
Submission on Substance Abuse in Australian Communities

Winemakers Federation of Australia

April 2000

The Winemakers Federation of Australia (WFA) is the national peak industry body for the wine industry that provides professional analysis of international and domestic events affecting the industry, develops policies and communicates these to government.

The Winemakers' Federation of Australia represents the interests of the nations small, medium and large winemakers. The Federation's members in total produce around 90% of Australian wine. Due to the high level of vertical integration in the Australian wine industry, the Federation represents members on a wide range of issues, from primary production (grapegrowing) to manufacturing (winemaking), distribution and marketing.

The Winemakers Federation of Australia is funded through voluntary levies from its members. WFA is based in Adelaide and has an office in Canberra.

Contact details

Mr Ian Sutton
Chief Executive
Winemakers' Federation of Australia
PO Box 647
MAGILL SA 5072

Tel. 08 8364 1122
Fax. 08 8364 4489
Email. wineaust@ozemail.com.au

Mr Tony Battaglione
Director
Canberra Wine Bureau
GPO Box 1322
CANBERRA ACT 2601

Tel. 02 6249 7162
Fax. 02 6249 8653
Mobile. 0413 014 807
Email. tbattaglione@interact.net.au

Contents

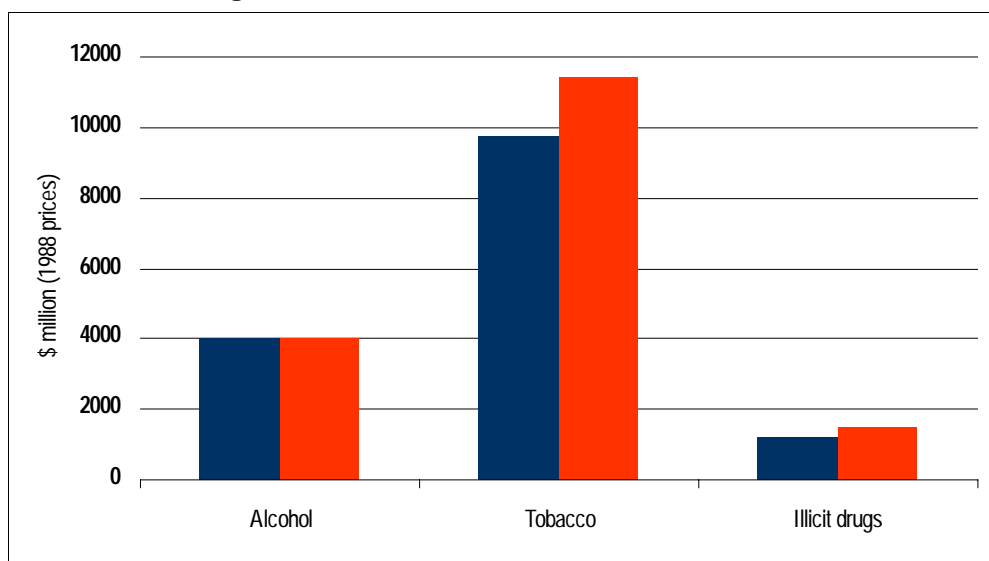
	Introduction	1
	The underlying framework	3
	Why measure social costs?	3
1	Practical problems	5
2	Definition of costs	6
	The demographic approach	7
	The human capital approach	8
	The distinction between private and social costs	8
	Cost elements	9
	Summary of the costs	9
	Production costs	9
3	How many more people would there be?	11
	Measuring the effect of alcohol consumption on the population	13
	Resources used in addictive consumption	15
	Road accident and health care costs	16
	Intangible costs	16
	Consumption of deceased	17
	Value of loss of life to deceased	17
	Pain and suffering of road accident victims	18
	Consumption benefit	18
	Private versus public costs	18
	Incidence of costs	18
	Avoidable costs	19
	The estimates in perspective	20
	Costs versus benefits	20
	Health effects of alcohol versus other causes of health problems	21
4	The costs of gambling	22
	Policy implications and issues	23
	Alcohol Abuse Levels: The Incidence of Wine and Other Alcohol Abuse	24
	Control Policies	24
	Taxation Policies	24
5	Social improvement policies	24
	Information Programs	24
	Current taxation policy	24
	Volumetric vs ad-valorem debate	26
	Alcohol Abuse Versus Alcoholism	30

The Health Benefits of Wine	30
Industry initiatives	35
<i>Conclusions and future directions</i>	36
Policy relevance of the measure	36
C&L define all the costs as social costs	36
Implications	39
6 What policies do the findings suggest?	39
Areas for further work and analysis	40
Develop the underlying framework and make it more transparent	40
Make the methods and calculations clearer	41
Analyse the implications of assumptions	41
Test the assumptions	41
Provide alternate measures	41
Separate wine from other alcohol	42
Clarify the policy implications	42
Concluding comments	42
 <i>Boxes, charts and tables</i>	
1.1 Costs of drug abuse	1
2.1 The benefits and costs of consumption	3
2.2 Consumption and net costs	4
2.3 Optimal consumption and social costs	5
2.4 Population — with and without drug use	7
3.1 Elements of the costs of alcohol consumption in 1992	10
3.2 Additional people in the absence of alcohol consumption 1992	12
3.3 Estimates of change in 1988 population Original (1991) and revised (1996)	14
3.4 Relative risk from alcohol consumption	14
4.1 Effects of alcohol consumption	21
4.2 Burden of disease (DALYs) for various causes	22
5.1 Taxonomy of possibilities	39

1 Introduction

According to a recent comprehensive Australian study, consumption of legal and illegal substances that can cause the user harm costs the community \$18 billion a year. This is equivalent to around 5 per cent of GDP. The largest costs are for tobacco (chart 1.1) followed by alcohol and illicit drugs. In percentage terms, the fastest growth in costs is for illicit drugs, although in dollar terms the biggest increment is for tobacco. The costs of alcohol consumption (estimated to be \$4495 million in 1992) do not appear to be growing.

1.1 **Costs of drug abuse** Constant 1988 dollars



Data source: Collins and Lapsley (1996)

These costs are very large. Doing something to avoid an annual cost of 5 per cent of GDP would be as significant as all the reforms to transport, aviation, communications and electricity together (calculated by the Industry Commission to be worth 6.5 per cent of GDP).

Clearly, estimates such as these suggest that there is a significant problem, which requires appropriate government and community action. However, estimates such as these can never be looked at alone. In interpreting them

it is crucial to understand exactly how they were derived, and what explicit and implicit assumptions were made in getting them.

In the case of alcohol, this is especially important because the costs are net costs. While for some alcohol consumption there is costs, for some there are also benefits. A protective health effect of alcohol consumption provides significant policy challenges. In order to gain an understanding of the estimates of abuse, the Winemakers Federation of Australia commissioned the Centre for International Economics (CIE), a private economic research agency that provides professional, independent analysis to review the analyses that have led to these estimates and discuss some of the policy alternatives with respect to wine. In particular, we were concerned with examining:

- the implicit and explicit assumptions underlying the analysis
- the strengths, weaknesses and ambiguities of the results
- the appropriate interpretation and policy relevance of the results
- potential areas for improvement and further research.

The first part of this submission on the analysis of the costs estimates of alcohol abuse is derived from the report prepared by the CIE for WFA titled *'The costs of alcohol consumption: a discussion and review of Collins and Lapsley'*.

The studies reviewed by the CIE are two reports prepared by David Collins and Helen Lapsley for the National Drug Strategy. The two reports (Collins and Lapsley 1991 and 1996) are treated jointly in order to understand the underlying methodology, but only the latter report is used for specific analysis of the estimates.

For convenience, the two reports are referred jointly as C&L, distinguishing between them as appropriate.

The second part of this submission looks at some of the policy alternatives and issues for the wine industry.

The final part of the submission makes a number of conclusions and identifies further work needed in developing appropriate government policy to reduce the level of wine abuse in Australia.

2

The underlying framework

Why measure social costs?

All consumption involves both costs and benefits. At its simplest, my choice to consume something means I have to pay for it, and so I can consume less of something else. For most products, consumers will try to maximise the net benefits they receive from consumption. In terms of table 2.1, they act to maximise their private net benefits — the difference between their private benefits and private costs. The ‘private’ here refers to the fact that consumers themselves bear the costs, and get the benefits, of their consumption decisions.

2.1 The benefits and costs of consumption

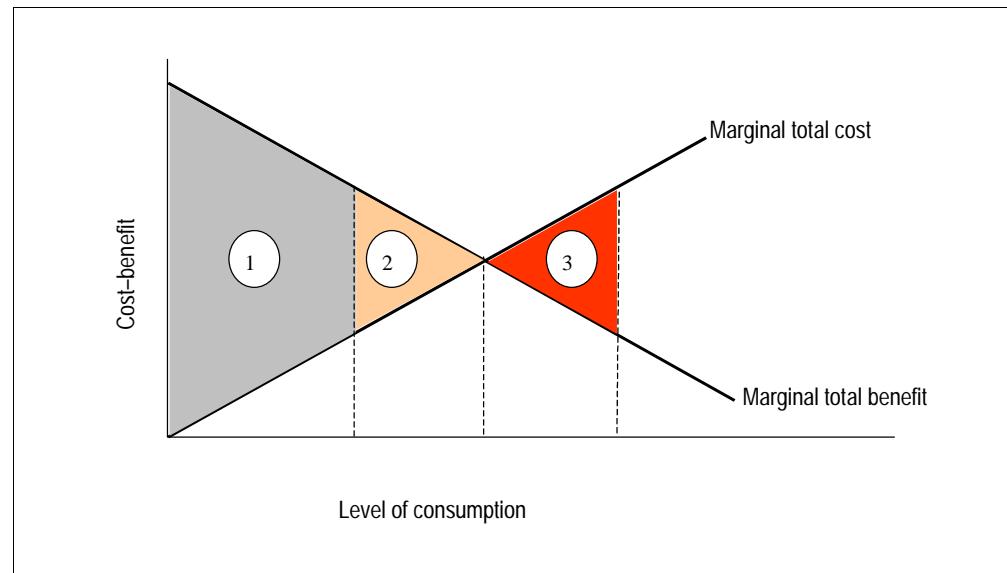
<i>Benefits</i>	<i>Costs</i>	<i>Net benefit/cost</i>
Private	Private	Private net benefit–cost
-----	-----	-----
Social	Social	Social net benefit–cost
Total benefit	Total costs	Total net benefit

While private net benefits can be calculated (they are often referred to as consumer surplus), in most cases this is simply not necessary. We leave it to individual consumers to ensure that they maximise their net benefits. For some goods, however, the costs of consumption are not entirely borne by the individual consumer — others may directly or indirectly pay a price. This extra cost — the social cost of consumption — is a measure of the cost incurred by those not party to the original consumption decision. Social costs are a distinct category to private costs. As table 2.1 shows, the total costs of consumption consist of the private costs and the social costs. (Similarly, the total benefits consist of private and social benefits.)

