

Alcohol and economics. Research, politics or industry?

*Är de' inte Fingal Olsson som sitter der borta
Nei han är ju död
Det är han inte – han rör ju på seg*
(Martin Ljung)

A recurring question for alcohol policy makers and researchers concerns what alcohol consumption costs society. This article reviews the various attempts to provide an answer. My own is that it is not worth studying mainly because it requires a quantification of factors which neither can nor should be measured in monetary terms, but also because it represents a capitulation to politician-governed contract research, and contribute to undermine serious alcohol research.¹

Anton Martin Schweigaard on alcohol, the economy and the liquor ban

Member of Parliament (i.e. Norwegian Storting) Anton Martin Schweigaard, professor of law, economics and, indeed, statistics, asked what the implications of alcohol were for the state finances as far back as 1845. He was justifying at the time a Bill to prohibit liquor

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ABSTRACT

Ø. Horverak: Alcohol and economics. Research, politics or industry?

■ The article reviews the history of the discussion concerning the effect of alcohol consumption on the national economy. The point of departure is a discussion prompted by the prohibitionists in the Nordic countries and US who succeeded in bringing a ban on alcohol into reality. It made sense in those circumstances to ask the question. Two different situations were compared, a society where alcohol was forbidden and one where it was not. After the prohibitionists' hope of an alcohol-free society became a lost cause in the 1930s, interest in these calculations waned for a spell. Interest was re-ignited in Finland, Norway and Sweden in the 1960s and '70s, however, spreading to North America and Australia in the 1980s and '90s. A set of international guidelines was issued on how to estimate the social costs attributable to alcohol consumption. In practice, there was a heavy bias in favour of costs, while the income side, with the exception of alcohol's presumed beneficial effect on cardiovascular diseases, was left out. Cost-of-illness studies were employed here, in which a contemporary society was compared with a fictive one, where alcohol had never existed. This article argues that such studies are not very meaningful in a research context and represent a capitulation to the desire of politicians

to give political decisions a semblance of neutrality based on a common-sense approach to economics.

■ KEYWORDS

Social costs of alcohol, national economy, cost of illness, politicisation of alcohol research

in Norway altogether (Stortingsforhandlingene 1845). Anti-prohibitionists were concerned about the likely effect of prohibition on the treasury's economic health. Not to worry, Schweigaard said, a liquor ban would not diminish the state coffers over the longer term. On the contrary, it would lead to greater social prosperity and increase treasury revenues because, after a time, the lower taxes and duties would be offset by an increase in the population's productive capacity, to lower expenses on criminals, and to savings for municipal poor relief funds.

In addition to these reflections over the economy of the state, the manufacturing of liquor, Schweigaard protested, did not create value; far from it. It made the raw materials – grain and potatoes – unavailable for value-creating uses. “What the liquor vat digests are constituents of value, what it gives back, judging the commodity from its usual uses, is a commodity without real value, what it produces is misery, not wealth” (Stortingsforhandlingene 1845, 397).

There was nothing to be pleased about, then, with the growth in liquor production, as one would be if grain or livestock productivity rose. “No, it saddens one,” says Schweigaard. “If, say, the efforts of the temperance societies were sufficient to reduce liquor consumption and, in consequence, production, to an insignificant fraction, who would not say: This is gratifying, as far as public morality is concerned, but this happiness is bought at an economic sacrifice, since the source of general prosperity, whose fount is the liquor vat, has dried up? No one, except a fool” (Stortingsforhandlingene 1845, 397).

For Schweigaard then, there was no doubt about it: society would benefit if people drank less. This is because his argument was not framed primarily in economic terms. Because drink was the cause of so much misery, not least among society's poorest, its import and sale should be prohibited, he believed, whatever the consequences for the government's balance sheet. The only people who stood to gain from the sale of liquor were the distilleries and retailers – for society as a whole, it was a drain on the economy.

