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# WHAT ARE THE OPTIONS?
# Pricing and taxation policy reforms to redress excessive alcohol consumption and related harms in Australia

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**NSW Bureau of Crime Statistics and Research**

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# ABSTRACT

Increasing community and political concern about excessive alcohol consumption and related harms in Australia has prompted calls for the introduction of tighter regulatory controls. From an evidence-based, research perspective, measures which increase alcohol prices and taxes, in particular, are considered most effective for reducing alcohol consumption and related harms. Accordingly, this report presents a review of pricing and taxation policy levers that have been considered and/or implemented nationally and internationally. These policies include: alcohol taxation and differential price by beverage; special/additional taxation on alcopops; minimum pricing; and bans on price discounts and promotions. Industry response to these policy initiatives is discussed, in addition to the role of public opinion in policy-making, and the issue of substitution and complementarity with other drugs. This review is designed to inform policymakers of useful taxation and pricing policy levers to redress alcohol-related harm in the Australian community. We conclude that each policy holds some promise, and it appears that they would be more successful when used in combination than as individual uncoordinated strategies.

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# CONTENTS

# INTRODUCTION

Alcohol has played an integral role in the social and cultural fabric of Australian society since the early days of colonisation (Ministerial Council on Drug Strategy, 2001; Midford, 2005). For Australians, alcohol is associated with celebrations, religious and cultural ceremonies, social and business events, as well as recreational activities. In 2009-10, Australia's apparent per capita consumption of pure alcohol was 10.4 litres (Australian Bureau of Statistics, 2011a). Heavy alcohol consumption is a major risk factor for burden of disease, contributing to violence, chronic diseases, and mental disorders beyond alcohol use disorder.

In 2003, for instance, alcohol consumption accounted for 3.2 per cent of the total burden of disease and injury in Australia (Begg et al., 2007). The estimated social cost of alcohol misuse to Australian society stood at $15.3 billion in 2004-05 (Collins & Lapsley, 2008). Laslett et al. (2011) found that 70 per cent of Australians queried in a national survey indicated that they were affected by others' drinking and experienced nuisance, fear or abuse; 28 per cent reported negative effects from the drinking of someone close to them. Indeed, if one takes account of the alcohol costs imposed on others around the drinker (costs not considered by Collins and Lapsley), heavy drinkers cost others over $13 billion in out-of-pocket expenses, forgone wages or productivity. Hospital and child protection costs incur a further $765 million, and intangible costs are estimated to be at least $6 billion (Laslett et al., 2010). Against this background, alcohol misuse was recently flagged as a critical health prevention priority by the National Preventative Health Taskforce (2009).

Healthy living guidelines regarding alcohol consumption vary markedly according to national context and time. In Australia, healthy adults are advised to consume no more than two standard drinks on any day to reduce their lifetime risk of harm from alcohol-related disease or injury. Furthermore, they are recommended to drink no more than four standard drinks on a single occasion to reduce the risk of alcohol-related injury arising from that occasion (National Health and Medical Research Council, 2009). Of significant public health concern, one in five Australians consume alcohol at levels which put them at risk of harm from alcohol-related disease or injury over their lifetime. Furthermore, two in five adults drink alcohol (at least once in the last year) in a pattern that places them at risk of an alcohol-related injury from a single drinking occasion (Australian Institute of Health and Welfare, 2011).

Over the past decade, there have been growing public health concerns particularly regarding excessive drinking among young people (Jones & Lynch, 2007a). Findings from the 2007 National Survey of Mental Health and Wellbeing indicate that 11.1 per cent of young Australians (aged 18 to 24 years) met diagnostic criteria for a past-year DSM-IV alcohol use disorder. Moreover, risky[2] levels of alcohol consumption were observed, with 60 per cent of these young adults consuming five or more drinks per day at least once a week; this was also accompanied by high rates of co-occurring DSM-IV mental disorders and disability (Mewton, Teesson, Slade & Grove, 2011).

Amid concerns of a 'binge drinking epidemic'[3] among young Australians, legislative measures which aim to reduce alcohol consumption and related harms have become increasingly prominent on federal and state government policy agendas (Livingston et al., 2010). In March 2008 the Rudd Government announced a $53.5 million

National Binge Drinking Campaign primarily targeting teenagers and young adults. The campaign, which ran from 21st November 2008 to 30th June 2010, included a $20 million social marketing campaign and $19.1 million to fund early intervention and diversion programs[4]. The Rudd Government also increased the tax applied to premixed drinks or alcopops, discussed in more detail below. At state level, alcohol restrictions on large wine casks targeting indigenous heavy drinkers have been introduced in the Northern Territory and Western Australia.

From the repertoire of policies that have been implemented and evaluated both nationally and internationally, those which increase alcohol prices and taxes are considered to be most effective in reducing alcohol consumption and related harms (Anderson, Chisholm, & Fuhr, 2009; Babor et al., 2010; Toumbourou et al., 2007; Wagenaar, Salois, & Komro, 2009). At the heart of the effectiveness of such policies is the consistent finding that population level alcohol consumption is inversely related to alcohol prices (Babor et al., 2010; National Institute for Health and Clinical Excellence, 2010; Purshouse, Meier, Brennan, Taylor, & Rafia, 2010; World Health Organization, 2009a), although, the price of alcohol needs to increase at least at the rate of inflation to impact on consumption (World Health Organization, 2004).

More specifically, economists measure the way people respond to price changes with 'own price elasticity of demand', defined as the percentage change in the quantity consumed that results from a 1 per cent change in price. The own price elasticity of demand depends on the availability of substitute products (Fogarty, 2010). Two recent systematic reviews suggest that a 10 per cent increase in the price of alcohol is associated with a 5 per cent decline in overall consumption. Hence, demand for alcohol is relatively price inelastic, indicating that it has relatively few substitute products (Gallet, 2007; Wagenaar et al., 2009). Demand for particular alcohol beverages also appears to be relatively inelastic, although demand for beer is more inelastic than demand for wine or spirits (Elder et al., 2010; Fogarty, 2010; Gallet, 2007; Wagenaar et al., 2009). One review estimated mean own price elasticities of -0.46 for beer, -0.69 for wine, and -0.80 for spirits (Wagenaar et al., 2009) while another reported median elasticities of -0.36 for beer, -0.70 for wine, and -0.68 for spirits (Gallet, 2007). In terms of the mean elasticity for beer, for instance, an elasticity of -0.46 means that for every 10 per cent increase in the price of beer, consumption would fall by 4.6 per cent.

The aim in presenting these summary elasticities for alcoholic beverages is not to give the impression that price responsiveness is somehow an inherent feature of the beverage. Rather, it varies with *"groups, situations and times"* and reflects *"particular meanings and uses of alcoholic beverages across diverse social and cultural environments"* (Wagenaar et al., 2009: 189). While it might seem *"intuitively appealing"* for price responsiveness to differ from country to country, Rabinovich et al. (2009: 37) conclude that there is insufficient evidence to draw conclusions about international differences. Gallet (2007) reports that younger people are less responsive than older people to price changes and Wagenaar et al. (2009) find that heavy drinkers are price responsive.

Given the well-established associations between population level and individual level alcohol consumption and morbidity and mortality, it is perhaps unsurprising, but still of some significance, to find that a range of studies have shown that alcohol prices and taxes are significantly and inversely related to indicators of alcohol-related disease and injury (Elder et al., 2010; Wagenaar, Tobler, & Komro, 2010). According to one of the meta-analyses, doubling the alcohol tax in the USA would reduce alcohol-related mortality by an average of 35 per cent, traffic crashes by 11 per cent, sexually transmitted diseases by 6 per cent, violence by 2 per cent, and crime by 1.4 per cent (Wagenaar et al., 2010).

Young people and heavy drinkers respond to increases in alcohol prices (Chaloupka, Grossman, & Saffer, 2002; Kuo, & Heeb, Gmel, & Rehm, 2003a; Skov, 2009; World Health Organization, 2009b; Wagenaar et al., 2009), although young people may be less responsive than older people (Gallet, 2007). In light of the public health significance of targeting excessive alcohol consumption, particularly among young adults, and amid recent calls for Australian alcohol policy reform (Hall & Chikritzhs, 2011; National Preventative Health Taskforce, 2009), this report provides a timely overview of the pricing and taxation policies available to government.

The report will evaluate the pricing and taxation policies outlined in Babor et al.'s (2010) strategy and intervention framework, drawing on cases where these policies have been implemented or considered nationally and internationally. The policies considered include: *(i)* taxation and differential price by beverages; *(ii)* special/ additional taxation - alcopops tax; *(iii)* minimum pricing of alcohol; and, *(iv)* a ban on price discounts and promotions. Industry responses will be noted where possible. The report will conclude with a succinct summary of each policy (including implications for Australian policy reform efforts), a review of the role of public opinion in policy formulation, and a discussion of substitution and complementarity with other drugs.

The information presented in this report was derived from the scientific literature as well as grey literature which comprises government reports, media releases and related websites in order to reflect the most up-to-date policy proposals and developments. The review process for this report was not a systematic review in the technical sense that all the available evidence on the alcohol taxation and pricing policies listed above was examined. Rather, this review offers a compendium of the national and international literature, summarising the key research in the field to inform policy-makers of taxation and pricing pathways to reduce alcohol-related harm. As detailed below, a careful search of key databases was undertaken, with no restrictions placed on publication date.

For the alcohol taxation section, the following methods were employed:

- A literature search was conducted in PubMed, Science Direct, and PsycINFO using the keywords *"alcohol"* AND "*tax", "alcohol"* AND *"taxation"*, *"alcohol"* AND *"pric*".*
- A web search was conducted to retrieve submissions by the Distilled Spirits Industry Council of Australia relating to alcohol taxation.
- Reference lists from obtained articles and review papers were scanned to identify potentially relevant citations.

For the special tax on alcopops section, the following methods were employed:

- A literature search of PubMed, Science Direct, PsycINFO, and the Euromonitor International database was conducted using the search terms *"alcopops", "ready-to-drink", "alcopops"* AND *"tax".*
- The Australian Bureau of Statistics website was searched to retrieve yearly reports on patterns of national levels of alcopops consumption.
- A web search was conducted to retrieve submissions by the Distilled Spirits Industry Council of Australia relating to alcopops.
- Reference lists from obtained articles and review papers were scanned to identify potentially relevant papers.

For the minimum pricing of alcohol section, the following methods were employed:

– A search was performed in PsycINFO, PubMed, Factiva, Google News, Google, BBC News, the UK House of Commons Library, and each of the websites relating to the UK's four devolved Assemblies to retrieve relevant papers, media releases and government reports. The keywords included: *"floor price" AND "alcohol", "minimum pric*" AND "alcohol", "minimum floor price".* Much of the campaign for minimum pricing has been based in the UK, which gathered pace following the re-election of the Scottish National Party in April 2011; to facilitate updates that reflected the most current developments electronic news alerts were set up through Google News using these same keywords.
– A literature search of the RAND Corporation website was undertaken using the same keywords and the reference lists of the relevant publications derived were scanned to identify potentially relevant papers.

For the bans on promotions and discounts section, the following methods were employed:

– Guidelines for alcohol promotions in each state and territory were identified through a search of government websites.
– Personal communication with the relevant licensing commission in each state and territory was undertaken to seek further information on the implementation of the guidelines in practice and establish whether or not the guidelines are enforceable and mandatory.

## NOTES ON TERMINOLOGY

### Standard drink

In the UK, a standard drink contains 8 grams of alcohol (10ml), whilst in Australia a standard drink comprises 10 grams of alcohol (about 12.7ml). While useful devices for linking price and taxation with consumption and public health, it should be stressed that these definitions of a standard drink are rules of thumb used by researchers and in health promotion pamphlets. Numerous studies have shown in Australia and elsewhere that people pour and consume in much larger units of ethanol (Stockwell, Zhao, Chikritzhs, & Greenfield, 2008).

### Off-trade

Off-trade refers to outlets (e.g., supermarkets, independent shops such as grocers) which sell alcohol to the public for consumption off the premises. In Australia, the terms off-trade, off-sales, off-premise, and bottleshops are used interchangeably; in the UK the equivalent term is off-licence(d). Throughout the report, all terms denoting off-trade sales of alcohol will be used interchangeably.

### On-trade

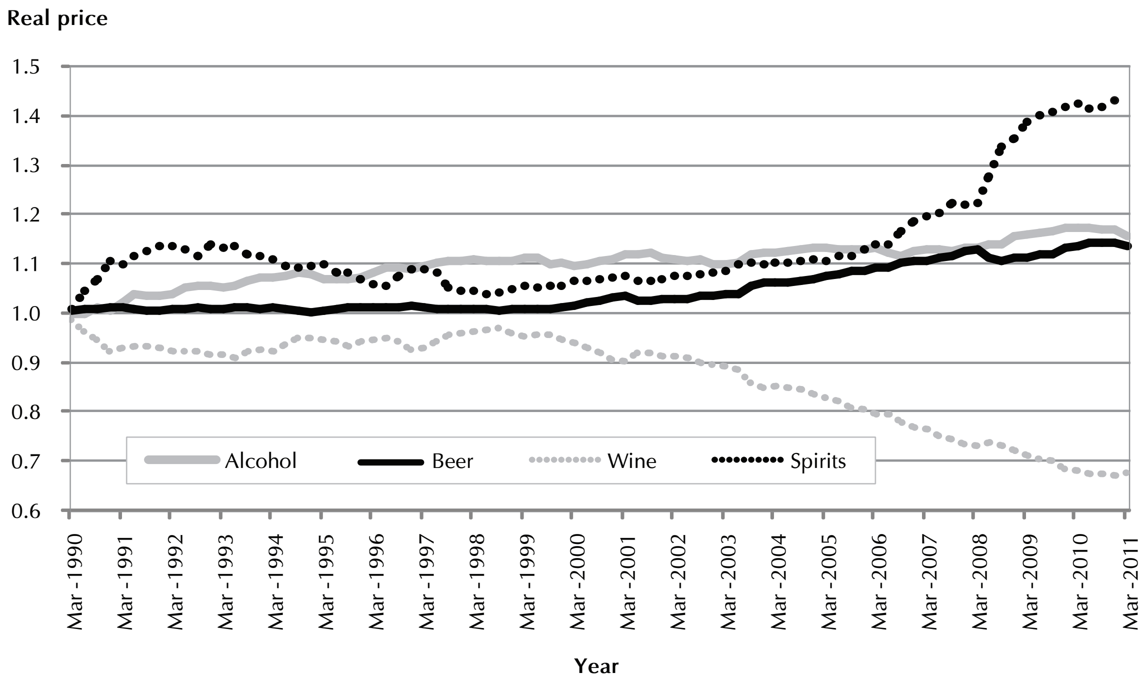
On-trade refers to establishments (i.e., pubs, restaurants, hotels, and clubs) where alcohol must be consumed on the premises, though most can also sell alcohol to be consumed off the premises. In Australia, the terms on-trade, on-sales, and on-premise are used interchangeably; in the UK the equivalent term is licensed. Throughout the report, all terms denoting on-trade sales of alcohol will be used interchangeably.

# ALCOHOL PRICES AND AFFORDABILITY

Before reviewing each of the taxation and pricing policies, it is worthwhile discussing alcohol affordability, which takes into account income as well as price. Consumption of alcohol - and beer, wine and spirits individually - increases when income rises and decreases when income falls (Fogarty, 2010). Although most research in this area focuses on price, some recent research has paid attention to affordability (Rabinovich et al., 2009) and some studies have shown that price effects can be mediated by income (Booth et al., 2008).

Relative to consumer items in general, the price of alcohol has increased gradually over the last two decades (see Figure 1). Australia's Consumer Price Index (CPI) measures changes in the price of a fixed basket of goods and services typically purchased by Australian households. The alcohol products in this basket include a range of beer, wine and spirits products typically bought in bottle shops and bars, clubs and restaurants. In 2005, based on household expenditure shares for each of the beverages, beer prices contributed 44 per cent to the alcohol price index, wine prices 36 per cent and spirits 20 per cent (Australian Bureau of Statistics, 2005). Figure 1 displays the price indexes of alcohol products compared with the CPI. Since 1990, alcohol prices have increased 16 per cent more than has the CPI; but that is not the case for all alcoholic beverages. Whereas spirits (particularly after the alcopops tax increase) and beer have become more expensive relative to consumer items in general, wine has become substantially less expensive over the past decade.

**Figure 1. Prices of alcoholic beverages relative to prices of all consumer items (December 1989 is parity), Australia, March 1990 to March 2011**




*Source: Australian Bureau of Statistics (2011b).*

But what about affordability to the average Australian, where affordability is seen as the relationship between income and the price of alcohol? Following the approach used by Rabinovich et al. (2009) we calculated an affordability index, defined as the ratio of real disposable income to an index of the relative price of alcohol to consumer items in general. Rabinovich et al. (2009) based their measure on the official UK measure of alcohol affordability published by the UK National Health Service (NHS). Our measure indexed real disposable income to 100 in 1994/95. The relative price of alcohol index is the ratio of the alcohol price index to the CPI (presented in Figure 1) indexed to 100 in June 1995 (Australian Bureau of Statistics, 2011b).

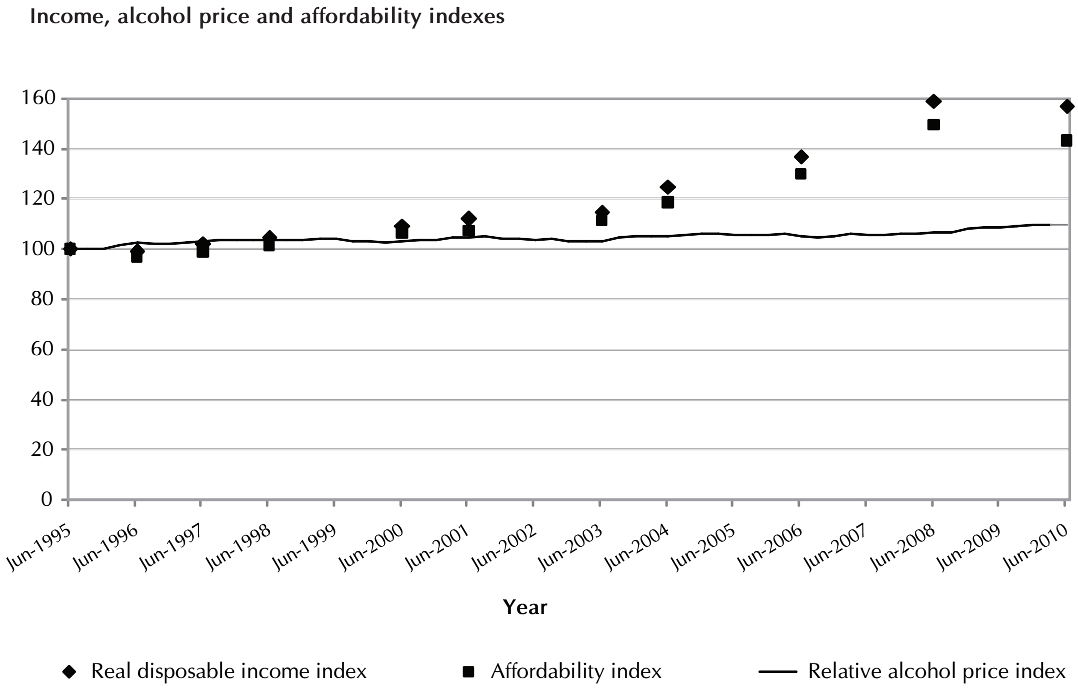
Our measure of disposable income does not suffer from Seabrook's (2010) criticisms of the UK measure used by Rabinovich et al. (2009). Whereas the UK measure is a population level measure derived from the National Accounts, we use the Australian Bureau of Statistics measure of median equivalised real disposable income, based on individual level estimates of gross income, income tax liability, the Medicare levy and the Medicare levy surcharge (sourced from Survey of Income and Housing [SIH] data) (Australian Bureau of Statistics, 2011c).

Furthermore, the Australian measure does not include imputed rental income for owner-occupiers or income from insurance policies, and does not treat housing costs inconsistently. The equivalised disposable income estimate for any household is the amount of disposable cash income that a single person household would require to maintain the same standard of living as the household in question, regardless of the size or composition of the latter. Gross income includes employment income, business income, investment income, transfers from other households and cash transfers from government pensions and allowances. The income estimates are adjusted by equivalence factors to accommodate the fact that larger households normally require more income to maintain the same material standard of living as smaller households, and the needs of adults are normally greater than the needs of children. Account is taken of the economies of scale that arise from the sharing of dwellings.

While satisfied that the affordability index, as the ratio of real disposable income to real alcohol prices, implicitly compares disposable income with alcohol prices, Seabrook (2010) is concerned that it was over-complicated and somewhat deceptive to present the components in real terms. We disagree. The literature has shown that alcohol consumption responds to changes in real alcohol prices, rather than alcohol prices per se, and to changes in levels of real income.

