

# Beer, wine and distilled spirits in Ontario: A comparison of recent policies, regulations and practices

NORMAN GIESBRECHT & ASHLEY WETTLAUFER & EMMA WALKER & ANCA IALOMITEANU & TIMOTHY STOCKWELL

## ABSTRACT

**AIMS** – There is a long-standing discussion about whether some beverages are more likely to be linked with high-risk drinking and damage than others, and implications for beverage specific alcohol policies. While the evidence is inconclusive, when controlling for individual consumption, some studies have shown elevated risks by beverage type. This paper examines the situation in Ontario, Canada, from 1995 to present (2011) on several dimensions in order to assess the differences by beverage and their rationale with a specific focus on the most recent policies. **METHODS** – This paper draws on archival consumption statistics, taxation and pricing arrangements, and retailing and marketing practices. **RESULTS** – Off-premise sales, which represent an estimated 75% of ethanol, involve several channels: stores controlled by the Liquor Control Board (LCBO) – which sell all spirits, imported and domestic wines, and beer products; the Beer Store network which sell all beers; and Ontario winery stores – which sell Ontario wines. In LCBO stores Ontario wines are more prominently displayed than other beverages, and extensive print advertising tends to feature wine over beer and spirits. There are also differences by beverage in terms of taxation and price. The taxes on higher alcohol content beverage types account for a higher portion of the retail price than taxes on lower alcohol content beverage types. Furthermore, minimum price regulations allow for differential minimum pricing per standard drink [17.05 ml ethanol] across beverage types. **CONCLUSIONS** – The apparent rationale for these arrangements is not primarily that of favouring lighter-strength beverages in order to reduce harm, but rather to accommodate long-standing vested interests which are primarily financially based. **KEY WORDS** – Ontario, alcohol sales, beverage-specific policies, pricing, harm

Submitted 21.09.2011

Final version accepted 12.01.2012

## Acknowledgements

We thank Gerald Thomas for providing advice on alcohol pricing and taxation in Canada and acknowledge the advice provided by reviewers of an earlier version of this manuscript. The information presented in this paper is based, in part, on data assembled for two projects: a Canadian Institutes of Health Research project entitled "Does minimum pricing reduce the burden of disease and injury attributable to alcohol?" Timothy Stockwell, principal investigator; and an NIH project (grant 5-R21-AG033796-02, Mark S. Kaplan, principal investigator) entitled "Alcohol use, survival, and quality of life at older ages: A prospective study."

With regard to Norman Giesbrecht's contribution, support has been provided by the Ontario Ministry of Health and Long Term Care to the Centre for Addiction and Mental Health for the salary of scientists and infrastructure. The views and opinions expressed in this paper are those of the authors.

## Introduction

Different types of beverage alcohol are regulated differently in Ontario, Canada. Control systems and outlet types differ for spirits, wine and beer; media and promotional practices vary by beverage, and price and taxation structure are often dependant on the type of alcoholic beverage. This differential treatment of beverages by type suggests varying levels of risk, with higher concentration spirits being associated with greater risk. The differences among beverage types are also evident in consumption patterns in Ontario. As is noted below, trends in alcohol sales indicate that, in terms of volume of pure ethanol, beer is the most popular beverage, followed by spirits and wine. Before describing and analyzing the situation in the most populous Canadian province, we first provide a brief synopsis of recent literature on variation in harm and perceived risk by beverage type.

## Risks and Harm by Type of Beverage

A focused search of the literature was conducted in order to identify relevant articles that discussed the differential treatment of beverages and the risks associated with the different beverage types. The literature search focused on recent literature from 2000 to present (2011) published in the English language. Scopus, PubMed, Scholar's Portal and EBSCO Host databases were all used to conduct the search. Truncated search terms were used to allow for alternative word endings. Two searches were conducted. The first search focused on existing Canadian policies, and the key search terms were: alcohol, Canada, store/retail hours, store/outlet density, privati-

zation, advertising, floor pricing, minimum pricing, social reference pricing. The second search focused on effects differentiated by beverage type and the key search terms included: harm, violence, and beverage type (beer, wine, liquor/spirits). The articles yielded by the second search were then sorted by the researchers into subcategories including chronic disease, drunk driving, trauma and perception of harm. While results suggest that higher concentration beverages carry greater risks, results must be interpreted with caution as beverage specific risks may be due to cultural differences, contextual effects or may be caused by the beverage specific policies themselves.

### *Perceived risk by beverage type*

Studies have examined expectancies of harm by type of beverage. A study of 371 students in Bond University in Australia (Hasking et al. 2005) noted that males perceived spirits as more harmful than beer, wine, pre-mixed drinks and Alcopops, and beer more harmful than wine. Similarly, females rated spirits more harmful than beer, wine and Alcopops, but there was no difference among women with regard to perceived harm from beer vs. wine (Hasking et al. 2005). A recent study by Pedersen et al. (2010) involved randomly assigning 498 students from a large university in northwestern US to one of three beverage specific modules— beer, wine and distilled spirits. In this study most participants agreed that beer and distilled spirits would have intoxicating effects whereas fewer participants agreed that drinking wine would lead to feeling intoxicated.

### *Drinking pattern and beverage type*

In a study of four communities, consumption patterns were shown to be strong predictors of beverage preference: frequent drinking was associated with beer preference, heavy single occasion drinking was associated with beer and spirits preference, and wine preference was associated with lesser quantities consumed per occasion (Gruenewald et al. 2000). However, it is feasible that these differences are related to differences in age of consumers and socio-economic variables.

In order to assess risk as it relates to drinking pattern and beverage preference, Jensen et al. (2002) conducted a longitudinal study with 10,330 moderate drinkers in Copenhagen. They found that persons preferring beer were more likely to become a heavy or excessive drinker than persons who preferred wine. They offered several possible explanations or caveats for this association; one of which was that beer drinking may be a marker of a specific drinking culture or socio-economic status (Jensen et al. 2002).

Stockwell et al. (2008) analyzed national Australian survey data to assess the extent to which different beverages were consumed in excess of low-risk drinking guidelines. It was reported that 80% of total spirits consumption occurred on days when more than 60 g (six standard Australian drinks) was consumed, followed by 73% of all beer consumption of regular strength (>3.8% by volume). Low (<3%) and mid-strength (3-3.8%) beer was much less likely to be consumed on such high risk drinking days (45% and 36% of total volume respectively). Wine-based beverages were intermediate in terms of total volume consumed on high-risk drink-

ing days. There is also literature, mainly experimental human drinking studies, which shows that when people are blind to alcohol content of beer they drink similar quantities but with lower alcohol content drinks they have lower BACs. This is summarized by Segal and Stockwell (2009).

### *Drinking and driving related trauma by beverage type*

Research has also linked beer consumption with drinking and driving (Gruenewald et al. 2000; Mann et al. 2006). In a US-based survey, Greenfield and Rogers (1999) noted a significant contribution of beer (but not wine or spirits) to the prediction of frequency of drunk driving. They also found significant interaction between the number of heavy beer-drinking days and risk perception – in that beer drinkers have deflated perceptions of the risks associated with drinking certain amounts of alcohol before driving. There have also been investigations of high versus low alcohol content beer in Australia – for example, an ecological study linked per capita consumption of different beverage types with a) night-time violence and b) alcohol-related hospitalizations (Stockwell et al. 1998). A second study found an association between increased rates of consumption of low alcohol content beer and reduced impaired driving rates (Gruenewald et al. 1999). In the study of drinking and driving deaths in Ontario, it was noted that only beer sales had a significant impact on drinking and driving deaths and this was hypothesized to be related to the lower tax rate for beer than for other alcoholic beverages (Mann et al. 2006).

### *Chronic Illness by beverage type*

With regard to chronic conditions, there is evidence to suggest beverage specific associations with specific conditions. For example: beer consumption had the strongest risk for gout, with spirits also being significant (Choi et al. 2004); beer and spirits were associated with increased risk of hypertension (Nunez-Cordoba et al. 2009); and an inverse relationship exists for risk of glycaemia and wine consumption among men (Harding et al. 2002).

Several studies have shown an association between type of beverage and risk of cancer. In the Harvard Alumni study, Sesso et al. (2001) noted that while wine or beer consumption was unassociated with prostate cancer, moderate liquor consumption was associated with a 61-67% increased risk of prostate cancer. In contrast, modest consumption of wine (<50-90 g/wk), port or spirits (<10-20 g/wk) was associated with lower risk of three cancers of the esophagus (Pandeya et al. 2009). Han et al. (2010) noted a better overall survival of non-Hodgkin lymphoma among wine drinkers than never drinkers. Michaud et al. (2010) reported an increased risk of pancreatic cancer among men who consumed more than 45 grams of alcohol per day from distilled spirits, but no association with overall consumption.

A recent systematic review and meta-analysis by Ronksley et al. (2011) examined the association between alcohol consumption with selected cardiovascular disease outcomes. With regard to type of beverage, they stated that "alcoholic drinks generally have similar effects on high density lipoprotein cholesterol (Rimm et al. 1999) and it is likely that any particular benefit of wine is prone to confounding by diet

and socioeconomic status (Johansen et al. 2006; Tjonneland et al. 1999)" (Ronksley et al. 2011, 9 on line version).