However, no ban on liquor was introduced in Norway in 1845. Schweigaard's bill was rejected by 49 to 25. Parliament chose instead to carry on doing what it had been doing so far – making it difficult to distil in small distilleries and increas-

ing the tax on liquor. The idea of an alcohol-free society did not evaporate when the 1845 Bill was thrown out, however. In 1886, the government received a petition with 66,000 signatures urging it to introduce a Bill in parliament to ban liquor outright (AS Vinmonopolet 1936). While the government did not follow the request to the letter, it could not ignore it either. A committee was therefore appointed in 1888, not to inquire into the feasibility of a liquor ban, but to assess what the government could do to increase revenue to the treasury from the liquor business! It almost looked as though the government wanted to strengthen the economic argument for keeping the liquor trade.

Johan Scharffenberg and the caloric real economy

The debate over a prospective all-out ban on liquor continued, and the economic significance of the liquor industry or, in a wider sense, of alcohol to the nation's economy, was an element of this discussion. In 1908, J. L. Hirsch, the first dean of the Norwegian School of Agriculture and a pioneer in the field of agricultural education, gave a talk at Statsøkonomisk forening entitled "The National Economic Importance of the Liquor Industry". The talk was followed by another, given by physician and teetotaller Johan Scharffenberg.

One reason why the issue of the liquor industry's importance to the national economy was raised at all was because it was subsidised through high duties on imported foreign liquor. What Hirsch wanted to show in his talk was that the production of liquor benefited society, in the sense of facilitating value creation. In defence of the subsidies to domestic liquor manufac-

turers and of the industry's importance to the national economy, Hirsch elaborated: "[T]he significance of the liquor industry ... for agriculture is *quite exceptional*, insofar as liquor production encourages the cultivation of root crops, hence increasing the productive capacity of the entire Norwegian agricultural sector" (Hirsch 1908, 270). The cultivation of potatoes had given rise to row crops, which in turn increased the efficiency of turnip and sugar beet production. "It is this development of a root crop culture that has created modern agriculture," contended Hirsch, adding, "Any political economist, any politician, should know and understand this basic truth. It is of the greatest, most fundamental importance" (ibid., 270).

In conclusion Hirsch took issue with the argument that liquor production, because it make use of potatoes, destroyed human food. These potatoes, he said, would never in any event have been used to feed humans. If they were not used to manufacture liquor, they would be used as livestock fodder. And the dregs from liquor production contained many of the nutrients found in potatoes, and were even better suited as animal fodder than raw potatoes.

Scharffenberg mounted a frontal attack against Hirsch. "It is impossible to maintain," he argued, "that the production of a commodity is economically advantageous, while the same commodity's consumption is economically harmful. If the use of the commodity is economically harmful, then its production cannot be anything but economically disgraceful" (Scharffenberg 1908, 278–279).

To demonstrate how not only the consumption of alcohol but its production

was shameful, Scharffenberg introduced what he called a real accounting system. Instead of pounds, shillings and pence, his currency was calories. In terms of a caloric balance sheet, liquor production was positively loss-making, as quantities of calories were lost when potential human food (grain and potatoes) was transformed into liquor. According to Scharffenberg's calculations, alcohol fermentation alone used up 25 per cent of the calorific starch content, "expended in the biological action of the yeast" (*ibid.*, 283). In addition, fermentation rendered other ingredients of the grain and potatoes unsuitable for human consumption. He referred to calculations for Austria-Hungary, where beer brewing alone in 1901 cost "protein for human nutrition sufficient to meet the needs of 1,107,000 workers for one year, fat for 351,000 workers for one year, and carbohydrates for 1,596,000 workers for one year" (*ibid.*, 284).

Now, Scharffenberg knew of course that calories were lost in the production of meat as well, which was what the grain and potatoes would otherwise be used for. Meat production, where the animals were given what could have been good human sustenance, was also an uneconomic use of grain and potatoes. Indeed, in a basic bookkeeping sense it was a waste to let crops, which could also be consumed by humans, pass through the bestial organism. The pig burned as many calories just to keep itself alive and warm, something which should be seen as a loss in real economic terms. The best thing, from a national economy point of view, would be to let people eat the potatoes and grain, losing as few calories as possible to the human organism. Animals should be given

crops that were unsuitable for human consumption.

