

ADDENDUM TO “THE PRICE OF BEER IN ONTARIO AND QUEBEC”

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Executive Summary

In 2014, Dr. Debra Aron conducted a comprehensive study of Ontario and Quebec beer prices (“2014 Report”, attached as Appendix “A”).³ The 2014 Report found that average prices at Ontario’s The Beer Store (“TBS”) were less than average prices in Quebec’s large grocery and big-box retail chains, despite Ontario’s significantly higher tax burden, and that average pre-tax prices in Ontario were substantially lower than average pre-tax prices in Quebec. The study also found that Ontario consumers collectively purchased a wider variety of beer in significant quantities than their Quebec counterparts.

This report updates the 2014 Report to compare 2018 average Ontario beer prices to (i) Quebec and (ii) Alberta. As with the 2014 Report, it compares the average prices of beer in Ontario and Quebec, both pre-tax and post-tax, on a volume-weighted basis, using data from the same retail channels as the 2014 Report. For Alberta, we have leveraged the best data available to assess the price Ontario consumers would have to pay if Ontario’s pre-tax prices rose to Alberta levels.

Using the methodology set out in greater detail below, we have found:

Ontario vs. Quebec

- The average pre-tax price for a litre of beer in Ontario is approximately 13 percent lower than the average pre-tax price for a litre of beer in Quebec (\$2.61/litre in Ontario vs. \$3.00/litre in Quebec).
- Ontario’s beer taxes are significantly higher than Quebec’s beer taxes (averaging \$2.06/litre in Ontario vs. \$1.54/litre in Quebec).
- Ontario’s higher beer taxes result in Ontario consumers paying approximately 3 percent more for beer than Quebec consumers on a post-tax basis (\$4.67/litre in Ontario vs. \$4.55/litre in Quebec).

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³ Debra J. Aron, Ph.D., “The Price of Beer in Ontario And Quebec,” May 2014 (hereafter, *Aron 2014 Beer Report*), available here: <https://www.beerfactsonario.ca/research>.

Ontario vs. Alberta⁴

- The average pre-tax price for a litre of beer in Ontario is over 23 percent lower than the average pre-tax price for a litre of beer in Alberta (\$2.83/litre in Ontario vs. \$3.70/litre in Alberta).
- Ontario's high beer taxes (\$2.15/litre in Ontario vs. \$1.84/litre in Alberta) reduce this gap to approximately 10 percent (\$4.98/litre in Ontario vs. \$5.54/litre in Alberta).

Taxes

- Ontario beer drinkers face a significantly higher provincial tax burden than beer drinkers in Quebec and Alberta. Provincial taxes account for approximately 33 percent of the price of beer in Ontario, compared to only 23 percent in Quebec and 23 percent in Alberta.
- For a two-four equivalent of beer,⁵ Ontario consumers pay \$4.23 more in tax than Quebec beer consumers and pay \$2.59 more in tax than Alberta beer consumers.

I. BACKGROUND AND METHODOLOGY:

In May 2014, Dr. Debra Aron released the 2014 Report, which is an empirical study of beer prices in Ontario and Quebec. The purpose of the 2014 Report was to compare consumer beer prices in Ontario and Quebec in 2013. The analyses were performed on both pre-tax and post-tax bases.⁶

The 2014 Report examined Ontario beer price and sales volume data from Ontario's TBS stores and Quebec beer price and sales volume data from AC Nielsen, which covered six large grocery and big-box retail chains. The 2014 Report found that volume-weighted average prices in Ontario were lower than volume-weighted average prices in Quebec, both pre- and post-tax. Looking at relative prices in Ontario and Quebec pre-tax, the difference was substantial—Ontario average pre-tax prices were over 18 percent lower than average pre-tax prices in Quebec.

The 2014 Report included a wide range of robustness checks and ancillary analyses to test and verify the analysis. Dr. Aron ran the analysis using only identical products sold in both

⁴ Due to the nature of the available Alberta data, and as explained in further detail below, the analysis compares price for products (i) for which Alberta retail prices are consistently monitored and (ii) for which we had data in Ontario and Alberta for the same week. As a result, the average Ontario prices are different in the Ontario/Quebec and Ontario/Alberta assessments, as they are calculated using different data sets. Due to these differences, this report cannot be used to compare relative prices between Quebec and Alberta.

⁵ A "two-four equivalent" refers to the volume of a case of 24 341 ml beer containers.

⁶ Consumers always pay post-tax prices for beer they purchase from retail channels. When we refer to the "pre-tax" price paid by consumers, we are referring to the portion of the post-tax price that is not a tax, fee, or refundable deposit of one form or another. Put differently, pre-tax prices are the revenues per unit sold received by the vendors after remitting taxes and fees to the government and excluding refundable deposits.

provinces, ran the analysis using only particular package formats, and limited the analysis to only the most popular brands in each province. In all cases, average pre-tax beer prices were consistently lower in Ontario than in Quebec.

In this addendum:

- We update the 2014 Report with 2018 data from TBS in Ontario and AC Nielsen in Quebec.
- We conduct a similar analysis—albeit with more limited data—comparing average beer prices in Ontario to average beer prices in Alberta.

The majority of our analysis focuses on the “volume-weighted average” price of beer, as this measure best reflects the price per litre that consumers are actually paying for beer.⁷ All references to average prices in this report for Quebec and Ontario refer to volume-weighted average prices. Average prices for Alberta are calculated in a slightly different manner due to data limitations, as explained in Section III.

The remainder of this addendum proceeds as follows. In Section II, we describe the updated data for the Ontario/Quebec pricing analysis, describe the tax rate changes that have affected both provinces since 2013, and report the results of our updated comparison of Ontario and Quebec beer prices.

In Section III, we describe our comparison of beer prices in Ontario and Alberta, describe the data used and the relevant taxes in Alberta, and report the results of our comparison of Ontario and Alberta beer prices.

II. COMPARISON OF ONTARIO AND QUEBEC PRICES

A. Updated Data

The 2014 Report was based on price and volume data for all “off-premise” sales through TBS in 2013.⁸ These data accounted for roughly 75 percent of all off-premise beer sales in 2013. For this addendum, our Ontario data set is comprised of price and volume data for all off-premise sales through TBS in 2018.

⁷ A volume-weighted average price analysis places greater weight on the prices of beer brands and products that are purchased in greater quantities to more accurately reflect the average price per litre of beer actually purchased, instead of the price per litre of beer available for purchase.

⁸ Off-premise sales are made where the consumer will consume beer somewhere other than where they purchased it, for example in their homes. Conversely, on-premise consumption includes hotels, restaurants, bars, nightclubs and similar establishments.

Each observation in the Ontario sales data includes product identifiers,⁹ the week, the channel, an indicator of whether the product is classified as beer,¹⁰ the volume in hectolitres sold of the product through the channel in the week, the price per hectolitre before applying the Harmonized Sales Tax (“HST”), the federal and provincial components of the applied HST on a per-hectolitre basis, and the amount of deposits on a per-hectolitre basis.

As in the 2014 Report, we obtained a data set on Quebec beer sales compiled by AC Nielsen (“AC Nielsen sales data”).¹¹ As discussed in the 2014 Report, the AC Nielsen sales data draw from six large grocery and big-box retail chains (the “AC Nielsen channel”).^{12,13} These data contain a product identifier, a brand identifier, the product segment to which the product belongs,¹⁴ attributes related to packaging format, and volumes and prices for each week in 2018 through December 8.¹⁵ Prices in the AC Nielsen sales data do not include sales taxes or deposits.

While for the 2014 Report we were able to filter out AC Nielsen data that suggested sales made below the legal minimum price for beer in Quebec, we were not able to filter out these sales for the purposes of this update. Based on the findings in the 2014 Report, the most likely effect of these potentially erroneously low prices in the data is to bias Quebec average prices down very slightly.

Comparing the counts of products and brands sold through TBS and the AC Nielsen channel in 2018 with the analogous counts in 2013 indicates a rapid proliferation of beer products in the intervening years in both provinces.¹⁶

B. Updated Tax Rates

The 2014 Report describes the beer tax framework in Ontario and Quebec and the methodology for calculating pre-tax prices for each product. As the tax frameworks have not

⁹ One of the product identifiers also provided information on packaging format that could be parsed from the identifier string.

¹⁰ We included data on all products classified as “Beer.”

¹¹ AC Nielsen is the former name of the company now part of Nielsen Holdings N.V. In this addendum, we refer to the data vendor by its former name for consistency with the 2014 Report.

¹² *Aron 2014 Beer Report*, p. 5 and footnote 16.

¹³ AC Nielsen is not itself a sales channel; rather, the AC Nielsen sales data are aggregates across several retail sales channels in Quebec. For simplicity of exposition, we refer to AC Nielsen as a “channel”.

¹⁴ We only analyzed products in segments related to beer, excluding wine, cider, non-alcoholic beer, coolers, and non-beer malt beverages.

¹⁵ Volumes and prices in the AC Nielsen sales data are reported in terms of volume-equivalent 24 x 341ml cases. We converted these volumes and prices to hectolitre and per-hectolitre terms respectively.

¹⁶ For example, the number of distinct brands appearing in the TBS sales data grew from about 400 in 2014 to about 850 in 2018. This latter count is consistent with information appearing on TBS’s website, which currently reports that the retailer provides “more than 800 brands” from which to choose. It also comports with the most recent (2017) TBS operations report available, which states that 870 brands were listed. See “About Us,” The Beer Store, at <http://www.thebeerstore.ca/about-us>; and “The Beer Store Operations Report,” Brewers Retail, Inc., 2017, at <http://www.thebeerstore.ca/sites/default/files/Operational%20Report/OpsReport2017-Final-secured.pdf>.

changed in either province, we used the same approach for the 2018 addendum, to the extent permitted by the data.¹⁷

While the tax structures in 2018 were the same as they were in 2013, some of the tax rates have changed. Addendum Table 1, below, reports the tax rates applicable in 2018 in each province.

Addendum Table 1: Tax Structures in Ontario and Quebec

	Ontario		Quebec	
	Included in the TBS data?	Rate	Included in the AC Nielsen data?	Rate
Federal Sales Tax	No	5%	No	5%
Provincial Sales Tax	No	8%	No	9.975%
Federal Excise Tax (January-March)	Yes	\$0.3184/litre	Yes	\$0.3184/litre
Federal Excise Tax (April-December)	Yes	\$0.3232/litre	Yes	\$0.3232/litre
Provincial Basic Commodity Tax (Specific Beer Tax in Quebec) (January-February)	Yes	\$0.8833/litre	Yes	\$0.6300/litre
Provincial Basic Commodity Tax (Specific Beer Tax in Quebec) (March-December)	Yes	\$0.8974/litre	Yes	\$0.6300/litre
Provincial Volume Levy	Yes	\$0.176/litre	N/A	None
Provincial Environmental Levy	Yes	\$0.0893 per non-refillable container	N/A	None

The federal excise tax rose from \$0.3122 per litre in 2013 to \$0.3184 per litre from January to March 2018 and then to \$0.3232 per litre from April to December 2018.¹⁸ These changes applied to both Ontario and Quebec. In Ontario, the basic beer tax rose from \$0.7402 per litre in

¹⁷ “Excise Duty Rates,” Government of Canada, modified February 15, 2019, at https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/edrates/excise-duty-rates.html#_Toc527013624. Because we lack data on alcohol by volume (ABV) for the products in the data, we cannot distinguish beers equal to or below 2.5 percent ABV that would be subject to a discounted federal excise tax. While we eliminate non-alcoholic beer products from the data, the data contain some radler products whose ABV might fall below 2.5 percent. However, we understand that these products would not constitute a sufficient volume of sales for the difference in the federal excise tax to make a material difference in the computed average prices. We also could not incorporate discounts in the excise tax for small domestic brewers.

¹⁸ “Excise Duty Rates,” Government of Canada, modified February 15, 2019, at https://www.canada.ca/en/revenue-agency/services/forms-publications/publications/edrates/excise-duty-rates.html#_Toc527013624.

2013 to \$0.8833 per litre from January to February 2018 and rose again to \$0.8974 per litre from March to December 2018.¹⁹

C. Updated Results

Addendum Table 2, below, presents the average prices for Ontario and Quebec, both post-tax and pre-tax.

Addendum Table 2: Weighted Average Price Per Litre by Province

	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes, ¹⁹ and Federal Excise Tax
Beer Products in Ontario (TBS)	\$4.67	\$2.61
Beer Products in Quebec (AC Nielsen)	\$4.55	\$3.00

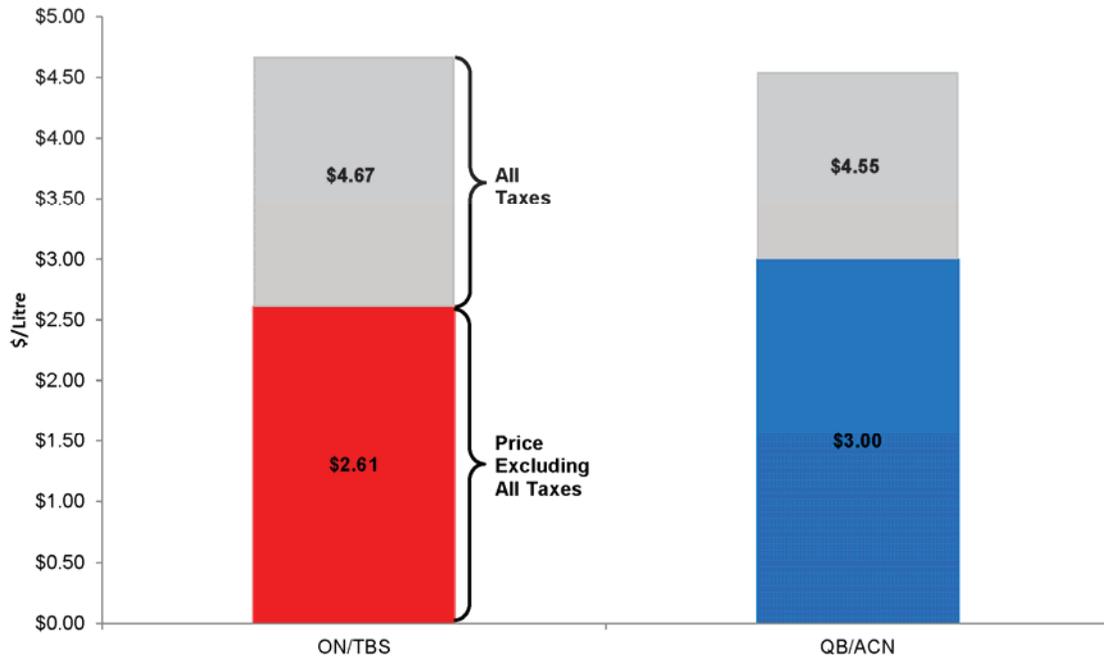
Addendum Figure 1 presents a graphical version of the post-tax and pre-tax average prices.

¹⁹ “Beer and Wine Tax,” Ontario Ministry of Finance, at <https://www.fin.gov.on.ca/en/tax/bwt/index.html>. As in the 2014 Report, we cannot distinguish domestic microbrewers from other brewers and treat all beer as subject to the “Beer Manufacturers” basic tax rate. The calculation of provincial commodity taxes in Quebec also excludes any adjustments for tax discounts provided based on the size of a brewery’s production volume. Because we do not have access to brewery production levels by brand that would enable calculation of those discounts, we cannot calculate such discounts for either province. We note that the Quebec provincial commodity tax on beer rose from \$0.50 per litre in 2013 to \$0.63 per litre by 2018.

