


Optimal rates of alcohol taxation

A summary report for the Foundation of Alcohol Research and Education



This report has been prepared in accordance with the scope of services described in the contract or agreement between Marsden Jacob Associates Pty Ltd ACN 072 233 204 (MJA) and the Client. Any findings, conclusions or recommendations only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. Furthermore, the report has been prepared solely for use by the Client and Marsden Jacob Associates accepts no responsibility for its use by other parties.

Copyright © Marsden Jacob Associates Pty Ltd 2015

Introduction

In October 2012, Marsden Jacob Associates prepared a report for the Foundation of Alcohol Research and Education (FARE) titled [Bingeing, collateral damage and the benefits and costs of taxing alcohol rationally](http://www.fare.org.au/2012/10/bingeing-collateral-damage-and-the-benefits-and-costs-of-taxing-alcohol-rationally) (the full report can be viewed online at: www.fare.org.au/2012/10/bingeing-collateral-damage-and-the-benefits-and-costs-of-taxing-alcohol-rationally/).

The report was built around a Benefit Cost Analysis (BCA) of altering existing taxation arrangements for alcoholic beverages. In particular, taxing wine products according to alcohol content rather than wholesale price.

We found that there were significant net benefits to the Australian community from this policy change.

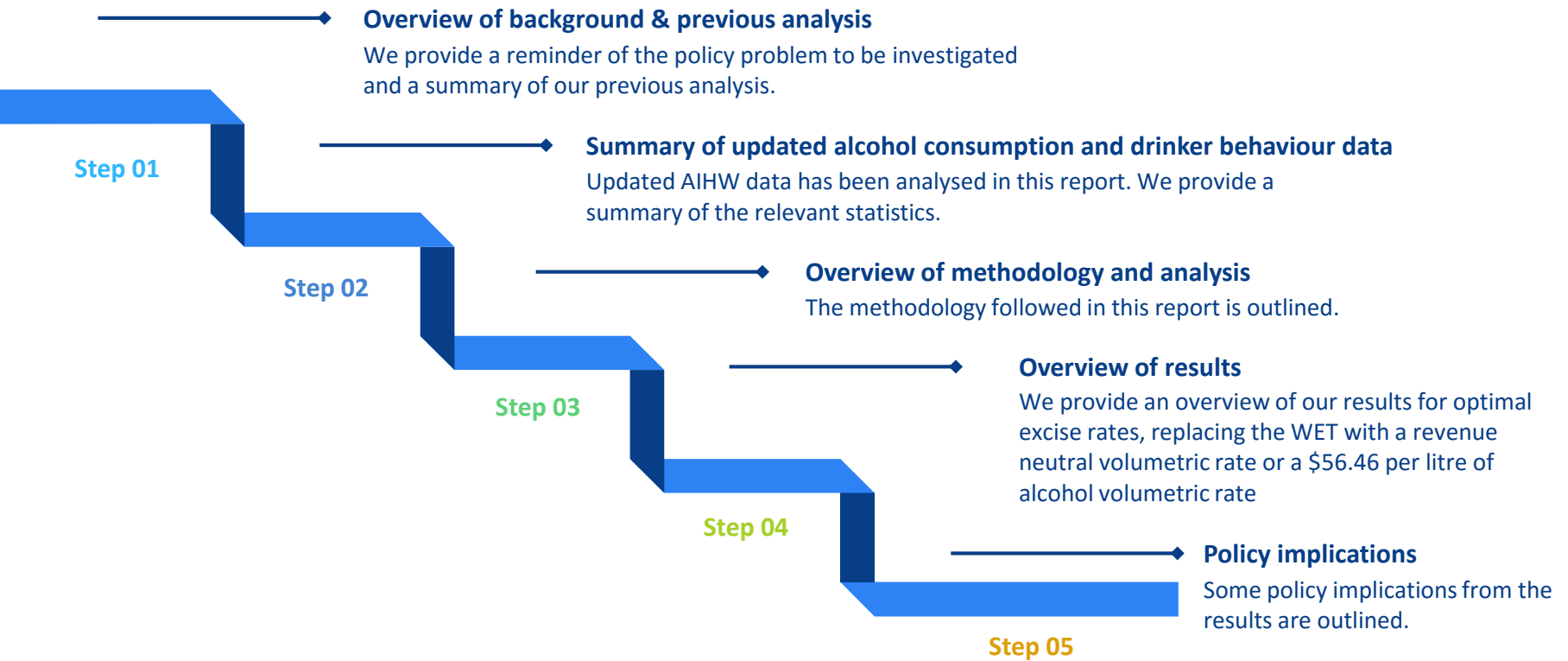
In June 2015 FARE commissioned Marsden Jacob Associates to investigate the percentage change in excise rates that would maximise net benefits to society.

We undertook this research and analysis by updating our 2012 alcohol model with more recent data on alcohol consumption from the Australian Institute for Health and Welfare (AIHW).

Underlying assumptions and empirical factors relating to the behaviour of consumers in response to price changes remain unchanged from our 2012 report.

In this summary report, we outline the scope for this 2015 analysis, and summarise the results. We encourage the reader to consult our 2012 report to gain a detailed understanding of the many assumptions and technical foundations upon which this analysis is built.

Outline of report



Synopsis of results: New evidence confirms the benefits to Australia from taxing alcohol rationally

Australians would be better off if the government taxed alcohol rationally at substantially higher excise rates. This conclusion is confirmed by new benefit-cost analysis by economists, Marsden Jacob.