In addition to the unnecessary loss of calories from the production of alcohol, alcohol consumption cost the economy money as well. The most important item on the debit side, Scharffenberg noted, was the lower productivity of the working population. This had also been one of Schweigaard's main arguments. Scharffenberg had in mind a reduction in the ability to work, that is, the immediate physiological effect of drink. But there was also an indirect effect because money which could have been spent on something sensible was frittered on drink. There was reason to believe, according to Scharffenberg, that the working class spent on average 10 per cent of its income on drink. Of an income which was often below a thousand kroner, alcohol could claim a tenth. The drinking habits of the breadwinner brought suffering to whole families; it robbed individual family member of a chance of good nutrition and reduced in this way both their present and future capacity to work.

Scharffenberg was at pains to stress the economic consequences of intoxication, inasmuch as it led to various types of alcohol-related accidents which imposed costs on society. Expenses on venereal diseases correlated also closely with intoxication, since drink and infection tended to go together. The last thing mentioned by Scharffenberg was the impact of chronic alcoholism: reduced work capacity, unemployment, malingering, idleness and poverty, possibly ending begging on the street, having to be looked after by the poor relief authorities or surviving by crime.

The debate between Hirsch and Scharffenberg on liquor's social cost needs

to be seen in connection with the increasing likelihood of statutory moves to ban liquor altogether in Norway by the early 1900s. That liquor production and consumption were a drain on the economy were moments of great importance. Not everybody was willing to go as far as Scharffenberg, who believed that even the production of liquor undermined value creation. But as soon as the disastrous effects of drink were added to the balance sheet, it was difficult to argue for any positive economic impact from liquor.

Prohibition in Norway and other countries

Now the 1919 law prohibiting liquor and fortified wines was passed irrespective of all sorts of economic calculations on whether it would add or detract to the country's balance sheet. It came about thanks to the resilience of the temperance movement and to uplifting testimony on the effects of the liquor ban which was adopted during the Great War, just before Christmas 1916. The ban lasted longer than the war, in fact, being extended in anticipation of a plebiscite about a ban on liquor and fortified wine. Parliament decided in the summer of 1919 to hold a referendum that autumn. In the event, a majority voted in favour of a permanent ban on liquor and fortified wine.

Norway was not the only country to prohibit the sale of alcohol (fortified wine 1919–23; liquor 1919–27). Similar laws were passed in Iceland (wine 1915–22, liquor 1915–35, beer 1915–89), Finland (all alcohol 1919–32), Russia/Soviet Union (liquor 1914–25), the US (all alcohol 1920–33), and several provinces of Canada. The prohibition laws were passed part-

ly in response to the positive experience of banning one or more alcoholic beverages during the Great War, and partly as a measure of the strength of the temperance movement in the different countries.

Because prohibition was both a real possibility and, in some places, an actuality, the costs to society again were mooted, or to put it perhaps more precisely, the temperance lobby wanted to know how the economy benefited from prohibition. The answer could naturally be used as a cogent argument in the debate on prohibition.

The question of the economic importance of alcohol was addressed both by the Norwegian Alcohol Commission (Alkoholkommissjonen) of 1910 and its Swedish counterpart (Nykterhetskommittén), appointed in 1911. In Norway, computational responsibility was delegated to the director of the Norwegian Statistics Bureau, Nicolai Rygg, and the ensuing report from the Alcohol Commission's majority discussed and analysed the question. But Rygg gave the alcohol issue a wider context. "The battle against alcoholism is of a social nature, and society must, as best it can, fight the battle without worrying whether one in a purely economic sense, stands to gain. But even apart from this, one will soon realise that even an approximately accurate estimate is impossible to make" (Alkoholkommissjonens flertallsinnstilling 1915, 142).

