GEORGE MORRIS CENTRE

Canada's Supply-Managed Dairy Policy: Challenges and Need for Evolution

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Report Summary

Canada's milk supply management system has evolved consistent with its objectives to control surpluses, increase producer returns, and offset processor market power at acceptable government cost. It now faces important, ongoing internal challenges to the system. While there are important counter trends, overall growth in Canadian dairy markets has been slow, hampered by the emergence of substitute products and increasing penetration of dairy imports. The system is also constrained by a bureaucratic system of milk allocation to provinces and plants. Strong quota prices have dampened the effective return to dairy farm investments. Marketing board initiatives to mitigate quota price inflation have created a gridlock situation. Addressing these challenges requires bold action that recognizes interrelationships among these issues. The system is robust to adapt, and this does not suggest that supply management be discontinued.

Introduction

As dairy markets in Canada have evolved, federal and provincial dairy policies under supply management have adapted to adjust and reconcile market forces, consumer preferences, new technologies and products, financial returns, and production scale. These have not always been smooth, nor always completely successful. Indeed, the basic mechanics of supply management were not developed to address some of these issues; thus, new product demands, improvements in technology, innovation among substitute products, and changing preferences create friction in the system.

This paper provides an overview and understanding of some of the challenges facing supply management in the Canadian dairy industry. It is the third in a series of papers on milk supply management by the George Morris Centre. The first two were commissioned by the Conference Board of Canada. The first paper[1] detailed the evolution of supply management in response to chronic dairy surpluses, low farm milk prices, processor market power and high government support costs. It observed that supply management had evolved to implement its objectives in a changing market context, and that it had been successful in advancing its apparent objectives.

The second paper[2] cast Canadian dairy policy in the context of its peers internationally, and noted that dairy policies across developed countries have engaged many of the same issues- initially with protectionist policies which were eventually liberalized due to government cost. The success of the Canadian dairy policy approach in limiting government cost has allowed it to avoid similar liberalization.

This paper considers the challenges facing the Canadian dairy market and supply management policies that influence it, and identifies and frames the tensions that now exist in the Canadian dairy industry, and those which can be anticipated in the future.

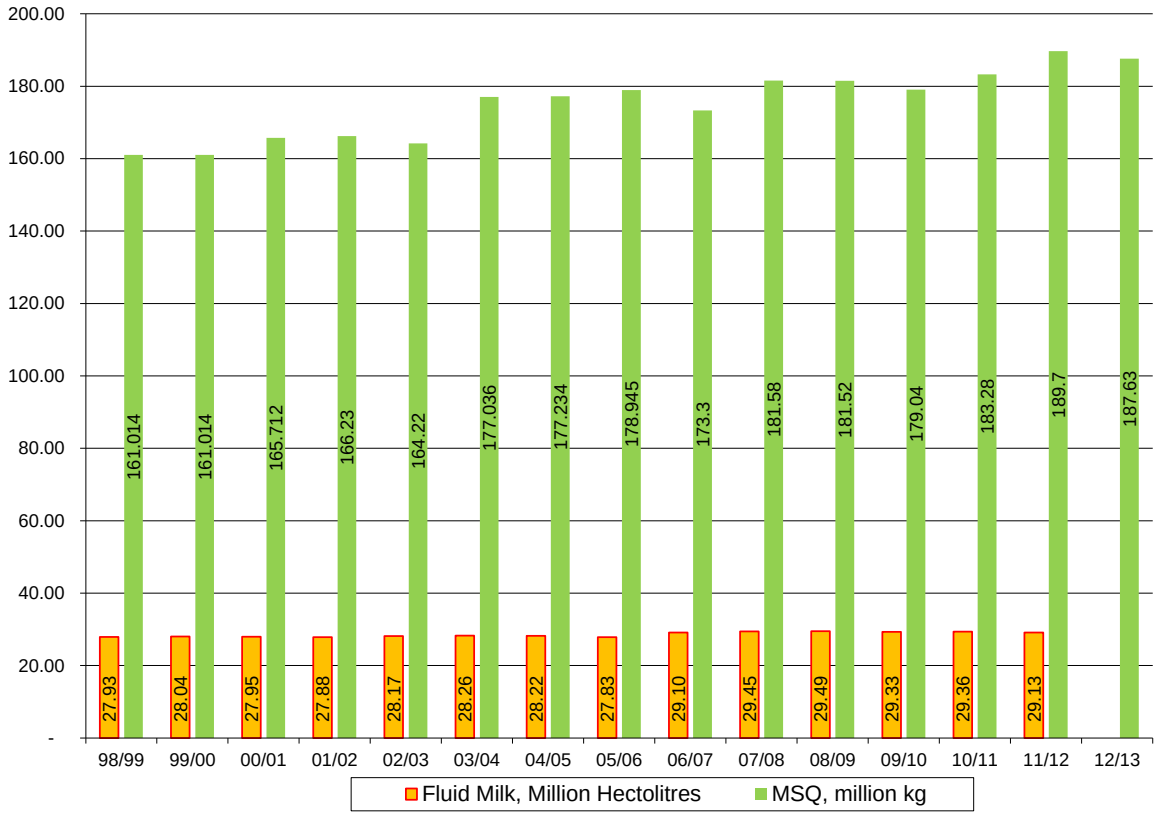
Two Markets, Slow Growth

The Canadian dairy market is really two segments- a fluid beverage milk segment and an industrial milk segment. Provincial product regulations and markets define fluid milk markets. Industrial milk used in manufacturing dairy products is characterized by federal regulations with markets defined at the national level.
Overall, both markets are mature and relatively slow growing. Fluid milk volumes have experienced exceptionally slow growth; the current volume marketed in fluid milk classes is just over 29 million hectolitres; this is up from about 28 million hectolitres in 1998/99 (Figure 1).

[1] *Canada's Supply-Managed Dairy Policy: How We Got Here* by Al Mussell, Bob Seguin, and Janalee Sweetland. Conference Board of Canada Centre for Trade, Investment Policy and International Cooperation, August, 2012. Available at http://www.conferenceboard.ca/e-library/default.aspx
[2] *Canada's Supply-Managed Dairy Policy: How Do We Compare?* by Al Mussell, Bob Seguin, and Janalee Sweetland. Conference Board of Canada Centre for Trade, Investment Policy and International Cooperation, October, 2012. Available at http://www.conferenceboard.ca/e-library/default.aspx

Growth in the market for milk used in manufacturing dairy foods can be measured by Market Sharing Quota (MSQ). Its growth has also been slow; current levels of MSQ are about 180 million kg of butterfat, up from about 161 million kg in the late 1990's.

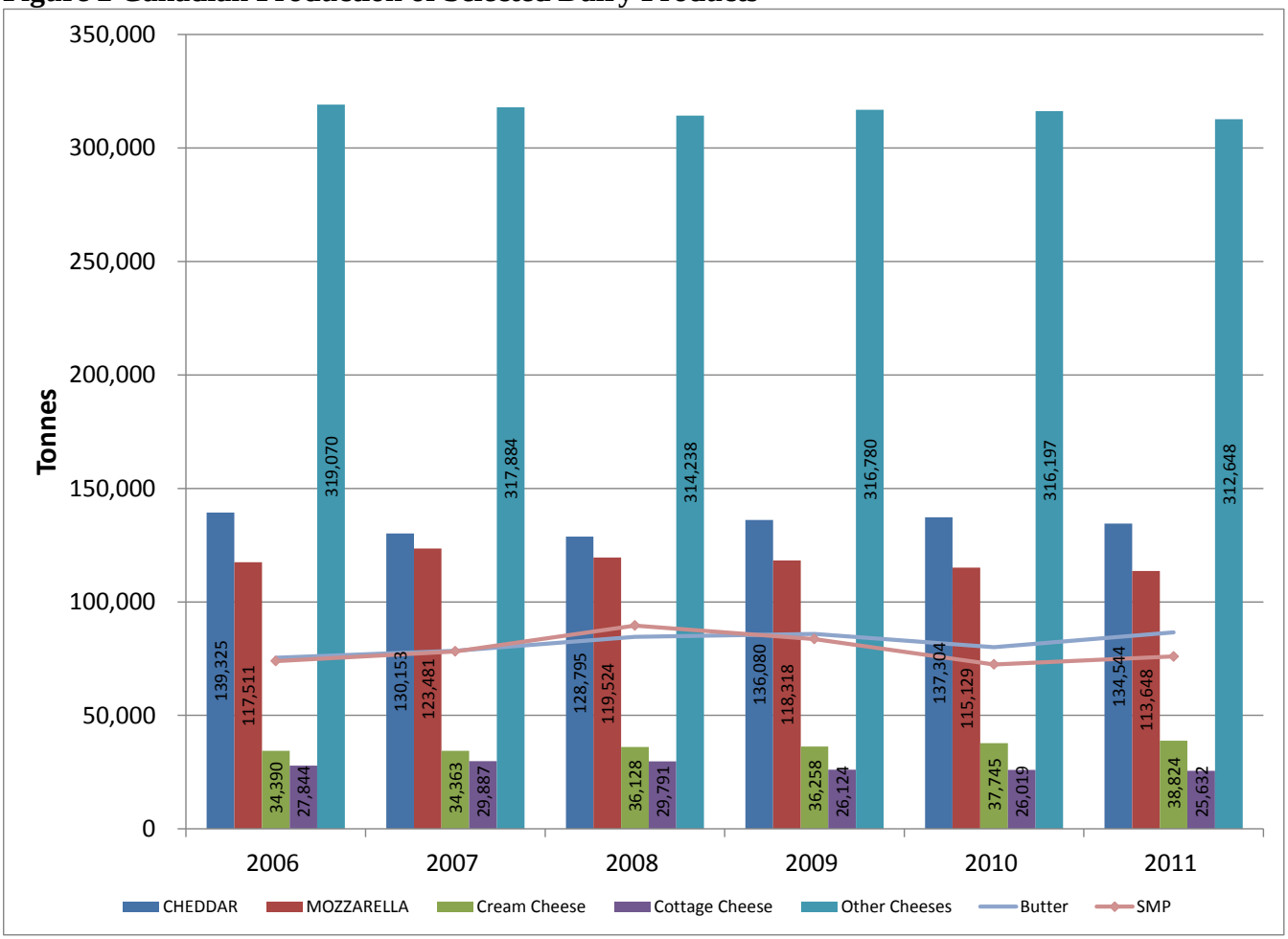
Figure 1 Canadian Milk Marketed in Fluid Classes (HL) and MSQ (kg)[3]



