ICAP International Center for Alcohol Policies
Analysis. Balance. Partnership.

Physical Availability of Beverage Alcohol: Monopolies, Licensing, and Outlet Density

The Issue in Brief

Restrictions over the availability of beverage alcohol are among the traditional policy measures applied by governments in most countries. They include physical restrictions on availability, notably:

- government monopolies that regulate the sale (and/or production) of beverage alcohol;
- licensing restrictions on hours and days when alcohol may be sold;
- restrictions on the density and location of retail outlets.

The debate focuses on the degree to which physical restrictions should be implemented and on their effectiveness in reducing potential harm.

The evidence:

- Research on the impact of availability restrictions has examined their effect on total alcohol consumption, as well as on specific indicators of alcohol-related harm, such as alcohol-impaired driving, public order issues, assaults, and violence.
- The evidence on the impact of controls over physical availability on drinking outcomes is inconsistent.
- Some studies suggest that restrictions over availability control the levels of alcohol consumption. Other studies, based on observations following policy changes, suggest that their impact on consumption may be limited.
- The evidence regarding the impact of restrictions on indicators of harm is similarly mixed, and loosened controls generally appear to have little impact on overall rates of alcohol-impaired traffic crashes or violent incidents.
- The evidence suggests, rather, that, while controls over the physical availability of alcohol may be effective in some contexts, they are less so in others.
- As restrictions over alcohol availability are often implemented alongside other policies, it may be difficult to gauge the impact of any single measure in isolation.

Unintended outcomes:

- Like any policy measures, restrictions over the physical availability of beverage alcohol may result in unintended outcomes. Not all are harmful, but some may be associated with problems.
- Where there are disparities between neighboring jurisdictions, or where restrictions are severe, unintended outcomes can include cross-border trade and growth in the grey and black markets for alcohol.
- These unintended outcomes may encourage the growth of organized crime and may represent economic losses to government and private sector revenue, as well as to employment.

ICAP Issues Briefings address specific topics relevant to alcohol policy, providing a succinct overview of key evidence. Where appropriate, they include an analysis of intended and unintended outcomes, country-level case studies, and main positions around a particular debate.

Limitations:

- In markets where much of the beverage alcohol is noncommercial, government policies restricting its availability have little impact.
- The evidence of the effectiveness and impact of availability restrictions is derived from a limited number of countries, putting into question its transferability to other countries.
- Policies restricting the physical availability of beverage alcohol have been challenged by evolving views on the relationship between governments and their citizens, as well as increased consumer demand for choice.
- Control measures over the availability of alcohol are also often limited by the degree to which they can be effectively implemented.

Relevant ICAP publications:

Antalova, L., & Martinic, M. (2005). *Beverage alcohol availability controls*. ICAP Review 1. Available: www.icap.org.

Grant, M., & Leverton, M. (Eds.) (in press). *Working together to reduce harmful drinking*. New York: Routledge.

International Center for Alcohol Policies (ICAP). (2005–present). *The ICAP Blue Book: Practical guides for alcohol policy and prevention approaches*. Available: www.icap.org.

International Center for Alcohol Policies (ICAP). (2008). *Policy planning and choice: Guide to feasible interventions*. ICAP Policy Guides. Washington, DC: Author.

Stimson, G. V., Grant, M., Choquet, M., & Garrison, P. (Eds.). (2007). *Drinking in context: Patterns, interventions, and partnerships*. New York: Routledge.

What Is the Issue?

Restrictions over the availability of beverage alcohol are among the traditional policy measures applied by governments in most countries [1].

The underlying public health rationale for generalized reduction in availability is that restricting access to alcohol will limit levels of consumption, thereby also reducing levels of alcohol-related harm.

Restrictions are frequently implemented through economic means, by setting pricing and taxation levels [2].

They can also be implemented through physical means, including the following:

- government monopolies that regulate the sale (and production) of beverage alcohol;
- licensing restrictions on hours and days when alcohol may be sold;
- restrictions on the density and location of retail outlets.

The evidence on these three types of measures is examined in turn.

Restrictions over availability are also applied in a targeted way to certain persons, for example, through legal purchase or drinking age laws or regulations of sales to intoxicated individuals; such restrictions are not addressed in this briefing.

What Is the Debate?

The debate about limiting the physical availability of beverage alcohol is twofold:

- the degree to which such regulations should be applied, whether in conjunction with or to the exclusion of targeted interventions;
- the effectiveness of restrictions as a public health tool for reducing alcohol-related harm.

One strongly held view among some involved in public health and policy issues is that controls over beverage alcohol are the most proven strategies for prevention and reducing negative outcomes:

> *"In general, effectiveness is strong for the regulation of physical availability and the use of alcohol taxes. Given the broad reach of these strategies, and the relatively low expense of implementing them, the expected impact of the these measures on public health is relatively high"* [3, p. 270].

An alternative view posits that, while physical restrictions on beverage alcohol are part of a regulatory framework around alcohol, they need to be implemented in tandem with other, more targeted measures aimed at particular drinking patterns and harm.