The index of affordability, presented in Figure 2, alongside the component indexes of relative alcohol prices and real disposable income, was 100 in June 1995. An index value of 101 means that affordability has increased by one per cent relative to its value in 1995. Affordability increases or decreases as a result of two processes: *(i)* changes in the price of alcohol relative to all other consumer goods and services and *(ii)* changes in (real) disposable income. Affordability increased substantially, by over 40%, between 1995 and 2008, due entirely to the increase in real disposable income. Over the same period, alcohol prices increased a little more than consumer prices overall. Between 1996 and 2004 alcohol also became more affordable across most of Europe. As in Australia, growth in real disposable income was the prime reason in the United Kingdom and Ireland (Rabinovich et al., 2009). The affordability index decreased between 2008 and 2010 (from 142 to 136), as a consequence of the Global Financial Crisis (GFC) induced decline in real disposable income and alcohol prices rising more quickly than the CPI. Both the decline in real disposable income, which was not statistically significant (Australian Bureau of Statistics, 2011c), and increase in real alcohol prices would dampen consumption of alcohol.

**Figure 2. Affordability of alcohol in Australia from 1995 to 2010**




*Note.* *Estimates of real disposable income for 2007-08 and 2009-10 are not strictly comparable with estimates for previous years due to the improvements made to measuring income introduced in the 2007-08. Estimates for 2003-04 and 2005-06 have been re-compiled to reflect the new measures of income, however not all components introduced are available to present the years on a comparable basis. Real disposable income increased by 48 per cent between 1994-95 and 2009-10 after adjustment for this break in series. Without adjustment the increase is 53 per cent (Australian Bureau of Statistics, 2011c).*

As a cautionary note, it is important to be mindful that self-reported alcohol consumption yields estimates of per capita consumption that fall substantially below alcohol sales data, with coverage typically ranging from 40 per cent to 60 per cent of known alcohol sales data (Stockwell et al., 2004). Stockwell et al. identify a number of factors that could contribute to under-reporting including: *(i)* under-representation of alcohol dependent individuals, problem drinkers, and certain demographic subgroups (e.g., young people); *(ii)* poor memory recall when queried about alcohol consumption over a long period of time; *(iii)* inability to make accurate estimates of average intake; *(iv)* disparities in assumed standard drink sizes and alcohol content; and *(v)* under-sampling of high-risk drinking periods throughout the year.

# POLICY 1. ALCOHOL TAXES AND DIFFERENTIAL PRICE BY BEVERAGE

According to the World Health Organization Expert Committee on Problems Related to Alcohol Consumption (World Health Organization, 2007), taxation represents the most cost-effective alcohol policy for reducing alcohol-related problems, particularly for countries with high levels of hazardous drinking. Recent systematic reviews highlight the strength of scientific evidence demonstrating the effectiveness of taxation in curbing alcohol consumption and alcohol-related harms (Elder et al., 2010; Wagenaar et al., 2009, 2010). However, due to the paucity of taxation reforms, most of the studies incorporated in these reviews analyse price changes; the assumption being that a taxation change will be passed through to prices.

Alcohol tax is but one part of the retail price of alcoholic beverages. Price also reflects: value added tax (goods and services tax [GST]); costs of production, transportation and advertising; the demand for and supply of alcoholic beverages; the level of competition (between retailers and between producers); whether the beverage is purchased from a licensed venue or from a bottle shop, or liquor store; and what quantity is purchased (Rabinovich et al., 2009). It is the behaviour of buyers and sellers that determines how much of the tax is passed on to consumers (Fullerton & Metcalf, 2002). Alcohol taxes tend to be paid by alcohol manufacturers or importers, and can be included in prices passed on to wholesalers, retailers and ultimately consumers.

The research community is unsure about the extent to which taxes are passed on to consumers (Rabinovich et al., 2009). It is thought that licensed premises would be more likely to pass on tax increases while bottle shops and liquor stores, particularly those associated with large retailers or supermarkets, are better placed to absorb price increases associated with taxes. They have the ability to cross-subsidise from one alcohol product to another and even from food items to alcohol (HM Treasury, 2010; Rabinovich et al., 2009). In support of this claim, the UK Treasury cites the fact that UK alcohol prices in supermarkets have not risen to the same extent as alcohol duties over recent years whereas prices in UK pubs have risen by more than the increase in duties. Furthermore, there is variation in the extent to which tax changes are passed through to prices in supermarkets, with mainstream products most likely to be discounted (HM Treasury, 2010).

US research on tax pass-through is inconclusive. Two studies found that aggregate level retail prices of alcohol could respond more than fully to tax changes (Kenkel, 2005; Young & Bielinska-Kwapisz, 2002), whereas a more sophisticated analysis of beer prices concluded that a one per cent increase in the beer excise tax was associated with a 0.13 per cent increase in beer prices only (Harding, Leibtag & Lovenheim, 2010). More importantly this small body of research illustrates how tax changes impact differentially on retail prices of alcohol within a jurisdiction, depending on geographic location, type of beverage, brand and point of sale (Harding et al., 2010; Hunt, Rabinovich, & Baumberg, 2011; Kenkel, 2005; Young & Bielinska-Kwapisz, 2002). Drinkers will be differentially affected by taxation, depending on where they live, where they drink and what they drink.

## RECENT INTERNATIONAL EVIDENCE OF THE IMPACT OF TAXATION ON CONSUMPTION, RELATED HARMS, AND SALES

As noted earlier, Wagenaar et al. (2010) systemically reviewed the impact of alcohol taxes and prices on alcohol-related morbidity and mortality, and estimated that doubling the alcohol tax in the USA would lead to substantial reductions in alcohol-related mortality, traffic crash deaths, sexually transmitted diseases, violence, and crime. To further demonstrate how reductions in alcohol taxation impact alcohol consumption levels and related harms, the following section reviews papers published mainly since the major meta-analyses by Wagenaar et al. (2010) and Gallet (2007). Specifically the papers focus on the consequences of changes in alcohol policy in Denmark, Finland and Sweden between 2003 and 2006.

In brief, on January 1st 2004, tax-free travellers' allowances of alcohol imported from other EU countries into Denmark, Sweden, and Finland were removed. To discourage the anticipated increase in imports (and reduction in consumption of domestically produced spirits), on 1st October 2003 the excise tax on distilled spirits in Denmark was reduced by 45 per cent. It was anticipated that the reduction in the price of distilled spirits and abolition of the import restrictions would primarily impact southern Sweden. Traditionally, Swedes have tended to import alcohol (in large quantities) from Denmark. Finnish excise duties on distilled spirits were reduced by 44 per cent, fortified wine by 40 per cent, table wine by ten per cent, and beer by 32 per cent from 1st March 2004, ahead of Estonia's entry into the EU on 1st May 2004. Estonia is within close proximity of Finland and traditionally has levied low taxes on alcohol. The policy changes in Finland were anticipated to primarily impact Northern Sweden, which is geographically closer to Finland (Bloomfield, Wicki, Gustafsson, Mäkelä, & Room, 2010).

In Finland, the tax cuts resulted in a 19 per cent increase in alcohol consumption. Moderate to heavy alcohol consumption increased in men and women in response to the price cut, primarily in those aged 45 years or older and in the group with the lowest level of education. Heavy episodic drinking was more common in the lowest educational group and increases were greatest for men in the lowest educational group (Helakorpi, Mäkelä, & Uutela, 2010). Time-series analyses of Finnish aggregated monthly deaths between 1996 and 2006 indicated that alcohol-related mortality increased amongst men and women aged 40 years and over, though no apparent change occurred among younger people (Herttua, Mäkelä, & Martikainen, 2011a). Time-series analyses of Finnish monthly aggregated hospitalisations between 1996 and 2006 indicated that a reduction in alcohol prices led to increases in alcohol-related hospitalisation rates, particularly among older adults (Herttua, Mäkelä, & Martikainen, 2011b).

With regards to Denmark, Bloomfield, Rossow and Norström (2009) applied time-series analysis to data on violent assaults and hospitalisations for acute alcohol intoxication from 2003-2005. The authors observed a significant 26 per cent increase in the number of acute alcohol intoxication hospitalisations amongst Danes aged 15 years and younger. A borderline significant effect of increased alcohol intoxication among young Danes was associated with the removal of EU travellers' allowances.

By contrast, Bloomfield et al. (2010) analysed annual cross-sectional surveys of Denmark, Finland and Sweden from 2003 to 2006, and found that alcohol problems generally decreased overall, except in northern Sweden and Finland and among older age groups and men. Gustafsson (2010) conducted a telephone survey of a sample of adults from the Swedish general population which similarly revealed that overall rates of reported alcohol problems in northern and southern regions of Sweden did not change. Similar findings of no apparent change in consumption in Denmark, Finland and southern Sweden (northern Sweden was used as control site) were reported by Mäkelä, Bloomfield, Gustafsson, Huhtanen, and Room (2008).

## AUSTRALIAN ALCOHOL TAX SYSTEM

The extant alcohol taxation system in Australia is complex, and has been described as *"incoherent"* (Henry Review, 2010: 436) and *"a dog's breakfast"* by the President of the Public Health Association of Australia (Salleh, 2010). Most goods and services, including alcohol, attract a 10 per cent GST. Beyond this, beer, wine and spirits are taxed at different rates and beer is taxed differentially.

Domestically produced and imported wine is taxed as a percentage of its wholesale price (i.e., *ad valorem tax)*; this so-called wine equalisation tax (WET) comprises a 29 per cent tax on the wholesale price of wine[5]. Hence, wines with the same alcohol content are taxed at different rates. Domestically produced beer, spirits, liqueurs and other beverages attract excise duties according to their pure alcohol content by volume (abv)[6] (i.e., volumetric excise) (see Table 1). Comparable imported alcoholic products attract customs duty incorporating a component at the same rate as the excise rate. Beer is taxed at eight different rates with excise duties varying according to alcohol strength (low, mid, full strength), means of sale (whether draught, on-trade, or in bottles and cans, off-trade), and the purpose of sale (commercial or non-commercial) (Australian Government, 2011a). The first 1.15 per cent of pure alcohol in beer is exempt from tax and a relatively low tax is imposed on low-strength beer sold on-trade (but not off-trade) as an incentive for increased production and consumption of these low-alcohol

**Table 1. Excise rates for alcohol in Australia as of 1st February 2011**

| *Commodity* | *Rate ($ per litre of pure alcohol)* |
|---|---|
| Beer (per litre of alcohol over 1.15%) | |
| Draught beer, low strength (<=3%) | 7.33 |
| Draught beer, mid strength (<=3.5%) | 23.01 |
| Draught beer, high strength (>3.5%) | 30.11 |
| Other beer, low strength (<=3%) | 36.71 |
| Other beer, mid and strength (<=3.5%) | 42.78 |
| Non-commercial, low strength (<=3%) | 2.58 |
| Non-commercial, mid and high strength (>3%) | 2.98 |
| Other beverages, not exceeding 10 per cent alcohol content (per litre of alcohol) | 72.46 |
| Potable spirits (per litre of alcohol) | |
| Brandy | 67.66 |
| Other spirits, not exceeding 10 per cent alcohol content | 72.46 |

*Source: http://www.aph.gov.au/budget/2011-12/content/download/bp1_bst5.pdf (accessed 6 May 2011)*

*Note. Draught beer is beer served from a pressurised keg or cask*

*Non-commercial beer is made on commercial premises for non-commercial use* beverages (<= three per cent abv). Brandy is taxed at a lower rate compared to stronger spirits. Excise rates are increased in February and August each year, in line with the CPI. The tax on wine is also effectively indexed, since the WET is a proportion of the price of wine.

Anderson (2010a) provides an overview of Australia's special tax treatment of wine. In brief, an excise tax of $0.50 per gallon was first levied on wine in 1970 but removed two years later due to its unpopularity. A wholesale sales tax of 10 per cent was imposed in 1984, which gradually increased to 41 per cent by 2000. When the ten per cent GST on all goods and services was introduced in July 2000, the wholesales sale tax was replaced by the WET. The composite of the GST and WET generates approximately the same amount of revenue as the tax they replaced. Because the value-based tax favours cheaper wines, which are often made by larger producers, October 2004 saw the introduction of the WET rebate (up to $500,000 per annum) for wineries on the first $1.7 million of sales, which effectively exempts small wineries from the WET. The WET rebate was extended to New Zealand wine producers in July 2005 (Henry Review, 2010).

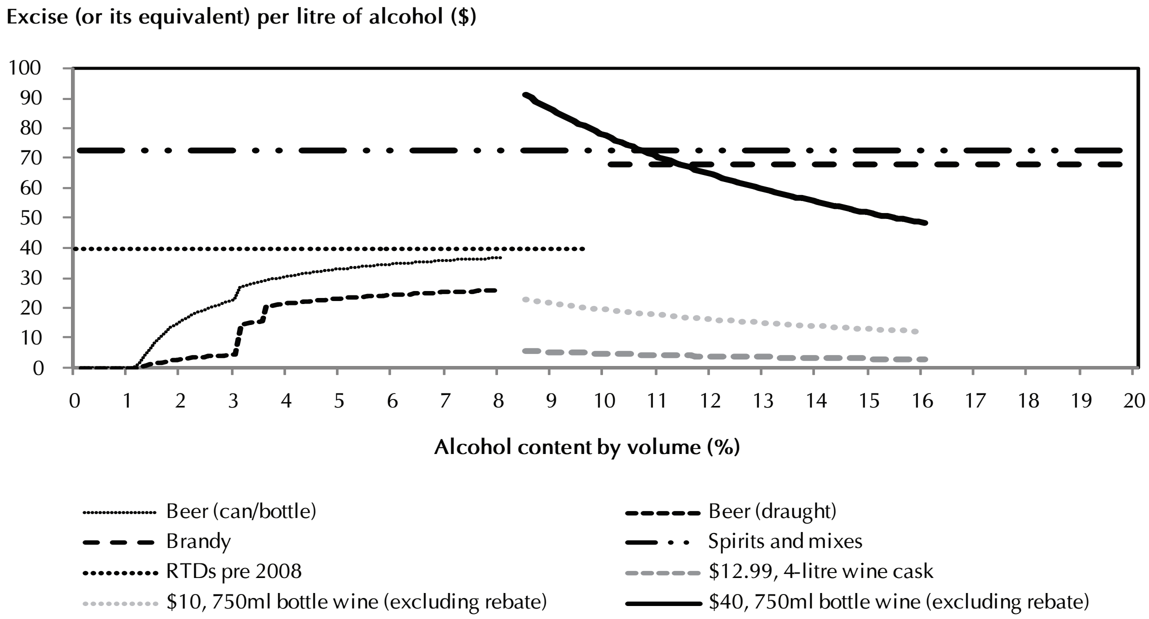
In summary, as illustrated in Figure 1, the tax rate per unit of pure alcohol is highest for spirits and mixed drinks containing wine or spirits (or ready-to-drink beverages; RTDs), slightly lower for brandy, and lower again for beer. Beer is lower in strength compared to pure spirits and brandy, but of similar strength to RTDs. In 2008, the tax rate on RTDs was increased to be commensurate with spirits. Draught beer is taxed at a lower rate than beer sold in bottles or cans, so that beer consumed on-trade is generally taxed less than beer consumed off-trade. The effective tax rate per litre of alcohol by volume in wine is relatively low for inexpensive wine but relatively high for expensive wine.

The alcohol content of Australian wine has increased incrementally since the late 1980s with the trend for winemakers to enhance the flavour of the wine by using very ripe fruit, thus producing more alcohol during fermentation. Accordingly, the latest estimates from the Australian Bureau of Statistics[7] of the average alcohol content of wine are approximately 12.7 per cent (13.4 per cent for red table wine and 12.2 per cent for white table wine). The tax per litre of alcohol is constant for spirits and RTDs, regardless of alcohol content, whereas it increases with alcohol content of beer and falls with alcohol content of identically priced wine (see Figure 3). The tax rate can also be presented in terms of the standard drink, by dividing the tax rate per litre of alcohol by 78.9. For example, the tax rate for spirits and RTDs is $0.91 per standard drink; the rate for 4 per cent abv beer sold off-license is $0.39 and the rate for similar beer sold on-license is $0.27; and the rate for the cask wine represented in Figure 2 with 12 per cent abv is $0.05.

Like Australia, European countries and the USA tax wine, beer and spirits differentially, taxing some products on an *ad valorem* basis and others according to volume of pure alcohol. Spirits attract the most tax in relation to litres of pure alcohol. Low or zero taxation of wine is common among major wine-producing countries (e.g., Italy, Germany) whereas countries like the USA, UK and Ireland tax beer less heavily than wine. In Australia, on-trade sales of beer are taxed less heavily than off-trade sales, whilst the reverse is true in the USA (Chaloupka, 2010; Österberg, 2011).

A recent international comparison of alcohol tax, based on consumer tax equivalents (CTEs)[8], revealed that in Europe, Australia, New Zealand, Canada and the USA in 2008, the tax rate for spirits and super premium wine ($20/litre at the wholesale pre-tax level) was highest in the Nordic countries, Ireland and Australia. Beer tax in Australia was

**Figure 3. Current effective (specific) alcohol tax by beverage and alcohol content by volume**




*Note. WET calculated using half-retail method.*

higher than in any of these countries. In contrast, Australia's tax rates for low ($2.50/litre) and medium priced wines ($7.50/litre) comprised a significantly smaller proportion of the wholesale price than in these countries (Anderson, 2010b). Specifically, by alcohol volume, Australia's super-premium[9] wine consumers face a CTE more than three times greater than the average for high-income countries, while its non-premium consumers face a CTE of only half that of high-income country averages. Australia's beer CTE is approximately seven times more than the average of high-income countries, and its spirits CTE is more than double.

It should be noted that since Anderson's comparison was made, some important increases in alcohol taxation have occurred in the UK; these changes are discussed in detail later. Another recent study, which used the effective excise tax per litre of alcohol as the comparator, found that Finland's beer excise rate exceeded Australia's rate in 2010, and the UK rate was not far below Australia's. However, Australia's excise rate on spirits was surpassed only by Sweden's (Fogarty, 2011).

***Volumetric tax system.*** In 2008, the Rudd federal government commissioned a panel to provide a comprehensive review of Australia's taxation system. The resultant report, entitled 'Australia's Future Tax System', was presented to the Government in December 2009 (Henry Review, 2010). The Henry Review concluded that the social costs associated with alcohol abuse were not effectively targeted by current tax arrangements and recommended a gradual move towards a common volumetric tax system whereby all alcoholic beverages would be taxed at a common rate according to alcohol content that accounted for spillover costs from alcohol abuse, with a 1.15 per cent low alcohol threshold. In particular, they called for the elimination of the WET and move from ad valorum taxation of wine to a volumetric basis as a key priority.

The Henry Review acknowledged that there may be particular social harms arising from drinking in certain environments, drinking in certain ways, or drinking by certain individuals (such as those prone to becoming violent when intoxicated). However, they concluded that while taxes could be differentially levied on alcoholic beverages according to their associated risk of social harm there was insufficient evidence of causal association to identify classes of alcohol products towards which taxation should be directed. Although a recent review of the literature finds some evidence that spirits and beer appear to be associated with a higher risk of harm than wine, it concludes that more evidence is needed for certitude (Doran, Byrnes, Vos, Petrie, & Calabria, 2011). In May 2010, the Rudd Government released the Henry Review together with their response entitled Tax policy statement: Stronger, Fairer, Simpler - A tax plan for our future (Australian Treasury, 2010). The volumetric tax recommendation was rejected on the basis that the wine industry is undergoing restructuring and is in the middle of a wine glut[10].

Byrnes, Cobiac, Doran, Vos, and Shakeshaft (2010) recently investigated the public health benefits and costs of implementing a volumetric alcohol tax in Australia. Based on several alternative volumetric tax scenarios, the authors concluded that the policy would achieve significant health gains and cost savings to the health sector compared to the extant taxation system. Whilst a volumetric taxation system is beneficial in principle for achieving health gains, it is also associated with some caveats and determining the rate at which this tax is set is critical. For instance, under a volumetric tax system the tax on relatively low priced wine would increase considerably. This would be welcomed from a public health perspective since under the current arrangements (i.e., value-based WET) the cheaper the wine, the less it is taxed. This has resulted in the production of large volume, cheap cask wine which is taxed at $0.05 per standard drink (compared to $0.32 of mid-strength beer) and consumed by harmful drinkers (National Preventative Health Taskforce, 2009). However, a common rate of tax per litre of pure alcohol could also see the price of low-strength beers increase and the average price of stronger drinks such as spirits and RTDs decrease considerably.