The Norwegian Alcohol Commission shared this opinion with the Swedish Temperance Committee of 1911, which stated that the economic consequences of alcohol use were far from the most important aspect of the use of alcohol. The committee submitted its report in 1916, and its principal objective was to discuss different

ways of organisation of the alcohol trade, after 55.6 per cent of the population over 18 had expressed their backing in 1909 for the introduction of prohibition in Sweden. This was not the result of a public referendum on prohibition, however, but can be seen as an opinion poll arranged by the Swedish temperance movement (Johansson 1995).²

The *Tirfing* debate

In the Swedish *Handbok i alkoholfrågan*, published in 1924, we encounter again the question of alcohol and the economy. The handbook, whose intended readership was the teaching profession, contained a chapter on the effects of alcohol on the national economy and state finances where an attempt was made to draw out the main implications for the national economy of the alcohol question, though without venturing an estimate of the actual cost to society (Dahlgren 1924).

The handbook was later reviewed by professor of economics Emil Sommarin (1925) in the Swedish journal on the temperance issue, *Tirfing*. Although applying economics to the alcohol question was valid enough as far as it went, Sommarin believed, it was really a question of social policy. And it would be impossible to calculate the cost to society of alcohol in terms of the national economy. Costs could only be entered as items on a profit and loss statement. But this was where the handbook excelled. Its profit and loss statement is reproduced below (Dahlgren 1930).

The handbook's treatment of the social costs of alcohol consumption was followed by an article in *Tirfing* by actuary Hans Gahn (1928). He was also unwilling

PROFIT	LOSS
Implications of alcohol production for agriculture	Reduced work capacity
Alcohol industry's profit	Higher accident frequency
Profit from alcohol sales	Higher morbidity rates
	Lower life expectancy
	Greater criminality
	Lower living standard
	Degeneration of future generations
	Damage to property
	Lower saving and investment rates

to estimate what alcohol might cost society. In a later edition of the journal, an engineer by the name of Khennet (1929) criticised both of the pieces by Dahlgren and Gahn respectively. As the *Tirfing* debate continued, the editors felt called to muster heavier artillery. They wrote to three economics professors, Gunnar Myrdal, Bertil Ohlin and Emil Sommarin, asking them to explain their position on alcohol and the national economy.³

The three professors constituted three different camps. Sommarin supported Dahlgren's exposition by and large; Myrdal rejected the whole idea. In his opinion, society could not be considered an appraising subject and there was no yardstick which could be used to add together the different categories that would have to be included in a national balance sheet.

Ohlin was more charitably disposed to a national alcohol balance sheet. It required an economy whose objective was to max-

imise national income, where consumers were free to spend their incomes as they wished. Under those two conditions, a national balance sheet could be drawn up. On the profit side, one would enter what the consumers spent on alcoholic beverages, since this would be the result of their own free will. On the loss side would be all the factors which lowered the national income more than would have been the case if society had been alcohol-free, together with the direct costs used in alcohol production. This produced the following balance sheet.

PROFIT	LOSS
Direct income:	Direct costs:
Consumers' expenditure on alcoholic beverages	Outlays in manufacture of alcoholic beverages (consumers' expenditure – alcohol taxes)
	Indirect costs from lower productivity :
	Long-term impact:
	Higher morbidity and accident frequency
	More crime
	Accelerated pauperisation and lower labour productivity
	Degeneration of future generations
	Unpaid agitation etc. of advocates and opponents of abstinence
	Lower saving rates
	Short-term impact:
	Reduced work capacity following sporadic alcohol consumption

Reduced longevity could not be seen as an economic cost, said Ohlin, because one didn't know whether the deceased might have produced more than he consumed in his remaining years had he not died. Nor did government spending on the judiciary, health service, social service and the like count as an extra burden on the national purse. The ill, poor and criminal cost no more than healthy people. The economic loss to society of higher morbidity, higher crime rates and the like was offset by lower revenues because of lower labour productivity.⁴

Irving Fisher and “the slowdown of the human machine”