This view also points to the potential unintended consequences and shortcomings that have been shown to accompany the application of strict controls over beverage alcohol:

> *"Apart from the possibility of unintended consequences and increased harm, there is little to suggest that population-level measures* alone *are able to change problematic drinking patterns and the general drinking culture of excess that prevails in many countries. Despite continuing implementation of high taxes, restrictions on the availability of alcohol, and other population-level measures, harmful drinking patterns remain highly prevalent in the countries of Northern and Eastern Europe "* [4, p. 77].

What Is the Evidence?

Research on the impact of generalized physical restrictions over availability has focused on their effect on total alcohol consumption, as well as on specific indicators of alcohol-related harm, such as alcohol-impaired driving, public order issues, assaults, and violence.

Alcohol retail monopolies

According to the 2004 World Health Organization Global Status Report on Alcohol Policy, 15% of the 150 countries surveyed have some form of government monopoly that controls the sale (or production) of beer, wine, or spirits [1].

- Monopolies offer a means for governments to generate state revenue directly.
- They have also been cited as a public health tool for reducing alcohol consumption levels and harm [5].
- It has been argued that, when controlled by the state and not through private retailers, revenue generated through alcohol production and sale is used for the public good.

In recent years, there has been some easing of monopoly controls over the physical availability and retail of beverage alcohol.

These changes have included the relaxing of hours and days of sale and the wider availability of beverage alcohol outside of government-owned retail outlets, for example, in grocery stores and supermarkets.

The relaxation of controls has been in response to a number of factors, including consumer demand, economic considerations, and political challenges, such as the European Union's (EU) effort to harmonize policy measures.

Retail monopolies persist in a number of countries around the world, most notably in several of the Nordic

countries of Europe, some Canadian provinces, and various jurisdictions in the United States (U.S.).

Research into the effectiveness of alcohol retail monopolies as policy measures has examined impact on alcohol consumption, as well as on indicators of alcohol-related harm.

Impact on alcohol consumption

Research into the impact of relaxing monopoly control over retail sales (for example, by allowing sale of wine and beer in grocery stores and supermarkets) has shown mixed results with regard to alcohol sales. Sales are usually taken as a proxy for alcohol consumption.

- Privatization of the sale of domestic and imported wine in 1978 and 1983, respectively, in the Canadian province of Quebec was followed by an initial rise and a subsequent leveling-off in wine sales [6]. There was no appreciable impact on total alcohol sales, or on beer and spirits sales [7, 8].
- The privatization of wine sales in several U.S. states resulted in an increase in total alcohol sales [9-11]. However, the impact was inconsistent. In some cases, an increase in beer and a decrease in spirits sales were also observed, but not in others.

Some studies have focused specifically on the impact of alcohol retail monopolies on young people's drinking.

- In Finland and Norway, it has been argued that monopolies are effective means of enforcing minimum legal purchase and drinking age requirements [12], since state employees are integrally involved in off-premise sales.[1]
- Some research carried out in the United States has suggested a relationship between monopolies and reduced consumption, as well as reductions in heavy episodic drinking by young people [13, 14].

However, there are inconsistencies between these findings and the reality of young people's drinking at the international level.

- Findings from earlier versions of the European School Survey Project on Alcohol and Other Drugs (ESPAD) and other surveys of young people's drinking in Europe have typically shown higher rates of drunkenness among young people in those countries that rely on retail monopolies, likely related to general drinking patterns [15].
- Other research from the United States shows no impact of sales privatization on the number of heavy or problem drinkers among the general population [16].

Some research on the impact of retail monopolies has focused on models predicting the likely impact of changes, such as the easing of restrictions, on measures of consumption and harm.

Such modeling has included predictive studies of the impact of harmonization with EU laws in Nordic countries and the relaxation of sales restrictions in Canada and the United States.

- For example, it was estimated that privatization of alcohol sales in Canada [17] and Sweden [18] would lead to large increases in consumption (up to 27%) and result in significant social and economic harm. However, neither of these has come to pass.

Impact on indicators of alcohol-related harm

On balance, data do not show a direct relationship between alcohol retail monopolies and a decrease in drunk driving [19, 20]**.**

- However, a study from the U.S. has suggested lower consumption rates among young people in states with alcohol retail monopolies, as well as an association with lower incidents of alcohol-impaired driving and deaths among those below the legal drinking age of 21 years [21].

Licensing hours

In most countries where beverage alcohol is commercially available, some form of license is required for its sale and includes stipulations around the hours of sale. These stipulations apply to opening and closing hours for both on- and off-premise establishments.

A public health rationale is cited for the use of licensing restrictions to reduce consumption and harm.

Such measures are also used to alleviate pressure on public services, such as policing, emergency assistance, and public transport.

Impact on alcohol consumption

The association between opening hours at licensed establishments and alcohol consumption levels and/or indicators of harm has been researched where policy changes have taken place.

The most common area for such change is the introduction of the option for extended licensing hours, which allows establishments that wish to do so to apply for licenses that allow them longer hours of operation.

