dairy product industry in Canada forgoes any opportunities for growth arising from international trade.¹²⁷
- Remove the differential between Canadian and international prices by returning to a competitive market for milk.

The government of Canada will probably have to make this critical choice in 2002.

¹²⁷ If Canada decides to forego all but minimal exports in exchange for protecting the supply management apparatus, it still faces structural problems in the dairy industry. The OECD predicts that either the supply of industrial milk contracts significantly or, if current production levels are to be maintained, the price within five years will have to drop by 18 percent. See "Forward Looking Assessment of Export Subsidies in Agriculture" OECD paper (2000).

Options for Canada if features of supply management are confirmed as trade distorting subsidies

Canada's milk supply management system, to conform with the Cairns Group proposal on domestic subsidies, may face some difficult choices. These include:

- 1. Make no changes to supply management and risk at a minimum loss of membership in the Cairns Group and future trade complaints from other exporting countries.
- 2. Two means exist to achieve minimum compliance.
 - Charge a single price for raw and industrial milk. There are two ways to do so. Raise the target price for butter and skim milk powder paid by food processors who export to the level paid by domestic-only processors. This would cause Canadian food processors to lose competitiveness in the continental market. Alternatively, lower the target price for butter and skim milk powder paid by domestic only food processors to the level paid by exporting food processors. This would reduce revenues from the sale of industrial milk.
 - No longer use Canadian industrial milk in exported processed foods.
- 3. Remove the trade distortions by returning to a competitive market in milk.

Options for Canada if the Doha Round agrees to expand market access

- 1. There are two options for non-compliance.
 - Refuse to sign a Doha Round treaty.
 - Claim, as before, that market access quotas are being filled by cross-border shopping.
- 2. Submit to expanding market access by the negotiated amount of, for example, 10 percent a

year. This will create some competition in the Canadian milk market as processors will seek the limited amount of internationally sourced milk components. The competition would depress the price of industrial milk. It is uncertain given the currency differential how much impact expanded market access would have on fluid milk markets.

2. Remove all tariffs and import restrictions on milk and milk products.

The last two options are the most likely to occur. As a result, the following section discusses recent research into the question of what happens if Canada liberalizes its milk market.

What happens if Canada opts for free or partially free trade in milk?

In answer to this question, if a consensus exists among Canada's leading dairy economists, it is that Canada's consumers will benefit and milk producers may also benefit after a period of adjustment. Impacts on individual producers, of course, will vary.

In 1990, Agriculture and Agri-Food Canada first raised the question of how global free trade might affect the Canadian dairy industry by commissioning a major study. ¹²⁸ The authors, John D. Graham, Brad Stennes, Robert MacGregor, Karl Mielke and Giancarlo Moschini forecast an expansion of Canadian dairy production. They concluded that the supply price, or marginal price of production, in Canada was below the world price, let alone the continental price.

"In the absence of controls, dairy producers will move along their supply function to an equilibrium where marginal revenue and marginal costs are equal. Hence, in this

¹²⁸ John Graham et al. "The Effect of Trade Liberalization on the Canadian Dairy and Poultry Sectors," (Working Paper 3/90), Agriculture and Agri-Food Canada, Policy Branch.

study, it is assumed under the free trade scenario, producers in each of the provinces will expand if market returns are above supply prices and vice versa. Given the SWOPSIM model results, world dairy prices are expected to increase. Canadian supply prices for most provinces are below this level and under complete liberalization there will be an expansion in the size of our dairy industry."

The authors estimated that milk output nation-wide would increase by 32 percent. The change would be distributed unevenly across the country. British Columbia would see the greatest increase in production, up 46 percent. The Maritimes would see the least, up only 18 percent. This would have an impact on producer incomes.

The authors concluded:

"Under a free trade scenario it is expected that gross earnings of dairy farmers will increase by 28 percent and net earnings will increase by 38 percent. However, again the increases in earnings are distributed unevenly between the provinces. Gross earnings of producers in BC increase by 38 percent and their net is up by 45 percent, in Quebec the change is 31 percent and 43 percent respectively, and in Ontario 25 percent and 31 percent."

The study argued that under a free trade scenario while dairy farmers would lose income from lower domestic prices, they would gain from greater output at higher world prices. It would be only in fluid milk that dairy farmers would lose from lower prices and not benefit from substantially higher output.

The OECD recently looked at this question and came to roughly the same conclusion.