The growth trends in the MSQ are complex due broad variety of dairy products- such as cheeses, butter, milk powders, ice cream, yogurt, and cream cheese (to name just a few). And while the overall trend is stable and slow growing, there are significant counter-trends, with some products in steep decline, and others growing very rapidly. Production of major cheese varieties, butter, and skim milk powder (SMP) is flat over time (Figure 2). However, production of certain specialty cheeses has experienced significant growth; Figure 3 shows rapid growth in specialty varieties such as Suisse/Emmental, Monterrey Jack, and Gouda. Yogurt production has seen solid growth- but most other product categories are flat to declining, with ice cream in sharp decline (Figure 4).

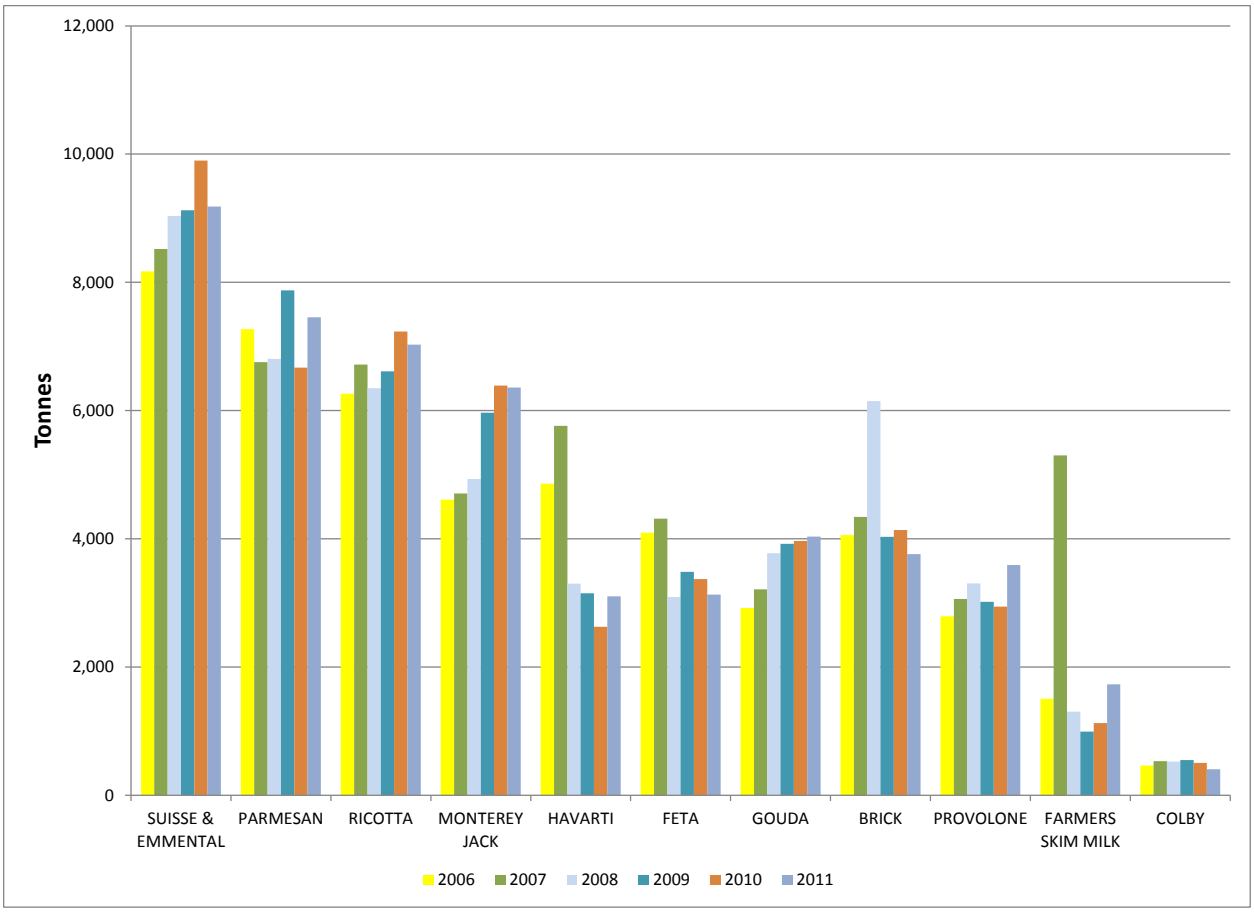
[3] Source: Canadian Dairy Information Centre and Canadian Dairy Commission. MSQ value at August 1.

Figure 2 Canadian Production of Selected Dairy Products



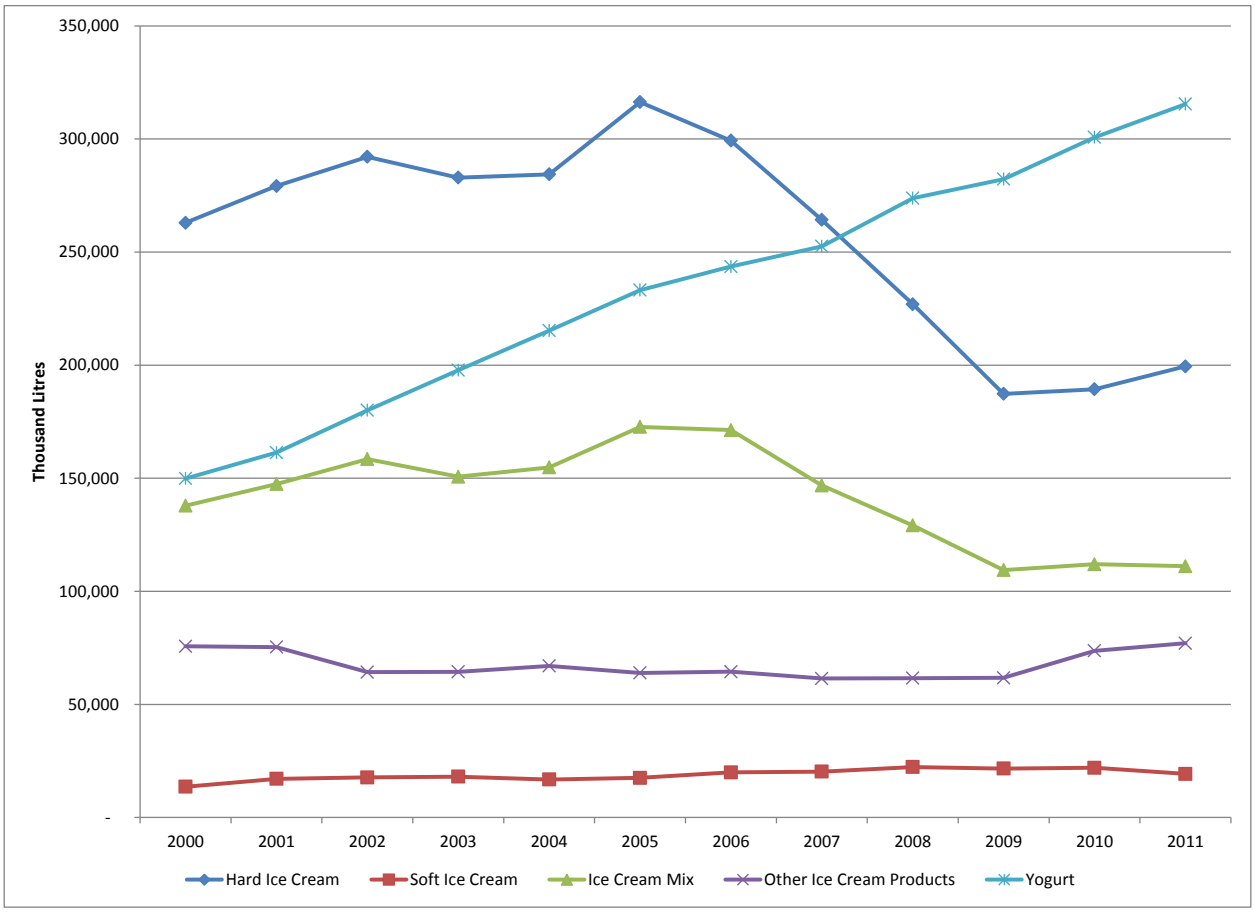
Source: Canadian Dairy Information Centre