In their report 'Australia: the healthiest country by 2020', the National Preventative Health Taskforce (2009) acknowledged the pitfalls of a common volumetric tax and recommended adopting a 'tiered' volumetric alcohol taxation approach. In a tiered approach the tax rate increases with alcohol content, both between beverages and within beverages, thus providing incentives for increased production and consumption of low-strength alcoholic beverages and disincentives for the production and consumption of higher strength alcoholic beverages. The National Alliance for Action on Alcohol (NAAA), which was established in 2009 and comprises over 50 leading Australian health organisations, similarly supports a tiered volumetric tax[11]. An argument for taxing spirits more heavily than beer and wine is that a drinker can become intoxicated more quickly drinking spirits. Indeed spirits are more strongly associated with alcohol poisoning and aggressive behaviour than other alcoholic beverages (Mäkelä, Mustonen, & Österberg, 2007). Another motivation for taxing spirits more heavily than other products is that they are cheaper to produce than other products and could potentially be priced more cheaply (New Zealand Law Commission, 2010).

The Henry Review (2010) noted that whilst a volumetric tax would provide a floor price so that cheap alcohol, such as cask wine, was more heavily taxed, alcohol could still be sold below-cost or given away. For such reasons, the NAAA and National Preventative Health Taskforce also advocate for minimum pricing to complement volumetric alcohol taxation. Furthermore, both advocate for hypothecation of some taxation revenue to be used for measures designed to reduce harmful drinking. A portion of the revenue from the alcopops tax has been flagged to fund the National Binge Drinking Campaign and the COAG National Partnership Agreement on Preventative Health (Australian Government, 2010). Furthermore, the NAAA argues that any alcohol taxation reform should increase or maintain the price of every alcohol product, except for low-alcohol beer, and supports an overall increase in taxation and continued real increases into the future. Table 2 provides a summary of the recommendations made by these public health organisations and alcohol industry groups.

The Government's rejection (Australian Government, 2010; Australian Treasury, 2010) of the volumetric tax system proposed by the Henry Review and National Preventative Health Taskforce was met with disappointment (National Alliance for Action on Alcohol, 2010). As part of an agreement to form a minority Labor government following the August 2010 election, the incumbent Prime Minister Julia Gillard pledged to convene a Federal Tax Forum on 4-5th October 2011 to discuss tax reform and re-examine the Henry Review recommendations[12]. The government reiterated its commitment not to change alcohol taxation in the middle of a wine glut and industry restructure in the Tax Forum discussion paper (Australian Government, 2011b). In July 2011, 15 representatives from the NAAA, met with over 50 MPs and senators at Parliament House to urge the government to consider alcohol pricing reform (including volumetric

**Table 2. How do Australian public health organisation and industry sources envisage alcohol taxation policy reform?**

| *Health body* | *Volumetric taxation* | | *Overall increase in tax rate* | *Real price of alcohol should increase over time* | *Any change should increase/ maintain price, except if low alcohol product* | *Floor price and hypothecation of some tax revenue to fund interventions* |
|---|---|---|---|---|---|---|
| | ***Not tiered*** | ***Tiered**** | | | | |
| Henry Review | ✓ | | | | | |
| National Alliance for Action on Alcohol (NAAA) | | ✓ | ✓ | ✓ | ✓ | ✓ |
| National Preventative Health Taskforce | | ✓ | | | | ✓ |
| Distilled Spirits Industry Council Australia (DSICA) | ✓ | | | | | |

*Note. * Tiered tax rate increases according to abv and/or potential to cause harm* taxation and minimum pricing) on the Forum agenda (National Alliance for Action on Alcohol, 2011a). In September 2011, the NAAA held a Tax Forum, hosted by the AMA in Canberra. They used the Forum as a platform for calling for urgent alcohol taxation reform to address alcohol-related harms in Australia, including volumetric taxation and targeting of the WET and WET rebate (National Alliance for Action on Alcohol, 2011b). Indeed, two of Australia's major wine manufacturers (Premium Wine Brands and Treasury Wine Estates) have called for the abolition of the WET which they argue has fuelled the extant glut (Metherell, 2011).

In terms of industry response, Anderson (2010b) points out that the beer and spirits industry have called for tax equality across alcoholic beverage types, and fine wine manufacturers have indicated support for volumetric taxation, provided it does not result in an overall increase in wine taxes. The Distilled Spirits Industry Council of Australia (2009a), which represents the interests of distilled spirits and RTD beverage producers and importers in Australia, have also called for volumetric taxation. In their submission to the Henry Tax Review the Winemakers' Federation of Australia not only expressed their concern about the implications for the wine industry of a volumetric tax. They were also of the view that moderate drinkers of wine, who they claimed to be the majority of wine drinkers, would be unfairly disadvantaged by the resultant price increase (WFA, 2009). A recent report prepared for the Alcohol Education and Rehabilitation (AER) Foundation presents evidence which suggests that the WFA may have exaggerated claims about the implications for production and employment in the industry. The report also points out the potential benefits to moderate wine consumers from reductions in government expenditure associated with harmful alcohol consumption and increased taxation revenue (Richardson & Denniss, 2011).

The October Tax Forum has led to recent proposals and modelling analyses of alternative options for reforming the extant WET and WET rebate arrangements. Under the auspices of the Alcohol Education and Rehabilitation Foundation (AER), the Allen Consulting Group modelled three alternative scenarios for replacing the WET system with a volumetric tax: *(i)* replacing the WET with a volumetric tax set at a rate which does not alter the overall tax burden for wine producers ($13 per litre of pure alcohol); *(ii)* replacing the WET with the rate for full-strength draught beer; and *(iii)* replacing the WET with the rate for full-strength packaged beer (Allen Consulting Group, 2011). The key outcomes of each scenario are summarised below.

The retail price of cheap wine (i.e., cask wine) would increase under all three scenarios by 24.7 per cent, 76.7 per cent, and 114.6 per cent, respectively. Overall alcohol consumption would decline under each scenario by 4.9 million litres (2.6 per cent), 12.9 million litres (6.8 per cent), and 16.3 million litres (61.2 per cent) of pure alcohol, respectively. Substitution with other alcoholic beverages would not offset the reduction in cask wine consumption; specifically, the level of switching from wine to other alcohol products was nil under scenario 1, and 2.8 million litres (22.6 per cent) and 4.7 million litres (38 per cent) of pure alcohol under scenarios 2 and 3 respectively. Finally, scenarios 2 and 3 would generate additional taxation revenue of $900 million and $1.5 billion, respectively.

A modelling analyses undertaken for the Victorian Health Promotion Foundation builds on the methodology used by Byrnes et al. (2010) to examine the cost effectiveness of 13 taxation reform scenarios (Doran et al., 2011). The findings suggest that all 13 scenarios would save the government money and reduce alcohol-related harm. The preferred scenario applied a universal tax rate on alcoholic beverages equivalent to a ten per cent increase in the current excise applicable to spirits and alcopops with a duty free threshold of 1.15 per cent applied to all beverages bar spirits. The most effective scenario which meets NAAA principles of alcohol reform, was a two tiered tax system with first tier beverages (all beverages bar spirits and alcopops) attracting a volumetric tax that increases exponentially by ten per cent for every percentage point increase in alcohol content above 3.2 per cent and the second tier beverages (spirits and alcopops) attracting their current excise.

There is evidence that the Australian government has had some success in curbing young people's binge drinking with its 2008 increase in the tax on Ready-To-Drink (RTD) alcoholic beverages. This is discussed in more detail alongside international experiences of RTD in a later section. The Northern Territory's (NT) Living with Alcohol (LWA) Beverage Levy and additional levy on cask wine represent Australian case studies of the possibilities of alcohol taxation reform.

The LWA program was introduced in 1992 and funded to 1997 by a levy on beverages with more than 3 per cent abv, which effectively raised the retail price of these beverages by 5 cents per standard drink. State taxes on beverages with 3 per cent abv or less were also reduced in 1992. From 1995 to 1997 the NT also imposed an additional levy on cask wine of $0.35/litre. The impact of both taxes was confounded by the LWA Program, which included education, controls on alcohol availability and expanded treatment and rehabilitation services, plus the 1995 reduction in the legal blood alcohol level (Chikritzhs, Stockwell & Pascal, 2005; Chikritzhs et al., 1999; Chikritzhs, Stockwell, Pascal, & Catalano, 2004).

The evaluation that provides the most compelling evidence, distinguishing between the effects of the taxes from the confounders and other economic factors, concluded that the LWA levy was responsible for reducing the number of acute deaths caused by alcohol-attributable injury (for example assault, road injury, drowning). The levy may also have been implicated in the reduction in chronic alcohol-related disease, which was only observed after the levy was discontinued, although the program continued to operate (Chikritzhs et al., 2004; Chikritzhs et al., 2005). A review of the Chikritzhs et al. (2005) paper supports the findings of this evaluation, stressing the importance of the levy for the positive health outcomes (Holder, 2005).

An earlier study found that estimated per capita cask wine consumption (measured by licensee liquor purchases) decreased following the introduction of the cask wine levy and increased in the year following its removal, although not to pre-levy levels. They failed to find evidence of substitution into other alcoholic beverages (Gray, Chikritzhs, & Stockwell, 1999).

## INTERNATIONAL CONTEXT

The following passages highlight recent international (i.e., New Zealand, Europe, UK, Russia) alcohol taxation reforms and proposed policies. The Canadian and United States alcohol taxation systems are not considered because these countries operate different taxation arrangements at federal and state/province level, making it complex to calculate the combined tax. We were informed by a reviewer that the results of a major comparative study of tax rates in Canada, USA and selected European countries, led by Professor William Kerr (Alcohol Research Group, Public Health Institute), is currently underway. In neither country has there been recent substantive reform to the taxation system. Alcohol tax is collected at federal and state levels in the USA, with state level taxes varying markedly. Spirits are taxed more heavily than wine and beer (Chaloupka, 2010). Alcohol is subject to a federal excise tax in Canada (Stockwell, Leng, & Sturge, 2006). The excise rate is not indexed and has only been adjusted twice in the past 25 years to compensate for changes to the GST[13]. The provinces have sales taxes and apply higher rates to alcohol than other goods and services. They can also apply special levies and taxes on alcoholic beverages (Stockwell et al., 2006).

***New Zealand.*** In New Zealand, alcohol beverages are subject to GST and an excise tax, which generally increases according to alcohol content. Low-alcohol content beverages ( $\leq$ 1.15 per cent abv) are exempt from tax but, unlike Australia, the first 1.15 per cent abv of higher strength beer is taxed. Alcoholic beverages are taxed either by volume of alcohol or by volume of beverage. In large part, a two tier system operates, with one rate of duty for beer, wine and RTDs, and a higher rate for spirits and fortified wines (New Zealand Law Commission, 2010). Specifically, beverages above 14 per cent abv are taxed at NZ$46.40 per litre of alcohol. Beer containing more than 2.5 per cent abv is taxed at NZ$26.021 per litre of alcohol. Most RTDs (6-9 per cent abv) are taxed at NZ$2.0816 per litre of beverage and non-fortified wines are taxed at NZ$2.0621 per litre of beverage[14]. RTDs (6-9 per cent abv) and most wines (12-14 per cent abv) are effectively taxed at a lower rate than beer. The threshold between these two different excise duties was originally set at 24 per cent abv but lowered to 14 per cent abv in 2003 in light of concerns about the alcohol-related harms posed by low alcohol content spirits, including RTDs (New Zealand Law Commission, 2010). Like Australia, tax rates are increased in line with inflation[15].

We have converted the tax rates to tax per standard Australian drink in Australian dollars (10 grams of alcohol) so as to compare the relativities in tax rates between different products in the two countries. The Australian tax on spirits is $0.92 per standard drink whereas the New Zealand equivalent is $0.47, using an Australian/New Zealand exchange rate of 1.25. Comparable figures for 4 per cent abv beer sold in bottle shops is $0.39 in Australia (42 per cent of the spirits rate) and $0.26 in New Zealand (55 per cent of the spirits rate), whereas beer of that strength sold on-trade is taxed similarly at the rates of $0.27 (29 per cent of the spirits rate) and $0.26 per standard drink respectively. A $10 bottle of 13 per cent abv wine is taxed at the rates of $0.19 (21 per cent of the spirits rate) and $0.16 (34 per cent of the spirits rate) per standard drink in Australia and New Zealand respectively. If the bottle of wine costs $40 there would be no change in the New Zealand tax rate, but the Australian tax rate would increase to $0.75 per standard drink (81 per cent of the spirits rate). Finally, a 6 per cent abv RTD is taxed at the spirits rate in Australia and at 75 per cent of the spirits rate in New Zealand ($0.35).

Following a recent review of New Zealand's alcohol laws, the New Zealand Law Commission (2010) recommended that the excise tax rate be increased by 50 per cent (to effectively increase the price of alcohol by 10 per cent) and proposed eliminating excise duty on low-alcohol content products up to 2.5 per cent abv in order to encourage their consumption and production.

***Europe.*** The European Union (EU) currently comprises 27 Member States and a population of over 500 million people. Following several years over which a number of proposals were put forward to harmonise excise duties on alcoholic beverages, the EU agreed on two directives related to alcohol (i.e., Council Directives 92/83/EEC and 92/83/EEC) and a single European Market came into effect in January 1993. The first Directive (92/83/EEC) provided instruction on how to define products and product categories to be taxed, as well as setting out the principles of how the excise duties for these products should be levied. For example, still and sparkling wine are to be taxed at single rates per hectolitre of finished product, not in terms of alcohol content. The second Directive (92/84/EEC) provided a minimum excise duty rate for distilled spirits, beer and intermediate products such as fortified and liqueur wines (details of the specific excise duty rates are provided elsewhere; Cnossen, 2007). Notably, no minimum rate was set for wine. Member States retain sovereignty to set their own excise duty rates at or above these minimum thresholds.

The EU's strategy to support Member States in reducing alcohol-related harm was designed to *"follow-up, assess and monitor developments and the measures taken in this field and to report back on the need for further actions"* (Commission of the European Communities, 2006: 4). It focused on *"preventing and cutting back heavy and extreme drinking patterns, as well as under-age drinking, and some of their most harmful consequences such as alcohol-related road accidents and Foetal Alcohol Syndrome"* (Commission of the European Communities, 2006: 4). Notably, although the strategy acknowledges the handful of European countries that have increased taxes on products which they perceive to be particularly attractive to underage drinkers (e.g., alcopops), taxation is not included in the list of effective measures to curb underage drinking and reduce hazardous and harmful drinking among young people. Furthermore, taxation is not mentioned as an effective measure for preventing alcohol-related harm among adults.

Considerable variability exists in the excise duty rates across Member States for all alcoholic beverages, particularly for wine with some countries imposing an excise duty exceeding €1.50 on a bottle of wine and several others not imposing any excise duty (Rabinovich et al., 2009). Österberg (2011) suggests that differences in national interests are central to an understanding of disparities in excise duty rates across Europe. In countries such as France, Spain, Italy, Germany, and Austria where wine growing and production is important and accounts for a considerable proportion of total agricultural output, excise duty level on wine has been based on an agricultural policy. Specifically, as part of the common agricultural policy in the EU, the excise duty on wine was kept very low, or even zero in some cases, to ensure the survival of small family wineries, a fair standard of living to wine farmers, and the supply of wine to consumers at reasonable prices (Österberg & Karlsson, 2002). In countries such as Sweden and Finland alcohol control measures have been motivated by social and public order and health policy concerns and accordingly relatively high taxes have been imposed on alcohol (Österberg, 2011; Österberg & Karlsson, 2002). Beyond these interests, alcohol taxation may be motivated by economic development interests such as ensuring alcohol-related employment and the interest of breweries and distilleries, and fiscal interest in generating revenue to finance the public sector (Österberg, 2011).

Minimum excise duty rates, which came into force in 1993, have not changed in nominal terms since their introduction. As a consequence, the real value of the excise duty rates for most alcoholic beverages has decreased in the majority of Member States by approximately 30 per cent (Cnossen, 2007). For instance, a substantial decline in the real value of excise duty rates was observed in Ireland (taxation of beer and wine), Finland (taxation of beer and spirits), Denmark (taxation of spirits), and Sweden (taxation of wine) (Rabinovich et al., 2009). High taxation countries, such as Finland and Sweden, encountered pressure to reduce their alcohol excise duty rates following expansion of the single market and entry of low-taxation counties, such as Estonia, into the EU (Rabinovich et al., 2009). Increases in incomes as well as relatively stable alcohol prices have contributed to alcohol becoming more affordable in most EU countries since 1996 (Rabinovich et al., 2009).

There are several reasons behind the lack of adjustment in excise duty rates. Firstly, EU changes to taxes must be accepted unanimously by all Member States, which means that one Member State can veto proposals to increase minimum excise duty rates on alcohol. Secondly, the EU excise duty rate for wine is zero and wine-producing Member States have been unwilling to accept a positive excise duty rate for wine. Accordingly it has been difficult to argue that the excise duty for other alcohol products should be increased. Finally, in 2004, 10 countries joined the EU and, as part of their membership agreement, some were forced to increase their alcohol excise duty rates to the EU minimum standard; as a result they have been unwilling to accept any inflation-induced adjustments to the minimum rates that existed when they joined the EU (Österberg, 2011).

***UK.*** The UK tax system comprises four separate regimes for beer, wine, spirits and cider. In 2010, similar to Australia, spirits attracted a constant tax per litre of pure alcohol content, as did beer over 1.2 per cent abv. Unlike Australia, but like New Zealand, the entire alcohol content of beer is taxed. The rate of tax on cider and wine increased with abv in alcohol strength ranges, although the duty rate is paid by volume so that within a strength range, the tax per litre of alcohol falls. By way of illustration, spirits with an abv of 37.5%, were taxed most heavily (£23.80/litre of pure alcohol), the analogous tax on wine with an abv of 12.5 per cent was £18, while beer with an abv of 4.2 per cent attracted a tax of £17.32, and cider with an abv of 4.5 per cent only attracted a £8 tax (Hunt et al., 2011).

A number of recent changes in UK alcohol excise duties are of particular interest. As mentioned earlier, in their 2010 manifesto the Coalition Government pledged to review alcohol taxation to target problem drinking without penalising responsible drinkers. In the March 2011 Budget (HM Treasury, 2011), Chancellor George Osborne confirmed that the Coalition Government would continue plans inherited from the Labour Government to increase alcohol duty at 2 per cent above inflation every year until 2014-15. This so-called alcohol duties escalator amounts to a 7.2 per cent increase in alcohol duty in the 2011 Budget. For consumers, this equates to an extra £0.04 imposed on a pint of beer, £0.15 on a bottle of wine, and £0.54 on a bottle of spirits. These changes came into effect on 28th March 2011 and followed a 26.1 per cent rise in alcohol duty since March 2008 (when the alcohol duties escalator was first introduced) and increases in VAT to 20 per cent in January 2011. The move to retain the alcohol duties escalator was greeted by disapproval by the beer and pub industry[16]. Before the introduction of the duty escalator, alcohol duties in the UK (particularly on spirits) had been falling in real terms (Griffith & Leicester, 2010).

In September 2010 the definition of cider was amended so that greater duty was levied on cheap, higher-strength ciders[17]. As a complement, an alcohol taxation review in November 2010 (HM Treasury, 2010) announced Government plans to increase the duty on high-strength beers and lower the rate of duty on lower-strength beers in a bid to encourage production and consumption of the latter. Specifically, as detailed in the March 2011 Budget, a £0.25 increase will be imposed on beers over 7.5 per cent abv and a lower rate of 50 per cent of general beer duty will be imposed on beers <=2.8 per cent abv (HM Treasury, 2011). These changes will come into effect from October 2011. Whilst welcomed as a positive step in reducing alcohol-related illnesses, Professor Ian

Gilmore, chair of the Alcohol Health Alliance and former President of the Royal College of Physicians (Alcohol Committee), argues that this policy doesn't go far enough and that attention should be focused on beers and lagers over 5 per cent abv[18]. Indeed, given that high-strength beers (exceeding 7.5 per cent abv) account for less than 1 per cent of total beer sales in the UK, this measure may have little impact[19].

The Treasury's alcohol taxation review concluded that taxing alcoholic beverages based on their alcohol content alone would require significant change to the extant duty system and that increasing the tax rates on cider, beer and wine to levels consistent with the tax rate on spirits would penalise responsible drinkers, and may not facilitate their wider objective of reducing problem drinking. The review noted evidence that spirits comprise a greater proportion of alcohol consumed by heavier drinkers, younger drinkers (aged 18-34 years) and on occasions when large amounts of alcohol are consumed (HM Treasury, 2010).

