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BACKGROUND

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Freeing up Food: The Ongoing Cost, and Potential Reform, of Supply Management

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In this issue...

Government-mandated agricultural cartels impose high costs on consumers and harm Canada's standing in international trade talks. A gradual phase-out of supply management through sales of new quota offers a way out.

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THE STUDY IN BRIEF

Canadian dairy, poultry and egg farmers – the “supply managed” farm sector – account for roughly 20 percent of annual sales in agriculture. Under the supply management system, domestic producers are able to control the price and supply of their goods; production quotas limit what leaves farms’ gates, and large tariffs block the entry into the country of similar goods.

While this government-mandated cartel allows producers to sell their goods for higher-than-free-market prices, this comes at the expense of domestic consumers, new entrants and robust competition. In international trade negotiations, Canada’s position is becoming all the time more cumbersome: it aggressively defends supply management barriers while demanding improved access to foreign markets for other domestically produced goods.

Supply management policy in Canada is supported by producers and other vested interests. But a move to a more market-oriented system offers benefits for consumers, a more competitive food industry – and new revenue for fiscally challenged governments.

Given the challenges that lie ahead, we suggest that Ottawa and the provinces begin a regular auction of new quotas, gradually expanding the supply of agricultural production quotas over a time horizon of 20 years. This should be coupled with the immediate elimination of direct producer price administration.

Eventually, increased supply from new domestic production would bring domestic producer prices in line with competitive world prices. Our proposal would eventually phase out the quota system, while protecting above-market producer profits for a 20-year period.

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INDEPENDENT • REASONED • RELEVANT

Since the early 1970s, “supply management” has subjected Canadian dairy, poultry and egg production – accounting for roughly one-fifth of annual sales receipts in Canadian agriculture – to government-mandated cartels.

Introduced to increase producer power vis-à-vis intermediaries and consumers, and thus raise farm incomes, supply management supports higher-than-market prices by administering producer prices and controlling farm output through production quotas, while high tariffs prevent food processors and consumers getting alternative supplies from abroad.¹

Primary producers who received production quotas at the outset, or bought them subsequently, benefit from these schemes. Consumers, and much of the domestic food industry, face higher-than-free-market prices and a more limited selection of products. As standard analysis of monopolies would lead one to expect, these arrangements impose losses on consumers that exceed the gains to producers: society enjoys less of the supply-managed products than would be the case in a free market.

The complexity of this system has increased over time, and the context surrounding it has changed. Initially, proponents feared that without supply management there would be a decline of family-sized farm production and significant vertical integration. But these shifts have happened anyway, in both supply-managed and other agricultural sectors.

The main thrust of this policy – to ensure higher incomes for producers than a free market would support – is inconsistent with the general desire of Canadians for quality goods at reasonable prices. But it has not been an unmitigated success for farmers. Government control of entry has blunted competition, hampered innovation, and slowed

entrepreneurship. Premium prices for production quotas make entry costs punishingly high for new farmers. Supply management may be doing more harm than good to new generations of farmers, casting doubt on the system’s sustainability.

The loss to society from these legally sanctioned monopolies is, moreover, bigger than the apparent gains to producers would suggest. Operating the schemes, lobbying to maintain them, and jockeying for advantage within them all absorb resources that would otherwise be devoted to satisfying consumers. From a fairness point of view, supply management privileges a few insiders by imposing costs on larger numbers of consumers, who are deprived of a wider selection of products and price competition. Furthermore, the system hurts the interests of Canada as a trading nation by undercutting Canada’s potential role as a positive force in multilateral trade liberalization talks.

Other countries have looked at these defects and dealt with them. New Zealand and Australia, countries that pioneered marketing boards in the 1920s and 1930s, have largely abandoned the cartel model.² Yet in Canada, the policy persists. Producers, who have a very large stake in the system, are concentrated in marginal ridings with political clout – mainly rural regions in Ontario and Quebec (Skogstad 2008). As well, the existence of artificial shortages has generated other vested interests in the production chain with a stake in the system’s continuation. And very importantly, production quotas have enormous market value – a fact that inhibits abrupt abolition of the system, yet at the same time suggests a route toward phasing it out over time.

