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Supply Management: What It Is and Its Pros and Cons

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Abstract

The tradition of letting the government regulate the supply of dairy products in Canada has lasted for more than half a century. While voices of reassembling this system have been raised by some interest group, many benefitted from such management style. The detailed measures of the Canadian diary regulation system demonstrate great patience and consistency in protecting the welfare of its farmers, while potentially jeopardizing the wellbeing of the entire industry, including the long-term benefits of the ones they are trying to protect. This paper focuses the pros and cons of Canada's dairy supply management system and offers some practical advices on its future improvements. It is not an analysis of the current or future status of the dairy sector in Canada, but how it reacts under current supply management regulation. Supply management has been long criticized and supported by different people of interests. While it is true that many of the problems existing in today's dairy industry are caused by supply management, the system shouldn't take all the blame. Supply management has indeed improved a lot over the past decades and has already taken measures to resolve the conflicts mentioned above. It has evolved to be a better fit for the highly centralized, capital-oriented and globalized dairy sector today.

Keywords

Supply Management, Pros, Cons, Surpluses

1. Introduction

Many developed countries, including Canada, intervene heavily in their respective dairy industries, using a set of policies that involve the three basic elements in the production process—quality, price and quantity. The dairy industry is a significant and growing part of the Canadian agricultural economy, not just in its contribution to the nation's GDP, but its important role in a healthy, balanced diet as well.

The Canadian dairy industry runs under a sophisticated yet useful supply management system that intervenes the dairy sector with measures like price supports, import and export restrictions and subsidies. This system brought more profits to dairy farmers than in other countries from the higher prices, but also shifts most costs onto the consumers.

One question that arises from these phenomena is 'What are the pros and cons of this system?'. Naturally since these measures are aimed to maintain the sustainable development of the whole industry, they balance the benefits of both the consumers and the producers. The critics and supporters of these measures all have strong arguments, which will become a main focus for the rest of this essay [1].

As early as the beginning of the 19th century, the government had started to regulate the quality of the milk products. Then in the 1930s it began regulating price. Finally in the fifties it controlled the quantity produced. By the time the Canadian Dairy Commission was founded in the 1960s, the foundation of a healthily developed industry had been built. At that time the market needed a mechanism for milk production that would help avoid costly surpluses for both the supply and the demand side. The CDC and its corresponding supply management were born with such purposes.

Generally speaking, supply management restrains dairy, poultry and eggs in Canada, which are all industries with high barriers to enter, and essential in a healthy diet. As literally indicated, it imposes controls in the quantity produced or imported and the price on the market to ensure farmers a fair return and consumers a stable and secure supply of the dairy products. While it shields the producers in this system, and protects them from potential harms caused by price volatilities, supply management is often accused of violating the policy of free trade and enhancing protectionism, for it doesn't ensure the economic benefits of consumers.

One thing to note is that supply management is a product of modern economic theory, and fits into the macroeconomy framework. Suppose that due to temporary fluctuations, the price of dairy products increase dramatically during a short time, then dairy farmers will react by putting more labor and capital into production [2]. However, after some time the high price at the retail level will draw the entire demand level down, causing the whole industry to sink. Such impact is even more severe if it happens to synchronize with the global financial crisis.

The Canadian dairy industry, however, didn't suffer any loss from any crisis. Not only were the supply and demand equilibrium unaffected, the government didn't have to intervene as well. As it would seem, the production rules given to producers at the micro level, along with the restrictions put by supply management was quite effective in stabilizing the domestic market [3].

While many believed that this was a classic crisis of imbalance between supply and demand, there is another explanation that states the implication of US losing competition advantage in the world market. The US dairy industry, unlike supply management in Canada, didn't have such strict regulations against international trade.

2. Recap on Some Definitions in Economics

Economies of Scale: In most economics' contexts, scale is equal to quantity. Economies of scale is used to describe the cost advantage that producers obtain due to the quantities they produce. In both theory and real-world examples, as the quantities produced gradually increase until a certain level, average cost of the production decreases. However, after some point, the average cost will then increase. If market price of the goods remains constant regardless of the quantities supplied, then producers will remain at the lowest average cost level to achieve maximum profit per unit. Economies of scale come from different sources, like fixed cost (barrier to enter) and lower per-unit cost if purchased in large quantities.