1 "Off-premise" refers to those retail outlets where alcohol beverages may be purchased for consumption elsewhere; "on-premise" refers to those establishments where beverage alcohol is sold and consumed on-site (as in restaurant, bars, taverns, or pubs).

The balance of the available evidence shows an inconsistent relationship between extending trading hours and levels of alcohol consumption.

However, a concentration of drinking has consistently been observed around closing time, wherever that may be set.

- In outlets where alcohol is consumed on-premise, drinking is often concentrated around closing time. When closing hours are extended, a shift has been observed in the concentration of drinking to coincide with the new closing time [22-25].
- While the evidence does not show an increase in the number of heavy and problem drinkers as a result of extended hours of sale [16], according to data from Australia, it appears that heavier drinkers may be more likely to use the extended hours than other drinkers [23].

Impact on indicators of alcohol-related harm

Alcohol-impaired driving

The impact of changes in licensing hours on the incidence of alcohol-impaired driving and alcohol-related road traffic crashes varies between countries.

For example:

- Following an extension of licensing hours in Iceland in 2000, an 80% increase in the number of suspected alcohol-impaired driving cases was reported [26].
- However, no such increase was observed when licensing hours were extended in Australia in 1993 [24, 25] or the United Kingdom (U.K.) in 2003 [22].
- In the Canadian province of Ontario, the extension of licensing hours in 1996 was followed by a general province-wide reduction in traffic fatalities [27].
- Various changes to licensing hours in the U.S. state of Texas showed reductions of alcohol-related accidents, particularly involving wine and beer, but an increase in spirits-related crashes [28].

These mixed results may be related in part to the implementation of other policy measures alongside any changes in licensing hours.

The extension of licensing hours has been reported to shift the incidence of road traffic crashes to the new closing times.

- Extended closing times have been related to a delayed concentration of traffic crashes, coinciding with the new hours [22, 24].
- Given the later hours at which crashes occur, they likely involve those who have consumed their last drinks at an outlet with an extended trading permit [25, 29].

The relationship between licensing hours and alcohol-impaired driving is complex and can lead to a range of outcomes, expected and unexpected, proximal and distal.

- Following the extension of hours of sale in the Canadian province of Ontario in 1996, overall traffic crashes fell across the province [27].
  - However, in the city of Windsor, Ontario, there was an observed increase in the number of accidents.
  - At the same time, there was a decrease in the number of crashes in neighboring Detroit (United States), located just across the border. Closing times had previously been later in Detroit, encouraging Canadians to cross the border once bars in Ontario had closed.

The results suggest that the concurrent decrease and increase in the U.S. and Canada, respectively, were the result of a shift in Canadian bar patrons who no longer needed to cross the border to drink.

Public order, assaults, and violence

Public order issues, assaults, and violence among patrons in licensed premises are among the main motivations for restricting licensing hours. Much of the resistance to extending licensing hours, for example, relates to concerns that such incidents might increase.

Country-level experience is mixed.

- The extension of service hours in Reykjavik, Iceland, in 1996 resulted in a reported increase in the number of police calls, fights, and emergency room admissions in the city center where outlets selling alcohol are concentrated [26].
- Later trading hours in Australia resulted in a reported increase in assault rates at outlets with extended licenses [24]. However, a follow-up study also reported increased assault rates in outlets without extended licenses [30], suggesting that other factors may also have been involved.
- This is at odds with a report by the U.K. Home Office following the extension of trading hours in England and Wales through the Licensing Act of 2003, indicating no change in overall levels of crime or emergency room admissions; a reduction in violent crimes was even reported [31].

Some research has also examined the impact of restricting licensing hours, but the evidence is not robust. For example:

- A report from Brazil indicates a significant reduction in homicides following the restriction on hours of sale [32]. However, several other measures coincided with

these changes—the implementation of a gun control law, increased efforts against drug trafficking, and more rigorous enforcement of closing times—which may have also impacted outcomes.

- A study on restricted trading hours in a small Aboriginal community in Australia showed a decline in per capita consumption and alcohol-related hospitalizations, but no change in criminal charges [33].

In light of the evidence, the interaction between changes in licensing hours and outcomes needs to be examined within the context of other factors that may contribute to the incidence of harm.

Day-of-sale restrictions

An often-utilized measure to restrict the availability of alcohol is the prohibition of sales on particular days of the week (e.g., Sundays, particular holidays, or election days). This measure has been implemented in countries around the world.

However, most studies on the impact of restrictions on days of sale have been carried out in Canada, the United Kingdom, the United States, and Sweden and have examined the liberalization of restrictions, such as the effect of lifting bans on alcohol sales on particular days of the week.

Impact on alcohol consumption

The impact of changes to policies regarding days of sale have been correlated with changes in alcohol sales, which are used as a proxy for alcohol consumption.

- An increase in alcohol sales has been reported when bans on alcohol sales on particular days of the week are lifted [34-36].
- According to some studies, the impact on lifting Sunday bans is particularly strong for beer [34, 36]. It has been suggested that this may be related to the concentration of sporting events on Sundays.