***Russia.*** Russia boasts one of the world's highest alcohol consumption rates and alcohol-related harm is one of the country's leading causes of death (Zaridze et al., 2009). In response, the Kremlin has undertaken a rigorous anti-alcohol campaign in recent years in a bid to curb excessive drinking. In January 2010, the excise duty on beer increased by 200 per cent. As a result of the excise tax increase and rising raw material costs, Russian beer consumption indexed a 1 per cent decline in the first half of 2011 and 2 per cent in the second quarter (Hansen, 2011). Amid growing concerns about the widespread availability of beer and resultant risk posed to underage drinkers (Osborn, 2011), President Medvedev signed a bill officially classifying beer as an alcohol beverage in July 2011. Prior to this, all beverages with less than 10% pure alcohol were labelled a foodstuff. The new measures will come into force in 2013[20]. As part of the campaign to reduce excessive drinking, Russia also introduced minimum prices for alcohol; this will be discussed in further detail later.

In April 2011 the Russian Finance Ministry announced proposals to increase the excise tax on alcohol by 20 per cent from 1st January 2012, followed by further increases on 1st July 2012, and January 2013 and 2014. This would see the excise tax for a half-litre of vodka rise from the current price of 46.2 roubles ($1.6) to 180 roubles ($6.1). However, Prime Minister Vladimir Putin has criticised the proposed increase in excise tax, arguing that it will not reduce the country's high alcohol consumption levels and instead foster the growth of black market substitutes and moonshine production[21]. Black market substitutes and moonshine already represents a major public health problem in Russia, contributing to hospitalisations and death due to cardiovascular disease, poisoning, and liver diseases (Bobrova et al., 2009; Lachenmeier, Rehm, & Gmel, 2007).

# POLICY 2. SPECIAL/ADDITIONAL TAXATION - ALCOPOPS TAX

Alcopops, otherwise referred to as RTDs, are (typically) spirit-based beverages that are premixed with a soft drink. Their sweet taste, pleasant flavouring as well as attractive design and advertising make them especially appealing to young people (Metzner & Kraus, 2008). In recent years, growing concern about young people's drinking and increasing popularity of alcopops among younger drinkers has led several countries to impose special taxes on these drinks. The following section will review these national and international policy efforts.

## AUSTRALIA

Since their introduction to the Australian market in the mid-1980s, alcopops have fluctuated in taxation levels. Briefly, prior to July 2000 alcopops were taxed in line with full-strength spirits; from July 2000 to April 2008, alcopops were taxed equivalently to full-strength packaged beer (but without the 1.15 per cent abv excise-free threshold) as part of the new tax system; in late April 2008, the tax on spirit-based alcopops was increased back in line with full-strength bottled spirits and, wine and beer-based alcopops were taxed at the same rate in 2009 (Distilled Spirits Industry Council Australia, 2011). The taxation increase is the focus of this section.

Amid concerns that alcopops were contributing to a 'binge drinking' culture, the Rudd Government announced a $53.5 million National Binge Drinking Campaign targeting young adults in March 2008. As part of this strategy, the federal Health and Ageing Minister (Hon Nicola Roxon) increased the tax rate on spirit-based alcopops by 70 per cent the following month, amounting to a price increase of $0.45 for an 'average' alcopop (Jones & Barrie, 2011). The tax increase led to two Senate Inquiries (Australian Senate, 2008, 2009a) and criticism was levied by sections of the alcohol industry, the federal opposition, and some independent senators against the tax. In particular, arguments centred on the possibility that consumers would substitute alcopops with cheaper forms of alcohol or drugs and the federal opposition argued (at least initially) that that the move amounted to a 'tax grab' to raise government revenue (Distilled Spirits Industry Council of Australia, 2011; Doran & Shakeshaft, 2008; Fogarty & Chapman, in press). Though the tax was introduced in April 2008, the supporting legislation was blocked by a single vote in the Senate in March 2009, but was finally passed in August 2009, making the tax increase permanent.

So what impact has the alcopops tax increase had? In general, it appears that the increase led to an immediate reduction in alcopops sales; however, there is evidence of some substitution with other alcoholic beverages and the most recent sales data suggests that the downward correction may be over. As Skov et al. (2011: 84) remind us *"the simplicity of these before-and-after analyses and the lack of comparison to other populations limit the conclusions that can be drawn."* Some potential confounding factors include the GFC, adaptive marketing by the alcohol industry, the federal government's national binge drinking strategy and associated advertising campaign, as well as general media reporting of these issues (Doran & Digiusto, in press). To date, no analyses of the effect of the alcopops tax has accounted for the potential confounders.

Monthly sales data of packaged alcohol (sold for off-licence consumption by licensees across Australia's mainland states) from the Nielsen Liquor Services Group indicated a decline in alcopops sales in the three months following the introduction of the tax in April 2008. Specifically, 91 million fewer standard drinks were sold as alcopops compared to the same period in the previous year. Although an increase in spirits and beer sales was observed, this only amounted to one half of the reduction in alcopops sales (Chikritzhs et al., 2009). The Australian Tax Office (ATO) similarly observed a 54 per cent decline in alcopops sales and a 7 per cent increase in spirit sales from April to June 2008 (Chikritzhs et al., 2009).

Based on average weekly clearance data from the ATO and Australia Customs Services data on excisable alcohol sales (notably excluding wine), alcopops sales in litres of pure alcohol (from May 2008 to March 2009) declined by 35 per cent over sales in the previous year and total spirits sales decreased by 8 per cent. During the same period, sales of full-strength spirits increased by 18 per cent and beer by 5 per cent, indicating evidence of substitution to other alcoholic beverages. In total, sales decreased by 0.5 per cent compared to positive growth rates observed in earlier years (Australian Government, 2009).

Based on sales data compiled by the Australian Bureau of Statistics, annual per capita consumption of spirits fell by 0.22 litres (10 per cent) in 2008-09; per capita consumption of alcopops fell by 0.35 litres (over 30 per cent) with some substitution into other spirits indicated by a 0.13 litre increase (11 per cent). In 2009-10 there was a further 0.04 litre reduction (2 per cent) in per capita consumption of spirits due to a continued decline in alcopops consumption. It seems clear that the 2008-09 reduction in spirits consumption resulted from the tax increase. It translated to a 0.16 litre reduction in per capita consumption of all alcohol, with beer consumption remaining at much the same level as it had been for the past four years and per capita wine consumption increasing by 0.07 litres, an increase not inconsistent with trend. However, the 2009-10 decline in spirits consumption coincided with a 0.18 litre reduction in beer consumption. Overall, alcohol consumption declined by 0.15 litres, since wine consumption experienced continued growth of 0.9 litres per capita (Australian Bureau of Statistics, 2011a).

Doran and Digiusto (in press) analysed alcohol sales data from 2004 and 2009, gathered by Euromonitor International (i.e., an independent organisation which provides comprehensive coverage on consumer markets across the globe). These data facilitate more fine-tuned analyses of substitution trends. Per capita spirit-based alcopops consumption increased every year from 2004 to 2007, but decreased in 2008 and 2009 following the introduction of the alcopops tax increase. Total alcohol consumption per capita followed a similar path, rising from 11.52 litres in 2004 to 11.79 litres in 2007; and subsequently declining to 11.55 litres in 2008 and 11.41 litres in 2009. The authors found that per capita consumption of wine and beer remained relatively stable over the period in question. Wine-based RTDs, spirits and cider experienced some growth but the authors concluded that their increased consumption in 2008 and 2009 could be interpreted either as evidence of substitution or a continuation of long-term trends.

The most recent Euromonitor International data on alcopops sales suggests that the downward correction in alcopops consumption may be over, with alcopops volume sales increasing in 2010 by approximately 2 per cent (indexing 323 million litres), albeit a level well below its pre-alcopops tax increase status. Whilst subject to various situational factors, further growth in alcopops volume sales is predicted for 2010-2015. The release of a range of alcopops onto the market (discussed further below), such as Beam Global's low carbonate alcopops, which attract less tax due to their relatively low levels of alcohol content, may have partially contributed to the positive growth of alcopops (Euromonitor International, 2011a). Almost all RTDs sold in Australia are produced locally and the market is dominated by three producers: Diageo Australia, Beam Global and Independent Distillers. In 2010, 30 per cent of sales were made by Diageo Australia, whose RTD products include Bundaberg rum-based RTDs and UDLs[22] (Euromonitor International, 2011a). According to Diageo's recent annual reports, the impact of the alcopops tax was most apparent in the 2008-09 financial year when Australian RTD net sales[23] fell by 23%. For Diageo Australia, this reduction in net sales was partially offset by a 13 per cent increase in net sales of spirits. Their 2009-10 5 per cent decline in net sales of RTDs was purportedly the result of increased competition in the RTD sector (Diageo, 2010, 2011).

Although alcohol sales data are a better indicator of alcohol consumption at the population level (Stockwell et al., 2008), self-report consumption data can be indicative of change within sub-populations of interest. Roy Morgan Research examined alcohol consumption trends among adults aged over 18 years across Australia over 2007 and 2008 for the Distilled Spirits Industry Council of Australia (DSICA). They found that total alcohol consumption amongst those aged 18-24 years increased in the 2008 July-December period compared to the 2007 July-December period; this trend was observed for both males and females. Furthermore, whilst total alcopops consumption decreased in the 2008 July-December period compared to the 2007 July-December period, this was due to declines in consumption amongst older age groups not amongst those aged 18-24 years (Distilled Spirits Industry Council of Australia, 2009b).

Data collected from Victorian secondary school students (aged 12-17 years) suggests that between surveys in 2005 and 2008 there were reductions in the proportions of students who reported drinking recently (in the week preceding the survey) and at risky or high-risk levels (Skov et al., 2011). Over the same period there were no changes in the drinking patterns of those who reported drinking recently and recent drinkers were no less likely to cite RTDs as their preferred drink and no more likely to prefer beer or wine (White & Smith, 2009).

***Industry response.*** The alcohol industry opposed the special tax on alcopops arguing that it was a tax grab rather than a health measure. For instance, the Distilled Spirits Industry Council of Australia (2009a) submitted a document to the Senate Standing Committee on Community Affairs, outlining their opposition to the tax. They argued that the alcopops tax increase was unpopular among consumers; economically unworkable (e.g., flaws on the part of the Treasury in estimating the budget required for the tax measure); and amounted to a social and health failure (e.g., government ignored evidence that isolated tax measures have limited effectiveness in reducing excessive alcohol consumption and evidence of substitution). Indeed, in mid-2008 this industry organisation launched an anti-alcopops tax website (http://www.alcotaxripoff.com; link is no longer active) which included a revenue counter displaying how much money the government was recouping.

The alcohol industry sought to undermine the tax through advertising campaigns encouraging consumers to 'beat the alcopops meanies' by buying bottles of straight spirits and mixing them with free bottles of Coke (Australian Senate, 2009b). For example, the Thirsty Camel Bottleshops ran a newspaper and website campaign with the slogan 'Free coke with JD and SC – that's cool!' The campaign was argued to be in violation of the Alcohol Beverages Advertising Code and an example of *"a particularly cynical response to the Government's 'alcopops' tax"*[24]. Moreover, soon after the alcopops tax was introduced, alcopops manufacturers produced 'malternatives' such as Smirnoff Platinum and Bolt (i.e., alcopops with a beer-base rather than spirit-base) and 'wine-pops' (i.e., alcopops with a wine-base) to circumvent the alcopops tax. The move was criticized by the WFA and the Australasian Associated Brewers[25]. Consequently, in late 2009 the Rudd Government closed the alcopops tax loophole so that beer-based[26] and wine-based[27] products that mimic spirit-based RTDs were taxed equivalently.

The Distilled Spirits Industry Council of Australia (2011) outlines evidence to support their claim that the alcopops tax failed. For instance, it points to research suggesting that, contrary to the Rudd Government's justification of an alcopop tax, alcopops are not disproportionately associated with risky and high-risk drinking (e.g., Henry Review, 2010; HM Treasury, 2010; Metnzer & Kraus, 2008). In addition, they highlight evidence of public dissatisfaction with the tax increase (e.g., Aussies Against the Alcohol Tax Increase [AATATI], public opinion polls, media editorials). Finally, they note that there is no evidence that the alcopops tax increase was associated with reductions in alcohol-related hospitalisations and that the measure failed to generate as much revenue as initially forecasted.

## INTERNATIONAL CONTEXT

Beyond Australia, the excise duty on spirit-based alcopops was increased in Germany in 2004, in Luxembourg in 2002, and in Switzerland in 2004; Denmark levied additional duty on spirit-based RTDs in 2005; and France doubled the tax on spirit-based RTDs in 2004[28]. Additionally, spirit-based alcopops were taxed at an equivalent rate to spirits in the UK (during 2002), Ireland (during 2003), and some US states including Maine (during 2005), California (in 2008), and Utah (during 2008). Where evidence is available, findings are mixed regarding the effectiveness of the higher alcopops taxation rates on levels of alcohol consumption.

For instance, the German Federal Centre for Health Education examined alcohol consumption among German teenagers aged 12-17 years between 2004 and 2007. Their findings indicated that while an initial decline occurred in consumption following the introduction of the tax increase in August 2004, total alcohol consumption increased by 2007. Overall, teenagers' average weekly consumption of alcohol decreased from 44.2g in 2004 to 34.1g in 2005, but subsequently increased to 50.4g in 2007. More specifically, between 2004 and 2007 weekly consumption of spirit-based RTDs and wine/sparkling wine declined whilst consumption of all other alcoholic beverages such as beer, spirits and cocktails increased (Distilled Spirits Industry Council of Australia, 2009a).

Müller, Piontek, Pabst, Baumeister, and Kraus (2010) similarly examined the impact of the alcopops tax on consumption and beverage preference of adolescents aged 12-17 years in Germany using cross-sectional data from the European School Survey Project on Alcohol and other Drugs. The authors observed an increase in spirits consumption alongside a decline in alcopops consumption which, as Doran and Digiusto (in press) suggest, may represent a partial substitution effect or an underlying trend. It should also be noted that methodological weaknesses have been highlighted with the Müller et al. study elsewhere in the literature (Wagenaar, 2010).

In February 2004, Switzerland introduced a 300 per cent tax increase on alcopops. Alcopops sales appeared to decline considerably following the tax increase (Wicki et al., 2006). Indeed recent data from Euromonitor International reports indicates that alcopops sales decreased in 2006 and 2007 due to the resultant higher prices and negative image; however, this trend reversed in 2008 with further growth evident in 2009 and 2010. In particular, while spirit-based alcopops appear to have gradually declined, wine- and beer-based alcopops increased in popularity and contributed to overall growth. In 2010, alcopops experienced growth in total volume sales of approximately 2 per cent (Euromonitor International, 2011b).

New Zealand Law Commission (2010) is a review of the country's extant alcohol legislation, published in May 2010, which includes a number of recommendations on alcohol taxation and pricing policies currently being considered by the government. While the Commission shared the wider public's concerns about excessive consumption of alcohol products such as RTDs, they concluded that there was insufficient evidence supporting a higher excise tax on RTDs. They cautioned that such a tax could lead to substitution to full-strength spirits and self-mixing of spirit-based drinks, in addition to the development of other alcohol products targeting young drinkers. In any case, they also noted that, within the context of price per standard drink, spirits, beer and wine are all substantially cheaper than RTDs.

In the UK, the government recently decided against an increase in RTD taxes, citing evidence of the marked reduction in consumption of RTDs between 2001 and 2008; lack of support for the contention that RTDs are disproportionately responsible for alcohol-related harms; and observation that while young adults (18-24 years) and hazardous drinkers were the main consumers of RTDs, most of the alcohol consumed by men and women was beer and wine, respectively (HM Treasury, 2010).

# POLICY 3. MINIMUM PRICING OF ALCOHOL

As outlined above, taxation has been widely used both nationally and internationally as a policy lever for influencing the price of alcohol. Interest in minimum pricing as a complementary policy for reducing excessive alcohol consumption has gained traction in recent years, particularly in the UK. Specifically, minimum pricing sets a floor price per unit of pure alcohol (UK definition) or per standard drink (Australian definition) below which it would be illegal to sell alcohol.

A floor price ensures that a minimum pricing policy cannot be circumvented or undermined by adaptive marketing, deep discounting, and below-cost sale strategies (Hunt et al., 2011; Rabinovich et al., 2009). Adaptive marketing strategies have been frequently employed to undermine alcohol taxation. For example, following the introduction of the special tax on spirit-based alcopops in Australia in April 2008, the alcohol industry developed beer-based alcopops (e.g., Smirnoff Platinum) to circumvent the tax increase (Rolfe, 2009) and low carbonate and low alcohol content alcopops to reduce the tax component (Euromonitor International, 2011a). Furthermore, as discussed in the 'Special/additional tax - alcopops tax' section earlier, the alcohol industry undermined the alcopops tax through the promotion of spirits and free soft drinks. In a similar vein, loss-leading (or below-cost sales) strategies are frequently used in the off-trade, particularly by large alcohol retailers such as supermarkets. The Henry Review acknowledged that while volumetric taxation would provide a floor price for alcohol, alcohol can still be sold below cost or given away (Henry Review, 2010: 440).

Bans on below-cost sales are difficult to monitor and enforce due to difficulties in defining what constitutes 'cost' (New Zealand Law Commission, 2010; Roberts, 2011). In general, below-cost sales have been defined as selling a product below the cost of duty plus VAT or, if one were to be conservative, production, distribution and marketing costs would also be factored in (Hunt et al., 2011). Below-cost sales are a prominent feature of the Australian and EU markets. For instance, in March 2011 Australia's largest brewer, Foster's, withheld supplies of beer to Coles and Woolworths after reports emerged that the supermarkets planned to sell beer below-cost price. The supermarkets, which collectively control approximately 50 per cent of Australia's alcohol distribution, were allegedly planning to sell 24 Victoria Bitter stubbies for $28 (i.e., $1.10 per standard drink; 4.6 per cent alcohol and 375ml stubbies), which normally have a wholesale price of $33 and retail for $38 (Ferguson, 2011). Loss leading is not restricted to beer sales. In June 2011, a Western Australia parliamentary committee report highlighted the case of a regional Woolworths Dan Murphy store selling a bottle of wine for $1.95 (or $1.85 if purchased as part of a dozen bottles) (i.e., $0.33 per standard drink; 12.5 per cent alcohol and 750ml) (Education and Health Standing Committee, 2011).

In terms of the UK, a Competition Commission inquiry found that ten leading supermarkets reported engaging in below-cost sales, with such practices ranging from eight to 25 weeks in duration and accounting for approximately 3 per cent of total revenue (Competition Commission, 2007). In fact, the total value of below-cost sales of alcohol during the 2006 football World Cup by five leading UK supermarkets was approximately £38.6 million (Competition Commission, 2008).

## WHAT IS THE EVIDENCE BASE FOR MINIMUM PRICING?

In 2008 the Ukraine introduced minimum pricing and, in 2010, Russia, Uzbekistan, and the Republic of Moldova followed suit. For example, on 1st January 2010 Russia introduced a minimum price of 89 roubles ($3) for a half-litre bottle of vodka, which was subsequently increased to 98 rubles on 1st January 2011. Before minimum pricing, a half-litre of vodka sold for approximately 40 rubles. The Russian Finance Ministry have proposed increasing the minimum price of a half-litre bottle of vodka to 200 rubles by 2013. In June 2010, minimum pricing was introduced for alcoholic beverages greater than or equal to 28 per cent abv (Jargin, 2011). On 1st January 2011, a minimum price was introduced for brandy. The wholesale price of the cheapest half-litre bottle of brandy is 165-175 rubles, with a final retail price of minimum of 190-210 rubles[29].

In Canada, minimum pricing is commonly referred to as 'social reference pricing' and is in place in eight of the 10 provinces (i.e., Nova Scotia, Newfoundland and Labrador, New Brunswick, Prince Edward Island, Ontario, Manitoba, British Columbia, and Saskatchewan), with prices varying between provinces. Despite being in place since the 1990s, there are no published evaluations regarding the effectiveness of the policy currently available. We understand however that research evaluating minimum pricing regulations in four of the Canadian provinces is currently underway by Professor Tim Stockwell and colleagues[30].

## MODELLING ANALYSES IN ABSENCE OF AN EVIDENCE BASE

Much of the research and campaign for minimum pricing has been based in the UK. In 2008, the UK Department of Health commissioned a team of researchers at Sheffield University to systemically review the impact of a range of alcohol pricing policies on alcohol consumption and related harms (Meier et al., 2010; Purshouse et al., 2010). Analyses focused on the population as a whole and particularly on three groups of concern: underage drinkers, 18-24 year old binge drinkers, and harmful drinkers. Sophisticated economic-epidemiological modelling analyses revealed that very low thresholds would have minimal impact but effectiveness rapidly increased between thresholds of £0.40 and £0.70 per unit of alcohol (Purshouse et al., 2010). According to Meier et al. (2010), a £0.50 minimum price per unit of alcohol would result in a 6.9 per cent reduction in consumption in the population as a whole. Hazardous and harmful drinkers tend to pay less per unit of alcohol than moderate drinkers. Men's consumption is affected less than women's unless the minimum price is directed at beer or a higher (more meaningful) minimum price is applied to on-trade sales. Young hazardous drinkers are more affected by on-trade minimum pricing. Based on these findings, Liam Donaldson the Chief Medical Officer for England in 2009 (Department of Health, 2008) predicted that over 10 years a £0.50 minimum price per unit of alcohol would result annually in 3,393 fewer deaths, 45,800 fewer crimes, 97,900 fewer hospital admissions, and 296,900 fewer sick days; ultimately saving over £1 billion.

