Trends in affordability of alcohol in New Zealand

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Executive summary

Increasing the price of cheap alcohol, such as through excise taxes or minimum pricing schemes, is an important tool in a package of measures that governments can use to reduce alcohol consumption and alcohol-related harm. This report investigates trends over time in alcohol prices and affordability in New Zealand to inform government policy and decision making on the price of alcohol for sale in New Zealand.

Key findings:

- The average price per standard drink for a selection of alcoholic beverages has not changed appreciably since 2012, but beer and whisky from off-licensed premises became slightly cheaper per standard drink in 2017.

- When all alcohol products were examined, the real price (inflation-adjusted price) of wine was found to decrease from the late 1980s until 2017. Although the real price of beer and spirits and liqueurs increased from the 1980s, incomes have been increasing at a faster rate, making alcohol overall more affordable.

- The affordability of wine (which is the price of wine relative to income) increased by more than 20% since 2012, based on average hourly earnings and average alcohol prices.

- In 2017, it took as little as 2.1 minutes of work for a person on a median income (an ‘average’ worker) to earn enough money to buy one standard drink1 of averagely priced cask wine purchased from a supermarket or liquor store. It took only 1.6 minutes to buy a discounted standard drink of cask wine (based on the cheapest advertised prices).

- It takes less time to earn enough to buy an averagely priced standard drink of beer, whisky or cask wine from off-licensed premises (supermarket or liquor store) now than in 1999. In contrast, it takes longer to earn enough for a beer at on-licensed premises now than in 1999.

Implications:

Alcohol has become more affordable in New Zealand, due to incomes increasing more than alcohol prices. It now takes a very short amount of time for an average worker to earn enough to buy sufficient alcohol to put themselves (and others) at risk of injury and harm. The Health Promotion Agency’s low-risk drinking advice2 recommends no more than five standard drinks on any single drinking occasion for men, and no more than four standard drinks for women, to reduce the risk of injury. In 2017, it would take just over 10 minutes for an average worker to earn enough

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1 One standard drink in New Zealand contains 10g of pure alcohol. For example, a 330ml bottle of 4% alcohol beer, 100ml glass of wine (at 12.5% alcohol) or a 30ml shot of spirits (42% alcohol) are all ‘one standard drink’.

to buy six standard drinks of the cheapest advertised alcohol (and exceed the low-risk drinking advice for both men and women).

New Zealand and international evidence has found that lower prices of alcohol are associated with heavy drinking and that heavy drinkers are more likely to drink cheaper alcohol. Addressing alcohol affordability through alcohol pricing policies would reduce alcohol consumption and alcohol-related harm. Any such policies need to account for increases in incomes, and increases in alcohol affordability, to have maximum impact.
Introduction

Government mechanisms and policies that increase the price of alcohol, such as raising excise taxes and minimum unit pricing of alcohol, can reduce alcohol consumption and alcohol-related harm (Babor et al., 2010; Burton et al., 2016; Casswell, Huckle, Wall, & Yeh, 2014; Elder et al., 2010; Jiang & Livingston, 2015; Wagenaar, Salois, & Komro, 2009; Wagenaar, Tobler, & Komro, 2010). The World Health Organization’s *Global Strategy to Reduce the Harmful Use of Alcohol* states that “increasing the price of alcoholic beverages is one of the most effective interventions to reduce harmful use of alcohol” (World Health Organization, 2010).

New Zealand research has found that lower prices of alcohol are associated with heavier or more frequent drinking (Casswell, Huckle, Wall, & Parker, 2016), and that heavy drinkers (including young people) are more likely to purchase cheaper alcohol (Casswell et al., 2014; Wall, Casswell, & Yeh, 2017). Controls on price are particularly effective in reducing alcohol consumption by heavy drinkers and young people (Sheffield, 2008), who are at higher risk of harm. This is of particular relevance in New Zealand where alcohol is very affordable (Imlach Gunasekara & Wilson, 2010).

The Law Commission’s 2010 review of New Zealand’s sale and supply of alcohol laws (New Zealand Law Commission, 2010) concluded that the price of alcohol was a “critical factor in moderating demand for alcohol”. This review recommended an increase in excise tax rate, a removal of excise tax on low alcohol beverages, investigation into minimum pricing, and a requirement for retailers and producers to provide sales and price data. Many of the Law Commission’s recommendations about price were not implemented, although a review of minimum pricing was undertaken in 2014 (Ministry of Justice, 2014).