While we expect the net private benefits to be positive, this is not necessarily the case for net social benefits. If there are net social costs, then these will offset any net private benefits so that total net benefits are lower than would otherwise be the case.

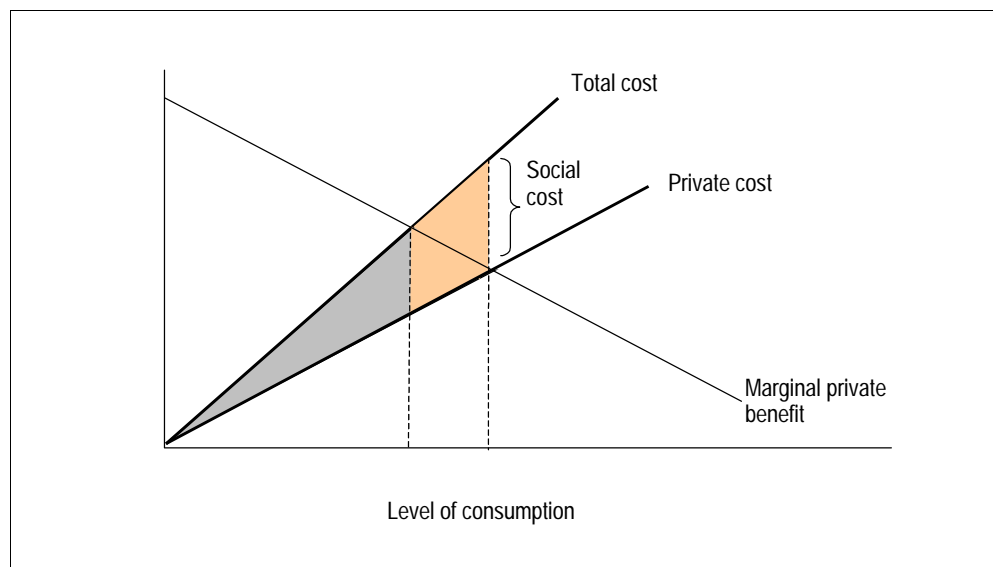
Because there is a trade-off between costs and benefits, there will always be some costs. The objective (both privately and for policy) is to maximise net benefits. Chart 2.2 illustrates the way in which net benefits depend on the level of consumption. The two curves plot the marginal total costs and the marginal total benefit. If consumption is at A, then the shaded area 1 shows the total difference between costs and benefits. If consumption is at B, the total net benefit is the shaded areas 1 and 2. Consumption at B is where net benefits are maximised. If consumption were to increase to C, the net benefit would be as before, but minus shaded area 3.

2.2 Consumption and net costs



In the absence of any social costs, we would expect consumers to be able to get to the point of maximum net benefits without any government action. But the presence of social costs may mean that some government action is needed to maximise net total benefits. Chart 2.3 illustrates this. With only private costs and benefits, consumption would be at point X. However, if there are social costs, the total costs line will lie above the private cost line. At consumption of X, the total social cost will be the full shaded area between the private marginal cost and total marginal cost curves. In order to maximise total net benefits, consumption needs to decrease to Y. Note that there are still social costs at this optimum level of consumption (the shaded area between the curves and below Y). As the curves are drawn in chart 2.3, this social cost cannot be eliminated without also eliminating private benefits.

2.3 Optimal consumption and social costs



The size of the social costs will clearly determine how much of a change in consumption may be necessary to achieve maximum net benefits. In theory, one way of changing consumption is to impose a tax on consumption equivalent to the marginal unit social cost of that consumption. This will induce consumers to reduce consumption to equate their benefits with their costs and will result in the maximisation of total net benefits.

If social costs are present, then measurement is an important input into the policy process. Understanding the order of magnitude of the social costs is necessary to understand how large the problem is and the magnitude and nature of the resources devoted to solving it. There is, of course, no guarantee that policy can cost effectively 'solve' the problem of social cost.

Practical problems

In practice, as our discussion of the C&L results will illustrate, this broad framework is far from simple to implement.

- First, the distinction between private and social costs may be difficult to make in practice. The paradox that some people apparently willingly consume things that are harmful to them creates challenges both for evaluation and policy.
- Second, evaluating social costs requires a common metric for evaluation that allows them to be added together. This includes finding a method to evaluate health impacts and to estimate and account for deaths resulting from consumption.

- Third, the policy implications do not flow from the measure alone, but depend very much on how that measure was generated and exactly what it consists of. It is important, therefore, to understand the basic underpinning's of any analysis. It is crucial to understand the way in which the distinction between private and social costs was made.
- Finally, it is unlikely that any of these curves will be a straight line, making analysis of optimal consumption extremely complicated.

Definition of costs

C&L define the economic costs of drug (including alcohol) abuse as:

The value of the net resources which in a given year are unavailable to the community for consumption or investment purposes as a result of the effects of past and present drug abuse, plus the intangible costs imposed by this abuse. (Collins and Lapsley 1991, p. 49)

Drug abuse takes place when drug use adversely affects the health of the user¹. Thus, the economic costs are essentially the resources that are lost because of past and present adverse health effects of drug consumption. It is important to note that, in the case of alcohol, C&L take some account of the beneficial health affects of consumption. In practice, their approach is thus broader than just calculating the results of 'abuse'.

The intangible costs in the definition include the value of the loss of life to the deceased and the pain and suffering of road accident victims. These costs are different to the 'tangible' costs, as they do not involve a measurable change in production. Rather, they involve an imputed cost of something that is essentially subjective.

This definition involves comparing two alternative situations — the present, in which the drug use (and its consequent health effects) has taken place, and a hypothetical situation in which the drug use has not taken place. This hypothetical or 'what if' situation provides a basis for comparison in evaluating the economic costs. It is not designed to be realistic, but simply to provide a thought experiment against which to evaluate economic costs.

¹ C&L attempt to broaden this definition to one in which 'drug abuse exists when it [drug use] involves a net social cost additional to the resource costs of the provision of that drug'. Unfortunately, this definition introduces some circularity — the definition depends on the measurement of net costs which was itself the point of the exercise. This problem appears to be semantic, however, as it does not affect their methodology.

C&L's approach is to measure average social costs (something akin to the full shaded area in chart 2.3) rather than marginal social costs, or the shape of the marginal social cost curve. Clearly, this total magnitude is important, but it is only the first step to deriving information for policy purposes.

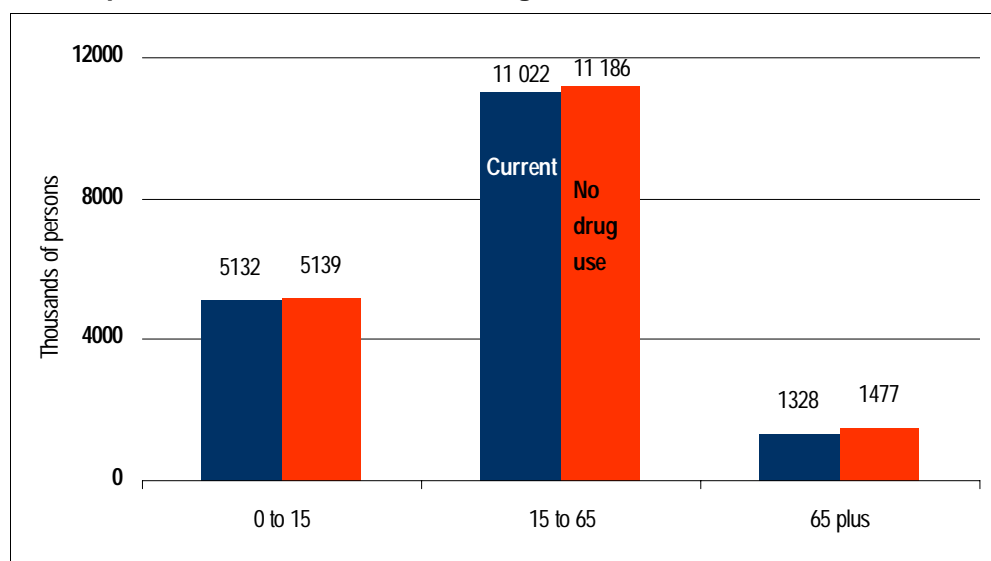
There are a number of ways of constructing the counterfactual evaluation required to estimate social costs. Two of these are outlined below.

The demographic approach

The demographic approach is the method adopted by C&L and involves comparing the actual (in the year under examination) population size and structure with a hypothetical alternative 'no abuse' population size and structure. The difference in the size of the population is then used to determine the foregone production (net of consumption) that results from having a smaller population.

This is illustrated in chart 2.4 For each of the broad age groups, the hypothetical population is larger (in 1992) than the actual population because of the past adverse health effects of drug consumption. This means there are fewer working age people and so production in that year is lower than would otherwise have been the case. This production loss is a material cost to the community because less production means fewer goods and services available for consumption. There is a small offset to this in that people no longer alive do not consume, so there are more goods available for those still alive. The production loss exceeds this consumption 'gain'.

2.4 Population — with and without drug use



Data source: Collins and Lapsley (1996).

The challenge for the demographic approach is to calculate the alternative population estimates. This involves careful use of population health data and research.

The human capital approach

This approach also involves evaluating the loss of production resulting from drug related deaths. In this case, the loss of production is valued by calculating the net present value of the worker's future production stream. This approach calculates the present and future production cost of a death that takes place in this year.

As C&L point out, the two approaches are complementary. Each involves its own estimation challenges, and which approach is used depends on the sort of information that is to be derived. The human capital approach is likely to be essential in undertaking cost benefit analysis of proposed drug programs.

The distinction between private and social costs

C&L assume all costs are social costs. That is, they assume that all the costs of alcohol consumption that causes health problems are social costs. At the same time, C&L implicitly assume that all benefits of consumption that affect health are social benefits. We discuss this further in the final section of the document.