Approximately two-thirds of the total volume of pure alcohol was sold through off-trade sales in Scotland during 2010 (Robinson, Craig, McCartney, & Beeston, 2011a) and in England and Wales in 2009 (Robinson, Catto, Beeston, & Gruer, 2011b), compared to one third sold through the on-trade. More specifically, in England and Wales, of the proportion of alcohol sold through the off-trade, 16 per cent of off-trade alcohol was sold below £0.30 per unit; 48 per cent was sold below £0.40 per unit; 76 per cent was sold below £0.50 per unit; and 88 per cent was sold below £0.60 per unit (Robinson et al., 2011b). In Scotland, 10.8 per cent of off-trade alcohol was sold below £0.30 per unit; 45.3 per cent was sold below £0.40 per unit; 73.4 per cent was sold below £0 50 per unit; and 87.2 per cent was sold below £0 60 per unit (Robinson et al., 2011a). On average, the price per unit was £0.45 through off-trade sales and £1.34 through on-trade sales, meaning that if minimum unit pricing were to be introduced it would have a greater impact on off-trade sales (Robinson et al., 2011a). As Robinson et al. (2011a) point out, if minimum pricing was introduced, it would be necessary to examine changes in alcohol prices (which products were affected and by how much) and disposable incomes to determine whether they contribute to the impact of a minimum price per unit on consumption and related harms.

## MINIMUM PRICING DISCUSSIONS IN AUSTRALIA

In early June 2011, the Australian media reported that the federal government were considering implementing a nationwide minimum price per standard drink (Martin 2011a, 2011b). Specifically, based on a report by the National Preventative Health Taskforce (2009), the Australian National Preventative Health Agency was federally established on 1st January 2011 with one of its mandates to develop the concept of minimum pricing by 2012. The federal Health Minister, Nicola Roxon, indicated that whilst important, it is a preliminary step and the proposals would have to be considered by all states and territories.

In Australia, discussion and calls for minimum pricing have been voiced in the Northern Territory for some time. Internationally, the campaign for minimum pricing gathered pace and renewed relevance following publication of the modelling analyses undertaken by academics at Sheffield University (discussed above under the 'Modelling analyses in absence of an evidence base' section).

## SUPPORT FOR MINIMUM PRICING IN AUSTRALIA

Australian advocates of minimum pricing include the NAAA, Cancer Council Australia, Australian Hotels Association, and National Preventative Health Taskforce. In addition, the Aboriginal Medical Services Alliance, Aboriginal and Torres Strait Islander Social Justice Commissioner Mick Gooda, Greens Senator for Western Australia, Rachel Siewert, and Dr John Boffa from the Alice Springs People's Alcohol Action Collation have lobbied in favour of the policy. Dr Boffa has endorsed a minimum price of $1.20 per Australian standard drink; this is equivalent to £0.64 per UK unit of alcohol[31].

In December 2010, the Territory's Chief Minister Paul Henderson indicated he was willing to consider introducing minimum pricing (McNally, 2010). However, in April 2011 he stated that its implementation was not feasible due to the 1997 High Court ruling whereby states and territories of Australia were no longer afforded the constitutional power to raise alcohol taxes, assigning power instead to the federal government. In response, Dr John Boffa argued that since minimum pricing is not a tax it could be implemented by states and territories (Raper, 2011).

In late June 2011, Australia's leading supermarket chains publicly backed minimum pricing. Specifically, Coles pledged that they would sell a bottle of wine for at least $8 (previously wine sold for as little as $4.99) and would no longer stock two-litre casks in any of their Alice Springs stores from 1st July 2011. This move effectively sets a floor price of $1.14 per standard drink. Woolworths quickly followed suit, announcing they would no longer sell two-litre casks in their Alice Springs stores. Previously these drinks retailed for $12.99 ($0.62 per standard drink) in Woolworths and $10.99 (less than $0.50 per standard drink) in Coles (Martin & Rosenberg, 2011). IGA have already trialled a minimum price of $1.15 per standard drink in one of their Alice Springs stores and are considering extending the price to their remaining stores in the town (Martin & Rosenberg, 2011). They also announced that they would no longer stock two-litre casks (Byrne, 2011). As discussed in detail below, the Northern Territory Licensing Commission extended the ban sales of four- and five-litre cask wine to Darwin, Palmerston and rural regions in 2010. These are areas that were not previously covered by the ban; the ban now covers all major townships and regions in the Territory[32].

At the time of writing, three alcohol outlets in Alice Springs (i.e. Piggly Wiggly's, Todd Tavern, and Gap View Hotel) had yet to follow the lead of the big supermarkets, and reports suggest that the Territory Government would prefer a federal volumetric taxation approach (Byrne, 2011). Similarly, the Alice Springs town council voted five votes to three to ask the supermarkets to discard these plans (Martin, 2011c).

## PROXY MINIMUM PRICING RESTRICTIONS IN AUSTRALIA

In the Northern Territory, alcohol consumption exceeds the national average; it is estimated that if the Northern Territory were a country, it would boast the second highest rate of per capita alcohol consumption in the world (South Australian Centre for Economic Studies, 2009). Excessive consumption of cask wine is a particular concern in the Northern Territory as well as in Western Australia. Cask wine is an Australian invention which appeared on the domestic market during the early 1970s (Stockwell & Crosbie, 2001). Cask wine is sold as cheaply as $0.30 per standard drink, not only in the Northern Territory but also Australia-wide (based on authors' own calculations of cask wine prices Australia-wide).

In response to concerns about cask wine consumption, several remote and regional Australian communities (some of which have large Aboriginal populations, such as Tennant Creek in the Northern Territory and Derby in Western Australia) have restricted the sale of large wine casks. Often in tandem with other restrictions on alcohol (e.g., limiting of take away sales to certain times of the day), this measure has typically involved bans on the sale of four- and five-litre wine casks and limits on the sales of two-litre wine casks (National Drug Research Institute, 2007). A comprehensive review of the evaluations associated with these interventions is provided elsewhere (see National Drug Research Institute, 2007). Briefly, this evaluation highlighted three instances where it was possible to adequately distinguish between the effects of restricting the sales of wine casks and other restrictions (i.e., Tennant Creek and Alice Springs in the Northern Territory, and Newman in Western Australia). In these instances, there was clear evidence of the ability of this proxy control on minimum prices to reduce per capita consumption of alcohol and associated harms, despite some substitution into other alcoholic beverages (see National Drug Research Institute, 2007). At present, the effectiveness of the price-based restrictions is being systematically evaluated in a major independent evaluation by the National Drug Research Institute.

It is worth noting measures taken by the alcohol industry to undermine the cask-wine restrictions. For example, in Alice Springs, alcohol retailers introduced cheap port in two-litre casks following the ban on the sale of wine in containers greater than two litres. Similarly in Newman, the sale of 1.5 litre plastic bottles of port effectively circumvented the restriction on the sale of port in two-litre casks of fortified wine (National Drug Research Institute, 2007).

## MINIMUM PRICING PROPOSALS IN THE UK

During the late 1990's, devolved government was introduced in the UK. Specifically, whilst the Westminster government retains sovereignty on national policy matters such as taxation, the National Assemblies (or Executives) for Scotland, Wales and Northern Ireland are able to pass laws in specific fields. Arrangements in the three devolved administrations vary, reflecting their different histories and administrative structures[33]. Before discussing the minimum pricing proposals considered by these regional governments, attention will focus on interest in minimum pricing at the local authority level (i.e., Oldham, Greater Manchester, Middlesbrough, Wirral, Newcastle, and Cheshire East).

***UK local authority level. Oldham.*** In 2009, Oldham, a borough in Greater Manchester, was labelled the 'binge drinking capital of Britain' in a series of national media reports. For instance, Yorkshire Street (the main drinking area) reported a 200 per cent increase in serious violent incidents during the first four months of 2009 (Bilton, 2009a). In response, Oldham council reviewed the licences of 22 bars and clubs in the town centre and passed a bylaw in August 2009 whereby premises wishing to sell alcohol below £0.75 per unit of alcohol had to adopt a series of measures. Specifically, customers were prohibited from standing near the bar and instead had to queue one at a time in a post office style queuing system and, when at the bar, could only buy a maximum of two drinks per round (whilst supervised by extra door staff and police officers). Those bars or clubs which refused to follow the council's conditions faced losing their licence. Most venues accepted the conditions (Bilton, 2009b). As a result of the policy, violent night-time crime dropped by 27 per cent in the town centre and figures from the Greater Manchester Police indicated a 63 per cent decline in serious violent crime and 28 per cent drop in serious crime during the 2009 Christmas period (Foottit, 2010). More recent statistics indicate that violent crime dropped from 24 incidents per month in 2008 to 18 incidents per month in 2010 (Reed, 2011). The council targeted off-trade premises in November 2009 and invited 15 supermarkets to adopt a series of measures regarding promotional selling of alcohol below £0.50 per unit[34] (see Ban on discounts and promotions for more).

***Greater Manchester.*** In November 2010, the Association of Greater Manchester Authorities (AGMA), which comprises 10 councils making up Greater Manchester, drafted a bylaw to impose a minimum price of £0.50 per unit on all drinks sold across the city and surrounding suburbs (as well as a ban on pub loyalty-card schemes)[35]. This would mean that a bottle of wine would cost a minimum of £4.50 and a two-litre of cider would cost £5.50 (Linton, 2010). The measure is estimated to save the health service sector £1.375 billion per annum over 10 years. Those failing to comply with the proposed rules could face a fine of £500. The UK Prime Minister, David Cameron, signalled support for the measure indicating that such efforts would be looked upon *"very sympathetically"* (Tapsfield, 2010). At the time of writing, not all of the 10 councils had agreed to the bylaw (Mathieson, 2011).

***Middlesbrough.*** Middlesbrough boasts one of the highest levels of alcohol-related health problems among those aged under 19 years in England. Following a consultation period, Middlesbrough Council approved a licensing policy in January 2011 for 2011-2014 that will encourage all licensed premises to impose a minimum unit price of £0.50 on all alcoholic beverages[36]. If a premise sells alcohol below this threshold their licence will be reviewed.

***Wirral.*** Proposals to introduce minimum pricing in Wirral (a borough in Liverpool) were defeated[37] in early 2011.

***Newcastle.*** At the time of writing, councillors in Newcastle were lobbying for the introduction of minimum pricing across the North East of England (Pearson, 2011).

***Cheshire East.*** In April 2011, Cheshire East Council agreed to minimum pricing in principle and the drafting of a bylaw in conjunction with neighbouring authorities. At the time of writing, the bylaw was drafted and being considered by the chief executives of the three respective authorities with a view to implementation in early 2012 (personal communication with Guy Kilminster, Head of Health and Wellbeing Services, Cheshire East Council; September 2011).

***UK regional government level: Scottish Executive.*** In Scotland, the societal costs of alcohol misuse are estimated to range from £2,476.6 million to £4,635.4 million per annum, with a mid-point estimate of approximately £3,555.7 million. This means that alcohol misuse costs each Scottish adult £900 every year (Scottish Government, 2010a). Against this background, the Scottish National Party (SNP) has spearheaded the campaign for minimum pricing in the UK. The SNP were elected to government for the first time in 2007 and set about changing the Scottish alcohol policy landscape. This included a consultation paper (Scottish Government, 2008) and follow-up strategic framework document (Scottish Government, 2009) focusing on the role of pricing and availability in influencing alcohol consumption. Following an expert workshop on alcohol price, policy and public health, the Scottish Health Action for Alcohol Problems made a series of recommendations, including a proposal for minimum pricing (SHAAP, 2007). Modelling studies were also conducted by Sheffield University for the Scottish Government (e.g., ScHARR, 2009).

Against this background, the SNP proposed a minimum price of £0.45 per unit of alcohol in September 2010. According to Nicola Sturgeon - Deputy First Minister of the SNP and Cabinet Secretary for Health and Wellbeing - minimum pricing would result in 1,200 fewer hospital admissions and 22,900 fewer days absent from work in the first year of the policy, 2,600 fewer offences annually, and 225 fewer deaths within a decade; ultimately saving the country £721 million over a 10-year period[38]. Scotland's Lord Advocate at the time, Elish Angiolini, argued that without minimum pricing the country faced an 'apocalypse' of alcohol-fuelled crime[39]. Under a £0.45 minimum pricing plan, a two-litre bottle of supermarket-brand cider would increase from £1.32 to almost £3.80 and supermarket-brand vodka would rise from £8 to £11.80. Whisky from the UK's leading supermarkets, Asda and Tesco, would increase from £9.20 and £9.95, respectively, to £12.60, but there would be no change for other brands such as Bell's, Whyte & Mackay, Famous Grouse or Johnnie Walker, which all currently retail above £14 (Currie, 2010).

However, during the party's first term (2007-2011) the SNP did not hold a majority of seats in the Scottish Parliament and the proposal was defeated by 49 votes to 76 as part of the third and final reading and so removed from the Alcohol etc (Scotland) Bill 2010 in November 2010 (Scottish Government, 2010b). This defeat occurred despite SNP assurances of the inclusion of a sunset clause whereby the policy would be reviewed after six years in order to quell concerns about the lack of evidence-based practice. On this note, objections to the proposal were based on arguments that: minimum pricing has not been tested in practice and there are no natural experiments to draw from; the policy would unfairly penalise responsible drinkers and disproportionately target the poorest in society; and raise incentives for substitution with other intoxicants (Chick, 2010). Indeed, the alcohol industry were particularly vocal in their opposition arguing that minimum pricing would not effectively reduce consumption and alcohol-related harms; may lead to job losses; could cause damage to Scottish Whisky exports and the Scottish economy more generally; and infringe EU competition law (Christie, 2009). The Scottish Labour party argued that the policy effectively amounted to a tax imposed on the less affluent and benefited shareholders of the big supermarkets (Puttick, 2010).

The Scottish administration rejected invitations to adopt the Westminster plan to ban below-cost sales in January 2011 (see below for a more detailed discussion of this policy), arguing that the proposal would have a negligible impact on reducing alcohol misuse and harm (Johnson, 2011a). The SNP included a pledge in their 2011 manifesto to introduce a minimum pricing bill as a priority in their first legislative programme if re-elected (SNP, 2011). In May 2011 they were re-elected to a second term by an historic landslide majority and in September the SNP unveiled their Alcohol (Minimum Pricing) (Scotland) Bill. Specifically, the Bill was introduced in November 2011 and includes the principle of a minimum unit price for alcohol but not an actual price[40]. The SNP maintain that both components should be separately evaluated and and considered; indeed, the Sheffield modelling analyses are being re-run to provide more up-to-date data. Though the Bill will not be contingent on the opposition's support due to the SNP's majority, in June 2011 the Scottish Liberal Democrats made a policy u-turn, announcing that they were in favour of minimum pricing (Philip, 2011).

Following the re-election of the SNP, the Scotch Whisky Association requested a meeting with the Scottish Executive to reiterate their concerns about the legal standing of the policy and long-term consequences on Scotch Whisky exports (i.e., it would potentially encourage countries keen on protecting their local markets to implement spurious health-based restrictions which exclude Scotch Whisky)[41]. The Scotch Whisky Association argue that £620 million could be lost in Scotch Whisky imports in over 140 markets worldwide and, in domestic markets, higher prices could led to counterfeit products, smuggling and job losses (Smith, 2009). The BBPA and Wine and Spirit Trade Association also oppose minimum pricing. For instance, the BBPA maintain that universal price interventions are a blunt instrument ill-suited to addressing alcohol misuse, and point out that many Scots could easily travel over the border to England, or go online, to purchase cheaper alcohol. By contrast, the Scottish Licensed Trade Association suggests that tackling irresponsible pricing by supermarkets will help alleviate alcohol-related problems and are hopeful that the SNP will implement minimum pricing soon (Perrett, 2011).

***Westminster Government.*** In England, recent estimates indicate that there were 1,057,000 alcohol-related hospital admissions to hospital in 2009-10; 6,584 deaths were directly related to alcohol in 2009; and the cost of alcohol-related harm for the NHS was estimated to be £2.7 billion based on 2006-07 prices (NHS Information Service, 2011). Against this background, in May 2010, the Coalition Government between the Liberal Democrats and Conservatives published their manifesto, including a pledge to ban below-cost sales of alcohol and to review alcohol taxation and pricing policies to address excessive drinking (HM Government, 2010). The Minister for crime prevention, James Brokenshire, noted that the move was intended to address the availability of cheap alcohol and reduce alcohol-related crime which costs the taxpayer £13 billion per annum. The new measures prevent retailers from selling a litre of vodka (37.5 per cent abv) for less than £10.71 (£0.29 per UK unit of alcohol) and a 440ml can of lager (4.2 per cent abv) for less than £0.38 (£0.21 per UK unit of alcohol) (Johnson, 2011b).

However, many public health bodies, including the British Medical Association, the Royal College of Physicians and Alcohol Concern, expressed disappointment at the government's proposal arguing that it will not impact on the vast majority of low-priced alcoholic beverages sold in supermarkets and will not help resolve Britain's binge drinking problem. Don Shenker, who recently announced that he is stepping down as chief executive of Alcohol Concern, urged ministers to reconsider a minimum price per unit of alcohol because, since duty is so low in the UK, it would still be feasible to sell alcohol cheaply without breaking the law[42]. In fact in February 2011 the Guardian newspaper published the results of a comprehensive review of drink price data collected by consultancy group Assosia (i.e., a data company which gathers weekly information on high-profile promotions by the UK's four leading supermarkets). The review indicated that none of the 3,667 drink deals identified in the previous three months would increase in price under the new plans (Ball, 2011). Assosia identified 15,746 alcohol promotions in supermarkets during 2010, of which 5,000 required customers to purchase multiple products in order to receive a discount. Alarmed at the ubiquity of offers encouraging excessive alcohol consumption, Alcohol Concern and the Royal College of Physicians called for a ban on such offers. In November 2011, the UK government announced that a ban on below-cost sales will come into effect in England and Wales from 6th April 2012.

The Responsibility Deal, launched in March 2011, represented an effort to bring organisations from the public, commercial, non-governmental, and academic sectors together to agree on pathways by which business and other organisations could best deliver improvements in public health (Department of Health, 2011). In regard to alcohol, the Deal consisted of a series of voluntary pledges from the alcohol industry on issues such as promotions and labelling aimed at targeting alcohol abuse in England. However, six[43] health organisations rejected the plans on the basis that the pledges prioritise the views of the industry and are not measurable or based on evidence of what works successfully in practice, nor do they tackle important issues such as promotion of alcohol[44]. Furthermore, the pledges were criticised for aiming to foster a responsible drinking culture rather than target illness and death (Boseley, 2011). The Home Office defended the proposals on the grounds that they are a 'starting point' for the government's plans to tackle below-cost selling and Health Secretary Andrew Lansley announced that a government alcohol strategy will be released in late 2011. However, the health bodies argue there is no evidence of a comprehensive cross-departmental strategy in tackling alcohol-related harm.

***Northern Ireland Executive.*** The Northern Ireland Assembly are considering introducing minimum pricing amid concerns about excessive drinking and the impact of cheap alcohol on health and resultant anti-social behaviour. A 16-week consultation was launched in March 2011 to elicit comments from interested individuals and organisations on minimum pricing, and alternatives including a ban on below-cost selling, VAT and duty increases, and the introduction of a social responsibility levy[45]. Alcohol misuse is estimated to cost the region approximately £680 million per annum in terms of overall social costs based on 2008-2009 prices (FGS McClure Watters &York Health Economics Consortium, 2010).

The Departments for Health and Social Development proposed a minimum price between £0.40 and £0.70 per unit of alcohol. Under these proposals a six-pack of beer would cost £4.40 or £7.70, respectively, and the minimum price for a bottle of wine would be £4. A minimum unit price of £0.40 and a ban on promotions (the latter is discussed further in 'Bans on price discounts and promotions') is estimated to decrease alcohol consumption by 5.4 per cent and result in a £13.5 million saving per annum to the health and social care sector[46]. At the time of writing, a report on the outcomes of the consultation is being finalised and will be publicly available in late 2011 (personal communication with Caroline Hobson, Social Policy Unit, Department of Social Development; October 2011).