In the absence of significant changes in alcohol price policies in the last decade, it is important to monitor alcohol prices and affordability, and how these change over time. This can inform decisions about how pricing policies could be effectively implemented in New Zealand to reduce alcohol consumption and harm.

In this report, we investigated trends over time in alcohol price and affordability. Affordability is the price of alcohol relative to income, combining price and income data to create a measure of an average person’s ability to buy (and consume) alcohol. Alcohol affordability may increase if prices of alcoholic beverages drop and/or if average incomes go up. Hence, monitoring both price and affordability is necessary, as any policies to increase alcohol prices need to account for increases in incomes, and increases in alcohol affordability, to have maximum impact (Jiang & Livingston, 2015).

We used four measures to look at price and affordability:

1. the price of alcohol per standard drink
2. the ‘real’ price of alcohol (the price of alcohol adjusted for inflation)
3. alcohol affordability
4. minutes of work needed to earn one standard drink.
Method

We used data collected by Stats NZ to estimate price per standard drink, the ‘real’ price of alcohol, the affordability index and minutes of work needed to earn a standard drink. We also used data on discounted beverage prices to estimate price per standard drink for low-priced alcohol and minutes of work needed to earn a low-priced standard drink. These data were taken from a website that documents specials and discounts on alcohol offered from outlets throughout New Zealand (Liquor Information Pricing Service (LIPS), www.lips.co.nz).

Price of alcohol per standard drink

Average price per standard drink

The average price per standard drink of selected alcoholic beverages was estimated from Consumer Price Index (CPI) measures. The CPI measures the changing price of the goods and services that a typical New Zealand household buys. It provides a measure of household inflation. To calculate the CPI, Stats NZ select a fixed ‘basket’ of goods and services. They select the items and determine their relative importance based on spending patterns. For alcoholic beverages, adjustment for spending patterns is done using survey data, sales data and alcohol available for consumption statistics. The items in the CPI basket represent how New Zealand households spend their money. Stats NZ collect the prices of the goods and services in the basket at regular intervals over time (monthly for alcoholic beverages) to measure how they change (Statistics New Zealand, 2010). The alcoholic beverages included in the basket are listed in the Appendix.

Weighted average prices from the CPI collections are considered a reliable measure of changes in average prices over time. Quarterly weighted average retail prices for four categories of alcoholic beverage were available from 1999 to 2017. The four categories were: beer from off-licensed premises (1 dozen bottles bought at a supermarket or liquor store), beer from on-licensed premises (a 400ml glass bought at a licensed premise), cask wine from off-licensed premises (3 litres white, bought at a supermarket or liquor store), and whisky (1000ml bought at a liquor store). The quarterly averages were combined to give a yearly average. We used data from 2012 and 2017 to look at changes in average price over the last five years.

To estimate the number of standard drinks in these beverages, assumptions had to be made about their volume and alcohol content. These are provided in Table 1. In New Zealand, one standard drink contains 10g of pure alcohol. The formula to work out the number of standard drinks in an alcoholic beverage is: Amount of drink in litres (the volume of the container) multiplied by the percent by volume of alcohol (%) multiplied by 0.789 (which is the density of ethanol at room temperature).

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3 Data from 2007-2017 were downloaded from SNZ’s online data access platform Infoshare (http://archive.stats.govt.nz/infoshare). Data from 1999-2006 were requested from SNZ.
Table 1: Standard drinks in selected alcoholic beverages

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Number of standard drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer - bottles (supermarket &amp; liquor store), 1 dozen</td>
<td>330ml bottles of beer at 4% alcohol</td>
</tr>
<tr>
<td>Beer - glass (on-licensed premises), 400ml</td>
<td>4% alcohol</td>
</tr>
<tr>
<td>Wine - cask, white (supermarket &amp; liquor store), 3 litres</td>
<td>12.5% alcohol</td>
</tr>
<tr>
<td>Whisky (liquor store), 1000ml</td>
<td>40% alcohol</td>
</tr>
</tbody>
</table>

Lowest discounted price per standard drink

The lowest discounted price per standard drink was created from data on the advertised specials and discounts on alcohol offered from off-licensed premises throughout New Zealand, available from the LIPS website. This included information on the volume, alcohol content, price, and retailer of each advertised alcoholic beverage. Advertised prices were available for beer, whisky, wine bottles, cask wine, cider, and ready-to-drink alcoholic beverages (RTDs). We used data from 2017, but did not look at changes over time as these may have been affected by changes in the collection of this information over time.