3

Cost elements

Summary of the costs

C&L estimate the total costs of alcohol consumption in 1992 to be \$4495 million. Chart 3.1 summarises the estimated values for the six broad categories of economic costs identified by C&L. These are:

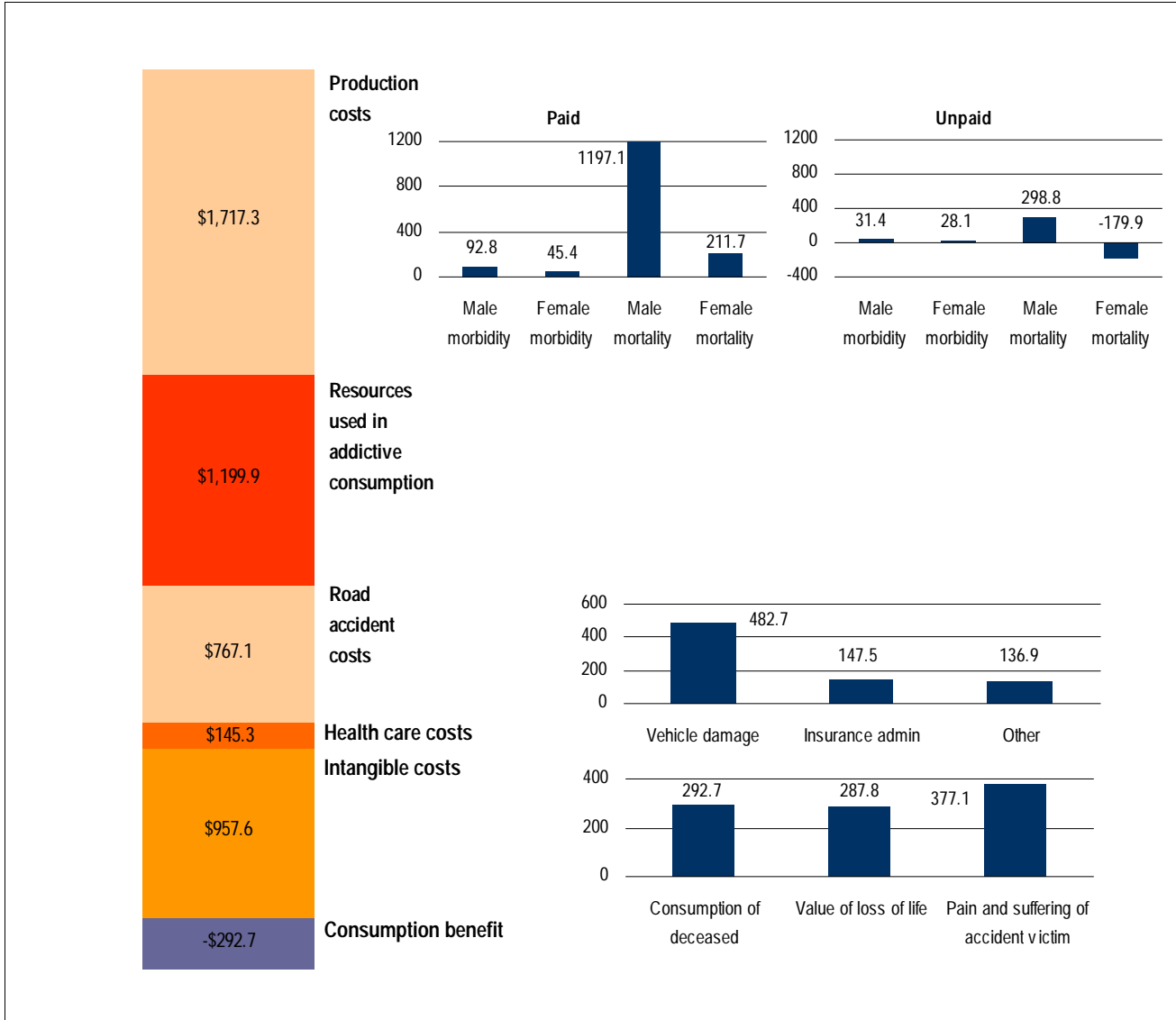
- production costs
- resources used in addictive consumption
- road accident costs
- health care costs
- intangible costs
- consumption benefits.

Each of these is discussed in detail below. It is important to note that C&L do not provide enough information to check their actual calculations. They present results not workings. This is important not so much because we expect C&L to have made errors, but because working through the calculations is the best way to systematically understand the sensitivity of the results to various assumptions and choices of base data.

Production costs

Production costs represent the value of lost production as a result of having fewer people alive today as a result of past and present alcohol consumption. Production costs also include the lost production resulting from sickness resulting from alcohol consumption.

3.1 Elements of the costs of alcohol consumption in 1992 millions of dollars



Data source: Collins and Lapsley (1996).

Production costs account for 38 per cent of the total estimated costs of alcohol consumption, coming to \$1717.3 million in 1992. In real terms, these costs grew by 11.8 per cent between 1988 and 1992.

The estimation of production costs is the most complex element of C&L's methodology as it is here that their demographic approach comes into force. Estimating the production costs that arise from the health affects of alcohol consumption involves estimating the size and age structure of the population today under the assumption that there had been no alcohol consumption in the past and no alcohol consumption today.

Had there been no alcohol consumption in the past, there would have been fewer deaths and so more people alive today. These extra people could produce more, hence production would be bigger. The difference in the dollar value of production arising from the difference in the population is the measure of the production cost of alcohol consumption.

There are three important adjustments to this broad picture.

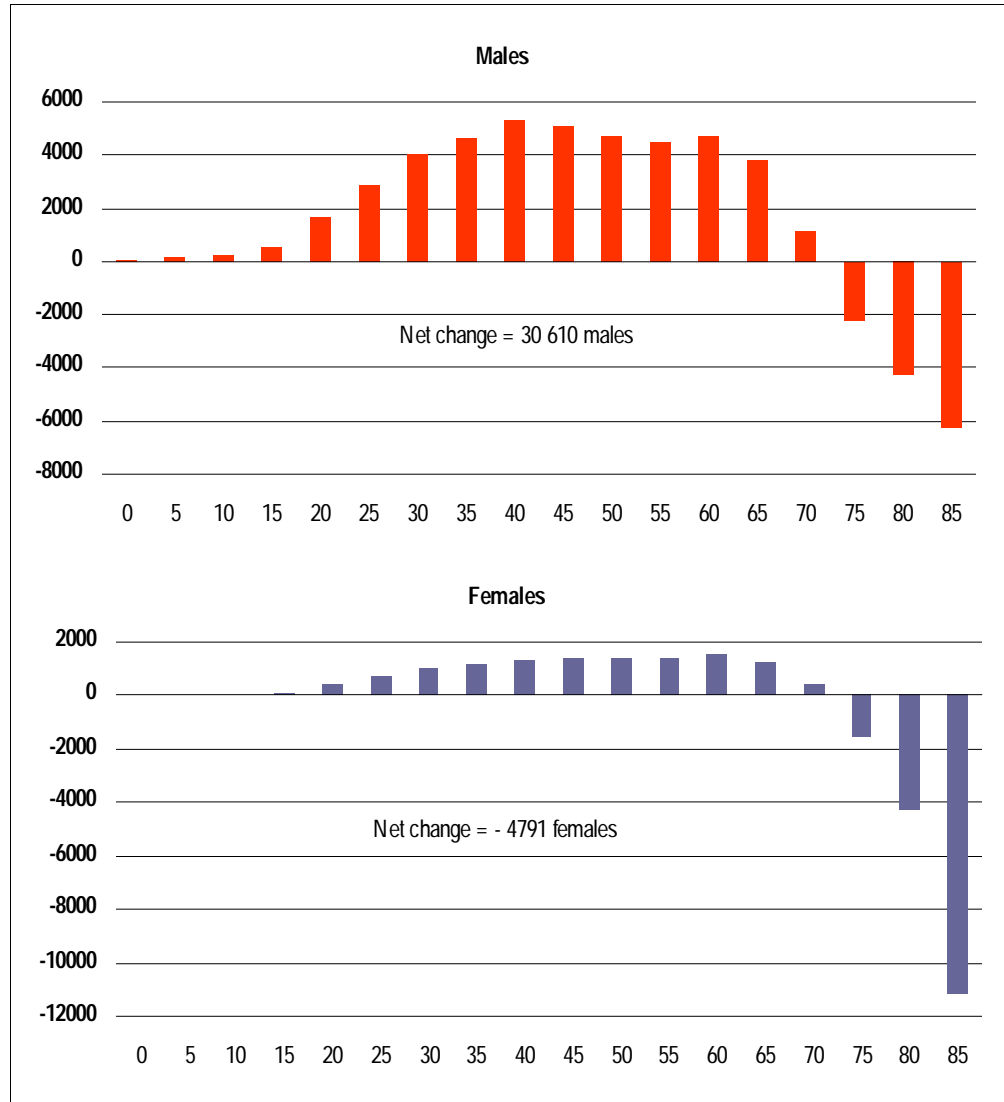
- First, as well as not producing, dead people do not consume. The loss of production is therefore net of the resources that would otherwise have been consumed. This adjustment is made as a consumption benefit in chart 3.1.
- Second, C&L's calculations account for the health benefits of alcohol consumption and so in some cases there would be fewer people alive today had there been no consumption in the past. This turns out to be a benefit.
- Third, as well as causing death (mortality), alcohol consumption also causes sickness (morbidity) which also results in a loss of production.

How many more people would there be?

Chart 3.2 summarises C&L's estimates of how many extra people there would be in the absence of alcohol consumption. It shows, for example, that in the 40 to 45 age group there would be around 5000 extra males in 1992 had there been no alcohol consumption the past. These results are generally smaller for females, and for both males and female the protective effect of alcohol consumption in older age groups is very clear. For example, there would have been 1500 fewer females in the 75 to 80 age group in 1992 had there been no alcohol consumption in the past.

For 1992, the net change in males is 30 610 persons. For females the net change is negative 4791 persons (there would be fewer females alive today without alcohol consumption). This implies a total change of 25 819 persons. The corresponding figures for 1988 are 29 564 persons for males, negative 3605 persons for females, with a total change of 25 959 persons. Thus, between 1988 and 1992, the change in population declined by 0.5 per cent.

3.2 Additional people in the absence of alcohol consumption 1992



Data source: Collins and Lapsley (1996).