### *Violence and Beverage Type*

Several studies have also pointed to a difference in correlations between alcohol consumption and violence by beverage type. Chavira et al. (2011) performed a cross-sectional analysis of 295 hospital emergency department patients who were identified as having an alcohol problem. 53.3% of the patients had been exposed to violence. Patients who had consumed malt liquor beer were 8.5 times more likely to be threatened and attacked than consumers of other types of alcohol.

Zimmerman and Benson (2007) used state level data to perform a cross-sectional, time-series analysis of rape rates and alcohol consumption by beverage type. They found significant correlation between population consumption level and rape rates, as well as both beer and spirit consumption levels, but no significant correlation for wine.

Through time-series analyses, Mann et al. (2006) found that homicide rates in Ontario were positively correlated with both total alcohol consumption of a population, and specifically beer and spirit consumption, but not wine. Their results also highlight a strong level of correlation between homicide rates and consumption levels among males, but not females.

Stickley and Razvodovsky (2011) completed a time-series analysis over 35 years of homicide rates and alcohol consumption in Russia. They found a strong correlation between both total alcohol consumption rates and vodka consumption rates, and male and female homicide

rates. They state that a 1L increase in alcohol sales would create a 5.9% increase in male homicide rates and a 5.1% increase in female homicide rates. With vodka consumption, a 1L increase would account for a 16.4% increase in male homicide rates, and a 14.3% increase in female homicide rates. Beer and wine had no significant correlation to homicide rates. They clarify that the average consumption rate in the population is 8.2L, that spirits, primarily vodka, account for 60% of all alcohol consumption, and that male homicide rates are 3.2 times higher than female rates.

Finally, Rossow (2001) also found correlations between alcohol type and homicide rates by performing time-series analyses on data from 14 European countries. She found an overall significant positive association between population consumption levels and homicide rates. In terms of beverage type, she found a positive correlation with beer in four countries, wine in two countries, and spirits in two countries. When the results were pooled by region, beer sales were positively correlated in all three regions, whereas wine sales were only positively related in the southern region that houses the traditional wine drinking cultures.

All three studies on homicide found a strong correlation between homicide rates and the most prominently consumed beverage type of the examined region, suggesting other cultural, social and economic factors at play.

#### *Caveats*

It is note worthy that wine in some of the studies cited above, compared to beer or distilled spirits, is less likely to be associated with high-risk drinking or risk of

damage. However, some of these results should be interpreted with caution. This represents but a small sample of current research which is often not conducted with a representative cross-section of the population but with convenience samples and special populations such as college students or alumni. Several other limitations should be noted. It is unlikely that there is a risk or harm reduction ingredient intrinsic to wine, but rather, that in many contexts it is consumed in a less risky manner than beer or distilled spirits, or that low-risk drinkers have a propensity towards choosing wine. Alternatively, when controlling for variations for gender, age and other socio-economic factors that observe lower risks, positive associations with wine largely disappear. While many of the studies control for other potential factors, such as diet, tobacco use, SES, it is feasible that beverage preference is related to underlying dimensions of the drinking cohort, which are not specific to the type of beverage, but nevertheless increase the risk of trauma or chronic disease, such as cancer. Furthermore, overall consumption levels, drinking patterns and drinking contexts are potentially as important as type of beverage, and price per standard drink, likely a very important variable, and many of these studies do not control for these. It may be hypothesized that a specific type of beverage is a proxy for a combination of life-style, drinking patterns, drinking contexts, and access to alcohol, which, combined with high intakes of ethanol, contribute to increased risk.

#### **Purpose and Research Questions**

This paper investigates differences in management and control of beer, wine and

distilled spirits, focusing on the province of Ontario. Ontario is the most populous of the 10 provinces and 3 territories of Canada, with a population of 11,004,966 ages 15 years and older, of which 28% are foreign born, and a land mass of 1,076,395 sq km (Statistics Canada 2011b). Ontario has substantial primary and secondary industries and is considered a dominant financial capital of the country with many head- offices being located in Toronto the most populous city of the province and Canada.

Ontario has a mixed public-private system of alcohol distribution and retailing as well as a well developed wine industry with strong ties to the hospitality and tourism industries. It also has spirits and beer production industries.

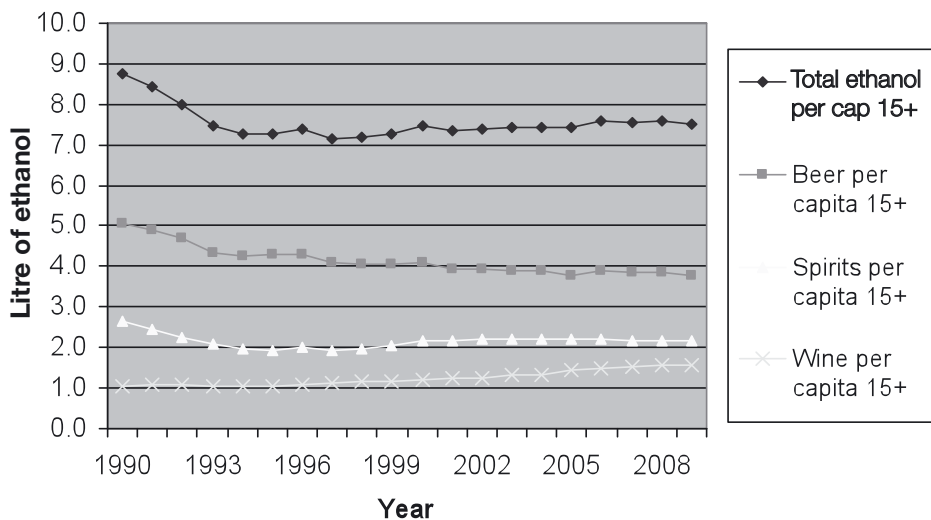
This paper addresses several questions:

1. Are beer, wine or distilled spirits treated differently in Ontario?
2. If they are treated differently, what are the main dimensions of this differential orientation – regulations, practice, access, promotion, distribution or some combination?
3. What, if any, rationale can be identified for these differences?
4. Is there evidence of efforts to restrict access to some types of beverages, or, alternatively, initiatives to promote access to other types of beverages?
5. Are these initiatives informed by alcohol strength of the beverages?
6. Finally, is there evidence of harm reduction or damage control perspectives that underlie these orientations by type of beverage or alcohol strength?

To answer these six questions, several topics are examined: trends in alcohol sales since 1990; access to alcohol in Ontario by type of beverage; promotion of beverages in Ontario; and regulatory arrangements that restrict or enhance access to a specific type of beverage. Furthermore, several resources are used in this paper: archival data on official alcohol sales; data on density and type of off-premise outlets; price of alcoholic beverages relative to consumer price index, minimum prices and taxes; as well as legislation and regulation pertaining to specific beverages.

### **Trends in alcohol sales**

Consumption of alcohol in Ontario is clearly differentiated by beverage type, with beer as the beverage of choice in Ontario and wine rapidly gaining popularity. In Ontario, as in Canada generally, official alcohol sales have followed a U-shaped curve in the past three decades. Sales peaked in 1980, declined until the mid-1990s and then gradually increased. The trend data for Ontario is shown in Figure 1. In 2009, the distribution of official sales by beverage type in pure ethanol was 50% beer, 29% distilled spirits and 21% wine. This distribution is similar to that in other Canadian provinces (Giesbrecht & Thomas 2010). Since 1996, when overall consumption per adult began to increase, the greatest increase has been in the wine market +38%, compared to -10% for beer, and + 8% for spirits. Overall, the rank order in both volume of pure ethanol and per adult sales has not changed; wine being the lowest, then spirits and finally beer. However, since mid-1990s the rate of increase has been the steepest in wine sales.



**Figure 1.** Volume of alcohol sales in litres of ethanol per capita ages 15+: Ontario (1990–2009)

Notes: Per capita values were calculated with most recent estimates of the population from Statistics Canada (final postcensal for 2006, updated postcensal for 2007 and 2008 and preliminary postcensal for 2009) (Statistics Canada 2011a; 2011b).