The price per standard drink for each advertised alcoholic beverage type was calculated using the standard drinks formula. However, 38% of the beverages did not have an alcohol content recorded in 2017, so these were excluded from the analysis.

To make an estimate of the lowest discounted prices, for each alcoholic beverage category we took the lowest 1% of prices per standard drink (the first percentile of prices). We used this percentile to exclude recording errors or other inconsistencies in the data that would affect a simple minimum value.

Real price of alcohol

The ‘real’ price of alcohol is the average alcohol CPI adjusted for inflation, found by dividing the alcohol CPI by the all-goods CPI (Wall & Casswell, 2013). The CPI for all alcohol has been tracked over time since 1975. It has been reported separately since 1981 for beer and since 1988 for spirits and liqueurs, and wine. The CPI is indexed to an arbitrary date (June 2006) so all CPI data are relative to this date. We present trends in real price from 1981.

Alcohol affordability

Alcohol affordability measures the price of alcohol relative to income. This measure accounts for the impact of changes in wages on the ability of an average consumer to buy alcohol. We created an affordability index using average weekly earnings from the Quarterly Employment Survey (Statistics New Zealand, 2013) divided by the alcohol CPI series (Statistics New Zealand, 2010). The series were scaled to 100% at June 2006. The Quarterly Employment Survey was used for the affordability index because it provides quarterly data on wages and salaries back to 1989. It surveys a sample of New Zealand businesses that employ staff over the majority of industries.
Minutes of work needed to earn a standard drink

Minutes of work needed to earn a standard drink was calculated using median hourly earnings for people in paid employment from the Household Labour Force Survey. This income measure includes people in paid employment who are employed and are earning income from wages and salaries or/and self-employment. The median was chosen to represent the ‘average’ earner, who is at the mid-point of earners (half of earners will be earning more and half will be earning less). We calculated median earnings per minute and prices per standard drink for off-licence beer (1 dozen bottles bought at a supermarket or liquor store), on-licence beer (a 400ml glass bought at a licensed premises), cask wine (3 litres white, bought at a supermarket and liquor store) and whisky (1000ml bought at a liquor store).

We also calculated minutes of work needed to earn a standard drink for the lowest priced alcohol advertised on LIPS in 2017. This was to provide an estimate of affordability of the cheapest available alcohol, as an alternative to the ‘average’ price from the CPI, since heavy drinkers are more likely to purchase cheaper alcohol and CPI prices are nationwide averages covering a variety of brands and outlet types.

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4 See DataInfo+ at the StatsNZ website for more information about this survey: http://datainfoplus.stats.govt.nz/Item/nz.govt.stats/b7c39358-aa03-446f-a27d-91c37caac35d?_ga=2.188787883.1629917218.1518745172-815443693.1511389720#/nz.govt.stats/6a13af44-0057-4a63-835a-c1a0c6f8ef91#.
Results

The price of alcohol

Price per standard drink

The price per standard drink of alcoholic beverages was found for the average items in the CPI basket (Table 2), and for advertised alcoholic beverages in the LIPS data (Table 3).

- The average price per standard drink for a selected range of alcoholic beverages has not changed appreciably since 2012, but beer and whisky became slightly cheaper in 2017.

- The lowest advertised price per standard drink for cask wine, whisky and beer in 2017 is noticeably lower than the average CPI prices.

Table 2: Price per standard drink using CPI prices in 2012 and 2017

<table>
<thead>
<tr>
<th>Alcoholic beverage type</th>
<th>Average price per standard drink (CPI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
</tr>
<tr>
<td>Beer – bottles (supermarket &amp; liquor store), 1 dozen</td>
<td>$1.67</td>
</tr>
<tr>
<td>Beer – glass (on-licensed premises), 400ml</td>
<td>$4.51</td>
</tr>
<tr>
<td>Wine – cask, white (supermarket &amp; liquor store), 3 litres</td>
<td>$0.81</td>
</tr>
<tr>
<td>Whisky (liquor store), 1000ml</td>
<td>$1.36</td>
</tr>
</tbody>
</table>