Figure 3 Production of Selected Specialty Cheeses in Canada



Source: Canadian Dairy Information Centre

Figure 4 Canadian Production of Yogurt and Ice Cream Products



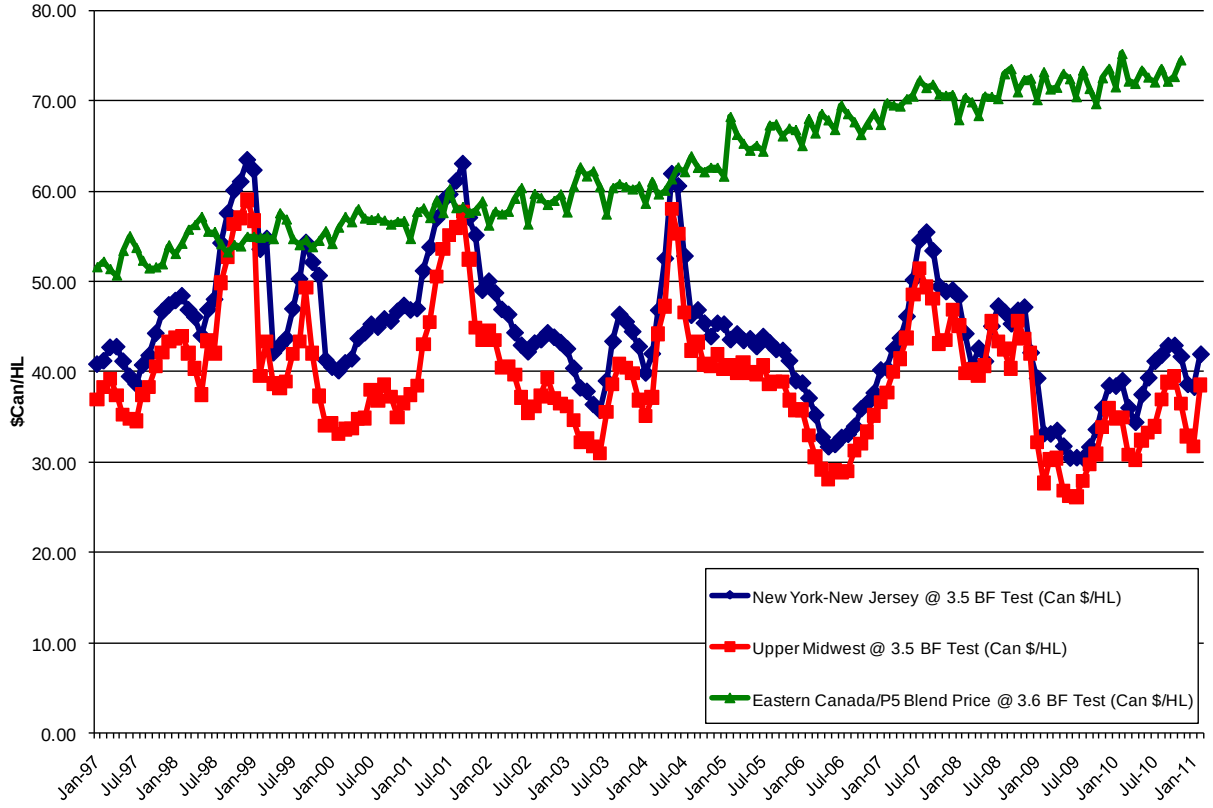
Source: Canadian Dairy Information Centre

The MSQ also contains milk marketed under Special Classes- milk used in dairy manufacturing that is competitively priced with imports. Effectively, milk marketed in special classes is priced at US-equivalent. As Figure 5 shows, this means that milk in special classes is marketed at a lower price than other pricing classes in Canada, because US milk prices have generally been much lower than Canadian milk prices[4]. Canadian milk prices are also much less variable than US milk prices, consistent with the fact that they are largely based on costs of production.

Following Canada's loss in the WTO dairy export case in the early 2000's, volumes marketed in Special Classes declined. As Figure 6 shows, in the period since the WTO decision there has been growth in special class volume as a proportion of the MSQ. Milk marketed in special classes has recently comprised about 12% of the butterfat, and just over 15% of the protein in the total industrial milk category.

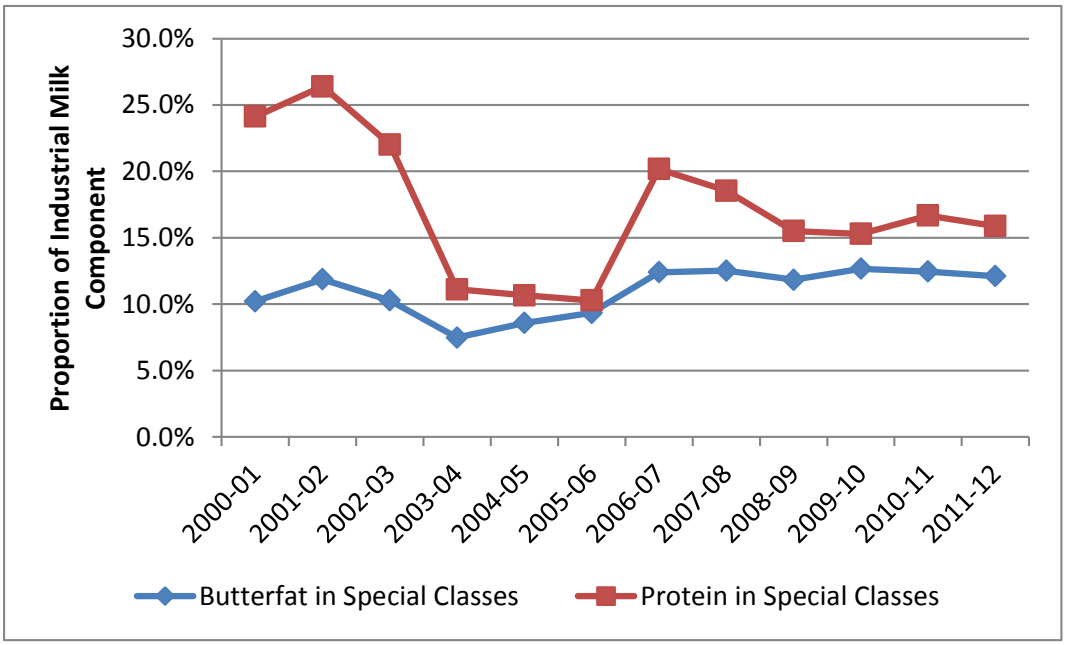
[4] It is practically difficult to compare milk price levels across countries due to differences in quality specifications. The figure quotes US and Canadian milk prices as pool averages, in common currency, and differing in quality specification by only one point on butterfat (Canadian pooling standard is 3.6 kg/HL, US standard is 3.5 kg/HL)

Figure 5 Eastern Canadian vs. US Regulated Blend Milk Prices



Source: Canadian Dairy Commission, USDA-Agricultural Marketing Service, George Morris Centre calculations

Figure 6 Milk Components Marketed in Special Classes



Source: Canadian Dairy Information Centre

Ultimately, the amount of milk that dairy farmers can sell and the volume the processors can handle depends on product markets. Sluggish growth in product markets thus translates into sluggish returns against investments in farm and processing facilities, and dampened incentives to invest in new farm and processing facilities. Special classes represent an attempt to obtain growth by reducing prices, and growth in these classes suggest that this has been somewhat successful. However, as noted below, cutting prices by marketing milk in special classes appears not to have reduced dairy imports- which are comprised of products that could have been manufactured in Canada, and supported industry growth.