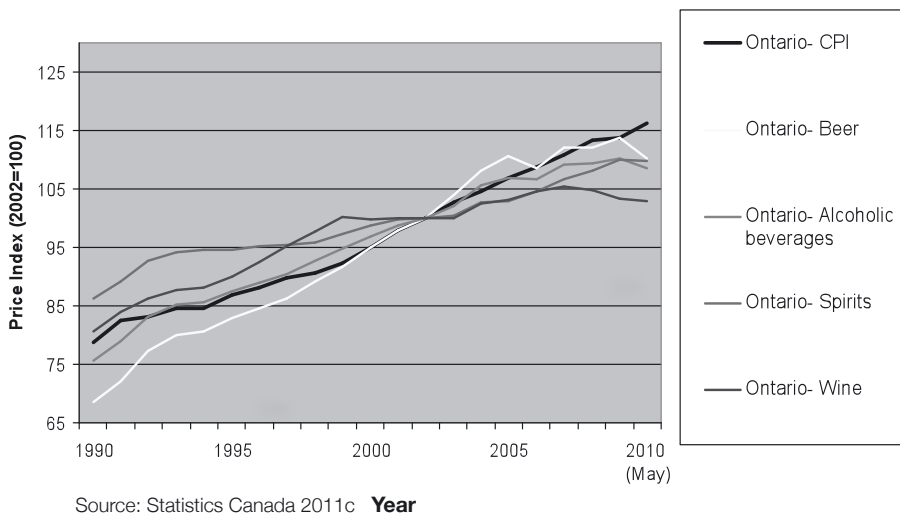
### Access to alcohol by type of beverage

One approach to orienting consumption by beverage type is to encourage or restrict access to specific beverages. This can be done by several means, including, for example, taxation and by prices relative to the cost of living. Minimum prices can also be used to impact purchasing and, potentially, to discourage extensive purchasing among high-risk users. Physical availability is another potential mechanism; for example, an implicit message of a system with a high density of outlets that sell beer vs. those that sell distilled spirits, is that the former is lower risk than the latter.

#### *Taxation of alcoholic beverages*

Controlling the price of alcohol is one

way to manage access to alcohol. A major cost determinant is of course the taxes and revenue-generating policies of various governments. In Canada, the combination of provincial/territorial and federal taxes account for, on average, 48.0% of the retail price of beer, 66.5% of the retail price of wine and 80% of the retail price of spirits and the situation is similar in Ontario (personal communication, Brewers Association of Canada, December 2011). Although the rationale for the differences in taxation are not clear, it is possible that governments favor lower strength beverages based on the belief that their use is less dangerous (Smart & Ogborne 1996). It is also possible that these differences exist due to business arrangements.



**Figure 2.** Trends in off-premise alcohol pricing for Ontario (1990–2010)

### *Trends in prices relative to consumer price index*

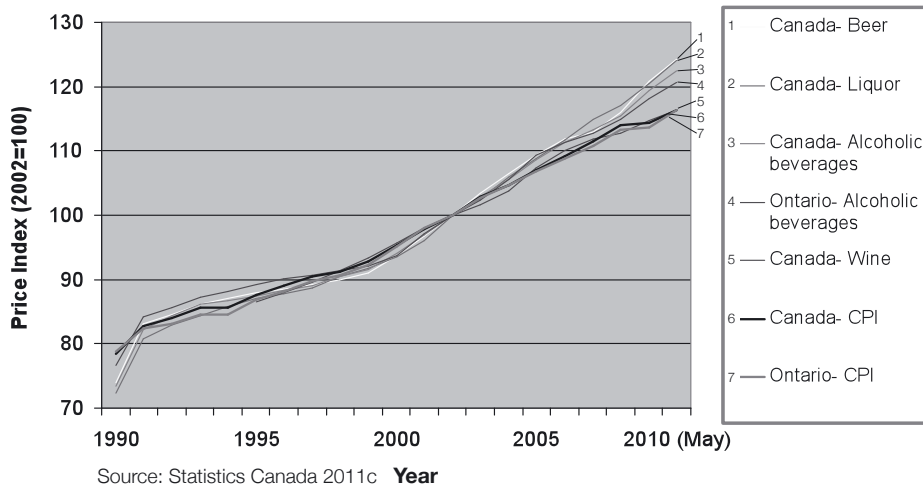
This section provides an overview of trends in alcohol pricing in comparison to the consumer price index (excluding alcohol) (CPI). For off-premise outlets, data are available by three main types of beverage for both Ontario and Canada. For on-premise outlets a beverage breakdown is only available for Canada. Considering Canadian data for off-premise outlets first, it appears that, in general, not all alcoholic beverages have kept pace with the CPI in the last few years; while beer has kept pace, spirits and especially wine prices have fallen, relative to CPI, since about 2003. A similar general pattern is evident for Ontario: prices of all beverages are lower than CPI, and wine is substantially lower, while beer prices dropped off in the last year or two (Figure 2). In contrast, for on-premise sales, prices have generally kept pace with

CPI in both Canada and Ontario (Figure 3). Trend data indicate that since 2002, the lowest strength beverage, beer, is relatively more expensive than distilled spirits and substantially more expensive than wine (Figure 2).

### *Minimum and floor prices.*

There have been noteworthy developments in the United Kingdom (Meier et al. 2009; Purhouse et al. 2010; Black et al. 2010) and several other jurisdictions (e.g., Gruenewald et al. 2006; Herttua et al. in press; Hogan et al. 2006; Ludbrook 2009; Stockwell et al. 2006; Stockwell et al. in press) with regards to pricing-related interventions including floor or minimum pricing. Minimum pricing has been labeled as social responsibility pricing with the apparent orientation of controlling high-risk consumption by preventing deep discounting. As noted in Table





**Figure 3.** Trends in on-premise alcohol pricing for Canada & Ontario (1990–2010)

1, Ontario introduced minimum pricing some years ago, and in recent years has indexed the minimum price to the cost of living (Goodwin 2010; Ministry of Finance, Government of Ontario 2009). Table 1 indicates that minimum price for table wine is higher for imported wine than for Ontario wine. Ontario has minimum prices for all products but they are not strictly speaking volumetric (except in the case of high alcohol content spirits) and therefore the arrangements still allow relatively cheap sources of alcohol to emerge (Thomas 2011). In fact, in some cases, even within a given beverage category, minimum prices are set lower for beverages of higher concentrations i.e. beer and spirit coolers (LCBO 2011a). It is noteworthy that there are a number of opportunities for exceptions to minimum prices, such as delisted products which can be sold up to 70% below the minimum retail price, with the exception of beer (Liquor Control

Act 2010). Other opportunities include beer and wine purchased from ferment on premises outlets ("U-Brew" and "U-Vint" stores), alcohol given as prizes at charitable or religious functions, or alcohol provided directly from manufacturers in the form of product samples (AGCO 2002), and in practice it appears that wine and to some extent beer are favoured in these events over spirits.

While regulations may set minimum prices, are there variations by type of beverage in current retail price per equivalent ethanol content? The minimum price per standard drink, that regulations allow for, varies substantially across different beverage categories. The lowest minimum price per standard drink<sup>1</sup> of non-discounted products sold in liquor stores is highest for spirits, \$1.28; followed by beer, \$1.02; and table wine, \$0.71 (LCBO 2011a). While it appears that pricing arrangements in Ontario are

<b>Table 1: Minimum Pricing in Ontario</b>		
	<b>Off-premise</b>	<b>On-premise</b>
<b>Implementation date</b>	1993	July 13, 2007
<b>Rationale</b>	Minimum prices discourage deep price discounting which could increase problematic consumption. Non-Discriminatory Reference Pricing (NDRP), introduced in 1983, ensures that inexpensive wines are not dumped in the Ontario market.	"The introduction of minimum liquor pricing is intended to provide liquor sales licensees with the ability to offer responsible drink price flexibility, while also strengthening social responsibility by establishing a floor price for liquor sold in licensed establishments." (AGCO 2007)
<b>Minimum prices</b>	Minimum price by beverage category <sup>1</sup> : (a) Spirits (750 ml): \$23.40 (b) Liqueur (750 ml): \$15.85 (c) Table wine (750 ml): \$4.80 (100% Ontario wine) \$5.65 (<100% Ontario wine) \$5.80 (US & imported) (d) Beer (24x 341 ml): \$31.25 (≥ 4.9%–<5.6% alcohol)	The minimum price for a serving of liquor is \$2.00, including taxes (as part of a package or sold individually). A serving of liquor is defined as follows: (a) 12oz of beer, cider or cooler; (b) 1oz of spirits; (c) 5oz of regular wine; (d) 3oz of fortified wine. Note: the minimum price for a drink shall increase or decrease in direct proportion to the volume of liquor contained in a serving.
<b>Significant changes to minimum pricing</b>	July 1 <sup>st</sup> , 2010 Minimum prices for beer, wine and spirits are indexed annually, based on a 3 year average of the Ontario CPI.	June 1 <sup>st</sup> , 2011 <ul style="list-style-type: none"> <li>• Licensees may now offer complimentary drinks to their customers under certain limited circumstances.</li> <li>• Any licensee may now offer all-inclusive vacation and travel packages that include the cost of a trip, accommodation, food, or other services and liquor for one price.</li> </ul>
<b>Additional regulations and caveats</b>	<ul style="list-style-type: none"> <li>• Minimum prices do not apply to delisted products.</li> <li>• U-brew or u-vint products are not subject to minimum pricing.</li> </ul>	<ul style="list-style-type: none"> <li>• A licensee may offer a different price for specific products on certain days or period of the day as long as the cost of the liquor remains at or above the minimum price.</li> <li>• All price changes must be posted or provided to patrons.</li> <li>• Drink prices may not be based on the purchase of other drinks.</li> <li>• Licensees may offer free drinks to patrons under limited circumstances</li> <li>• Any licensee may offer all-inclusive vacation or travel packages that include liquor for one price.</li> <li>• Advertising of prices must be responsible in nature, i.e. no "cheap drinks" or "happy hour"</li> </ul>
Sources: Ministry of Finance 2009; AGCO 2007; LCBO 2011a		

<sup>1</sup> This information represents a sample of the minimum prices imposed in off-premise outlets in Ontario.

not generally designed to discourage consumption of higher strength beverages or facilitate consumption of lower strength

alcohol products, the province does have volumetric pricing for high concentration spirits >40%. Minimum pricing, as

shown by Meier et al. (2009), is expected to deflate overall consumption and impact high-risk drinking, but there does not appear to be a beverage specific harm reduction policy in Ontario with regard to minimum pricing. It is unlikely that the provision of a lower minimum price for Ontario wines than imported wines is based on an assumption that there is lower health or safety risk associated with consuming domestic vs. imported products of similar strength.