Table 3: Price per standard drink for lowest advertised alcohol in 2017

<table>
<thead>
<tr>
<th>Alcoholic beverage type</th>
<th>Lowest advertised price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer (all volumes)$^5$</td>
<td>$1.10</td>
</tr>
<tr>
<td>Wine cask (all volumes)$^6$</td>
<td>$0.66</td>
</tr>
<tr>
<td>Whisky (all volumes)$^7$</td>
<td>$1.05</td>
</tr>
<tr>
<td>Cider</td>
<td>$0.92</td>
</tr>
<tr>
<td>RTD</td>
<td>$1.05</td>
</tr>
<tr>
<td>Wine bottle</td>
<td>$1.04</td>
</tr>
</tbody>
</table>

Data source: Liquor Information Pricing Service (LIPS, [www.lips.co.nz](http://www.lips.co.nz)), lowest 1% of advertised alcohol prices per standard drink

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$^5$ Restricting the advertised beer to bottles of 1 dozen (for comparability to the CPI average price data) gave the same lowest advertised price of $1.10.

$^6$ Restricting the advertised cask wine to 3 litre container (for comparability to the CPI average price data) gave the same lowest advertised price of $0.66.

$^7$ Restricting the advertised whisky to 1 litre containers (for comparability to the CPI average price data) gave the same lowest advertised price of $1.05.
**Real price**

Figure 1 shows the real price (price adjusted for inflation) of the alcoholic beverage types: beer, wine, and spirits and liqueurs. Note that this relates to price of *all* alcohol within each beverage type, for example the price of all types of beer at on-licensed and off-licensed premises. Series are scaled at 100% at June 2006.

- The real price of beer has increased since 1981 by around 30%.
- The real price of spirits and liqueurs has not increased as much as beer. It has increased by around 10% since 1988.
- The real price of wine has decreased sharply since tracking of wine prices began in 1988. Other types of alcohol have increased in price, but the price of wine has decreased by around 30% since 1988.
- The real price of alcoholic beverage types overall (‘all alcohol’) has increased since 1981, with a drop starting from around 2012.

**Figure 1: The real price of alcoholic beverages**

Data source: Alcohol CPI from CPI level 3 classes for New Zealand (Orly-Mar/Jun/Sep/Dec), from Infoshare (Stats NZ [http://archive.stats.govt.nz/infoshare](http://archive.stats.govt.nz/infoshare)).

*Note: The series are all scaled to equal 100% in June 2006.*
The affordability of alcohol

Alcohol affordability takes the average income into account when considering alcohol price.

Affordability index

In Figure 2, the affordability index is defined as the index of average hourly earnings from wages and salaries divided by the alcohol CPI. Again, series are scaled to 100% at June 2006.

- In 2017, all alcoholic beverage types, but especially wine, were more affordable than ever before, due to average hourly earnings increasing at a faster rate than alcohol prices.
- The affordability of beer and spirits and liqueurs remained stable until 2012. Since then, the affordability of these types of alcohol has increased by around 10%.
- Wine has had the largest increase in affordability over the tracking period. Since 2012, the affordability of wine has increased sharply by 20%. Overall, wine is over 50% more affordable now than in 1989.

Figure 2: The affordability of alcohol

Data sources: Alcohol CPI from CPI level 3 classes for NZ (Qrtly-Mar/Jun/Sep/Dec); average weekly earnings from Quarterly Employment Survey (Employees), from Infoshare (Stats NZ, http://archive.stats.govt.nz/infoshare).

Note: The series are all scaled to equal 100% in June 2006.
Minutes of work needed to earn a standard drink

The number of minutes that a person in paid employment on a median income would need to work to earn an *averagely priced* standard drink is shown in Figure 3. This was found by dividing the CPI average price per standard drink by median earnings per minute.

The number of minutes a person in paid employment on a median income would need to work to earn the *lowest priced* standard drink advertised in 2017 is shown in Figure 4. This was found by dividing the price per standard drink of the cheapest advertised alcohol by median earnings per minute.

- It takes *less* time to earn enough to buy an *averagely priced* standard drink of beer, whisky or cask wine from off-licensed premises (supermarket or liquor store) now than in 1999. By contrast, it takes *longer* to earn enough for a beer at on-licensed premises now than in 1999.