The analysis poses the question “What is the optimal increase in alcohol excise rates to maximise the welfare of Australians?” Even under the most conservative and limiting assumptions, the answer is “by almost 75 per cent”. This would also generate each year an additional \$4.3 billion in taxation revenue which can be used to reduce less efficient taxes.

Some 13 per cent of adult Australians drink at more than twice the maximum level recommended by medical guidelines. These drinking decisions are undoubtedly harmful to the drinker and to others including family and partners. If these drinking decisions are recognised as irrational then much bigger increases in excise rates on alcohol are warranted. Under these more realistic assumptions, excise rates need to be increased by a factor of almost two and a half times.

Specifically, the optimal tax increase is 145 per cent. The minimum estimated benefits could be as large as \$688 million per year, resulting in a \$6.4 billion boost to government revenue each year.

The findings are conservative because the benefits measured relate to reductions in short term drinking behaviours only. Higher

prices for alcohol reduce bingeing and short term drinking levels generally, lowering a range of harms to others, including family violence and criminal behaviour.

The most recent findings add weight to evidence published in a [2012 Marsden Jacob report](#) that examined the economic consequences of taxing alcohol rationally in Australia. That report found that increasing excise rates by 50 per cent and setting a wine excise rate equivalent to mid strength beer would deliver benefits of \$250 million per year.

This analysis does not include benefits to Australians from reductions in longer term drinking levels. Nonetheless, higher prices for alcohol also reduce long term levels of drinking, lowering the incidence of more than 50 cancers and numerous other adverse health impacts. Since more than half of Australia’s health costs are paid by tax payers, the reduction in alcohol related impacts in health is a major benefit to taxpayers, budgets and Australians as a whole.

The consistency of results across the 2012 and 2015 economic assessments sends a clear message to policymakers. There are unambiguous benefits on offer from reforms to alcohol taxation policy in Australia. In other words, there is little to lose, but plenty to gain from taking a rational approach to the taxation of alcohol in Australia.

Synopsis of results

In June 2015 FARE commissioned Marsden Jacob Associates to investigate the percentage change in excise rates that would maximise net benefits to society.

Marsden Jacob undertook this research and analysis by updating its 2012 alcohol model with more recent data on alcohol consumption from the Australian Institute for Health and Welfare (AIHW).

Underlying assumptions and empirical factors relating to the behaviour of consumers in response to price changes remain unchanged from its [*2012 report Bingeing, collateral damage and the benefits and costs of taxing alcohol rationally*](#).

This project differs from the 2012 analysis in three main ways:

1. MJA sought to identify optimal rates of excise, rather than analysing the impact of pre-determined excise rate increases.
2. A change to the existing arrangements for wine taxation was modelled, converting the WET to a volumetric excise rate that would result in a revenue neutral outcome.
3. As an alternative scenario for wine taxation, a volumetric excise rate of \$56.46 per litre of alcohol was modelled. This rate is half way between the full strength draught beer rate (\$33.16) and the spirits rate (\$79.77).

Some key results from Marsden Jacob's 2015 analysis of optimal excise rates for alcoholic beverages

For normal goods, any increase in taxation will lead to increased costs for consumers. Not only do they pay relatively more for the good, but they also consume a lower quantity of it in response to the higher price. Ordinarily, the loss of consumption would be considered a loss of benefit to the consumer, directly attributable to the tax rise.

However, some drinkers consume such large quantities of alcohol that it is difficult to believe that there are any benefits derived from that excessive consumption. Therefore, Marsden Jacob Associates assumes that there is no loss of benefit for that category of drinker from an increase in excise rates. Under this assumption, the rate of excise increase that would maximise net benefits to society is 145 per cent, delivering \$688 million per year in net benefits.

This policy change would result in an annual increase in excise and tax revenue to the Commonwealth Government of \$6.4 billion.

The increase in prices for a range of alcoholic beverages is reported in Table 1.

Synopsis of results

Table 1: Percentage increase in alcoholic beverage prices from 145% increase in excise rates.

	Beverage	Price increase
Packaged	Beer	38.3%
	Wine	25.3%
	Spirit	62.9%
	Ready to drink	33.7%
Non-packaged	Beer	10.1%
	Wine	6.9%
	Spirit	23.7%
	Ready to drink	17.6%

Table 2: Percentage increase in alcoholic beverage prices from 74% increase in excise rates.

	Beverage	Price increase
Packaged	Beer	19.5%
	Wine	12.9%
	Spirit	32.0%
	Ready to drink	17.2%
Non-packaged	Beer	5.2%
	Wine	3.5%
	Spirit	12.1%
	Ready to drink	9.0%

Even when we relax the assumption that harmful levels of alcohol consumption have no benefit to consumers, an excise increase delivers net benefits.

Under this assumption, the rate of excise increase that would maximise net benefits to society is 74 per cent, delivering \$207 million per year in net benefits.

This policy change would result in an annual increase in excise and tax revenue to the Commonwealth Government of \$4.3 billion.

The increase in prices for a range of alcoholic beverages is reported in Table 2.

Marsden Jacob Associates also analysed the consequences of a change to the taxation of wine products.

Currently, the Wine Equalisation Tax (WET) is based on the wholesale price of wine. FARE asked us to model the impact on wine prices from replacing the WET with a volumetric excise rate that would result in a revenue neutral outcome for the Commonwealth budget. ACIL Allen calculated that volumetric rate as \$14.08 per litre of alcohol.

The results of the Marsden Jacob Associates price simulations are outlined in Table 3.

Synopsis of results

Table 3: Impact on retail wine prices from replacing the WET with a \$14.08 volumetric rate of excise.