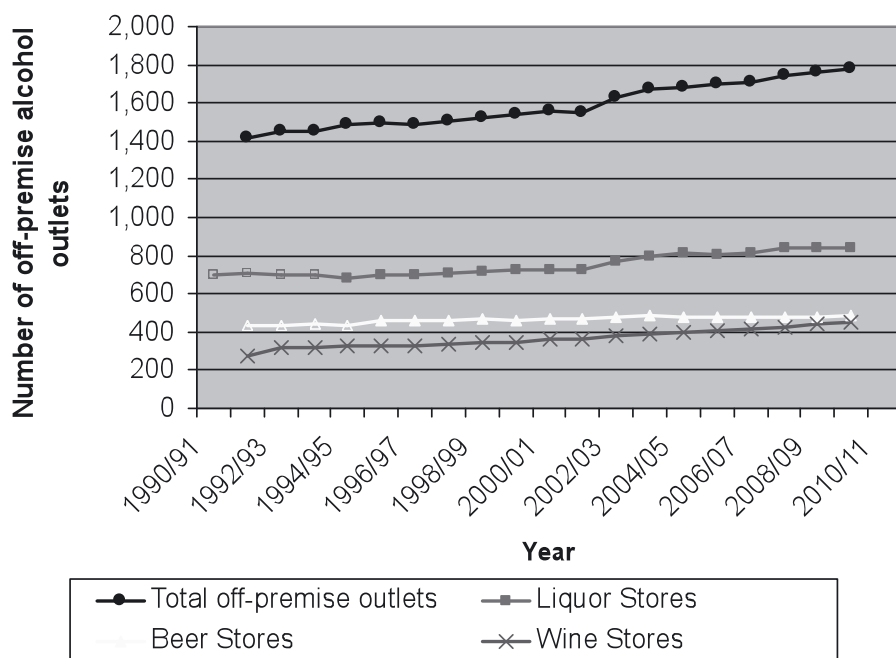
#### *Alcohol retailing System*

Like most other Canadian jurisdictions – with the exception of Alberta where off-premise retailing was privatized in 1993 – package (off-premise) sales are available from both public and private outlets. The Liquor Control Board of Ontario (LCBO) sells all distilled spirits, all imported wine and a large share of domestic wine. These stores also have a wide selection of beer and cooler products, but not in the larger 24, 18 or 12 pack sizes that are available in the Beer Store system. The LCBO also manages Agency stores which are in smaller, rural or vacation locations. These are typically designated sections of grocery stores; distilled spirits, wine and beer are available at these outlets. The Beer Store is part of a private system funded by Ontario's largest brewers and is a network of over 500 stores that sell a wide range of domestic and foreign beer products. The Ontario winery store system of over 400 outlets sell only domestic wine products either produced in Ontario or British Columbia. These typically are small outlets, with many kiosk size venues located in a designated section of a super-market or small outlet in a shopping mall. It is clear

that this mixed system is not structured solely by beverage type. Nevertheless, it is noteworthy that the two lowest strength beverages, namely beer and wine, have their own designated outlets and are most widely available. These differences are likely related to efforts to protect local beer and wine industries, rather than to reduce harm by creating easier access to beverages with lower volume of ethanol.

#### *Density of off-premise outlets*

There are variations in the physical accessibility of alcohol by variation in the premises by type of beverage. Figures 4 and 5 provide information on trends for the different types of off-premise outlets. Given that there are no shops that sell only distilled spirits, but there are shops that sell only wine or only beer, there is greater geographic or physical access to beer and wine in Ontario. In fiscal year 2007/08 – which ends March 31<sup>st</sup> 2008, there were 840 off-premise places – LCBO stores and Agency stores where a customer could purchase distilled spirits to take away to consume off premise. There were 1,279 places where one could purchase wine – LCBO stores, Agency stores and Ontario wine stores. There were 1,318 off-premise places where a customer could purchase beer – LCBO stores, Agency stores and Beer stores. This basic information on number of outlets suggests that beer and wine are physically more accessible than distilled spirits. However, the rationale for this difference may have more to do with the history of alcohol production, management and distribution in Ontario (Room et al. 2006), than it has to do with an explicit policy of either making higher strength beverages less accessible, lower strength



**Figure 4.** Number of off-premise alcohol outlets: Ontario

Notes: Brewery and distillery stores are not included for 1990–1994.

beverages more accessible, or a combination of these approaches.

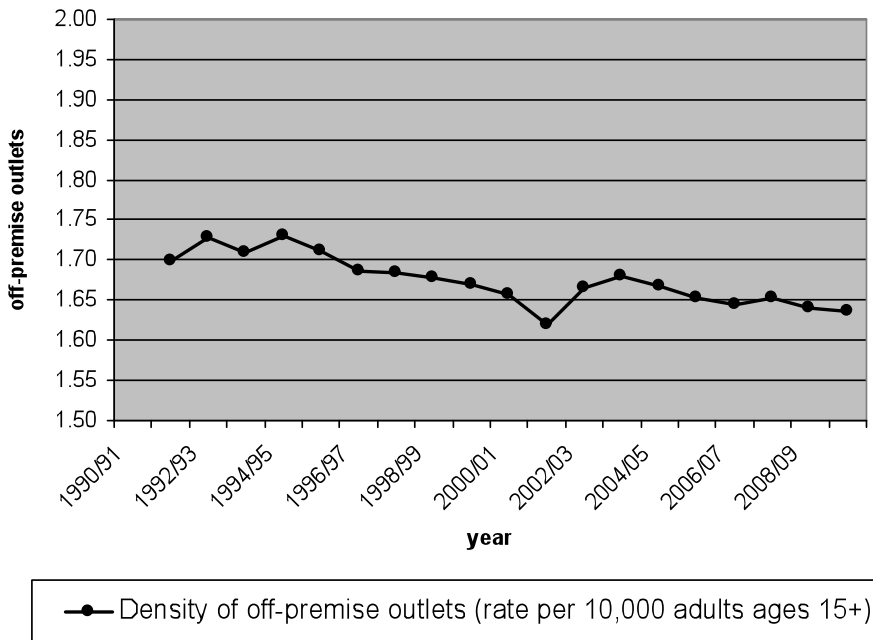
#### *Licensed premises & special occasion permits*

On-premise licenses are not beverage specific. However, license endorsements, which allow liquor sales licensees to sell liquor under certain circumstances, are beverage specific. For example, brew pub and wine pub endorsements allow the sale and service of wine produced by the licensee on the licensed premises for consumption to patrons on premises. Manufacturer’s Licenses as well as Retail Authorizations are also beverage specific (AGCO n.d.). There has not been an increase in the

number and per capita rate of on-premise outlets in the last two decades in Ontario, with the rate of on-premise outlets being just under 20 per 10,000 adults aged 15 and older. Special occasion permits refer to permits that are purchased for events such as weddings, receptions, art shows and other occasions that are time limited. Special occasion permits are not beverage specific.

#### **Promotion by beverage type**

Promotion and marketing regulations can also be used to influence purchasing and consumption behaviours. There is a range of options for preferential treatment of one beverage type over another when it comes



**Figure 5.** Density of off-premise liquor outlets in Ontario (rate per 10,000 pop 15+)

Notes: Brewery and distillery stores are not included for 1990–1994. Per capita values were calculated with most recent estimates of the population from Statistics Canada (final postcensal for 2006, updated postcensal for 2007 and 2008 and preliminary postcensal for 2009). (Statistics Canada 2011b).

to promotion, marketing and advertising of products. This can take many forms, including for example, print and electronic advertising, special arrangements and displays, coverage of beverages in the media, and marketing of specialty beverages. Each will be discussed briefly below.

*Print, billboard and electronic advertising*  
 There are currently many venues for print advertising in Ontario. For example, the large daily newspapers based in Toronto regularly have glossy multi-page inserts. The majority of these glossy inserts focus on table wine, although occasionally these inserts focus on distilled spirits (Every-

thing Whisky) and beer (Local Beers – The Pride of Ontario). In addition, the Liquor Control Board of Ontario’s (LCBO) Food and Drink magazine, available in liquor stores and elsewhere, provides pictures of beverages, food and recipes for mixing drinks and preparing meals or snacks. The Food and Drink Magazine offers regular promotions of Ontario wines and dedicated the 2011 autumn issue to the showcase of Ontario wines (LCBO 2011b). The Ontario wineries also have regular brochures advertising their products, and organize wine festivals and special tastings. In addition, there appears to be significant advertising of spirits and beer products on

electronic social media sites – such as Facebook.