Elimination of subsidized exports would result in the Canadian industrial milk price dropping by 18 per cent. They noted that this price reduction would not be sufficient to induce producers to fall short of milk production quotas, but rather only serve to reduce the quota rent value. The OECD forecast that unsubsidized exports of cheese would increase substantially—more than replacing the subsidized exports—as the EU internal price falls by 5 per cent and the world cheese price rises 10 per cent on average.

Canada could return to its former position as the world leader in Cheddar cheese exports. In 1904, Canada shipped a still unbroken record of 234 million pounds of the "orange gold." In the postwar period, European subsidies eroded of Canada's export opportunities.

Cox Analysis

Professor Thomas Cox of the University of Wisconsin at Madison has analyzed the global impact of reforming international trade in milk. He presented the findings of his five year study at a major dairy conference held in Seattle in 1999. He modeled the impact of international free trade in dairy products on over 20 different countries. Just the Canadian results will be given here.

Cox's study focuses on three scenarios, GATT 2000, GATT 2005 and total free trade. The GATT 2000 scenario simply represents the situation where the signatory countries of the Uruguay Round Agreement would have to meet their obligations in 2000 regarding tariffs, import quotas and export subsidies. The GATT 2005 scenario

¹²⁹ Tom Cox, slide presentation, "An Economic Analysis of the Effects of Trade Liberalization on the World Dairy Sector," presented at the innvitational workshop for dairy economists, "The International Dairy Trade Puzzle," Seattle, Washington, October 18-19, 1999.

assumes that in the year 2000 countries would have agreed to reapply the same level of access commitments as reached in the earlier Uruguay Round. That is if they agreed to open 4 percent of their domestic market to low tariff imports in 1994, they would repeat the gesture in 2000. As we all remember, the troubles in Seattle derailed any new WTO commitments in agriculture. The upcoming Doha meeting may, however, re-start the process. In that case, one could replace 2006 or 2007 for Cox's 2005 scenario. The free trade scenario is just what it says. All scenarios use the base year of 1995.

Cox's study concluded that consumers gain far more from freer trade in milk products than milk producers lose. In the GATT 2005 scenario, Canadian farm milk prices drop by 3.5 percent at a producer loss of \$US 112 million. Canadian Cheddar cheese exports go up by \$US 126 million. In the Free Trade Scenario, milk prices drop by 32.3 percent for a producer loss of \$US 1 billion, or roughly 25 percent. It should be noted that these scenarios do not consider increased consumption on the basis of lower prices. Cheddar cheese exports increase by \$US 334 million a year. Consumers gain a rather paltry \$US 107 million from the GATT 2005 scenario, but a substantial \$US 1.1 billion under the Free Trade Scenario.

Mielke Study

Professor Karl Meilke of the University of Guelph, however, paints a different picture of the impact of trade liberalization on Canada and its dairy industry. He concluded that "Trade flows in milk and dairy products between Canada and the United States, with trade liberalization, are likely to be small. In fact, no trade is a real possibility." ¹³⁰

Meilke projected in 1996 that the impact of free trade in milk would lead to Canada's gross dairy revenues dropping by only 13.32 percent. The reason for only a small drop is that consumption and cheese exports would increase to compensate for much of the difference between the current administered price and the actual marginal cost of production. In addition, exports from the US would only increase by small amounts.

Meilke assails the "rather gloomy picture" of the impact of free trade on Canada's dairy industry. He writes, "The gloom is, to a large extent, driven by unrealistic assumptions about the dairy industry in Canada."

Finally one must add that with the recent drop in Canadian prices relative to US prices, it is highly unlikely that liberalized trade would lead to substantial US imports. *Indeed, the drop in relative Canadian prices suggests that now is the best time to shift from supply management to free trade in dairy products. The weakness of the Canadian dollar would "protect" Canadian dairy producers during the time of adjustment to free trade.*

Robert Bell, veterinarian and dairy business consultant, believes Canadian producers can compete with dairies in the Northeastern US, "They have the advantage of good farmland to grow feed, and have access to technology to assist them in producing milk. The difference between the price that farmers in the U.S. and Ontario get, he says, is tied up in quota." ¹³¹

Lessons from New Zealand and Australia

New Zealand and Australia provide useful examples of what happens when a country deregulates its milk markets.