The analysis demonstrates that the price increases in percentage terms would be feasible for all wine products, with the possible exception of cask wine. However, although it is likely that there would be some consumer backlash to the sharp increases in the price of cask wine, on a dollar per litre basis, cask wine would still be the cheapest wine product.

	4l cask – white	4l cask – red	750 ml Cleanskin – red	750 ml Cleanskin – white	\$15 bottle of red	\$30 bottle of red
Alcohol content	11%	15%	14%	11%	15%	15%
Retail price with existing WET	\$14.91	\$14.91	\$8.00	\$7.00	\$15.00	\$30.00
Retail price with volumetric rate	\$27.05	\$33.05	\$9.60	\$8.04	\$14.83	\$25.43
\$ change in price	\$12.1	\$18.1	\$1.6	\$1.0	-\$0.2	-\$4.6
% change in price	81.42%	121.66%	20.00%	14.86%	-1.13%	-15.23%
\$ per litre of wine	\$6.76	\$8.26	\$12.80	\$10.72	\$19.77	\$33.91

Overview of background and previous analysis

Policy environment and previous analysis

A refresher on the nature of the policy position

- There is accumulating evidence on the role of alcohol consumption and associated behaviours in harms to individual drinkers and others in the community. Community concerns remain over the costs imposed by drinkers on others.
- Australian and international evidence suggests that alcohol taxation and pricing is an effective and pervasive instrument in reducing alcohol consumption and a range of alcohol induced harms to others.
- Alcohol taxation reform would improve the efficiency of the Australian taxation system and improve resource allocation efficiency by removing current distortions that favour 'cheap' wine. As recommended by the Henry Tax Review, this involves shifting all alcohol taxation to a volumetric basis. Importantly, an increase in alcohol taxation would reduce consumption and the associated adverse externalities.

Previous MJA analysis for FARE

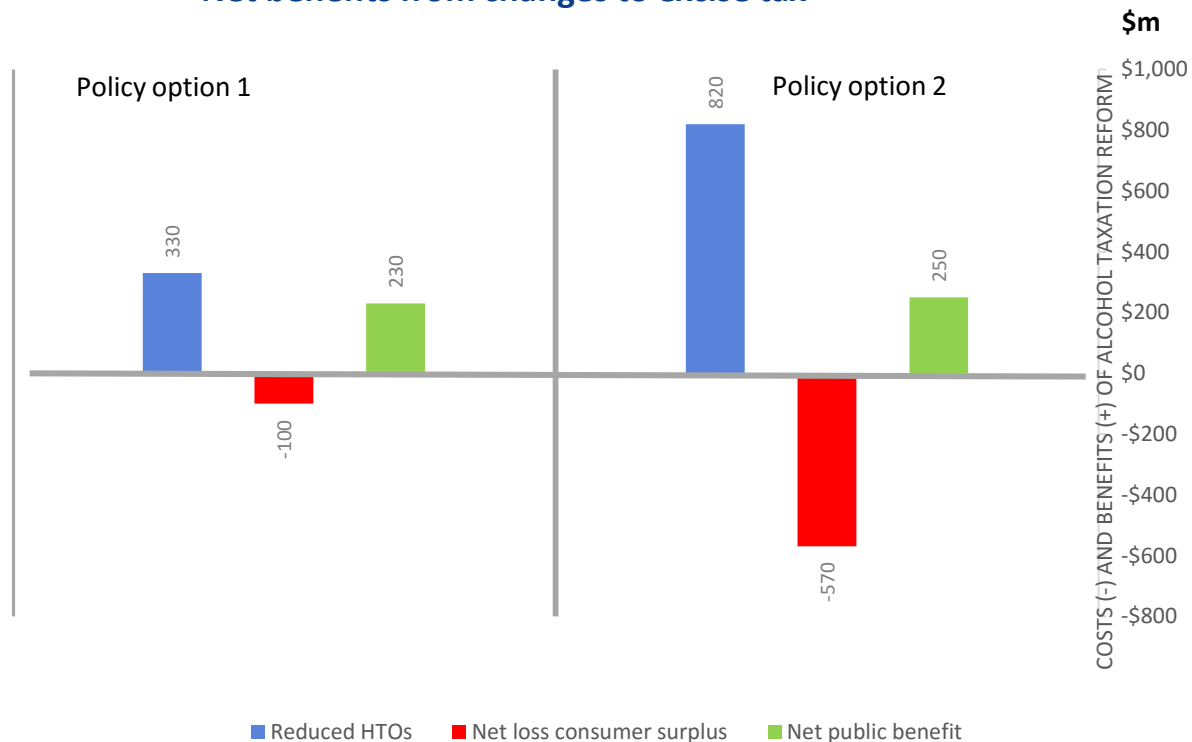
In our 2012 report to FARE, [*Bingeing, collateral damage and the benefits and costs of taxing alcohol rationally*](#), we used the MJA alcohol model to examine the impacts from two alternate adjustments to excise rates. They were:

Policy option 1	Policy option 2
The wine equalisation tax (WET) is removed and replaced with a volumetric excise set at \$29.05 per litre of alcohol.	The WET is removed and replaced with a volumetric excise set at \$29.05 per litre of alcohol.
All other excise rates are unchanged.	All other excise rates are increased by 50 per cent.

Net benefits to society from excise rate changes

We found that the loss of consumer surplus that resulted from the relatively higher excise rates was more than offset by a reduction in the value of Harms To Others (HTOs) from alcohol consumption. This resulted in both policy options delivering net public benefits to society.