Ohlin's attempt to estimate the scale of the cost of drink was based on estimates by the American economist Irving Fisher on how much prohibition was saving the country. Like Ohlin, Fisher pointed to the significant loss to the economy of alcohol consumption, because, as he put it, “alcoholic beverages slow down the human machine, and since the human machine is the most important machine in industry, we should expect the use of alcoholic beverages to slow down industry, and we should expect Prohibition, if enforced, to speed up industry” (Fisher 1926, 122).⁵ Fisher referred to several studies which showed that both labour input and accuracy in many occupations fell after imbibing alcohol. He estimated that drink in the US caused industrial productivity to decline by at least a 10 per cent more than would have been the case with an effective prohibition regime in place. In this situation, one could add 5 per cent to the national income from higher industrial productivity rates.⁶

In addition to the revenue lost from lower productivity, Fisher believed he could add a further 5 per cent to the national returns, which “were saved merely by transferring our energies from alcohol production to something processing true value” (ibid., 160). This is a rerun of the argument put out by Schweigaard and Scharffenberg according to which the production of alcohol is not the production of real value. In a national economic sense, however, the production of alcohol will be the production of value to the same extent as the production of any other commodity, as long as the alcohol is traded in the marketplace. Nor is it clear from what Fisher writes whether he sees higher spending on prisons, poor relief, and hospitals etc. as real costs. Whatever his position, he does not include them in his estimate of lost national income.

Let us return to Ohlin’s calculations. Although he pointedly describes alcohol manufacture as a value-creating exercise, he nevertheless takes on board Fisher’s 10 per cent national income growth estimate given an effective prohibition regime. One had failed, moreover, said Ohlin, to include the consequences of higher savings rate – representing another boost to national income, or indeed that alcohol consumption in Sweden was higher than in the US. A 10 per cent rise in national income as a result of prohibition was too low rather than too high an estimate for Sweden. At a later date, Ohlin revised his estimates, arriving at a 3–8 per cent reduction of the national income (Ohlin 1939).

It was a plan to introduce a blanket ban on alcohol that gave the question of alcohol’s economic ramifications a certain pertinence, simply because two clear options could be compared: a society with and

a society without alcohol. If either party could show that they had the economy on their side, it would profit their case. But by the late 1920s and early 1930s, prohibition was becoming an increasingly remote possibility. Sweden, in an effort to deflect calls for prohibition, had introduced individual rationing of alcoholic beverages in 1917,⁷ and during the 1930s the policy of prohibition had been jettisoned by all the other Nordic countries and the US, Soviet Union and most of the Canadian provinces where it had been on the books. The Swedish debate on the implications of alcohol for the domestic economy therefore grew increasingly muted; analysing the consequences of prohibition when it had become little more than a theoretical experiment was clearly less compelling than when it was a practical possibility.

The debate on alcohol and the economy is resuscitated

While it was impossible, as Pekka Kuusi in Finland contended in 1952, to give a precise estimate of the harm caused by drink, making the task of calculating the economic cost of consuming alcohol somewhat futile (Österberg 1983), the embers of the social costs debate were re-ignited in the late 1960s by the temperance movement. They had been quietly at work in Norway as well. In 1958, Statens Edruskapsråd, following a call at the annual meeting of Avholdsfolkets landsnemnd, applied to the Norwegian Research Council for Science and the Humanities for funds to proceed with a study to “establish the economic implications of the alcohol question in our country” (Brun-Gulbrandsen 1966). The application was not successful, but with the 1959 establishment of the Na-

tional Institute for Alcohol Research, the Temperance Council asked the institute to perform the study instead. The new institute also gave the assignment received something of a lukewarm reception (Brun-Gulbrandsen 1966).⁸

This was not enough to stop the debate from taking hold in Finland, Norway and Sweden, and once again, experts began calculating what alcohol cost society. Myrdal's warning against the one-dimensional society which necessarily formed the basic assumption on which the calculations were pursued was forgotten. It was all about setting up a new profit and loss account containing every relevant item, and to estimate the size of each item as accurately as possible. The newly awakened interest in the cost of alcohol also found expression in a vigorous debate on how a national ledger should be set up and whether it was meaningful to do so or not (Mäkelä & Österberg 1979; NU(B) 1980; Österberg 1983).