Dairy Product Trade: A Growing Gap

Trade has always been an important aspect of the operation of milk supply management, in several respects. Canada's internal dairy pricing is broadly higher than world prices, so trade barriers (tariffs and tariff rate quotas) must be in place to avoid attracting excess levels of cheaper imports and then swamping the domestic market. Dairy imports have never been zero, and the makeup of imports can change over time, including product innovations that allow certain new products to circumvent existing tariff lines, which in turn influence the internal operations of the milk supply management system. Exports are also important to the system. Exports allow access to foreign markets with different growth trends than the Canadian market, and allow relief of dairy surpluses that can periodically build up within the supply management system.

Aspects of Canadian dairy policy have been shaped by international trade and trade rules. Very high tariffs protect the domestic dairy market in Canada; Table 1 provides an illustration, based on over-access tariffs for major dairy products. Tariffs on dairy imports coming into Canada are typically in excess of 200%. These high tariff levels and high domestic dairy prices naturally make dairy a target in international trade policy discussions. Dairy also forms the single largest source of Canada's domestic producer support within the elements that are considered trade-distorting in international trade discussions. Figure 7 provides an illustration, based on OECD estimates for Canada for the period 2006-08. Estimated market price support for dairy was about 50%, which is by far the largest among farm commodities in Canada tracked by the OECD. New tariffs on milk protein substances were introduced in 2008 in support of compositional standards for cheese, which protect market share for Canadian milk used to make cheeses.

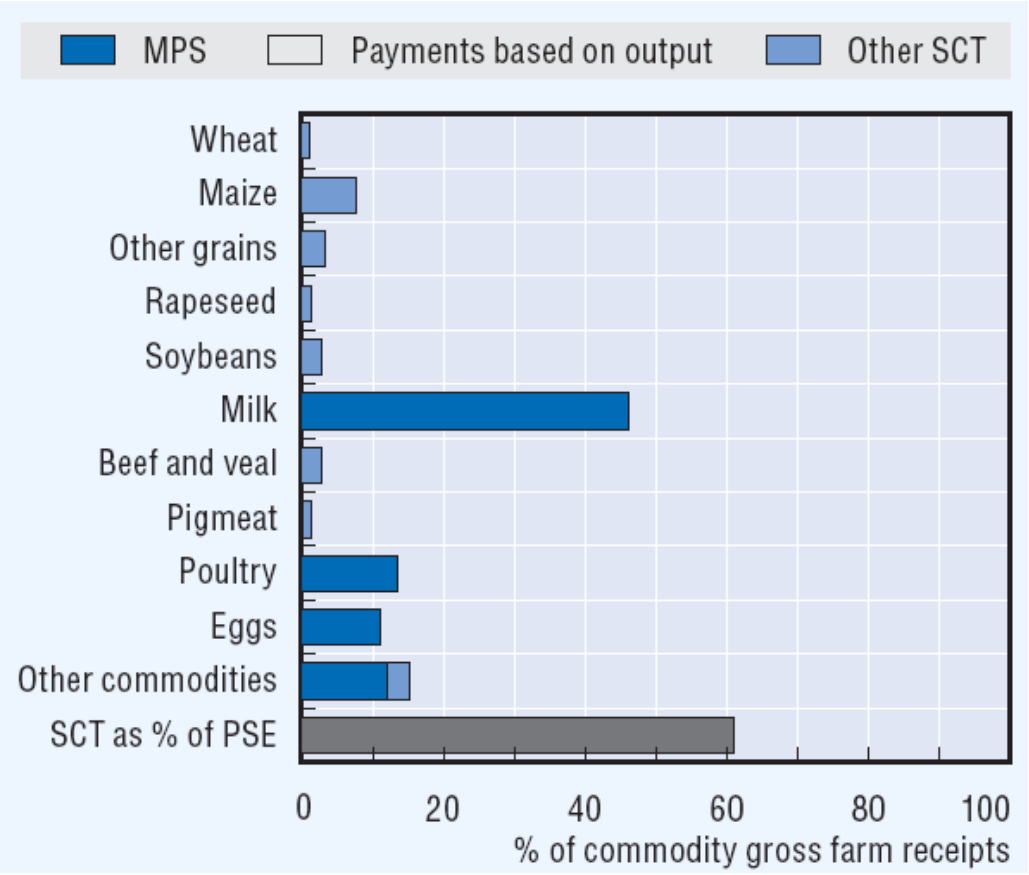
The prospect of trade challenges and past trade disputes have shaped the evolution of milk supply management. Canada's loss in a 2002 WTO trade dispute regarding export pricing constrains how, and the extent to which, Canadian dairy exports can occur. Canadian dairy exports are deemed subsidized and subject to subsidized export limits negotiated in the Uruguay Round Agreement on Agriculture. Thus, the supply management system must confront imminent threat of imports, dairy product innovations designed (at least in part) to circumvent existing import controls, and limited access to the export market.

Table 1 Canadian Over-Access Tariffs, Major Dairy Products

	Chapter	Percent
Cheese	0406	245.5
Butter, fats, oils derived from milk	0405	313.5
SMP	0402	201.5
Cream	0402	295.5
Whole milk and cream powders	0402	243-295.5
Whey	0404	208-270
Yogurt	0403	237.5

Source: International Customs Tariff Bureau

Figure 7 Single Commodity Transfer (SCT) and Market Price Support (MPS) by Commodity and as Proportion of Producer Subsidy Equivalent (PSE) 2006-08



Source: OECD

Data published by DFAIT and Statistics Canada[5] show that imports have been increasing markedly into the Canadian dairy market. Table 2 shows that imports increased by over 50% between 2004 and 2009, before retreating in 2010. Many product imports are bound by tariff rate quotas (TRQ) and tend to be relatively steady in volume over time; the growth is thus in imports of milk protein substances and products outside of TRQ.

At the same time exports have settled to a lower level. Table 3 shows that Canadian dairy exports in the last five years have ranged around 90 million kg. This is consistent with the outcome of the 2002 WTO dairy case which capped Canadian dairy exports at historic levels dating back to the early 1990's. Compared with the mid-2000's, the largest elements of the decline in exports are SMP and the "other" category- which consists of a range of products including sweetened dairy products, ice cream, lactose, and casein derivatives.

The observations on Canadian dairy trade complement the observations on the domestic market. A widening dairy trade deficit surely burdens domestic dairy market growth. More dairy products entering the Canadian market from elsewhere represent lost domestic market share to the Canadian dairy industry, as well as lost volume and lost growth. Due to Canada's export constraints, volumes lost to imports cannot be readily recouped through dairy exports. Ironically, even as Canada has introduced more import protection measures to support domestic policy- notably the new tariffs on milk protein substances- imports appear to have only exacerbated lagging domestic market growth.

Domestic Dairy Product Consumption: A Complex of Trends

Consumption of dairy products manufactured from milk represents a complex set of trends. In aggregate the market is mature; this masks the fact that some dairy products are experiencing strong demand growth while others are in absolute decline. Significant growth has been mostly limited to specialty cheeses and yogurt. Demand for more traditional products such as ice cream and butter has languished.

Figures 8 and 9 present trends in per capita consumption of major dairy products. Figure 8 shows that per capita cheese consumption is growing, driven by specialty cheeses. Growth in per capita consumption of cheddar cheese and SMP is stagnant and processed cheese is in decline, as is butter. Figure 8 illustrates the conflicting trends in two major soft product categories. The yogurt category has shown remarkable growth, with per capita consumption more than doubling since the early 1990's. It also shows the steep decline in the ice cream category, which is at about half of its per capita consumption of the early 1990's following an especially sudden decline recently. The ice cream data do not include data on analogue "frozen dessert" products made using vegetable oils, which appear to have grown rapidly in market penetration, and likely at the expense of ice cream.