Net benefits from changes to excise tax



Summary of updated alcohol consumption and drinker behaviour data

Updated data and drinker characteristics

Updated AIHW data

Since our previous analysis was completed in 2012, updated data has been collected by the Australian Institute for Health and Welfare on:

- the percentage of alcohol that is consumed at harmful and/or hazardous quantities
- the proportion of all adult drinkers who's alcohol consumption patterns are harmful and/or hazardous.
- how many adult drinkers have ever consumed alcohol in excess of the short-term NHMRC Guideline in the past 12 months.

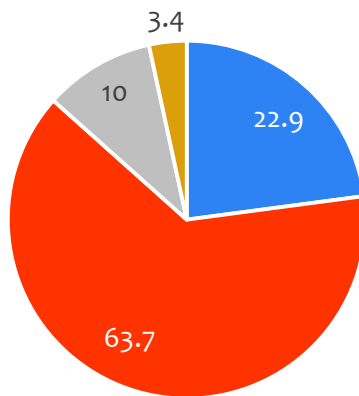
Drinker characteristics

The NHMRC guidelines recommend, among other things, that alcohol consumption be limited to less than 2 standard drinks per day, on average. Remaining consistent with [our 2012 analysis](#), we have classified the Australian population according to how their drinking patterns compare with the NHMRC guidelines, outlined in the table below.

Behaviour assumptions	Description of drinking patterns in the last 12 months
Abstainer	Did not consume alcohol in the last 12 months.
Moderate	Average consumption is within NHMRC guidelines (less than 2 standard drinks per day, on average).
Hazardous	Average consumption in excess of the NHMRC guidelines (between 2 and 6 standard drinks per day, on average).
Harmful	Average consumption significantly exceeds the NHMRC guidelines (40 standard drinks per week, or just fewer than 6 standard drinks per day).

Summary of average drinking behaviour patterns

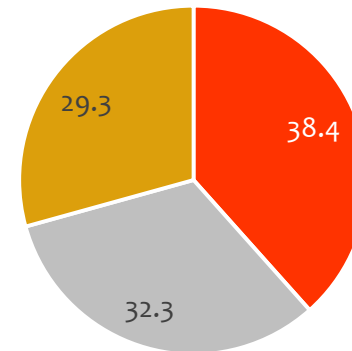
Percentage of adult population in each category



■ Abstain ■ Moderate ■ Hazardous ■ Harmful

The above chart illustrates the percentage of all Australian adults that were in each drinker behaviour category in the 12 months that preceded the date of the survey. The majority of Australian adults report drinking behaviours that are considered low risk (those in the abstain or moderate drinking categories).

Percentage of alcohol consumed by class of drinker



■ Moderate ■ Hazardous ■ Harmful

In this second chart we illustrate the percentage of total alcohol consumed by different classes of drinker. As an example, the chart demonstrates that only 3.4 per cent of the adult population (those in the harmful category) was responsible for 29.3 per cent of total alcohol consumed.

Source: Marsden Jacob analysis of AIHW data, adapted from TurningPoint

Summary of 'risky' drinking behaviour patterns

The NHMRC guidelines define 'risky drinking' as the consumption of greater than 4 standard drinks in a single session.

We have analysed AIHW data to identify the proportion of the adult population that have either:

- not engaged in risky drinking in the past 12 months or
- engaged in risky drinking at least once in the past 12 months.

Our analysis reveals some interesting patterns.

For example, although 32.4 per cent of moderate drinkers engaged in risky drinking at least once, that group was only responsible for 8.6 per cent of total alcohol consumed in a risky manner.

This suggests that when moderate drinkers do exhibit risky drinking behaviour, it is at relatively low levels.

In contrast, harmful drinkers were responsible for 27 per cent of the total alcohol that was consumed in a risky manner, even though they make up a relatively small proportion of the adult population.

'Risky' drinking by proportion of adult population

Type of drinker	Abstain	Moderate	Hazardous	Harmful	Total
Didn't engage in risky drinking in last 12 months	22.9%	31.3%	1.4%	0.0%	55.6%
Engaged in risky drinking at least once in last 12 months	0.0%	32.4%	8.6%	3.4%	44.4%
Total					100%

Proportion of total alcohol consumed in risky manner

Type of drinker	Moderate	Hazardous	Harmful	Total
Didn't engage in risky drinking in last 12 months	29.8%	14.1%	2.3%	46.2%
Engaged in risky drinking at least once in last 12 months	8.6%	18.2%	27.0%	53.8%
Total				100%

Source: Marsden Jacob analysis of AIHW data, adapted from TurningPoint

Overview of methodology, analysis and results

Scope for this analysis

This project differs from our previous analysis in three main ways:

1. We have sought to identify *optimal* rates of excise, rather than analysing the impact of pre-determined excise rates.
2. We model a change to the existing arrangements for wine taxation, converting it to a volumetric tax that would result in a revenue neutral outcome.
3. As an alternative scenario for wine taxation, we model a volumetric tax of \$56.46 per litre of alcohol. This rate is half way between the full strength draught beer rate (\$33.16) and the spirits rate (\$79.77).

We define the optimal rate of excise as that which maximises the net benefits to the Australian community.

How we have treated the Wine Equalisation Tax (WET)

In order to calculate the average increase in excise rates across all alcoholic beverage types that would maximise net benefits to the Australian community, it was first necessary to convert the Wine Equalisation Tax (WET) to an equivalent volumetric excise rate of \$13.35.

We did this by assuming that all wine products have an identical alcohol content.

Having made this adjustment, it was then possible to identify the uniform percentage increase in excise rates across all products that would maximise net benefits to the Australian community.