The lifting of restrictions on sales on particular days may have a greater impact on certain groups of drinkers. For example:

- A study carried out in Scotland following the opening of Sunday trading hours [37] showed no short-term impact on consumption. However, longer-term increases in consumption were observed among young males (18-25 years) and heavy drinkers. Moderate drinkers were not affected.
- An increase in drinking among females was reported in another Scottish study [38], although the authors point to other socioeconomic changes occurring at the same time as the Sunday ban was lifted that may have contributed to the outcomes.

Impact on indicators of alcohol-related harm

The impact of changes in the days on which alcohol may be sold has differed between countries.

- Data from Sweden indicate that the repeal of bans on Saturday openings in 2000 resulted in an increase in alcohol-impaired driving and positive blood alcohol tests among drivers [35, 39-41]. However, this policy change also coincided with more effective surveillance and enforcement of drunk driving, particularly in the vicinity of retail outlets. The joint implementation of these various measures may have skewed the results, with greater numbers of alcohol tests near retail outlets than prior to the repeal of the Saturday ban.
- A ban on Sunday alcohol sales and its subsequent repeal in the U.S. state of Georgia in 1992 provide an interesting case study regarding the impact of availability restrictions on drunk driving:
  - The implementation of a Sunday ban reportedly resulted in a reduction in drunk driving infractions on all days of the week, particularly on Sundays [42].
  - However, subsequent removal of the ban showed no statistically significant increase in drunk driving on any day of the week [43].

Outlet density

Many jurisdictions impose zoning restrictions on the number of on- or off-premise establishments or prohibit alcohol sales near schools or other public institutions and venues.

Research on the relationship between outlet density and alcohol consumption and harm is generally derived from correlations, not from studies conducted on actual policy changes.

Impact on alcohol consumption

Most of the available evidence regarding the impact of outlet densities has been derived from U.S. data. The results of these studies indicate the following:

- The density of retail outlets is higher in economically disadvantaged areas than in more affluent areas [39, 40, 44-46].
- Alcohol consumption, on the other hand, is highest in more affluent areas [44, 47], where retail outlet density is lower. Here, social norms are also more likely to be accepting of drinking.
- It has been suggested that outlet density is directly related to demand for alcohol [48]. However, the

inverse relationship between outlet density and consumption, cited above, would appear to directly contradict this claim.

- While outlet density does not correlate with the number of drinkers in a particular area, it has been related to heavy drinking [40, 49].
- Higher densities of on-premise outlets have been correlated with drunkenness and heavy drinking [50]. However, it cannot be ruled out that heavy drinkers may self-select to certain types of outlets. In Canada, for example, bars and pubs are more likely to be associated with young, unmarried men of lower socioeconomic status, while older, more educated, and more affluent women are more likely to frequent restaurants [51].

Impact on indicators of alcohol-related harm

Alcohol-impaired driving

Data on the effect of outlet density on alcohol-impaired driving are mixed.

- Evidence from the United States suggests that greater availability of beverage alcohol (as a function of outlet density) is correlated with increases in traffic crashes [52, 53].
- However, some studies show increases in traffic crashes following decreases in outlet density [54].
- Traffic crashes were usually positively associated with bars and off-premise outlets, while a negative relationship has been shown with restaurants [53, 55].

It has been suggested that the relationship may have less to do with the actual density of outlets than with self-selection of patrons to those types of outlets that are usually found in high-density areas.

Public order, assaults, and violence

An association has also been described between retail outlet density (on- and off-premise) and assaults and violence [56-59].

- The highest levels of assaults and violence found in U.S. studies were reported in densely populated poor minority urban areas [58-60]. These are also the areas with highest outlet concentrations.

It is, therefore, important to also consider the range of social and economic factors in these areas that play a clear and important role in violence.

Some studies have attempted to examine relationships between outlet density and harm such as child abuse or childhood injury and mortality [54].

- Higher rates of childhood accidents, assaults, and child abuse injuries have been reported where the density of off-premise outlets is higher [61], suggesting a relationship between outlet density and assault injuries.

However, child abuse, childhood accidents, and assault injuries are also related to other factors that include higher rates of poverty and higher density of vacant housing. All of these also tend to occur in the same urban areas where retail outlet density is high.

- A study conducted in Australia suggests that there may exist a threshold below which density has no effect on assaults and above which there is a sharp increase [57]. This association may be strongest for the densities of pubs, taverns, and similar drinking establishments [56, 57].

Are There Unintended Outcomes?

Restrictions on the physical availability of alcohol are associated with a range of unintended or unplanned outcomes [62].

Not all unintended outcomes are harmful, but some may be associated with problems.

The potential for harm associated with unintended outcomes needs to be weighed against any potential benefits of the implementation of controls.

Where policies regarding the availability of beverage alcohol vary between jurisdictions, a shift in consumption and trade may occur from the more restrictive to the less restrictive jurisdiction.