For their 1992 estimates, C&L do not indicate the value of production and consumption they use per person. We can work backwards from charts 3.1 and 3.2 in the case of male mortality. In the working age group for males there is a loss of 41 376 lives at a cost of \$1197.1 million. This implies a production value per life of \$28 932. This is broadly consistent with estimates derived from the National Accounts.

In calculating the productivity cost of sickness (morbidity), C&L assume that there are three days of lost productivity for each hospital bed day that results from alcohol consumption. The implications of this can be seen from their estimate of the cost of male morbidity of \$92.8 million. At a production value of \$28 932 per male per year, this implies an effective loss

of 3200 years. For a working male population of around 4 million, this is a loss of around one third of a day per male worker per year.

Measuring the effect of alcohol consumption on the population

C&L indicate in broad principle the way that they calculate demographic changes, but they do not provide any detail. The broad process is to calculate the effect on age specific mortality of alcohol consumption. These effects are derived from aetiologic fractions calculated in a study by English et al (1995).

An aetiologic fraction is a measure of the probability that a particular drug has caused particular deaths and illnesses. It is part of an indirect method of quantifying drug caused morbidity and mortality². For example, if the probability that a case of heart failure is caused by alcohol consumption is 0.35, then the product of this probability measure (the aetiologic fraction) and the total number of cases of heart failure is an estimate of the number of heart failure deaths attributable to alcohol consumption. English et al derive these aetiologic fractions through careful analysis and summary of a number of other studies into the health effects of alcohol consumption.

C&L do not provide details of the exact way in which these aetiologic fractions are used. Further, they do not tell us what fractions they actually do use, other than to note that they use unpublished ones.

The aetiologic fractions are clearly a crucial link in the analysis. We know from C&L's own work that the results are highly sensitive to these fractions. Table 3.3 shows, for example, the difference between their 1991 and 1996 estimates of the change in population.

² Direct methods of quantifying drug caused morbidity and mortality include directly classifying deaths and injuries by cause. Indirect methods do not involve classifying individual deaths or illnesses, but involve applying derived probabilities to a population.

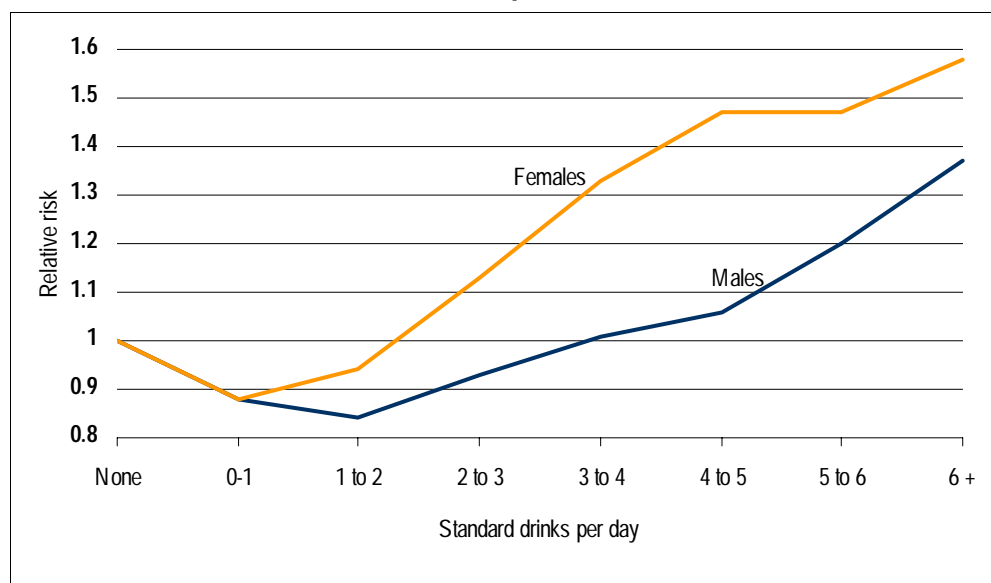
3.3 Estimates of change in 1988 population Original (1991) and revised (1996)

Age group	Males		Females	
	Original 1991 estimates	New 1996 estimates	Original 1991 estimates	New 1996 estimates
0–20	7 200	2 631	0	664
20–49	30 600	24 910	13 500	6 516
50–69	23 200	13 163	14 300	4 404
70 +	14 900	- 11 140	19 200	- 15 189
Total	75 900	29 564	47 000	- 3 605

Source: Collins and Lapsley (1991 and 1996).

These differences are huge, and arise totally from an updated set of aetiologic fractions. These latter fractions recognise the protective effects of low alcohol consumption as illustrated in chart 3.4. The chart shows that for low levels of consumption the risk of health problems is actually reduced. We expect that, other things constant, this change in population estimates would have lowered production costs by around 30 per cent.

3.4 Relative risk from alcohol consumption



Data source: English et al (1995).

It appears that more recent work is further modifying estimates of the protective effect. The work by Mathers et al (1999) in calculating the burden of disease in Australia is an example. We suspect, but cannot confirm, that a further update of aetiologic fractions would lower again the estimates of the production cost.

Resources used in addictive consumption

This cost element is designed to capture the resources ‘wasted’ by providing addicts (alcoholics) with the alcohol they require. If these people were not addicted, they would not consume the same amount of alcohol, and the resources used to produce that alcohol would be available for use elsewhere.

C&L assume that 20 per cent of alcohol consumption is of this type. Thus, 20 per cent of the value of production for the domestic market is wasted. This amounts to \$1199.9 million and is 27 per cent of the total costs of alcohol consumption. In real terms this cost fell by 3.4 per cent between 1988 and 1992 — presumably because alcohol consumption declined over this period.

Why are the resources used to satisfy an addiction wasted? Under the assumption that the addict does not truly value what he consumes, the resources used to satisfy this consumption create no value to society. Thus, even though the brewer and the winemaker are appropriately compensated for their efforts (which no doubt they value) their resources are actually wasted because the addict does not value consumption.

We have some reservations about this line of thinking. Consider the consequences of denying an addict the substance they need. Presumably, the addict would then feel a lot worse. Thus, in some sense utility would have declined, so there is some value to the resources used. It is true that it would be better not to become addicted in the first place but, given that addiction is a reality, resources used to satisfy it do generate some value.

The resolution to this issue depends on clarification of the nature of addiction. It is interesting to note that the Productivity Commission, in their careful evaluation of compulsive gambling take a different approach. Rather than classifying addictive gambling as a social cost, they reduce their estimate of the consumer benefits of gambling to reflect that addicted consumers do not get full value. In a full cost–benefit tradeoff, the two approaches (using addictive consumption to increase social costs versus using it to decrease private benefits) would both suggest that optimal consumption is lower than would otherwise be the case. The Commission, however, does not assume that addicts get *no* value from their consumption, drawing their conclusion from survey research of gamblers.

C&L’s estimate of resources used in addictive consumption raises two practical issues.

- First, C&L arrive at the 20 per cent by judgement, which they do not make explicit. They claim that their overall results are not sensitive to this judgement. But, if the proportion were 10 per cent, the estimate of the resources used in addictive consumption would be halved and the total costs would be reduced by 13 per cent.
- Second, we have trouble arriving at their value of \$1199.9 million. In 1992 the total value of alcohol produced was \$3547 million. 20 per cent of this is \$709 million. The cost of \$1199.9 million implies a production base of \$6000 million, which is too high. This illustrates the sensitivity of results to changes in base data.

Road accident and health care costs

Road accident and health care costs together account for 20 per cent of the total costs and declined by 7 per cent between 1988 and 1992.

Neither of these categories involves major conceptual issues — it is true that misuse of alcohol does lead to road accidents and there are identifiable health care costs (and benefits) associated with alcohol use.

C&L's estimates of road accident costs appear to draw on other published research, although C&L do not make their calculations explicit. The largest road accident cost arises from vehicle damage, followed by insurance administration. All of the road accident costs components declined by around 8 per cent (in real terms) between 1988 and 1992.

Their analysis of health care costs is also based on the medical research used to estimate production costs. They include the cost savings that arise from the protective effects of alcohol consumption. Overall, the cost of health care fell (in real terms) by 0.7 per cent between 1988 and 1992. This fall is entirely due to a very large (133 per cent) increase in savings from nursing home bed days. This in turn appears to be a result of C&L's demographic calculations, although we are unable to confirm this.

Intangible costs

These costs are different in character to those presented so far. They refer not to actual production or consumption changes lost as a result of alcohol harm, but to a subjective valuation of a loss — for example, the subjective valuation to a victim of the loss of their own life.

Intangible costs account for 21 per cent of total costs, and grew by 1.2 per cent between 1988 and 1992.

There are four components of the intangible costs.

Consumption of deceased

This category is designed to capture the fact that had those that died from alcohol harm still been alive, then they would have consumed goods and services. These goods and services would have had a value to them. This value is at least equal to their market price, otherwise they would not be prepared to pay this price. Thus, C&L impute this valuation by calculating what an average person would have consumed (in a year) had they been alive.

In 1992, C&L estimate this cost category to be \$292.7 million. Given that their estimate of the net lives lost from alcohol consumption is 25 819 persons, this implies a valuation per person of \$11 337. This is broadly equivalent to implied consumption per person from the national accounts. This cost category increased (in real terms) by 17 per cent between 1988 and 1992. As the number of deaths did not increase (according to C&L's calculations), this is entirely due to an increase in the implicit value of consumption. This increase seems large as, according to the National Accounts, real consumption expenditure increased by 11 per cent between 1988-89 and 1992-93.

It is interesting to note that there is a tension between this category and the assumption of irrationality used elsewhere in the analysis. C&L assume that addicts do not value their consumption of alcohol, but do properly value the consumption of other goods and services. Thus, alcohol users are irrational in one aspect of their consumption, but not in others.

Value of loss of life to deceased

This category is designed to capture the cost to abusers of their own deaths. As C&L point out, it is extremely difficult to value someone's life, although we presume it is worth something. C&L adopt a conservative valuation of \$10 000 per year of life per person (in 1988 dollars). This valuation is kept constant in real terms and so the value of life lost to the deceased declines in real terms by 0.5 per cent between 1988 and 1992 (in line with the decrease in the number of lives lost between those two years).

Pain and suffering of road accident victims

The category captures a valuation of suffering of road accident victims. C&L appear to take their estimates from other published research and provide no details of their calculations.

The cost of pain and suffering of road accident victims declined by 7 per cent (in real terms) between 1998 and 1992.