²⁰ The Commodity Taxes for Ontario consist of the Basic Beer Tax, Volume Levy, and Environmental Levy. The Commodity Tax for Quebec consists of the Specific Beer Tax. See Addendum Table 1 for details regarding these taxes.

Addendum Figure 1: Weighted Average Price Per Litre

TBS Data and AC Nielsen Data



A number of observations can be drawn from the data:

- The pre-tax average price of beer in Ontario was substantially lower than the pre-tax average price of beer in Quebec. Specifically, the average pre-tax price of beer sold through TBS in Ontario was \$2.61 per litre, compared to \$3.00 per litre for beer sold through the AC Nielsen channel in Quebec. In other words, pre-tax beer prices were 13 percent lower in Ontario's TBS retail chain than they were in the Quebec AC Nielsen channel. This \$0.39 per litre difference translates into approximately \$3.19 per two-four equivalent.²¹
- However, due to the higher beer taxes levied by the Ontario Government, the average post-tax price at TBS was \$4.67 per litre, which is \$0.13 per litre *higher* (after rounding) than the \$4.55 per litre average post-tax price AC Nielsen channel retailers in Quebec. In other words, despite a pre-tax price advantage for Ontario beer consumers equivalent to about \$3.19 per two-four equivalent Ontario beer drinkers pay on average approximately \$1.04 per two-four equivalent more than consumers in Quebec post-tax.

²¹ At \$0.39 per litre, the difference amounts to \$0.13 per 341ml container or \$3.19 per 24 pack of these containers.

- This post-tax result is a reverse of the result in the 2014 Report, when the average post-tax TBS price was found to be slightly lower than the average post-tax AC Nielsen channel price.²²

Addendum Table 3: Average Price for a Two-Four Equivalent Volume by Province

	Average Price for a Two-Four Equivalent	Average Price for a Two-Four Equivalent Excluding Sales Taxes, Commodity Taxes, ²² and Federal Excise Tax
Ontario (TBS)	\$38.24	\$21.37
Quebec (AC Nielsen)	\$37.20	\$24.56

The 2018 post-tax and pre-tax average prices in both provinces have increased somewhat from 2013. While one expects price increases related generally to inflation, the increases in the pre-tax prices may also reflect a shift over time in consumer preferences toward (and increased consumption of) more premium beer. Additionally, the increases in the post-tax prices also reflect the increase in the federal excise tax and in Ontario’s commodity taxes.

We have also observed that provincial beer taxes make up a substantially higher portion of beer prices for Ontario consumers. Specifically, provincial taxes constitute 32.8 percent of the average post-tax price of beer in Ontario, compared to 22.5 percent in Quebec.²⁴ Provincial taxes in both provinces constitute a greater portion of beer prices paid by consumers than do federal taxes, which make up 11.3 percent of prices in Ontario and 11.4 percent of prices in Quebec.²⁵

It is theoretically possible that the lower volume-weighted average (pre-tax) prices observed in Ontario are driven by differences in product assortment, in that TBS might disproportionately stock cheaper brands than the AC Nielsen channel retailers. However, the 2014

²² Aron 2014 Beer Report, Table 3.

²³ The Commodity Taxes for Ontario consist of the Basic Beer Tax, Volume Levy, and Environmental Levy. The Commodity Tax for Quebec consists of the Specific Beer Tax. See Addendum Table 1 for details regarding these taxes.

²⁴ The portions of the post-tax price that are provincial taxes include both the taxes and levies charged on a per-litre or per-container basis and the provincial component of the sales tax. These can be calculated from the information in Addendum Table 6, attached at the end of this report. For Ontario, the average provincial tax per litre is \$1.53 [= (\$4.13-\$2.93) + 0.08*\$4.13], or 32.8 percent of the average post-tax price of \$4.67. For Quebec, the average provincial tax per litre is \$1.02 [= (\$3.95-\$3.32) + 0.09975*\$3.95], or 22.5 percent of \$4.55.

²⁵ For Ontario, the average federal tax per litre is \$0.53 [= (\$2.93-\$2.61) + 0.05*\$4.13], or 11.3 percent of \$4.67. For Quebec, the average federal tax per litre is \$0.52 [= (\$3.32-\$3.00) + 0.05*\$3.95], or 11.4 percent of \$4.55.

Report includes a variety of robustness checks to show that the main results were not driven by differences in product assortment or differences in customer tastes.

The 2014 Report also presents cumulative consumption curves. These show for each province the cumulative volume share of beer purchased at or below each price.²⁶ Addendum Figure 3, attached at the end of this report, provides the cumulative consumption curves for each province based on the 2018 data.

While the cumulative consumption curves appear closer to each other along the range of beer prices than they did in 2013—indicating that average pre-tax prices in Ontario and Quebec are generally closer to each other than they were in 2013—these graphs reaffirm that Ontario beer consumers generally pay lower prices on a pre-tax basis.²⁷

III. COMPARISON OF ONTARIO AND ALBERTA PRICES

A. Adjusted Methodology and Alberta Data

In addition to updating the price comparison between Ontario and Quebec presented in the 2014 Report, we have also conducted a similar, though more narrowly focused, study of Ontario and Alberta beer prices. The comparison of Ontario and Alberta prices required a different methodology than the Ontario-Quebec comparison because of the limitations of available data for Alberta.

Beer retailing in Alberta follows a private retail model far closer to that of Quebec than that of Ontario.²⁸ While Alberta Gaming, Liquor & Cannabis (“AGLC”) regulates distribution of beer to some extent—for example, requiring uniform wholesale pricing throughout the province²⁹—retailers are generally at liberty to set their own prices for beer.³⁰ To our knowledge,

²⁶ See *Aron 2014 Beer Report*, p. 8 and Figures 8 and 9 for more detail on these cumulative consumption curves.

²⁷ In Addendum Figure 3, consumers of the lowest priced beers in Quebec appear to pay slightly lower prices than consumers of the lowest priced beers in Ontario. However, we believe that the lower tails of these Quebec consumption graphs may reflect errors in the data in that some prices as recorded in the data might be below the Quebec legal minimum.

²⁸ “About liquor in Alberta,” Alberta Gaming, Liquor, & Cannabis, at <https://aglc.ca/liquor/about-liquor-alberta>. The “Alberta Gaming & Liquor Commission” was a previous name for the AGLC.

²⁹ As of March 31, 2017, Alberta beer wholesalers may set their prices on a weekly basis; however, the price is required to be the same for wholesale sales throughout the province. See “What We Heard: Adopting Weekly Liquor Pricing,” Alberta Gaming & Liquor Commission, February 2017, at https://aglc.ca/sites/aglc.ca/files/aglc_files/Liquor-Studies_2017_Report-What_We_Heard-Adopting_Weekly_Liquor_Pricing.pdf.

³⁰ See “About liquor in Alberta,” Alberta Gaming, Liquor, & Cannabis, at <https://aglc.ca/liquor/about-liquor-alberta>; and “Quick Facts: Liquor,” Alberta Gaming, Liquor, & Cannabis, at https://aglc.ca/sites/aglc.ca/files/aglc_files/LiquorQuickFacts.pdf, for more information about beer distribution and retailing in Alberta.

there does not exist a data set on retail beer sales in Alberta that approaches the coverage of TBS and AC Nielsen sales data for Ontario and Quebec sales respectively.

The most comprehensive data source on retail beer prices in Alberta available to us is compiled from an ongoing survey of Alberta beer retailers (“Alberta PTC Survey”). In 2018, the Alberta PTC Survey covered 147 retailers and about 280 products under about 110 brands. Most retailers were surveyed between 6 and 13 times throughout the year.³¹ The Alberta PTC Survey data records the price of each product at each location at the time of the survey, both with and without sales taxes,³² as well as product attributes related to brand and packaging format. Crucially, the Alberta PTC Survey data do not contain any sales volumes.

Products in the Alberta PTC Survey are generally surveyed at several locations each week. The prices observed for a given product in a given week may vary. Lack of volume data precludes us from calculating a volume-weighted average price based on Alberta volumes and therefore precludes us from extending the Ontario-Quebec comparison methodology to Alberta. In addition, the simple average or median prices may overstate the volume-weighted average price consumers pay for a given product if, as one might expect, sales volumes are larger where prices are lower. Instead of using the simple mean or median observed price, we select the minimum price observed among locations for each product in each week. This methodology necessarily understates the volume-weighted average price consumers paid for each brand in each week in the surveyed locations in Alberta, but it allowed us to draw the most robust, conservative conclusions, as discussed below.

Because of the limited set of products contained in the Alberta PTC Survey data, average prices across these products might not be comparable to the overall average prices calculated from the much larger set of products in the Ontario data. To ensure comparable average prices across the Ontario and Alberta data sets, we restricted the analysis to those products and weeks that we could match across the Ontario sales data and the Alberta PTC Survey data (the “overlapping products”). We were able to match 148 of the products, sold under 57 brands, in the Alberta PTC Survey data to products in the TBS sales data. To overcome the lack of volume data for Alberta, we used Ontario sales volumes by product by week to calculate volume-weighted average prices in both provinces. This methodology is the same as the “price index” analysis conducted in the 2014 Report, which generated results consistent with the broader observations in the 2014 Report for Ontario and Quebec.³³ This approach effectively compares the average price per litre Ontario consumers paid for the overlapping products to the average per litre price Ontario consumers

³¹ A handful of retailers were surveyed only once and one retailer (Costco Liquor Store in Calgary) was surveyed 23 times.

³² Recorded prices in the Alberta PTC Survey are in terms of sale units. We converted these prices to per-hectolitre terms by first computing the volume of each sale unit and scaling the recorded price accordingly.

³³ See *Aron 2014 Beer Report*, p. 9 and Table 5 for more information about the price index approach.

would have paid if they were charged the lowest price charged for these products in Alberta during that time period.

B. Alberta Tax Rates

Beer taxes in Alberta follow a similar structure to those in Ontario and Quebec. Addendum Table 4 shows the Alberta tax rates applicable in 2018 alongside the comparable Ontario taxes. There is no provincial sales tax in Alberta,³⁴ so the five percent federal sales tax constitutes the entirety of sales taxes. The federal excise tax applies to beer at the same per litre rates as in other provinces.

The Alberta provincial commodity tax on beer, called the AGLC Markup, is set at \$1.25 per litre,³⁵ higher than the analogous commodity taxes in Quebec or Ontario, even when the volume levy is added to the Ontario basic tax.

Addendum Table 4: Tax Structures in Ontario and Alberta

	Ontario		Alberta	
	Included in the TBS data?	Rate	Included in Alberta PTC Survey data?	Rate
Federal Sales Tax	No	5%	No	5%
Provincial Sales Tax	No	8%	No	0%
Federal Excise Tax (January-March)	Yes	\$0.3184/litre	Yes	\$0.3184/litre
Federal Excise Tax (April-December)	Yes	\$0.3232/litre	Yes	\$0.3232/litre
Provincial Basic Commodity Tax (AGLC Markup in Alberta) (January-February)	Yes	\$0.8833/litre	Yes	\$1.25/litre
Provincial Basic Commodity Tax (AGLC Markup in Alberta) (March-December)	Yes	\$0.8974/litre	Yes	\$1.25/litre
Provincial Volume Levy	Yes	\$0.176/litre	N/A	None
Provincial Environmental Levy	Yes	\$0.0893 per non-refillable container	N/A	None

C. Results

The results show that Ontario consumers are paying less for the overlapping products than they would be paying for the same relative volumes at Alberta prices both pre-tax and post-tax.

³⁴ “Alberta’s tax advantage,” Government of Alberta, at <https://www.alberta.ca/alberta-tax-advantage.aspx>.

³⁵ “Liquor markup rate schedule,” Alberta Gaming, Liquor, & Cannabis, Effective November 26, 2018, at <https://aglc.ca/liquor/about-liquor-alberta/liquor-markup-rate-schedule>.

Addendum Table 5 and Addendum Figure 2 report the results of the Ontario and Alberta average price comparisons.³⁶

Addendum Table 5: Weighted Average Price Per Litre by Province

	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes, ³⁷ and Federal Excise Tax
Beer Products in Ontario (TBS)	\$4.98	\$2.83
Beer Products in Alberta	\$5.54	\$3.70

On a pre-tax basis, Ontario consumers are paying \$2.83 per litre at TBS for the overlapping products whereas they would pay \$3.70 per litre in Alberta (\$0.87 per litre more, or \$7.14 more per two-four equivalent). In other words, if Alberta pre-tax prices were imposed on Ontario consumers (i.e., if prices increased to Alberta levels but Ontario taxes remained the same), average Ontario pre-tax prices would increase by more than 30 percent.

On a post-tax basis, Ontario consumers are paying on average \$4.98 per litre at TBS for the overlapping products, whereas in Alberta they would pay \$5.54 per litre after taxes for these same products (\$0.56 per litre more (after rounding), or \$4.55 more per two-four equivalent). In other words, if Alberta post-tax prices were imposed on Ontario consumers, average Ontario post-tax prices would increase by about 11.2 percent (even with Ontario taxes falling to Alberta levels).

Provincial beer taxes make up a materially higher portion of the price of beer paid by consumers in Ontario than they do in Alberta. Specifically, provincial taxes constitute 32.3 percent of the average post-tax price of the overlapping products in Ontario, compared to 22.6 percent in Alberta.³⁸ Provincial taxes in both provinces constitute a greater portion of beer prices paid by

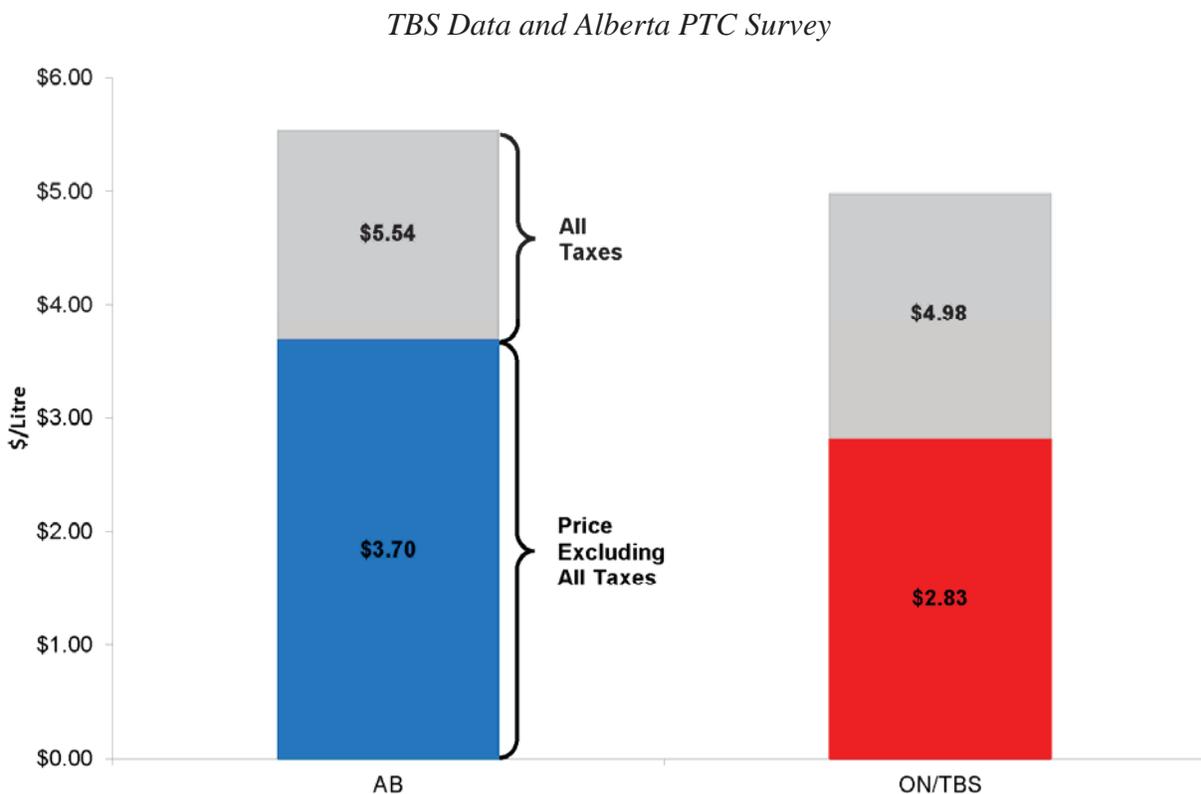
³⁶ The Ontario averages reported in Addendum Table 5 are higher than those reported in Addendum Table 2 because the averages in Addendum Table 5 are calculated from a narrower set of observations in the Alberta PTC Survey data. This difference indicates that the Alberta survey over-represented higher priced products and/or under-represented value products relative to the overall set of products consumed in Ontario. Our results are not distorted, however, because our comparison is for only the same products in each province.

