

 Centre for Productivity
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Walter J. Somers Foundation
HEC MONTRÉAL

PRODUCTIVITY IN QUEBEC'S PUBLIC SECTOR:

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THE SAQ



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PRODUCTIVITY IN QUEBEC'S PUBLIC SECTOR: THE SAQ

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ABSTRACT

Although the legitimacy of the Société des alcools du Québec (SAQ) is periodically called into question, no study has ever actually analyzed its performance from an economic standpoint. The result is that, aside from the figures reported by the corporation itself, we know very little about its true wealth-generating capacity. This inevitably raises questions about its efficiency in carrying out its mandate.

As the SAQ's sole shareholder, however, the Quebec government should make this efficiency a priority. For by neglecting it the government is either forgoing additional revenue or forcing consumers to pay higher prices. When we analyze the way in which the Quebec government oversees the SAQ, it is apparent that there are few incentives for efficiency. Year after year, the government merely relies on the dividends paid by the SAQ to evaluate its performance; there is no means for it to ensure that the fact that the SAQ has met its targets in terms of dividends goes along with efficiency gains.

In this context, the Centre for Productivity and Prosperity – Walter J. Somers Foundation suggests two productivity indicators based on the SAQ's own financial statements in order to determine to what extent the SAQ is maximizing the dividend it pays to its shareholder. The findings are worrisome, to say the least.

Since the late 1980s, the SAQ has considerably increased the dividends it remits annually to the government, but its productivity has not improved. In other words, there have been no productivity gains, and hence the government has not maximized its return on the SAQ's operations.

One of the causes, it seems, is that the corporation's expansion strategy in the late 90s came at the expense of its productivity. It was unable to efficiently manage the rapid increase in the number of outlets, and its productivity quickly declined. In the end, although it succeeded in boosting its sales substantially, this expansion cost the corporation in terms of productivity.

As the sole shareholder, the Quebec government should re-examine its requirements for the SAQ. Rather than merely setting dividend targets, the government should set clear objectives in terms of productivity growth. Based on the indicators developed in this report, it could set efficiency targets. In the long term, this would allow the government to properly evaluate the corporation's performance.

Note, in closing, that the next several years will be decisive for the SAQ. It cannot indefinitely count on growth in its sales volume to meet its dividend targets, and so inevitably must improve its efficiency.

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INTRODUCTION

Every year, the Quebec government collects huge amounts of revenue from retail alcohol sales. First of all, sales of alcoholic beverages are subject to provincial sales tax and to a specific tax on sales of alcoholic beverages¹ that allowed the government to take in over \$600 million in 2015. The government also holds a near-monopoly² on retail alcohol sales, through the Société des alcools du Québec (SAQ). Thanks to the highly lucrative retail alcohol trade, the government collected over \$1 billion in dividends in 2015 alone.

All in all, retail alcohol sales earned the Quebec government about \$1.7 billion in 2015, equivalent to one-quarter of the income tax paid by private businesses.

Yet although the Quebec government collects huge revenue every year from retail alcohol sales, the province's approach is often criticized. From an ideological point of view, the whole idea of the state taking on the mission of selling alcohol is questionable. In economic terms, it is assumed that consumers would be better served by a freer market, in terms of both product selection and prices. It is also assumed that the government could collect as much revenue from alcohol sales simply by raising taxes on alcohol. After all, the government takes in more than \$2 billion in fuel taxes although it does not own any gas stations. The same applies to tobacco: retail cigarette sales inject over \$1 billion a year in tax revenue into public coffers.

To date, no study has ever actually analyzed the SAQ's performance from an economic standpoint. As a result, aside from what the Société itself reports, very little is known about its efficiency and its true wealth-generating capacity. In other words, it is all but impossible to determine whether the SAQ is maximizing its return, i.e. whether the corporation has derived the maximum profit from its operations while minimizing the use of its resources.

When we analyze the way the Quebec government oversees the SAQ, it is clear that there are few incentives for efficiency. As the sole shareholder of the state-owned corporation, the Quebec government merely considers the dividend paid³ by the SAQ in measuring the corporation's performance. The problem is that there is no means for the government to ensure that the fact that the SAQ has met its targets in terms of dividends goes along with efficiency gains. Since the SAQ is a near-monopoly subject to very little competitive pressure, it can exercise almost absolute control over its retail prices and operating costs, and hence over its profits. As a result it is able to declare a large net profit every year without having to worry about its efficiency. In fact, by neglecting the importance of this efficiency, the government is potentially forgoing additional revenue, or forcing consumers to pay higher prices.

¹ In 2015, the tax on retail sales of beer was \$0.50 per litre, and on other alcoholic beverages, \$1.12 per litre. These data are drawn from the 2015–2016 Public Accounts of the Quebec government.

² In that the SAQ holds near-exclusive control over the sale of wine and spirits in Quebec.

³ The dividend paid by the SAQ to the government is practically the same as the profit reported in the SAQ's financial statements.

The issue is clear: without specific requirements by the government in terms of efficiency, there will never be sufficient incentive for the SAQ to maximize its annual dividend. The Quebec government must look beyond this dividend in evaluating the SAQ's performance if it wants to maximize its revenue from retail alcohol sales in Quebec.

In this context, this report suggests performance indicators based on the SAQ's own financial statements to allow the government to determine whether the state-owned corporation is improving its efficiency beyond meeting specific targets in terms of dividends. In the longer term, these indicators will allow the government to set clear efficiency goals.

We started by creating a way of measuring value added. Halfway between net profit and sales, value added is a way of concretely assessing the wealth derived from the SAQ's operations. Based on this measurement, we propose two productivity indicators for determining to what extent the SAQ has managed to make efficiency gains in its operations: labour productivity, which measures the value added generated per hour worked, and multifactor productivity, which gives a wider view of efficiency at the SAQ by analyzing the overall return on its factors of production.

These indicators show us in particular that the productivity gains recorded since the second half of the 2000s have come from a catch-up effect and been barely sufficient to make up for the losses incurred in the first half of that decade. In addition, the current level of productivity is almost identical to that observed 25 years ago, suggesting that there have been no real productivity gains since then.

We will also see that since the early 2000s labour productivity at the state-owned corporation has kept pace with the Quebec retail sector. At first glance, this might suggest that the SAQ's performance is satisfactory. Nonetheless, it must be remembered that the SAQ holds a near-monopoly on the sale of alcoholic beverages in Quebec, giving it a considerable business advantage. Consequently, it should be expected to largely out-perform the rest of the retail industry.

THE SAQ IN BRIEF

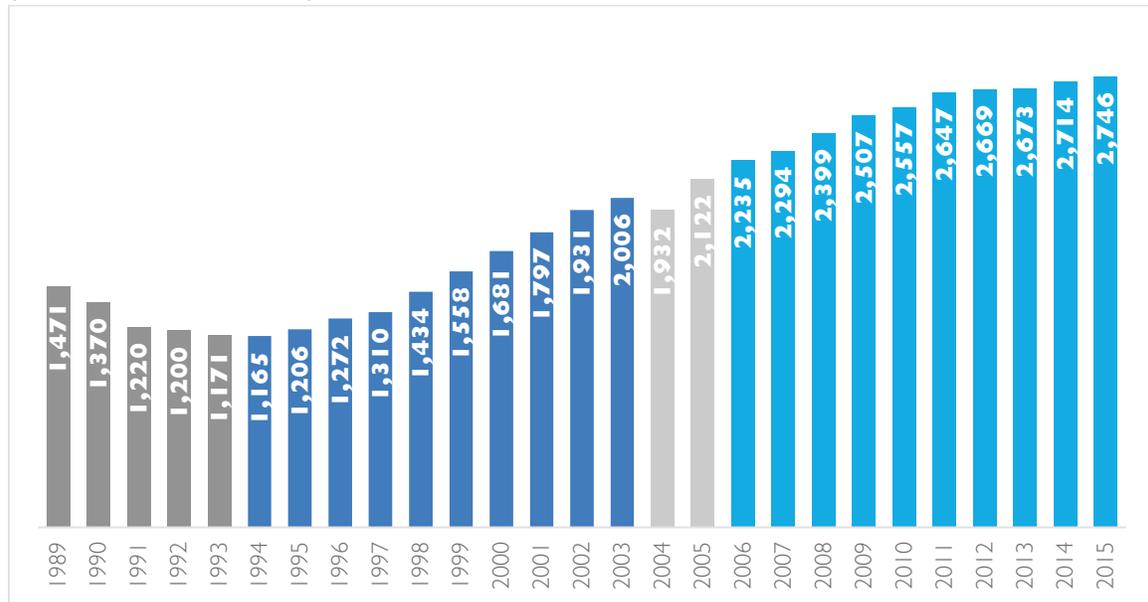
Before looking at the question of the SAQ's efficiency, a brief overview of trends in its sales will show how its activities have evolved in recent decades. The data presented here were drawn from the annual reports published by the corporation since 1989.⁴ Its sales are expressed in 2007 dollars to take account of inflation.⁵

When the SAQ describes trends in its activities, it identifies four periods linked in some way to changes in its governance.⁶ These periods allow us to distinguish four phases in the growth of the SAQ's sales (Figure 1).