It is noteworthy that until 1996, distilled spirits were not advertised on radio or television in Canada. Prior to 1996 broadcast advertisements for spirits were prohibited based on the widely held belief that spirits were inherently more dangerous than wine or beer (Ogborne & Stoduto 2006). This was overturned by the courts after a challenge led by the distillers in the early 1990s, who wanted the right to promote equivalency messages (Giesbrecht 2000). As a result of the decision by the Federal Court of Canada to allow the advertisement of spirits there was a significant increase in alcohol advertisements in Canada (Fortin & Rempel, 2005). Another relevant change was the decision by the Canadian Radio-television and Telecommunication Corporation (CRTC) to hand off regular monitoring of all advertising of alcoholic products to a non-profit organization in 1997 (Ogborne & Stoduto 2006). This change meant that the CRTC no longer previewed the advertisements before public distribution; the monitoring of alcohol advertising became self-regulated, on a voluntary basis. Advertisers or producers can now pay a fee and voluntarily submit their proposed advertisement for screening by Advertising Standards Canada. Only the province of Quebec, Telecaster, and the CBC require prescreening of alcohol products before broadcast (Advertising Standards Canada 2011) This has made enforcement of the CRTC guidelines more difficult and has complicated the complaint process (Fortin & Rempel 2005).

#### *'Wine' columns and other marketing opportunities*

Columns about alcoholic drinks have be-

come increasingly common. Currently the self-proclaimed "national newspaper," *The Globe & Mail*, has a column on alcoholic beverages at least several times a week, which tend to be organized by varietal or geographic region. It typically provides pictures of newly released products that are reviewed and assessed by the columnist. On Saturdays, a longer column is available. The majority of the columns focus on table wines, although some highlight distilled spirits – such as scotch, gin or vodka, or beer. These columns recommend beverages with a range of prices, many \$12-18 for a 750 ml bottle of wine, but also include more expensive brands, including whiskey at \$100+ per 750 ml.

#### *Off-premise promotional activities*

The LCBO has partnered with the Wine Council of Ontario along with the provincial government in order to develop a wine strategy for Ontario. The LCBO has increased shelf space reserved for Ontario wines which are prominently displayed in-store along with Ontario craft beers which also have dedicated shelf and cooler space (LCBO 2011b; c; Ontario Craft Brewers 2011a). Furthermore, LCBO staff is specially trained in Ontario wine and craft beer. Featured Ontario wines are selected monthly to be highlighted in-store and special promotional offers such as the Ontario Discovery 6-packs, developed and sold by the LCBO in order to help support the Ontario beer and wine industry.

The Beer Store has similar promotional arrangements which showcase certain products over others. In 2007, Ontario Craft Brewers<sup>2</sup> (OCB) voiced that that they want the "unfairness in beer retailing in Ontario", to be highlighted in the next

election campaign. OCB indicated that the promotional activities of the Beer Store disadvantaged Ontario craft beers and that their more prominent product displays at the LCBO greatly enhances sales (Ontario Craft Brewers 2007). While there are no specific restrictions outlined in the Ontario Liquor Licence Act or Regulations regarding the advertising in off-premise outlets, the promotion of lower strength beverages, such as wine and beer is clearly favored.

#### *On-premise promotional activities*

A review of regulatory documents, including the Liquor Licence Act, the Advertising Guidelines of the Canadian Radio-television Telecommunications Commission, the AGCO Liquor Advertising Guidelines: Liquor Sales Licensees and Manufacturers and the LCBO website, determined that there are relatively few regulations that control promotion and access to specific strength beverages in licensed establishments. Licensed establishments may advertise a specific brand or type of alcohol but may not promote the consumption of alcohol in general (AGCO 2007). Furthermore, the CRTC prohibits any advertisement that promotes a beverage based on its high alcohol content (CRTC 1996). Overall there are few regulatory arrangements that pertain to the access and control of alcoholic beverages by strength. However, in the presence of such regulations, lower strength beverages appear to be favoured.

#### *Partnerships and special event promotions*

There are many types of events where alcoholic beverages are promoted and a central feature, including wine tasting fares, silent auctions where participants bid

on alcoholic beverages, and gifts involving alcohol. No systematic information was located about which beverage types were most prominent, although it would appear that table wine and distilled spirits were more common than beer – given the added logistics of transporting large quantities of beer to such events. In terms of government support and partnerships, the craft beer and Ontario wine industries are clearly favoured in Ontario. Partnerships between the Wine Council of Ontario (WCO), Ontario Craft Brewers (OCB) and the Ministry of Tourism, and funding from the provincial government, have assisted in promoting Ontario wine and beer products and helped Ontario wineries and breweries become a prominent part of Ontario's tourism industry. For the past four years, Ontario Craft Brewers has had a special arrangement with the legislative assembly where certain selected craft beers are showcased in the Legislative Dining Room and at other Queen's Park venues (Ontario Craft Brewers 2011b). Furthermore in 2005, OCB received \$5 million in funding from the Ontario Government in support of promoting Ontario Craft Brewery products (Ontario Craft Brewers 2005). This support from the political arena is rationalized in terms of the economic benefits the craft brewers and wineries of Ontario have to offer the province (Wine Council of Ontario 2008). No evidence of such support for the network of distillers in Ontario was found.

### **Regulating access to alcohol by type of beverage**

Restrictions on manufacturer's retail store authorizations, regulated by the Alcohol and Gaming Commission of Ontario

(AGCO), demonstrate differential regulation of alcoholic beverages by beverage strength. Specifically, there are less restrictive criteria for manufacturer retail stores that produce and sell wine and beer in Ontario than there are for Ontario distillery stores. This difference is reflected in the number of winery, brewery and distillery retail stores in Ontario. The most recent data published in the LCBO Annual Report (2009/10) demonstrates that there are significantly more winery and brewery retail stores in Ontario than there are distillery retail outlets. In 2010, there were 448 winery retail stores<sup>3</sup>, 44 on-site brewery retail stores and 3 on-site distillery retail locations in Ontario. Since 2000, the number of winery retail stores has increased by 23.1% while brewery stores have increased by 20.5% and distillery locations demonstrated no change. The difference in the number of manufacturer retail locations represents a difference in access to alcoholic beverages by strength, with a greater number of lower strength wine and beer manufacturer locations and fewer retail stores selling high strength spirits in Ontario. The difference in the number of retail locations may reflect greater restrictions placed on retail stores selling higher strength alcoholic beverages.

As summarized in Table 2, manufacturer distillery stores are required to produce a greater percentage of the products being sold on-site, may only hold one retail authorization per manufacturer licence, may not sell brands other than their own and may not open retail locations off-site. Furthermore, winery and brewery manufacturer retail outlets may be eligible to apply for a Manufacturer's Limited Liquor Sales Licence that allows wineries and brewer-

ies to sell and serve their wine and beer to patrons of their stores in single servings of 12 oz of beer or 5 oz of wine. Distilleries are not eligible for a "By-the-glass" Manufacturer's Licence. "By-the-glass" licensing in wineries and breweries is permitted in order to provide customers the opportunity to try the products, and is meant to enhance the customers' experiences and fulfill an educational role. From an industry perspective, these licenses are specifically intended to enhance Ontario's wine and craft beer tourism industry (AGCO n.d.). Similarly, beverage specific support for the Ontario wine and craft beer industry is provided by the LCBO through special promotional agreements and arrangements. Implications of the strict restrictions for distillery stores and increased access to wine and beer in Ontario will be discussed further in the next section.

As part of the risk based licensing program run by the AGCO, certain conditions may be imposed upon an establishment based on type, location, occupancy, activities, and hours of operation of an establishment in order to help the licensee remain compliant with the Liquor License Act. One such condition is the restriction of the sale of spirits by the bottle. No conditions specific to the sale of beer or wine are outlined in the list of possible license conditions imposed by the AGCO. This beverage specific restriction is likely a reflection of the increased risk of acute harms associated with the consumption of higher concentration alcoholic beverages (Smart 1996).