³⁷ The Commodity Taxes for Ontario consist of the Basic Beer Tax, Volume Levy, and Environmental Levy. The Commodity Tax for Alberta is the AGLC Markup. See Addendum Table 4 for details regarding these taxes.

³⁸ The portions of the post-tax price that are provincial taxes include both the taxes and levies charged on a per-litre or per-container basis and the provincial portion of the HST in Ontario (Alberta does not charge provincial sales tax). These can be calculated from the information in Addendum Table 7, attached at the end of this report. For

consumers than do federal taxes, which make up 10.9 percent of prices in Ontario and 10.6 percent of prices in Alberta.³⁹

Addendum Figure 2: Weighted Average Price Per Litre by Province



Notes:

1. TBS sales volumes are used for weighting the averages for Alberta.

Addendum Figure 4, attached at the end of this report, presents the cumulative consumption graph for the overlapping products in both provinces. Whether considering pre-tax or post-tax prices, the figure shows that Ontario consumers generally paid less than they would pay at Alberta prices except for perhaps at the lowest-priced of the overlapping products.

Because we find that Ontario consumers generally purchase their beer at a discount relative to the prices in Alberta, our decision to use the minimum observed price from the Alberta PTC Survey for each product in each week makes our conclusion robust—the true volume-weighted average price paid in each week for each product is higher than the minimum observed price for that product in that week, reinforcing the conclusion that Alberta’s prices are substantially higher

Ontario, the average provincial tax per litre is \$1.61 [= (\$4.41-\$3.15) + 0.08*\$4.41], or 32.3 percent of the average post-tax price of \$4.98. For Alberta, the average provincial tax per litre is \$1.25 [= (\$5.27-\$4.02)], or 22.6 percent of \$5.54.

³⁹ For Ontario, the average federal tax per litre is \$0.54 [= (\$3.15-\$2.83) + 0.05*\$4.41], or 10.9 percent of \$4.98. For Alberta, the average federal tax per litre is \$0.59 [= (\$4.02-\$3.70) + 0.05*\$5.27], or 10.6 percent of \$5.54.

than Ontario's. It is possible, however, that our use of the minimum price is causing the cumulative consumption graphs associated with Alberta prices for the lowest-priced products to appear to be lower than Ontario prices for these products even if they are in fact higher.

IV. CONCLUSION

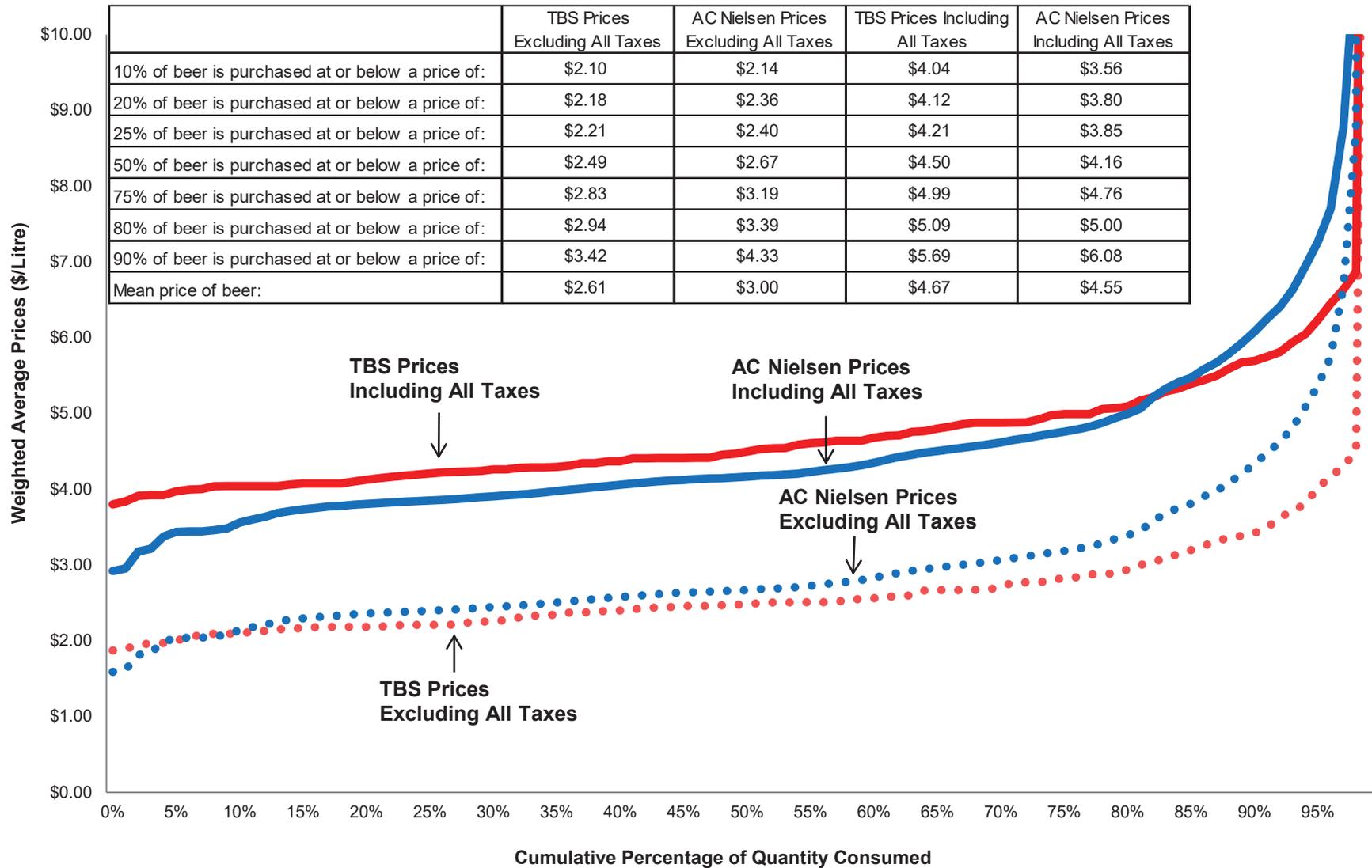
As with the 2014 Report, the data from 2018 show that average pre-tax prices in Ontario were significantly lower than the average prices for consumers at some of the largest retailers in Quebec. Unlike the 2014 Report, the results of this report show that average post-tax prices in Ontario were higher than those in Quebec.

The average pre-tax price for a two-four equivalent volume of beer in Ontario is approximately \$3.19 less than the average pre-tax price for a two-four equivalent of beer in Quebec. However, due to Ontario's higher provincial taxes, the average post-tax price of a two-four equivalent volume in Ontario is approximately \$1.04 higher than in Quebec.

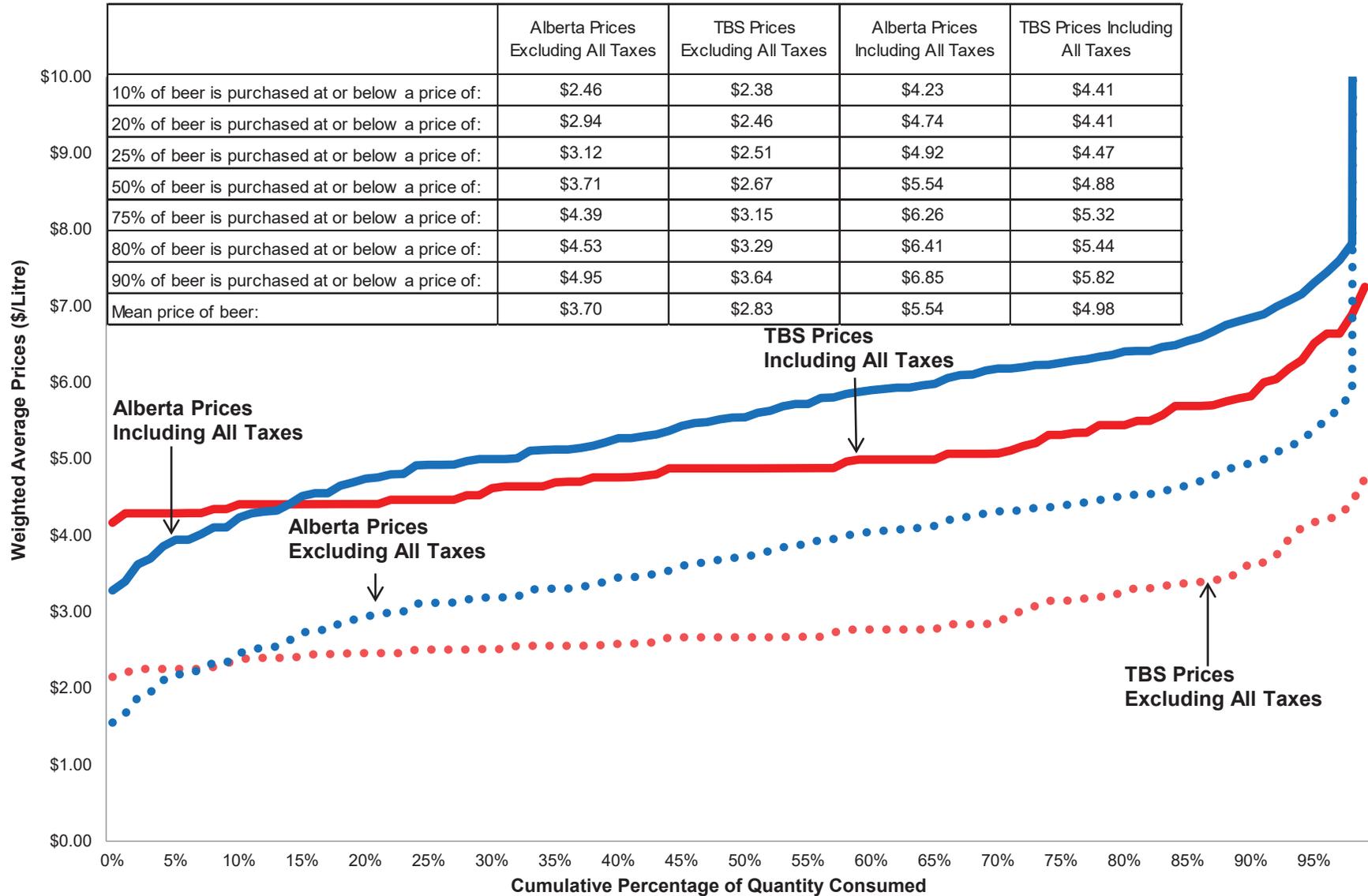
In addition to the Quebec comparison, this report also compared average beer prices in Ontario to those in Alberta. The results of this comparison were that average Ontario beer prices, both pre-tax and post-tax, were lower than average Alberta beer prices.

If Ontario consumers paid Alberta pre-tax prices and were taxed at Ontario rates, the cost of a two-four equivalent volume of beer would be \$7.14 more. Even if Ontario consumers paid post-tax Alberta prices and taxes were kept at Alberta levels, Ontario consumers would pay \$4.55 more per two-four equivalent.

Addendum Figure 3: Cumulative Percentage of Quantity Consumed at Various Prices



Addendum Figure 4: Cumulative Percentage of Quantity Consumed at Various Prices



Addendum Table 6: Weighted Average Price Per Litre
TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes*	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes,* and Federal Excise Tax
Beer Products in Ontario (TBS)		\$1,825,320,059	390,688,404	\$4.67	\$4.13	\$2.93	\$2.61
Beer Products in Quebec (AC Nielsen)		\$719,538,888	158,309,350	\$4.55	\$3.95	\$3.32	\$3.00

Notes:

*The Commodity Taxes for Ontario consist of the Basic Beer Tax, Volume Levy, and Environmental Levy. The Commodity Tax for Quebec consists of the Specific Beer Tax. See Addendum Table 2 for details regarding these taxes.

Addendum Table 7: Weighted Average Price Per Litre

TBS Data and Alberta PTC Survey

	Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes*	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes,* and Federal Excise Tax
Beer Products in Ontario (TBS)	\$532,068,896	106,862,701	\$4.98	\$4.41	\$3.15	\$2.83
Beer Products in Alberta	\$591,515,134	106,862,701	\$5.54	\$5.27	\$4.02	\$3.70

Notes:

*The Commodity Taxes for Ontario consist of the Basic Beer Tax, Volume Levy, and Environmental Levy. The Commodity Tax for Alberta is the AGLC Markup. See Addendum Table 6 for details regarding these taxes.

1. TBS sales volumes are used for weighting the averages for Alberta.

Appendix "A"

Debra J. Aron, Ph.D., "The Price of Beer in Ontario and Quebec"

(see attached)

THE PRICE OF BEER IN ONTARIO AND QUEBEC

By

Debra J. Aron, Ph.D.¹

May 2014

1. INTRODUCTION

A. Background

Beer is a very popular beverage in Canada. In 2013, beer accounted for eight percent of all household spending on food and beverages in Canada.² In 2012, Canadians bought the equivalent of 235 bottles of beer per person for off-premise consumption.³

Beer is sold subject to a variety of taxes, levies, and regulatory constraints that affect the way consumers access and purchase beer, the pathways through which brewers compete with each other, the prices consumers pay, and the revenues brewers receive. While there are some taxes and fees imposed at the federal level that apply to beer sold in any province, the majority of the tax load on beer is levied at the provincial level, where tax levels and structures can vary significantly. Beer is also sold in substantially different retailing environments across provinces due to different regulatory policies at the provincial level.

In this paper I focus on two provinces, Ontario and Quebec. In Ontario, most beer for off-premise consumption is sold at either The Beer Store, or at government-owned Liquor Control Board of Ontario (“LCBO”) stores. LCBO stores sell primarily wine, spirits, and beer in smaller package sizes. The Beer Store, also known as “TBS,” is a privately owned, government-regulated chain of retail outlets that sells a full selection of beer products representing approximately 75 percent of provincial retail beer sales. In Quebec, beer is distributed (i.e., delivered to points of sale) either by government-owned Société des alcools du Québec (“SAQ”) stores, or by private distributors, including brewers. The retail channels for beer in Quebec include SAQ stores, grocery stores, and convenience stores.⁴

Because of differences in the legislative and regulatory requirements related to beer distribution and retailing in the two provinces, the competitive framework in each province is somewhat different. In Quebec, retailers may set different prices from one another for the same beer in order to compete with each other, and are free to offer just a limited variety of beers. Prices may vary from region to region or store to store depending on the availability of other

¹ Dr. Debra Aron is Adjunct Associate Professor at Northwestern University, and a Managing Director at Navigant Economics. Outstanding research assistance was provided by Sophie Yang.