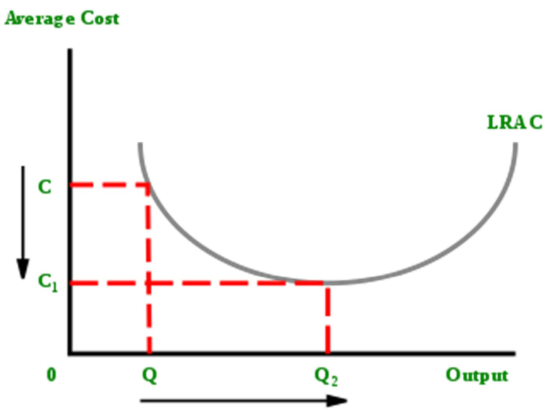

Figure 1. *Long run average cost for a typical firm.*

If, however, the production level is restrained at somewhere before the lowest point, then producers will have to settle at the sub-optimal position. They will have to produce at a cost higher than the best situation. This will cause structural dead weight loss to producers, and also drive up market price that makes consumers worse off [4].

Consumer and producer surplus: In a free market, both the supply side and the demand side have their function that regulate quantity and price. Generally speaking, the higher market price is, the smaller quantity consumers will demand, and the larger quantity producers will supply. While constructing models, the supply function and the demand function are drawn in the same graph, and the intercept point is the market equilibrium where both the consumers and the producers are willing to trade for this quantity at this price. The consumers are willing to trade at any point on the curve that represents demand function, but are happier if they can make a deal at a lower price. The producers are just the opposite, and will be more pleased at a higher price. Therefore, the concept of surplus is used to illustrate exactly how much these two parties benefit from the transactions. Generally speaking, the consumption taxes on each item traded will reduce either the consumer or the producer surplus. The purpose of regulations on consumptions like milk in this essay is to maximize total surplus, the sum of both sides' surpluses, and at the same time balance consumer surplus and producer surplus [5].

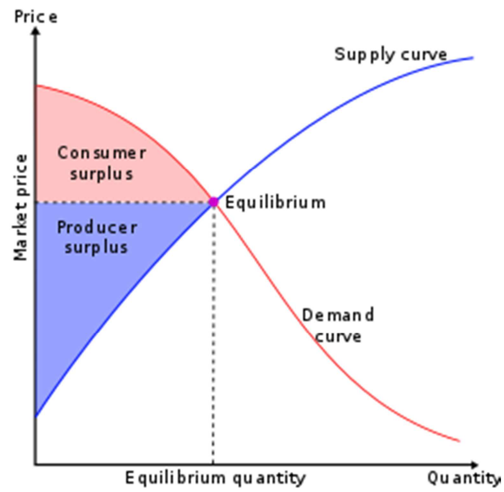

Figure 2. *Market equilibrium with no restrictions.*

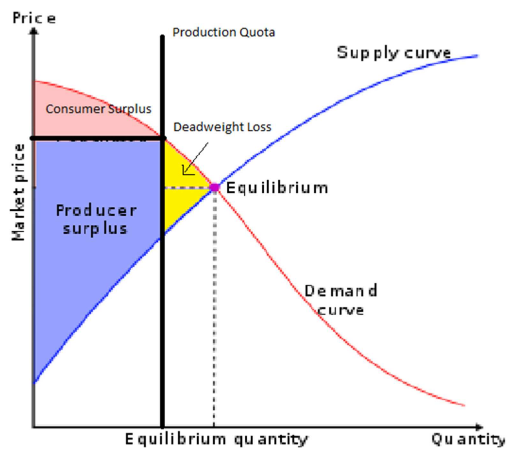

Figure 3. *Market equilibrium with production quota.*

3. Supply Management

3.1. The Concept of Supply Management [6]

Back in the 1960s, one of the reasons that promoted the assembly of CDC was that Canada was gradually losing its access to the UK dairy market. That is why one of its three key features of supply management was to enhance the import restrictions on dairy products. The two other features were regulating quantities produced by issuing an aggregated production quota and setting a cost-based industrial price.

Production [7]: It is never easy to identify the exact figure for the nation-wide supply and demand of any goods in real life situations. The inappropriate approximation of the relationship could lead to overproduction and a chain of negative consequences afterwards (much like the 2009 US dairy crisis). This is even more so for a perishable product like fluid milk. Therefore, the industry generally uses the stocks of buffer products like butter as an indicator of supply-demand relationship. When supply exceeds demand in the dairy market, the extra fluid milk will be made into butter or milk powder. Therefore, if the stocks of these products exceed a certain level, then it indicates there is now excess supply on the market. And if the stocks decline to a warning level, then it indicates an excess demand compared to supply. While the quotas are allocated to producers on a provincial level, they are in fact, a tradable good that stands for a large proportion of a farm's value. This is another reason for regulators to carefully estimate the quotas they distribute on a national level, since this affects the farmers' wellbeing's greatly.