The debate spread to the international alcohol research community, and, at the initiative of the Canadian Centre on Substance Abuse, an international symposium was held at Banff, Alberta, where the question was how to go about estimating the social and economic costs of substance abuse. The symposium was visited by delegates from eight different countries,⁹ who focused on identifying the most likely economic models for use in this type of analysis. The meeting resulted in the appointment of a working group to explore the possibilities of establishing an internationally acceptable common method for estimating the cost of substance use. The group arrived at what they called a set of international guidelines for esti-

imating the cost of substance use (Single et al. 1996). A fresh symposium was held in 2000. It resulted in a revised version of the 1996 international guidelines which was published by WHO in 2003 (Single et al. 2003).

A fictional economy takes centre stage

When the new wave of the discussion on the economic costs rolled into sight, prohibition was no longer a feasible option. Drink was here to stay in the countries where the discussion had taken root in the first place. In these circumstances there was no point in asking what *prohibition* would cost society. Spending on whatever needed to be done to implement the alcohol-free society and the harm likely to result could now be discounted. The issue would be treated counterfactually: one would compare the current situation with a society where alcohol had never been available. The interesting question was how much alcohol cost society when compared with such a fictive situation. "It is assumed that the hypothetical alternative situation in which there is no drug abuse is simply that: hypothetical and not realizable under any circumstances" (Single et al. 2003, 24).

There was therefore no need of any impact analysis of different political options. What was needed was a method to estimate the social costs of drink. In dealing with these questions, one of the approaches used is the cost-of-illness study. Here, overall direct and indirect spending on certain types of illness, accidents, behaviours, etc., is calculated.¹⁰ What drink costs the economy all told will then comprise the direct health, social, court and

detention service expenditure, and indirect costs associated with lost production following from lost productivity.¹¹

But the international guidelines also assumed a society whose economic objective was to maximise gross domestic product, where it was up to the manufacturers and consumers to select the legal commodities and services they wanted to produce and purchase (Single et al. 2003, 5–16). Precisely the starting point Ohlin had adopted seventy years before. But the cost term was not the same this time round. While Ohlin saw production in a *national book keeping context*, that is as production whatever the nature of the manufactured commodity, so that manufacturing costs were balanced against income from the sale of the commodity or service, a cost-of-illness approach assumes that some manufacturing categories lack a tangible income side, when compared with the counterfactual situation.

This unprofitable production is connected with what are known as the external costs of drink, that is, costs imposed on others apart from the consumer of the alcohol, and which would not have occurred in an alcohol-free society. Typical examples are higher spending on the health and social services and judiciary insofar as drink raises morbidity rates, incidence of poverty and crime.¹²

But one needs to distinguish between implications for the state budget and for the national budget. In a national accounting setting, production in the health service creates value just like production in any other service. It has an incoming and an outgoing side, whoever pays for the services rendered and whatever is actually produced, as long as there is a demand. In cost-of-illness studies of the social cost of drink, however,

production in the part of the health service which deals with alcohol abuse is entered as a pure cost because the definition of cost here differs from the cost definition used in the national accounts. Cost-of-illness studies look at alternative costs, not tangible costs, as is the case in the national accounts. The lost value of alternative production is conceived as a cost in line with the production lost to society because of the loss in productivity caused by drink.

Some want to make the definition of cost in cost-of-illness studies wider than this. Usually one tends to say that the price a person pays for a bottle of beer is equivalent to the pleasure he derives from drinking the contents.¹³ Underlying this argument is the assumption that the consumer is in possession of all relevant information and acts rationally,¹⁴ so that the cost of manufacturing the alcoholic drinks is offset by the pleasure derived by the consumer from its use.¹⁵ The Australians Collins and Lapsley, who were members of the working group which prepared the international guidelines, suggest, however, that the alcohol consumption one could term harmful should be seen exclusively as a cost to society because the conditions underlying the theory of rational choice do not obtain: consumers will either be incompletely informed or not act rationally or the price will not correspond to the tangible costs associated with producing and consuming the commodity (Collins & Lapsley 1996). Obviously, then, it can be extremely difficult to estimate the proportion of alcohol drunk in connection with harmful drinking.¹⁶