² “The Value of Beer in Canada,” The Conference Board of Canada, 2013.

³ “The Value of Beer in Canada,” The Conference Board of Canada, 2013.

⁴ In Quebec the only beer sold in SAQ stores is beer that is not available in grocery and convenience stores.

brands in the store and in the area, and the proximity of competing retailers, among other factors, subject to minimum price requirements established by the Quebec Régie des alcools.⁵

In Ontario TBS has an open listing policy. Each brewer has the opportunity to sell any brand and packaging of beer at any or all TBS stores that it chooses, subject to paying a one-time listing fee on a per-store per-SKU basis, and each brewer is free to set and change its selling prices. Under the provincial *Liquor Control Act*, prices for the same beer product are uniform at all retail outlets where the beer is available (including LCBO stores, TBS stores and agency stores).⁶ TBS currently operates 448 stores.⁷ In addition to its one-time listing fee, TBS also charges brewers a service fee for supplying retailing services and managing the collection of empty bottles.⁸ The individual brewers set their own beer prices subject only to LCBO's approval and minimum price requirements. TBS does not restrict or limit the beer products sold through its stores nor does it play any role in setting product prices. In TBS stores, brewers set prices taking into account the fact that brands compete with other brands head-to-head in each store and at a price that must be uniform across the entire TBS system.⁹

The high levels of beer taxation in Canada result in a significant percentage of retail selling prices being comprised of tax. While federal beer tax rates in the provinces of Ontario and Quebec are identical, the provincial levels of taxation are considerably different. For example, on a case of 355ml 24-cans the provincial commodity tax in Ontario is 234 percent of that in Quebec: \$9.95/case versus \$4.26/case, respectively.¹⁰ Overall, in 2013, 44 percent of the average beer selling price on a per litre basis in Ontario was tax, while 33 percent of the average beer selling price at Quebec was tax.¹¹ These tax differences necessarily have a significant effect on the relative prices paid by consumers in the two markets, and on the relative prices received by suppliers in the two markets. It is therefore important to explicitly account for these tax differences when conducting a pricing comparison across jurisdictions with different tax structures.

⁵ The minimum price of beer is determined by the Régie des alcools, des courses et des jeux (the Quebec Liquor Control Board) and it follows the cost of living on a yearly basis. See Canadian Association of Liquor Jurisdictions, <http://www.calj.org/Articles/Publications>.

⁶ "Alcohol Retailing Deregulation: Implication for Ontario," TBS, Greg Flanagan, February 2014, at page 4.

⁷ "Alcohol Retailing Deregulation: Implication for Ontario," TBS, Greg Flanagan, February 2014, at page 13.

⁸ The TBS basic service fee covers product receipt at retail, inventory management, selling products to consumers and managing the return of empty containers. The basic service fee is tiered based on sales volume and ranges from \$3.77 to \$4.28 per case in 2013. In 2013, the one-time listing fee for new product listings was \$2,848.93 plus \$227.92 per store per SKU for the first 233 stores and \$53.56 per store for stores beyond the first 233 stores.

⁹ Provincial regulations administered by the LCBO permit brewers to modify prices on a weekly basis with the exception of the month of December.

¹⁰ See Table 2 for tax rates in both provinces. The figures \$9.95 and \$4.26 in the text are calculated as follows: $(\$0.7402 + \$0.176) * 355 * 24 / 1000 + \$0.0893 * 24 = \$9.95$ and $\$0.5 * 355 * 24 / 1000 = \4.26 .

¹¹ See Table 3. TBS: Pre-tax price \$2.28/post-tax price \$4.07=56%. 1-56%=44%. AC Nielsen: Pre-tax price \$2.8/post-tax price \$4.15=67%. 1-67%=33%.

The purpose of this paper is as follows:

1. to examine the prices of beer sold for off-premise consumption in Quebec and Ontario to determine the extent to which prices vary between the two provinces; and
2. to assess whether, after taking into account the different tax structures, the prices paid by consumers and the revenues to the suppliers differ between the two provinces and define the scope and extent of those differences.¹²

In the following section I summarize my findings. In Section II, I describe the data I have obtained, the steps I took to prepare the data, and the statistical analyses I performed to compare beer prices in Ontario and Quebec. Section III contains concluding remarks.

B. Summary of Findings

As an economic matter, the price paid by consumers will be higher in a market with higher taxes than in a market with lower taxes, all else equal. Because, as noted above, taxes on beer in Ontario are significantly higher than taxes on beer in Quebec, we would expect to find that absent other differences, post-tax prices in Ontario would be higher than post-tax prices in Quebec. Of particular interest, then, to analyze beer prices in the two provinces is a comparison of the prices with all taxes removed. Hence, I compared both (i) pre-tax prices (i.e., the prices of the beer prior to the application federal and provincial sales taxes, provincial commodity tax as well as federal excise tax), which represent the prices actually received by suppliers¹³ and (ii) post-tax prices (i.e., prices after the application of federal and provincial sales taxes, provincial commodity tax as well as federal excise tax), which represent the prices actually paid by the consumer at retail.

The key findings of the analysis were as follows:

1. Analysis of Pre-Tax Prices

- The volume weighted average pre-tax price per litre for all beer products sold in Ontario was \$0.52 lower than the volume weighted average pre-tax price of all beer products sold in Quebec. This is a difference of 18.1 percent.
- The volume weighted average pre-tax prices for the bestselling package sizes --- six, twelve and twenty-four --- were all lower in Ontario than in Quebec.¹⁴ For example, the volume weighted average pre-tax price of a 12-pack of cans was \$2.34 per litre in Ontario, and \$2.91 per litre in Quebec, a 19.6 percent difference.

¹² I excluded on-premises consumption from my analysis as the AC Nielsen data do not include on-premises channels (on-premise consumption includes hotels, restaurants, bars, nightclubs and similar establishments).

¹³ The taxes applied to beer sales include federal and provincial sales taxes, provincial commodity taxes, and federal excise taxes.

¹⁴ The bestselling package sizes in Quebec are 24, 12, 6, 1 and 20 packs. The bestselling package sizes in Ontario are 24, 12, 28, 15 and 6 packs.

- The pre-tax price of beer paid at the 50th percentile of consumption --- that is, the price at or below which 50 percent of the litres of beer were purchased --- was \$0.35 per litre, or 14.1 percent lower in Ontario than in Quebec; in fact Ontario's pre-tax per litre prices were lower than Quebec's at every percentile of consumption.
- Thirty-five percent of the total litres of beer sales sold at TBS during 2013 were sold at a pre-tax price that was lower than the lowest pre-tax price observed in the province of Quebec, which was \$2.02.
- Pre-tax prices in Ontario were \$0.23, or 8.7 percent, lower than pre-tax prices in Quebec when comparing beer products that are common to both markets (i.e., products sold in the same package sizes and same container types in both provinces), and holding constant the volume of consumption in the two provinces at the volumes purchased in Ontario (that is, looked at as an Ontario-weighted price index).
- The volume weighted average pre-tax prices for the top 10 best-selling brands in Ontario were one percent to 23 percent lower in Ontario than in Quebec, except for Coors Light, which was sold at the same pre-tax price in both provinces, and Bud Light, which was sold at pre-tax prices one cent per litre more, or less than one percent higher, in Ontario. One of the top 10 brands in Ontario—Lakeport Pilsner—sells at a lower pre-tax price by far than any of the top 10 brands in Quebec, but is not sold in Quebec at all. For the best-selling brands in Quebec, Molson Dry and Export --- which are not in the top 10 in Ontario --- are nevertheless sold at a lower pre-tax price in Ontario. Other than Bud Light, the only brand among the top 10 in Quebec that sells at a lower price in Quebec than in Ontario is Stella, which is 15 cents per litre cheaper in Quebec.

2. Analysis of Post-Tax Prices

- Despite the much higher taxes in Ontario, the volume weighted average post-tax price per litre for all beer products sold in Ontario was \$0.08 *lower* than the volume weighted average post-tax price of all beer products sold in Quebec.
- Despite the much higher taxes in Ontario, the volume weighted average post-tax price for two of Ontario's best-selling brands of beer was lower in Ontario than in Quebec.
- On a post-tax basis, beer products sold only in Ontario (not in Quebec) have a lower volume weighted average price than do beer products sold only in Quebec (not in Ontario), and a lower price than beer products sold in both provinces.
- The volume weighted average post-tax prices in Ontario are lower than those in Quebec for 6-packs of bottles, 6-packs of cans, and 12-packs of cans. The volume weighted average post-tax prices in Ontario are higher than those in Quebec for 12-packs of bottles, 24-packs of cans, and 24-packs of bottles.

3. Brand Availability

- Consumption was less concentrated in the best-selling brands in Ontario than it was in Quebec, indicating a larger variety of brands in Ontario that consumers choose to enjoy in significant quantities.

II Data Analysis

A Data Description

In order to compare beer prices in Ontario and Quebec, I obtained product level Ontario beer sales data from TBS (“the TBS data”) and product level beer sales data for Quebec from AC Nielsen (“the AC Nielsen data”). The beer product sales data I received from TBS included weekly data for 2013. TBS staff has confirmed that these data include all beer sales made through TBS, which represents approximately 75 percent of retail beer sales in Ontario. The dataset includes transaction date, sales revenue, quantity of packs sold, beer brand, container type, container volume, pack size, and type of transaction.¹⁵ The sales revenue variable includes provincial commodity taxes (i.e., basic commodity tax, volume levy, and environmental levy) and federal excise tax, but excludes federal and provincial sales taxes (i.e., the 13 percent Harmonized Sales Tax).

The AC Nielsen data also cover the year 2013 and are also provided by week. The AC Nielsen data capture for each transaction week the price, quantity of packs sold, product “Stock Keeping Units” (“SKUs”) (i.e., beer brand, pack size, container type, container volume, and alcohol percentage), manufacturer, price segment, and retail channel.¹⁶ The data are limited to sales through large grocery and select big box stores, which represent between 30 and 40 percent of overall beer sales in Quebec. I understand that the sales price in the AC Nielsen data includes provincial commodity taxes and federal excise tax, but excludes federal and provincial sales taxes (i.e., sales taxes totaling 14.975 percent). There is no environmental levy or volume levy in Quebec.

TBS also provided a list of non-refillable containers in the TBS data that are subject to the \$0.0893 per container environmental levy.

In my analysis I examine prices in a variety of ways, including by product, brand, and package size. For purposes of my analysis, I define a “product” as a combination of brand, number of containers in the package, container type, and container volume. An example of a product would be a 24-pack of 341ml bottles of Bud Light. In that example, the brand would be Bud Light. Table 1 summarizes the number of brands and products that appears in the TBS data for Ontario, and the AC Nielsen data for Quebec.

¹⁵ The type of transactions variable includes counter sales, LCBO delivery, agency sales/delivery, and SOP sales.

¹⁶ The retail channel (“Banner”) includes IGA, Loblaws, Maxi, Metro, SuperC, Provigo and “Total Nielsen.” I understand the price in the “Total Nielsen” banner in a given week is the weighted average of the prices in each included retail channel (i.e., each banner) that week; therefore I included only the “Total Nielsen” banner in my analysis.

B. Data Preparation

I evaluated the beer prices for January 1st to December 31st 2013. I evaluated only retail sales for this analysis.¹⁷ Retail sales represented approximately 78 percent of the total beer sales volume at TBS in 2013. I excluded all kegs, boxes, and pump products from my analysis.¹⁸ Bottles and cans represent more than 99 percent of the total sales in both the AC Nielsen data and the TBS data. I excluded the products in the AC Nielsen data with a pre-sales-tax price of less than the lowest legal minimum price in Quebec, on the assumption that these prices were errors in the data.¹⁹ I also excluded the observations in the AC Nielsen data that had positive prices but missing quantities of sales.²⁰

The data descriptors in the TBS data were not structured in the same way as the product descriptors in the AC Nielsen data. For example, the same product was described as “Stella Artois Lager” and “Stella Artois Premium Lager” in the AC Nielsen data, while it was denoted as “Stella” in the TBS data. Hence, in order to identify the products that are sold in both provinces and those that are not, it was necessary to map the brands from one data set into the brands in the other. I therefore mapped the SKUs in the AC Nielsen data to the brands in the TBS data using brand maps provided to me by TBS. The brands contained within the SKUs from the AC Nielsen data are more disaggregated than the brands in the TBS data. For example, both “Stella Artois Lager” and “Stella Artois Premium Lager” in the AC Nielsen data are mapped to “Stella” in the TBS data. In addition, the mapping between the brands depends on the alcohol percentage contained in the product. For example, “Busch Lager” with 4.7 percent alcohol in the AC Nielsen data is mapped to “Busch Lager” in the TBS data, while “Busch Lager” with 4 percent alcohol in the AC Nielsen data is mapped to “Busch Light” in the TBS data.

Table 2 summarizes the tax structures in each province and depicts the taxes that are included or excluded from each data set. To calculate post-tax prices, I added the federal and relevant provincial sales tax in each province. To conduct a comparison of pre-tax prices, I subtracted the relevant taxes in each province. In Ontario, the provincial commodity tax structure for the products in my analysis includes a \$0.7402 per litre basic tax for packaged beer, a \$0.176 per litre volume levy, and an environmental levy of \$0.0893 per non-refillable container.²¹ In Quebec, the provincial commodity tax structure consists of a \$0.50 per litre

¹⁷ Other channels in the TBS data include LCBO delivery, agency sales/delivery, and SOP (special event delivery) sales. The Nielsen data include retail sales only.

¹⁸ Some keg, box and pump beer products may be for on-premised consumption purposes. Therefore, I exclude them to analyze off-premise consumption only. I kept Heineken 5L in both provinces.

¹⁹ These observations represent less than 1% of the total litres sold in the AC Nielsen data. The legal minimum price (excluding sales tax) from Jan 1 to March 31, 2013 was \$2.7367 and \$2.7778 for April 1 to December 31, 2013. I also checked the TBS data against the legal minimum price in Ontario, which is \$2.86 (excluding sales tax and environmental levy) and found no instances of TBS prices falling below the legal minimum in Ontario. See <http://www.calj.org> and www.racj.gouv.qc.ca.

²⁰ These excluded observations represent approximately 1% of the total observations in the AC Nielsen data.

²¹ See <http://www.fin.gov.on.ca/en/tax/bwt/rates.html>. I deducted the environmental levy only for the products that were identified to me by TBS as having a non-refillable container. The provincial commodity tax was \$0.7235 for January and February 2013.

basic tax for retail sales. There are also tax reductions in each province for small brewers; however, I did not adjust for the tax breaks for small brewers in this analysis, due to lack of data allowing me to identify the small brewers to whom the tax reductions would apply and the amount of tax reduction by small brewer which varies in both provinces dependent upon brewers' annual production volume.

I calculated the litres consumed for each product by multiplying the quantity of packs sold, the number of bottles or cans in the pack, and the litres in a single bottle/can. For example, the total litres in 100 units of 341ML-24 packs would be $100 \times 341 \times 24 / 1000$, which is 818.4 litres.

C. Statistical Analysis

I evaluated the post-tax and pre-tax prices of beer in Ontario and Quebec in a number of ways. I performed the comparisons for the volume weighted average prices over all of the beer products sold in each province, as well as examining the volume weighted average prices for only the products that are sold in both provinces (which I term the "overlapping" products). I also studied the non-overlapping products in each province and the best-selling brands in each province.