Consumption benefit

This category captures the fact that people who die as a result of the effects of alcohol consumption consume less and so leave resources available for others to use. C&L value this in the same way that they value the consumption of the deceased (discussed above). Thus, the two estimates exactly offset each other. While those who die from alcohol consumption liberate resources to be consumed by others, those that did die have lost their valuation and so there is no net change for the community.

Private versus public costs

As noted in the previous chapter, all these estimates are assumed by C&L to be social costs. We suspect this is an overestimate, but their methodology does not allow us to make a split.

Incidence of costs

While C&L define all costs as social costs, they do attempt a breakdown of the incidence of (that is, who bears) these costs. They divide incidence into three groups: individuals (including the drug users themselves and other individuals), business and government. Their incidence estimates refer to the tangible costs because, by definition, intangible costs are all borne by the individual.

C&L find that 6.9 per cent of tangible costs are borne by individuals, 89.3 per cent is borne by business and 3.8 per cent is borne by government. C&L make no comment as to the relevance of these incidence calculations.

Avoidable costs

C&L also distinguish between avoidable and unavoidable costs of alcohol consumption. This distinction is important because some of the costs identified cannot be avoided by any policy measure. Unavoidable costs are those costs which are borne today because of past drug abuse — clearly, there is no way that policy can avoid these costs. Unavoidable costs also include costs incurred by people whose consumption will always involve costs.

C&L make their adjustments by reference to another study, but are not explicit about how they undertake their calculations. They find that 84 per cent of the total costs of alcohol consumption (87.6 per cent of the tangible costs and 72.5 per cent of the intangible costs) are avoidable.

While it is the avoidable costs that are relevant to policy making, this is still a measure of average costs and so is only one element relevant to policy.

4

The estimates in perspective

HOW LARGE OR SIGNIFICANT are the numbers derived by C&L — how can we place them in perspective?

Costs versus benefits

One way of putting these estimates in perspective is to compare the social costs with the private benefits of consumption. While a complete analysis of private benefits is beyond the scope of this review, we make an approximation by noting that in 1992-93:

- value added in the alcoholic beverages industry was \$1426.6 million;
- consumption of alcoholic beverages (excluding taxes) was \$3193.5 million;
- the value of taxes on consumption was \$2627.4 million.

(These values are all taken from the ABS 1992-93 *Input-Output Tables*.)

The private benefits of alcohol consumption will be some combination of benefits to producers and benefits to consumers. The benefits to producers will be related to value added. However, these benefits are only relevant to the extent that the resources used in producing alcohol have no alternate uses — that is, to the extent that there are fixed factors in production. For the moment we will assume that producer benefits are zero.

If we assume that the elasticity of demand for alcohol is 0.5, then we know that the consumer surplus from alcohol consumption will equal the value of expenditure (\$ 3193.5 million)³. We need to add to this the value of taxes on consumption as they represent a reduction in consumer welfare.

Taking this approach, private benefits from alcohol consumption amounted to \$5820.9 million (in 1992-93) compared with social costs (according to C&L) of \$4495 million. There is thus a net gain of \$1325.9 million. The

³ This is a result of the definition of consumer surplus. We expect that an elasticity of 0.5 is a reasonable approximation.

crucial question of course, is whether this net gain has been maximised, or whether policy can further increase it.

Health effects of alcohol versus other causes of health problems

Another way of getting some perspective on the estimates is to compare the health costs of alcohol consumption with the costs of other causes of health problems.

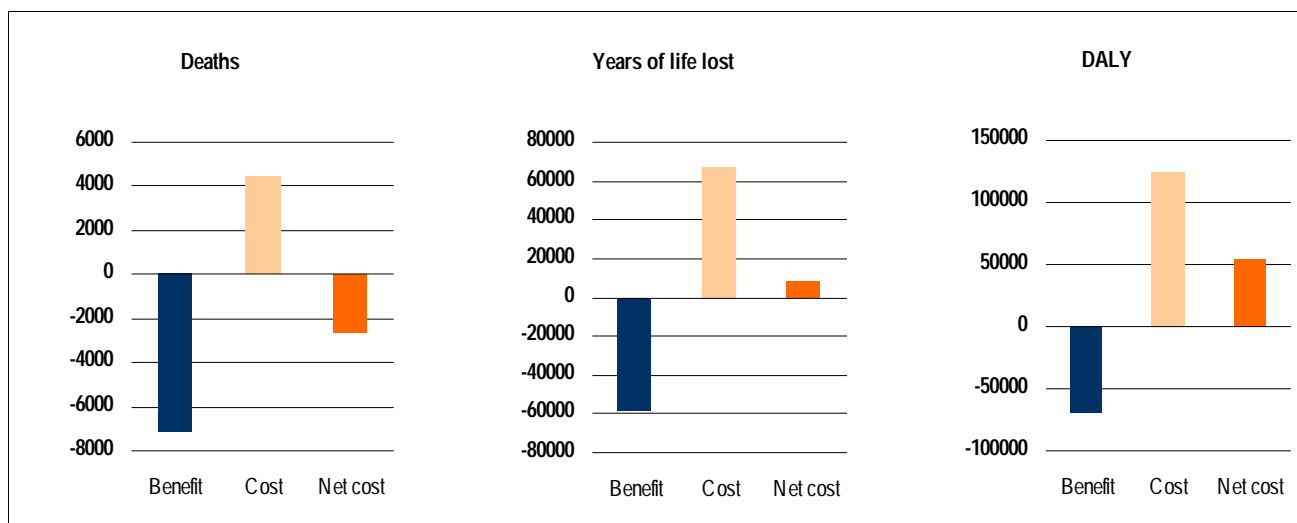
Chart 4.1 summarises, in terms of mortality, years of life lost and disability adjusted life years, the effects of alcohol consumption. The first panel shows that lives are both lost and saved as a result of alcohol consumption and that, according to these calculations, the net effect is a saving of just over 2000 lives a year.

The second panel of chart 4.1 shows the total years of life lost as a result of the deaths in the first panel. In this case, there is a net loss of years of life lived (despite the net gain in terms of deaths) because the deaths from alcohol consumption occur in younger age categories than the lives saved.

The third panel of chart 4.1 shows the effects of alcohol consumption in terms of 'disability adjusted life years' (DALYs). This is a measure which combines the years of life lost with the years lived with a disability. Thus, it captures sickness as well as death and is designed to measure the loss of one year of healthy life. Chart 4.1 shows that alcohol consumption leads to a net loss of around 50 000 years of healthy life (DALYs).

Chart 4.2 compares the DALYs for alcohol consumption with a number of

4.1 Effects of alcohol consumption

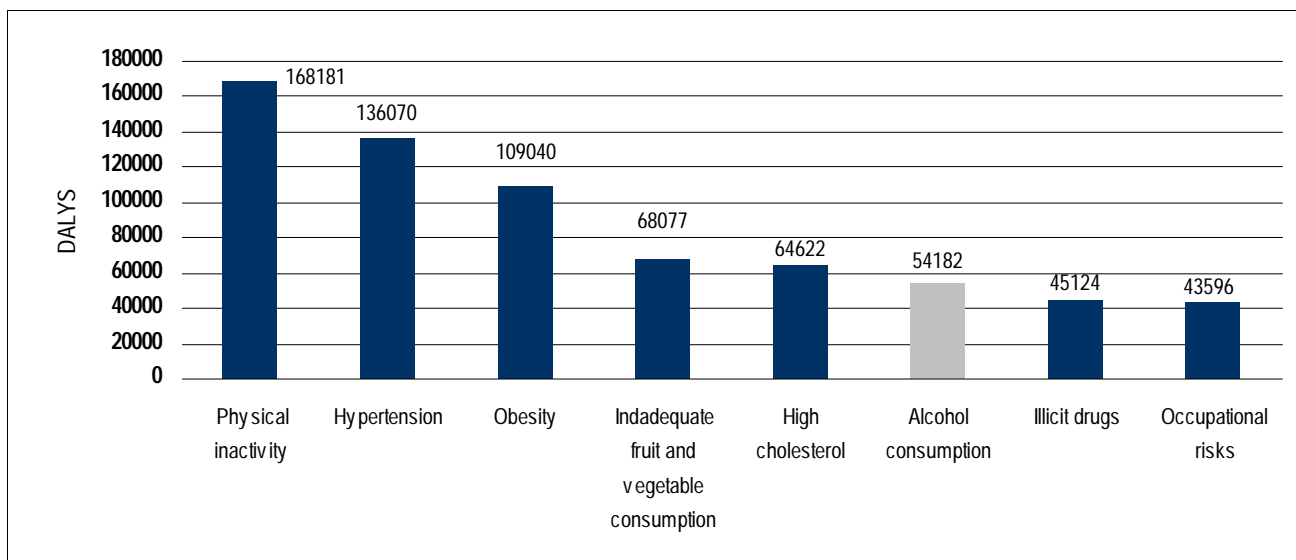


Data source: Mathers et al (1999).

other causes of health problems. The losses from alcohol are quite small relative to the losses from some other identified causes such as physical inactivity.

If we were to use DALYs to evaluate production losses (imputing a dollar value per DALY), then we would find that the production loss from physical inactivity is three times larger than the production loss from alcohol consumption. Similarly, the production loss from not eating enough fruit and vegetables would be 20 per cent larger than the production loss from alcohol consumption.⁴

4.2 Burden of disease (DALYs) for various causes



Data source: Mathers et al (1999).

These numbers give some broad perspective to the costs of alcohol consumption. In health terms, they are relatively small compared with the costs of other identifiable health problems.

The costs of gambling

An indirect comparison is with the costs of another 'social problem', gambling. The Productivity Commission estimate the social costs of gambling to be between \$1800 million and \$5600 million. They estimate net consumer benefits to be between \$4400 million and \$6100 million. This yields net outcomes ranging from a net cost of \$1200 million to a net benefit of \$4300 million. (Note that all these figures are for 1997-98.)

⁴ It is interesting to note that, using this logic, the production cost of illicit drug use would be around 80 per cent of the production cost of alcohol consumption. This is in contrast to C&L's result that the production cost of illicit drug use is around half that for alcohol.

5

Policy implications and issues

Alcohol Abuse Levels: The Incidence of Wine and Other Alcohol Abuse

There are four main classes into which policies directed at alcohol abuse can be categorised - control policies, taxation policies, social improvement policies and information programs.

Control Policies

Control Policies involve placing some form of restriction on the manufacture, distribution and/or sale of alcohol beverages. For example, the minimum legal drinking age of 18 is a control policy.