The period of shrinking sales between 1989 and 1993 marks the end of the “new mission,” initiated when the SAQ was created in 1971. The lower sales were blamed on declining consumption of alcoholic beverages and the economic recession facing Quebec at the time.

FIGURE 1
ACTUAL NET SALES⁷

(IN MILLIONS OF 2007 DOLLARS)



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016.

⁴ The annual data correspond to the SAQ's fiscal year, ending on March 31. Consequently, sales for 2015 in Figure 1 were drawn from the 2015–2016 annual financial report. Data for previous years have been revised. For instance, 2014 figures are for the 2014–2015 fiscal year, drawn from the 2015–2016 annual report, so as to reflect the updated financial data.

⁵ Prices have been corrected using the GDP deflator at market prices.

⁶ <https://www.saq.com/content/SAQ/en/a-propos/la-saq/historique.html>

⁷ Sales to breweries were deducted from sales for the years 1992 to 2005, to ensure that the data are comparable over the entire period. In 1992, the *Act respecting the Société des alcools du Québec* was amended to allow unrestricted sales of beer from other provinces in Quebec.

The year 1994 was a turning point, the beginning of the “commercial shift.” At that point, the corporation launched a repositioning process, reorganizing its retail network by adding the SAQ Classique, SAQ Sélection and SAQ Express banners and modernizing its customer-service approach. It extended its hours and added more flexible means of payment, while reviewing its marketing approach, in particular by increasingly turning to agency stores, points of sale in grocery stores and convenience stores (*dépanneurs*) in regions not served by regular SAQ outlets. Its sales increased considerably as a result.

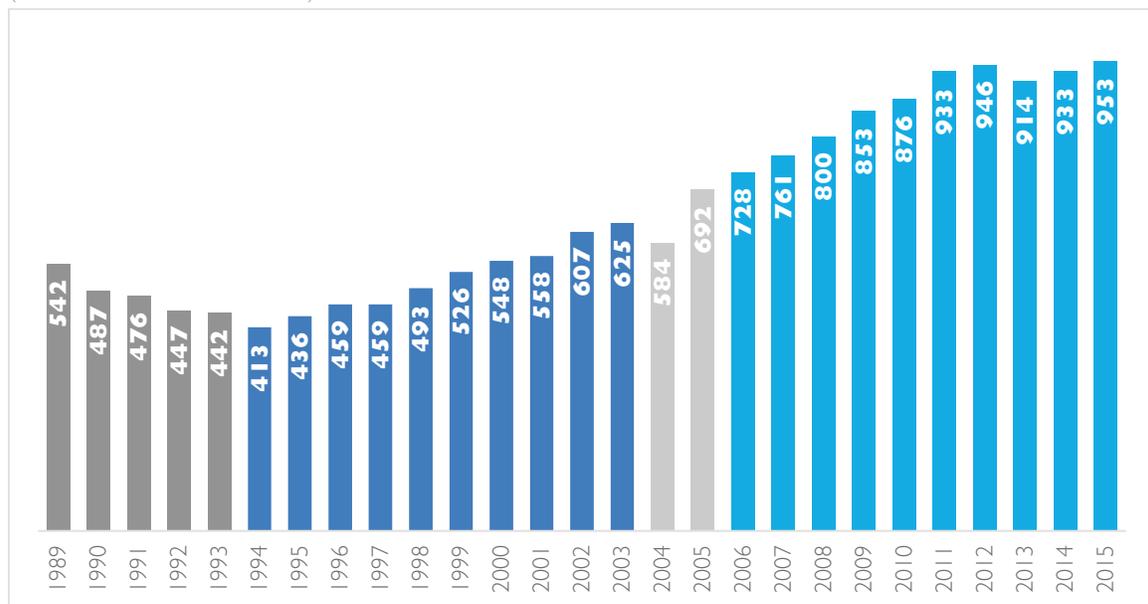
This “commercial shift” ended in 2003 and was replaced by a “performance shift” in 2004. Although short-lived, the performance shift nonetheless had a significant impact. In November 2004, store employees began an 81-day strike. This labour dispute largely explains the decline in sales in 2004.

The “governance shift” began in 2006 and marked the introduction of the *Act respecting the governance of state-owned enterprises*, imposing greater transparency and efficiency at Quebec’s three major state-owned corporations. This change coincided with the report by the Auditor General, who criticized the SAQ in particular for failing to pass on savings from the steep decline in the euro, instead using its mark-up structure for its products to boost its profits.

If we ignore the period corresponding to the “performance shift,” when SAQ sales were undermined by a strike, it can be seen that SAQ sales have grown steadily since its marketing strategy was realigned in 1994. As a result, the SAQ’s actual net profit more than doubled between 1994 and 2015 (Figure 2).

FIGURE 2
TRENDS IN ACTUAL NET PROFIT

(IN MILLIONS OF 2007 DOLLARS)



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016.

From the perspective of the SAQ's shareholder, the Quebec government, the corporation's performance may appear satisfactory at first glance. Remember that the dividend paid by the SAQ alone represents 20% of the income tax paid by private corporations, and this probably explains why the government has so far seemed content with its approach to alcohol sales.

That being said, it must also be remembered that net profit sheds very little light on the SAQ's efficiency and its ability to make gains by boosting its activities. As a near-monopoly, the SAQ controls almost all of the Quebec alcohol trade, leading to rising sales over time. Simultaneously, the lack of pressure from competitors means that it can set its own retail prices, and this accounts to some extent for the growing value of its sales.

Growth in the SAQ's sales is not necessarily accompanied by efficiency gains, however. Without pressure from competitors, the performance incentives are marginal and the SAQ can set its operating costs as it wishes. It can also give its employees better working conditions, use more resources and expand its outlets. Above all, though, there is no systematic incentive to minimize the cost of its purchases. In the end, this deterministic context means that insofar as the government's requirements of the SAQ are limited to evaluating the dividend paid, the corporation will have no incentive to improve the efficiency of its operations.

In the circumstances, we need to come up with economic indicators that go beyond the usual financial ratios: net sales over operating expenses, debt, relative liquidity, etc. These indicators are not as useful in a monopoly context as in a competitive market, on the one hand because in practice there is no other business with which we can compare the SAQ, and on the other hand because the SAQ has near-total control over its ratios, since it controls both its retail prices and its operating costs. Rather than limiting our analysis to financial measurements, we must focus on productivity indicators, in order to determine to what extent the SAQ has managed to increase the wealth generated by its activities.

Before we go any further in this direction, however, in the following section we will look at the analyses of the SAQ published to date. We will see that only a limited number of analyses have been done, with varying conclusions, to say the least.

PAST ANALYSES

First of all, we must point out that most studies of the SAQ's performance have aimed primarily at defending or criticizing the state monopoly over alcohol sales without truly addressing the basic question of how efficient the SAQ is in carrying out its mandate.

This was the case for Lauzon (1994), in particular, who analyzed different financial ratios and concluded that privatizing the state-owned corporation would not lead to the benefits claimed by advocates of privatization. The author based his conclusions mainly on the example of Alberta, where the prices of wines and spirits rose after the retail alcohol market was liberalized in 1993.

The IRIS (Institut de recherche et d'informations socio-économiques) arrived at a similar conclusion in the early 2000s. Its study, commissioned by the union of SAQ store and office employees in 2003, concluded that liberalizing the Alberta market had been a failure, since it had not reached its goals in terms of in-store product selection, efficiency in serving the Alberta market, prices or working conditions.

A 2005 study by the Montreal Economic Institute, on the other hand, compared the SAQ and its Ontario counterpart, the Liquor Control Board of Ontario (LCBO), with the privatized Alberta market and found that Alberta had three times more stores, similar prices, more products available and just as much government revenue from alcohol sales as compared with Quebec and Ontario.

More recently, the IRIS published two analyses looking at the liberalization of the alcohol trade. In its 2015 study, *Doit-on privatiser la SAQ ?*, it first compared the situation in Quebec with that in Alberta and concluded that privatization would not be beneficial for Quebec. In particular, the authors noted that Quebec offers a wider variety of products, that privatization in Alberta has not led to the anticipated lower prices, since prices are similar in the two provinces, that the presence of a state monopoly eliminates regional price differences, and that the SAQ offers better working conditions, while the Quebec government earns substantially the same revenue per litre of alcohol sold as does the Alberta government.