In this paper, we propose a gradual expansion of the supply of agricultural production quotas over an horizon of 20 years, coupled with the immediate elimination of direct producer price administration. We expect that an increased supply of production quotas will put downward pressure on their prices, and this process should continue as producers of supply-managed commodities adjust to a

We thank Sylvain Charlebois, Michael Hart, Alex Laurin, Katie Macmillan, Karl Meilke, Finn Poschmann and Bob Seguin for comments and discussion, and emphasize that we alone are responsible for the analysis and recommendations in this paper.

- 1 Canadians who might turn to foreign suppliers to escape the cartel encounter a tariff rate quota – a two-part tariff. A minimum access commitment allows imports equal to around 5 percent of the quota amount, which is approximately 20 million kilograms in the case of cheese, for example; imports above that amount attract a tariff of around 250 percent, on average (Barichello et al. 2009).
- 2 The authors’ use of the term “cartel” refers to the market outcomes from the operations of supply-management in Canada. Whereas *The Competition Act* (Canada) prohibits agreements between producers to fix prices, allocate markets and restrict output, in the case of supply-management it is the marketing boards that impose prices and quotas on everyone.

competitive marketplace; one where the prices of these commodities are set in the open market.

How the System Works

The initial allocation of quotas in the 1970s was free; today, most farmers trade existing quotas to one another through provincial exchanges. New quotas are introduced when national bodies and committees forecast demand to increase, as well as under certain provincial new entrant programs, such as the Dairy Farmers of Ontario's New Entrant Quota Assistance Program. National bodies – the Canadian Dairy Commission, Chicken Farmers of Canada, Egg Farmers of Canada, Turkey Farmers of Canada, and Canadian Hatching Egg Producers – oversee the overall system and the distribution of quotas to each province. Provincial boards – for instance, the Dairy Farmers of Ontario and the Fédération des producteurs de lait du Québec, which together account for about 80 percent of Canadian dairy quotas – oversee the pricing of supply-managed goods, the annual sale of quotas on exchanges, and the enforcement of quota limits.³

Because they provide the right to produce a cartel-controlled good – kilograms of fluid and industrial milk in the dairy sector, kilograms of meat in the poultry sector, and dozens of eggs for egg producers – quotas are valuable. And because they can be bought and sold, we can track their prices, which reflect the capitalized value of future returns.

Quotas Represent Sizeable Implicit Incomes for Producers

Many factors determine a production quota's value: product prices; interest rates; changes in the market for farm credit, such as increased willingness of

lenders to accept quota as collateral; perceptions of risk; expected growth of demand; and assessments of the likelihood of trade liberalization (see Box 1).⁴ At \$28 billion in 2008, the aggregate value of production quotas in Canada was up threefold from 1995 (Table 1), with the average supply-managed farm holding some \$1.5 million worth of production quota.⁵

Since the buying and selling of production quotas is like any other business decision, we can quantify the extra income associated with the right to produce the goods they restrict. For farmers of supply-managed products, the income associated with owning a quota should be the same as the return from investing in alternatives, including financial instruments.⁶ One alternative would be long-term federal government bonds – a relatively risk-free investment with a yield of about 4 percent. If quota holders held those instead, the resulting income would have been some \$1.1 billion in 2008 (\$28 billion multiplied by 4 percent). Another alternative investment would be the average weighted yield from long-term corporate bonds – a riskier proposition that pays a higher yield. That alternative puts the 2008 income from quotas at \$1.6 billion (\$28 billion multiplied by 5.6 percent).⁷

If the buyers of quotas see governments as likelier to rescind their support for supply management than to default on their debt on the one hand, and likelier to support supply management than to bail out businesses generally on the other, then the investment risk they would see in quotas would be somewhere between that on sovereign and corporate debt. Hence, the implicit income from quotas is probably between these two figures. On its face, then, income from quotas is worth between \$1.1 and \$1.6 billion annually to holders.

3 Barichello (2002) provides a detailed overview of supply management governance in Canada; Goldfarb (2009) does so specifically for the dairy sector.