## Discussion

The findings provide tentative answers to the questions posed at the outset. There are a number of indications that beer,



<b>Regulation</b>	<b>Wine</b>	<b>Beer</b>	<b>Spirits</b>
<b>Production</b>	<ul style="list-style-type: none"> <li>The manufacturer must carry out the primary fermentation process for at least 25% of the wine sold annually.</li> <li>Additional restrictions may apply depending on the type of winery (type of wine made).</li> </ul>	<ul style="list-style-type: none"> <li>Manufactures &lt; 25,000 hl of beer per year: all beer sold in store must be made by the applicant on-site.</li> <li>Manufactures ≥25,000 hl of beer per year: at least 50% of the beer sold in store is made by the applicant on-site.</li> </ul>	<ul style="list-style-type: none"> <li>The manufacturer must own and have, on-site, a minimum batch still capacity of 5,000 litres or a minimum continuous still capacity of 150 litres/ hour of absolute alcohol.</li> <li>The manufacturer must make, on-site, at least 50% of the volume of spirits sold annually. The remaining spirits to be sold must be distilled, blended, aged or bottled on-site.</li> </ul>
<b>Number of stores</b>	<ul style="list-style-type: none"> <li>No more than one on-site retail store authorization may be issued per manufacturer.</li> <li>Restrictions on the number of off-site and/or mini retail stores are not stated.</li> </ul>	<ul style="list-style-type: none"> <li>Manufactures &lt; 25,000 hl of beer per year: eligible to apply for one on-site brewery retail store.</li> <li>Manufactures ≥ 25,000 hl of beer per year: eligible to apply for authorization to operate two brewery retail stores, provided that each retail store is located at a production site of the applicant.</li> </ul>	<ul style="list-style-type: none"> <li>Only one distillery retail store authorization may be issued per licensed manufacturer.</li> </ul>
<b>Store locations</b>	<ul style="list-style-type: none"> <li>On-site stores must be located on the same parcel of land as the production site, which must consist of at least 5 acres of land planted with fruit or 100 bee colonies.</li> <li>Retail stores may also operate off site, including "Mini-stores" located within a host store.</li> </ul>	<ul style="list-style-type: none"> <li>The store must be located on the same parcel of land as the applicant's main production site.</li> <li>The second on-site brewery retail store must be located at another production site of the applicant where the full brewing process takes place.</li> </ul>	<ul style="list-style-type: none"> <li>The store must be located on the same parcel of land as the applicant's production site.</li> </ul>
<b>Products</b>	<ul style="list-style-type: none"> <li>All wine for sale in the Wine Store shall be Ontario wine.</li> <li>Gift or souvenir packages may contain wine made by no more than two other Ontario wine manufacturers (upon approval, volume restrictions apply).</li> <li>A limited list of accessories may be sold.</li> </ul>	<ul style="list-style-type: none"> <li>A manufacturer may only sell in its brewery retail store beer made by the manufacturer.</li> <li>A limited list of accessories may be sold.</li> </ul>	<ul style="list-style-type: none"> <li>A manufacturer may only sell in its distillery retail store, brands which are owned by the manufacturer.</li> <li>A limited list of accessories may be sold.</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>When relocating an on-site retail store the old retail store and new retail store locations are permitted to operate concurrently for a period of 7 days.</li> <li>Mini-Store must be self-contained and operated independently from the host store.</li> <li>May apply for a single serve "by the glass" license.</li> </ul>	<ul style="list-style-type: none"> <li>May apply for a single serve "by the glass" license.</li> </ul>	<ul style="list-style-type: none"> <li>The applicant must enter into an agreement with the LCBO, upon terms satisfactory to the LCBO, respecting the sale of its products to the LCBO and the subsequent sale to the public.</li> </ul>

(AGCO n.d.)

wine and distilled spirits are treated differently in Ontario. This is evident in the price relative to CPI, with data for recent years showing that mean prices of wine

and distilled spirits are cheaper than beer based on a basket of goods and how they change over time (Figure 2). It is important to consider the price per standard drink

when considering relative price or when comparing across beverage types.

However, the minimum prices for beer, wine and spirits, as of 2010, are indexed annually to a 3 year average of the Ontario CPI. The rationale behind this change was to maintain social responsibility (Ministry of Finance 2009). However, Ontario Vintners and microbrewers continue to receive tax benefits in order to support the growth of Ontario's wine and microbrewery industry. There are also more outlets where beer and wine can be purchased for off-premise consumption than those that sell distilled spirits. There are several concurrent initiatives oriented to promoting wine, and, in particular, Ontario wine, including differentiated minimum pricing, placement in the stores and other promotional initiatives. More generally, there is more extensive and frequent informal promotion of table wine through wine columns in newspapers, festivals and other events. The rationale behind the LCBO's support for the local beer and wine industry is stated as being consistent with international trade obligations and supporting the local economy (LCBO 2011b).

These initiatives are oriented to the type of beverage, rather than the percentage of ethanol in the alcoholic beverage; for example, promotion of wine products does not appear to be founded on their relatively lower ethanol content, but on other qualities. Nevertheless, the promotion of wine consumption in connection with food and meals could be seen as providing an alternative life-style to binge or heavy drinking (see Rehm et al. 2010). In contrast, the promotion of ready-to-drink mixed drinks or alcohol coolers, which are likely attractive to young consumers and

are not typically associated with meals, may have harm enhancement implications even if their ethanol content per volume is less than most table wine. Similarly, beer, compared to wine and spirits, has a significant impact on drinking and driving related fatalities. This relationship may be accounted for by the fact that beer is marketed to younger audiences who are more likely to be involved in drinking and driving accidents (Mann et al. 2006).

There are beverage differences in indexing minimum prices to the CPI, and in minimum pricing. However, no other explicit evidence was located that indicated harm reduction or problem prevention was an underlying rationale for the differential treatment of beverage in Ontario. In many cases the differential treatment of alcohol by beverage type appears to be driven by business motives such as increasing the profits from the sale of alcohol and supporting the local economy and tourism industry through the support of local brewers and vintners. As beverage trends change over time, beverage type and the context in which different types of alcohol are consumed will become increasingly important factors to consider in reducing alcohol-related harms.

There do not appear to be evidence of harm reduction practices underlying the treatment of beverages by strength. Within a beverage type, there are not ethanol content specific restrictions. Table wines can range from 7% to 15%, but without looking closely at the label, the consumer may be unaware of this difference. Also, it is feasible to obtain a stronger beer at the same price per beverage volume as a weaker beer. Furthermore, some of the beer containers are very large and contain

the equivalent of two or more standard drinks (341 ml of 5% strength beer). However, imported (including other provinces) large bottles and strong beers are given extra stickers when shipped to the LCBO. Also, the alcohol content is measured by the LCBO and corrected on the label. Large bottles are given a sticker that says 750ml or 500ml and anything over 5% gets a sticker that says "strong beer", Ontario products have it on the label already. These stickers appear on on-premise and off-premise beer products.

From a public health perspective, indexed minimum pricing is a step in the right direction, although it would be useful to close up the various loopholes that allow discount pricing. Within a beverage group, a note-worthy consideration is pricing that is specific to alcohol content. Also, if the intent is to encourage consumption of some beverages with meals in order to reduce harm from alcohol, then this might be explicitly stated. Furthermore, promotional materials could contain information on number of standard drinks in each of the beverages shown, and each brochure or advertising insert could provide current low-risk drinking guidelines, rather than non-quantitative and vague statements such as "please drink responsibly".

On a number of dimensions, beer, wine and distilled spirits are treated differently in Ontario. The rationale appears to be a combination of a long-standing and well-established belief that distilled spirits are more potent and risky than beer and wine, and established and on-going efforts to facilitate the local wine and beer industries. As noted above, there is some evidence of restricting access to some beverages to promote access to others, but there does not

appear to be a systematic plan organized by beverage strength or type of beverage.

It is not clear that an explicit harm reduction or damage control perspective underlies variations in the management or promotion in Ontario by beverage type or alcohol strength. Nevertheless there is some convergence between a finding from the brief literature review summarized above and the promotion of wine in Ontario. However, no evidence was located that decisions about differential access to different types of beverages or promotion of them were informed by epidemiological research on harm and type of alcoholic beverage.

In other jurisdictions there have been initiatives to add ethanol content information so that those purchasing are aware of number of standard drinks in a container. There are many opportunities including variations in controls on access, pricing and promotion that could be used to promote low-risk drinking that have yet to be taken in Ontario.

Nevertheless, as shown in the research noted at the outset, even low alcohol content beverages, such as beer, are linked with various social and chronic problems. Policies with a harm reduction agenda need to consider reducing the overall volume of alcohol, changing high-risk drinking styles and better management of access to all types of beverages. There is encouraging evidence, however, that consumers can respond to price incentives to select lower alcohol content drinks (Stockwell & Crosbie 2001), that drinking settings that provide lower alcohol content beers generate considerably lower BAC levels in drinkers (Geller et al. 1991) and that young Canadian beer drinkers cannot re-

liably distinguish mid-strength from high-strength beers (Segal & Stockwell 2008). Controls that are specific to the percentage of ethanol and ethanol content by type of beverage need to be part of this larger public health agenda in order to be effective in reducing high-risk drinking and harm from alcohol.