In its study entitled *Faut-il mettre fin au monopole de la SAQ? Comparaison du commerce des vins et des spiritueux au Québec et en Colombie-Britannique* (2016), the IRIS studied the consequences of allowing private retailers to compete with the SAQ, as is the case in British Columbia. The authors concluded that this approach would not be advantageous for Quebec, since, on the one hand, prices at private outlets in British Columbia are higher than in publicly owned stores, and prices in the two provinces have trended similarly since 1997. On the other hand, the authors pointed out, the SAQ's administrative costs have been declining since 2006, while those of the British Columbia Liquor Store (BCLA) have remained stable.

The Commission de révision permanente des programmes also weighed in on the SAQ's performance. It compared certain of the corporation's operating ratios (administrative costs over net sales and remuneration over net sales) with those of the provincial agencies in eight Canadian

provinces and comparable business models in New Hampshire, Vermont and Pennsylvania, and concluded that the state monopoly had some operational shortcomings. It recommended that the government liberalize the sale of wine and spirits.

In *Monopole Inc.: Pour une ouverture du commerce des vins et spiritueux*, Laurin, Mailloux and Muller (2016) maintained that the SAQ monopoly is not needed to finance public services, prevent alcohol abuse or support the development of a local wine and spirits industry. In fact, based on different indicators such as the ratio of operating expenses to net sales, the number of searches in the catalogue, product prices, the ratio of administrative expenses to net sales and distribution costs, the authors concluded that the SAQ is inefficient and that the monopoly impedes product diversification.

Note also that a study by the Quebec Auditor General highlighted certain failures in the corporation's management and performance. In 2006, the Auditor General criticized the SAQ for failing to pass on savings from the steep decline in the euro, and instead using its mark-up structure for its products to boost its profits. Ten years later, the Auditor General again examined the corporation's mark-up structure, as well as its purchasing process, which was found to be less than optimal. The Auditor General also pointed out that the SAQ needed to adopt indicators that could be used to evaluate its performance in comparison with comparable businesses and sectors. Note that the *Act respecting the governance of state-owned enterprises* now requires the SAQ to evaluate its performance, in particular by means of benchmarking. To date the SAQ has complied with this requirement by using its ratio of net expenses over sales, a measurement that even the SAQ admits does not lend itself to comparisons with the LCBO.

It is clear, however, that most of these conclusions barely touch on the question of the SAQ's efficiency.

First of all, none of them specifically evaluates the SAQ's efficiency, except through the financial ratios that are generally used in making investment decisions. Since the SAQ is a near-monopoly, it is not subject to the competitive pressures that most businesses face, making these indicators less useful on the whole. In fact, the SAQ itself admits that some of these indicators are ill-suited to comparison. Operating expenses as a percentage of sales, for instance, calls for at least 11 adjustments to make this ratio comparable with the equivalent at the LCBO.

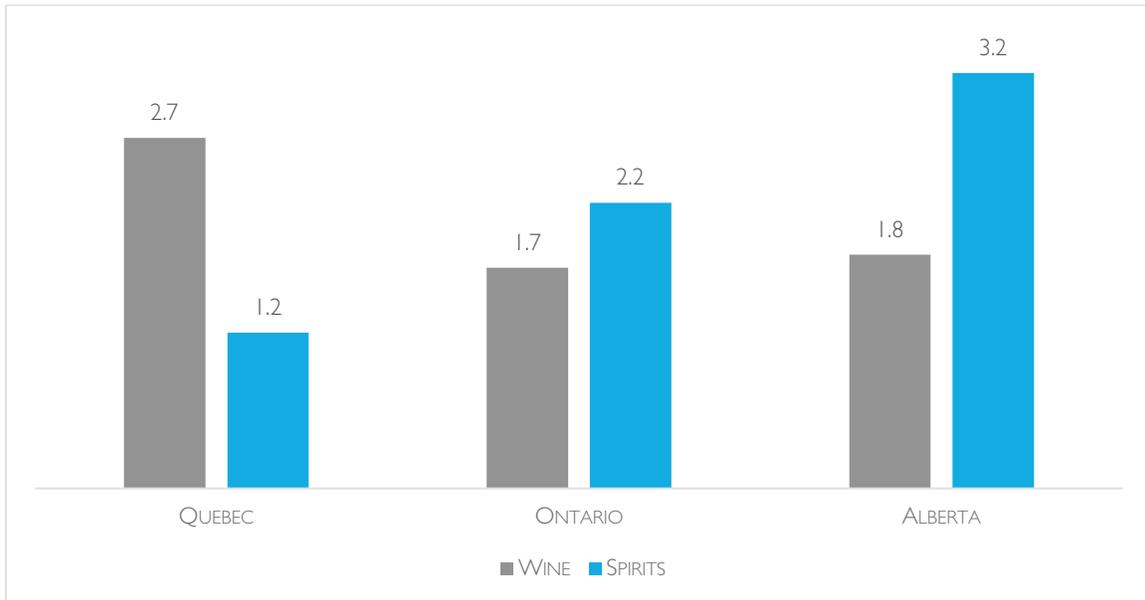
Arguments based on retail prices give only a superficial view of the SAQ's efficiency. First of all, higher prices at the SAQ can also mean higher revenue for its shareholder, i.e. the government. In short, higher prices can result from a trade-off where consumers must pay more for society as a whole to benefit. Different retail prices can also reflect higher taxes, higher costs, or differences in service quality, all to meet consumer expectations. In short, an analysis of retail prices is insufficient to draw conclusions about the corporation's efficiency.

The same applies when it comes to analyzing the product selection, which quickly becomes irrelevant if we ignore differences in consumer habits. Statistics on Canadians' alcohol consumption show that Quebeckers purchase proportionally more wine than Albertans and Ontarians

(Figure 3). These same statistics also show that Quebecers consume less in the way of spirits. Thus the differences observed in product selection may simply reflect different consumer preferences.

FIGURE 3

VOLUME OF SALES OF ALCOHOLIC BEVERAGES IN LITRES OF ABSOLUTE ALCOHOL⁸ AND PER CAPITA 15 YEARS AND OVER, 2013



SOURCE: STATISTICS CANADA, TABLE CANSIM 183-0019.

If we are to evaluate the SAQ's efficiency, we must turn to indicators that look beyond net profit or sales. Its position as a near-monopoly in the Quebec alcohol market gives the SAQ full control over retail prices for its products and its operating costs, allowing it to earn substantial profits year after year without having to worry about its efficiency. Consequently, we cannot rely on the usual financial ratios to determine whether the corporation has managed to improve the efficiency of its operations, i.e. doing more with less. In the circumstances, we instead need to look at the SAQ in terms of indicators commonly used to assess the performance of a whole industry or economy.

⁸ The volume in litres of absolute alcohol standardizes consumption on the basis of the alcohol level in alcoholic beverages. When a litre of spirits is measured in absolute alcohol, it represents a larger volume than a litre of wine.

PRODUCTIVITY: MEASURING EFFICIENCY

To concretely assess productivity gains in the SAQ's operations, we must examine the wealth generated in proportion to one or more factors of production: for instance, hours worked or capital stock.⁹ Analyzed over time, this type of indicator lets us evaluate to what extent the SAQ has managed to improve the efficiency of its operations, in other words, to do more with less.

The first step consists in developing a way of measuring the wealth created. We came up with a measurement of value added for this purpose, based on the SAQ's financial statements. Value added is a key economic measurement, allowing us to assess to what extent the SAQ's operations have increased the value of its purchases.

Value added is calculated by subtracting the purchase cost of goods sold and the cost of goods and services used for merchandising from the corporation's sales (Table 1). In other words, the wealth derived from the corporation's sales is obtained by deducting intermediate purchases.

TABLE 1
VALUE ADDED BY THE SAQ FROM ITS 2015–2016 FINANCIAL STATEMENTS, BY SUBTRACTION
 (IN THOUSANDS OF DOLLARS)

Consolidated statement of comprehensive income		
SALES		3 073 555
Cost of goods sold	1 435 826	
<i>Starting inventory</i>	335 934	
<i>Plus: Purchases</i>	1 425 262	
<i>Less: Ending inventory</i>	325 370	
GROSS MARGIN	1 637 729	
Employee compensation	388 158	
Depreciation of tangible assets and amortization of intangible assets	36 904	
Services and administrative expenses	145 129	
<i>Selling, marketing and distribution expenses</i>	180 321	
<i>Administrative expenses</i>	27 621	
<i>Less: Advertising, promotional and miscellaneous revenues</i>	62 813	
OPERATING RESULTS	1 067 538	
Interest charges	739	
Net non-operating adjustment	-163	
<i>Devaluation of interest in a joint venture</i>	0	
<i>Less: Share in the profit or loss of interest</i>	163	
PROFIT OR LOSS FOR THE FISCAL YEAR	1 066 962	
		Value added (Subtraction method)
		Sales 3 073 555
		<i>Less: Purchases of goods and services</i> 1 435 826
		<i>Less: Services and administrative expenses</i> 145 129
		Value added 1 492 600

SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 2015–2016.