4 Quota value rose when the World Trade Organization's Uruguay Round came into effect in 1995. This increase may have occurred because previous concerns that the Round would result in larger tariff reductions on supply-managed commodities had depressed prices, and when the conclusion of the Round alleviated these concerns, farmers were willing to pay higher prices for quota.

5 To combat the negative effects of rising prices for dairy quotas, provincial dairy boards have tried to cap them. In addition, a harmonized cross-province quota system is being phased in to cap prices of quotas across provinces. At the time of writing, this has resulted in a dramatic fall in the number of quotas offered for sale on the Ontario dairy quota exchange.

6 Appendix B in Forbes et al. (1982) gives a clear microeconomic account of factors that can lead to over- and underestimation of estimates of additional producer profits from quota values.

7 Farm Credit Canada presently allows quota as collateral for some loan offerings, placing quota in the same category – but not necessarily at the same credit rating – as real estate as a backstop for credit.

Box 1: Understanding a Quota's Value

The value of quota – the right to produce a cartelized good – is the discounted value of the future net income its purchaser expects from owning it. Following Barichello (1996), we can decompose the value of quota in parallel fashion to the valuation of a perpetual annuity:

$$\text{Quota Price} = R \cdot (1-d) / (r + d - g)$$

Where R = the annual net return of the quota (price less marginal costs)

d = a default risk factor

r = the interest rate

g = the growth rate of the annual net return.

This formula formalizes several intuitive points:

- With regard to risk, for example, expectations of policy changes that would undermine the cartel – e.g., because of international trade negotiations – would raise the implicit value of d, and the quota price would fall.

- Quota value is negatively correlated with the market interest rate. If the cost of borrowing falls, for example – or, alternatively, if the returns available on alternative investments fall – the price of a quota will rise.
- Expected growth in the market for supply-managed commodities will affect the value of quota. To the extent that the cartel raises prices for milk, chickens and eggs, for example, expected growth in consumption will fall as processors and consumers substitute other goods, limiting the extent to which the higher price boosts quota value.

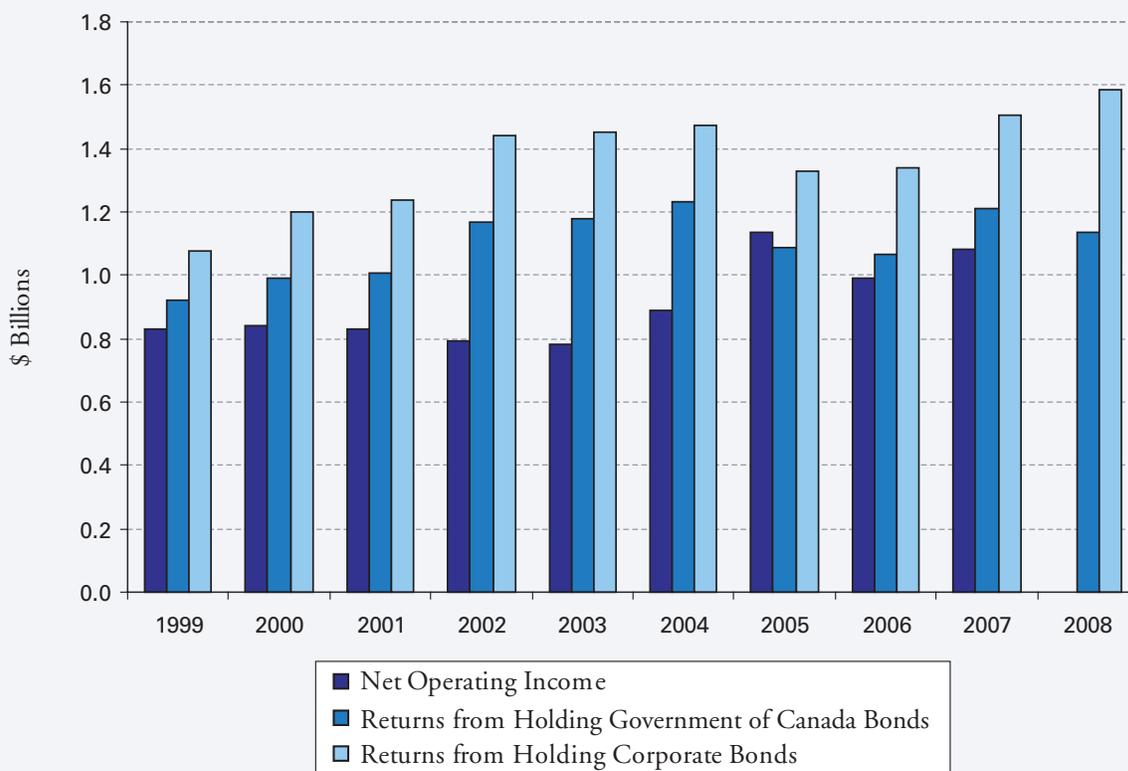
An additional consideration would be expectation of a government buyout (Barichello et al. 2009). In this case, an additional term, $d \cdot E(x)$, where $E(x)$ is the expected terminal value of a quota in any given period, would also appear in the quota price equation.