[5] Data are reported by both DFAIT and Statistics Canada; where available, DFAIT data is cited. In Table2 the "Total Other" category is taken as an estimate based on the residual between major product categories reported by DFAIT and the total reported by Statistics Canada

Table 2 Canadian Dairy Imports, kilograms

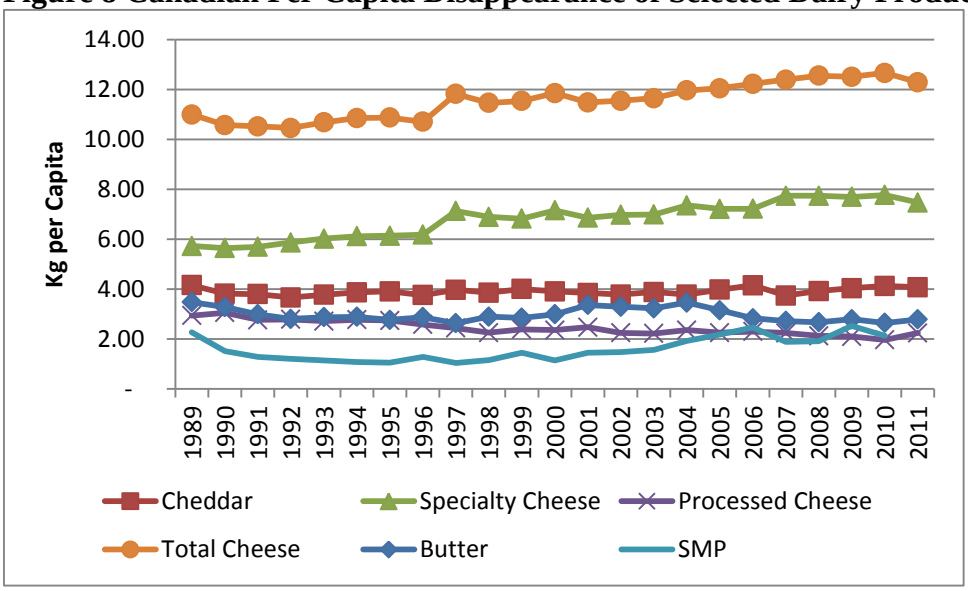
	Source	2004	2005	2006	2007	2008	2009	2010	2011
Total Cheese	DFAIT*	24,614,553	25,255,947	24,852,914	25,494,110	25,665,451	24,083,204	24,848,027	25,170,790
Speciality Cheese	DFAIT*	16,016,280	15,818,462	16,112,595	17,391,279	17,730,478	17,146,971	17,333,446	17,870,275
Butter, fats, oils derived from milk	DFAIT*	27,416,137	23,873,941	16,315,323	15,708,743	6,777,990	12,063,323	7,350,965	9,964,242
SMP	DFAIT*	2,409,476	3,512,638	3,309,656	2,769,721	4,166,298	2,842,795	2,842,795	2,407,226
Cream	DFAIT*	2,157,463	3,436,948	3,924,377	3,737,384	4,203,661	4,607,956	5,689,257	6,832,103
Whole Milk and Cream powd.	DFAIT*	23,723,581	25,036,894	22,087,088	21,965,109	12,497,331	2,619,093	2,332,598	1,536,530
Total Whey Powder	DFAIT*	14,124,477	15,536,101	13,677,769	13,330,079	11,280,597	10,944,421	6,046,654	3,684,469
Total Milk Protein Substances	DFAIT*	-	-	-	-	2,727,259	9,281,406	7,983,502	8,271,579
Yogurt	DFAIT*	436,182	469,814	546,877	523,990	515,989	7,001,033	7,145,770	589,620
Imports not subject to TRQ	Stat. Canada	73,554,991	91,059,459	98,894,717	110,897,820	121,580,949	215,317,981	172,863,644	43,896,142#
Total Other	Stat. Canada/ DFAIT**	17,215,186	15,308,095	11,899,228	23,439,092	35,047,225	24,313,989	41,956,131	46,696,472
Total Reported Imports	Stat. Canada	185,830,912	203,333,553	193,955,508	215,405,093	224,345,542	313,082,238	279,059,343	149,088,799#

*Includes Imports for Re-export **Estimate based on residual of total reported imports less above items
#Formal requests have been sent to Statistics Canada to review these data

Table 3 Canadian Dairy Exports, kilograms

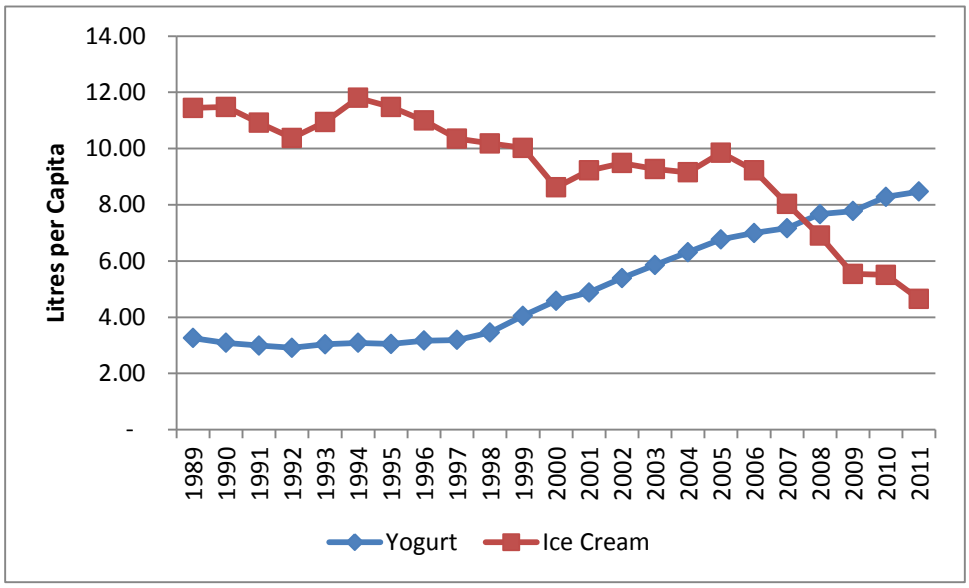
	Source	2004	2005	2006	2007	2008	2009	2010	2011
Total Cheese	Statistics Canada	11,192,756	10,343,524	9,708,001	9,432,266	9,869,096	9,488,780	8,963,146	8,838,057
Specialty Cheese	Statistics Canada	4,128,700	4,702,696	3,677,290	3,161,044	3,454,087	3,898,106	4,419,318	4,679,062
Butter	Statistics Canada	291,292	1,608,976	4,525,604	1,156,457	180,818	258,613	1,055,610	297,323
SMP	Statistics Canada	15,835,794	5,505,114	12,679,717	24,096,604	10,669,284	10,126,163	6,100,625	9,871,132
Milk and Cream	Statistics Canada	7,377,344	8,885,174	5,564,890	5,107,574	3,022,299	3,542,503	4,329,143	5,472,274
Whole Milk Powder	Statistics Canada	1,707,937	457,260	154,811	759,694	418,156	505,815	342,112	1,101,925
Total Whey	Statistics Canada	16,089,924	18,188,572	24,467,338	23,075,773	31,790,214	30,161,971	31,793,652	32,719,334
Total Other	Statistics Canada	57,444,670	69,772,959	65,065,960	55,871,817	31,379,466	29,637,042	34,348,704	32,031,18
Total Reported Exports	Statistics Canada	109,939,717	114,761,579	122,166,321	109,316,698	87,329,333	83,720,887	86,932,992	90,331,230

Figure 8 Canadian Per Capita Disappearance of Selected Dairy Products



Source: Canadian Dairy Information Centre

Figure 9 Canadian Per Capita Disappearance of Yogurt and Ice Cream



Source: Canadian Dairy Information Centre

A Diverse Consumer/Retail Segment

Trends in dairy product categories above illustrate that broad changes in dairy markets are occurring; changes in the introduction of product brands and formats at retail reinforce these changes. For example, Table 4 below presents new dairy product introductions globally, for top subcategories and the dairy foods category as a whole. The table shows that in recent years, well over 12,000 new dairy products have been introduced- ranging from new product concepts, to new packaging and new serving sizes. Within this trend, new launches of yogurt products have been the most frequent, followed by soft cheeses. In interpreting the table, it should be acknowledged that as new products are launched some others are discontinued, and many new product launches will fail and later be discontinued. The point is that important innovations are occurring in the retail dairy case. Discussions with Canadian retailers confirm that they are attuned to this trend as well. Thus, global dairy markets are seeing dynamic product development and innovation. Table 4 does not partition Canadian dairy product launches separately from global product launches; however, as discussed below, the complexity of milk allocation in the Canadian system is likely to limit innovation and new product launches in Canada.