A refresher on the concept of irrational alcohol consumption and how it is used in our analysis

A premise of economic theory is that people consume goods and services because they derive some benefit from them. To do otherwise would be irrational.

In the previous section we identified that a proportion of Australian adults consumed alcohol at levels that are hazardous or harmful. It follows that these consumption patterns are likely to be irrational, since they are associated with long term negative health effects.

Put differently, some consumers drink alcohol in quantities that are doing them more harm than good.

Relatively higher prices for a good or service usually results in a loss of consumer benefits (known as 'consumer surplus' in economic jargon), because the higher price typically leads to a reduction in the benefits to consumers from the quantity of the good that would have been consumed had the price not increased.

In this analysis we place limits of the benefits to consumers from excessive alcohol consumption. If we were to assign a consumer benefit to all consumption, regardless of the damage that resulted, we would risk over-stating the costs to consumers from relatively higher excise rates. This, in turn, would under-state the benefits to society from higher excise rates.

To account for this, we model three alternative assumptions regarding the benefits of alcohol consumption:

1. All alcohol consumption is assumed to be beneficial regardless of whether it is moderate, hazardous or harmful.
2. No benefit is derived from harmful consumption. However, benefit is derived from moderate and hazardous consumption.
3. Only moderate consumption is beneficial.

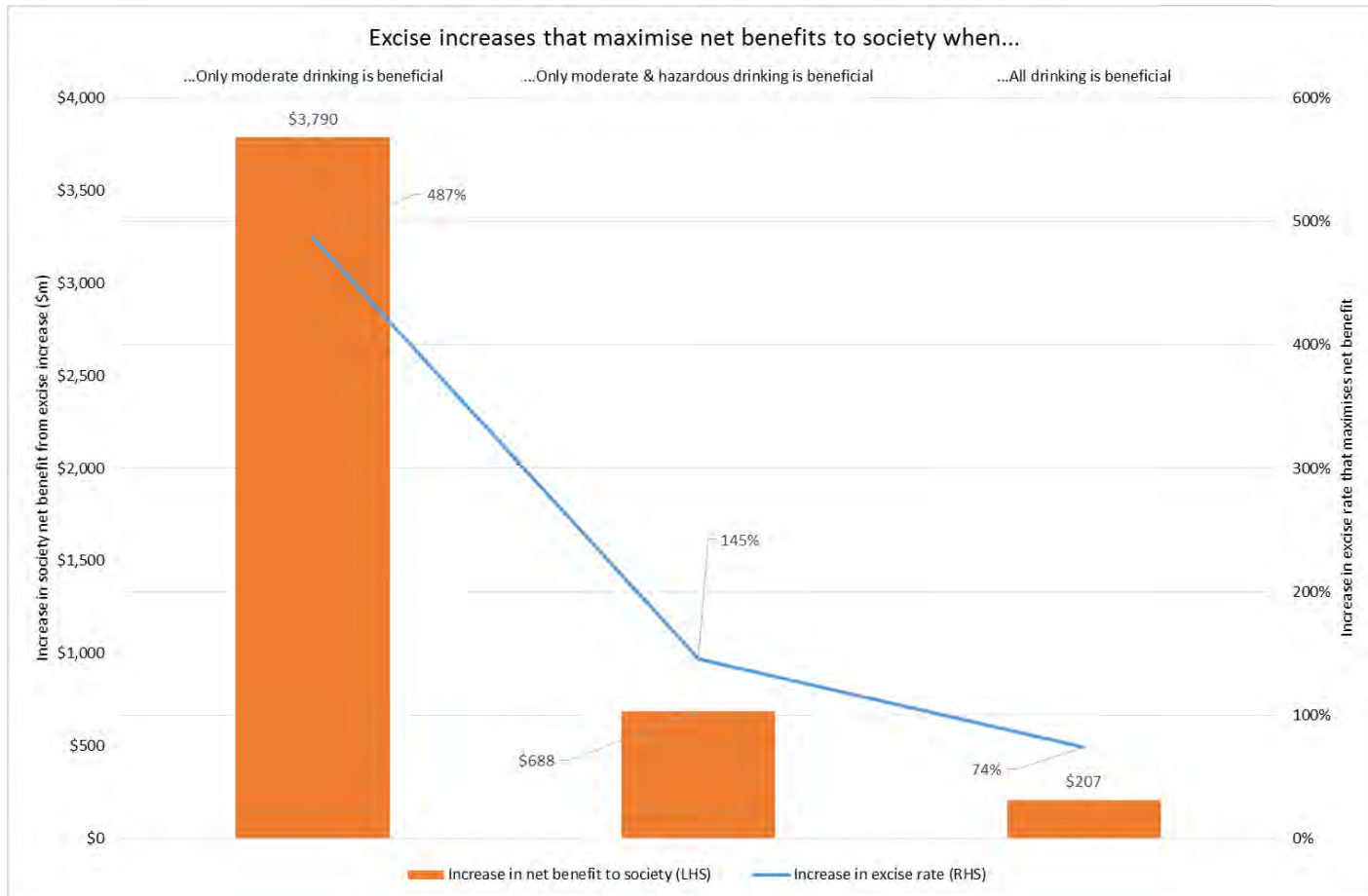
In the results that follow the optimal excise rate is calculated for each of the three assumptions.