Historically, alcohol has been cheaper north of the border with residents from the Republic of Ireland often travelling to Northern Ireland to purchase alcohol. Indeed, concern about the high volume of residents travelling north to purchase alcohol (as well as other goods), particularly during the busy festive period, have led to calls for 'patriotic shopping' from the Dáil Éireann government (Simpson, 2008). Shortly before the change of government and ministers in the Republic of Ireland in March 2011 and Northern Ireland in May 2011, discussions took place between ministers from the Northern Ireland Assembly and Dáil Éireann government (under Fianna Fail) to introduce minimum pricing across Ireland[47]. In August 2011 Dublin's Lord Mayor, Andrew Montague, called for the Dáil to work collaboratively with the Northern Ireland Assembly to introduce a minimum price for off-licence sales[48]. In October 2011, the Assembly's Health Minister, Edwin Poots, announced that the Northern Ireland government were committed to introducing minimum pricing[49]. This was followed by a similar announcement by Róisín Shortall, a minister in the Dáil Department of Health, involving a minimum price per ounce of alcohol. Shortall indicated that she has sought legal advice regarding implementation of the policy[50].

***Welsh Assembly.*** Finally, the Welsh Health Minister Assembly have voiced their support for minimum pricing[51]. The Assembly sought devolved powers to regulate alcohol prices, licensing and advertising, but their request was rejected in early 2011[52]. Alcohol Concern Cymru has called upon the Welsh Assembly to be given powers to set a minimum price of £0.50 per unit of alcohol[53].

## GRASSROOTS SUPPORT FOR MINIMUM PRICING OF ALCOHOL IN THE UK

In the UK, minimum pricing enjoys support from a wide range of health organisations and campaigners, including: Alcohol Focus Scotland; Alcohol Concern; Association of Chief Police Officers in Scotland; all four of the UK's Chief Medical Officers; all 17 directors of public health in NHS Scotland; British Liver Trust; British Medical Association; brewers Tennent's and Molson Coors, and CAMRA (Campaign for Real Ale); Childline (as part of a consortium of Scottish Children's organisations comprising Children 1ST, Aberlour, YouthLink Scotland, Barnardo's Scotland, Action for Children Scotland, Quarriers, Parenting across Scotland); European Public Health Alliance; House of Commons Select Committee; National Institute for Health and Clinical Excellence; Royal Colleges of Nursing, Physicians, Surgeons and GPs; Royal College of Psychiatrists in Northern Ireland; Scottish Licensed Trade Association; SHAAP; and the Youth Commission on Alcohol. In fact, in tandem with representatives from several of these organisations, a number of celebrities signed a public statement in support of minimum pricing in November 2010. In Ireland, Alcohol Action Ireland[54] has voiced support for minimum pricing and higher alcohol taxes on the grounds that these measures will lower consumption rates; the Vintners Federation of Ireland supports minimum pricing as a means of ensuring that pubs are on a level playing field with supermarkets (O'Doherty, 2011).

In May 2010 the UK's leading supermarket, Tesco, announced its support for minimum pricing with Morrisons following suit. In fact, in July 2010 Asda became the first supermarket chain to introduce a ban on below-cost alcohol sales. Specifically Asda introduced a policy banning the sales below the cost of duty plus VAT on 99 per cent of their alcohol products (store managers retained power to set prices for damaged or end of range products). Under this move, the cheapest price for a 750ml bottle of wine was £1.99, £10.49 for a one-litre bottle of vodka, and £8.95 for 20 440ml cans of 5 per cent abv beers[55]. Since then the VAT has increased from 17.5 per cent to 20 per cent and the duty has also risen. By our calculations the comparable prices in August 2011 would be £2.17 for wine; £12.25 for vodka and £9.80 for beer. In terms of a standard Australian drink (10mg of alcohol) these prices correspond to $0.28, $0.39 and $0.28, respectively. The analogous prices for a UK standard drink (10ml alcohol) are £0.22, £ 0.31 and £0.22 respectively. Sainsbury's however oppose minimum pricing arguing that it would unfairly penalise customers and cite the lack of evidence indicating that this measure would curb excessive drinking.

In terms of public opinion, an Ipsos MORI poll in 2010 indicated that only one-third of Scottish adults supported a government policy for increasing the price of discounted and low-price alcohol[56]. By contrast, a nationally representative survey of the Irish general population indicated that two out of three adults support minimum pricing[57]. Most recently, Hagger, Lonsdale, Baggot, Penny, and Bowen (2011) conducted focus groups in the UK to elicit public opinion about minimum pricing. The authors found that participants generally greeted the introduction of minimum pricing with scepticism, believing it would not be effective in reducing alcohol consumption. In addition, participants indicated that they believed minimum pricing would unfairly punish moderate drinkers and voiced concern that it may give rise to or exacerbate extant social problems, such as crime and drug abuse. The study highlighted that many failed to understand that minimum pricing is targeted at increasing the price of cheap alcoholic products rather than all alcoholic beverages and they often confused the measure with increases in excise duty. When asked what would increase the acceptability of minimum pricing, participants generally indicated that minimum pricing should be introduced as part of a package of policies aimed at significantly reducing excessive alcohol consumption and that the additional revenue generated should be directed at interventions.

## PROS AND CONS OF MINIMUM PRICING

***Why should the sensible majority be penalised for the excesses of a small minority?*** One of the principal arguments levied against minimum pricing is that it would penalise the majority for the sake of a few. In actual fact, drinkers who consume alcohol within recommended guidelines would only be marginally affected. Minimum pricing directly targets cheap alcoholic beverages which tend to be purchased more often by heavy (weekly mean consumption of >21 to <50 UK units for men and >14 to <35 for women) and harmful drinkers (weekly mean consumption per week of >50 UK units for men and >35 units for women) rather than moderate drinkers (weekly mean consumption <=21 UK units for men and <=14 for women (Purshouse et al., 2010). Its greatest impact will be on those who buy the most off-trade alcohol (Department of Health, 2008; Griffith & Leicester, 2010). Modelling analyses from the UK suggest that a £0.50 minimum price per unit would increase a moderate drinker's annual alcohol expenditure by £12, but a harmful drinker's by £163 (Purshouse et al., 2010).

Contrary to arguments that low-income households would be disproportionately targeted under minimum pricing, findings from the UK Food and Expenditure Survey indicate that all income groups tend to purchase low price off-sales alcohol, not simply those with less disposable incomes. In fact, it is the middle-income groups who tend to purchase most low-price alcohol (Ludbrook, 2010a). This mirrors research by Griffith and Leicester (2010) who found that it is the more affluent households, rather than low-income households, who tend to buy alcohol on special offer.

***'Nanny is back and she is after your cask wine'.*** Though a floor price is currently hypothetical in Australia, cheap cask wine at least will be affected and, according to some media reports, the price could quadruple (Martin, 2011b). The WFA has objected on behalf of low-income cask wine consumers, especially age pensioners consuming modest amounts of alcohol (Winemakers' Federation of Australia, 2009, 2011). Sociodemographic analyses of a nationally representative sample of Australian wine consumers suggests that wine consumers over the age of 55 purchase a higher share of cask wine, as do low income wine consumers (Mueller & Umberger, 2009). Richardson and Denniss (2011) remind us that the impact of the wine price increase on consumers should be weighed against the benefits of increased government revenue accruing from the wine taxation and the reduction in government spending on health care arising from diminished alcohol consumption, which could result in lower taxes in other areas and expanded government services. Furthermore, their analysis of household expenditure survey data showed that age pensioners devote a lower proportion of their expenditure to wine than the average Australian.

***Minimum pricing will encourage 'cross-border white van activity'.*** Minimum pricing is likely to come into force in Scotland within the year. This has prompted concerns by the Wine and Spirit Trade Association that consumers, particularly those living in the Borders area, will travel to England to buy cheaper alcohol (Lodge, 2011). Indeed, as discussed above, a similar situation already exists between Northern Ireland and the Republic of Ireland. Minimum pricing in Scotland also raises the possibility that consumers will turn to the internet to purchase alcohol. This is likely to have significant repercussions for alcohol retailers and businesses in the surrounding areas.

***Minimum pricing will damage the wine industry.*** The Australian Hotels Association supports minimum pricing (Henderson, 2010) but recently expressed concern that the local wine industry would be disproportionately affected under minimum pricing (Australian Hotels Association, 2011). In Australia, wine is currently taxed on an ad valorum basis (i.e., the cheaper the wine, the less it is taxed) compared to beer, spirits, liqueurs and other beverages which are taxed according to alcohol content by volume (abv). For example, a four-litre wine cask (9.5 per cent abv) retailing for $12.99 attracts an effective rate of tax of $4.96 per litre of alcohol, whereas the effective rate of tax for off-trade beer (4.5 per cent abv) is $31.85 per litre of alcohol and the effective rate for similar strength beer sold in on-trade premises is $22.42 per litre of alcohol. The Winemakers' Federation of Australia (2009), in its submission to Australia's Future Tax System, claimed that a change to a volumetric tax at the packaged beer rate of $40.82 per litre would result in a price increase in 95 per cent of wine, a 34 per cent reduction in sales volume and reduced wine producer competitiveness in all markets, including exports, due to the increased cost base resulting from a lower scale of production. It is worth mentioning that their submission did not include any background details to these claims.

***Where does the additional revenue generated under minimum pricing go?*** An important difference between minimum pricing and taxation is that whereas increases in excise duties go directly to the government, the additional revenue generated under a minimum pricing scheme goes to the alcohol producers and off-licence retailers. Additional revenue is anticipated consequent on a price rise; price elasticity of demand estimate lies between 0 and -1, indicating that although consumption falls with price rises, expenditure increases. However, this caveat could be circumvented by borrowing policy initiatives from Scotland. Specifically, the Alcohol etc (Scotland) Bill 2010 (Scottish Government, 2010b) includes a Social Responsibility Levy which enables the government to impose a fee on those selling alcohol to offset alcohol misuse costs. On a related note, since retailers could undermine minimum pricing through the use of promotions (e.g., happy hours), minimum pricing would be best implemented in complement to a ban on promotions.

***Does minimum pricing have legal standing?*** Finally, arguments against minimum pricing have been based on legal and competition policy grounds. In Australia, states and territories retain responsibility for licensing of alcohol retailers. Minimum pricing legislation could be introduced by the states or territories, or the Commonwealth. Similar to arguments raised in European debates about minimum pricing, state based legislation potentially risks introducing barriers hindering the free trade in alcohol products between Australian states and territories. A recent review of the issues surrounding the introduction of minimum pricing advises that *"because of the pre-eminence of National Competition Policy, the impact ... on competition will need to be carefully assessed"* (Davoren, Scollo & O'Brien, 2011: 4). Liquor accords offer a non-legislative, but less desirable alternative, whereby minimum prices within venues are agreed by signatory licensees, and authorisation obtained from the Australian Competition and Consumer Commission (Davoren et al., 2011).

Arguments surrounding the legality of minimum pricing have been central in Scottish debates about the policy. Minimum pricing is considered not to contravene UK competition regulations if prices are levied on licensees by law or a public authority (SHAAP, 2007). Some opponents nevertheless argue that minimum pricing is a trade -distorting policy that infringes EU competition law. Indeed, in 2009 the Irish Spirits Association indicated they were prepared to challenge the legality of minimum pricing legislation before the European Court of Justice (ECJ) (Peterkin, 2009). In March 2010, the ECJ ruled against legislation in France, Austria and Ireland involving tobacco minimum pricing. Specifically, they posited that the public health gain could be adequately achieved through increased taxation and that minimum pricing violated Council Directive 95/59/EC by limiting the ability of producers and importers to decide their maximum retail selling prices. However, the EU directive for alcohol (92/83/EC) is only concerned with excise duties and indeed on two separate occasions the European Commission has indicated that the Directive does not preclude Member States from levying minimum retail prices for alcoholic beverages. Against a background of loss-leading practices and promotional offers, it is clear that alcohol taxation is not sufficient to ensure an increase in alcohol price. Accordingly, minimum pricing could legitimately be conceptualised as a means to achieve public health gains[58].

## Calls for minimum pricing elsewhere

The New Zealand Law Commission (2010) has recommended that the New Zealand Government investigate the impact of a minimum pricing scheme and deliver a formal report by 2012. Since this would involve collecting distribution and sales data from retailers to identify the most effective minimum price threshold, the Commission called for legislation requiring all off-licences to maintain a record of transactions according to product and price groupings. The Alcohol Reform Bill[59] is designed to implement the Government's response to the Law Commission report. Based on recommendations by the Justice and Electoral Committee, the Bill will include a provision that all alcohol outlets provide information to the Government, free of charge, on price and quantity of alcohol sold; those licensees who fail to comply will be fined (not exceeding $20,000)[60]. Drawing parallels between the cheap alcohol prices available in Scotland and New Zealand, the organisation have argued that a minimum price of at least $2 per standard drink should be introduced to reduce consumption, particularly among young people[61].

A number of proxy minimum pricing policies exist in several European countries. In Germany, for instance, the Apple Juice law requires bars to offer at least one non-alcoholic beverage cheaper than the cheapest alcohol beverage (Rabinovich et al., 2009). Furthermore, in Switzerland some cantons (provinces) require that restaurants offer at least three alcohol-free drinks cheaper than the cheapest alcohol beverage of equivalent quantity (Rabinovich et al., 2009).

# POLICY 4. BANS ON PRICE DISCOUNTS AND PROMOTIONS

Over the past decade, alcohol marketing has expanded considerably in terms of the extent and repertoire of media and digital communication technologies (Babor et al., 2010). This section focuses specifically on micro-level forms of alcohol marketing, namely price discounts and promotions (alcohol marketing and advertising more broadly falls under Babor et al.'s 'restrictions on marketing' strategy framework and is therefore not examined in this review). In on-trade settings (i.e., bars, clubs, restaurants), discounting and promotions of alcoholic beverages often take the form of 'happy hour', 'ladies drink free', 'two for one', and 'toss the boss' offers[62] in order to attract patrons, particularly price-sensitive patrons such as young adults.

Research indicates that such marketing strategies increase alcohol consumption. In the United States, for instance, experimental studies have shown that the alcohol consumption of heavy and light drinkers more than doubled during simulated 'happy hours' (Babor, Mendelson, Greenberg, & Kuehnle, 1978; Babor, Mendelson, Uhly, & Souza, 1980). Kuo, Wechsler, Greenberg, and Lee (2003b) evaluated the impact of alcohol marketing in off- and on-trade establishments surrounding several colleges in the District of Columbia. Based on data from over 10,000 students, they found that higher rates of binge drinking were correlated with the availability of large volumes of beer, exterior and interior advertising, and promotions including volume discounts, price specials, and coupons. Thombs et al. (2008, 2009) reported significant associations between intoxication and drink specials, particularly with 'all you can drink' promotions. In off-trade settings (i.e., bottleshops, supermarkets) alcohol is heavily discounted and sold as a loss-leader in order to attract customers into a store. As discussed in the 'Minimum pricing of alcohol' passage earlier, minimum pricing has been put forward as a means of counteracting such discounting practices.

As Kuo et al. (2003b) suggest regulating marketing practices (e.g., promotions, sale prices) represents a promising avenue for reducing alcohol consumption and related harms among young people. Modelling analyses by Purshouse et al. (2010) suggest that restrictions on large discounts (e.g., buy one get one free offers) would not be particularly effective in reducing weekly consumption and health harms but tight restrictions or total bans on off-trade discounting could achieve the equivalent effect of minimum price thresholds of £0.30-£0.40.

Bans or restrictions on happy-hour style promotions have been introduced in several EU member states. In the Republic of Ireland, for instance, the Intoxicating Liquor Act 2003[63] banned 'happy hour' promotions and the Intoxicating Liquor Act 2008[64] included a ban on loyalty card schemes to address concerns about binge drinking. Several states in the USA (e.g., Massachusetts, Kansas) prohibit or restrict drink specials such as 'happy hour' and the hours during which venues may offer discounts[65]. In Canada, for instance, restrictions on happy hour promotions were introduced in Alberta in 2008. A patron is not allowed to buy more than two standard drinks after 1am, and special drink prices must not be below the approved minimum prices of the Alberta Gaming and Liquor Commission[66]. Furthermore, in Ontario licensed premises are prohibited from advertising liquor prices and promotions, both inside and outside venues, in a manner which encourages excessive consumption (specifically the phrase 'happy hour' is banned) and drink prices that are based on the purchase of other drinks are prohibited (e.g., 'two for one' offer, 'second drink is half off')[67].

However, despite the introduction of such bans and restrictions, little empirical research has examined their impact (Babor et al., 2010). Smart and Adlaf (1986) and Smart (1996) evaluated the effects of happy-hour bans in Canada and the United States, respectively, and found little evidence of a decline in alcohol consumption; however as Babor et al. (2010) point out both studies suffered from methodological limitations.

Meier et al. (2010) concluded that banning off-trade promotions would induce a 2.8 per cent reduction in population level consumption in England, but only a 0.9 per cent reduction in the consumption of hazardous drinking by young people. Women's consumption would reduce more than men's (4.1 per cent versus 2.1 per cent) and hazardous and harmful drinkers would consume 3 per cent less while the consumption of moderate drinkers would fall by less than 2 per cent. There was insufficient information to explore the effects of banning on-trade promotions. Analyses for the Scottish government considered the application of non-specific minimum pricing with a ban on off-trade promotions. A total ban on off-trade discounting was estimated to reduce overall Scottish consumption by 3.1 per cent and a £0.50 minimum price would reduce overall consumption by 6.7 per cent; a combination of both policies would reduce consumption by 8.7 per cent (Purshouse et al., 2010).

In June 2011, English trade leaders and licensees called on the Government to take action on the failure of supermarkets to remove alcohol promotions from their store entrances. At the time of writing, only Asda had removed alcohol promotions from their entrances and Health Secretary Andrew Lansley had written to the other major supermarkets (i.e., Sainsbury's, Tesco, the Co-op, Marks and Spencer, Waitrose) inviting them to commit to the government's Responsibility Deal (discussed above) (Pescod, 2011).

## REGULATORY FRAMEWORKS AND CODES OF PRACTICE

Restrictions or bans on price discounts and promotions generally fall under regulatory frameworks. Regulatory frameworks may be conceptualised on a continuum, with self-regulation (or industry-led regulation) at one end and government regulation (or 'command and control' regulation) at the other end (New Zealand Law Commission, 2010: 331) . The space between both endpoints comprises a variety of options involving components of both forms of regulations, including enforced self-regulation and co-regulation (New Zealand Law Commission, 2010).

Under self-regulation, there is little if any government involvement, apart from the general underlying legal framework relating to consumer protection, business, contracts, and competition. Accordingly, *"the rules that govern market behaviour are developed, administered and enforced by the people whose behaviour is to be governed, rather than being imposed by the state"* (New Zealand Law Commission, 2010: 331). Self-regulation is usually practised through codes of practice. As indicated by its name, under government regulation, the government sets the rules.

Under enforced self-regulation, a model developed by Ayers and Braithwaite (1992), the state and individual firms collaboratively establish regulations that are particularised to the circumstances of each firm. Each firm is required to draft their own regulatory standards or the state will impose harsher, less tailored standards. This strand of self-regulation is enforced in the sense that: *(i)* the state requires the firm to undertake self-regulation and *(ii)* the privately written rules of practice are publicly enforceable. Co-regulation involves industry self-led regulation with some degree of ratification by government.

Each regulatory model is associated with strengths and caveats. For instance, the strengths of government regulation include universal coverage, compulsions, and a legal framework to ensure guidelines are enforced, democratic accountability, minimum standards relating to quality and service performance. On the other hand, government regulation may be argued to be expensive, inefficient, ill-suited to promoting innovation, and associated with enforcement difficulties. Indeed, as pointed out in the New Zealand Law Commission report (2010), punitive enforcement may foster a 'regulatory cat and mouse' game in which industry goes against the spirit of the law by taking advantages of loop-holes, to which the state responds by writing additional, more specific rules to close such loopholes. The alcopops tax and subsequent adaptive marketing by the alcohol industry is an example of this practice. As discussed in the 'Special/additional tax – alcopops tax' section earlier, alcopops manufacturers exploited loopholes in the alcopops tax legalisation by manufacturing beer- and wine-based alcopops to circumvent the tax, to which the government subsequently responded by introducing legislation to close this loophole.

Self-regulation has the advantages of being cheaper and more flexible as it requires close scrutiny by government bodies. It may also foster a culture of engagement, goodwill and responsibility on the industry's part who wish to avoid being imposed with greater regulation. However, self-regulation may be abused and the system lacks democratic accountability (New Zealand Law Commission, 2010).