Price [8]: The regulation on price often correlates with the regulation on quantities. While the government offers a production level on ration, it also sets a target price that ensures profits for producers. The target price for fluid milk relies on production cost, disposable income and inflation rate.

Import restrictions [9]: As one of the main factors that shaped the CDC and supply management as they are today, impact from the international markets is also considered a potential threat to the domestic market. Import restrictions from the Canadian government on dairy products are in the form of tariffs, just as many other countries. As for the exports, supply management doesn't directly forbid such actions, but limits subsidized exports, unlike the US system.

Some other regulations that are kept along the way is steady quality control. As early as the 19th century, government has begun to regulate the qualities of milk the farmers supply. Simple hygiene problems are no long the issue after farmers adopted a machine-oriented production method. Now the public is more concerned about food additives. Canada holds a strict rbST-free rule on milk, which is, according to supporters, have higher quality and less likely to have breast cancer. Food adulteration has always been a controversial matter. For one thing, some adulterations actually lower the production costs of the food, offering price advantage compared to pure organic ones. For another thing, negative effects of adulteration may take a long time before finally exposed to the public. The debate on adulterations is not going to be further discussed in this essay. However, different policies on food additives among countries make it more difficult to isolate the impact from supply management [10].

3.2. Critics of Supply Management

However, supply management suffers many pressures ever since it was first created. Before going through any further details, we must illustrate that the interest parties involved in the dairy market are not the traditional two-end producer-consumer model. In the domestic market alone, there are four groups that endure profits or suffer losses. The four parties are producers, processors, consumers and regulators. Milk producers are mainly individual farmers who collect milk from their farms. Most of the products they get are not sold directly on the market, but are bought by dairy producing companies. In Canada, we have the 'big three'—Saputo, Agropur and Parmalat, three leading companies that play the role of processors in the Canadian market. Consumers, as in the traditional sense, are the ones that buy the milk products at a retail price. The role of regulators can be easily neglected, but they represent the organizations like CDC that issue and enhance supply management, which is costly and supported by municipal taxes. If we lay eyes on the international level, then exporting along with the results it brings is also something to consider.

From the producers' side, the highly restricted quota can be an obstacle if they want to increase production. As mentioned earlier in this essay, quotas decided at the national level are distributed layers by layers, until every farmer in the country gets the assigned share. The quotas they get are with limited growth over the years, making it hard for any farmer who wants to increase production. In fact, the most common way they use to enlarge production scale is to buy shares from their peers—farmers that are willing to transfer some of their shares to others. Because of its high entrance cost, such transactions usually mean exiting from the dairy industry. As the industry becomes more concentrated over the years, quota prices are forced upwards, making investments more costly. Under such circumstances, the cost of expanding production is higher, and there is little incentive to adopt economies of scale.

It is also believed that producers under supply management can't produce at the level that maximize their outputs in a restraints-free case. In theory, to achieve maximum profits, producers always produce at the quantity that marginal costs equal marginal revenue. However, the limitations imposed by supply management suggest that producers may not be able to produce at that level. Moreover, the production quotas and the price cap make it more costly to adjust production level, and in equilibrium, a farmer may be forced to use the second-best option.

The processors in Canada face a threat from a different angle. One of the rituals that are kept as part of supply management until today is the restrictions on inter-provincial trading of dairy products. This didn't seem to be an issue half a century ago, since most producers at that time were small and local. Therefore, each province had its own pooling on milk products, and paid the processors a target price according to the proportion of final milk products. However, in a globalized environment as today's, business often runs on a national basis.

The three leading producing companies mentioned above—Saputo, Agropur and Parmalat are all multinational corporations that operate in different countries and areas. In order to allocate resources and to prevent potential pricing arbitrage, larger pools are formalized. Meanwhile, many provinces in the west still have small processing plants, which are less efficient than the larger ones. This reflects an increasing conflict between the provincial-based milk allocation and the trend of globalization [11].

As for the consumers, it is still under debate whether Canada has a higher price of milk than the US. Based on the ways the comparison is conducted, different results may occur. For example, Canada only provides its consumers with rbST-free milk, which is cheaper than that in the US. This causes different opinions in whether this can be evidence to support a conclusion. One thing to note is that there is indeed a compulsory minimum price on milk, which could be evidence of a higher price level. However, no matter what the conclusion may be, food expenditures are already a small proportion of a household's total consumption, and milk products even more so. Even if there is a large difference in milk price, it may end up being a minor influence on a household's consumption basket. Therefore the majority of consumers may not consider this a problem that worth attention. Nevertheless, it is a fact that under Canada's system, there is a trend for consumers to shoulder more costs than other circumstances [12].