Overview of results

A word of caution on interpreting these results

- The analysis presented in this section has a number of limitations and weaknesses that should be kept in mind when interpreting the results.
- First, this is, in economic terms, a partial analysis. This means that we have not modelled, as an example, the possibility that consumers of alcohol would switch to other substances, such as illicit drugs, in response to a price change in alcohol. This means that the true costs of higher rates of excise could be understated.
- Second, a number of the percentage increases in excise rates that are found to maximise net benefits to society are well above any changes that have been observed in practice. This is a limitation because we do not have any empirical reference points against which we can 'truth test' the plausibility of drinkers responding to the excise rate increases in the manner implied by the modelled results.

Excise rates that maximise net benefits to society, based on three alternative assumptions of alcohol consumption



Understanding the results

- Under the assumption that all drinking is deemed beneficial, net benefits to society from an increase in excise rates are at their lowest (\$207 million per annum), as is the optimal rate of excise increase (74 per cent). The higher prices for beverages (as a result of the excise) result in a reduction in consumption, and therefore a loss of consumer benefits for all drinkers. However, that loss of consumer benefit is outweighed by the benefits to society from a reduction in alcohol related harms and the re-distribution of revenue raised from alcohol taxation.
- Under the assumption that only moderate drinking is deemed beneficial, the loss in consumer benefits from reduced consumption is far less, because those engaged in hazardous and harmful drinking do not suffer a loss of consumer benefit from lower levels of drinking. However, the benefits to society from reduced consumption remain the same. As a result the net benefits are much larger. The optimal rate of excise increase under this assumption is 487 per cent, resulting in net benefits to society of \$3.79 billion. We urge caution in accepting this result on face value. Because a rate of excise increase of 487 per cent has never occurred before, we have no way of testing the plausibility of the change in consumption suggested by these results.
- When moderate and hazardous drinking are deemed beneficial, the loss in consumer benefits from reduced consumption only applies to those who are drinking at harmful levels. This means that the costs of foregone consumption fall on the relatively large share of drinkers that exhibit moderate or hazardous drinking patterns. Under this set of assumptions the optimal rate of excise increase is 145 per cent, delivering net benefits to society of \$688 million per year.

How the costs and benefits are distributed across drinker type

The table below outlines how the costs and benefits are distributed across the four drinker types (Abstainers, Moderate, Hazardous and Harmful drinkers), under each of the three assumptions regarding the benefits of alcohol consumption.

We urge caution in taking the results relating to the “...only moderate drinking is beneficial” assumption on face value. Under such a large excise rate increase (487 per cent), consumption of spirits drops to almost zero; a result that is difficult to imagine in practice.

There are net benefits to society under each option due to two main factors:

- increased revenue collected by government is redistributed to all members of society on a pro-rata basis
- the reduction in alcohol consumption leads to a reduction in the range of harms to others in society that result from risky drinking.

Abstainers will always benefit from excise increases as they do not incur any loss of satisfaction from consuming alcohol but do benefit from redistributed excise revenue and reduced harms. For moderate drinkers, while they do lose some satisfaction from reduced alcohol consumption, this is relatively low and more than offset by the benefits from excise redistribution and reduced harms.

Hazardous and harmful consumers each account for greater volumes of alcohol which generate more satisfaction. These are unlikely to be offset except at very high levels of excise increase and only if ‘excessive’ alcohol consumption is zero weighted.

Excise rate increase that maximises net benefits to society when...

...All drinking is beneficial	...Only moderate and hazardous drinking is beneficial	...Only moderate drinking is beneficial
74%	145%	487%

Distribution of costs (-) and benefits (+) across drinker type

Drinker type	...All drinking is beneficial	...Only moderate and hazardous drinking is beneficial	...Only moderate drinking is beneficial
Abstainers	\$1,055	\$1,885	\$4,275
Moderate drinkers	\$1,175	\$2,010	\$3,170
Hazardous drinkers	-\$880	-\$1,680	-\$160
Harmful drinkers	-\$1,145	-\$1,530	-\$3,495
Net benefit to society	\$207	\$688	\$3,790

How the excise rate increase impacts prices and government revenue

The table below set outs the average price increase for various beverage types under a 74 per cent or 145 per cent excise rate increase. We remind the reader that we replaced the WET with a volumetric excise rate equivalent. Therefore, the price increase for wine should be treated with caution. However, for all other products, an excise increase of 74 per cent would result in plausible retail price increases. As an example, a \$50 slab of beer would increase by just under \$10, and a \$37 bottle of spirits would increase by just under \$12.

		Type of beverage	74% excise increase	145% excise increase
		Price increase		
<i>Packaged</i>	Beer		19.5%	38.3%
	Wine		12.9%	25.3%
	Spirit		32.0%	62.9%
	Ready to drink		17.2%	33.7%
<i>Non-packaged</i>	Beer		5.2%	10.1%
	Wine		3.5%	6.9%
	Spirit		12.1%	23.7%
	Ready to drink		9.0%	17.6%
		Excise revenue increase per year		
			\$4.3bn	\$6.4bn

How the costs and benefits are distributed as the excise rates increase uniformly