¹³⁰ Karl Meilke, Rakhal Sarker and Danny Le Roy, "Analyzing the Potential for Increased Trade in Dairy Products: A Canadian Perspective," presented at the US/Canada Dairy Policy Trade Tensions Workshop, Clearwater, Florida, February 28 to March 2, 1996.

¹³¹ Reported by Bernard Tobin, "Can Farmers Beat Ticking Trade Clock," Farm and Country News at http://www.agpub.on.ca/text/fropgf13.htm

New Zealand liberalized its dairy industry early in the 1980s. The government did so as a result of a generalized dissatisfaction with the economic growth rates many believed resulted from the country's traditional heavily protectionist trade regime. As well, the governments (both of the left and the right) wanted to reduce government expenditure and intervention in the economy.

It took the dairy industry six years to fully adjust to market prices. Some dairy producers incomes were reduced. Some left the industry altogether. Within five years, however, production had started to increase as farmers employed new technology and methods, thus securing a place in the growing global market for dairy products. Prices for dairy farms and dairy cattle have increased significantly recently. As R.W.M. Johnson concluded, "agricultural markets do adjust by themselves and [that] farmers do not bear all the costs of reform."¹³²

Australia witnessed a similar experience. ¹³³ As a result of the first round of dairy market reforms in the early 1990s, the number of dairy farms dropped by one-quarter though the average size increased by as much. Though milk production initially dipped, it began to rebound as Australia expanded its export markets. Currently Australia exports about 50 percent of its milk production.

A new round of dairy reforms begun in 1999 is starting to take hold in Australia. With now near complete free trade in dairy products, consumer prices on milk have dropped by roughly 10 percent, but prices have remained steadier than under the old supply management system. Though gross dairy receipts have declined due

to lower consumer prices, many experts predict that new efficiency measures and higher export sales will likely lead to little change in net incomes.

What are the lessons in Canada from the New Zealand and Australian experience?

The first is the sooner and faster you adopt reforms, the sooner and the faster industry will adjust.

The experience of both show there is life on the dairy farm after free trade. It was a win-win situation both for consumers and producers.

The second is the industry will benefit from increased exports.

New Zealand and Australian producers recovered their initial revenue losses through increased export revenues. One could expect the same to happen in Canada, particularly given our historical export of Cheddar cheese. Quebec could benefit most as it is hosts much of Canada's cheese production. Ontario would benefit as well.

Canada could provide Australia and New Zealand formidable competition in global dairy markets as it has in other agricultural products in liberalized markets.

"What to do about quota" is the one issue that the New Zealand and Australian experience does not provide any guidance. Both countries have had limited experience with the private sale of quota. They never had to deal substantively with that peculiar "stranded asset."

¹³² R.W.M. Johnson, Reforming EU Farm Policy: Lessons from New Zealand, (IEA: London, 2000), introduction.

^{133 4} Dairy Produce Legislation Amendment (Supplementary Assistance) Bill 2001. Bills Digest 167 January 2001. Information and Research Services, Parliamentary Library.

¹³⁴ January 2001 ABARE Report to the Federal Minister for Agriculture, Fisheries and Forestry entitled *The Australian dairy industry: impact of an open market in fluid milk*, available at http://www.abareconomics.com/pdf/ci01_dairy.pdf.

Conclusions and Policy Recommendations

Six reasons exist to reform Canada's perfect mess for the "perfect food."

- Benefit to the consumer
- Benefit to taxpayer
- Canada's trade credibility
- Equity in terms of other agricultural producers
- Further liberalization in a new WTO round will erode supply management
- Benefit to the producer

Benefit to the consumer

- Estimates of the consumer subsidy paid to producers are all close in range, \$960 million in comparison to US prices, \$987 million in comparison to international prices and \$839 million if quota values did not exist and alter the administered price.
- Adjusted for purchasing power parity, Canadians spend 25 percent more on a liter of milk than Americans.
- Though Canadian prices have fallen relative to US prices in the last three years, this is almost entirely due to the dropping value in the Canadian dollar.
- In 1991, when the Canadian dollar was worth roughly its trade-weighted equivalent, Canadian dairy prices were on average 35 percent more expensive than in the US.
- Parents with children under the age of 15 bear this cost disproportionately: They pay 6 dollars for every dollar paid by households without children.

Benefit to taxpayer

 Supply management in its regulatory complexity requires hundreds of inspectors, policy analysts, managers, lawyers and support per-

- sonnel both in the federal and provincial governments. Ending supply management would provide the opportunity for these people to find more socially useful employment.
- As long as supply management exists, the federal and provincial governments remain potential targets for requests future direct assistance.