- The Nordic countries of Europe, where alcohol controls include monopolies on sales, as well as high alcohol taxation and pricing policies, have witnessed significant cross-border trade with neighboring countries where policies are less severe (and where prices are lower) [63, 64].

Shifts in trade and consumption may also be accompanied by a complex shift in alcohol-related problems.

- For example, the extension of licensing hours in the Canadian province of Ontario had an impact on the incidence of alcohol-related traffic crashes locally, as well as across the border in the United States [27].

Where the physical availability of alcohol is severely restricted, the result may be a growth in the illicit alcohol market and organized crime.

- Alcohol availability restrictions during the Gorbachev era in the Soviet Union of the 1980s resulted in a sharp increase in illegal production and cross-border smuggling [65-67].

- An extreme example is offered by the historical case of prohibition in the United States between 1920 and 1933, where the production and sale of illicit alcohol was closely linked with criminal activity and organized crime.
- In 2004, Finland relaxed some of its restrictive policies around alcohol, in part in an effort to preempt the emergence of a grey market [64].
- Complete prohibition of the sale and consumption of beverage alcohol—for example, in Islamic countries—has also generated illicit trade from neighboring countries where alcohol is legally available [1].

Loss of revenue to jurisdictions where restrictions on alcohol are less severe has an impact on the retail and hospitality sectors.

The threat of lost jobs and revenue were among the considerations underlying Finland's decision to relax its alcohol policies in 2004 [64].

What Are the Limitations?

Unregulated market

In those markets where much of the beverage alcohol consumed is not commercially produced and therefore outside the remit of government regulation, policies limiting the physical availability of alcohol have little impact.

- Noncommercial alcohol makes up a significant proportion of alcohol consumed around the world. Estimates vary. For developing countries, unrecorded alcohol may account for two-thirds (on the Indian subcontinent) to 90% (in east Africa) of total alcohol consumption [1].
- Evidence shows quite clearly that, where commercial products are largely inaccessible because of physical or economic restrictions, noncommercial products are a popular alternative. This has been demonstrated both in developed and in developing countries.
- In some parts of the world, restricted access to commercial beverage alcohol has resulted in a shift to the consumption of surrogate, non-potable alcohol, giving rise to serious public health concerns [68].

Transferability of research findings

It is questionable whether much of the evidence on the impact of physical restrictions on beverage alcohol availability can be transferred across countries.

- Much of the evidence is derived from Australia, Canada, New Zealand, the United States, and the countries of northern Europe. These countries have particular drinking cultures and relationships with alcohol not found elsewhere.
- For example, work on the correlation between outlet density and drunk driving, assaults, and violence has been carried out primarily in the United States, particularly in large U.S. cities with high rates of poverty, crime, violence, racial tension, unemployment, social marginalization, law enforcement issues, and other specific social and economic conditions [52, 58-60, 69]. The results of this work may not be applicable where conditions are different.

Popular support

Restrictions on the availability of beverage alcohol have been challenged by changing public views on government control and consumers' increased demand for choice.

- In the late 1980s, restrictive laws for restaurants began to change in Sweden and other Nordic countries, bringing with them demand for liberalization and greater access to beverage alcohol [70].
- Surveys among consumers in Ontario, Canada, on alcohol policies show a trend favoring relaxation of controls, particularly among male drinkers [71].
- Evidence shows that public support for government alcohol control policies in some countries is high, while in others it is quite low [72].

Implementation

A final limitation to the impact of controls over the availability of alcohol is in their implementation [62].

- Physical restrictions require legislation or regulation to enact measures related to alcohol availability; where such legislation does not exist, it needs to be put into place.
- Controlling the availability of beverage alcohol relies heavily on enforcement of regulations and the application of penalties for breaches of restrictions. This poses difficulties in countries where there is little institutional will to implement controls or where corruption may be widespread.
- Enforcement requires not only the involvement of police, but of border and customs officials to oversee any cross-border traffic issues.