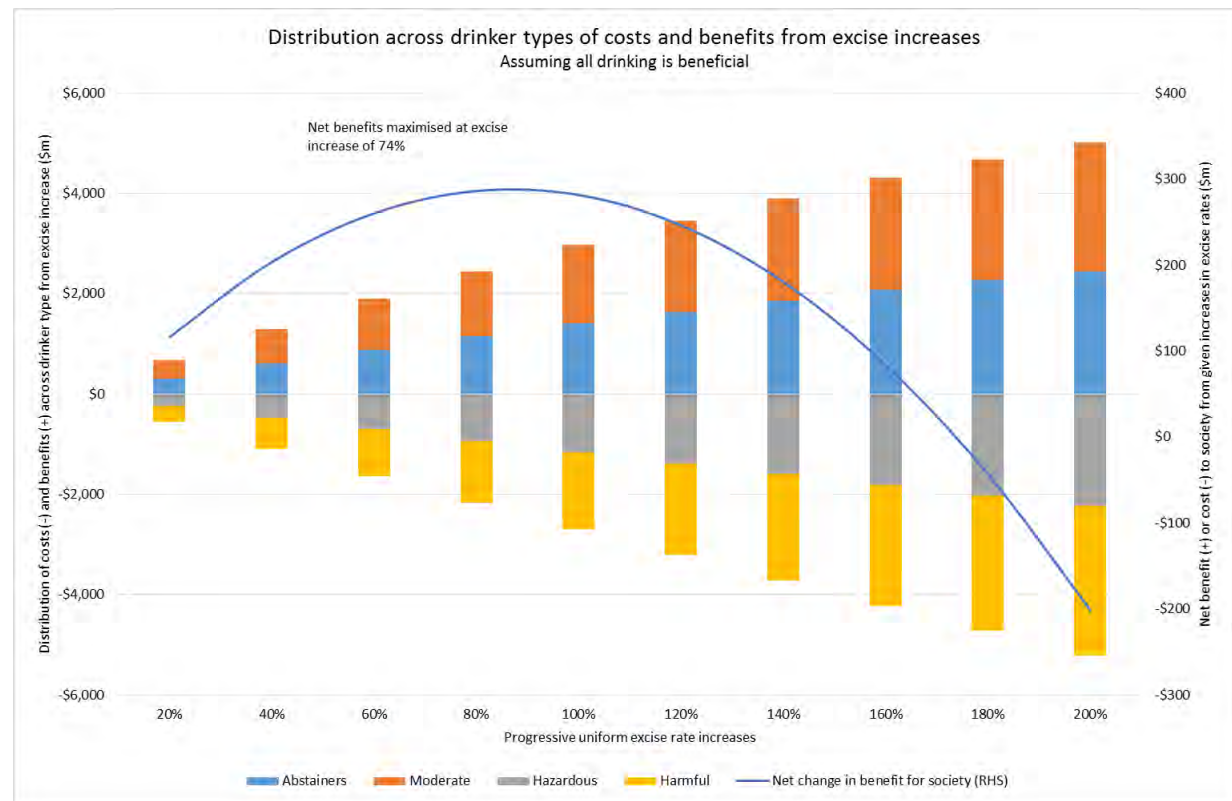
All drinking is beneficial assumption

The chart highlights the effect of significantly lower consumption on hazardous and harmful drinkers.

Both abstainers and moderate drinkers experience improved outcomes, from the re-distribution of excise revenue, and the reduction in alcohol related harms.

However, as the rate of excise increases, the loss of consumer benefits experienced by both hazardous and harmful drinkers begins to outweigh the benefits to abstainers and moderate drinkers.

This occurs at an increase in the excise rate of around 160 per cent.



How the costs and benefits are distributed as the excise rates increase uniformly

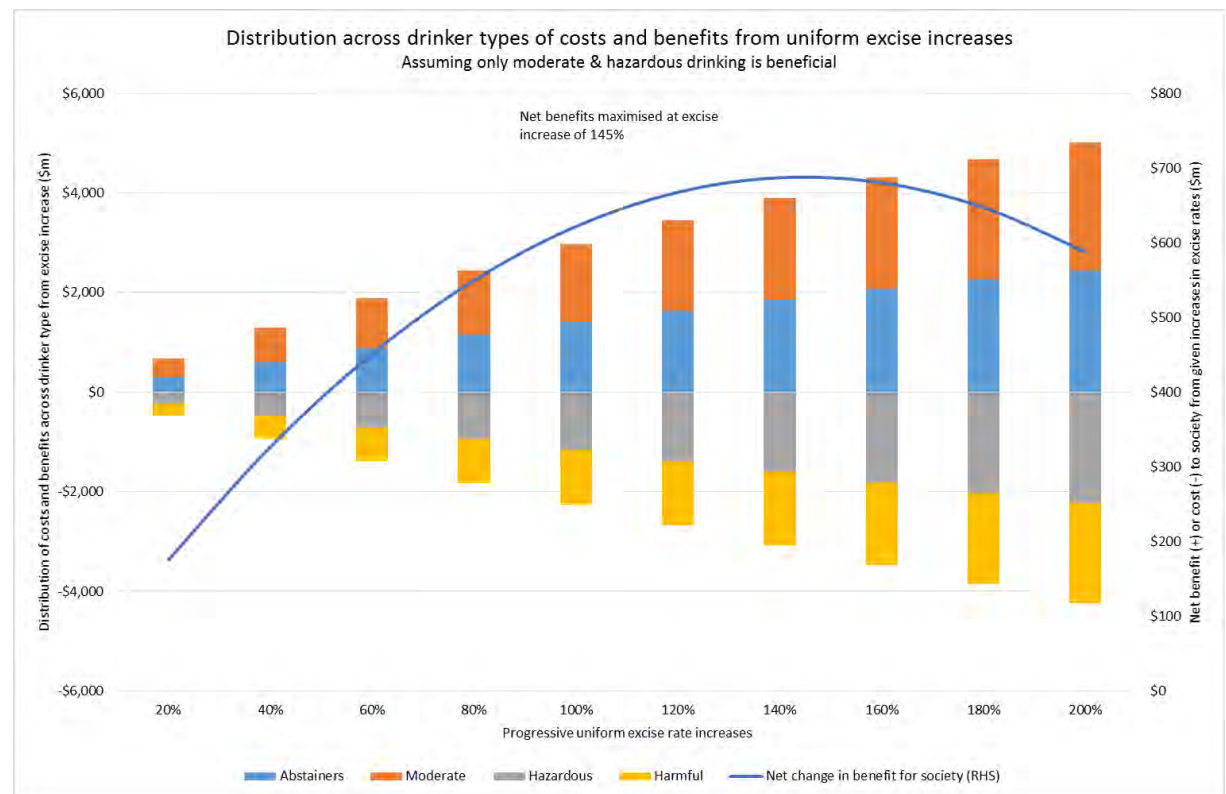
Only moderate and hazardous drinking is beneficial assumption

This chart again highlights the effect of significantly lower consumption on hazardous and harmful drinkers.