Canada's trade credibility

Canada risks its role as a world leader in the liberalization of trade by its defense of trade restrictions and export subsidies to the benefit of the dairy industry.

Equity in terms of other agricultural producers

- In most other agricultural markets, Canada is one of the world leader's in agricultural liberalization.
- Nearly 97 percent of all of Canada's remaining agricultural subsidies are concentrated on the dairy industry.
- Eight times more than all other farmers in total support.
- Their net incomes are twice as high as other farm producers.
- The bulk of that assistance, some 80 percent, goes to the wealthiest quartile of dairy farmers who represent 57 percent of all dairy farmers.
- Canada could soon face either increased tariffs on other agricultural products or ceasing its historic role as one of the world's great cheese exporters, all for the sake of maintaining artificially high domestic prices.
- The hodge-podge of exceptions for domestic food processors is inequitable. Some receive world-priced or at least US-priced industrial milk and others do not. The discrimination is solely based on whether the processor has a captive domestic market or competes internationally.

Further liberalisation in a new WTO round will erode supply management

Professor Tom Cox concluded that a further round of market liberalization coming out of the Doha WTO meeting will put slow pressure on supply management.

- A further 4 percent increase in the size of the market open to imports could decrease raw milk prices by 3.5 percent for a producer loss of \$US 112 million.
- Canada by not reforming supply management will not be able to secure market access for a potential \$US 127 million increase in Cheddar cheese exports.

Benefit to the producer

- Trade liberalization will slowly undermine supply management. Time wasted delaying of reforms will serve to give potential competitors a further head start.
- Canada could regain its rightful position as the leading exporter of Cheddar cheese.
- The domestic market could expand by up to 5.5 percent as dairy products become more affordable.
- Quota purchases, inherent to supply management, have saddled producers and their families with non-productive debt.

Trade policy recommendations

- 1. The Canadian government should accept that its own arguments against export subsidies actually do apply to Canada's milk industry. The government should not launch any further appeals of the upcoming (December) WTO implementation panel report.
- Canada should support the initiative of the Cairns Group to reduce globally state subsidies for agriculture. This means accepting that

- supply management in dairy markets should continue to be counted in the *Aggregate Measure of Support* calculation.
- 3. Canada, at the least, should commit to opening its dairy markets to low-tariff imports by an additional 10 percent a year. This would mean repeating the Uruguay Round commitment at the upcoming WTO meeting in Doha.
- 4. Remove milk and other dairy products from the Import Control List.

To achieve an optimum result, Canada should strive to have the freest agricultural markets in the world and the most aggressive — least protectionist — export-driven dairy industry.

Domestic policy recommendations

- 1. End federal involvement in the supply and pricing of industrial milk by repealing the *Canadian Dairy Commission Act* and related statutes.
- 2. End provincial management of the supply and pricing of fluid milk through the repeal of the various acts governing milk marketing boards.
- 3. End all government-sanctioned price discrimination and pooling agreements.
- Compensate quota holders on a sliding scale depending on how they obtained it and how long they have held it.

The first and only choice should be to end state managed supply and pricing of fluid and industrial milk. The government has already committed to removing price controls on industrial milk destined for export as processed goods. If market prices are good enough for foreigners, they should be good enough for Canadians.

While the CDC promises dairy producers a "fair return for their labor and investment," it does not promise consumers "fair prices."

Ideally the federal government would promise neither "fair returns" nor "fair prices." Free markets are the only equitable means to balance and supply and demand. The government simply does not have the information necessary to balance out these competing demands nor can it insulate itself from lobbying pressures.

As the federal government largely funds the CDC, Canadian taxpayers might expect that it would serve the general public interest rather than a specific industrial interest.

The major hurdle in reforming Canada's market for dairy products is not the loss of the higher prices charged domestically. As Canadian prices approach parity with US prices, the potential for large imports from south of the border diminishes.

The problem lies in the value of the quota that in either a US price or a free trade scenario becomes a "stranded asset." As a stranded asset, the value of quota now approaching an astounding \$16 billion presents a formidable hurdle to overcome.

There is some irony that it is this by-product of the supply management system, itself, not the prospect of freer trade that ultimately holds poses the largest threat to the dairy industry.

Some producers will lose some money. One should not be cavalier about the impact that removing supply management will have on some individuals. However, the resulting benefits to consumers and ultimately to the health of the dairy industry, itself, justify ending supply management.