Table 3 shows my development of the post-tax and pre-tax volume weighted average prices over all products sold in each province. The table also shows the development of the volume weighted average prices in each province broken down into overlapping product only, and non-overlapping products only. Figure 1 shows the results of Table 3 graphically. As shown there, the volume weighted average post-tax per litre prices in Ontario are lower than the volume weighted average post-tax per litre prices in Quebec, when calculated over all products consumed in each province. The overall volume weighted average post-tax price for all of the products is \$4.07 in Ontario and \$4.15 in Quebec. This is a surprising result because, as noted earlier, the substantially higher taxes in Ontario would be expected, all else equal, to result in higher post-tax prices in Ontario.

In addition, the volume weighted post-tax prices of the products sold in Ontario but not Quebec are lower than the volume weighted post-tax prices of the products sold in Quebec but not Ontario. The volume weighted post-tax prices of the products sold in both provinces are higher in Ontario than in Quebec, though by less than four percent despite the fact that the provincial commodity taxes in Ontario are 200 percent of those in Quebec.

The volume weighted average pre-tax prices in Ontario (i.e., prices with taxes removed) are lower than those in Quebec. This is true for the overall volume weighted average prices, the volume weighted average prices of the overlapping products, and the volume weighted average prices for products sold only in one province or the other. When pre-tax prices are compared, the volume weighted average price in Ontario is \$2.28 per litre --- 52 cents per litre lower than the \$2.80 per litre volume weighted average pre-tax price of all beer products in Quebec.

Figures 2, 3, 4, 5, 6, and 7 provide similar analysis broken down by package size and container type for the best-selling package configurations. Figure 2 provides the analysis for 6-packs of bottles; Figure 3 for 6-packs of cans; Figure 4 for 12-packs of bottles, Figure 5 for 12-

packs of cans, Figure 6 for 24-packs of bottles, and Figure 7 for 24-packs of cans. As these figures show, the post-tax prices are lower in Ontario for some configurations and higher for others; but overall pre-tax volume weighted average prices in Ontario are lower than those in Quebec for all of the pack sizes shown. The volume weighted average pre-tax prices for the overlapping products are lower in Ontario than in Quebec for all package sizes except 12-pack bottles (where the price difference, six cents, is less than two percent of the price).²² In addition, the volume weighted average pre-tax prices in Ontario for the Ontario-only products are not only lower than the volume weighted average pre-tax prices for the Quebec-only products overall and for all packages sizes shown, but Figure 1 shows that, on an overall basis, the Quebec-only products are the most expensive segment across both provinces (both on a pre-tax and post-tax basis), while the Ontario-only products are the least expensive segment across both provinces (both on a pre-tax and post-tax basis). Table 4 summarizes the overall pre-tax volume weighted average prices by province shown in the preceding figures by package size, and the dollar and percentage differences between them. As shown, in each case, the pre-tax volume weighted average price is higher in Quebec, by just over three percent for 12-bottle packs, to over 40 percent for 6-can packs. I have provided the development of the numbers in Appendix Tables 1-6.

In both Ontario and Quebec, of course, beer is available at a variety of price levels. Some consumers choose to purchase higher priced beers, and some lower priced beers; indeed one would expect that many consumers purchase a variety of beers at a variety of price points at any given time and over time. To examine how consumers of low-priced beers fare across the provinces, I arrayed all the beer consumed in each province by the prices from lowest to highest, and summed the cumulative volume of beer purchased at each successively higher price. This method also allows me to compare how consumers of mid- and higher-priced beers fare across the provinces as well. Figure 8 shows the cumulative consumption curves that result from the analysis I just described, for both the post-tax and pre-tax prices. The horizontal axis on the chart is the percentage of the total litres of beer purchased in each province. The vertical axis is the price per litre. As an example of how to read the graph, note that the height of the blue dotted curve at the horizontal point of 20 percent is \$2.23 per litre. That means in Quebec, 20 percent of all beer purchased, by volume, is purchased at a pre-tax price of \$2.23 per litre or less.

As shown in Figure 8, the cumulative consumption curves for Ontario and Quebec for the post-tax prices track each other fairly closely, with post-tax prices in Ontario being somewhat higher over certain consumption ranges, and post-tax prices in Quebec being significantly higher for approximately the 10 percent of volume sold at the highest prices in each province. However, when pre-tax prices are compared, the entire consumption curve for Ontario is below the consumption curve for Quebec. For example, 25 percent of the beer by volume is purchased at a pre-tax price of \$1.89 per litre or less in Ontario, while one must reach a pre-tax price of \$2.23 per litre to account for 25 percent of the beer purchased in Quebec. Looked at differently, while 25 percent of the beer sold in Ontario is sold at a pre-tax price at or below \$1.89 per litre, no beer in Quebec is purchased at or below that price. Similarly, half of the beer is purchased at or below a pre-tax price of \$2.13 per litre in Ontario, while half of the beer in Quebec is

²² See Figure 4.

purchased at or below a pre-tax price of \$2.48 per litre. The table inserted in Figure 8 provides the prices at other points on the curves.

Also of interest is the fact that 35 percent of the total litres consumed in Ontario are sold at a pre-tax price lower than the lowest pre-tax price available in Quebec. The lowest pre-tax price available in Quebec is \$2.02 per litre.

The volume weighted average prices in Figures 1-7 and the price comparisons I provided in Figure 8 take as given the quantities of different beer products consumed in each province. The volumes of each type of beer and package type chosen by consumers in each province reflect their preferences, of course, but also reflect the fact that the beers carry different relative prices in the two provinces. It is reasonable to assume that consumers adjust their beer purchases across the different brands in response to the relative prices that they face and the beers available to them. To the extent that beer prices reflect the underlying quality of the product, a lower volume weighted average price in one province might therefore reflect consumer preference in respect of price and product quality.

To assess whether potential substitution to lower quality products is driving these inter-provincial price differences (and assuming that lower priced products are actually of lower quality), we employ a standard method by which economists control for the fact that the average prices paid by consumers are influenced by the choices they make among products of different prices and qualities. The method is known as constructing a “price index.” In a price index, one compares the average prices in the two groups (in this case, in Ontario and Quebec) holding constant the volume of products (i.e., the product mix) purchased across the two groups, and examines whether one group would pay more, or less, if they continued to consume the same products in the same volumes but did so at the prices available to the other group.

To apply this methodology, I limit the analysis to only those beer products (i.e., brands by package size, container type, and container volume) that are sold in both provinces. I calculated the volume weighted average price of those products at the prices in Ontario, where the weights are the volume of purchases for each product in Ontario. I then calculated the volume weighted average price for those same products at the prices in Quebec, but with the weights held constant at Ontario consumption. Under this approach, the volume weighted average of Quebec prices represents the average price that consumers in Ontario would pay if they purchased the same beer as they currently do, in the same quantities, but did so at Quebec prices.

I performed this calculation for the post-tax prices and the pre-tax prices. The results are shown in Table 5. The table shows that the overall volume weighted average post-tax prices for the overlapping products is 24 cents higher per litre in Ontario than in Quebec when quantities are held constant, but the overall volume weighted average pre-tax prices are 21 cents per litre lower in Ontario than in Quebec when quantities are held constant. Hence, when beer quantities and qualities are held constant between the two provinces, volume weighted average pre-tax price is still lower in Ontario than in Quebec. This indicates that quality

differences between consumption sets in the two provinces are not drivers of the higher pre-tax prices in Quebec. Figure 9 shows the results of Table 5 graphically.

I also considered the possibility that averaging prices across brands may mask important price differences when one confines the analysis to only the best-selling brands. Hence, I also conducted a price comparison on the best-selling brands in each province. I first identified the top ten best-selling brands in each province by volume sold across all package sizes. Table 6a shows the top ten brands in Ontario, the percentage volume of total sales in Ontario accounted for by each brand, and the volume weighted average price of the brand in each province, both pre-tax and post-tax. Table 6b shows the analogous information for the top ten brands sold in Quebec. Looking at both Tables 6a and 6b, the tables show that six brands—Coors Light, Budweiser, Blue, Bud Light, Heineken, and Corona, are in the top ten in both provinces. The number one best-selling brand in both provinces --- Coors Light --- was sold at the same volume weighted average pre-tax price of \$2.32 per litre in both provinces. Of the other five brands that are top-ten sellers in both Ontario and Quebec, only one—Bud Light—was sold at a pre-tax price one cent lower in Quebec than in Ontario. The tables also show that one of the top ten brands in Ontario—Lakeport Pilsner—sells at a lower pre-tax price by far than any of the top ten brands in Quebec, but is not sold in Quebec at all.

Table 6a shows that other than Coors Light (sold at the same pre-tax price in both provinces), Lakeport Pilsner (not sold in Quebec), and Bud Light (whose pre-tax price is one cent—or less than one percent—lower in Quebec than in Ontario), the other seven top selling brands in Ontario are sold at a lower pre-tax price in Ontario, with the differences ranging from 4 cents per litre lower for Heineken to 58 cents per litre lower for Blue. In fact, Blue (the fourth best seller in Ontario) and Carling (the sixth best seller in Ontario) are both less expensive in Ontario than in Quebec even including all taxes.

For the best-selling brands in Quebec, Table 6b shows that Molson Dry and Export, which are not in the top 10 in Ontario, are nevertheless sold at lower pre-tax prices in Ontario. Other than Bud Light, mentioned above, the only brand among the top 10 in Quebec that sells at a lower pre-tax price in Quebec than in Ontario is Stella, which is 15 cents per litre cheaper in Quebec. Labatt Bleue Dry Lager is the number 10 brand in Quebec but is not sold in Ontario at all and is more expensive on a pre-tax basis than most of the top beers in Ontario.

Table 7 shows the volume weighted average pre-tax prices for the best-selling brands in each province, allowing for the best-selling brands in each province to differ. I compared the prices for the top three brands, the top five brands, and the top ten brands in each province. As the table shows, the volume weighted average pre-tax prices per litre are lower in Ontario than in Quebec in every case.

The table also shows that consumption is less concentrated in the best-selling brands in Ontario compared to in Quebec. As the table indicates, 30 percent of total consumption of beer in Ontario by volume is accounted for by the top three brands; in Quebec, its top three brands account for 44 percent of its consumption. Similarly, for the top five and top ten brands, beer consumption is less concentrated in Ontario as compared to Quebec. In fact, the best-selling

brand in both provinces --- Coors Light --- represents 23 percent of the beer consumption in Quebec, but 13 percent in Ontario. The fact that consumption is less concentrated in Ontario suggests that the major brands face significant levels of competition from other brands and that consumers in Ontario value the additional variety of beer available in Ontario and take advantage of it by diversifying their consumption more than do consumers in Quebec.

III Concluding Remarks

I have examined and compared both the post-tax and pre-tax prices for beer in Ontario and Quebec in a variety of ways. The overall picture that emerges is very clear: while some post-tax beer prices in Ontario are higher than those in Quebec, many post-tax Ontario prices are lower than those in Quebec, with the net result that Ontario post-tax average price is actually lower than Quebec's despite Ontario prices bearing a significantly higher tax load. When pre-tax beer prices in Ontario are compared to pre-tax prices in Quebec, a more dramatic difference in prices emerges. Ontario's pre-tax prices are consistently lower than pre-tax beer prices in Quebec both on an overall average basis and for the best-selling brands and package sizes. This is true if I control for overlapping products only, if I consider all products purchased, and if I consider products available only in one province or the other. In addition, I find that consumers in Ontario appear to value and enjoy the diversity of beer offerings in that province as evidenced by their consumption patterns.

Table 1: Total Number of Brands/Products

TBS Data and AC Nielsen Data

	TBS	AC Nielsen
Number of Beer Brands	403	878
Number of Beer Products	1,619	1,487

Notes:

1. The brands in AC Nielsen data are more disaggregated than the brands in TBS data. For example, AC Nielsen brands "GUINNESS DRAUGHT", "GUINNESS DRAUGHT STOUT" and "GUINNESS STOUT" match to one TBS brand "GUIN DRFT."
2. I define a "product" as a combination of brand, number of containers in the package, container type, and container volume.
3. Bottles and cans are included in this analysis.
4. There are 282 overlapping products in both provinces.

Table 2: Tax Structures in Ontario and Quebec

TBS Data and AC Nielsen Data

	Ontario		Quebec	
	Included in the TBS data?	Rate	Included in the AC Nielsen data?	Rate
Federal Sales Tax	No	5%	No	5%
Provincial Sales Tax	No	8%	No	9.975%
Federal Excise Tax	Yes	\$0.3122/litre	Yes	\$0.3122/litre
Provincial Basic Commodity Tax	Yes	\$0.7402/litre	Yes	\$0.5/litre
Provincial Volume Levy	Yes	\$0.176/litre	N/A	None
Provincial Environmental Levy	Yes	\$0.0893 per non-refillable container	N/A	None

Table 3: Weighted Average Price Per Litre by Province

TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
Beer Products in Ontario	[A]	\$1,758,146,690	432,034,904	\$4.07	\$3.60	\$2.59	\$2.28
Overlapping Beer Products	[B]	\$880,814,237	210,085,456	\$4.19	\$3.71	\$2.72	\$2.40
Percent Captured by Overlapping Products	[C]=[B]/[A]	50%	49%				
Ontario-Only Products	[D]	\$877,332,453	221,949,447	\$3.95	\$3.50	\$2.47	\$2.16
Beer Products in Quebec	[A]	\$725,261,894	174,646,131	\$4.15	\$3.61	\$3.11	\$2.80
Overlapping Beer Products	[B]	\$533,563,944	131,967,018	\$4.04	\$3.52	\$3.02	\$2.70
Percent Captured by Overlapping Products	[C]=[B]/[A]	74%	76%				
Quebec-Only Products	[D]	\$191,697,950	42,679,113	\$4.49	\$3.91	\$3.41	\$3.09

Figure 1: Weighted Average Price Per Litre by Province
TBS Data and AC Nielsen Data

