



Liquid GOLD

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What an \$18 million maple syrup heist tells us about the economics of supply management

IT was a heist the Pink Panther would have been proud of: over several months, a gang of thieves surreptitiously siphoned off hundreds of thousands of gallons of maple syrup worth more than \$18 million from Canada's global strategic maple syrup reserve.

That's right: a global strategic maple syrup reserve. If you have never heard of it, you are not alone. Few had until the 2012 theft became public knowledge. The reserve is a Canadian cartel: something of a one-nation version of OPEC for maple syrup.

Maple syrup, like grain and milk, is an agricultural product subject to public policies on food and farming. Although its value to the Canadian economy may pale in comparison with, say, wheat or soybeans, maple syrup trumps the vast wheat fields of Manitoba and Saskatchewan when it comes to Canadian cultural identity. It is for good reason that the maple leaf is Canada's best-known symbol. Canadians' deep attachment to this exotic food shapes their attitude toward protecting the price farmers receive for producing maple syrup.

Governments the world over choose to control the price of certain commodities for any number of reasons—and by many different means. The maple syrup reserve is merely one Canadian manifestation of this phenomenon. Such government intervention in agriculture creates winners—usually the producers. Most economists contend that it also creates losers—mainly consumers. And because prices are kept artificially high, cartels can be threatened by those who do not participate in the cartel but sell the

same (or virtually the same) product at a lower price. Seldom, though, are those competitors thieves.

Supply and demand

As a product, maple syrup lends itself to cartelization. Cartels work best when there are only a handful of producers (firms or countries). The product must be tradable and not easily replaced with a similar product.

What cartels do is manage the supply of the underlying product—and, by extension, the price. The ultimate goal is long-run profit maximization for the producers—which can include keeping the price from rising so much that consumers either seek substitutes or reduce consumption or both.

Maple trees, the source of maple syrup, grow naturally in eastern North America. Canada produces 80 percent of the world's supply of maple syrup, and the province of Quebec, where the heist took place, accounts for 90 percent of Canada's production, according to Paul Rouillard, deputy director of the Federation of Quebec Maple Syrup Producers. The United States accounts for the remaining 20 percent—nearly all of it from the states of Vermont and New Hampshire.

Maple syrup is a natural product derived from maple tree sap, which begins to run in the spring. Historically farmers inserted spouts into the trees (a process called tapping) and collected the sap—clear, watery, and sweet—in buckets affixed to the trees below the spout. Many still use this age-old technique, although in modern operations farmers use hoses to deliver the sap to a centralized processing point rather than



Maple syrup farmer, Rigaud, Quebec, Canada.



Drums of maple syrup, International Strategic Reserve warehouse, Quebec, Canada.

collecting it bucket by bucket. Farmers then heat the sap, evaporating much of it. What remains is maple syrup. It takes about 43 gallons of sap to produce one gallon of maple syrup. The production season is short—roughly six weeks—during which a tree produces between 10 and 20 gallons. Sap output depends on a number of variables, including weather. Trees are most productive when there is some snow on the ground, nights are cool, and days are warm and sunny.

The final product is easily stored and does not deteriorate over time. Because of that long shelf life, maple syrup is an easily exportable item. Quebec producers have found major markets in the United States, Japan, and Germany and are expanding sales in China, India, and South Korea, according to Rouillard.

Unlike milk or chickens, two other products whose price many countries regulate through supply management, maple syrup is not, for most people at least, an essential or staple food, and many will do without if the price gets too high. The cartel must cope with that possibility when managing the supply of maple syrup.

The OPEC of maple syrup

The Federation of Quebec Maple Syrup Producers was set up in 1966 to represent and advocate for producers—most of them dairy farmers who supplemented their income by tapping maple trees. By the 1990s, maple syrup output had grown rapidly, and by 2000 the industry was producing a surplus of between 1.3 and 2 million gallons (Gagné, 2008) a year. Because maple syrup is so easily stored, in bumper years the 80 licensed maple syrup buyers from Canada and three U.S.-based buyers stocked up at low prices, and bought less during lean years when prices tended to be higher. By and large, farmers were at the mercy of the buyers. Although the buyers were able to modulate their costs by adapting purchases to market conditions, the farmers faced wild gyrations in their income.

Things changed in 2001, when a bumper crop of almost 8.2 million gallons of maple syrup sent prices plunging

(Canadian Business, 2013). That prompted producers to change the federation from an advocacy group to a marketing board that could negotiate better prices with the buyers. The producers turned to a provincial law governing the marketing of agricultural products that allowed them to set production and marketing terms for their product as long as they were organized formally as a federation or syndicate (Gagné, 2008).

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The new-look federation also began to store surplus production to keep prices from plunging. Initially, individual farmers were free to produce as much as they wanted. But another bumper crop in 2003 resulted in so much syrup, much of which had to be stored, that the industry decided to control production by imposing quotas on individual producers.

The cartel based the quota for each of Quebec's 7,400 maple syrup farmers on their two best years of production between 1998 and 2004, the year the industry adopted the quota system, according to Rouillard. In 2004, the cartel determined that farmers would be allowed to sell 75 percent of what they produced. That percentage varies over time. Because production has been lean in the past few years, producers currently can sell 100 percent of their quota. If there are a few bumper crop years, the cartel can reduce the amount that farmers are permitted to sell.