There is also a problem that affects both the supply and the demand side. As population and GDP per capita increase, per capita consumption on milk has actually declined. However, according to Statistics Canada, this is only true on traditional milk, for people now prefer low-fat milk products and milk substitutes like vegan milk. Meanwhile, consumers now have preferable tastes on yogurt and several types of cheese. Supply management is not significantly relevant to this phenomenon, since the same thing is also happening in the US.

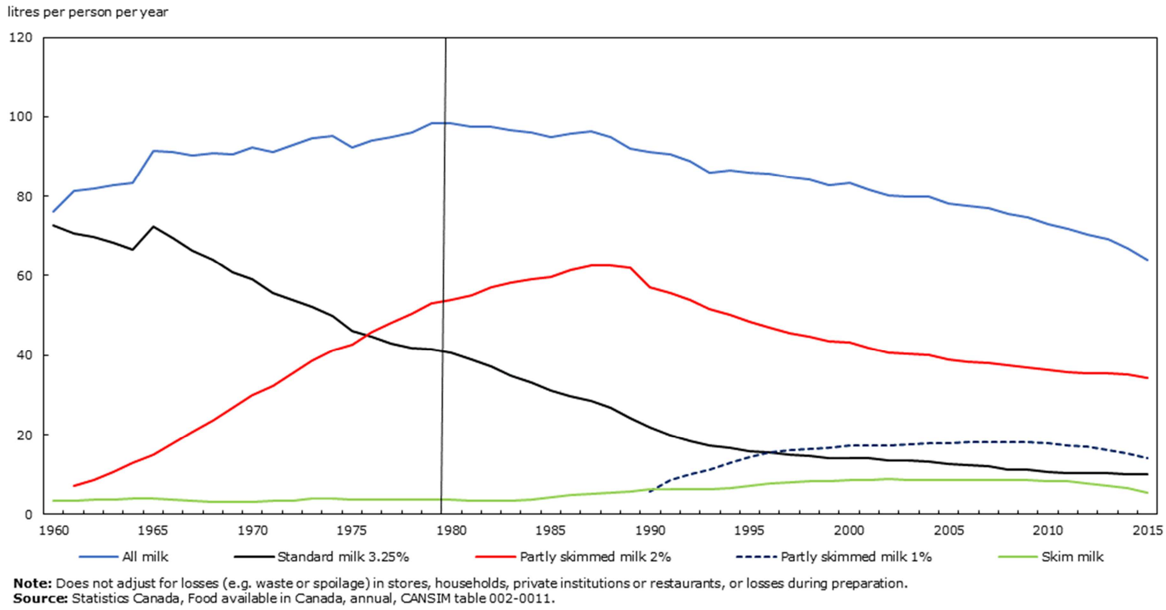

Figure 4. *Per capita milk available for consumption, Canada, 1960 to 2015.*

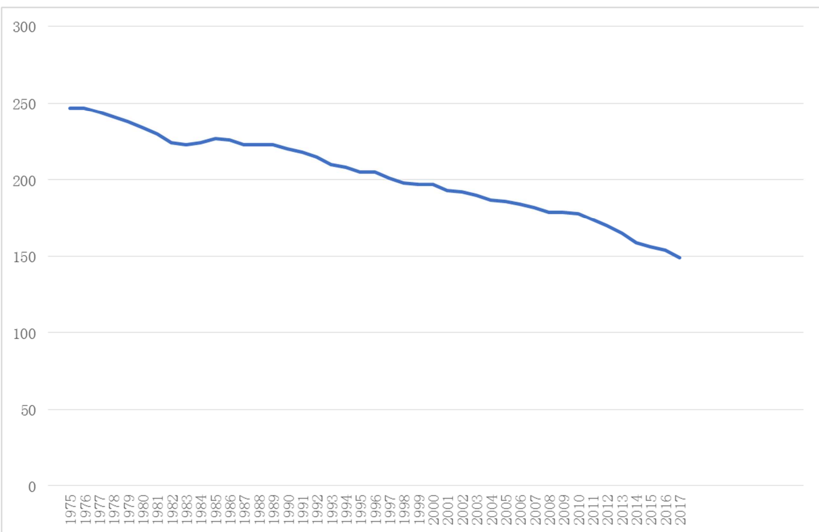

Figure 5. *Fluid milk consumption in US.*

3.3. Benefits from Supply Management

Despite the opposition it faces, supply management made its way through out the decades and seems to be experiencing small but appropriate adjustments. There is still no better substitute for this unique system, without jeopardizing the benefits it guarantees.