Table 4 Global New Dairy Product Launches

	Spoonable Yogurt	Drinking Yogurt and Liquid Cultured Milk	Soft and Semi-Soft Cheese	Total Dairy Foods Category
2006	2,189	1,328	1,025	10,673
2007	2,507	1,553	1,338	12,942
2008	2,316	1,586	1,344	12,408
2009	2,452	1,404	1,426	12,727
2010	2,458	1,293	1,134	12,480

Source: International Dairy-Deli-Bakery Association

Balkanized and Bureaucratic Supply Management Administration

Milk production quota is resident within a province. In the mid-1990's Ontario and Quebec allowed trade in quota for a brief period, but this was later discontinued. As milk supply management has evolved, increasingly decision making on pricing is delegated to regional pooling blocs, consistent with broader regional economic relationships. There is a Western Milk Pool consisting of BC, Alberta, Saskatchewan, and Manitoba, and an Eastern Milk Pool, or P5, consisting of Ontario, Quebec, and the Maritime provinces. Many provinces within interprovincial pooling blocs (notably the P5) have also rationalized milk quota pricing and administration rules, but are not trading quota interprovincially. Discussions have also occurred toward combining the regional pools into a single, national pool (P10). These have recently concluded, but have fallen short of combining the regional pools into a single national pool.

Milk marketing boards are regulated at the provincial level, and many of the functions that influence the operation of regional pools remain at the provincial level. The authority exercised by regional pools is actually established at the provincial level through milk marketing boards; regional pools only have authority as an extension of provincial milk marketing boards. Some decisions on milk marketing are made at the level of regional pools, such as certain pricing decisions, while others are made at the provincial level, such as milk allocation to plants.
One of the difficulties with this is that the objectives of regional pools can come into conflict with the objectives of member-provinces. For example, a milk pricing rule established at a regional pool level that disadvantaged a dairy product manufactured in a given member-province might create a sharp backlash from that province, especially if it severely impacted one of the few plants in a small province. This latent prospect for conflict among pool members must condition the ambition of decisions made at the pool level, consistent with the fragmentation between pool decision making and provincial authority.

Milk allocation to plants by provincial marketing boards within a province can be bureaucratic and somewhat lacking in transparency. Practices used by provincial marketing boards can range in the specifics of implementation, but in all provinces, the milk allocation to plants generally draws upon the historic volume share of milk purchases, with some definition of priority milk uses[6]. For example, under the Dairy Farmers of Ontario milk allocation system[7], plants that purchase milk in Classes 1 or 2 can obtain milk "on demand" (they are free purchase their desired volume); plants that manufacture cheese (Class 3a or 3b) or butter and/or dried milk products (Class 4) are classed as residual use plants and their milk allocation is based on plant supply quota (PSQ). As such, plants in Classes 1 and 2 have their orders filled first; other plants have access to the remaining milk supply, proportional to their PSQ. However, within this framework there are redundancies and caveats- in the Ontario example, there are volume and growth limits on milk allocation to yogurt plants, which is formally within Class 2.

It is instructive to consider how a newly constructed dairy processing plant might access milk under this system. First, if it wished to process a product that is a priority use, it can have its volume filled "on demand". In the immediate term, this milk is allocated away from plants that are residual users in the province. If the product from the new plant created incremental market growth, this would later be reflected in adjustments at the national level in the MSQ, which is then allocated to provinces and distributed to plants according to provincial rules[8]. Conversely, if a new plant were constructed that processed a product in a residual allocation, it would need to acquire PSQ from another processing plant in order to be allocated milk. Finally, in practice, much is left to discussions and individual agreements between the processing plant and its provincial milk marketing board in determining allocation according to raw milk vs. milk components/milk solids.

At the same time, under classified pricing, milk allocation to plants by marketing boards influences the ultimate value generated from milk. Table 5 below provides an illustration, based

[6] Several of the examples below cite examples from Ontario. These serve only as illustrations; other provinces use very similar systems, with most differences being minor or technical
[7] https://www.milk.org/Corporate/pdf/Processors-MilkAllocationPolicy.pdf
[8] Growth adjustments under the MSQ are themselves cumbersome. New growth in the MSQ is allocated 10% on historical provincial production share and 90% on provincial population growth

on Ontario component prices at a standard milk test, as of February, 2012. The table shows the classified end-use prices charged to processors that form the blended price which is the basis for settlement with farmers. For example, Class 1 milk is higher priced than milk marketed in Class 2, which is higher priced than milk marketed in Class 3, etc. The milk allocation system is based

Table 5 Ontario Classified End-use Prices, February, 2012

Class		Price ($/HL)[9]
1(a)	• egg nog • cordials • cultured milk • concentrated milk to be reconstituted as fluid milk	$ 94.76
1(b)	• All cream with a butterfat content ≥ 5% for Retail and Food Service	$ 93.00
1(b)ii	• Fresh cream with a butterfat content of ≥ 32 % used to make fresh baked goods which are not eligible for a Class 5 permit. Any utilization of this class would require a Class 1(b)ii permit.	$ 93.00
1(c)	• New 1(a) and 1(b) fluid products for Retail and Food Service as approved by the provincial authorities during an introductory period.	$ 80.54 / $ 79.05
1(d)	• 1(a) and 1(b) fluid products marketed outside the ten signatory provinces but within the Canadian boundaries	$ 94.76
2	• All types of ice cream, ice cream mix, yogurt, kefir • All types of sour cream • All types of milk shake mixes • Other frozen dairy products • Fudge, puddings, soup mixes, caffeinate and Indian sweets	$ 81.81
3(a)	• All cheeses other than those identified in Class 3(b) • All types of cheese curds other than stirred	$ 78.60
3(b)	• All types of cheddar cheese • Stirred curd • Cream cheese • Creamy cheese bases (cheese mixes) • Cheddar and cheddar-type cheeses sold fresh	$ 77.11
4(a)	• All types of butter and butteroil • All types of powder • Concentrated milk as an ingredient in the food industry • All other products not elsewhere stated	$ 76.80
4(a)1	• Milk components for the manufacture of rennet casein (dry or curd, Milk Protein Concentrate (dry or liquid) or Skim Milk (dry or liquid) to be used in the manufacture of non-standardized final products in the processed cheese category.	$ 52.40
4(b)	• Concentrated milk for retail sale whether sweetened or not	$ 77.78
4(c)	• New industrial products as approved by provincial authorities for an introductory period.	…
4(d)	• Inventories and losses	$ 76.80
4(m)	• Milk components for marginal markets as established by the CMSMC	…
5(a)	• Cheese used as ingredients for further processing	$ 43.40

[9] At standard test 3.6 kg/HL butterfat, 3.23 kg/HL protein 5.68 kg/HL other solids

5(b)	• All other dairy products used as ingredients for further processing	$ 39.13
5(c)	• Dairy products used as ingredients for the confectionery sector destined for domestic and export markets	$ 34.57
5(d)	• Planned exports and other exports approved by the CMSMC, the total of which shall not exceed Canada's WTO commitments	Contract by contract basis

on historical purchases and stated priority end-use categories, not on the products manufactured in a given plant per se. End-use milk pricing is based on categories of product manufactured. Thus, allocation is not coordinated with pricing, apart from the fact that classes marketed in Classes 3 and beyond are residual use and subject to allocation under PSQ; but even this is not consistent, as indicated in Class 5(d) contracts and with yogurt within Class 2 described above. To make the point, the blend price for farmers would increase if a marketing board could reallocate standard test milk from a butter plant (for example) which pays the Class 4(a) price, to a cheese plant that pays the Class 3(a) price; but no mechanism exists to make such autonomous changes, apart from priority utilization or plants trading PSQ. Admittedly, this is complicated by the fact that milk components have different values across end uses and the components themselves can be allocated across end uses. But the fact remains that milk allocation affects overall milk value, but milk value only loosely guides milk allocation.