Any output that cannot be sold must be transferred to the federation's reserve. Producers do not receive payment for this excess production until the federation sells it. The syrup is stored in barrels, each of which is tagged

and identified. When barrels from the reserve are sold (more of them in lean production years, fewer when the sap runs bountifully), the farmer is paid. The reserve is financed entirely by the producers, although the cartel is lobbying Quebec's provincial government for a portion of the financing, said Rouillard.

Maple syrup is sold from the reserve when current production does not meet the demand from authorized buyers. In 2009, after four dismal years of production, the global maple syrup reserve ran dry. Since then production has bounced back and the reserve is overflowing.

The cartel sits down with the buyers every year to determine the price of maple syrup. The two sides consider such factors as the level of the reserve and expected global consumption of maple syrup, said Rouillard. If the cartel and buyers cannot agree on a price, the province's quasigovernmental administrative tribunal, which oversees collective agricultural industries, determines the price.

If producers try to sell more than their quota, they risk punishment by the tribunal.

The sticky side of supply management

This supply management system and its quotas have smoothed production of maple syrup and kept prices high and steady—as any cartel aims to do—to increase producer power and raise producer income. Critics say cartels are purely a means to transfer income from consumers to producers by supporting higher prices than the market would otherwise allow. They also say cartels stifle competition and innovation. Typically, higher prices attract new producers and/or new techniques. But quotas are a major barrier to new entrants, as well as a deterrent to innovation, because a producer cannot snag a larger market share.

Supply management systems to regulate agricultural production and prices exist in a number of economies besides Canada. Japan restricts rice output with supply quotas; Vietnam increases rice production and exports with output quotas. The United States does not widely use the supply management approach to raise farmer income.

The European Union uses supply quotas, but is phasing them out as part of a move toward whole-farm payment, which is a direct cash transfer to a farmer merely for being in the business of farming.

Critics of supply management argue that if governments abolished this practice it would mean lower prices, because the law of supply and demand, not cartels, would set prices. But that is not always the case.

Take Australia as an example. The country was a pioneer in supply management in the 1920s, and Canada followed suit when it set up its own supply

management system for agriculture, particularly dairy products (Findlay, 2012). Government agencies in Australia had a monopoly on marketing milk. Prices were set higher than what farmers could get if they exported the product, a quota

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system was established, and the quotas were tradable between producers. Australia did away with the system entirely by 2001. The price of milk dropped in the year after the government ended the supply management system, but then rose steadily and sometimes steeply between 2002 and 2008. It has since dropped, and in the past year has been on the rise again. Since Australia abolished its supply management system for milk, prices have risen more than they did under the previous quota system (Dairy Australia).

Government supply management systems may be designed to reduce or expand production and typically use a system of quotas to do so. Vietnam's supply management system for rice requires farmers to produce more than they wanted to so there would be enough rice for the domestic and export markets.

Like many economists, Will Martin, research manager for Agriculture and Rural Development at the World Bank, believes supply management systems are costly when used to raise farm income or stimulate the output of a particular commodity.

But Martin said they can be useful in addressing an underlying market failure—say in the case of open-access fisheries. Such a failure happened in the Canadian province of Newfoundland in 1992 when cod were so overfished that they virtually disappeared from Newfoundland waters. The government had to declare a moratorium on cod fishing. But there can be unintended consequences to the use of quotas to address such a market failure. (In this case, the unlimited catch by individual fishers led to the destruction of the market.) The moratorium permitted the fishery to recover, but it ruined the industry that supported cod fishing, which had been a major source of revenue for the region.

An argument often made in support of supply management is that it helps producers. That is likely true, Martin said, for producers that are in business when a supply management system is imposed—say, for example, the Quebec farmers who were tapping maple trees in 2004. But the benefits of higher prices associated with quotas are typically greater for larger producers than for smaller ones. Moreover, quotas make it hard for new producers to enter the industry because new entrants typically must purchase a right to produce from the farmers that already own the quotas.



Of course, thieves in Canada found a new way to get into the maple syrup business. Instead of buying a quota from farmers, the thieves simply made off with the syrup those farmers produced—much as rustlers in the United States stole cattle in the Old West.

The \$18 million theft was from one of three warehouses the federation uses to stash excess production and was discovered in mid-2012 during an audit of the warehouse contents. The warehouse, about 60 miles southwest of provincial capital Quebec City, was lightly guarded—in retrospect, perhaps, too lightly guarded. The thieves set up shop nearby, and over the course of a year, according to police, made off with roughly 10,000 barrels of maple syrup—about 323,000 gallons, or about 10 percent of the reserve (Canadian Business, 2013). Because one gallon of Quebec maple syrup looks like any other gallon of the product, consumers had no way of distinguishing the federation-approved product from stolen syrup. And some buyers may not have cared.

It appears the thieves attempted to unload their booty to buyers in other Canadian provinces and the United States. Officers from the Royal Canadian Mounted Police, the Canada Border Services Agency, and U.S. Immigration and Customs Enforcement helped the Quebec provincial police with their investigation (Canadian Press, 2012). Police arrested three suspects in December 2012 and 15 more soon thereafter (Canadian Broadcasting Corporation, 2012).

Those arrested faced charges of theft, conspiracy, fraud, and trafficking in stolen goods. Police have recovered two-thirds of the stolen syrup.

The old adage is that crime doesn't pay. That may be true, but the guaranteed high and stable prices established by the maple syrup cartel gave the thieves \$18 million worth of reasons to prove that familiar saying wrong. ■

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