The government always has the option of compensating dairy producers who decide to exit the industry under its current trade-neutral incomebased agricultural support. There are pros and cons to the question of compensation.

The following are arguments against compensation.

- Dairy producers have benefited handsomely from the system over the last 50 years.
- They were aware that quota was a politically vulnerable asset.
- Many producers inherited their quota thus they never paid for it in the first place though they may borrowed against its value.
- The government cannot justify compensating one group of substantially well-off individuals while other more socially valuable needs exist.

The following are arguments for compensation.

- Governments sometime offer compensation to individuals when policies and regulations change and inflict a loss. Precedent exists for the compensation of a federal program. Western farmers were compensated \$2 billion when Ottawa in 1975 terminated the Western Grain Transportation Act.
- Compensation is necessary to ease the political resistance to change. In short compensation is necessary to bridge the "transition gap." As long as the level of compensation does not exceed the consumer losses due to supply management, then there is a net social gain.
- Without compensation, banks may also suffer some losses as they have made loans to marginal producers with quota as collateral. Some marginal producers may default. An appropriate sliding scale compensation package would limit the number of potential defaults.

Compensation

The compensation could be on a sliding scale. If producers bought the quota yesterday (or before a certain deadline) they might get 50 percent of the amount paid. At the other extreme, if a producer is the original quota holder, he would receive no compensation.

It is beyond the scope of this paper to recommend that compensation be offered because further research is necessary into the structure of quota holding. Questions to answer include:

- How much of it is in the hands of the original holders and their families, and
- How much of quota is pledged as collateral for loans.

Only with those answers can one make a reasonable estimate of the potential cost of compensating producers for ending quota. With such an estimate, one can have a public policy debate as to social equity of compensation.

Research in this area is currently being planned by Professor Bill Stanbury and myself.

Even if no compensation is paid to producers, there will still be life on the farm after supply management.

Postscript

Finally consider this.

What would you think if the government created a new program with the following results? It would only help one small group of mostly suburban and rural businessmen with above average incomes. Parents of urban children would largely fund the benefit.

The businessmen would decide how much money would go from urban parents to them-

selves. The income transfer would be achieved through fixing the price of an essential nutritional supplement at twice the world level. Lower-priced imports would be banned. In a particularly novel twist, the businessmen could raise domestic prices in order to subsidize the sale of their products overseas at the lower world price.

The higher prices contributed to driving down children's consumption of the product to below the level recommended by doctors and medical researchers.

The system would virtually exclude all but the wealthiest immigrants from entering the industry. Even then over the duration of the program, the number of companies participating would drop by 80 percent. The remaining twenty percent, however, would be very profitable with a net income twice that of companies in similar industries.

Yet the survivors incur debts as a result of buying up government-created shares in the fixed market. The competition to buy each other's market shares would be so costly that the businessmen would bring continual pressure on government to raise the price of their product in order to cover essentially their debts on the perpetuation of a rigged market. The proceeds from the higher prices, meanwhile, simply found their way into the pockets of the banks who had lent the money to buy the shares.

Sound peculiar?

Free the "perfect food" from the perfect mess.

About the Author

Owen Lippert is a Senior Fellow of the Fraser Institute, Canada currently living in Santiago, Chile where he is a Visiting Fellow at the Instituto Libertad y Desarrollo.

He has most recently edited and contributed to Competitive Strategies for Intellectual Property Protection (Fraser Institute, February, 2000), Beyond the Nass Valley: National Implications of the Supreme Court's Delgamuukw Decision (Fraser Institute, July, 2000), Law and Markets: Is Canada Inheriting America's Litigious Legacy (Fraser Institute, 1997) and with Michael Walker, The Underground Economy: Global Evidence of Its Size and Impact (Fraser Institute, 1996). His articles have appeared in the Wall Street Journal, National Post, Globe and Mail and Business without Borders as well as many regional papers in Canada, the US and South America. He writes the Law and Economics column for Canadian Lawyer magazine.

Previously, he has served as a senior policy advisor to the Federal Minister of Science, the Attorney General of Canada and the Premier of British Columbia. He also worked in Taiwan as the Managing Editor of the Asia and World Institute, a foreign policy think-tank. He holds a PhD from the University of Notre Dame, Indiana, a BA from Carleton College, Minnesota and a high school degree from Culver Military Academy, Indiana.

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