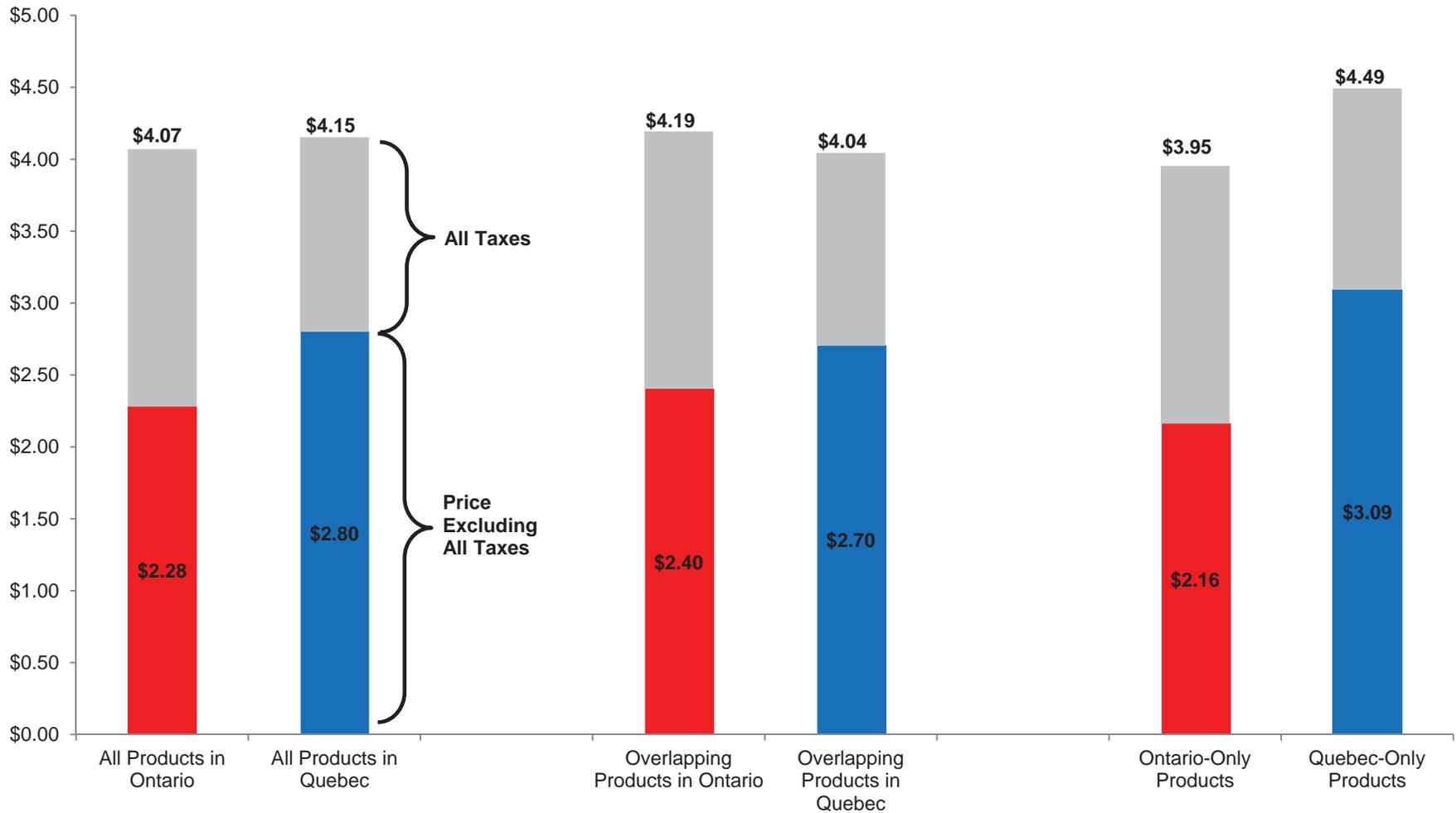


Figure 2: Weighted Average Price Per Litre by Province

6 Pack Bottles, TBS Data and AC Nielsen Data

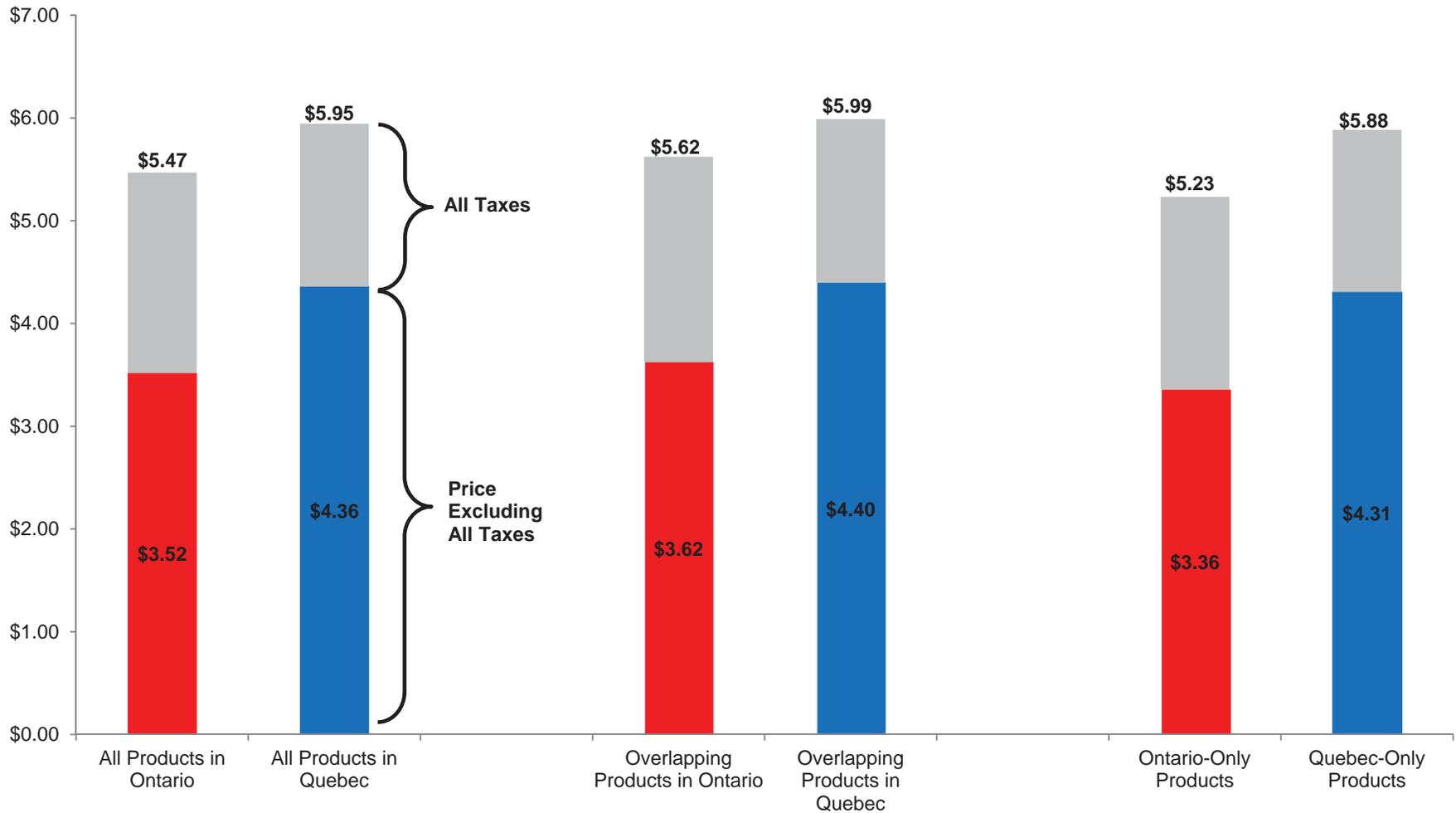


Figure 3: Weighted Average Price Per Litre by Province

6 Pack Cans, TBS Data and AC Nielsen Data

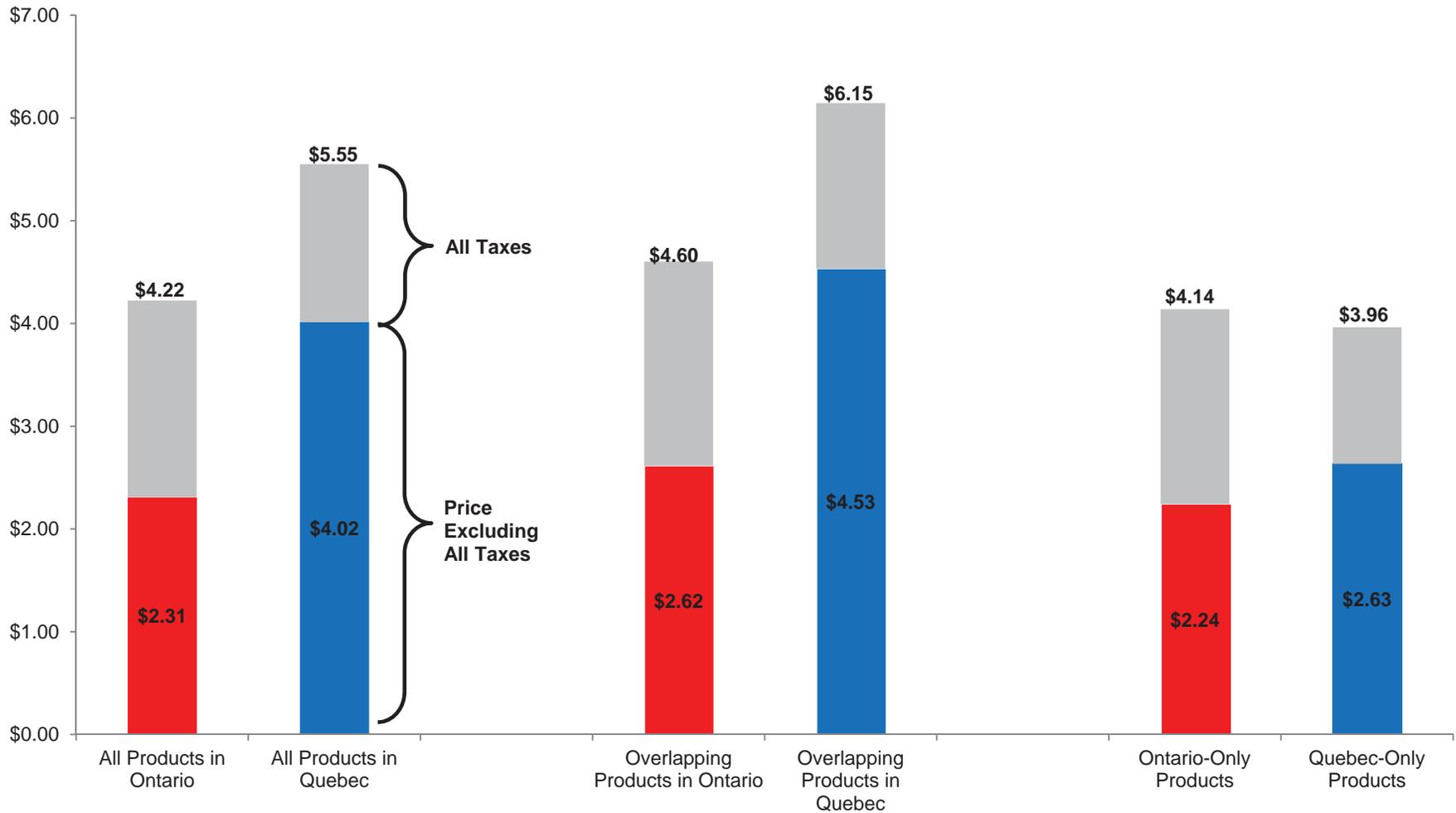


Figure 4: Weighted Average Price Per Litre by Province

12 Pack Bottles, TBS Data and AC Nielsen Data

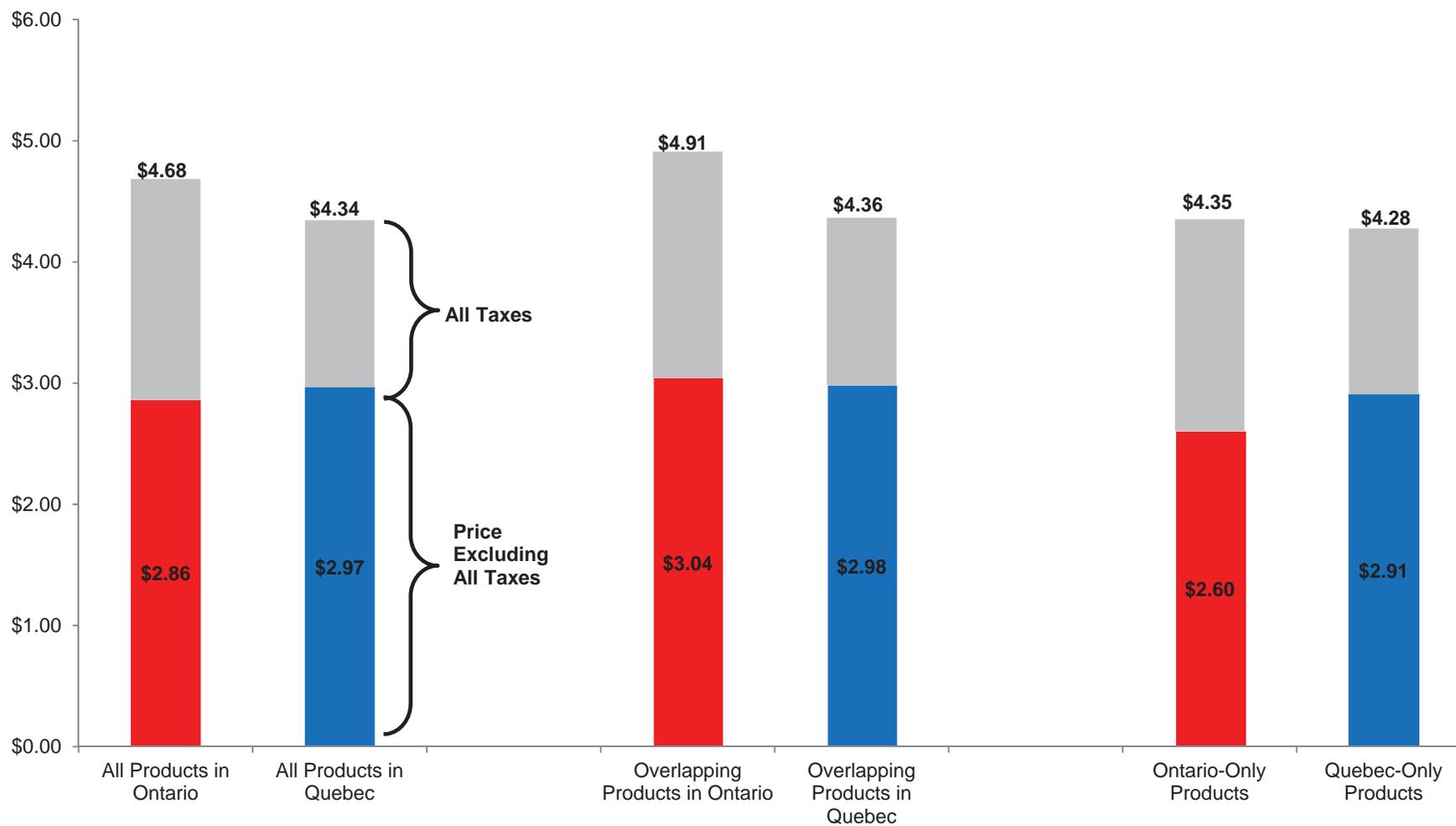


Figure 5: Weighted Average Price Per Litre by Province

12 Pack Cans, TBS Data and AC Nielsen Data

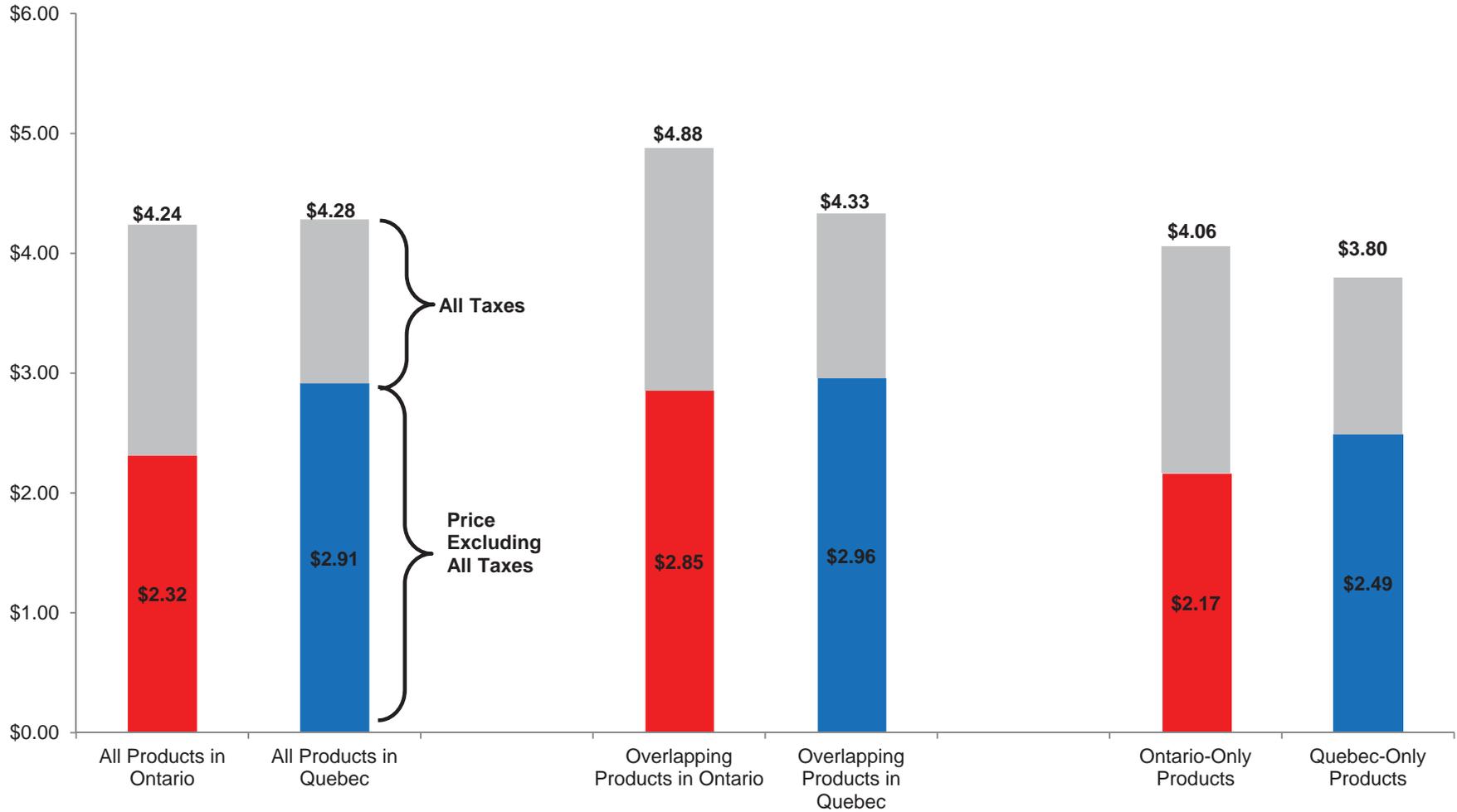


Figure 6: Weighted Average Price Per Litre by Province

24 Pack Bottles, TBS Data and AC Nielsen Data

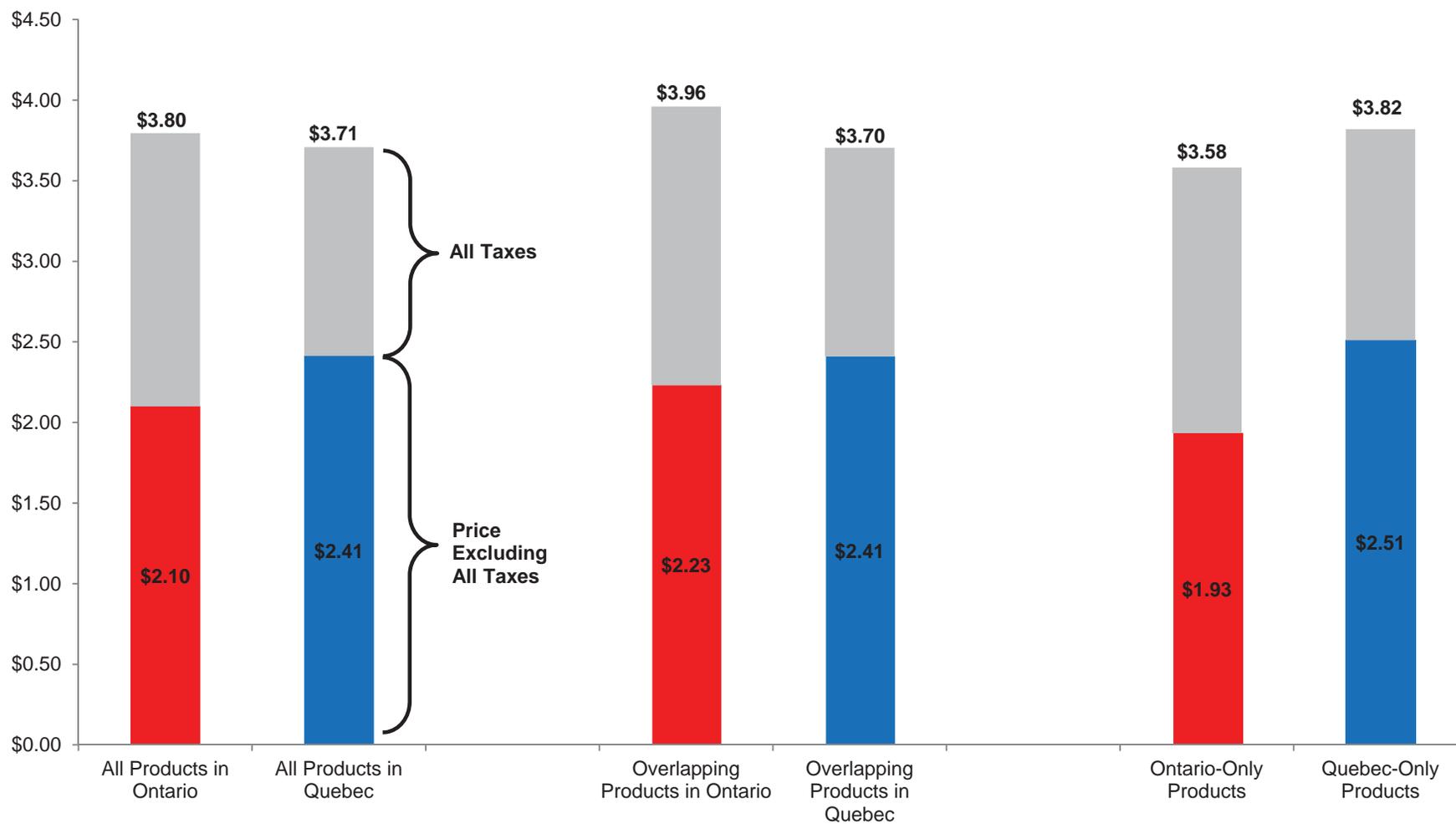


Figure 7: Weighted Average Price Per Litre by Province

24 Pack Cans, TBS Data and AC Nielsen Data