Etiological fractions

The international guidelines do not include the cost of producing the alcohol

whose consumption one assumes causes harm; the guidelines apply four categories of cost: (1) health and social service spending; (2) productivity expenses; (3) court and detention services; and (4) costs derived from the destruction of property, alcohol-related accidents and crime (Single et al. 2003, 33). All of these costs are theoretically measureable and designated tangible costs. There are in addition costs associated with the pain and suffering inflicted on others (relations, traffic accident victims, victims of physical abuse, etc.). These costs are called abstract or intangible costs. They are seldom included in the economic analyses, leaving items (1)–(4) which in cost-of-illness studies tend to comprise the social costs of alcohol consumption (Single et al. 1996; Devlin et al. 1997; Xie et al. 1998; Strategy Unit report, UK, 2003; Gjelsvik 2004; Jarl et al. 2008; Rehm, et al. 2008; Collins & Lapsley 2008; Saar 2009; BERL Economics 2009).

Having determined the type of cost associated with alcohol consumption, it remains to calculate how much of the different cost categories can be ascribed to alcohol consumption and how much has to be ascribed to other factors. To achieve this one needs first to assume a causal relationship between alcohol use and the events triggering the use of resources. One applies the term “attributable fraction” (etiological fraction) in the international guidelines to the computation of how much of a given event or illness a certain type of behaviour is expected or assumed to bring about. “The etiological fraction indicates the weight attributable to a given causal factor in a population and suggests therefore the ‘preventable potential’ to be gained by its removal” (NOU 2008, 65). I shall not pur-

sue the causal problems here, only to mention that by applying the term at the level of a population, one avoids having to deal with causality at the level of the individual.

Independent of causal relations, computing the social costs of alcohol use, as they are described in the international guidelines, requires information on the size of the different etiological fractions associated with alcohol use at the level of society. Now, the etiological fractions will vary from population to population, and “there is no one set of attributable fractions that can be applied in any society” (Single et al. 2003, 34). Every society needs therefore to be studied separately to estimate its relevant etiological fractions. International guidelines on how to compute etiological fractions for alcohol use are presented in *International Guide for Monitoring Alcohol Consumption and Related Harm* (WHO 2000, 80–91).

Ohlin and the international guidelines

The difference between Ohlin and the international guidelines on how to proceed to estimate the cost of the use of intoxicants boils down to the different cost definitions.¹⁷ The definition applied by the guidelines is based on an alternative-cost definition, that is, the production that is lost when scarce resources are diverted so as to address the damage caused by alcohol use. In an alcohol-free society, the money could have been spent on helping the elderly instead of repairing alcohol abuse damage. It is obviously true that one loses desirable production when one has to combat alcohol-related harm. But that does not mean that this production is worth more in a national economic con-

text. If those who today produce services that address the consequences of the imprudent use of alcohol were put to work teaching in schools in the counterfactual society where alcohol never existed, it would not boost the national income. But the composition of the domestic product would be different.

Ohlin's cost definition is connected with the national account's debit side. We find here direct spending on the manufacture of alcohol, balanced against the consumers' enjoyment of their purchase. Similarly, extra spending on the health service, judiciary etc., is balanced against the value of the product delivered to the public. (Whether these services are paid for privately or by the government does not affect the national accounts, though it would have a bearing on the state budget.) In Ohlin, the social costs are not therefore associated with the use of resources but with lost income. The economic loss of alcohol consumption is related solely to the production values society loses out on because of alcohol consumption, that is, production capacity losses due to higher morbidity, pauperisation and crime among users of alcohol; the real capital destroyed as a consequence of alcohol use; the loss of production following from a lower savings rate; and production lost because teetotallers and others spend some of the time performing unpaid work canvassing on behalf of the temperance cause.