Table 1: Aggregate Quota Prices on Upward Trend, 1995 to 2008

Year	Supply Managed Quotas	Dairy Quotas (\$ Billions)	Poultry and Egg Quotas
1995	9.6	7.6	2.0
1997	11.0	9.2	1.9
1999	16.2	13.6	2.7
2001	17.4	14.1	3.4
2002	20.6	16.2	4.4
2003	22.3	17.6	4.7
2004	24.3	19.4	4.8
2005	24.8	19.3	5.5
2006	24.8	19.3	5.6
2007	27.8	20.7	7.1
2008	28.2	21.0	7.2
Average Annual Growth 1995-2008	11.4	(percent) 10.7	13.9

Source: Statistics Canada Canadian Financial Farm Database.

Figure 1: High Annual Returns to Quotas: Supply-Managed Net Operating Income* vs. Alternative Investment Returns, 1998 to 2008



Note: Net Operating Income includes capital cost allowances in expenses.
Sources: Statistics Canada Canadian Financial Farm Database, and authors' calculations.

Yet Producers of Supply-Managed Products Benefit Relatively Little

As noted already, monopolies or cartels create net losses: producers enjoy benefits smaller than the costs imposed on consumers.

One hint that the net benefits to producers are less than the implicit income estimates suggest is available by comparing the implicit incomes to the before-tax operating income of farms producing supply-managed commodities, as in Figure 1. The implicit income from quotas, when calculated at either the sovereign-risk yield or when valued at the weighted average corporate-bond yield has been consistently near or above net operating income. Treating the mid-point of these two estimates as a definitive figure, moreover, shows that the implicit

income from quotas has tended to remain steady relative to net operating revenues, and rise relative to net operating income, from 119 percent in 1995 to 126 percent in 2007. If producers were enjoying extraordinary profits from the cartel system, one would expect net incomes to be larger than in other businesses by an amount equal to the implicit income from quotas. But they are not: the higher revenues generated by the cartel system's restriction of supply are not reflected in the bottom line because the system also generates costs, many of which likely increase over time.

One obvious cost is the debt charges farmers pay when they purchase a quota with borrowed funds. For instance, publicly available figures suggest that an entry-level quota represents around 75 percent of start-up costs for commercial chicken farming.⁸

⁸ See the Tobacco Transitions website for farmers of Oxford, Elgin, Norfolk and Brant Counties in Ontario: <http://www.tobaccotransitions.com/suite/list/news.php?id=29>. (Date of Access: May 10, 2009).

Although tradable quotas provide one avenue for more efficient operators to displace less efficient ones, high entry-level costs give incumbents a leg up on would-be entrants (Turvey et al. 1995), weakening competitive pressure. The system inflates other costs as well: past producer gains have likely been capitalized into land prices, for example, further raising barriers to entry, and inhibiting the transfer of land and other assets to more productive uses outside the supply-managed sector.