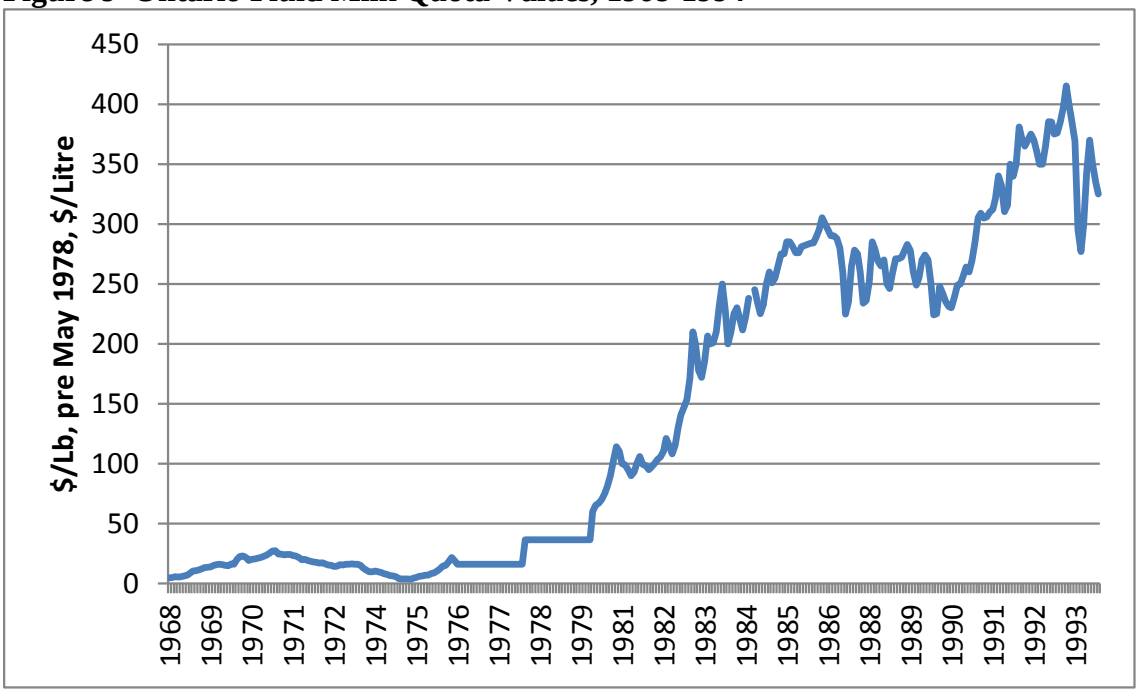
It is thus somewhat striking that globally, dairy products are experiencing rapid innovation and product growth/development, yet the mechanics of supply management in allocating milk to plants are quite inflexible and not very market responsive. To be fair, new product innovation is driven by competition in product markets as well by milk allocation, and attempts have been made to make milk available for new products- for example, the Canadian Dairy Commission (CDC) facilitates market growth through new products under the Domestic Dairy Product Innovation Program (DDPIP), which allows processors apply to the CDC for new or supplemental allocation of milk for use in new product development. Unfortunately, milk volumes available under DDPIP are limited in both volume and time period, and new products that are successful under the program will eventually end up being allocated milk under the conventional system. As an important driver of product marketing, supply management administration cannot afford to be out of step with innovation and competition dairy products without risking the sustained viability of processing operations in Canada.

Increasingly Interventionist Milk Quota Administration

Today, a single producer quota is used for both fluid and industrial milk, based on its butterfat component. On a typical basis, production quota for one kg of butterfat is needed per milking dairy cow. Milk quota values were subject to regulation at the provincial level early on, but for most of its history markets in milk quota under supply management have operated relatively freely, and under a free market, quota values have increased substantially. Recent increases in quota values have occurred to the extent that regulating quota exchanges between farmers and associated dairy farm transfer arrangements have become a regulatory focus of provincial milk marketing boards. This is especially the case in eastern Canada. The effect has been to suppress milk quota prices to a regulated level.

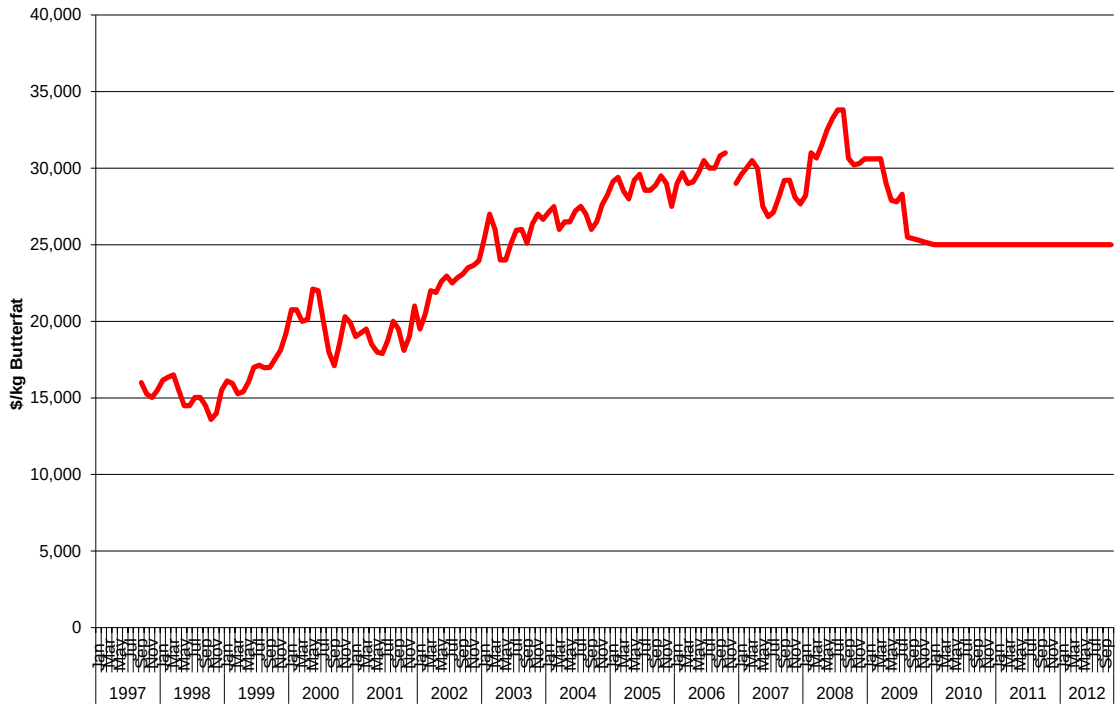
Figures 9 and 10 provide an illustration based on Ontario, which long ago established an electronic milk quota exchange. Initially, separate quotas existed for fluid milk and MSQ. Figure 9 presents Ontario fluid (Group 1) quota values from 1968 to July 1994. The figure shows that in the early period of supply management, quota values traded in the range of $5-$20/lb of milk/day at a standard 3.6 butterfat test. In 1976, the Ontario Milk Marketing Board began regulating milk quota prices at a level of $16/lb and later at the metric equivalent of $36.32/litre. In 1980 price controls were removed and fluid milk quota values increased aggressively. Between 1980 and 1994, fluid milk quota values increased from $36/litre to $325/litre. Ontario converted to a single quota for fluid and MSQ in 1997; between 1997 and 2008, quota values increased from around $15,000/kg butterfat to well over $30,000/kg. Quota values have since decreased through the imposition of quota exchange rules, initially introduced in November, 2006 and reformulated in 2009.

Figure 9 Ontario Fluid Milk Quota Values, 1968-1994



Source: Dairy Farmers of Ontario

Figure 10 Ontario Milk Quota Values Since Fall 1997



In 2009, a mandated price cap of $25,000/kg was implemented along with a range of new features that include an assessment levied on quota sellers, constraints on bids and volumes traded over the exchange, and controls on movement of milk quota across farm premises by a single owner. In other provinces where quota values and exchanges have not been subject to these rules, milk quota values are much higher; for example, BC milk quota values have recently ranged well over $40,000/kg.

Table 6 provides an indication of the effect of the price cap and associated measures on quota transfers, based on Ontario data. The table shows that prior to 2006/07, the volume of quota traded through the quota exchange averaged around 4-5% of total quota holdings in that year[10]. Since then, consistent with new quota exchange rules, the volume of quota traded annually through the exchange has decreased, and has recently fallen to just over 1% of total provincial quota holdings. The effect is thus to block latent trades of quota, which would otherwise provide purchasers with improved utilization of farm facilities and returns against durable farm assets.

[10] Quota can also be exchanged through within-family transfers and in conjunction with purchases of farms as ongoing entities, in addition to the provincial quota exchange (if the province operates one)

Table 6 Quota Exchanged Relative to Fluid Quota and MSQ Base, Ontario

	Quota Exchange Transactions as Percentage of Quota Holdings
1999/2000	5.47
2000/2001	4.09
2001/2002	4.71
2002/2003	5.03
2003/2004	4.8
2004/2005	4.23
2005/2006	4.80
2006/2007	2.71
2007/2008	2.26
2008/2009	1.76
2009/2010	1.55
2010/2011	1.12

Source: Dairy Farmers of Ontario

Farm Financial Performance

Table 7 below presents selected financial statistics and performance measures. Consistent with the trend in milk quota values observed above, the market value of dairy farm assets and equity has grown materially. Dairy farm asset values in Canada almost doubled on average between 2001 and 2010; the financing of this growth in assets was split between debt and owner's equity, with debt growing at a faster rate. Appreciation in owner's equity approximately kept pace with growth in operating earnings at about 4-5%. However, this rate of return implied by operating earnings/equity is relatively low, and the implied rate of return if the ratio were taken against the market value of assets would be lower still. At the same time, the ratio of farm debt to operating earnings increased by about 36% between 2001-2010.