References

1. World Health Organization (WHO). (2004). *Global status report on alcohol.* Geneva, Switzerland: Author. See also: World Health Organization (WHO). (2004). *Global status report on alcohol policy*. Geneva, Switzerland: Author.
2. International Center for Alcohol Policies (ICAP). (2008). Taxation of beverage alcohol. *ICAP Issues Briefings*. Washington, DC: Author.
3. Babor, T. F., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., et al. (2003). *Alcohol: No ordinary commodity. Research and public policy*. Oxford, U.K.: Oxford University Press.
4. Stimson, G. V., Grant, M., Choquet, M., & Garrison, P. (Eds.). (2007). *Drinking in context: Patterns, interventions, and partnerships.* New York: Routledge.
5. Systembolaget (Swedish Alcohol Retail Monopoly). (2007). *Shops and hours.* Available: http://www.systembolaget.se/ButikerOppettider/.
6. Adrian, M., Ferguson, B.S., & Her, M. (1996). Does allowing the sale of wine in Quebec grocery stores increase consumption? *Journal of Studies on Alcohol*, *57*, 434–448.
7. Trolldal, B. (2005). Availability and sales of alcohol in four Canadian provinces: A time-series analysis. *Contemporary Drug Problems*, *32*, 343–372.
8. Trolldal, B. (2005). The privatization of wine sales in Quebec in 1978 and 1983 to 1984. *Alcoholism: Clinical and Experimental Research*, *29*, 410–416.
9. Wagenaar, A., & Holder, H. D. (1995). Changes in alcohol consumption resulting from the elimination of retail wine monopolies: Results from five U.S. states. *Journal of Studies on Alcohol*, *56*, 566–572.
10. MacDonald, S. (1986). The impact of increased availability of wine in grocery stores on consumption: Four case histories. *British Journal of Addiction*, *81*, 381–387.
11. Wagenaar, A., & Holder, H. D. (1991). A change from public to private sale of wine: Results from natural experiments in Iowa and West Virginia. *Journal of Studies on Alcohol*, *52*, 162–173.
12. Rossow, I., Karlsson, T, & Raitasalo, K. (2008). Old enough for a beer? Compliance with minimum legal age for alcohol purchases in monopoly and other off-premise outlets in Finland and Norway. *Addiction*, *103*,1468–1473.
13. Miller, T., Snowden, C., Brickmayer, J., & Hendrie, D. (2006). Retail alcohol monopolies, underage drinking, and youth impaired driving deaths. *Accident Analysis & Prevention*, *38*, 1162–1167.
14. Nelson, J. P. (2008). How similar are youth and adult alcohol behaviors? Panel results for excise taxes and outlet density. *Atlantic Economic Journal*, *36*, 89–104.
15. Andersson, B., Hibell, B., Beck, F., Choquet, M., Kokkevi, A., Fotiou, A., et al. (2007). *Alcohol and drug use among European 17-18 year old students: Data from the ESPAD project.* Stockholm: Swedish Council for Information on Alcohol and Other Drugs (CAN) & Pompidou Group at the Council of Europe.
16. Fitzgerald, J. L., & Mulford, H. A. (1992). Consequences of increasing alcohol availability: The Iowa experience revisited. *British Journal of Addiction*, *87*, 267–274.
17. Her, M., Giesbrecht, N., Room, R., & Rehm, J. (1998). Implications of privatizing/deregulating alcohol retail sales: Projections of alcohol consumption in Ontario. *Journal of Substance Abuse*, *10*, 355–373.
18. Andreasson, S., Holder, H. D., Norström, T., Österberg, E.,& Rossow, I. (2006). Estimates of harm associated with changes in Swedish alcohol policy: Results from past and present estimates. *Addiction*, *101*, 1096–1105.
19. Trolldal, B. (2005). An investigation of the effect of privatization of retail sales of alcohol on consumption and traffic accidents in Alberta, Canada. *Addiction*, *100*, 662–671.
20. Powers, E. L., & Wilson, J. K. (2004). Access denied: The relationship between alcohol prohibition and driving under the influence. *Sociological Inquiry*, *74*, 318–337.
21. Miller, T., Snowden, C., Brickmayer, J., & Hendrie, D. (2006). Retail alcohol monopolies, underage drinking, and youth impaired driving deaths. *Accident Analysis & Prevention*, *38*, 1162–1167.
22. Bruce, D. (1980). Changes in Scottish drinking habits and behaviour following the extension of permitted evening opening hours. *Health Bulletin*, *38*, 133–137.
23. McLaughlin, K., & Harrison-Stewart, A. (1988). *Evaluation study of the relaxation of alcohol licensing laws for the defence of the America's Cup.* Perth, Australia: Western Australian Alcohol and Drug Authority.
24. Chikritzhs, T., Stockwell, T., & Masters, L. (1997). *Evaluation of the public health and safety impact of extended trading permits for Perth hotels and night-clubs*. Perth, Australia: National Centre for Research into the Prevention of Drug Abuse.
25. Chikritzhs, T., & Stockwell, T. (2006). The impact of later trading hours for hotels on levels of impaired driver road crashes and driver breath alcohol levels. *Addiction*, *101*, 1254–1264.
26. Ragnarsdottir, P., Kjartansdottir, A., & Daviosdottir, S. (2002). Effect of extended alcohol serving-hours in Reykjavik. In R. Room (Ed.), *Effects of Nordic alcohol policies: What happens to drinking and harm when alcohol controls change?* (pp. 145–154). Helsinki, Finland: Nordic Council for Alcohol and Drug Research (NAD).
27. Vingilis, E., McLeod, A. I., Seeley, J., Mann, R. E., Beirness, D., & Compton, C. P. (2005). Road safety impact of extended drinking hours in Ontario. *Accident Analysis and Prevention*, *37*, 549–556.
28. Baughman, R., Conlin, M., Dickert-Conlin, S., & Pepper, J. (2001). Slippery when wet: The effects of local alcohol access laws on highway safety. *Journal of Health Economics*, *20*, 1089–1096.
29. Chikritzhs, T., & Stockwell, T. (2007). The impact of later trading hours for hotels (public houses) on breath alcohol levels of apprehended impaired drivers. *Addiction*, *102*, 1609–1617.
30. Chikritzhs, T., & Stockwell, T. (2002). The impact of later trading hours for Australian public houses (hotels) on levels of violence. *Journal for Studies on Alcohol*, *63*, 591–599.
31. Hough, M., Hunter, G., Jacobson, J., & Cossalter, S.(2008). *The impact of the Licensing Act 2003 on levels of crime and disorder: An evaluation.* Research Report 4. London: Home Office.
32. Duailibi, S., Ponicki, W., Grube, J., Pinsky, I., Laranjeira, R., & Raw, M. (2007). The effect of restricting opening hours on alcohol-related violence. *American Journal of Public Health*, *97*, 2276–2280.
33. Douglas, M. (1998). Restriction of the hours of sale of alcohol in a small community: A beneficial impact. *Australian and New Zealand Journal of Public Health*, *22*, 714–719.
34. Norström, T., & Skog, O. J. (2003). Saturday opening of alcohol retail shops in Sweden: An impact analysis. *Journal of Studies on Alcohol*, *64*, 393–401.
35. Norström, T., & Skog, O. J. (2005). Saturday opening of alcohol retail shops in Sweden: An experiment in two phases. *Addiction*, *100*, 767–776.
36. Stehr, M. (2007). The effect of Sunday sales bans and excise taxes on drinking and cross-border shopping for alcoholic beverages. *National Tax Journal*, *60*, 85–105.