⁹ I.e. in terms of the number of buildings, machines, etc.

Another approach to obtaining value added is to add the different items that, in the corporation's operations, contribute to increasing the value of goods and services purchased (Table 2). Value added corresponds to the sum of the compensation (wages, fringe benefits, contributions, bonuses, etc.) and earned rate of return (interest, depreciation, profits, taxes). In the end, the two methods are equivalent.

TABLE 2
VALUE ADDED BY THE SAQ FROM ITS 2015–2016 FINANCIAL STATEMENTS, BY ADDITION

(IN THOUSANDS OF DOLLARS)

Consolidated statement of comprehensive income		
SALES		3 073 555
Cost of goods sold		1 435 826
<i>Starting inventory</i>	335 934	
<i>Plus: Purchases</i>	1 425 262	
<i>Less: Ending inventory</i>	325 370	
GROSS MARGIN		1 637 729
Employee compensation	388 158	
Depreciation of tangible assets and amortization of intangible assets	36 904	
Services and administrative expenses	145 129	
<i>Selling, marketing and distribution expenses</i>	180 321	
<i>Administrative expenses</i>	27 621	
<i>Less: Advertising, promotional and miscellaneous revenues</i>	62 813	
OPERATING RESULTS		1 067 538
Interest charges	739	
Net non-operating adjustment	-163	
<i>Devaluation of interest in a joint venture</i>	0	
<i>Less: Share in the profit or loss of interest</i>	163	
PROFIT OR LOSS FOR THE FISCAL YEAR		1 066 962
		Value added (Addition method)
		Employee compensation 388 158
		Depreciation and amortization 36 904
		Interest charges 739
		Profit before taxes 1 066 962
		<i>Less: Non-operating revenue</i> 163
		<i>Plus: Non-operating expenses</i>
		Value added 1 492 600

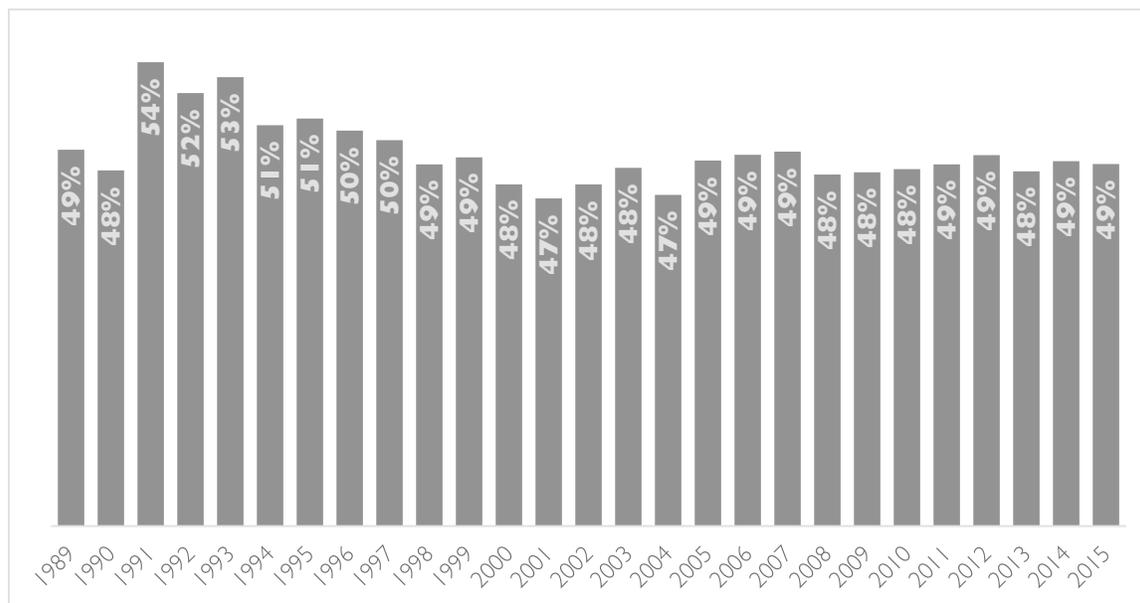
SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 2015–2016.

Value added, halfway between net profit and sales, has two major benefits.

First of all, value added allows us to broaden our framework for evaluating the SAQ's efficiency, in particular by comparing it with other economic sectors in which productivity is measured using value added. Aside from the comparison with the LCBO, we can compare the SAQ with the retail industry or the entire Quebec economy. In fact, by eliminating the value of intermediate goods, value added takes account of trends in the cost of goods sold, thereby putting increases in sales in perspective.

Although at first glance value added is very similar to sales as a concept, a number of significant differences between the two measurements become apparent when we evaluate their relative weight over time (Figure 4). It can be seen, in particular, that the weight of value added in comparison with sales fell by 7 percentage points between 1991 and 2001, indicating that the wealth derived from the SAQ's operations did not keep pace with its sales.

FIGURE 4
RATIO OF VALUE ADDED TO ACTUAL NET SALES



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016. AUTHORS' CALCULATIONS.

After defining value added, we calculated two productivity indicators. On the one hand, labour productivity can be used to evaluate the wealth generated per hour worked. Multifactor productivity, on the other hand, measures the combined effect of factors of production on the wealth created, rather than being limited to a single factor, as is the case for labour productivity. These two indicators are expressed in constant dollars, to take account of inflation. For each indicator, we used a two-part analysis. First of all we analyzed trends in the two productivity indicators over time, to determine whether the SAQ had made efficiency gains. Then we compared trends in productivity at the SAQ with those at its Ontario counterpart, the LCBO, and in the retail industry as a whole.

LABOUR PRODUCTIVITY

The first indicator chosen for examining the SAQ's efficiency is labour productivity, which looks at the wealth generated per hour worked.¹⁰ This allows us to measure productivity gains by determining to what extent the SAQ has managed to increase value added per hour worked (Figure 5). Our findings were surprising.

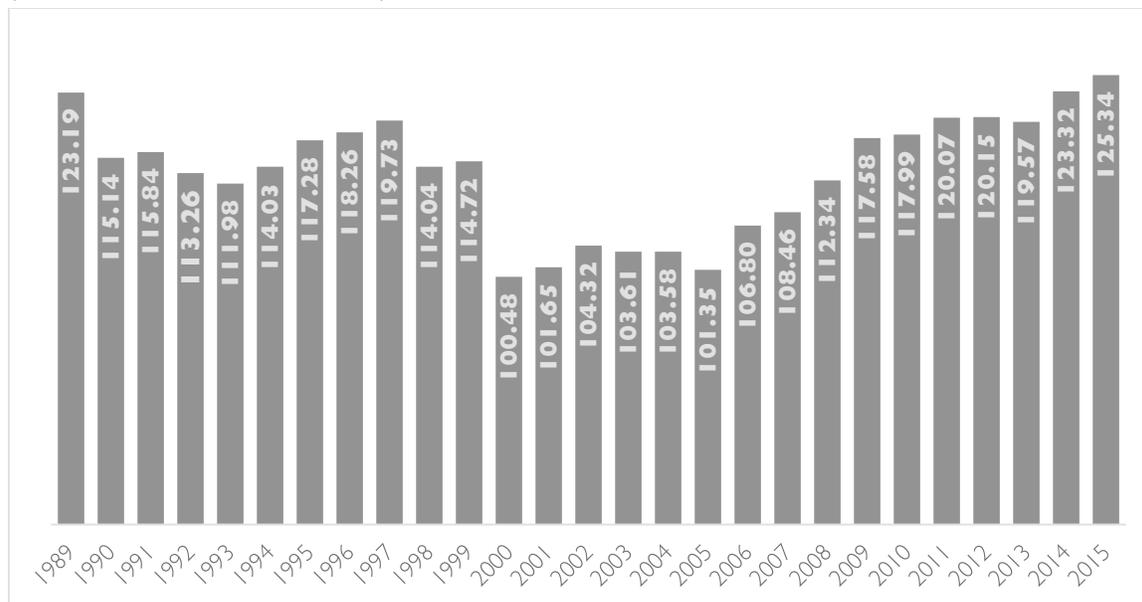
After declining in the early 1990s because of the recession, labour productivity at the SAQ rose early on in the “commercial shift,” to reach a level similar to that before the recession. This growth

¹⁰ In its financial statements the SAQ includes the number of full-time equivalent (FTE) employees, meaning the workforce required to carry out the corporation's operations, assuming that each employee works the same number of hours every week. FTE employees were converted into hours worked by assuming that an FTE employee works 37.5 hours per week and that this average has remained stable over time.

spurt was short-lived, however, as productivity declined first in 1998 and then again, more drastically, in 2000. The result was that during the first half of the 2000s, productivity at the SAQ was almost 20% lower than in the late 1980s. It was not until the “governance shift” that productivity picked up again. The growth was relatively significant: between 2006 and 2015, labour productivity rose by 17%, returning to 1989 levels.