**Declaration of Interest** None.

**Norman Giesbrecht**, senior scientist  
Social & Epidemiological Research Dept.  
Centre for Addiction & Mental Health  
Toronto, Ontario, Canada  
Associate professor  
Dalla Lana School of Public Health  
University of Toronto

**Ashley Wettlaufer**, research coordinator  
Social & Epidemiological Research Dept.  
Centre for Addiction & Mental Health  
Toronto, Ontario, Canada

**Emma Walker**, research analyst  
Social & Epidemiological Research Dept.  
Centre for Addiction & Mental Health  
Toronto, Ontario, Canada

**Anca Ialomiteanu**, research coordinator  
Social & Epidemiological Research Dept.  
Centre for Addiction & Mental Health  
Toronto, Ontario, Canada

**Timothy Stockwell**, director  
Centre for Addictions Research of BC;  
Professor, Department of Psychology  
University of Victoria, British Columbia, Canada

## NOTES

- 1 Calculations are based on largest, non-bulk, container sizes and highest strength products available in each beverage category.
- 2 Ontario Craft Brewers is a network of 29 breweries dedicated to brewing Ontario beer.
- 3 This represents a count of all wine retail stores, including both on-site manufacturer stores and off-site wine retail outlets

## REFERENCES

- Advertising Standards Canada (2011): ASC Alcoholic Beverage Advertising Clearance Guide. Retrieved from <http://www.adstandards.com/en/clearance/alcoholicBeverages/ASCAlcoholicBeverageAdvertisingClearanceGuide.pdf>
- Alcohol and Gaming Commission of Ontario (2002): Liquor Licence Act Regulatory Changes (October 2002). Retrieved from: [http://www.agco.on.ca/en/faqs\\_lla\\_changes.aspx](http://www.agco.on.ca/en/faqs_lla_changes.aspx). Accessed March 2011
- Alcohol and Gaming Commission of Ontario (No date): Alcohol, Liquor Licences. Retrieved from <http://www.agco.on.ca/en/whatwedo/index.aspx>. Accessed March 2011
- Alcohol and Gaming Commission of Ontario. (July, 2007). Information bulletin- No.014: Pricing and promotion of liquor by liquor sales licensees. Retrieved from [http://www.agco.on.ca/en/services/bulletins\\_alcohol\\_LSL.aspx](http://www.agco.on.ca/en/services/bulletins_alcohol_LSL.aspx). Accessed February 2011
- Black, H. & Gill, J. & Chick, J. (2010): The price of a drink: levels of consumption and price paid per unit of alcohol by Edinburgh's ill drinkers with a comparison of wider alcohol sales in Scotland. *Addiction* 106 (4): 729–736
- Canadian Radio-television Telecommunications Commission (CRTC) (1996): Code for broadcast advertising of alcoholic beverages. Retrieved from <http://www.crtc.gc.ca/ENG/archive/1996/PB96-108.HTM>. Accessed February 17, 2011
- Chavira, C. & Bazargan-Hejazi, S. & Lin, J. & del Pino, H.E. & Bazargan, M. (2011): Type

- of alcohol drink and exposure to violence: an emergency department study. *Journal of Community Health* 36 (4): 597–604
- Choi, J.K. & Atkinson, K. & Karlson, E.W. & Willett, W. & Curhan, G. (2004): Alcohol intake and risk of incident gout in men: a prospective study. *The Lancet* 363 (9417): 1277–1281
- Fortin, R. B. & Rempel, B. (2005): The effectiveness of regulating alcohol advertising: Policies and public health. Toronto, ON: The Association to Reduce Alcohol Promotion in Ontario. Retrieved Dec 14, 2011, from [http://www.apolnet.ca/resources/pubs/rpt\\_Effectiveness-Dec05.pdf](http://www.apolnet.ca/resources/pubs/rpt_Effectiveness-Dec05.pdf)
- Geller, E.S. & Kalsher, M.J. & Clarke, S.W. (1991): Beer versus mixed drink consumption at fraternity parties: a time and place for low-alcohol alternatives. *Journal of Studies on Alcohol* 52: 197–204. Retrieved from <http://ezproxy.qa.proquest.com/docview/617951799?accountid=14771>
- Giesbrecht, N. (2000): Roles of commercial interests in alcohol policies: recent developments in North America. *Addiction* 95 (12s4): 581–595
- Giesbrecht, N. & Thomas, G. (2010): A complex picture. Trends in consumption, harm and policy: Canada, 1990-2010. *Nordic Studies on Alcohol and Drugs* 27 (5): 515–538
- Greenfield, T.K. & Rogers, J.D. (1999): Alcoholic beverage choice, risk perception and self-reported drunk driving: effects of measurement on risk analysis. *Addiction* 94 (11): 1735–1743
- Goodwin, B. (2010): Minimum pricing of alcohol: Ontario's experience. Presentation at International perspectives on pricing and taxation as techniques to reduce harm from alcohol, and promote public health and social responsibility. Toronto, Ontario, December 8
- Gruenewald, P. & Stockwell, T. & Beel, A. & Dyskin, E. (1999): Beverage sales and drinking and driving: the role of on-premise drinking places. *Journal of Studies on Alcohol* 60 (1): 47–53
- Gruenewald, P.J. & Jonson, F.W. & Millar, A. & Mitchell, P.B. (2000): Drinking and driving: Explaining beverage-specific risks. *Journal of Studies on Alcohol* 61: 515–523
- Gruenewald, P.J. & Ponicki, W.R. & Holder, H.D. & Romelsjö, A. (2006): Alcohol prices, beverage quality, and the demand for alcohol: quality substitutions and price elasticities. *Alcoholism: Clinical and Experimental Research* 30 (1): 96–105
- Han, X. & Tongzhang, Z. & Foss, F.M. & Ma, S. & Holford, T.R. & Boyle, P. & Leaderer, B. & Zhao, P. & Dai, M. & Zhang, Y. (2010): Alcohol consumption and non-hodgkin lymphoma survival. *Journal of Cancer Survivorship* 4 (2): 101
- Harding, A.H. & Sargent, L.A. & Khaw, K.-T. & Welch, A. & Oakes, S. & Luben, R.N. & Bingham, S. & Day, N.E. & Wareham, N.J. (2002): Cross-sectional association between total level and type of alcohol consumption and glycosylated haemoglobin level: the EPIC-Norfolk study. *European Journal of Clinical Nutrition* 56: 882–890
- Hasking, P. & Shortell, C. & Machalek, M. (2005): University students' knowledge of alcoholic drinks and their perception of alcohol-related harm. *Journal of Drug Education* 35 (2): 95–109
- Herttua, K. & Mäkelä, P. & Martikainen P. (in press): The effects of a large reduction in alcohol prices on hospitalizations related to alcohol: a population-based natural experiment. *Addiction*
- Hogan, E. & Boffa, J. & Rosewarne, C. & Bell, S. & Chee, D.H. (2006): What price do we pay to prevent alcohol-related harms in Aboriginal communities? The Alice Springs trial of liquor licensing restrictions. *Drug and Alcohol Review* 25: 207–212
- Jensen, M.K. & Andersen, A.T. & Sørensen, T.I.A. & Becker, U. & Thorsen, T. & Grønbaek, M. (2002): Alcoholic beverage preference and risk of becoming a heavy drinker. *Epidemiology* 13: 127–132
- Johansen, D. & Frils, K. & Skovenbaek, M. (2006): Food buying habits of people who buy wine or beer: cross-sectional study. *British Medical Journal* 332: 519–522
- Liquor Control Act, Regulation 116/10 (2010): Minimum pricing of liquor and other pricing matters
- Liquor Control Board of Ontario (2009-2010): LCBO Annual Report, The Pursuit of Excel-