Taxation Policies

Taxation policies are used to increase the price of alcohol relative to other goods and services, thereby reducing consumption. Implicit in the motive for using taxation as a blanket means to curb abuse is the premise that all alcohol consumed contributes equally towards abuse.

Social improvement policies

Social improvement policies are based on the fact that substance abuse is often a symptom of an underlying problem. If you can remove that problem, then you can often reduce or eliminate the substance abuse. This can include employment programs, infrastructure programs, education to provide individuals with the option to pursue career opportunities etc.

Information Programs

Information programs aim to prevent the incident of alcohol abuse, by relying on educational approaches at targeted consumers.

Current taxation policy

As outlined in *Tax Reform: Not a New Tax, a New Tax System* the existing taxation treatment of alcoholic beverages reflects factors that range from government health and industry assistance policies, to the impact of historical circumstances (such as the 1997 High Court decision that certain State business franchise fees were prohibited by the Commonwealth Constitution). As of 1 July the 41% wholesales sales tax on wine will be replaced by a goods and services tax (GST) of 10% and a wine equalisation

tax (WET) of 29%. The WET was set at a rate of 29% as a result of the government's policy position

'Wine, and beverages consisting primarily of wine, will become subject to a Wine Equalisation Tax to replace the difference between the current 41 per cent wholesale sales tax and the proposed Goods and Services Tax. The Wine Equalisation Tax will be levied at such a rate that the price of a four-litre cask of wine need only increase by the estimated general price increase associated with indirect tax reform; ie 1.9 per cent. The concessional taxation treatment of the alcohol content of cask wine will therefore be preserved.'

The WET at a rate of 29% together with the 10% GST will deliver an increase in tax that results in a 1.9% rise in the retail price of a standard cask. In 2000-01 the Department of Treasury estimate that revenue from the WET will be \$549 million (plus of course the additional revenue generated from the GST). Of this, \$14.7 million will be rebated to producers through the cellar door/mail order Commonwealth rebate. This provides a large increase in Commonwealth government revenue as well as an increase to the State governments from the GST.

For bottled wine, the retail price outcome of the new tax system varies, depending on the retail margins applied. For example, a bottle of wine currently retailing for \$15 will increase by 33 cents per bottle (2.2%) if the retail mark-up is 30% and by 45 cents per bottle (3.0%) if the retail mark-up is 45%.

For wine sold on-premise, where the retail mark-up typically exceeds 100%, the retail price increase will be much higher - in the order of 7.5%.

It should be noted that any advantage that accrues to business through input cost reductions being passed on by the suppliers of these inputs will not make a difference to wine prices as those cost reductions were factored in by the government when calculating the WET rate of 29%.

In an attempt to alleviate some of the higher tax burden on the wine industry, and in recognition of its contribution to rural and regional Australia, the Federal government committed to maintain the current State's subsidy of 15 percent of the wholesale value of wine purchased by unlicensed persons at the cellar door and by mail order and implemented an additional rebate scheme. The effect of this is that when taken together with the existing State subsidy, will make the first \$300,000 (wholesale value) of cellar door and mail order sales effectively free from WET.

The Australian wine industry is currently subject to higher levels of taxation than most other Australian industries and certainly more than any of its international competitors. It is the view of the Australian wine industry that the current system distorts resource allocation in the economy, thereby reducing economy-wide efficiency. Consequently tax reform, through a reduction and eventual elimination of the WET tax is

seen as essential for the continuing viability of the industry in what is an increasingly competitive global economy.

There are two reasons that wine has been subject to above-average taxation. First and foremost to raise government revenue, based on the assumption that alcohol consumption levels are less responsive to price changes than most other products. The 10-14 per cent Business Franchise Fees formally imposed by the State governments on wine sales is a good example of this. Consistent with this assumption, is that the demand for wine is believed to be relatively unresponsive to price rises. The available empirical estimates of the price elasticity for demand for wine put it in the range of -0.4 -0.5 (that is, a 10 per cent increase in the price of wine would lead to a decline in demand for wine of between 4 and 5 per cent). However, a crude elasticity for all wine sold is misleading. The majority of cask wine is price elastic. Therefore, tax increases will impact disproportionately on the industry with the cask wine sector receiving the greatest impact.

The second major reason given why wine is subject to high taxation levels is to discourage excessive consumption of wine on the grounds that alcohol abuse can lead to high social costs. This argument is complicated in the case of wine consumption, where there is an increasing body of evidence that suggests moderate consumption is beneficial to an individual's health and can therefore reduce the cost of health care. In addition, for the same reason that wine is attractive for revenue raising, (ie that the demand for wine is believed to be relatively unresponsive to price rises) means that taxation to reduce consumption is unlikely to impact on that small number of individuals that abuse wine consumption. Wittwer and Anderson (1988) conclude that there are strong arguments made as to the positive spillovers from moderate wine consumption, but there is still inadequate knowledge about the external benefits and costs associated with wine consumption.

To warrant the increase in the taxation impost on the wine industry that was given under tax reform, there would need to be clear and unambiguous evidence and measurement of the external costs of wine consumption. There is no such evidence.

Volumetric vs ad-valorem debate

During the lead up to the passage of the GST legislation, the Australian wine industry was subjected to internal division over the type of tax to be imposed by the government. A small, but vocal group of winemakers have publicly opposed the WFA policy of an ad valorem tax in their own self-interest.

In an economist's perfect world, all external costs could be accounted for via the taxation system. In this sense, the current logic applied to alcohol

consumption would be extended to other goods and services in the community. For example: the incidence of heart disease attributable to butterfat consumption would be taxed accordingly; the incidence of motor vehicle accidents attributable to speed would be taxed (to use the alcohol example, the taxation level would apply to the speed capability of the motor vehicle).

There are two significant flaws in this logic:

- The system relies on perfect information on the external costs of consumption/production. Even if it could be collected, such an exercise would be expensive and deliver widely variable results: and
- In targeting those that contribute to external costs, a large number of non-contributors may be caught by the additional tax impost. In measuring the effectiveness of using taxation to pay for external costs, two factors are critical:
- whether or not there is a straight-line relationship between consumption and abuse (ie. Consumption of 1ml of alcohol contributes proportionately the same as 100ml)
- if not, the level or incidence of abuse (ie if 90% of the community abuse the product, a strong case can be made for taxing all consumers).

Clearly, on these counts there is no case for the introduction of a volumetric tax.

The ad valorem style of tax minimises the distortionary impact of the tax on wine sales. It does not favour production of cheap wine, but provides an incentive for producers to increase the differential between cost of production and final sale price. A volumetric tax on the other hand actively discriminates against the production of low priced wine.

In a decision between an ad-valorem and a volumetric tax, to raise the same level of tax revenue, a volumetric tax will, by its nature, be more distortionary, more regressive, and lead to a more significant reduction in sales. A volumetric system would shift the relative tax incidence from high priced premium products, to lower priced bottled and cask products. In other words, cask and low priced bottles would increase in price, and premium bottles would decline in price.

The decision to purchase premium bottled wine depends on the level of disposable income (those with high disposable income can generally afford luxury items), the price of substitute goods (including which for the main does not include other types of alcohol) image and lifestyle. Therefore, any

increase or decrease in the price of premium wine will have a relatively small impact on sales. In economists parlance it is demand inelastic.

Conversely, cask and low priced bottle wine is demand elastic. Income, image and lifestyle are less influential in the purchasing decision – price is the significant factor. Consequently, a volumetric tax, which increases the price of cask and lower value bottled wine significantly will cause wine consumption to decline, although those fortunate enough to be able to afford Grange Hermitage will actually be able to purchase more as the price of premium brands drop.

A volumetric tax threatens 80% of wine sales in Australia

Price and Tax Impact of a Volumetric Tax

	4 Litre Cask	\$8 bottle	\$10 bottle	\$20 bottle
Current tax system				
Retail Price	\$ 10.00	\$ 8.00	\$ 10.00	\$ 20.00
Tax	\$ 2.33	\$ 1.75	\$ 2.19	\$ 4.21
Volumetric Tax				
Retail Price	\$ 14.88	\$ 8.25	\$ 9.97	\$ 18.74
Tax (\$13.30 per Lal)	\$ 7.20	\$ 2.00	\$ 2.15	\$ 2.95

Note: Based on 11% alcohol for cask and 12.5% for bottles. The current tax system scenario applies a retail mark-up of 25% for cask, 33% for bottles to \$15 and 38% for the \$20 bottle. Under the volumetric tax scenarios, the mark-ups are preserved in \$ terms.

At \$13.30/Lal, all wine sold in bottles above \$10.00 would pay less tax, and cask wine and wine sold in bottles below \$10.00 would pay more (the actual cut-off is \$9.76). The price of a \$10.00 cask would increase by a massive 49% or \$4.88. The price of a Hill of Grace, Grange or Petaluma Tiers would drop by at least \$12.00 per bottle.

The regressive nature of the volumetric tax proposal is a point lost on many. However, 50% of all wine sold in Australia is in casks, while 80% of all wine sold in Australia is in casks and bottles less than \$10.00. A volumetric tax would discriminate against 80% of consumption by less well-off Australians in favour of the 20% who can afford more expensive wine.

For example:

- 50% of bottled red wine sales are below \$10.00 including such popular brands as Jacobs Creek (\$6.99) & Yalumba Galway Hermitage (\$6.99)
- 65% of bottled white sales are below \$10.00, including high volume bottled white brands as Queen Adelaide Chardonnay (\$5.99) & Houghton's White Burgundy (\$8.99)
- 76% of sparkling sales are below \$10.00, including Seaview Brut NV (\$5.99) & Minchinbury White Seal (\$4.99)
- in total 63% of all bottled wine sales are below \$10.00

A volumetric tax would increase wine prices for around 60% of bottled wine, all cask wine and the majority of remaining wine (port etc). In total, a volumetric tax would result in price increases for around 80% of Australian wine sales.

CIES Research

To reach a policy decision on the style of tax to apply under tax reform, the Winemakers' Federation of Australia in conjunction with the South Australian Treasury commissioned the Centre for International Economic Studies (CIES) to undertake research on the alternative styles of tax (volumetric or ad-valorem) to apply to wine in addition to a GST.

The CIES is an independent economic research agency, with wide-ranging research experience on international trade and on the automotive industry.