With the domestic-oriented rules from the unique supply management in Canada, its dairy industry was able to keep the general equilibrium between supply and demand, as well as keeping price volatility to a minimum. Many other major players like New Zealand have much more significant international markets than domestic ones, and therefore keep a deregulated atmosphere. The Europe Union, however, has started to move its dairy regulation policies towards a somewhat similar system as the Canadian ones. Therefore, a simple abortion of the current system could make the dairy industry worse off [13].

One of the implicit benefits of such highly regulated industry lies within its low price volatility, which protected the entire dairy industry from temporal fluctuations. Low price volatility and the corresponding low production changes have proven themselves useful in avoiding overproduction in the consumption-declining reality. In the 2009 dairy crisis, the lack of adequate supply response to the sudden drop in price is the main reason for that event to have a long lasting effect. Canada was not affected by the crisis, apparently thanks to supply management.

Other than that, supply management represents closure within the domestic market. Abandoning this system will make the local dairy industry vulnerable to international competition. In commodity markets, cost is the main issue. Canada's cost advantage is not obvious compared to many other dairy exporting countries like New Zealand and Australia. The dairy industry is a supporting industry in New Zealand, and its cost structure is impossible for Canada to achieve. Canada doesn't have the same geographic location, and can't use export subsidies to its diary sector under current trade rules.

Supply management is under the governance of Canada Dairy Commission, and can't have full control of the choices farmers make under its regulations. There is a difference between what supply management should do and what the dairy producers, processors and consumers should do. While the dairy industry encounters many obstacles as it always has, the following section will not discuss how these three parties should react, but only focuses on the regulator's prospective.

4. Future Improvements of Supply Management

The dairy industry accounts for only a small proportion of Canada's total GDP (even the whole agriculture sector generates about seven percent) but has much more significant meanings as it produces necessary goods. As a forty-year-old system, it experienced many changes over the years to make it a better fit for the current circumstances. In fact, the problems exposed to us right now lie within the structure, and can't be fully eliminated unless changes are made directly to the fundamentals of the system. Any changes to the current system must be taken after sufficient thoughts and reasoning, and will face great political pressure. Any potential improvement offered to supply management exists only in theory, and therefore should be treated with caution. Also, government spending on this matter is something to worry about, since too much regulation means higher municipal taxes, and gives either consumers or producers heavier burdens.

The first item on the list is the conservative policies on import and export. The external pressure coming from international trading like NAFTA and WTO trade talks urges Canada to allow for greater market access and reduce tariffs [14]. The consumers in domestic market may be benefited from this change, since they will have more options in everyday dairy products. As analyzed above, the structural costs in milk production is high enough to eliminate price advantage in the international market, making it unlikely for farmers to benefit.

Since the strategy of price competition is not likely to work out, the only way left for Canada to expand its international market is through the development of specialty cheese. Canada has a special access to the US cheese market under a tariff rate quota. But the data on the recent exports showed a small number of cheese export to US, demonstrating a bad grasp of the advantage. Despite the unsatisfactory circumstances, specialty cheese is in fact a good option, with low transportation and preservation costs and high gross profits. Supply management should come up with better strategies to stimulate export in high end value dairy products, which will allow for producers to explore opportunities in Canada's southern boarders.

Secondly, a centralized structure that brings all regional dairy producers and processors in arms is important in stretching the growth of the industry. It is also useful when it comes to the overall planning in response to global economic shocks. Currently, if farmers want to increase production, they have to buy quotas from their peers [15]. The long run cost of expanding production scale is a major obstacle that prevents farmers from achieving an optimal farm size. The regulators can consider an official quota sale system that allows ambitious farmers to directly purchase (or auction) quotas. In this case there will be a clear, simple and official way of assigning quotas among farmers across the country. While this will surely encourage the growth of monopolies that drive out small producers, it can allow for lower production costs and lower dairy prices for consumers.

5. Conclusion

This essay is not an analysis of the current or future status of the dairy sector in Canada, but how it reacts under current supply management regulation. Supply management has been long criticized and supported by different people of interests. While it is true that many of the problems existing in today's dairy industry are caused by supply management, the system shouldn't take all the blame. Supply management has indeed improved a lot over the past decades, and has already taken measures to resolve the conflicts mentioned above. It has evolved to be a better fit for the highly centralized, capital-oriented and globalized dairy sector today.

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