FIGURE 5
LABOUR PRODUCTIVITY

(IN 2007 DOLLARS PER HOUR WORKED)



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016. AUTHORS' CALCULATIONS.

Overall, these figures do not paint a glowing picture of the SAQ's performance.

At first glance it seems that the SAQ has considerably improved its labour productivity over the past 15 years. Between 2000 and 2015, labour productivity at the SAQ rose from \$100.48 per hour worked to \$125.34 per hour worked, for overall growth of 25%, or 1.5% average annual growth. The SAQ can indeed pride itself on having improved its productivity.

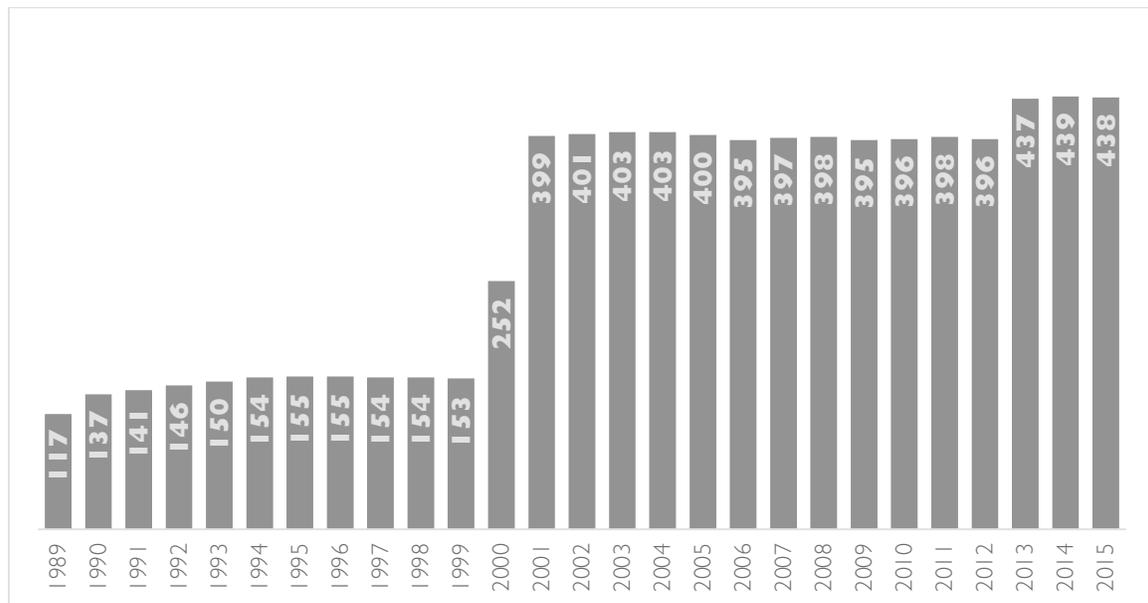
That being said, the increase is not as impressive when it is placed in its historical context. The growth observed since the early 2000s consisted primarily of catching up, labour productivity at the SAQ having declined rapidly in the late 1990s. The result was that in 2015 productivity at the SAQ (\$125.34 per hour worked) barely exceeded that in 1989 (\$123.19 per hour worked).

How is it possible that there have been almost no labour productivity gains over the past 25 years, although actual SAQ sales have practically doubled over that time?

Two points must be considered here. First of all, the SAQ concentrated on increasing its offer of service to support its “commercial shift.” In particular it boosted its market coverage by making

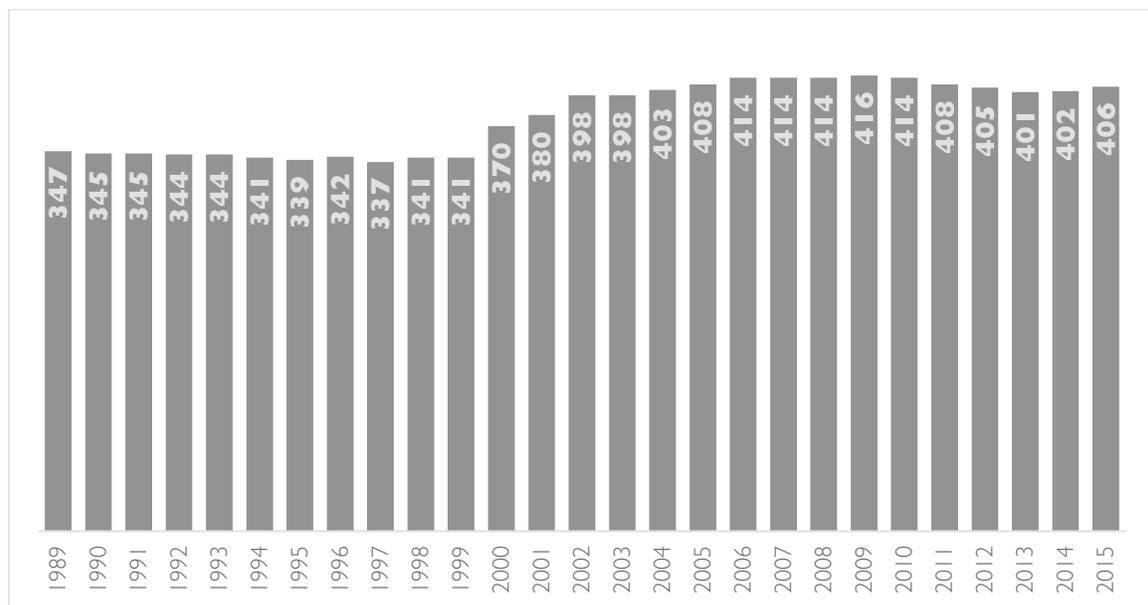
agency stores more attractive and allowing more grocery and convenience stores in regions not served by regular outlets to sell SAQ products. In barely two years, between 1999 and 2001, the number of agency stores shot up by 160% (Figure 6). At the same time, the SAQ also opened many new outlets (Figure 7). Nearly 60 stores opened between 1999 and 2002, for an increase of close to 17% in the number of active outlets.

FIGURE 6
NUMBER OF AGENCY STORES



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016.

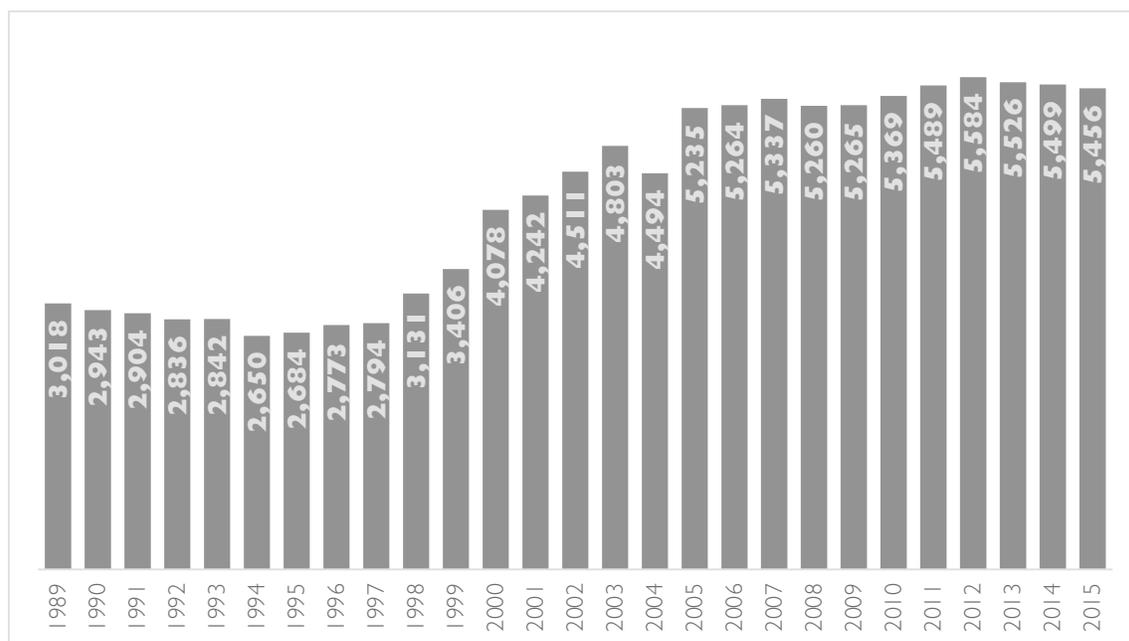
FIGURE 7
NUMBER OF OUTLETS



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016.

Given this growth in the number of outlets, the number of SAQ employees climbed rapidly as well (Figure 8). After remaining relatively stable until 1997, the number of employees rose for the first time in 1998, and then again, more sharply, in 2000. Not surprisingly, these are the two years when productivity at the SAQ declined drastically.