A more subtle cost to producers and to society involves the resources producers use in lobbying governments to maintain and tighten the system, or to promote their own interests within it. To invest in activities related to the operations of the cartel makes sense for farmers as individual entrepreneurs, but the frictions from protecting these interests raise costs for the sector as a whole, reducing the profitability of farms and absorbing resources that could be used for other purposes, such as making farms more efficient and environmentally sustainable, or giving consumers better, healthier food.⁹

Innovations that would otherwise be welcomed for expanding consumer choice – new milk products or substitutes for making ice cream, yogurt and cheese, for example – threaten the cartel system. When domestic milk prices are much higher than their international counterparts, food producers have incentives to import processed goods and substances that are not classified as dairy at the border – such as ice cream with enough sugar content to qualify as a sugar product, not a dairy product. In response, federal authorities have been expanding the list of prohibited products and tightening border controls to keep them out. The adverse impact of supply-management on the competitiveness of Canadian food manufacturers prompted a “Special Class Permit System” in 1995, which allows purchasers of industrial milk for use

in dairy products, or purchasers of processed dairy products, to access different prices depending on end use. Food processors, for example, are sometimes allowed to buy cheaper Canadian cheese for use in exported frozen meals. This has created a whole new arena for lobbying and conflict over limited access to cheaper imports.

The restriction of sales of product or quotas across provincial boundaries further raises costs and generates friction.¹⁰ Some commentators and tribunals have argued that the considerable regulatory and revenue-raising powers governments have delegated to marketing boards are not accompanied by appropriate governance structures, transparency and accountability.¹¹ The unique focus on producer interests is overt in the case of the Canadian Dairy Commission, of which the Chairman, CEO and an additional Commissioner – appointed by the Minister of Agriculture – are all former dairy farmers (Charlebois et al. 2007).

The Case for Reform Now

Frustratingly, the large implicit income from owning quotas compared to the operating incomes of farms producing supply-managed commodities both testifies to the inefficiency of the system and underlines the incentive for farmers to maintain it. One straightforward interpretation of these figures would be that without a cartel, the sector would make much lower returns, and maybe losses. While producers are acutely conscious of their short-term interest in maintaining the system, consumers tend to be less aware of its costs, which are spread across a much larger population than are the benefits to producers.¹² The November 2009 report by the House Committee on International Trade, which insisted that Canada make no concessions in negotiations at the World Trade Organization or in

9 Hart (2005) documents the extraordinary improvements in quality of Canadian wine – once a byword for undrinkability – after the Canada-US Free Trade Agreement prompted progressive deregulation of the sector, and argues that the same improvements could be expected following an end to supply management in dairy and poultry.

10 New dairy quota is usually distributed on a pro-rata basis, where Ontario and Quebec represent about 80 percent of Canadian dairy quota holdings. The fine details of dairy quota distribution are, however, so complex that space does not permit a full discussion (Barichello 2002).

11 On the former point, see Quebec (2008, 79-80); on the latter, “Tribunal orders milk quota fee refunded,” *The Globe and Mail*, 26 June 2008, B8.

12 A recent survey found that although roughly 70 percent of individuals surveyed consume milk daily, a similar proportion did not know that milk is more expensive in Canada than in the United States. A majority of those surveyed had not heard of the Canadian Dairy Commission and did not know what it does (Charlebois et al. 2007).

its talks with the European Union, was a discouraging reminder that producer interests vastly outweigh consumer interests in current trade liberalization deliberations.

Notwithstanding this discouraging configuration of forces, there are good arguments for reforming the system, and doing so sooner rather than later. To begin with, there is the simple accumulation of evidence supporting well-known arguments against monopolies and cartels in general. The adverse consequences of supply management have been documented over more than three decades (Borcherding and Dorosch 1981, Forbes et al. 1982, Lippert 2001, Stanbury 2002, Goldfarb 2009). Between 1995, when the Bank of Canada began targeting 2 percent inflation, and November 2009, the overall consumer price index rose 32 percent. The prices of all food purchased from stores rose 39 percent over that period, while prices for poultry, dairy and eggs rose 61, 51 and 54 percent, respectively. The statistics for dairy, the most important cartel-controlled product, tell a story of an industry in both economic and political decline. Production has never regained its pre-1970s peak; per person consumption of milk has been falling 1 percent annually since the late 1980s, and the number of farms producing milk has plummeted by nearly 60 percent since 1992. Any arguments that milk, eggs, chicken and turkey might be extraordinary products to which ordinary economics do not apply get no support from this experience – so policy motivated by the public good should not continue to heed them.