- The *cheapest advertised* whisky and RTDs in 2017 cost the same number of minutes of work (2.6 minutes) to earn a standard drink, with the *cheapest advertised* beer costing slightly more (2.8 minutes).

- Wine sold in a cask is the most affordable type of alcohol. In 2017, it would take only 2.1 minutes for a person on a median income to earn enough for an *averagely priced* standard drink of cask wine and only 1.6 minutes to buy the *cheapest advertised* standard drink of cask wine.
Figure 3: Minutes of work needed for an employee on a median income to earn a standard drink (average price)


Figure 4: Minutes of work needed for an employee on a median income to earn a standard drink (lowest advertised price) in 2017

References


Appendix: Alcoholic beverages in the CPI basket

The CPI basket is regularly reviewed by Stats NZ. This was last done in 2014. Changes to alcoholic beverages included in the basket have been made over time, to account for changes in types of alcohol available for consumption, changes in sizes of alcoholic containers and consumer preferences. Notably, in 1999, RTDs were added to the basket.8

Table 4: Alcoholic beverage items in the Consumer Price Index basket in 2014

<table>
<thead>
<tr>
<th>Beverage type</th>
<th>Volume and where purchased</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beer, 330ml bottles (off-licence)</td>
<td>Pack of 6</td>
<td></td>
</tr>
<tr>
<td>Beer, 330ml bottles (off-licence)</td>
<td>Pack of 12 or 15</td>
<td></td>
</tr>
<tr>
<td>Beer, 330ml cans (off-licence)</td>
<td>Pack of 6</td>
<td></td>
</tr>
<tr>
<td>Beer, bottle (on-licence)</td>
<td>330ml</td>
<td></td>
</tr>
<tr>
<td>Beer, glass (on-licence)</td>
<td>400ml</td>
<td></td>
</tr>
<tr>
<td>Wine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cider (off-licence)</td>
<td>330ml, pack of 4</td>
<td></td>
</tr>
<tr>
<td>Wine, red, bottles (off-licence)</td>
<td>750ml</td>
<td></td>
</tr>
<tr>
<td>Wine, sparkling bottles (off-licence)</td>
<td>750ml</td>
<td></td>
</tr>
<tr>
<td>Wine, white, bottles (off-licence)</td>
<td>750ml</td>
<td></td>
</tr>
<tr>
<td>Wine, white, casks (off-licence)</td>
<td>3 litres</td>
<td></td>
</tr>
<tr>
<td>Wine, bottle (on-licence)</td>
<td>750ml</td>
<td></td>
</tr>
<tr>
<td>Wine, glass (on-licence)</td>
<td>200ml</td>
<td></td>
</tr>
<tr>
<td>Spirits and liqueurs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gin (off-licence)</td>
<td>1000ml</td>
<td></td>
</tr>
<tr>
<td>Rum (off-licence)</td>
<td>1000ml</td>
<td></td>
</tr>
<tr>
<td>Whisky (off-licence)</td>
<td>1000ml</td>
<td></td>
</tr>
<tr>
<td>Vodka (off-licence)</td>
<td>1000ml</td>
<td></td>
</tr>
<tr>
<td>Liqueur (off-licence)</td>
<td>700ml bottle</td>
<td></td>
</tr>
<tr>
<td>Ready-to-drink 330ml pre-mix spirit (RTD) (off-licence)</td>
<td>Pack of 4</td>
<td></td>
</tr>
<tr>
<td>Ready-to-drink 330ml pre-mix spirit (RTD) (off-licence)</td>
<td>Pack of 10 or 12</td>
<td></td>
</tr>
<tr>
<td>Gin nip (on-licence)</td>
<td>Double nip</td>
<td></td>
</tr>
<tr>
<td>Whisky nip (on-licence)</td>
<td>Double nip</td>
<td></td>
</tr>
<tr>
<td>Liqueur (on-licence)</td>
<td>Double nip</td>
<td></td>
</tr>
<tr>
<td>Ready-to-drink pre-mix spirit (RTD) (on-licence)</td>
<td>330ml</td>
<td></td>
</tr>
</tbody>
</table>


8 See http://archive.stats.govt.nz/tools_and_services/newsletters/price-index-news/jul-12-article-alcoholic-beverages.aspx for a complete documentation of the changes in alcoholic beverages included in the CPI basket over time.