The CIES results were unambiguous:

- “a switch from the current ad valorem wine tax to a volumetric tax which raised the same government revenue would harm the industry as a whole, and especially its non-premium sector, even though it would help premium wine producers and consumers;
- raising such a volumetric wine tax to the same level as that for beer per litre of alcohol would cause even the premium part of the industry to be worse off than currently, and would lower national welfare.” (Executive Summary)

The CIES modelling showed that, industry wide, a switch to a volumetric tax would reduce industry profits, reduce consumption and output, and importantly, diminish employment.

Addressing the sectoral or regional impacts, the impact is even starker. The non-premium sector would see a massive 38% reduction in profits, and an 8% reduction in production and employment.

Although other aspects of the government tax package, such as income tax cuts, would offset the impact of the volumetric tax to some degree, the regional implications would be significant. WFA estimates that production would decline by 42,000 tonnes (22%) in the Murray Valley, 18,000 tonnes (10%) in the Riverland and 10,000 tonnes (10%) in the Riverina.

A switch to a volumetric tax would deliver modest benefits to premium producers. The cost would be major dislocation in the Murray Valley, the Riverland and the Riverina. The massive investment in these regions, undertaken within a regime of ad-valorem tax would be seriously undermined.

It is clear that a volumetric tax would be regressive and with significant downside impacts on the wider industry flowing on through rural and regional Australia.

Alcohol Abuse Versus Alcoholism

The majority of published articles have equated alcohol abuse (excessive consumption) with alcoholism. Therefore, any proposed decrease in alcohol consumption generally includes the consumption of both alcohol abusers and alcoholics.

Alcohol abuse can be described as the level of alcohol consumption that is associated with an increased risk of death – it is a controllable problem.

Alcoholism is a psychological and physical dependence on alcohol over which the individual has no control. It is classified as a disease and has generally a genetic predisposition.

Alcoholics are not usually discerning as to the type of alcoholic beverage they consume. Therefore, it can be assumed that increased alcohol prices will merely affect the type and not the volume of consumption by alcoholics.

Increased alcohol price will, therefore, not decrease the alcohol consumption of an alcoholic. Furthermore, the costs associated with alcoholism are generally significantly different to those associated with alcohol abuse.

The Health Benefits of Wine

In Australia, death from cardiovascular diseases accounts for approximately 25% of all deaths. The risk factors for coronary heart disease include diet, exercise, blood pressure and cholesterol concentration. Recent research indicates that the regular and moderate consumption of alcohol may significantly reduce the risk of, and death from, cardiovascular diseases such as coronary heart disease, by 20 to 50%. This protective effect is observed for both men and women, and is irrespective of ethnicity and geography. It is the ethanol component common to all alcoholic beverages which reduces both blood pressure and cholesterol concentration.

Recent research has also indicated that the relationship between the level of consumption and risk of death from coronary heart disease is J- or U-shaped, such that a reduced risk is observed for moderate consumption,

but an increased risk is observed for abstinence and heavy consumption. Furthermore, this relationship extends to death from all causes.

Wine, in addition to containing ethanol, also contains wine-specific compounds, such as phenolics. In other dietary foodstuffs, these phenolics are antioxidative and are associated with a reduced risk of death from coronary heart disease. Some studies suggest, therefore, that wine may confer additional antioxidative protective effects.

The lifestyle characteristics of wine consumers, however, which include the amount and pattern of alcohol consumption in addition to diet and exercise, are integral to any protective effects for coronary heart disease. It is only regular and moderate consumption that has a beneficial health effect, where all other amounts and patterns of consumption may have a harmful health effect.

In conclusion, while further studies are required to definitely determine whether wine has additional antioxidative protective effects as compared to beer and spirits, the lifestyle of regular and moderate wine consumers is associated with fewer and reduced risk factors for coronary heart disease as compared with that of beer and spirit consumers.

Whilst control policies and information programs can be targeted towards particular risk categories (eg under 18's), the use of taxation can not. Taxation is a blanket measure applied to all users. There is increasing medical evidence suggesting that the relationship between alcohol consumption and harm is not a straight line relationship. A number of researchers have found that moderate consumption of alcohol can reduce the risk of cardiovascular mortality, the biggest cause of death in Australia. Medical research identifies a 'U' or 'J' shaped relationship between alcohol intake and cardiovascular mortality.

The National Health and Medical Research Council (NHMRC) has a policy of defining moderate consumption as up to four standard drinks a day for men and two for women.

In light of the evidence linking moderate alcohol consumption with positive health attributes, and evidence that harm occurs predominantly in the 'high' consumption category, it is extremely important, therefore, to examine consumption profiles of alcohol consumers using the NHMRC classification of risk levels.

Using taxation as a measure to curb alcohol abuse is an extremely blunt instrument in situations where consumption at moderate levels (as defined by the NHMRC) is the norm. Furthermore, it is inequitable, in the sense that a punitive tax is applied to the majority, to pay for the excesses of the minority.

In addressing the effectiveness of using taxation to target alcohol abusers, it is therefore important to understand the incidence of abuse amongst consumers of the respective alcohol products.

The NHMRC defines alcohol risk levels as follows:

Consumption per day		
	Males	Females
Low	Less than 50mls alcohol (4 Standard Drinks)	less than 25mls alcohol (2 Standard Drinks)
Medium	50 - 75mls (4 - 6 Standard Drinks)	25 - 50mls (2 - 4 Standard Drinks)
High	Greater than 75mls (> 6 Standard Drinks)	> 50mls (> 4 Standard Drinks)

Consumption per week (Standard Drinks)		
	Males	Females
Low	less than 28	less than 14
Medium	29 to 42	15 to 28
High	Above 42	Above 28

Alcohol Abuse Levels

Measuring alcohol consumption on a weekly basis, abuse levels as defined by the NHMRC, and as reported by the ABS, were 21% for males and 14% for females. This means that 21% of males and 14% of females, based on their weekly alcohol consumption, would be considered at some risk from their regular alcohol intake.

Alcohol Risk Level Persons Aged 18 Years or More						
Males				Females		
	Males rate per 1000	% of population	% of alcohol consumers	Females rate per 1000	% of population	% of alcohol consumers
Alcohol Risk Level						
Did not consume	264.9	26%		482.4	48%	
Low	586.3	59%	80%	442.9	44%	86%
Medium	78.2	8%	11%	58.5	6%	11%
High	70.7	7%	10%	16.1	2%	3%

National Health Survey First Results. Australian Bureau of Statistics, December 1996 Cat No 4392.0.

By implication, a punitive tax aimed at recovering the full costs of alcohol abuse would be paid by **all** consumers, despite the fact that only around 20% consumed at significant risk levels.

These results demonstrate that applying tax increases on alcohol to curb alcohol abuse is an extremely inefficient (and ineffective) means of delivering the desired outcome. 80% of males and 86% of females are expected to pay a punitive tax to pay for 'abuse', when their consumption levels fall within accepted moderate levels, and in fact are providing a net beneficial effect.

Differentiating Wine from Other Alcohol Products

From the data generated by the ABS, AGB McNair and the News Limited Survey, alcohol consumption statistics demonstrate a significant difference between the consumption behaviour of the different alcohol groups. This difference is evident: across age categories; in relation to food consumption; and most importantly, when measuring abuse levels.

The evidence demonstrates that the incidence of wine abuse is significantly less than that of beer and spirits.

Alcohol Consumption with Food

With respect to consumption patterns, wine (both bottled and cask) is primarily consumed with/during food consumption (77% and 50%) while beer and spirits are primarily consumed without food (88% and 93%). As highlighted elsewhere in the paper, the consumption of food with alcohol

reduces the magnitude of blood alcohol concentration. Therefore, the stronger link with food consumption is one example where wine's contribution to the external costs of alcohol consumption is diminished.

Alcohol Consumption by Age

The health costs associated with alcohol consumption are highest amongst higher intake groups. Furthermore, where intake is sporadic, but where consumption levels are excessive when alcohol is consumed, alcohol related health costs are magnified. A prevalent example of periodic excessive intake is the phenomenon known as 'binge drinking'. Whilst 'binge drinking' is not confined to any particular group in the population, the incidence of 'binge drinking' is known to be highest in the under-25 age category, or youth market.

Beverage Consumption: % of population by age				
	Beer/Stout	Cask Wine	Bottled Wine	Spirits
14 - 17	16.6	4.4	4.6	10.9
18 - 24	44.1	9.2	15.5	34.2
25 - 34	43.3	14.1	24.3	23.8
35 - 49	39.8	19.1	26.0	18.9
> 50	31.2	17.2	17.9	15.9

News Limited Readership Survey

Wine is not the preferred beverage of youths. Both the AGB McNair research and the News Limited Readership Survey point to a much higher incidence of beer and spirit consumption in the under 25 age group, and particularly the under 18 age group. In the 14 to 18 age category, 16.6% and 10.9% of the population consume beer and spirits respectively. Less than 5% consume wine.

In the 18 to 24 age category, 44% of the population consumed beer, and 34% consumed spirits. 16% consumed bottled wine and 9% consumed cask wine.

These data demonstrate the magnitude of the difference in youth consumption of beer and spirits compared with wine. As such, the data indicates the preferred alcohol beverage of youths, and gives significant insight into the likely preferred alcoholic beverage of youth binge drinkers.

The Australian wine industry does not deny that alcohol-related problems constitute a serious public health problem. However, the statistics presented above unquestionably distinguish wine consumers from consumers of other alcoholic beverages which, by implication, surely indicates that wine is not a primary substance of abuse.

Coupled with the unquestionable cardio-protective benefits of wine consumption, wine can not be attributed an equal share of the alcohol-related problems in Australia.

Clearly, therefore, taxation is an inappropriate response to the abuse problem of wine. The wine industry considers that it is time that other, more targeted approaches are considered and that a strategic research program coupled with targeted policy responses should be initiated.

Industry initiatives

The Australian wine industry has recently commenced a national wine-health campaign with the objective of working in partnership with government to reduce the impact on individuals and the community of abuse through wine consumption.

As a first step in this process the Winemakers Federation of Australia announced late last year a campaign to celebrate the Centenary of Federation. Through WFA, the industry has committed to the production of an ultra-premium commemorative red wine with contributions from each of Australia's regionally diverse wine regions to celebrate the centenary of Federation. The wine and its production will be donated by the industry.

It is the wish of the Australian wine industry to make a contribution to Australia in recognition of our heritage. This unique wine will be offered for sale to Federal Government Departments as gifts for special occasions, State governments, as well as a limited allocation through retail outlets.