FIGURE 8
NUMBER OF FULL-TIME EQUIVALENT EMPLOYEES



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016.

This means that the number of hours worked rose more quickly than the SAQ's ability to generate value added from its sales. The result is that labour productivity at the SAQ declined when the corporation expanded its activities, because it appears to have expanded too hastily. As soon as the expansion halted, the number of employees stabilized. From that point on, the SAQ managed to increase its value added while keeping the number of hours worked relatively constant, thereby helping to boost the corporation's labour productivity.

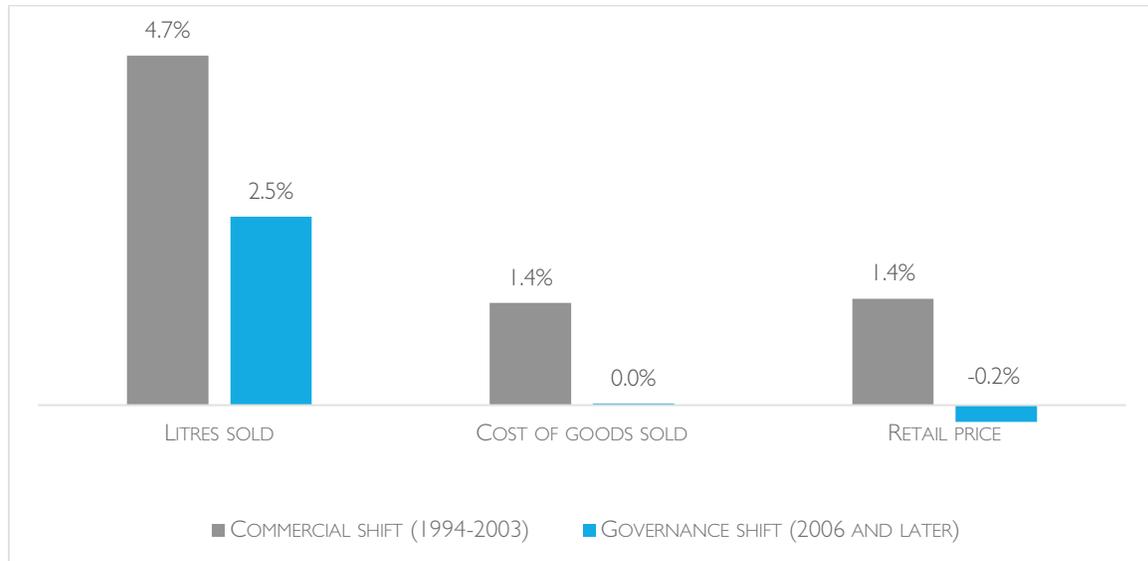
The second explanation is more complicated, and has more to do with mark-up mechanisms. When we examine the determinants of sales volume (number of litres sold and average retail price) and of value added (number of litres sold, average retail price and cost of goods sold) during the "commercial shift" (1994–2003) and the "governance shift" (2006 and later), it can be seen that trends in the SAQ's overall determinants of performance did not always move in lock step (Figure 9).¹¹

During the "commercial shift," higher sales were generated by a rapid increase in the number of litres sold, mainly because of the growing market for wine, and because of a higher average retail price. The result is that average annual sales rose faster than during the "governance shift."

¹¹ The periods when productivity fell and rose, respectively.

Nonetheless, the actual average cost of goods sold also rose quickly, whereas during the “governance shift” the actual average cost of goods sold held steady. Consequently, the value added generated by the SAQ’s sales grew more quickly during the “governance shift” than during the “commercial shift.” Since the increase in hours worked simultaneously stabilized, the SAQ managed to achieve productivity gains in its operations.

FIGURE 9
AVERAGE ANNUAL GROWTH IN LITRES SOLD, COST OF GOODS SOLD PER LITRE AND AVERAGE SALES PRICE PER LITRE



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016. AUTHORS’ CALCULATIONS.

At this point, it is clear that the expansion of SAQ operations as part of its “commercial shift” came at the expense of efficiency; in the end, the corporation was unable to make the most of this expansion.

In this light, we now need to compare the SAQ with other sectors, to determine its relative performance in terms of productivity. We will compare the SAQ with the LCBO, its Ontario counterpart, and then with the entire retail sector in Quebec.

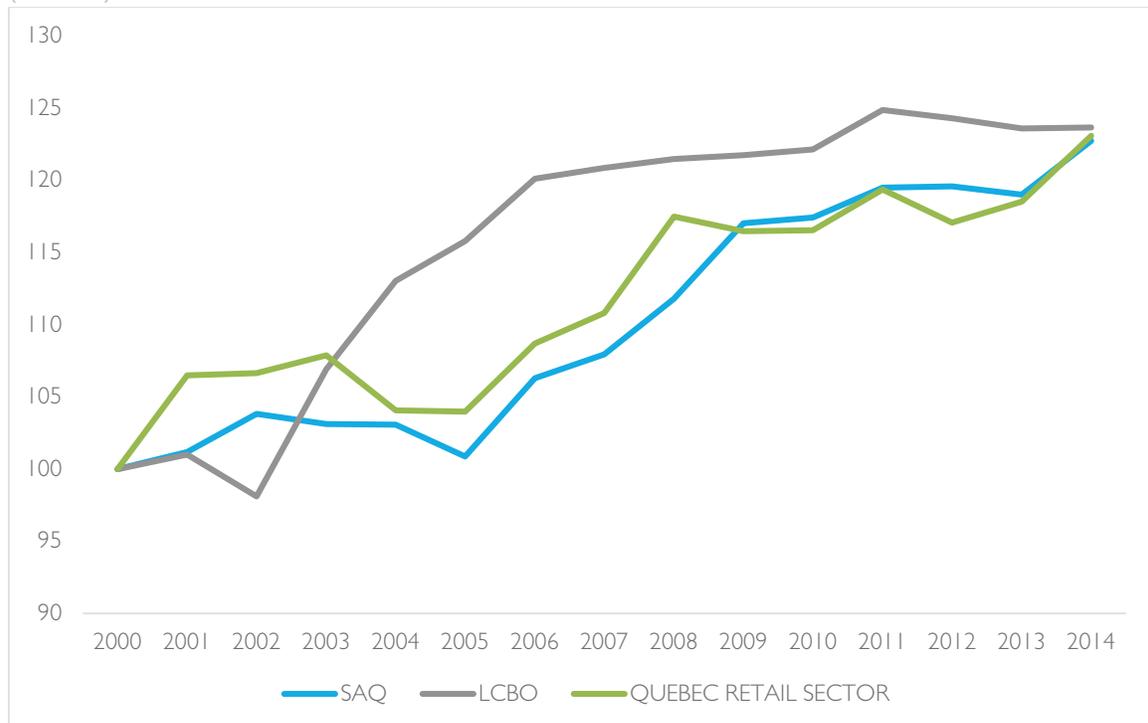
Since we were unable to find the data necessary to calculate the value added generated by the LCBO before the late 1990s, we decided to start the comparison in 2000. Productivity levels at the SAQ and the LCBO were set at 100 for the year 2000, so as to compare productivity trends in the selected sectors regardless of their respective original level.¹²

¹² Note that the basis for measuring full-time equivalent employees is not the same at the LCBO and the SAQ. Standardizing productivity levels at 100 for 2000 evens out the gaps caused by this difference, making it possible to compare productivity at the two corporations over time.

The results are clear (Figure 10). Although they followed different paths, the SAQ and the LCBO posted identical overall growth, for all practical purposes, between 2000 and 2014. Labour productivity at the two state monopolies rose by about 23% over the period, for average annual growth of 1.5%. In other words, although the gains appeared at different times, in the end the SAQ posted the same performance as its Ontario counterpart. In the circumstances, does this mean that the SAQ has done well? Not necessarily.

FIGURE 10
LABOUR PRODUCTIVITY

(2000=100)



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 2000–2001 TO 2014–2015. FINANCIAL STATEMENTS OF THE LIQUOR CONTROL BOARD OF ONTARIO, 2002–2003 TO 2014–2015. STATISTICS CANADA, TABLE CANSIM 383-0029. AUTHORS' CALCULATIONS.

It must be remembered that the SAQ and the LCBO are both operating in a market free of competition, where profit margins are higher than for the vast majority of businesses in the retail sector. So it is to be expected that the two state-owned corporations would outperform the industry average. But when we compare the SAQ with the retail sector as a whole, it can be seen that that was not the case. Since 2000, productivity growth in the entire retail industry (23%) has been identical to that at the SAQ. In other words, despite margins clearly higher than the industry average and near-total control over the market, the SAQ has not been able to earn any more from its operations than the industry average. Remember, too, that the drastic decline at the very end of the 1990s was not included in these calculations. Had it been, the SAQ would have lagged far behind the retail sector. So it is difficult to say that the corporation's performance has been satisfactory, even though the SAQ has posted the same overall growth as the LCBO.