37. Knight, I., & Wilson, P. (1980). *Scottish licensing laws: A survey carried out on behalf of the Scottish Home and Health Department*. London: Office of Population Census and Surveys, Social Survey Division.

38. Goddard, E. (1986). *Drinking and attitudes to licensing in Scotland.* London: Office of Population Census and Surveys, Social Survey Division.

39. Scribner, R. A., Theall, K. P., Ghosh-Dastidar, B., Mason, K., Cohen, D. A., & Simonsen, N. (2007). Determinants of social capital indicators at the neighborhood level: A longitudinal analysis of loss of off-sale alcohol outlets and voting. *Journal of Studies on Alcohol and Drugs*, *68*, 934–943.

40. Scribner, R. A., Cohen, D. A., & Fisher, W. (2000). Evidence of a structural effect for alcohol outlet density: A multilevel analysis. *Alcoholism: Clinical and Experimental Research*, *24*, 188–195.

41. Norström, T., & Skog, O. J. (2003). Saturday opening of alcohol retail shops in Sweden: An impact analysis. *Journal of Studies on Alcohol*, *64*, 393–401.

42. Ligon, J., & Thyer, B. A. (1993). The effects of a Sunday liquor sales ban on DUI arrests. *Journal of Alcohol and Drug Education*, *38*, 33–40.

43. Ligon, J., Thyer, B. A., & Lund, R. (1996). Drinking, eating, and driving: Evaluating the effects of partially removing a Sunday liquor ban. *Journal of Alcohol and Drug Education*, *42*, 15–24.

44. Pollack, C. E., Cubbin, C., Ahn, D., & Winkleby, M. (2005). Neighbourhood deprivation and alcohol consumption: Does availability of alcohol play a role? *International Journal of Epidemiology*, *34*, 772–780.

45. Truong, K. D., & Sturm, R. (2009). Alcohol environments and disparities in exposure associated with adolescent drinking in California. *American Journal of Public Health*, *99*, 264–270.

46. Huckle, T., Huakau, J., Sweetsur, P., Huisman, O., & Casswell, S. (2008). *Density of alcohol outlets and teenage drinking: Living in an alcogenic environment is associated with higher consumption in a metropolitan setting. Addiction*, *103*, 1614–1621.

47. Livingston, M., Laslett, A. M., & Dietze, P. (2008). Individual and community correlates of young people's high-risk drinking in Victoria, Australia. *Drug and Alcohol Dependence*, *98*, 241–248.

48. Gruenewald, P. J., Madden, P., & Janes, K. (1992). Alcohol availability and the formal power and resources of state alcohol beverage control agencies. *Alcoholism: Clinical and Experimental Research*, *16*, 591–597.

49. Schonlau, M., Scribner, R. A., Farley, T. A., Theall, K. P., Bluthenthal, R. N., Scott, M., et al. (2008). Alcohol outlet density and alcohol consumption in Los Angeles county and southern Louisiana. *Geospatial Health*, *3*, 91–101.

50. Scribner, R. A., Mason, K., Theall, K. P., Simonsen, N., Kessel Schneider, S., Gomberg Towvim, L., et al. (2008). The contextual role of alcohol outlet density in college drinking. *Journal of Studies on Alcohol and Drugs*, *69*, 112–120.

51. Single, E., & Wortley, S. (1993). Drinking in various settings as it relates to demographic variables and level of consumption: Findings from a national survey in Canada. *Journal of Studies on Alcohol*, *54*, 590–599.