The proceeds of the sales of an estimated \$3 million will be managed by the National Wine Foundation (NWF) to provide a lasting endowment to the Nation. The funds will be used to provide targeted action in the fight against alcohol abuse, with expressions of interest to be sought from professional health practitioners already in the field addressing these issues. These professionals would be asked to identify and address community social problems that manifest themselves in the form of alcohol abuse.

The NWF will seek matching government funding on such projects and the Prime Minister will be invited to be patron of the NWF

6

Conclusions and future directions

COLLINS AND LAPSLEY have provided a genuine attempt to set out the costs of alcohol consumption in a logical and consistent manner. In doing so, they avoid much of the double counting that has characterised previous research in the area.

C&L have also been careful to make most of their assumptions explicit and clear. While we disagree with the foundations for some of these assumptions, C&L's work has nevertheless identified where some of the key issues lie. They have set out a range of issues and factors that must be worked through in undertaking evaluations of this kind.

There are many genuinely difficult issues in analysis of this kind and there is plenty of room for disagreement between reasonable people.

Policy relevance of the measure

The definition of costs provided above and the demographic approach to actually measuring them are perfectly sensible. They represent a legitimate attempt to place an order of magnitude on the opportunity cost associated with drug consumption. And, as noted, the existence of social costs does imply the potential need for policy action. However, the policy relevance of the measure needs to be evaluated in terms of its underlying assumptions.

C&L define all the costs as social costs

The definition of costs adopted by C&L does not distinguish between private and social costs. This is because, for C&L, by definition all costs are social costs. How do they arrive at this result? First, they recognise that consumers do not necessarily bear the full costs of their consumption. This 'externality' is a standard reason for social costs in addition to private costs.

Second, they claim that if consumers are not fully informed, or if they are not rational, then the resulting costs are social costs.

How do ignorance and irrationality lead to social costs?

C&L are not explicit about how ignorance or irrationality leads to social rather than private costs. They note that, in the presence of ignorance, certain information is not accounted for. Why is this important? What if the consumer knew the information was there but chose to ignore it? Surely this is a problem for the consumer (in the absence of externalities). If I do something without fully informing myself, surely this is my problem (as long as I do not impose costs on others, which is the case of externalities noted above)?

Of course, ignorance may lead to externalities, to the consumer not bearing the costs of their own consumption, but in this case the social cost is generated by the externality, not the ignorance.

If I do something irrational, and harm only myself, why is this a social cost? Perhaps in doing silly things I attract resources away from alternate uses — I may encourage people to grow grapes to satisfy my irrational desire for wine rather than growing wheat to satisfy other people's perfectly rational desire for bread. But as long as I pay the appropriate market price, why is this a problem? Does my irrationality destroy the workings of the market system?

One answer to this is to note that if someone is not rational⁵, then we can never be sure that they truly value the thing that they desire. In typical economic theory, proper valuation requires some kind of rationality (even if rationality is limited by information processing ability). Without a proper valuation, it may be possible for outcomes generated by the market to be improved on. But this requires some central agent essentially imposing values on the irrational person — replacing his decision making with some rational alternative (state control). Before adopting such a draconian alternative, we need to be very sure that the behaviour was really irrational.

So how do we know behaviour is irrational? Is doing something *potentially* harmful to yourself irrational? The 'potentially' here is crucial because the relationship between alcohol consumption and health is purely statistical — there is no guarantee of a particular outcome for a particular individual,

⁵ In the sense of having inconsistent preferences or in not acting in their own interest.

only an increased probability of an outcome. We all do things that increase the probability of physical harm. Driving a car is the classic example. Statistically it is a highly dangerous activity, yet we rarely consider driving to be irrational. Driving is in fact highly rational because we know that the expected benefits exceed the expected costs. Why is the same not true for alcohol consumption — even consumption beyond the recommended safe levels?

Is drinking too much today and causing yourself health problems in the future irrational? It is impossible to tell. Perhaps the consumer was rational, but uninformed (or chose to be uninformed). Or perhaps the consumer took a bet, *ex ante*, that he would not have a health problem, but it turned out that he lost the bet, *ex post*. Making the wrong decision under uncertainty — judged from an *ex post* perspective — does not constitute irrationality. Perhaps the consumer was fully informed and knew the consequences, but had a very high discount rate so that future costs had little effect on decisions made today.

As C&L point out, it is possible to define (by setting up an objective function and constraints) any behaviour to be rational. But, at the same time, there is no clear way to identify irrational behaviour.

Does addiction constitute irrationality? This is a complex question, but there is no guaranteed link between the two. It is common to view the addict as an irrational automata, responding solely to the whims of their chemical dependence and incapable of sensible action. Perhaps it was irrational (or silly, or an uninformed wrong bet) to *become* addicted, but once addicted, an addict is not necessarily an irrational agent. The history of prominent and highly productive ‘addicts’ demonstrates this.

Presence of ignorance and irrationality is an assertion

Ignorance and irrationality — and their implications for public policy — raise serious and difficult questions. They deserve to be seriously examined and analysed, especially as their policy implications are draconian and the risk of a mistake is high. C&L neither demonstrate their existence in the case of alcohol consumption nor provide any information on the extent to which they matter. For them, the presence of ignorance or irrationality is an assertion, not an empirical finding.

The importance of irrationality in gambling has been carefully examined by the Productivity Commission. Rather than assuming irrationality, they carefully examine the extent of the problem and only apportion some otherwise private costs to social costs.

Implications

We consider that C&L overstate the costs of alcohol consumption by assuming all costs are social costs. We can illustrate the reason for this by looking at the matrix of possibilities summarised in table 6.1. There are eight possible outcomes. By our definition, uninformed behaviour that does not involve externalities involves purely private costs. Similarly for informed behaviour. Thus, only half the categories involve social costs.

However, if we accept C&L's assertion that ignorance and irrationality *per se* define social costs, there is still one category of costs that are purely private. Unless there are no rational and informed alcohol users, C&L's estimates must overstate the *social* costs of use because they count some private costs.

6.1 Taxonomy of possibilities

		<i>Informed</i>	<i>Uninformed</i>
<i>Rational</i>	No externalities	1	2
	With externalities	3	4
<i>Irrational</i>	No externalities	5	6
	With externalities	7	8

Clearly, the characterization of these eight categories is crucial. In the absence of any further evidence, we must keep the implications in mind.

There is nothing 'wrong' with C&L defining all costs as social costs. They make this assumption quite explicit. However, it is important to recognise that this is an *assumption*. This means that it is important not to draw policy implications from the results without understanding the implications of the assumption.

What policies do the findings suggest?

C&L do not (and it was not their brief to) provide any analysis of the policy implications of their measure. Given some of the underlying components of measure, the policy implications are far from clear. Further, the existence of social costs does not guarantee that there is a policy capable of generating net benefits.

Encourage low level drinking?

Consider the fact that there is a health protective effect from low levels of alcohol consumption (relative to zero consumption). This finding implies that if those people who currently abstain from alcohol were to consume at a low level, then lives would be saved. Should the government encourage abstainers to consumer a little? Should the Minister for Health attend temperance meetings to get the teetotallers to mend their ways?

It seems totally inappropriate for the state to use its powers to encourage people to drink. We generally trust people to do things that are positively good for their own health. Why then is it appropriate to encourage them not to drink to avoid a cost?

Impose consumption taxes?

The usual theoretical solution to the problem of social cost is to impose a tax on consumption equivalent to the unit marginal social cost. C&L's estimates, however, do not imply that this is an appropriate policy.

First, C&L have estimated average social costs, not marginal costs, and so their estimates contain no information about an appropriate size of the tax.

Second, the taxation approach to social costs assumes rational behaviour. Only rational consumers will appropriately adjust their behaviour in response to a tax. But, as noted, C&L consider that substance abusers are not rational. Therefore, the basis of the analysis seems to exclude taxation as an appropriate policy response.

Areas for further work and analysis

While C&L have provided a good starting point, there is a lot more to be done to further clarify the nature of the costs of alcohol consumption, reach a common understanding of these costs and derive appropriate policies.

Develop the underlying framework and make it more transparent

The underlying analytical framework of costs and benefits (both social and private) needs further development and explanation. While C&L are concerned only with social costs, the full implications of the analysis also require consideration of private benefits of consumption. As Markandya and Pearce (1989, p. 1140) argue in the case of tobacco: '... policy must be determined as a result of the balance of the social and private costs of

tobacco consumption against the benefits of smoking to the consumers themselves’.

Doing this in turn requires further clarification of the distinction between private and social costs. We consider that C&L’s assumption that all costs are social costs is too extreme and can be further refined with appropriate analysis. This would include further exploring the implications of irrationality and addiction.

Make the methods and calculations clearer

C&L’s calculations are not always transparent. This is unfortunate, as working through calculations is the best way of coming to an understanding of exactly how estimates are generated. Transparency of estimates is an essential first step to common understanding of their implications.

Analyse the implications of assumptions

Making a range of assumptions is inevitable in any economic evaluation. It is important, however, to analyse the implications of these assumptions — to undertake sensitivity analysis of how important particular assumptions are in determining results.

Where there is genuine uncertainty in particular results, often the best response is to provide a range of values to emphasise the underlying uncertainty.

Test the assumptions

Many key assumptions can be further tested with appropriate analysis. For example, the Productivity Commission undertook careful survey work to determine the extent of ‘problem gambling’ rather than simply assuming it to be a particular value.

Provide alternate measures

While C&L have adopted a ‘demographic’ approach to valuing the health effects of consumption, they note that alternative approaches are also appropriate. It is important to do some alternate calculations to assist in testing assumptions and deriving policy implications.

Separate wine from other alcohol

It will be important to test whether the general findings are appropriate for wine as well as for alcohol as a whole. This means attempting to separate both consumption patterns and health effects for wine.

Clarify the policy implications

A crucial element of any further work will be to draw implications for policy. As noted, these depend not only on the magnitude of the estimated social costs, but also on the social costs relative to the private benefits. Further, the policy implications depend on the nature of the social costs.

Concluding comments

The Winemaker's Federation of Australia believes that the current level of taxation on the industry is too high and that the use of taxation as an instrument to reduce the abuse of wine is inappropriate. The wine industry is a responsible industry and is seeking to reduce the level of abuse of its product. However, it is understood that to demonstrate the case to government for a GST-only taxation system and consequently other policy responses to the abuse problem, that research along the lines suggested above is essential.

WFA welcomes the opportunity to work in partnership with the government to undertake the appropriate research and determine the correct policies to reduce the problems of alcohol abuse occurring in our community.

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