Both abstainers and moderate drinkers experience improved outcomes, identical to that illustrated in the previous chart.

However, under this assumption harmful drinkers suffer no loss of benefits as consumption decreases in response to price increases. As a result, harmful drinkers experience a relative improvement in benefits as the excise rate increases, as they receive the benefits of excise revenue redistribution and the reduction in alcohol-related harms, but do not suffer a loss of consumer benefits.

However, eventually the loss of consumer benefit suffered by moderate and hazardous drinkers outweighs the benefits from reduced consumption.



Overview of results: Replace WET with neutral excise rate

Impact on retail wine prices from a volumetric rate of excise that is revenue neutral

FARE engaged ACIL Allens to calculate the volumetric tax for wine products that would maintain revenue neutrality. That rate was found to be \$14.08 per litre of alcohol.

Marsden Jacob Associates has modelled this revenue neutral rate to investigate the impact on retail wine prices from adopting this wine tax reform. We chose six 'stylised' wine products, with the results presented in the table below.

	4l cask – white	4l cask – red	750 ml Cleanskin – red	750 ml Cleanskin – white	\$15 bottle of red	\$30 bottle of red
Alcohol content	11%	15%	14%	11%	15%	15%
Retail price with existing WET	\$14.91	\$14.91	\$8.00	\$7.00	\$15.00	\$30.00
Retail price with volumetric rate	\$27.05	\$33.05	\$9.60	\$8.04	\$14.83	\$25.43
\$ change in price	\$12.1	\$18.1	\$1.6	\$1.0	-\$0.2	-\$4.6
% change in price	81.42%	121.66%	20.00%	14.86%	-1.13%	-15.23%
\$ per litre of wine	\$6.76	\$8.26	\$12.80	\$10.72	\$19.77	\$33.91

Overview of results:
Replace WET with volumetric
rate of \$56.46 per litre of
alcohol

Impact of replacing WET with volumetric rate of \$56.46 per litre of alcohol

For this task we replaced the WET with a volumetric rate of \$56.46 per litre of alcohol.

This is half way between the full strength draught beer rate (\$33.16) and the spirits rate (\$79.77).

All other excise rates for all other beverages were held at existing levels.

The modelling results were as follows:

- This generates an extra \$2.2 billion in government revenues.
- Average prices for wine products increase by 15.3 per cent for on-premise consumption and 56.5 per cent for packaged supplies.
- Net benefits to the Australian community increase by almost \$700 million under the assumption that all drinking is beneficial and \$1.47 billion under the assumption that only moderate drinking is beneficial.

		<i>Distribution of costs and benefits across drinker type for a volumetric rate of \$56.46 when...</i>		
		...All drinking is beneficial	...Only moderate and hazardous drinking is beneficial	...Only moderate drinking is beneficial
Drinker type	Abstainers	\$745	\$745	\$745
	Moderate drinkers	\$1,025	\$1,025	\$1,025
	Hazardous drinkers	-\$415	-\$415	\$65
	Harmful drinkers	-\$660	-\$365	-\$365
	Total	\$692	\$986	\$1,467

Policy implications

The results outlined in this report suggested that lifting 'across the board' excise rates by 74 per cent is likely to result in net benefits to society in the order of \$207 million.

This result compares favourably with our 2012 analysis of a 50 per cent increase in excise, that found net benefits of around \$250 million could be expected.

We are therefore of the view that policy makers could proceed with incremental increases in existing excise rates of up to 74 per cent, confident in the knowledge that net benefits to society would result. In particular, moderate drinkers would be the main beneficiaries of such a reform.

Some 13 per cent of adult Australians drink at more than twice the maximum level recommended by medical guidelines. These drinking decisions are undoubtedly harmful to the drinker and to others including family and partners.

If these drinking decisions are recognised as irrational then much bigger increases in excise rates on alcohol are warranted. Under these more realistic assumptions, excise rates need to be increased by a factor of almost two and a half times.

Specifically, the optimal excise rate increase is 145 per cent. The minimum estimated benefits could be as large as \$688 million per

year, resulting in a \$6.4 billion boost to Commonwealth revenue each year.

Although the modelling indicates that a 487 per cent excise increase would lead to net benefits of \$3.79 billion, we would not recommend basing policy decisions on these results.

The increase in alcoholic beverage prices implied by such an excise increase have not been observed in practice, and we therefore have no data to suggest with confidence how consumers would respond.

Finally, applying a revenue neutral volumetric rate of excise on wine products is likely to result in a significant increase in the price of cask wine, but a relatively small reduction in the price of bottled wine in the \$15 to \$30 price range.

From a policy perspective, the results in the report provide further weight to our 2012 conclusion that a 50 per cent increase in excise rates would be unambiguously good for the Australian community.

In other words, there is little to lose, but plenty to gain from taking a rational approach to the taxation of alcohol in Australia.