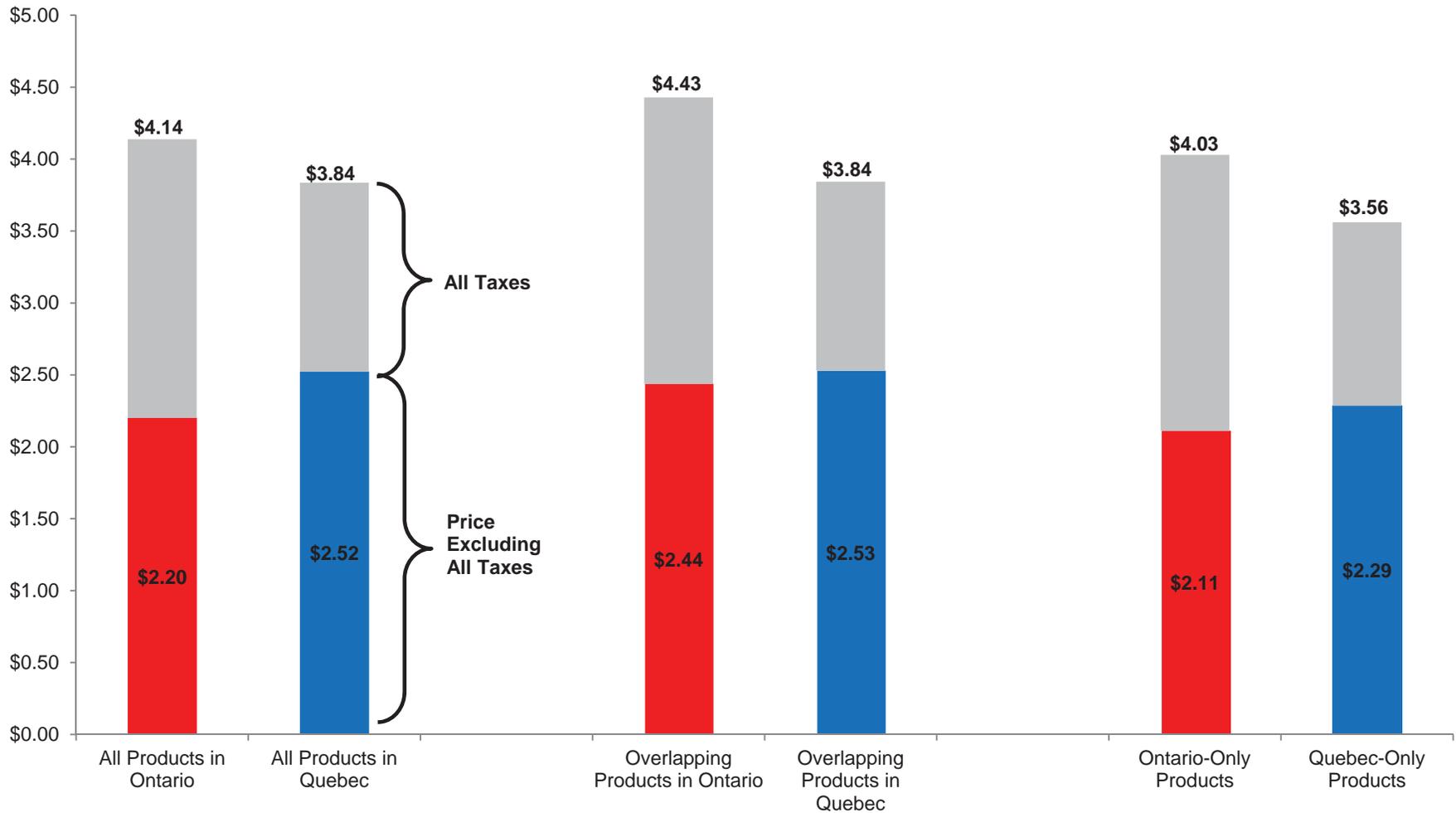
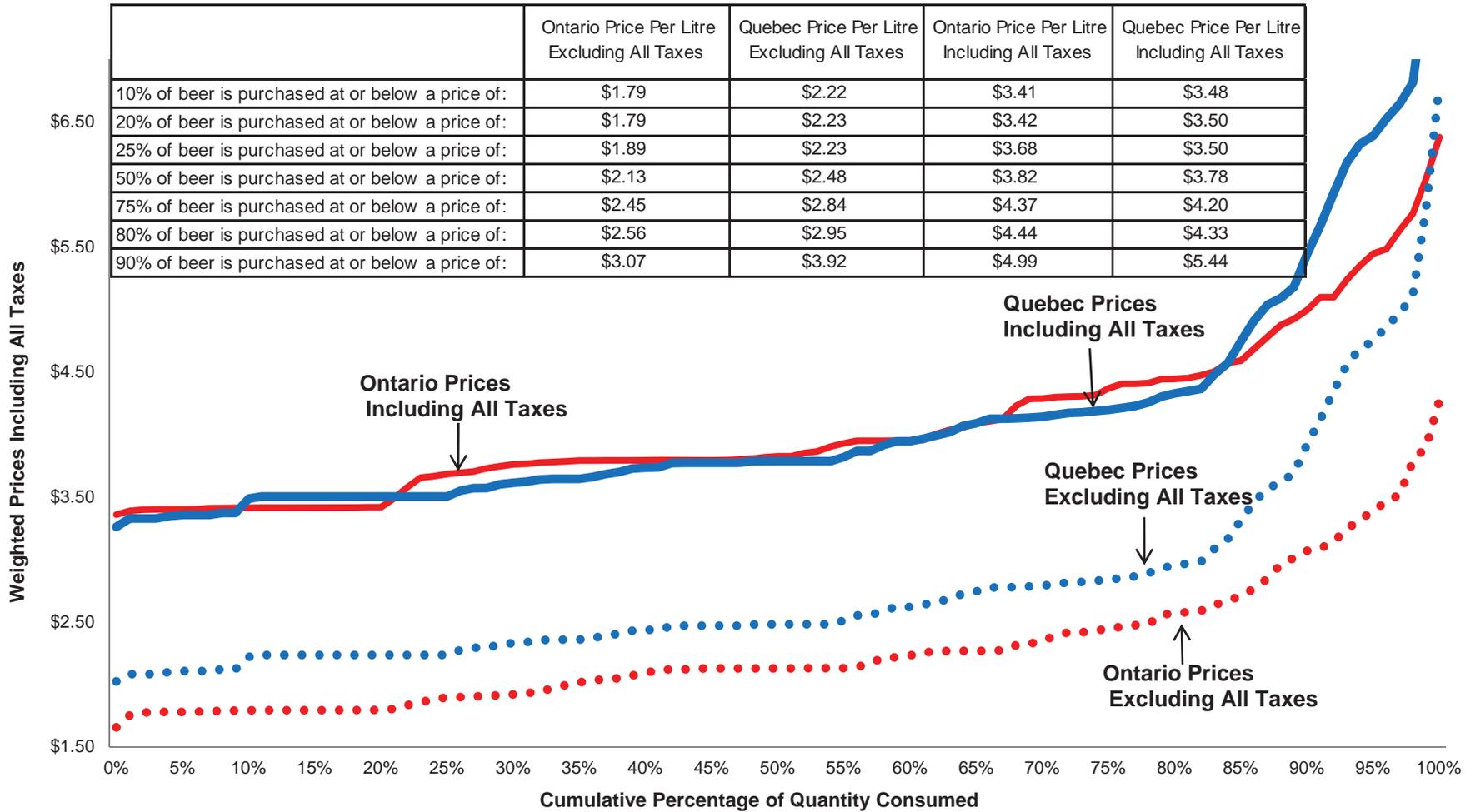


Table 4: Summary of Prices Per Litre By Package Size

Excluding Taxes, TBS Data and AC Nielsen Data

Package Size	Ontario	Quebec	Difference (\$)	Difference (%)
	[A]	[B]	[C]=[B]-[A]	[D]=[C]/[B]
6 Bottles	\$3.52	\$4.36	\$0.84	19.2%
6 Cans	\$2.31	\$4.02	\$1.71	42.5%
12 Bottles	\$2.86	\$2.97	\$0.10	3.5%
12 Cans	\$2.32	\$2.91	\$0.60	20.5%
24 Bottles	\$2.10	\$2.41	\$0.31	13.0%
24 Cans	\$2.20	\$2.52	\$0.32	12.8%
All Beers	\$2.28	\$2.80	\$0.52	18.6%

Figure 8: Cumulative Percentage of Quantity Consumed at Various Prices
for *All Products*



Notes:

1. Thirty-five percent of the total litres of beer sales sold at TBS were sold at a pre-tax price that was lower than the lowest pre-tax price observed in the province of Quebec, which is \$2.02.