As for timing, the distortions created by supply management are worsening as the system entrenches. The importance of supply management to farm balance sheets has increased steadily since the early 1980s: quotas amounted to around 4 percent of total equity in 1982, but had surpassed

11 percent by 2008.¹³ To the extent that farmers are borrowing against the value of quotas, the cartel is generating political risk for financial institutions, and creating a further vested interest in the maintenance of a damaging system. Delaying action, to be blunt, does not help.

Moreover, in a world where production is increasingly integrated across borders – a trend affecting food as well as other products – restrictions on production and imports do increasingly visible damage. Responses to that damage generate newer, more complex tensions.¹⁴ Granting access to low-priced imports only to certain food processors, for example, hurts other food processors and businesses such as restaurants that do not gain such access. High prices for dairy products increase the incentives to use non-dairy substitutes, which other considerations – including health effects – might otherwise discourage.¹⁵ As well, the need to maintain quantitative limits and prohibitive tariffs has neutralized Canada's traditionally pro-liberalization stance in international trade negotiations, hampering our pursuit of other national interests.¹⁶ Even within Canada, the federal government's devotion to these programs has inhibited it from supporting provincial initiatives to remove internal barriers.¹⁷

A further motivation for action in the near term is different: current economic and fiscal stresses make the economic distortions caused by supply management even less tolerable than in more prosperous times. For governments to sanction and enforce monopolies that raise the prices of basic foodstuffs at a time when Canadians generally are feeling an economic pinch makes no sense.

Producers also have long-term interests – such as succession plans and the well-being of new generations of farmers – that could breathe life into the potential for reforms. The current system may,

13 See Statistics Canada Catalogue no. 21-016-XWE.

14 Supply management forces Canada into a mercantilist trade stance that is increasingly anachronistic. Dymond and Hart (2008) explain how commodity-oriented protectionism undermines economic development in a world where production chains are increasingly integrated across national borders.

15 Perverse effects abound. With regard to free-range eggs, one producer colourfully observes that the monopoly blocks new, innovative products: "If consumers could taste the alternative, they'd want more." The upshot is a black market in these eggs – which, by its nature, is not subject to the same health safeguards as the mainstream product. *Globe and Mail*, February 24, 2010 "Crackdown!" Page L2.

16 See, for example, Herman (2007). Differences over agriculture led to the July 2008 negotiation collapse of the Doha round of trade negotiations. Canada was once a foremost participant in liberalization: now, its support of supply management has made it all but irrelevant.

17 For instance, its role in enforcing supply management appears to have discouraged Ottawa from signing onto the 2006 Interim Agreement on Internal Trade in Agriculture and Food Goods.

in the eyes of old producers, seem to have served them well; however, years of bureaucratic barriers to entry and cost escalation have made current producers apparently more dependent on high tariffs to protect them from foreign competition than their predecessors were. Long-term benefits of competitive markets, such as productivity enhancements and competitiveness, are inevitably secondary to the competition-limiting imperatives in supply-managed systems.

A Proposal for Regular Auction of New Quotas

Incremental reforms are possible. A small step would be to make pricing formulas more transparent, and make the production cost of the most efficient producers the most influential – if not the only – variable in determining prices. Winding down similar monopolies elsewhere has involved buy-outs of old quotas or liberalization accompanied by temporary subsidies, which can be financed by taxation and/or levies on consumers.

At a time when the economic slump and bailouts have pushed government budgets deep into the red, however, a different approach merits attention. By sanctioning these monopolies, governments have created an artificial asset that has value. Since they are now hungry for revenue, why not monetize this asset: sell more quotas?

Governments selling property created by regulation is a familiar spectacle: recent auctions of electromagnetic spectrum for purposes such as wireless communication have raised substantial

revenues. Unlike the creation of property rights in electromagnetic spectrum, however, which has the public-good benefit of limiting interference among different users of the same frequencies, restriction of the ability to produce supply-managed goods produces a net loss to society. So a scheme to expand production of supply-managed goods should aim to eliminate this loss over time – reaping additional revenues for governments until supply has expanded to meet demand and prices for previously cartelized goods are set in the open market.