A comprehensive list of international codes is available elsewhere (Burkitt, 2007; International Center for Alcohol Policies, 2001). The following passages summarise a selection of such regulatory frameworks, followed by an in-depth overview of regulatory frameworks in each state and territory in Australia.

***Netherlands.*** In the Netherlands, the Dutch Foundation for the Responsible Use of Alcohol (STIVA), an industry organisation, developed an Advertising Code with rules governing alcohol promotions. As part of this Code, alcohol promotions are prohibited in premises where one-quarter or more of the patrons are minors. Furthermore, premises are prohibited from engaging in the following promotional activities: selling alcoholic beverages for less than half price or for free, offering more than one discounted drink per customer; or offering alcohol discounts in combination with additional free gifts. The Royal Dutch Catering Industry has also published self-regulatory guidelines. Specifically cash discounts should not target people younger than 18 years old, not take place close to closing time, include non-alcoholic drinks and/or snacks, and not be more than half of the original price (van Hoof, van Noordenburg, & de Jong, 2008).

***UK.*** A number of industry Codes of Practice are in place in the UK such as the BBPA's *Standards for the Management of Responsible Drinks Promotions*[68] *and the Portman Group Code of Practice on the Naming, Packaging and Promotion of Alcoholic Drinks*[69]. For instance, the BBPA's guidelines outline a number of promotions that are deemed irresponsible, including promotions that involve large amounts of free alcohol (e.g., women drink free), entry fees which are linked to unlimited quantities of drinks (e.g. '£x.99 on the door and all your drinks are free'), and reward schemes that are redeemable only within short time periods and which encourage the purchase and consumption of large quantities of alcohol.

However, an independent review indicated that self-regulation standards are not consistently adopted and applied across the alcohol industry (KPMG, 2008). As a consequence, a Mandatory Code of Practice[70] was introduced for the sale of alcohol in licensed premises in England and Wales in April 2010 under the Policing and Crime Act 2009 and Licensing Act 2003. The mandatory conditions were introduced in two stages: the first three conditions (irresponsible promotions, the 'dentist's chair' [defined below], and free tap water) were introduced in April 2010 and the remaining two conditions (age verification policies and smaller measures) came into effect in October 2010. Of relevance to the current context, the Code bans irresponsible promotions which includes: *(i)* drinking games; *(ii)* large quantities of alcohol free or at a fixed or discounted rate (e.g., half price drinks for under-25s, women drink free, 'all you can drink for £10'); and *(iii)* the use of alcohol as prizes or rewards. In addition, promotions that involve alcohol being poured directly into a customer's mouth (i.e., the dentist's chair) either by the bartender or another customer are prohibited. Licensees who fail to comply with these conditions face a fine of up to £20,000 and/or a six month prison sentence, as well as a review of the premise's licence.

The Licensing (Scotland) Act 2005[71], which came into effect in September 2009, marked the first major overhaul of Scottish licensing laws in 30 years. The Act bans irresponsible alcohol promotions (e.g., the supply of alcohol free or at a reduced price upon the purchase of one of more drinks, supply of unlimited amounts of alcohol for a fixed price). Though the Act appeared promising in reducing alcohol consumption, in December 2010 a loophole in the law allowed Mitchells and Butlers (the leading operator of pubs and restaurants in the UK) to successfully mount a challenge to a decision taken by the Dundee Licensing Board banning student loyalty cards in one of the firm's city venues (Braiden, 2010). The presiding QC, Sherriff Principal Robert Dunlop, ruled that although the Act states that drink discounts must be in place for 72 hours, it does not prohibit offering different prices to different groups of people. Accordingly, on-trade venues were allowed to continue offering discount drink promotions to groups such as students. Disconcertingly in March 2011 'pub vouchers', which allow recipients to purchase alcoholic beverages from more than 100 Scottish establishments, were introduced in Scotland. The scheme, which was adopted in England and Wales 18 months previously and markets the vouchers as gifts for birthdays or incentives/rewards to staff, has been criticised by health advocates for encouraging binge drinking as each voucher must be spent in a single transaction (Bradley, 2011).

In May 2011, the Scottish Licensed Trade Association launched a campaign entitled 'Level the playing field'[72] to dismiss claims that the 2005 Act only applies to on-trade premises. The campaign maintains that supermarkets are ignoring public health objectives by selling alcohol too cheaply. Support has been sought from corporate suppliers to the licensed trade, police, the NHS, and other health bodies[73]. More recently, the Alcohol etc (Scotland) Bill 2010 (Scottish Government, 2010b) was passed to include a ban on multi-buy promotions in off-trade venues (e.g., 'three for the price of two', 'buy one, get one free', 'buy six, get 20 per cent off), restrictions on alcohol promotions in off-trade venues and, similar to the 2005 Act, a ban on irresponsible drinks promotions in on-trade venues. As mentioned earlier, due to opposition minimum pricing was excluded from the Act. The majority of the Act's provisions came into force on 1 October 2011. Early anecdotal evidence suggests that supermarket chains, such as Tesco, are attempting to circumvent the legislation banning discounted promotions by expanding online alcohol sales. Specifically, Tesco emailed Scottish customers informing them that if they buy alcohol online they can still avail of discounted alcohol prices as alcohol will be dispatched from England which is not affected by the new law (Braiden, 2011).

Finally, the Northern Ireland Assembly intend to introduce measures banning promotions in the region and launched an eight-week consultation in 2010 seeking views and comments from relevant groups. Promotions deemed as irresponsible included the unlimited supply of alcohol for a fixed charge (e.g., 'all you can drink for £10'), and offers which encourage specific groups to drink for free/at a discount (e.g., 'half price drinks for under-25s') amongst others. Notably, unlike the Mandatory Code for England and Wales, happy hour promotions are listed as an irresponsible alcohol promotion. The legislation was anticipated to come into effect in mid-2011[74].

***New Zealand.*** The National Protocol on Alcohol Promotions[75] outlines acceptable and unacceptable promotional practices. For instance, promotions which encourage excessive consumption within an unreasonable time period are prohibited (e.g., all you can drink; two for one) whereas promotions offering a complementary standard drink upon arrival are acceptable. The national protocol was developed by the Alcohol Advisory Council of New Zealand, the Hospitality Association of New Zealand, New Zealand Police, and Local Government New Zealand. The Sale of Liquor Act 1989 includes an amendment (section 154A) whereby licensees and managers of licensed premises face up to a NZ$5,000 fine if they advertise promotions which encourage excessive alcohol consumption.

The New Zealand Law Commission (2010) recently recommended that a new offence be introduced (replacing Section 154A of the Act) relating to irresponsible alcohol promotion and consumption. They suggest that a new offence should cover: promoting free alcohol, offering goods or services on the proviso that alcohol is purchased, and advertisements external to a venue which suggest that alcohol is sold at a discount of 25 per cent or more below its normal price.

## AUSTRALIA

Similar to several other countries such as the UK, Australia operates a voluntary, industry-led regulatory approach to alcohol advertising (Jones, Hall, & Numro, 2008). This includes the Advertiser Code of Ethics developed by the Australian Association of National Advertisers (AANA). Alongside this Code, the AANA allowed the alcohol industry to develop its own code, the Alcoholic Beverages Advertising Code (ABAC) as well as its own complaints management system, the Alcoholic Beverages Advertising Code Complaints Adjudication Panel.

In terms of alcohol promotions specifically, individual codes of practice have been developed at state/territory level. Regulations on alcohol promotions in each Australian state and territory are discussed in some detail below; some codes are mandatory and enforceable (i.e., Australian Capital Territory , New South Wales, South Australia, Victoria), others are voluntary (i.e., Western Australia, Queensland), and still other states do not have any alcohol promotion guidelines (i.e., Tasmania).

***Australian Capital Territory (ACT).*** Under the Liquor Bill 2010, any promotions which encourage excessive, rapid, or irresponsible consumption of alcohol are prohibited in the ACT. Section 29 of the Liquor Regulation 2010[76] further outlines promotional activities which are banned. The Act is mandatory and enforceable; inspectors and police officers are authorised to enter premises and exercise regulatory functions in accordance with the Act; up to 50 penalty units may be imposed on those breaching the Act (personal communication with Erin Maplesden, Client Service Officer, ACT Rental Bonds, Office of Regulatory Services; July 2011). Examples of prohibited promotional activities include, advertising drinking games (so-called 'boat races'), 'laybacks', 'shooters', and promotions which target a particular group (e.g., 'a cocktail for sale only to women').

***New South Wales (NSW).*** In April 2009 the NSW Office of Liquor, Gaming and Racing published the Liquor Promotion Guidelines[77] under section 102 of the Liquor Act 2007. The guidelines are mandatory and enforceable; compliance officers, the police and members of the general public can report to the NSW Office of Liquor, Gaming and Racing if a venue fails to adhere to the Guidelines (personal communication with Christine Carlin, Compliance Officer, NSW Office of Liquor, Gaming and Racing; September 2011). Those licensees who fail to comply face fines of up to $5,500. The guidelines replaced the voluntary NSW Liquor Industry's Code of Practice: Responsible Promotion of Liquor Products. Unlike the Code, the Guidelines more clearly outline what constitutes an unacceptable alcohol promotion and have a statutory basis. They also take into account more recent forms of promotions activities such as viral marketing and point-of-sale promotions (discussed in further detail below) that were outside the remit of the original Code[78].

In the first study of its kind, Jones and Lynch (2007a) investigated the nature of non-advertising promotions in licensed venues in Wollongong and the extent to which such promotions conform to the NSW Liquor Industry's Code of Practice: Responsible Promotion of Liquor Products. The authors observed a high number of promotions which appear to attract university students (e.g., free entry for students, student happy hours, and free transport between university campuses and venues) and encourage excessive drinking. They highlighted several instances where promotions were in breach of the Code and note that compliance checking was lacking.

***Northern Territory (NT).*** The Northern Territory Licensing Commission has published the Code of Practice for Responsible Promotion of Alcohol On-Premise and the Code of Practice to assist in the Responsible Promotion of Alcohol[79] which outlines acceptable and unacceptable practices in relation to alcohol promotion. The Codes of practice are mandatory and enforceable by a team of licensing inspectors and police; the general public can also report any breaches of the code (personal communication with Zoë Langridge, Regulatory Systems Project Officer, Licensing Regulation and Alcohol Strategy, NT Department of Justice; June 2011). At present, any infringements are heard by a tribunal who can issue an Order to Cease Trading, impose additional licensing conditions, or rule that any future promotions/advertising need to be pre-approved. More recently, the Liquor Act[80] came into force on 1$^{st}$ September 2011 regulating alcohol promotions. It provides the Director of Licensing with the power to issue infringement notices and track an offender's history of previous infringement notices.

***Queensland (QLD).*** Restrictions on alcohol promotions are included in the Liquor Act 1992 and the Liquor Regulation 2002[81]. In response to extreme discounts and free drink promotions targeting young people, the Liquor Act came into effect in April 2005 and prohibits external advertising of drink prices, free drinks, multiple drinks and/or discounted alcoholic beverages at all licensed premises in the State[82]. In June 2005, the QLD Office of Liquor and Gaming Regulation introduced the Code of Practice for the Responsible Service, Supply and Promotion of Liquor[83]. These guidelines outline acceptable and unacceptable promotion practices but provide definitions of terms such as 'rapid, 'excessive' and 'promotion' which are included but not defined in the Liquor Act or Liquor Regulation. The Code of Practice is not enforceable and accordingly no sanctions can be imposed for breaches of the Code (personal communication with Emma Sampson, Policy and Research Officer, QLD Office of Regulatory Policy, Department of Justice and Attorney General; September 2011).

***South Australia (SA).*** In July 2010 the Review of the Code of Practice for Licensed Premises[84] was released by the Office of Liquor and Gambling Commissioner in South Australia but, at the time of writing, has not yet been approved. This Review is intended as an update to the current Code of Practice[85] which is under section 42 of the Liquor Licensing Act 1997 and been in force since September 1997. The Code is mandatory and enforceable; those licensees who fail to comply face disciplinary action or prosecution. The Review is more specific in terms of promotions than the original Code, meaning that it is more readily enforceable; inspectors routinely inspect premises for breaches of the Code and the police have a licensing enforcement branch (personal communication with Vicki Brunello, Legal and Policy Advice Officer, SA Office of Liquor and Gambling Commissioner; June 2011). In terms of promotions, the Review states, for instance, that licensees are banned from employing practices that encourage rapid or excessive alcohol consumption such as 'all you can drink' admission charges, promotions aimed a particular group, and happy hour-style promotions before 3pm and after 9pm.

***Tasmania (TAS).*** In Tasmania, alcohol sales are regulated by the Liquor Licensing Act 1990. Currently there are no guidelines for alcohol promotion in Tasmania. Compliance inspectors and police officers may investigate breaches of the Liquor Act; whilst promotions such as 'toss the boss' are not as common as they once were, occasionally there are promotions for cheap beer. On some occasions the police attend these nights and speak with the licensee, even though the promotions are not illegal (personal communication with Peter O'Sullivan, Communications and Education Manager, Liquor and Gaming Branch, Department of Treasury and Finance; June 2011).

***Victoria (VIC).*** Under the Liquor Control Reform Act 1998 (the Act), licensees in Victoria are obligated to ensure that alcohol is served responsibly. Consequently, the Guidelines for Responsible Liquor Advertising and Promotions[86] were developed to assist licensees in understanding the standards and conduct expected of them regarding promotions. The Guidelines outline 16 principles that provide licensees with a quick reference guide and direction on the kinds of promotion that are likely to encourage irresponsible consumption of alcohol (e.g., toss the boss, drink cards) or are otherwise not in the public interest, and as such may be banned under the Act. The guidelines are mandatory and enforceable. Compliance inspectors undertake widespread inspections to ensure that licensees are meeting their obligations under the Act. This includes ensuring that alcohol is promoted and sold in a way that encourages responsible and appropriate drinking. Under section 115A of the Act, the Director of Liquor Licensing has the power to ban inappropriate promotions and, in doing so, will apply the principles in the Guidelines to assess whether a promotion is likely to lead to irresponsible consumption or is otherwise not in the public interest. Should this be the case, the Director may issue a banning notice that requires the licensee to take specified action. Failure by the licensee to comply with the banning notice may result in fines of more than $14,000 (personal communication with Brendan Facey, Director of Responsible Alcohol Victoria, VIC Department of Justice; September 2011).

***Western Australia (WA).*** In Western Australia, the Department of Racing, Gaming and Liquor provides guidelines for alcohol promotions entitled Responsible promotion of liquor for consumption on premises and for packaged liquor[87]. The guidelines outline unacceptable practices: for instance, drink or loyalty cards that create incentives for rapid alcohol consumption or for the customer to drink more than they otherwise might are prohibited. The guidelines are not mandatory or enforceable, although compliance and police officers can inspect licensed premises. If they consider that a venue does not comply with these guidelines they can impose special conditions on the licensee (personal communication with Richard Gregor, Client Liaison Officer, WA Department of Racing, Gaming and Liquor; September 2011). Specifically, Section 64(3) of the Liquor Control Act 1988 enables the licensing authority to impose conditions on a licensee that ban promotional activities which provide alcohol free or at discounted prices, or encourage irresponsible alcohol consumption.

In April 2011, the Director of Liquor Licensing in Western Australia announced that alcohol shots and energy drinks mixed with alcohol would be banned after midnight in all inner-city Perth bars, pubs and clubs. After 1am these venues are also prohibited from serving drinks in containers larger than 750ml, meaning that bottles of wine and jugs of beer and cocktails will be prohibited. Additionally, cocktails with more than 75ml of alcohol are banned after 1am[88]. These measures are part of efforts to reduce alcohol-fuelled violence in the region. At the time of writing, the South Australia State Government is considering adopting similar bans[89]. Internationally, concerns surrounding energy drinks have led to their banning in France, Denmark and Norway.

## POINT-OF-PURCHASE PROMOTIONS

Point-of-purchase (POP) or point-of-sale promotions refers to promotional merchandise in a store or venue that are available upon purchase of a given product (e.g., free cooler bag upon purchase of two bottles of wine). POP promotions have become an increasingly important marketing strategy, with US companies spending an estimated US$17 billion on product promotions in stores (Belch & Belch, 2001). In fact, POP promotions can be found in approximately 90 per cent of stores that sell alcohol (Centers for Disease Control and Prevention, 2003) and evidence indicates that POP beer promotions can considerably increase sales (Beverage Industry Magazine, 2001).

In the United States, the Bureau of Alcohol, Tobacco, and Firearms (BATF) governs alcohol distribution as part of the Federal Alcohol Administration Act. POP promotions are deemed legal provided they do not threaten retailer independence or retail competition. In other words, these regulations are concerned with protecting free trade rather than public health (Bray, Loomis, & Engelen, 2007). In Australia there is no regulatory system in place to monitor POP promotions in off-trade sales and, unlike the tobacco literature, relatively scant research attention has been paid to these types of alcohol promotions (Jones & Lynch, 2007a; 2007b).

In the first study of its kind in Australia, Jones and Lynch (2007b) conducted an observational study to identify the nature and extent of POP promotions of beer and alcopops in metropolitan retail venues in Wollongong (NSW). Promotions fell into three categories (i.e., gift with purchase, competitions, and buy some get some free) with the most popular being a gift with purchase. The authors noted that the offer of free branded merchandise upon purchase was concerning as the offer of desirable goods (e.g., cooler bags) may increase the likelihood of purchase. In fact, research elsewhere indicates that young people who own alcohol promotional items were more likely to have initiated alcohol use and be current drinkers (Hurtz, Henriksen, Wang, Feighery, & Fortmann, 2007; McClure, Dal Cin, Gibson, & Sargent, 2006; McClure, Stoolmiller, Tanski, Worth, & Sargent, 2009; Workman, 2003). The authors noted that, in light of the burgeoning literature indicating an inverse relationship between alcohol price and level of consumption, the 'buy some, get some free' promotions were particularly concerning.

A similar study was conducted in 24 hotel bottleshops and liquor stores in metropolitan areas of Sydney and Perth (Jones & Barrie, 2010). POP promotions were highly prevalent, amounting to 416 across 24 audits and an average of 17.3 per venue. Most promotions focused on spirits or liquors and wines, and the most popular type of promotion was competitions. The authors note their concern that participation in the majority of unique promotions (97 per cent) generally required consumers to purchase a large number of standard drinks, approximately 19.3 per promotion. The findings highlight the need for research examining the impact of POP promotions on the consumption rates of young adults, and the introduction of regulatory systems to monitor POP promotions.

# SUMMARY OF PRICING AND TAXATION POLICY OPTIONS

***Taxation.*** Alcohol tax is but one part of the retail price of alcoholic products, of which there are myriad. The extent to which changes in tax rates impact retail prices is not well documented. There is evidence that the pass-through of tax to retail prices depends on the behaviour of buyers and sellers, including competition in retailing and production, and can vary markedly between products and where they are sold. While proven useful from a public health perspective, alcohol taxation systems are not purpose-built to achieve public health outcomes. Still, particularly in countries with high levels of hazardous drinking, taxation is considered to be one of the most cost-effective policies for reducing alcohol consumption (Wagenaar et al., 2009, 2010; World Health Organization, 2007).

Alcohol tax falls under the jurisdiction of the federal government in Australia. States and territories have no power to set or adjust alcohol taxes. Currently, an ad valorem tax is imposed on wine (i.e., the WET) whereas beer, spirits, liqueurs and other beverages are taxed on a volumetric basis. When measured against the volume of pure alcohol in a product, spirits and RTDs are taxed most heavily; the tax on beer increases with its alcohol content and beer sold on-trade is taxed more heavily than beer sold in bottleshops and liquor stores. Wines of the same alcohol content are not taxed consistently. Cheap wine, often sold in casks attracts minimal tax whereas premium wine, selling for upwards of $40 per bottle, has an effective tax rate higher rate than that applied to spirits and RTDs.

The Henry Review (2010) concluded that the social (spillover) costs associated with alcohol abuse were not targeted effectively by current taxation arrangements and the Panel called for a common tax rate according to alcohol content to address this, including a low alcohol threshold. If the common rate suggested by the Henry Review were adopted the taxes on spirits, RTDs and expensive wines would be cut. The National Preventative Health Taskforce (2009) also supports a volumetric tax but would prefer that the tax rate be raised to the current rate on spirits, and argues for a tiered approach. Within a tiered approach, the tax rate increases with alcohol content to provide incentives for the consumption and production of low alcohol content products and disincentives for the production and consumption of high alcohol content products. This proposal has received widespread support from over fifty leading Australian health organisations (i.e., the NAAA).The incumbent federal government has so far rejected calls for a volumetric taxation system (Australian Government, 2010; Australian Treasury, 2010).