52. Gruenewald, P. J., & Ponicki, W. R. (1995). The relationship of the retail availability of alcohol and alcohol sales to alcohol-related traffic crashes. *Accident Analysis and Prevention*, *27*, 249–259.

53. Treno, A. J., Johnson, F. W., Remer, L., & Gruenewald, P. J. (2007). The impact of outlet densities on alcohol-related crashes: A spatial panel approach. *Accident Analysis and Prevention*, *39*, 894–901.

54. Chikritzhs, T., Catalano, P., Pascal, R., & Henrickson, N. (2007). *Predicting alcohol-related harms from licensed outlet density: A feasibility study*. NDLERF Monograph Series 28. Hobart, Tasmania: National Drug Law Enforcement Research Fund (NDLERF).

55. Stockwell, T., & Gruenewald, P. (2004). Controls on physical availability of alcohol. In N. Heather & T. Stockwell (Eds.), *The essential handbook of treatment and prevention of alcohol problems* (pp. 213–233). New York: John Wiley and Sons.

56. Livingston, M. (2008). A longitudinal analysis of alcohol outlet density and assault. *Alcoholism: Clinical and Experimental Research*, *32*, 1074–1079.

57. Livingston, M. (2008). Alcohol outlet density and assault: A spatial analysis. *Addiction*, *103*, 619–628.

58. Gruenewald, P., Freisthler, B., Remer, L., LaScala, E. A., & Treno, A. (2006). Ecological models of alcohol outlets and violent assaults: Crime potentials and geospatial analysis. *Addiction*, *101*, 666–677.

59. Grunewald, P., & Remer, L. (2006). Changes in outlet densities affect violence rates. *Alcoholism: Clinical and Experimental Research*, *30*, 1184–1193.

60. McKinney, C. M., Caetano, R., Harris, T. R., & Ebama, M. S. (2009). Alcohol availability and intimate partner violence among U.S. couples. *Alcoholism: Clinical and Experimental Research*, *33*, 169–176.

61. Freisthler, B., Grunewald, P., Ring, L., & LaScala, E. A.(2008). An ecological assessment of the population and environmental correlates of childhood accident, assault, and child abuse injuries. *Alcoholism: Clinical and Experimental Research*, *32*, 1969–1675.

62. Stimson, G. V., Grant, M., Choquet, M., & Garrison, P. (Eds.). (2007). *Drinking in context: Patterns, interventions, and partnerships*. New York: Routledge.

63. Mäkelä, P., Bloomfield, K., Gustafsson, N.-K., Huhtanen, P., & Room, R. (2008). Changes in volume of drinking after changes in alcohol taxes and travellers' allowances: Results from a panel study. *Addiction*, *103*, 181–191.

64. Mäkelä, P., & Österberg, E. (2009). Weakening of one more alcohol control pillar: A review of the effects of the alcohol tax cuts in Finland in 2004. *Addiction*, *104*, 554-563.

65. Loukomskaia, M. I. (1997). Recent alcohol policies in Russia. *Alcologia*, *9*, 37–42.

66. McKee, M. (1999). Alcohol in Russia. *Alcohol and Alcoholism*, *34*, 824–829.

67. Partanen, J. (1993). Failures in alcohol policy: Lessons from Russia, Kenya, Truk and history. *Addiction*, *88*(Suppl.), 129S–134S.

68. Adelekan, M., Razvodovsky, Yu. E., & Liyanage, U. (2008). *Noncommercial alcohol in three regions*. ICAP Reviews 3. Washington, DC: International Center for Alcohol Policies.

69. Freisthler, B., & Weiss, R. E., (2008). Using Bayesian space-time models to understand the substance use environment and risk for being referred to child protective services. *Substance Use and Misuse*, *43*, 239–251.

70. Abrahamson, M. (1999). *Alkoholkontroll I brytningstid – ett kultursociologiskt perspektiv [Alcohol control in a time of change – a cultural sociological perspective].* Stockholm: Institute for Social Work, University of Stockholm.

71. Giesbrecht, N., Ialomiteanu, A., Anglin, L., & Adlaf, N. (2007). Alcohol marketing and retailing: Public opinion and recent policy development in Canada. *Journal of Substance Use*, *12*, 389–404.

72. Hemström, Ö. (2002). Attitudes towards alcohol policy in six EU countries. *Contemporary Drug Problems*, *29*, 605–618.

International Center for Alcohol Policies
Analysis. Balance. Partnership.

1519 New Hampshire Avenue, NW
Washington, DC 20036 USA

Tel: +1.202.986.1159
Fax: +1.202.986.2080

www.icap.org

© International Center for Alcohol Policies, 2009

International Center for Alcohol Policies (ICAP) is a not-for-profit organization whose mission is to promote the understanding of the role of alcohol in society through dialogue and partnerships involving the beverage alcohol industry, the public health community, and others interested in alcohol policy, and to help reduce the abuse of alcohol worldwide. ICAP is supported by major international producers of beverage alcohol.