For simplicity, consider how a 20-year program to sell new quotas at a pre-announced pace and transition to a market system could work for dairy farmers – Canada’s largest supply managed group.¹⁸ In broad outline, the program could involve coordinated sales of quotas under the auspices of each provincial agency, with the provinces receiving the revenue. The production-cost formula for administering producer prices – a largely unnecessary pillar to ensure domestic market price control – for fluid and industrial milk would be abandoned, and the federal government would phase its tariffs out over the life of the program.^{19,20}

Over time, the increased supply from new domestic production would bring the domestic producer prices into line with world prices. Demand for dairy products would rise, and producers would continue to be paid from a pooled price scheme.²¹ A simple illustration follows.

To determine the price impact from issuing new quotas each year, we assume that producer prices fall at roughly three and a half times the rate at which supply increases, in line with observed

18 Reforms that are similar in principle could be applied to the poultry and egg sectors and boost revenues available for government. In line with this soft-landing approach, we are also supportive to the option of an extended buyout with a two-quota system, each associated with a different milk price. This option would involve a gradual, targeted decline in domestic prices of supply-managed goods, and give producers the option to trade-in old quotas – perhaps at existing prices – for new quotas conferring the right to produce at the uncontrolled price. Consumers would face only the pooled and gradually declining price, set according to a predetermined schedule (Barichello et al. 2009). Where producer compensation is deemed necessary, a time-limited levy on consumers can subsidize producers during the change, as occurred in the case of Australia’s dairy reforms.

19 These higher tariffs that apply to imports above the minimum access commitment are often higher than needed to keep out foreign goods – a situation often described as “water in the tariff.” In our proposal, initial over-quota tariff reductions would reduce the water in the tariff, after which more controlled reductions would maintain domestic prices until the end of the program.

20 Advance announcement of the program would allow adjustment by lenders against quota, who would wish to either reduce their exposure or obtain different collateral for their loans.

21 Similar to today, where the Canadian Dairy Commission uses surplus purchases of butter and skim milk powder to help determine the level of consumer demand, smooth consumption seasonality, and set producer prices, this mechanism could be kept in place to facilitate a transition to lower farm-gate prices and higher production. But the formal price administration pillar of the system would be abandoned by letting quota supply dictate prices.

Table 2: Predicted Aggregate Quota Values, Quota Issues, and Revenues from Quota Auctions under Proposed Reforms, 2009E to 2029

Year	Quota value (\$M)	Additional quota to be auctioned (million kg butterfat/year)	Above market returns (\$M)	Revenue from quota sale (\$M)
2009E	21,003	0.0	1,015*	0
2010	10,325	1.2	996	35
2011	9,328	1.2	940	31
2012	8,389	1.2	885	28
2013	7,504	1.3	833	26
2014	6,671	1.4	782	23
2015	5,888	1.5	734	21
2016	5,155	1.6	686	19
2017	4,469	1.8	639	18
2018	3,830	2.0	593	16
2019	3,237	2.3	547	15
2020	2,690	2.6	501	13
2021	2,188	3.0	455	12
2022	1,734	3.5	408	10
2023	1,326	4.2	359	8
2024	967	5.1	308	7
2025	659	6.2	254	5
2026	405	7.6	197	3
2027	208	9.5	137	1
2028	71	12.1	71	0
2029	0	15.5	0	0
Total	–	84.7	11,340	293

* This initial implicit income value corresponds to the calculations performed earlier in the paper as explained in Box 1.

Note: Each unit of quota permits a farmer to produce one kg of butterfat per day. Total national quota production equals roughly 300 million kilograms of butterfat per year. At 305 kg of butterfat of annual production per unit of quota, roughly 980,000 units of quota exist nationally.

Source: Authors' calculations.

responses to price changes.²² To benchmark the amount supply must increase to lower the returns from owning quota, we use the difference between Canada's producer prices and the world market reference price. This reflects the gap between current and true market prices. Today, domestic producer prices are assumed to be roughly 2.5 times greater than market prices.