Table 5: Weighted Price Per Litre for Overlapping Products
Using Ontario Quantities for Both Provinces

		Quebec	Ontario
Including All Taxes	[A]	\$3.95	\$4.19
Excluding Sales Tax	[B]	\$3.44	\$3.71
Excluding Sales Tax and Commodity Tax	[C]	\$2.94	\$2.72
Excluding Sales Tax, Commodity Tax and Federal Excise Tax	[D]	\$2.63	\$2.40

**Net of taxes, Ontarians pay less for overlapping products than consumers in Quebec.
Product mix differences are not driving overall price difference between provinces.**

Notes:

1. Price indices for Ontario and Quebec are calculated for both provinces using quantities from TBS data for Ontario. For this analysis, we analyzed only the products that appear in both TBS and AC Nielsen data. To calculate the price index for Ontario, we multiplied the price of each product in Ontario per litre by the volume in litres of that product in Ontario, added those up, and divided by the total volume in litres in Ontario. For Quebec, we multiplied the price of each product in Quebec per litre by the volume of that product in litres in Ontario, added those up, and divided by the total volume in litres in Ontario.

In other words, weighted price in Quebec= $\frac{\sum(P_{\text{Quebec}} \cdot Q_{\text{Ontario}})}{\sum(Q_{\text{Ontario}})}$ and weighted price in Ontario= $\frac{\sum(P_{\text{Ontario}} \cdot Q_{\text{Ontario}})}{\sum(Q_{\text{Ontario}})}$.

2. [B]=[A]/1.13 for Ontario; [B]=[A]/1.14975 for Quebec.

3. [C]=[B]-\$0.74/litre - \$0.176/litre -\$0.0893/non-refillable container for Ontario; [C]=[B]-\$0.5/litre for Quebec.

4. [D]=[C] - \$0.3122.

5. There are 282 overlapping products in both provinces.

Figure 9: Price Per Litre for Total Litres Consumed By Province
*for **Overlapping** Products*

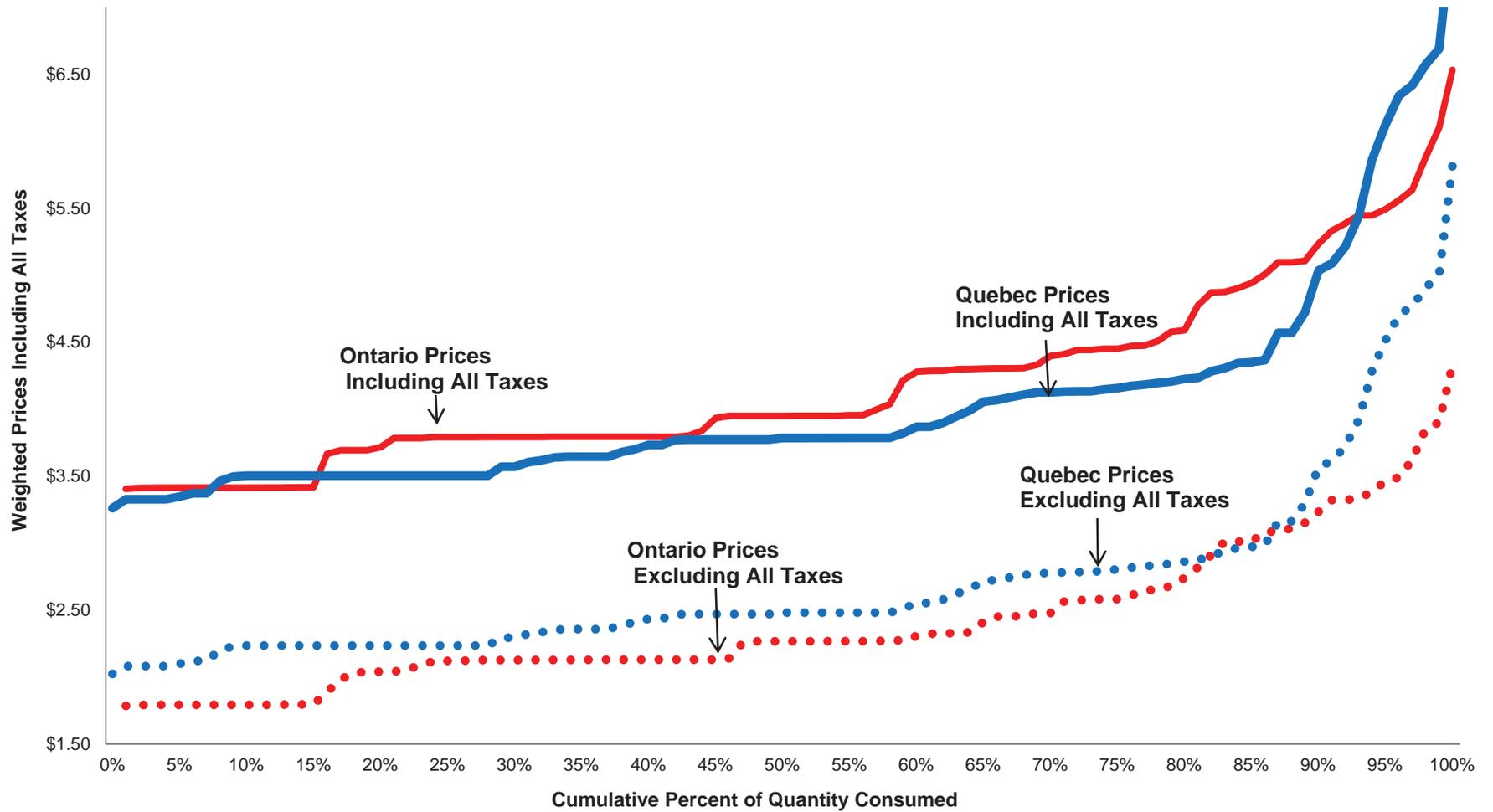


Table 6a: Weighted Average Price Per Litre For The Top Ten Best-Selling Brands by Volume Sold in Ontario

TBS Data and AC Nielsen Data

		Ontario Price Per Litre Including All Taxes	Ontario Price Per Litre Excluding All Taxes	Percentage of Consumption in Ontario	Quebec Price Per Litre Including All Taxes	Quebec Price Per Litre Excluding All Taxes
1	COORS LIGHT	\$4.09	\$2.32	13%	\$3.60	\$2.32
2	CANADIAN	\$4.10	\$2.32	9%	\$4.01	\$2.68
3	BUDWEISER	\$4.11	\$2.33	8%	\$3.90	\$2.58
4	BLUE	\$3.61	\$1.92	7%	\$3.80	\$2.50
5	BUD LIGHT	\$4.10	\$2.31	5%	\$3.58	\$2.30
6	CARLING	\$3.58	\$1.87	5%	\$3.62	\$2.34
7	BUSCH LAGER	\$3.71	\$1.89	3%	\$3.57	\$2.29
8	LAKEPORT PILSNER	\$3.59	\$1.88	2%	N/A	N/A
9	HEINEKEN	\$5.49	\$3.38	2%	\$4.86	\$3.42
10	CORONA	\$5.27	\$3.16	2%	\$4.73	\$3.30

Table 6b: Weighted Average Price Per Litre For The Top Ten Best-Selling Brands by Volume Sold in Quebec

TBS Data and AC Nielsen Data

		Quebec Price Per Litre Including All Taxes	Quebec Price Per Litre Excluding All Taxes	Percentage of Consumption in Quebec	Ontario Price Per Litre Including All Taxes	Ontario Price Per Litre Excluding All Taxes
1	COORS LIGHT	\$3.60	\$2.32	23%	\$4.09	\$2.32
2	BUDWEISER	\$3.90	\$2.58	14%	\$4.11	\$2.33
3	BUD LIGHT	\$3.58	\$2.30	7%	\$4.10	\$2.31
4	MOLS DRY	\$3.93	\$2.61	6%	\$3.96	\$2.19
5	BLUE	\$3.80	\$2.50	5%	\$3.61	\$1.92
6	HEINEKEN	\$4.86	\$3.42	4%	\$5.49	\$3.38
7	EXPORT	\$3.95	\$2.62	4%	\$4.13	\$2.39
8	CORONA	\$4.73	\$3.30	3%	\$5.27	\$3.16
9	STELLA	\$4.79	\$3.36	2%	\$5.64	\$3.51
10	LABATT BLEUE DRY LAGER	\$3.92	\$2.59	1%	N/A	N/A

Table 7: Weighted Average Price Per Litre for the Best-Selling Brands

Excluding All Taxes, TBS Data and AC Nielsen Data

	Ontario	Quebec
Top 3 Brands With the Highest Litres Consumed in Each Province	\$2.32	\$2.40
Percent of Litres Captured by the Top 3 Brands	30%	44%
Top 5 Brands With the Highest Litres Consumed in Each Province	\$2.26	\$2.43
Percent of Litres Captured by the Top 5 Brands	42%	54%
Top 10 Brands With the Highest Litres Consumed in Each Province	\$2.26	\$2.57
Percent of Litres Captured by the Top 10 Brands	56%	69%

Appendix Table 1: Weighted Average Price Per Litre by Province

6 Pack Bottles, TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
6 Pack Bottled Beer Products in Ontario	[A]	\$45,105,110	8,247,463	\$5.47	\$4.84	\$3.83	\$3.52
Overlapping Beer Products	[B]	\$28,070,307	4,991,586	\$5.62	\$4.98	\$3.94	\$3.62
Percent Captured by Overlapping Products	[C]=[B]/[A]	62%	61%				
Ontario-Only Products	[D]	\$17,034,804	3,255,877	\$5.23	\$4.63	\$3.67	\$3.36
6 Pack Bottled Beer Products in Quebec	[A]	\$60,200,408	10,126,168	\$5.95	\$5.17	\$4.67	\$4.36
Overlapping Beer Products	[B]	\$35,512,321	5,930,723	\$5.99	\$5.21	\$4.71	\$4.40
Percent Captured by Overlapping Products	[C]=[B]/[A]	59%	59%				
Quebec-Only Products	[D]	\$24,688,087	4,195,445	\$5.88	\$5.12	\$4.62	\$4.31

Appendix Table 2: Weighted Average Price Per Litre by Province

6 Pack Cans, TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
6 Pack Canned Beer Products in Ontario	[A]	\$65,185,923	15,432,501	\$4.22	\$3.74	\$2.62	\$2.31
Overlapping Beer Products	[B]	\$13,061,714	2,837,388	\$4.60	\$4.07	\$2.93	\$2.62
Percent Captured by Overlapping Products	[C]=[B]/[A]	20%	18%				
Ontario-Only Products	[D]	\$52,124,209	12,595,114	\$4.14	\$3.66	\$2.55	\$2.24
6 Pack Canned Beer Products in Quebec	[A]	\$11,905,502	2,144,595	\$5.55	\$4.83	\$4.33	\$4.02
Overlapping Beer Products	[B]	\$9,590,685	1,560,504	\$6.15	\$5.35	\$4.85	\$4.53
Percent Captured by Overlapping Products	[C]=[B]/[A]	81%	73%				
Quebec-Only Products	[D]	\$2,314,817	584,091	\$3.96	\$3.45	\$2.95	\$2.63

Appendix Table 3: Weighted Average Price Per Litre by Province

12 Pack Bottles, TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
12 Pack Bottled Beer Products in Ontario	[A]	\$156,866,194	33,485,803	\$4.68	\$4.15	\$3.18	\$2.86
Overlapping Beer Products	[B]	\$97,977,596	19,955,762	\$4.91	\$4.34	\$3.35	\$3.04
Percent Captured by Overlapping Products	[C]=[B]/[A]	62%	60%				
Ontario-Only Products	[D]	\$58,888,598	13,530,040	\$4.35	\$3.85	\$2.92	\$2.60
12 Pack Bottled Beer Products in Quebec	[A]	\$123,505,398	28,427,440	\$4.34	\$3.78	\$3.28	\$2.97
Overlapping Beer Products	[B]	\$96,036,280	22,003,734	\$4.36	\$3.80	\$3.30	\$2.98
Percent Captured by Overlapping Products	[C]=[B]/[A]	78%	77%				
Quebec-Only Products	[D]	\$27,469,118	6,423,706	\$4.28	\$3.72	\$3.22	\$2.91

Appendix Table 4: Weighted Average Price Per Litre by Province

12 Pack Cans, TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
12 Pack Canned Beer Products in Ontario	[A]	\$111,014,053	26,188,873	\$4.24	\$3.75	\$2.63	\$2.32
Overlapping Beer Products	[B]	\$28,044,759	5,748,350	\$4.88	\$4.32	\$3.17	\$2.85
Percent Captured by Overlapping Products	[C]=[B]/[A]	25%	22%				
Ontario-Only Products	[D]	\$82,969,295	20,440,523	\$4.06	\$3.59	\$2.48	\$2.17
12 Pack Canned Beer Products in Quebec	[A]	\$30,854,503	7,203,114	\$4.28	\$3.73	\$3.23	\$2.91
Overlapping Beer Products	[B]	\$28,329,505	6,538,216	\$4.33	\$3.77	\$3.27	\$2.96
Percent Captured by Overlapping Products	[C]=[B]/[A]	92%	91%				
Quebec-Only Products	[D]	\$2,524,999	664,898	\$3.80	\$3.30	\$2.80	\$2.49

Appendix Table 5: Weighted Average Price Per Litre by Province

24 Pack Bottles, TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
24 Pack Bottled Beer Products in Ontario	[A]	\$576,686,590	151,958,670	\$3.80	\$3.36	\$2.41	\$2.10
Overlapping Beer Products	[B]	\$338,891,344	85,564,095	\$3.96	\$3.51	\$2.54	\$2.23
Percent Captured by Overlapping Products	[C]=[B]/[A]	59%	56%				
Ontario-Only Products	[D]	\$237,795,246	66,394,575	\$3.58	\$3.17	\$2.25	\$1.93
24 Pack Bottled Beer Products in Quebec	[A]	\$258,462,522	69,700,231	\$3.71	\$3.23	\$2.73	\$2.41
Overlapping Beer Products	[B]	\$249,007,405	67,225,131	\$3.70	\$3.22	\$2.72	\$2.41
Percent Captured by Overlapping Products	[C]=[B]/[A]	96%	96%				
Quebec-Only Products	[D]	\$9,455,116	2,475,100	\$3.82	\$3.32	\$2.82	\$2.51

Appendix Table 6: Weighted Average Price Per Litre by Province

24 Pack Cans, TBS Data and AC Nielsen Data

		Total Revenue Including All Taxes	Total Litres	Weighted Average Price per Litre	Weighted Average Price per Litre Excluding Sales Taxes	Weighted Average Price per Litre Excluding Sales Taxes and Commodity Taxes	Weighted Average Price per Litre Excluding Sales Taxes, Commodity Taxes and Federal Excise Tax
24 Pack Canned Beer Products in Ontario	[A]	\$179,252,999	43,320,240	\$4.14	\$3.66	\$2.51	\$2.20
Overlapping Beer Products	[B]	\$52,217,363	11,789,667	\$4.43	\$3.92	\$2.75	\$2.44
Percent Captured by Overlapping Products	[C]=[B]/[A]	29%	27%				
Ontario-Only Products	[D]	\$127,035,636	31,530,573	\$4.03	\$3.57	\$2.42	\$2.11
24 Pack Canned Beer Products in Quebec	[A]	\$20,260,696	5,281,834	\$3.84	\$3.34	\$2.84	\$2.52
Overlapping Beer Products	[B]	\$19,814,502	5,156,535	\$3.84	\$3.34	\$2.84	\$2.53
Percent Captured by Overlapping Products	[C]=[B]/[A]	98%	98%				
Quebec-Only Products	[D]	\$446,194	125,299	\$3.56	\$3.10	\$2.60	\$2.29