- lence. <http://www.lcbo.com/aboutlcbo/annualreport2009.shtml>. Accessed March 4, 2011
- Liquor Control Board of Ontario (2011a): Ontario Minimum Reference Pricing Attachment 1 and 2 [Data file]. Retrieved from LCBO Sale of Data Program
- Liquor Control Board of Ontario (2011b): Backgrounder: LCBO support for Ontario wines. LCBO Media Centre. Retrieved from [http://www.lcbo.com/lcbo-ear/media\\_releases/content?content\\_id=1324](http://www.lcbo.com/lcbo-ear/media_releases/content?content_id=1324). Accessed on January 12, 2011
- Liquor Control Board of Ontario (2011c): Supporting Ontario's wine industry, craft brewers. Retrieved from <http://www.lcbo.com/aboutlcbo/todayslcbo.shtml#supporting-ontarios>. Accessed January 12, 2011
- Ludbrook, A. (2009): Editorial: Minimum pricing of alcohol. *Health Economics* 18: 1357–1360
- Mann, R.E. & Flam Zalcman, R. & Asbridge, M. & Suurvali, H. & Giesbrecht, N. (2006): Drinking and driving fatalities and consumption of beer, wine and spirits. *Drug and Alcohol Review* 25: 321–325
- Meier, P. & Purshouse, R. & Brennan A. (2009): Policy options for alcohol price regulation: The impact of modeling population heterogeneity. *Addiction* 105: 383–393
- Michaud, D.S. & Vrieling, A. & Jiao, L. & Mendelsohn, J.B. & Steplowski, E. & Lynch, S.M. & Wactawski-Wende, J. & Arslan, A.A. & Bas Bueno-de-Mesquita, H. & Fuchs, C.S. & Gross, M. & Helzlsouer, K. & Jacobs, E.J. & Lacroix, A. & Petersen, G. & Zheng, W. & Allen, N. & Ammundadottir, L. & Bergmann, M.M. & Boffetta, P. & Buring, J.E. & Canzian, F. & Chanock, S.J. & Clavel-Chapelon, F. & Clipp, S. & Freiberg, M.S. & Michael Gaziano, J. & Giovannucci, E.L. & Hankinson, S. & Hartge, P. & Hoover, R.N. & Allan Hubbell, F. & Hunter, D.J. & Hutchinson, A. & Jacobs, K. & Kooperberg, C. & Kraft, P. & Manjer, J. & Navarro, C. & Peeters, P.H. & Shu, X.O. & Stevens, V. & Thomas, G. & Tjønneland, A. & Tobias, G.S. & Trichopoulos, D. & Tumino, R. & Vineis, P. & Virtamo, J. & Wallace, R. & Wolpin, B.M. & Yu, K. & Zeleniuch-Jacquotte, A. & Stolzenberg-Solomon, R.Z. (2010): Alcohol intake and pancreatic cancer: a pooled analysis from the pancreatic cancer cohort consortium (PanScan). *Cancer Causes Control* 21: 1213–1225
- Minister of Finance, Government of Ontario (2009): Ontario's tax plan for jobs and growth. [Released November 16, 2009] <http://www.fin.gov.on.ca/en/publications/2009/fbbb.html#raf> Accessed February 23, 2011
- Núñez-Córdoba, J.M. & Martínez-González, M.A. & Bes-Rastrollo, M. & Toledo, E. & Beunza, J.J. & Alonso, Á. (2009): Alcohol consumption and incidence of hypertension in a mediterranean cohort: The SUN study. *Revista Espanola de Cardiologia* 62 (6): 633–641
- Ogborne, A. & Stoduto, G. (2006): Changes in federal regulation in broadcast advertisements for alcoholic beverages. In: Giesbrecht, N. & Demers, A. & Ogborne, A. & Room, R. & Stoduto, G. & Lindquist, E. (eds.): *Sober Reflections: Commerce, Public Health, and the Evolution of Alcohol Policy in Canada, 1980–2000* pp 237–259. Montreal, McGill-Queen's University Press
- Ontario Craft Brewer's (2011a): February 2011 –Lovin' local beers this Valentine's Day; Ontario craft beer sales in LCBO up 52% in 2010: The OCB Media Centre. Retrieved from [http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb\\_press\\_recipe\\_valentine\\_feb11](http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb_press_recipe_valentine_feb11). Accessed on July 10, 2011
- Ontario Craft Brewer's (2011b): April 2011 - MPPs choose latest beers to be highlighted at Ontario's Legislative Assembly. News On Tap: The OCB Media Centre. Retrieved from [http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb\\_press\\_release\\_20Apr11\\_LegislativeBeers](http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb_press_release_20Apr11_LegislativeBeers). Accessed on July 10, 2011
- Ontario Craft Brewer's (2007): September 2007- Ontario Craft Brewers want to hear from party leaders during the campaign regarding unfairness in beer retailing in Ontario. News On Tap: The OCB Media Centre. Retrieved from [http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb\\_press\\_release\\_sep07\\_leaders](http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb_press_release_sep07_leaders). Accessed on July 11, 2011
- Ontario Craft Brewer's (2005): June 2005- \$5

- Million in Funding from the Government of Ontario to Contribute to The Ontario Craft Brewers' Marketing Campaign and Job Creation. News On Tap: The OBC Media Centre. Retrieved from [http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb\\_press\\_release\\_june3](http://www.ontariocraftbrewers.com/content2.php?nextpage=ocb_press_release_june3). Accessed on July 10, 2011
- Pandeya, N. & Williams, G. & Green A.C. & Webb, P.M. (2009): Alcohol consumption and the risk of Adenocarcinoma and Squamous cell carcinoma of the Esophagus. *Gastroenterology* 136: 1215–1224
- Pedersen, E.R. & Neighbors, C. & Larimer, M.E. (2010): Differential alcohol expectancies based on type of alcoholic beverage consumed. *Journal of Studies on Alcohol & Drugs* 71: 9235–929
- Purhouse, R.C. & Meier, P.S. & Brennan, A. & Taylor, K.B. & Rafia, R. (2010): Estimating the effect of alcohol pricing policies on health and economic outcomes in England: an epidemiological model. *Lancet* 375: 1355–1364
- Rehm, J. & Baliunas, D., Borges, G.L.G., Graham, K., Irving, H., Kehoe, T., Parry, C.D., Patra, J., Popova, S., Poznyak, V., Roerecke, M. Room, R.m Samokhvalov, A. V. & Taylor, B. (2010): The relation between different dimensions of alcohol consumption and burden of disease: an overview. *Addiction* 105: 817–843
- Rimm, E.B. & Williams, P. & Fosher, K. & Criqui, M. & Stampfer, M.J. (1999): Moderate alcohol intake and lower risk of coronary heart disease: meta-analysis of effects on lipids and haemostatic factors. *British Medical Journal* 319: 1523–1528
- Ronksley, P. E. & Brien, S.E. & Turner, B.J. & Mukamal, K.J. & Ghali, W.A. (2011): Association of alcohol consumption with selected cardiovascular disease outcomes: a systematic review and meta-analysis. *British Medical Journal* 342 [Feb 22, 2011]
- Room, R. & Stoduto, G. & Demers, A. & Ogborne, A. & Giesbrecht, N. (2006): Alcohol in the Canadian context. In: Giesbrecht, N. & Demers, A. & Ogborne, A. & Room, R. & Stoduto, G. & Lindquist, E. (eds.): *Sober Reflections: Commerce, Public Health, and the Evolution of Alcohol Policy in Canada, 1980–2000*. Montreal, McGill-Queen's University Press
- Rossow, I. (2001): Alcohol and homicide: a cross-cultural comparison of the relationship in 14 European countries. *Addiction* 91 (S1): S77–92
- Segal, D. & Stockwell, T. (2009): Low Alcohol Alternatives: A Promising Strategy for Reducing Alcohol Related Harm. *International Journal of Drug Policy* 20 (2): 183–187
- Sesso, H.D. & Paffenbarger Jr. R.S. & Lee, I.-M. (2001): Alcohol consumption and risk of prostate cancer: The Harvard Alumni Health Study. *International Journal of Epidemiology* 30: 749–755
- Smart, R. G. (1996): Behavioral and social consequences related to the consumption of different beverage types. *Journal of Studies on Alcohol* 57 (1):77–84
- Smart, R. G. & Ognorne, A.C. (1996): *Northern Spirits: A social history of alcohol in Canada*. Second ed. Toronto: Addiction Research Foundation
- Statistics Canada (2011a). Table 183–0019 – Volume of sales of alcoholic beverages in litres of absolute alcohol and per capita 15 years and over, fiscal years ended March 31, annual (litres). Accessed February 15, 2011
- Statistics Canada (2011b). Table 051–0001 – Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual (persons unless otherwise noted) (table), CANSIM (database), Using E-STAT (distributor). Accessed February 17, 2011
- Statistics Canada (2011c). Table 326–0021 – Consumer Price Index (CPI), 2005 basket, annual (2002=100 unless otherwise noted) (table), CANSIM (database), Using E-STAT (distributor)
- Stickley, A. & Razvodovsky, Y. (2011): The effects of beverage type on homicide rates in Russia, 1970–2005. *Drug and Alcohol Review*, Early View
- Stockwell, T. & Auld, M. C. & Zhao J. & Martin G. (in press): Does minimum pricing reduce alcohol consumption? The experience of a Canadian province. *Addiction*
- Stockwell, T. R. & Crosbie, D. (2001): Supply and Demand for Alcohol in Australia:

- Relationships between Industry Structures, Regulation and the Marketplace. *International Journal of Drug Policy* 12 (2): 139–152
- Stockwell, T. & Leng, J. & Sturge, J. (2006): Alcohol pricing and public health in Canada: Issues and opportunities. Centre for Addictions Research of BC. February 2006
- Stockwell, T. & Masters, L. & Phillips, M. & Daly, A. & Midford, R. & Gahegan, M. & Philp, A. (1998): Consumption of Different Alcoholic Beverages as Predictors of Local Rates of Assault, Road Crash and Hospital Admission. *Australian and New Zealand Journal of Public Health* 22 (2): 237–242
- Stockwell, T. & Zhao, J. & Chikritzhs, T. & Greenfield, T. (2008): What did you drink yesterday? Public health relevance of a recent recall method used in the 2004 Australian National Drug Strategy Household Survey. *Addiction* 103 (6): 919–928
- Thomas, G. (2011): “Alcohol price policies in Canada”. A presentation made at the bi-annual Issues of Substance Conference. November 6-9, 2011, Vancouver, British Columbia
- Tjonneland, A. & Gronbaek, M. & Stripp, C. & Overvad, K. (1999): Wine intake and diet in a random sample of 48763 Danish men and women. *American Journal of Clinical Nutrition* 69: 49–54
- Wine Council of Ontario. (2008): Buying Ontario wine makes cents. Retrieved from <http://winecountryontario.ca/sites/default/files/pressrelease/kpmgstudy08.pdf>. Accessed on July 4th, 2011
- Zimmerman, P.R. & Benson, B.L. (2007): Alcohol and rape: an “economics-of-crime” perspective. *International Review of Law and Economics* 27 (4): 442-473.