We then choose a level of additional quotas to be issued annually – above necessary changes for population, and at an increasing rate – to drive the difference between domestic and world prices to

nothing by 2029, which would mean that the price of quotas falls to zero. An auction of 0.4 percent of today's total quota²³ – about 1.2 million kg of butterfat – that rises to 16 million kg of butterfat by 2029 should ensure gradually declining, above-market returns.

Were the dairy system reprogrammed to expire in 20 years there would be an initial, unavoidable reduction in total quota value, resulting in a balance sheet adjustment for dairy farmers. At a discount rate of 4 percent, access to only 20 years of protected markets and decreasing returns to quotas, there

22 This corresponds to estimates of price elasticity of demand for fluid milk, around -0.25 to -0.40.

23 Canada wide, the production quota amounts to around 300 million kg of butterfat/year (Goldfarb 2009).

would be an immediate drop in total dairy quota value from \$21.0 to around \$10.3 billion. This sizeable drop occurs because quota values would now reflect a limited time horizon of diminishing superior returns. Future quota values would fall to below \$3.2 billion by 2020 and approach zero by the end of the 20-year period (Table 2).

Above market returns would remain robust for dairy farmers in the short- and medium-term, however, and the gradual schedule of quota expansion would leave around \$11.3 billion in guaranteed profits for producers, in discounted terms. Because an annual auction of new quotas could raise roughly \$0.3 billion in provincial government revenues over the next 20 years, however, some funds would be available to cushion the blow – to provide transition packages to those dairy farmers who may decide to leave the business, for example.

Maintaining producer milk prices above market levels for a limited period would encourage the more efficient producers to purchase more quotas today and reap privileged market returns. Yet, the fact that quota values would decline over time would pressure producers to devise strategies for working without quota supports – becoming more customer-focused and entrepreneurial, and perhaps even export, as their Australian dairy counterparts did in spectacular fashion after their system changed. If new quotas were transferable across provincial boundaries, such a program could ease the fragmentation the current system imposes on Canada's internal market.

Conclusion

It is easy to be pessimistic about the prospects for reforming supply management. The favourable features of the system come at no great expense to government, but are passed along in higher and annually increasing consumer costs. Producers in a cartel, like those who enforce it and vested interests further along the supply chain, have short-run interests in maintaining their privileged position. Further, each vote in rural ridings has more clout than each vote in heavily populated urban ridings, making reform difficult. That said, the interests of the next generation of actual and would-be

producers may work with consumer interests to bring about a market-oriented approach to these key agricultural sectors.

The costs of the system are mounting – both domestically and in Canada's international relations. It is neither responsible nor realistic to assume it can continue indefinitely. Since the inception of supply management in the 1970s, the number of farms producing milk for sale has shrunk by 85 percent. As the 2008 Report of the Commission on the Future of Agriculture and Agrifood in Québec observed:

“Either the agriculture and agrifood sector . . . opens its systems to innovation and entrepreneurial initiatives, or certain changes will happen by themselves, due to current circumstances, new consumer trends, and competition from other products from home and abroad. And if competition forces our hand, the changes will probably occur in chaos and stress, with plant closings, bankruptcies, social controversy, and human tragedy.”²⁴

A gradual but significant expansion of supply through annual quota auctions and tariff-rate quota liberalization provides a path for reform that avoids massive short-run trauma, but would be revolutionary in the long run. New producers and processors, and existing ones constrained by the current system's rigidities, would bring new and better products to the market. A major impediment to freer internal and international trade would disappear. Governments, moreover, would reap additional revenues during a time when they are badly needed – revenues that would not hurt economic performance as new taxes would do, but would accompany a beneficial liberalization.

Canada has shown itself able, time and again, to grapple successfully with major economic policy challenges. Other sectors, such as telecommunications and transportation, have undergone major liberalizations and emerged more dynamic in their wake. On the agriculture and agrifood front, progressive deregulation and trade liberalization turned Canada's wine industry from a laughingstock to a winner of international awards. A similar change is long overdue for Canadian milk, poultry and eggs.

²⁴ Report of the Commission on the Future of Agriculture and Agrifood in Québec (2008, 15).

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