MULTIFACTOR PRODUCTIVITY

The second indicator developed for evaluating the SAQ's efficiency is multifactor productivity¹³ (MFP). It measures the joint effect of production factors on the wealth created, rather than looking at a single factor, as is the case for labour productivity.

MFP measures the portion of growth in value added that is explained by neither an increase in labour nor an increase in fixed assets (land, buildings, leasehold improvements, furniture and equipment, rolling stock).¹⁴ In short, MFP measures to what extent an increase in labour and fixed assets is justified, given the growth in value added. It is obtained by subtracting the weighted increase in labour (number of hours worked) and capital (capital stock) from the increase in value added. The weights (s_l and s_k) are determined on the basis of the weight of workers' compensation and capital in value added:

$$\Delta MFP = \Delta Value\ added - s_l \Delta Labour - s_k \Delta Capital$$

Unlike labour productivity, which is limited to measuring the effect of labour, MFP measures the interactions between labour and capital, and ultimately better explains the origin of growth in value added. Where hours worked and the quantity of fixed assets grow proportionally at the same rate as value added, productivity gains will be nil. On the other hand, MFP growth will be positive if value added increases faster than the use of the factors of production. In that case, the SAQ will derive efficiency gains from increased activity, since the wealth earned from these activities will rise faster than the production factors used to generate it.

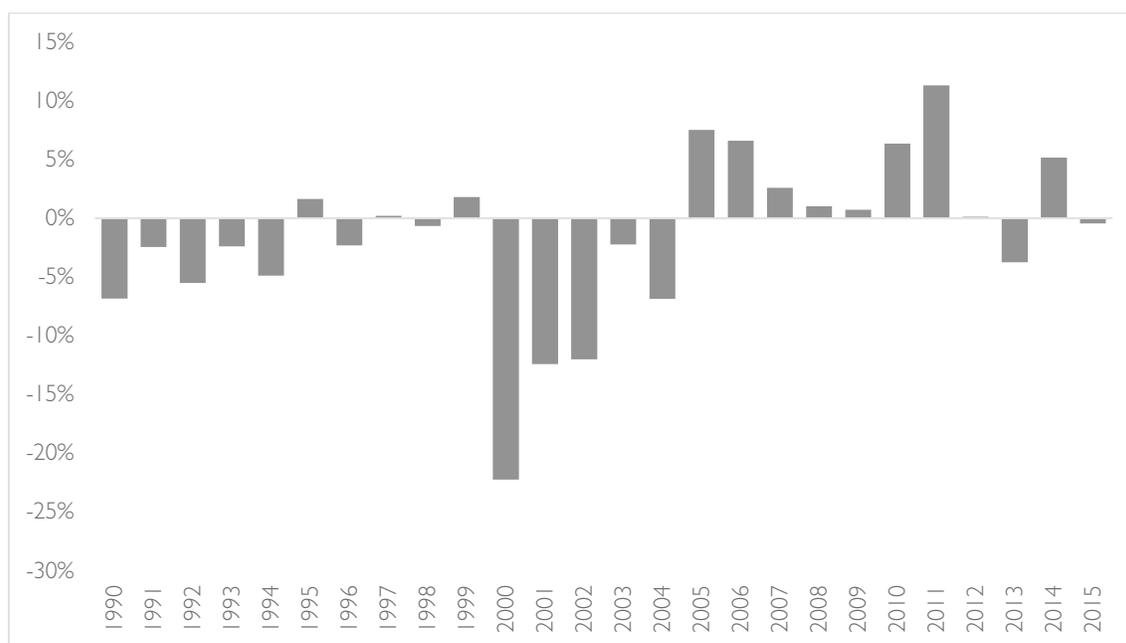
Overall, the observations stemming from our analysis of MFP confirm the conclusions regarding labour productivity (Figure 11). Because of the rapid increase in the number of employees and the number of outlets – and hence of the quantity of fixed assets – during the “commercial shift,” the SAQ's MFP declined by an annual average of 5.3% between 1994 and 2003. It took until 2005 for growth in MFP to exceed 0%. Since then, multifactor productivity has risen by an average of 3.4% per year, not enough to offset the earlier losses.

Once again, these results tend to show that the SAQ's expansion strategy had a negative impact on its productivity. Since the corporation was unable to efficiently manage the rapid expansion in the number of outlets, its productivity declined quickly. In the end, even though the expansion allowed the SAQ to increase its sales considerably, it hindered the corporation's efficiency.

¹³ The methodology used to measure multifactor productivity was developed by Statistics Canada. Refer to Statistics Canada publication No. 15-206-XIE for the complete methodology.

¹⁴ The elements in equation 1 are measured as natural logarithms (\ln), using differences (Δ) to estimate their growth. See Appendix 1 for details on calculations and sources.

FIGURE 11
MULTIFACTOR PRODUCTIVITY AT THE SAQ



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 1989–1990 TO 2015–2016. AUTHORS' CALCULATIONS.

If we refocus our analysis on the period from 2000 to 2014, we can compare the growth in the SAQ's MFP with that at the LCBO and in the entire retail industry in Quebec (Figure 12).

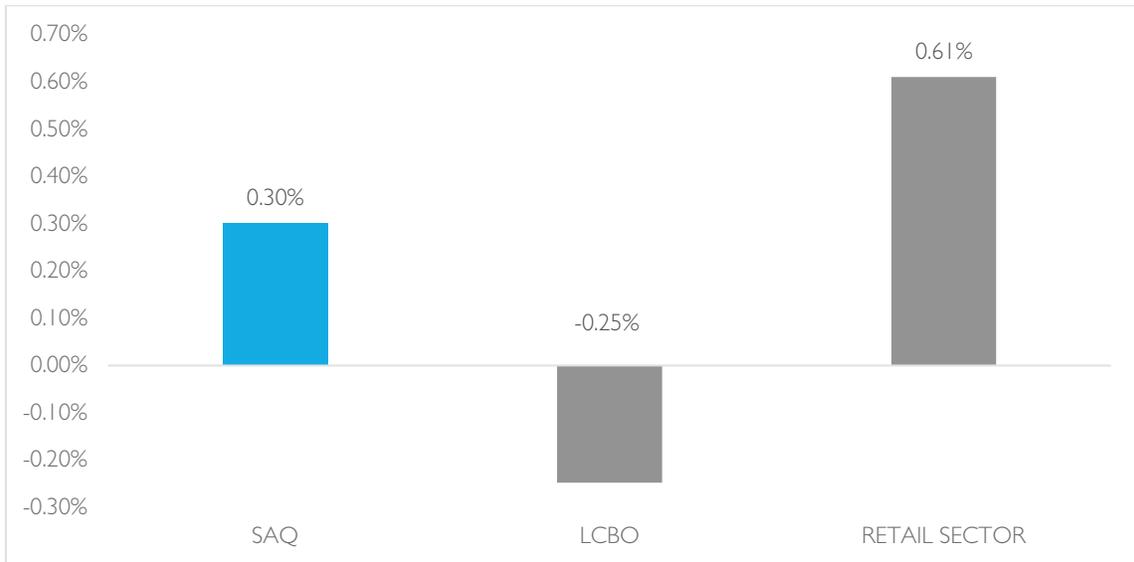
On the one hand, we can see that the SAQ had much larger productivity gains than did the LCBO. Between 2000 and 2014, the SAQ's MFP rose by an average of 0.3% per year, while the LCBO's shrank by 0.25% per year.¹⁵ On the other hand, we can see that multifactor productivity growth at the SAQ was twice as slow as the average in the Quebec retail sector (0.61% annually).

These differences highlight the importance of expanding the framework used to compare and examine the SAQ's performance. If we compare the SAQ only with the LCBO, it might be tempting to view the SAQ's performance as satisfactory, based on its higher growth than at the LCBO. But it must be remembered that both are monopolistic corporations that are not subject to competition and hence are not deemed to be efficient. Simply comparing the SAQ with other state-owned corporations could in fact lead to an erroneous evaluation of its performance. This becomes evident when we compare the SAQ with the entire retail sector, where productivity gains have been higher.

¹⁵ To ensure continuity with our analyses of labour productivity, we considered only the period starting in 2000. Accordingly, this performance stems in part from the fact that the comparison does not take account of the drastic decline between 1999 and 2000.

FIGURE 12

ANNUAL GROWTH IN MULTIFACTOR PRODUCTIVITY BETWEEN 2000 AND 2014



SOURCE: FINANCIAL STATEMENTS OF THE SOCIÉTÉ DES ALCOOLS DU QUÉBEC, 2000–2001 TO 2014–2015. FINANCIAL STATEMENTS OF THE LIQUOR CONTROL BOARD OF ONTARIO, 2000–2001 TO 2014–2015. STATISTICS CANADA, TABLE CANSIM 383-0026. AUTHORS' CALCULATIONS.