Table 8 presents a frame of reference for the ratio of debt relative to operating earnings. Dairy farms appear to have a consistently high debt/operating earnings ratio relative to other farm types. This is clearest in comparison with grain and oilseed farms, potato farms, and other vegetable farms. Certain other farm types, notably hog and cattle farms, have seen periods with much higher debt/operating income; however, these can readily be explained by market events that sharply reduced earnings, rather than a long-run buildup of debt. Dairy farms carry relatively high levels of debt compared with operating earnings consistently.

Table 7 Canadian Dairy Farm Financial Measures, with Selected Ratios

	Total Assets	Debt	Equity	Operating Income	Operating Income/Equity	Debt/Operating Income
2001	1,982,297	433,651	1,548,647	69,291	4.47%	5.90
2002	2,119,152	482,205	1,636,946	69,999	4.28%	6.77
2003	2,288,139	558,482	1,729,656	73,786	4.27%	7.59
2004	2,485,245	617,183	1,868,062	78,152	4.18%	7.96
2005	2,743,914	684,012	2,059,903	93,885	4.56%	7.15
2006	2,882,515	679,539	2,202,976	95,881	4.35%	6.95
2007	3,131,425	805,615	2,325,810	102,842	4.42%	7.91
2008	3,418,274	941,214	2,477,060	103,556	4.18%	9.07
2009	3,484,507	983,556	2,500,951	105,590	4.22%	8.61
2010	3,667,607	1,005,128	2,662,479	133,336	5.01%	8.01

Source: Canadian Farm Financial Database. Assets and equity at market values; based on unaudited statements

Table 8 Average Canadian Farm Debt/Net Operating Income, 2001-2010

	Dairy & Milk Production	Poultry and Eggs	Grains and Oilseeds	Fruit and Nut	Potato	Other Vegetable & Melon	Hog & Pig Farming	Beef Cattle Ranching and Farming
2001	5.90	3.81	3.66	8.07	4.44	4.23	3.90	5.48
2002	6.77	4.43	3.64	7.61	4.61	4.29	9.02	6.59
2003	7.59	4.84	4.89	6.50	4.44	3.55	11.96	17.61
2004	7.96	4.57	5.00	7.31	7.75	5.78	6.49	10.17
2005	7.15	3.26	5.96	10.29	4.62	4.31	4.32	8.45
2006	6.95	4.27	5.22	5.54	5.87	3.33	8.89	11.90
2007	7.91	5.90	4.08	5.80	6.16	4.50	9.60	11.61
2008	9.07	5.81	3.25	8.21	4.29	5.37	26.80	9.78
2009	8.61	4.79	3.51	10.89	5.52	5.97	22.17	13.67
2010	8.01	5.36	1.15	10.24	5.09	4.12	8.3	16.26

Source: Canadian Farm Financial Database. Unaudited.

Implications of Milk Marketing System Challenges

The previous two papers in this series established that the primary objectives of milk supply management are to control surpluses, increase producer returns, and offset processor market power at acceptable government cost; other countries have developed dairy policies to address similar problems. The system has evolved consistent with these objectives. But its apparent success in meeting these objectives masks important, internal challenges to the system. To date, these issues have not created a crisis- however, there are important interrelated frictional issues that require serious engagement and resolution, and which will lead to crisis if unresolved.

As acknowledged, overall growth in Canadian dairy markets has been slow. The product mix in the dairy industry is diversifying, and within the overall climate of stagnant growth there are important countertrends in product growth, as exemplified by yogurt and specialty cheeses. The regulated system of milk allocation has been challenged to accommodate the range of product growth trajectories and raw milk demands by processors and to be coordinated with the classified end-use pricing system. Milk pricing, with cost of production as its primary driver, struggles to be responsive to the range of milk demands- even with the end-use class fragmentation. At the same time, growth has been hampered by the emergence of strong substitutes- such as frozen dessert products and milk protein concentrates used as substitutes in dairy manufacturing, as well as imports of new products that fall outside standard import control measures. The increase in imports, in turn, is a reflection of the challenges with milk allocation, innovation, and pricing in the domestic market.

In a market which is mostly mature but with some growing segments, transparent and flexible milk allocation is particularly important. Unfortunately the existing system struggles on both counts. Ultimately, slow growth and uncertainty regarding milk allocation influences market incentives to invest in dairy processing in Canada versus other markets where more rapid growth is occurring and where there is greater certainty of access to raw product at lower cost.

The negative trade balance facing the Canadian dairy industry exacerbates sluggish domestic growth. Exports have been held in check by a past WTO decision. In addition to the implied loss in markets and growth, it makes it difficult for the system to manage any surpluses that occur within the system. At the same time, dairy imports are up- especially in dairy ingredients that substitute for milk ingredients in processing and further processing. Under a Canada-EU Trade Agreement, expected in late 2012 or early 2013, the speculation exists that some form of additional market access may be offered to the EU on dairy products, which could further exacerbate the trade deficit, and further frustrate domestic market share and growth.

Milk supply management struggles with its fragmented regulatory framework. On one hand, provinces have committed to regional pooling agreements and have aspired to a true national pooling agreement. On the other hand, much remains at the provincial level. The dispersion of national, regional, and provincial interests invites disputes and intransigence as the incidence of market opportunities and location of processing facilities does not fall uniformly across provinces, or consistent with the dairy industry scale of individual provinces. There are economic incentives for increased scale and specialization of dairy processing plants; however, if such investments were to require redirection of milk across provincial boundaries, it creates the

prospect for territorial disputes across provinces. Past regulation and technology established the geography of dairy processing plant infrastructure; this history is not necessarily consistent with current market and technology realities.

Another element is the allocation of milk to supply plants within a province. There need not be any direct correlation between the prospective growth that a plant has for its products and the milk allocated to it, as it is largely based on history and plants do not compete with one another for the raw milk supply used in processing. It also lacks transparency. A current example is the apparent challenges in supplying a new greenfield Greek yogurt plant in Ontario. In order to secure a milk supply for the new plant, in the immediate term, milk must be allocated away from residual uses, creating concerns among residual allocation plants in the province. In this case, the conflict may have been averted by allocating the new plant skim milk; however, as new dairy plants are established to develop diverse and niche customer markets, the potential for conflict will re-occur.

In much of the country, milk quota markets have been placed in a gridlock situation. By regulating quota exchanges to suppress quota prices, it has restricted access of quota available, and thus new investment, earnings, and efficiency. This ultimately impacts financial measures and returns, effectively reducing the utilization and returns to durable investments on dairy farms and the earnings realized against them. This, in turn, shows up on dairy farm balance sheets, as the ratio of debt to operating earnings appears relatively high and the associated operating earnings/equity levels low.

Conclusion: Challenges to Improve the Operations of Supply Management

Supply management agencies are well aware of these issues, and in many cases are actively working to engage them. For example, DDPIP was created to allocate milk for new product innovation; challenges with milk allocation and growth were a focus in the recent P10 discussions. However, the structure of the system and its fundamental objectives makes engaging these issues aggressively difficult, instead lending itself to marginal changes. For example, the DDPIP milk allocations are sharply limited in volume and time period; this protects against sharp increases in supply, surpluses and declines in price, but then can only be of limited value in achieving innovation and market growth. The P10 discussions addressed provincial allocations in the MSQ, but ultimately these are constrained by existing federal and provincial rules on quota allocation and milk allocation to processors. Thus, these initiatives represent marginal changes which are not proportionate to the challenges placed on the system.

The challenges facing dairy policy, while potent, do not mean that milk supply management must be abandoned or discontinued. Many of the initiatives taken by supply management agencies, such as DDPIP and P10 are attempts to address issues and take the dairy industry in the right direction; for the most part, this is occurring without the motivation of a burning platform recognizable to many in the dairy industry (especially dairy farmers).

As observed in the first paper in the series, milk supply management has proven to be a robust marketing system. However, larger and more fundamental issues need to be addressed to

improve the efficiency and operations of supply management than is currently occurring. And since domestic market growth, milk allocation, pricing, and trade are inextricably linked, piecemeal changes are unlikely to be effective. The system is capable of bold and disruptive adjustments when they are necessary- for example, in 1976 the MSQ was decreased by 18% in one year to curb serious surplus production. Contemplation of decisive changes such as this to allow supply management to operate more effectively is warranted.

The nature of reforms that could allow Canada's milk supply management to operate more effectively and allow it to be less of a hot button issue in trade negotiations, leading to greater growth, innovation, and vitality in dairy industry, will be the subject of the fourth and final paper in this series.