Currently the UK operates a tiered alcohol tax system. Spirits are taxed most heavily, followed by wine and beer, with cider attracting the lowest tax. Calls to apply a common tax rate on the basis of alcohol content were rejected by an HM Treasury review, due to the concern that increasing the tax rates on cider, beer and wine to levels consistent with the tax rate on spirits would penalise responsible drinkers, and may not facilitate the government's broader objective of reducing problem drinking (HM Treasury, 2010). A recent increase in the duty on high-strength beers and reduction in the duty on lower-strength beers points to its commitment to a tiered system.

In the EU, member states are free to set their own alcohol taxes at levels; at least as high as minimum excise duty rates for spirits, beer and intermediate products such as fortified and liqueur wines, set by the European Commission in 1993. No minimum rate however is set for wine. Considerable variability exists in country rates. In general, the highest tax rates are imposed by the Nordic countries, followed by Ireland and the UK. Recent international comparisons suggest that Australia's current tax rates for spirits and relatively expensive wines are of a similar level to Nordic rates, although beer might be taxed more heavily. Australia's tax rates for cheaper wines are well below the rates set by these countries.

An important strength of Australia's tax system is the fact that the rates of tax are indexed. Since the introduction of minimum duty rates in the EU, these rates have not increased in nominal terms meaning that their real value has declined by approximately one-third. Among the reasons for this lack of adjustment is that proposed changes must be agreed upon by all Member States and, because the excise duty for wine is zero, many wine-producing nations have been unwilling to accept a positive excise duty rate. Accordingly, it has been difficult to argue that the excise duty for other alcohol products should be increased. In 2008, the UK introduced an alcohol duties escalator to increase alcohol duty at 2 per cent above inflation until 2015 to remedy reductions in the real rate of its alcohol duties (particularly on spirits) (Griffith & Leicester, 2010).

The potential for taxation policy to achieve public health outcomes in the Australian context is evidenced by the success of the Northern Territory LWA hypothecated levy in reducing the number of acute alcohol-related deaths and possibly reducing chronic alcohol-related disease. The success of the Northern Territory cask wine levy in reducing alcohol consumption supports efforts to target the lowest priced alcohol products with tax, at least when harmful drinking is associated with those cheapest products and the population at risk cannot afford to drink more expensive alcohol.

***Special/additional taxation - Alcopops tax.*** Following their introduction to the market in the second half of the 1990s, alcopops or RTDs increased in popularity (Metzner & Kraus, 2008). Their sweet taste, pleasant flavouring, attractive design, advertising, and low price are considered to make these beverages especially appealing to young people. Concerns about high alcohol consumption levels among young adults have led several countries to impose special taxes on these beverages. For instance, Switzerland imposed a 300% tax increase on alcopops in February 2004 and Australia levied a 70% increase in April 2008.

Where international evidence-based research is available (i.e., Switzerland, Germany), it suggests there was an immediate decline in alcopops consumption after the tax increase, substitution into other products and a subsequent return to growth in alcopops consumption. Indeed, alcohol manufacturers developed beer-based alcopops (e.g., Smirnoff Platinum) to circumvent the special tax and retain customers favouring sweet drinks similar to cordial (Wicki et al., 2006).

Much of the extant evidence for an alcopops tax is Australian. The available evidence suggests that following the introduction of the alcopops tax and the anti-binge-drinking advertising campaign, the alcohol industry responded with adaptive marketing strategies and there was a marked reduction in the sales and consumption of alcopops in the ensuing year and incomplete substitution into spirits (and possibly other alcoholic products) (Australian Government, 2009; Australian Bureau of Statistics, 2011a; Doran & Digiusto, in press). While it seems likely that the reduction in consumption was brought about by the tax increase and associated price rise, the evidence will only be definitive if researchers are able to apportion the effects of the advertising campaign, general media reporting and GFC induced reduction in income per capita. Furthermore, the impact on young people's consumption of alcopops and other alcohol products is yet to be determined and the indication of some growth in alcopops sales in 2010 suggests that longer term trends need to be documented (Euromonitor International, 2011a).

Notwithstanding this, as demonstrated by national and international evidence, it is our view that the potential for a targeted tax increase on a specific 'problem' alcoholic beverage to impact on the problematic alcohol consumption patterns can be undermined by substitution with other alcohol products (cf. New Zealand Law Commission, 2010). Indeed, research elsewhere indicates that young adults, risky and harmful drinkers consume a range of alcohol products[90]. Furthermore, the alcohol industry has the ability to absorb tax increases (at least partially) and subvert tax increases with the creation of 'similar' products that circumvent the tax. Accordingly, we would argue that a package of policy measures rather than a single targeted, isolated intervention offers a more promising avenue for achieving public health objectives.

***Minimum pricing.*** Minimum pricing sets a floor price per unit of pure alcohol (UK definition)/per standard drink (Australian definition) that cannot be undercut by supermarket deep discounting, adaptive marketing and below-cost sales strategies. In this way, minimum pricing off-sets inherent caveats associated with taxation. It also represents a better policy than alternative below-cost sale bans, such as that adopted by the incumbent Westminster Government which is predicted to have a negligible impact on the majority of low price alcohol. By linking harm (units of alcohol/standard drinks) to a disincentive (price), minimum pricing directly targets cheaper alcoholic beverages which are consumed by heavy rather than moderate drinkers (Donaldson & Rutter, 2011).

Modelling analyses (Meier et al., 2010; Purshouse et al., 2010; ScHARR, 2009) provide evidence in support of minimum pricing. Whilst promising in theory, only a small number of countries have implemented minimum pricing (i.e., Ukraine, Russia, Republic of Moldova, and Canada) and there is currently no empirical evidence regarding the effectiveness of this policy in practice. That being said, we understand that work is underway to evaluate minimum pricing in Canada. In Australia, proxy minimum pricing restrictions have been introduced in the Northern Territory and Western Australia and there is some evidence of the effectiveness of the policy (National Drug Research Institute, 2007). In Scotland, after a failed attempt during their first term in office, the re-elected SNP will introduce a Minimum Pricing Bill in late 2011. Their majority in the Scottish Assembly will likely mean that minimum pricing will come into force within the year. Accordingly, evidence-based research of this policy in Scotland should be available in due course. With pressure mounting from leading health bodies in other countries such as Australia and New Zealand to introduce minimum pricing, public health experts and government ministers will no doubt eagerly observe and await the findings of the Scottish situation. The NAAA posit that minimum pricing, as a complement to volumetric taxation, represents a promising avenue for affecting alcohol-related problems. In the UK, where the campaign for minimum pricing has been most strongly voiced, minimum pricing enjoys support from a wealth of public health organisations and advocates.

Recently, Sheron (2010) put forward an alternative policy suggestion in the UK to overcome two major caveats associated with minimum pricing and taxation. Specifically, a general taxation increase could put added pressure on licensed venues, such as pubs, which are particularly suffering from reduced patronage from the recession. Since minimum pricing is not a tax, the additional revenue generated would be directed to alcohol retailers and manufacturers rather than to the Treasury. In fact, Griffith and Leicester (2010) estimate that this policy would transfer £710 million from consumers to retailers and producers, with the main beneficiaries being those retailers selling the most alcohol: i.e., Tesco (£230 million) and Asda (£130 million). Accordingly, Sheron (2010) proposes applying different VAT rates for on-trade and off-trade purchases; so that by reducing the VAT on on-trade sales from the current rate of 20 per cent to 12 per cent, one could increase the rate of duty on off-trade (and minimum prices in tandem) without rising alcohol prices in pubs or losing taxation revenue. Sheron points out that the UK Treasury indicated reluctance to adopt this policy but failed to provide any explanation as to why.

***Bans on discounting and promotions.*** In recent years, alcohol marketing has experienced a marked increase in terms of the extent and repertoire of media and digital communication strategies used to appeal to consumers. This paper focussed on price discounts and promotions which research has linked to increased alcohol consumption (Babor et al., 1978, 1980; Kuo et al., 2003b; Thombs et al., 2008, 2009). Bans on promotions such as happy hour are in place in several EU member states (e.g., the Republic of Ireland), Canadian provinces (e.g., Alberta), and states in the USA (e.g., Kansas). However, in comparison to the previous three policies reviewed, this area has been relatively overlooked as there is a dearth of methodologically sound, empirical literature evaluating the impact of such restrictions on consumption and harm.

Regulations and codes of practice have been developed to limit unacceptable alcohol promotion practices. In Australia, individual codes of practice outline unacceptable and/or acceptable promotion practices. Some of these codes are mandatory and enforceable (Australian Capital Territory, New South Wales, South Australia, Victoria), whilst others are voluntary (Western Australia, Queensland), and some states do not have any alcohol promotion guidelines (Tasmania). It should be noted that despite activity at state level, the National Preventative Health Taskforce (2009) did not make any recommendations relevant to price discounting and promotions, focusing instead on advertising more broadly. An inherent caveat with self-regulatory frameworks is that the system is open to abuse. A recent independent review in the UK indicated inconsistent application of industry-led guidelines governing alcohol promotions (KPMG, 2008); accordingly, legislation was passed in Scotland (Licensing [Scotland] Act 2005) and England and Wales (Mandatory Code of Practice) governing irresponsible alcohol promotions. We are unaware of equivalent research for Australia.

POP promotions (i.e., free merchandise in a store or venue upon purchase of a given product) have become an increasingly popular alcohol marketing strategy. Research based in Wollongong indicates that POP promotions in the city's metropolitan retail venues fell into three categories: gift with purchase, competitions, and buy some get some free offers (Jones & Lynch, 2007b). These promotions were also indicative of state and national-based promotions. Disconcertingly, the wider extant literature indicates that ownership of alcohol-related merchandise and reduced price is linked to increased alcohol consumption. Research in Sydney and Perth identified an average of 17.3 POP promotions across 416 bottleshops and liquor stores, with participation generally requiring the purchase of a large number of standard drinks (Jones & Barrie, 2010). We concur with the authors that it is important for policymakers to introduce restrictions on such promotions.

# RELATED ISSUES

## PUBLIC OPINION ON ALCOHOL POLICY

Public opinion plays an important role in influencing public health policy (Wallin & Andréasson, 2005; Wilkinson, Room, & Livingston, 2009). A review of studies evaluating Australian public opinion on alcohol controls indicated that less than one quarter of Australians supported an increase in the price of alcohol to reduce the problems associated with excessive alcohol use (Tobin, Moodie, & Livingstone, 2011). At the same time support was greater for an increased tax on alcohol if the additional revenue generated was directed towards the prevention and treatment of alcohol-related harms. In terms of specific price and tax reforms, a survey of Victorian residents in 2009 indicated that 70 per cent supported imposing a minimum price on alcohol to ensure alcohol was not cheaper than bottled water; 67 per cent supported levying a tax rate on alcohol according to alcohol content per volume; and 61 per cent supported imposing a higher tax on those alcoholic beverages (e.g., bottled spirits, cask wine) that cause most harm (e.g., violence). Opinion was divided regarding an increase in the excise duty of alcopops which, as Tobin et al. (2011) suggest, may be due to variations in the wording and style of the various survey questions.

As observed in the literature (Tobin et al., 2011; Wallin & Andréasson, 2005), the public tend to be more supportive of distal alcohol controls (e.g., regulation of licences) rather than proximal controls (e.g., regulation of price) perhaps because the latter are considered to more directly affect individual drinking behaviour. This disparity suggests that while the Australian public are cognisant of the harms surrounding alcohol and recognise that some level of intervention is warranted, they do not consider the problem to be shared by the majority, 'moderate' drinking population (Tobin et al., 2011). This has important implications in terms of who the public believe should be responsible for offering solutions and to whom such interventions should be targeted. That is, a public who consider alcohol problems to impact only a small minority of people and whose beliefs focus on self-reliance will oppose government intervention and be supportive of targeted rather than universal solutions. By contrast, a public who believe that alcohol problems are the result of the social and economic environment one lives in and therefore beyond individual capacity, will expect government intervention and both universal and targeted controls (Tobin et al., 2011). In terms of alcohol policy reform in Australia, as Tobin et al. (2011) suggest, support could be garnered by ensuring that the intent of new policies and rationale for change is made clear to the public.

Indeed this is of particular relevance to minimum pricing. As outlined above, minimum pricing has received considerable international attention in recent years and leading Australian public health organisations and advocates have urged the government to introduce it as part of a program of alcohol policy reform. The failure of minimum pricing proposals in Scotland in 2010 were attributed, at least in part, to media and public misunderstanding about how the policy works in practice and to lack of community engagement and education (Sheron, 2010). Accordingly, co-operation with relevant organisations to achieve broad sectoral support and co-ordination of a community campaign to educate the public about minimum pricing in terms that are meaningful to them (rather than engaging in a debate about price) holds promise for securing public support for the policy. Indeed, in light of research which indicates that the public are supportive of controls that aim to protect children from exposure of alcohol promotions and innocent third parties from the effects of passive drinking, a useful starting point may be to emphasise the beneficial effects of minimum pricing on health, crime, road deaths, and child safety.

## SUBSTITUTION OR COMPLEMENTARITY WITH OTHER DRUGS

Price-related interventions that target a particular alcohol beverage (e.g., alcopops) raise the possibility of substitution to other beverages. As Babor et al. (2010) point out, to date no systematic reviews have investigated cross-price elasticities between beverage categories, with most studies instead focusing on price changes over time or in different regions.

Research evaluating the impact of alcohol price on illicit drug use in the general population is sparse, inconclusive and largely limited to cannabis use. Some studies provide evidence that cannabis acts as a substitute for alcohol in Australian samples (Cameron & Williams, 2001; Chaloupka & Laixuthai, 1997; Clements & Daryal, 2003) whereas other studies have found inconclusive results (Zhao & Harris, 2004) or evidence that alcohol is a complement to other drug use (Farrelly, Bray, Zarkin, Wendling, & Pacula, 1999; Pacula, 1998). The variation in findings could arise from difficulties associated with researching the use of products bought illicitly; lack of uniform illicit drug price data; or disparities in prices of illicit drugs, even by the same dealer (Manski, Pepper, & Petrie, 2001). Notwithstanding this, Ludbrook (2010b) suggests that given that alcohol consumption often serves as a precursor to other drug use, declines in alcohol consumption should (intuitively) lead to reductions in this progression.

# CONCLUSION

Amidst recent calls from public health experts for alcohol policy reform and public health expert opinion that alcohol misuse is a critical health prevention priority (National Preventative Health Taskforce, 2009; Hall & Chikritzhs, 2011), this paper aimed to provide a timely overview of pricing and taxation policies available to the Australian government. This conclusion sets out principles for policy reform based on the review of evidence. According to the evidence base, policies which increase alcohol prices in real terms, particularly taxation, are the most effective in reducing alcohol consumption and related harms (Anderson et al., 2009; Babor et al., 2010; Wagenaar et al., 2009).

Over the past two decades, increases in the price of alcohol have outpaced increases in consumer prices in general by nearly 20 per cent in Australia. However, this is not the case for all alcoholic beverages. Whereas beer and spirits have become more expensive relative to other consumer items, wine has become substantially less expensive. Over the past decade or so income growth outpaced inflation making alcohol more affordable for the average Australian, although the repercussions of the GFC have recently halted that growth. Despite the literature's focus on alcohol price, the affordability of alcohol is central to consumption decisions (Rabinovich et al., 2009).

Ideally, the alcohol prices faced by consumers would reflect spillover costs of a particular person drinking a product at a particular point in time (Henry Review, 2010). Taxes can guide pricing but the concordance between the tax level and price of each and every alcohol product is far from perfect. This aside, the Australian alcohol taxation system could better guide prices towards levels that reduce harmful drinking in Australia. *"Industry assistance, regional development and the promotion of small business... should not be delivered through alcohol taxes"* (Henry Review, 2010: 438-439). Unlike the alcohol taxation systems of the EU and Canada, one of the strengths of Australia's system is that tax rates are indexed to the CPI. However, the ad valorum taxing of wine is anomalous and, based on evaluations of restrictions and a levy on cask wine in Australia, has public health implications. Other anomalies (e.g., the differential taxing of off-trade and on-trade beer) also warrant attention.

There are two major perspectives on the direction of alcohol taxation policy reform in Australia; the Henry Review volumetric model and the public health advocacy volumetric tiered model. The incumbent federal government has rejected recommendations to reform the alcohol taxation system with a volumetric model citing the current wine glut as an impediment. To make headway in further debate public health advocates need to provide a compelling and cogent evidence base for a tiered model.

The alcohol industry does not incorporate taxation in the price of each and every alcohol product, as evidenced by sales of alcohol below cost, thus subverting the pricing signals of the tax system. This gives drinkers the opportunity to maintain harmful drinking practices by substituting away from higher priced (tax inclusive) products. A legislated minimum price would help circumvent this practice.

Insufficient empirical research and policy advocacy attention has been devoted to alcohol promotions and discounts, which are largely designed to markedly reduce the cost of drinking the more alcohol consumed. Australian and international reliance on self-regulation of promotions and discounts is open to abuse where those regulations are not mandatory and enforceable. The limited research conducted around promotions and discounts indicates a link with harmful alcohol consumption. Government regulation may be necessary if self-regulation does not adequately control industry practice. Research on the extent to which guidelines and codes of practice are adhered to is critical and lacking.

The argument for minimum pricing and controls on promotions and discounts in Australia would be strengthened with evidence of the likely impacts, based on empirical modelling. This would require data on the price and quantity of all alcohol sold, which is not currently publicly available. The Australian government should follow New Zealand's lead and require all alcohol outlets to provide this information free of charge to the government. Legal issues around the introduction of minimum pricing and the impact on competition need also to be clarified.

Public scepticism about a policy is likely to be a significant barrier to securing public support and its successful implementation (cf. Hagger et al., 2011; Tobin et al., 2011). Accordingly, policymakers must communicate to the general public what a given policy is designed to achieve to help overcome any misgivings and misunderstandings. Policymakers must also be mindful of the potential unintended consequences of policies designed to reduce alcohol consumption, particularly younger people's substitution with illicit drugs.

In sum, no single panacea or 'silver bullet' exists for tackling alcohol misuse. Each policy reviewed in this paper holds some promise, and it appears that they would be more successful in combination than as individual uncoordinated strategies. A recent review of the strength of alcohol control policies in 30 countries ranked Australia as fifth overall (Brand, Saisana, Rynn, Pennoni, & Lowenfels, 2007); it is imperative that federal and state governments continue to implement and expand policy initiatives to redress alcohol-related harm in our community.

# NOTES

1 Natacha Carragher, Research Fellow, ATCL, BSc(Hons), PhD. Jenny Chalmers Senior Research Fellow, BEc(Hons), MEc, PhD.

2 The authors defined risky drinking as consumed an average of five or more drinks per day at least weekly during the previous 12 months (cf. Saha, Stinson, & Grant, 2007).

3 http://www.health.gov.au/internet/drinkingnightmare/publishing.nsf/Content/B2D387C687D03FC9CA2574FD007CA91C/$File/Other%20activities_programs%20.pdf (accessed 12 September 2011).

4 http://www.health.gov.au/internet/drinkingnightmare/publishing.nsf/Content/about-the-campaign (accessed 11 May 2011).

5 WET also applies to alcoholic drinks made from cider and mead and other fruit and vegetable wines, as long as they have at least 1.15% of alcohol in them.

6 Alcohol by volume (abbreviated as abv, ABV, or alc/vol) is a standard measure of how much alcohol (ethanol) is contained in an alcoholic beverage (expressed as a percentage of total volume).

7 http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4307.0.55.001Explanatory%20Notes12009-10?OpenDocument (accessed 9 September 2011).

8 The consumer tax equivalent (CTE) is defined as the percentage by which the pre-tax wholesale price has been raised by beverage taxes (but not including the GST or VAT). In most countries a value-added or goods-and-services tax applies to alcoholic beverages.

9 Non-premium wine ($2.50/litre at the wholesale pre-tax level), mid-range premium wine ($7.50/litre), and super-premium wine ($20/litre) (Anderson, 2010a).

10 http://ministers.treasury.gov.au/DisplayDocs.aspx?doc=pressreleases/2010/028.htm&pageID=003&min=wms& Year=&DocType= (accessed 16 April 2011).

11 http://www.phaa.net.au/documents/101126Attachmenttosub-NAAAPositionStatement-Reducingharmfromalcohol-creatingahealthierAustralia.pdf (accessed 16 April 2011).

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13 We thank a reviewer for this advice.

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16 VAT was reduced to 15 per cent on 1 December 2008, reverted back to the standard 17.5 per cent from 1 January 2010, and increased to 20 per cent from 4 January 2011 (see http://www.hmrc.gov.uk/pbr2008/measure1.htm).

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22 United Distillers Limited, more commonly referred to as UDL, is an Australian RTD that was first launched in the 1960s.

23 Net sales provide a good picture of the volume of consumption, allowing for damaged goods and adjusting for discounts.

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