CONCLUSION

Overall, the analysis highlights a basic aspect of the relationship between the SAQ and its sole shareholder. In that the Quebec government evaluates the performance of the SAQ simply in terms of the dividend paid, it has long neglected the importance of the state-owned corporation's efficiency gains. Yet without specific requirements in terms of efficiency, there is no hope that the SAQ will have sufficient incentive to maximize the dividend it generates from its activities. As a result, the actual net dividend paid by the SAQ is 1.7 times higher now than it was in the late 1980s, although its labour productivity is practically unchanged. In other words, there have been almost no productivity gains over the past 27 years.

This lagging productivity has a significant impact. It means that the government has not earned as much as it could have from retail alcohol sales. By ignoring the importance of efficiency at the SAQ, the government has forgone higher dividends, or has forced consumers to pay more for alcohol.

As the sole shareholder, the Quebec government must re-examine its requirements for the SAQ. Rather than merely setting dividend targets, the government must set clear objectives in terms of productivity growth. Based on the indicators developed in this report, it could set growth targets – for instance, requiring that labour productivity at the SAQ increase at the same pace as in the Quebec economy as a whole – and not allow productivity to decline as it did during the “commercial shift.” In the long term, this would allow the government to properly evaluate the corporation's performance.

Note, in closing, that the next several years will be decisive for the SAQ. It cannot indefinitely count on growth in its sales volume to meet its dividend targets, and so inevitably must improve its efficiency. Otherwise consumers will be the ones footing the bill, by overpaying for the alcohol they purchase.

APPENDIX: MULTIFACTOR PRODUCTIVITY

The methodology used to measure multifactor productivity was developed by Statistics Canada.¹⁶ Refer to Statistics Canada publication No. 15-206-XIE for the complete methodology.

Take a production function relating production (Q) and with factors of production (X_i) labour and capital, measured respectively by hours worked and capital stock:

$$Q = F(X_1, X_2, t)$$

Using the total differential with respect to time gives:

$$\frac{dQ}{dt} = \sum \frac{\partial F}{\partial X_i} \frac{dX_i}{dt} + \frac{\partial F}{\partial t}$$

Dividing both sides by Q gives:

$$\frac{dQ}{dt} \cdot \frac{1}{Q} = \frac{1}{Q} \cdot \frac{\partial F}{\partial t} + \sum \frac{\partial F}{\partial X_i} \frac{dX_i}{dt} \frac{1}{Q_i}$$

Now if we define multifactor productivity growth as:

$$MFP = \frac{1}{Q} \cdot \frac{\partial F}{\partial t}$$

Recognizing that $\frac{dX_i}{dt} = \frac{X_i}{Q} \dot{X}_i$, where $\dot{X}_i = d \ln X_i$ is the rate of growth in the i^{th} input, we obtain:

$$\dot{Q} = MFP + \sum \frac{\partial F}{\partial X_i} \frac{X_i}{Q} \dot{X}_i$$

To approximate the right-hand term, we know that the first-order conditions for profit maximization are:

$$\frac{\partial C}{\partial X_i} = \frac{\partial F}{\partial X_i} P, \text{ where } P \text{ is the price of } Q \text{ and } C \text{ is total cost } (\equiv \sum P_i X_i).$$

Recognizing that $P_i = \frac{\partial C}{\partial X_i}$:

¹⁶ Baldwin, J. R., Gu, Wulong and Yan, Beiling. The Canadian Productivity Review – User Guide for Statistics Canada's Annual Multifactor Productivity Program, Statistics Canada, Catalogue No. 15-206-XIE — No. 014, December 2007.

$\dot{Q} = M\dot{F}P + \sum \frac{P_i X_i}{PQ} \dot{X}_i = M\dot{F}P + \sum s_i \dot{X}_i$, where s_i is factor i 's share in output (PQ), $\sum s_i = 1$ and $s_{it} = \frac{1}{2}(s_{it} + s_{it-1})$.

By isolating, we obtain the equation for MFP:

$$M\dot{F}P = \dot{Q} - \sum s_i \dot{X}_i$$

If we integrate two factors of production, labour (L) and capital (K), and recognizing that Q is the value added, the above equation becomes:

$$M\dot{F}P = \dot{Q} - s_l \dot{L} - s_k \dot{K}$$

BIBLIOGRAPHY

Statistics Canada. Table 383-0026 – *Multifactor productivity and related variables in the aggregate business sector and major sub-sectors, by North American Industry Classification System (NAICS), provinces, annual (index, 2007=100)*

Table 383-0029 - *Labour productivity and related variables by business sector industry, consistent with the North American Classification System (NAICS) and the System of National Accounts (SNA), provinces and territories. Annual.*

Laurin, F., Mailloux, Y. and Daniel Muller, P. "Monopole Inc. Pour une ouverture du commerce des vins et spiritueux," June 2016.

Posca, J. and Tremblay-Pepin, S. "Faut-il mettre fin au monopole de la SAQ? Comparaison du commerce des vins et des spiritueux au Québec et en Colombie-Britannique," Institut de recherche et d'informations socio-économiques, May 2016.

Hurteau, P. and Tremblay-Pepin, S. "Doit-on privatiser la SAQ?", Institut de recherche et d'informations socio-économiques, April 2015.

Gouvernement du Québec. "Rapport de la Commission de révision permanente des programmes, Cap sur la performance," Volume 2, 2015, pp. 24 to 40.

Baldwin, J. R., Gu, Wulong and Yan, Beiling. *The Canadian Productivity Review – User Guide for Statistics Canada's Annual Multifactor Productivity Program*, Statistics Canada, Catalogue No. 15-206-XIE — No. 014, December 2007.

Lachance, R. et al. "Special Report to the National Assembly Concerning the Special Audit Carried Out at the Société des alcools du Québec," Report to the National Assembly for 2005–2006, Volume II, Quebec Auditor General - 2005–2006, 2006 report.

Petkantchin, V. "Is Government Control of the Liquor Trade Still Justified?," Montreal Economic Institute, Montreal Economic Institute research papers, 2005.

Poirier, M. and Petit, M. "Les impacts de la privatisation de la vente des produits de l'alcool en Alberta," Institut de recherche et d'informations socio-économiques, October 2003.

Lauzon, L. "Société des alcools du Québec: projets de privatisation," 1994.

Liquor Control Board of Ontario. *2014–2015 Annual Report*.

Liquor Control Board of Ontario. *2013–2014 Annual Report*.

Liquor Control Board of Ontario. *2012–2013 Annual Report*.

Liquor Control Board of Ontario. *2011–2012 Annual Report*.

Liquor Control Board of Ontario. *2010–2011 Annual Report*.

Liquor Control Board of Ontario. *2009–2010 Annual Report*.

Liquor Control Board of Ontario. *2008–2009 Annual Report*.

Liquor Control Board of Ontario. *2007–2008 Annual Report*.

Liquor Control Board of Ontario. *2006–2007 Annual Report*.

Liquor Control Board of Ontario. *2005–2006 Annual Report*.

Liquor Control Board of Ontario. *2004–2005 Annual Report*.

Liquor Control Board of Ontario. *2003–2004 Annual Report*.

Liquor Control Board of Ontario. *2002–2003 Annual Report*.

Société des alcools du Québec. *2016 Annual Report*.

Société des alcools du Québec. *2015 Annual Report*.

Société des alcools du Québec. *2014 Annual Report*.

Société des alcools du Québec. *2013 Annual Report*.

Société des alcools du Québec. *2012 Annual Report*.

Société des alcools du Québec. *2011 Annual Report*.

Société des alcools du Québec. *2010 Annual Report*.

Société des alcools du Québec. *2009 Annual Report*.

Société des alcools du Québec. *2008 Annual Report*.

Société des alcools du Québec. *2007 Annual Report*.

Société des alcools du Québec. *2006 Annual Report*.

Société des alcools du Québec. *2005 Annual Report.*

Société des alcools du Québec. *2004 Annual Report.*

Société des alcools du Québec. *2003 Annual Report.*

Société des alcools du Québec. *2002 Annual Report.*

Société des alcools du Québec. *2001 Annual Report.*

Société des alcools du Québec. *2000 Annual Report.*

Société des alcools du Québec. *1999 Annual Report.*

Société des alcools du Québec. *1998 Annual Report.*

Société des alcools du Québec. *1997 Annual Report.*

Société des alcools du Québec. *1996 Annual Report.*

Société des alcools du Québec. *1995 Annual Report.*

Société des alcools du Québec. *1994 Annual Report.*

Société des alcools du Québec. *1993 Annual Report.*

Société des alcools du Québec. *1992 Annual Report.*

Société des alcools du Québec. *1991 Annual Report.*

Société des alcools du Québec. *1990 Annual Report.*