Ohlin's definition of social costs is therefore quite different from that of the international guidelines. Ohlin aligns his analysis closely with the way the definitions are used in a national accounting context, while the international guidelines say that production that assuages the complaints

of the alcohol abuser counts as a cost.

But, of course, wealth is also generated by the delivery from alcohol abuse services, although many would count such activity as a cost to society because resources are spent on caring for alcohol and drug users rather than anything more praiseworthy. And, of course, the loss of many willing hands to alcohol is also economically detrimental to society. And again, it is a loss to society when real capital is wiped out by acts of drunkenness. And finally, of course, it is a social cost when money that could have been put aside is spent on drink. But in a national economic context, these are not all costs. For instance, if a driver under the influence is involved in a collision, it will result in the same level of production and income as a collision involving a sober driver, and the income from production offsets the cost. Society does not gain by producing care for the elderly rather than care for the alcoholic. The question of what alcohol costs society in a national economic sense cannot be answered by cost-of-illness studies.

Now this contradiction can easily be avoided simply by defining spending on healthcare, social, court and detention services as costs, as is done in the international guidelines and other cost-of-illness studies. But in doing so, one leaves the logic of the national accounts behind, the foundation on which the estimates are based. Nor can one talk any longer of social costs, but of something else, hidden behind a term which has no meaning in a national accounting sense.

Gunnar Myrdal rejected the whole question of the impact of alcohol on the national economy when it was raised in the 1930s because, he said, no body existed

with the wherewithal to compare all the aspects of the economy and people's lives that were affected by the use of alcohol. Nor are economic considerations the reason we ask ourselves the alcohol policy question today either. It is knowing that alcohol abuse can harm ourselves and others, and it is our sense of compassion which informs most people's attitudes to the alcohol question, not some estimate or other on what alcohol costs society. Most of us know that alcohol abuse causes immense human tragedy, without having to quantify the scale of the tragedy in pounds, shillings and pence. It tells us nothing we don't already know to say that the combination of drink and driving has such and such a cost, in relation to stating the number of deaths and hospital admissions associated with drunk driving. With the exception of those convinced by the notion that any priority needs to be justified by a cost estimate (and that man is a human machine), many believe rather that the latter form of information is more relevant and says more than any cost estimate is capable of (Currie et al. 2000).

When politics becomes research

I believe there are mainly two reasons why the issue of what alcohol costs society continues to be raised. First, there is the propaganda value: to be able to say with certainty – with scientific precision and weight – that alcohol costs society so and so much. In the battle for a restrictive alcohol policy, solid facts are good arguments. And indeed, to start with, calls for estimates of the social cost of alcohol came precisely from opponents of drink, who wanted more ammunition in their fight for

the alcohol-free society. In the early 1900s, it was a powerful temperance movement which wanted these estimates done, and, at the time, alcohol-free communities were a reality, not just a dream. It gave the analyses a completely different significance than today's computational examples.

But even though estimates of the cost of alcohol use can be used as propaganda, they cannot be used to inform decisions on priorities and spending. This is because one needs information on both costs and benefits to identify the activity which maximises the benefit to society. That is, decisions must be made on the basis of performance and outcomes, not costs (Currie et al. 2000; Melberg 2010). It is not enough to direct spending willy-nilly at whatever "costs most", if the impact of the measures is minimal. In spite of this, it is not unusual to see cost-of-illness studies used for deciding priorities (Warmus 2000).

The other reason for renewed interest in this type of analysis is the ever-increasing distaste among politicians to take a stand before they know what the stand will "cost". Politics is increasingly facile in the sense that no standpoint is taken before some independent (of what or of whom?) scientists or experts pronounce on the likely consequences of this or that action in pounds, shillings and pence. Politics is morphing into a question of budget items, and there appears to be a sort of common sense which serves all (read: the budget's) interests. As soon as the subject of taking political action is mentioned, talk is no longer about what the action will do in a social sense, but what its budgetary implications are likely to be. *How much will it cost society?* This question is the gold standard of contemporary politics, where

society is synonymous with the budget balance. It is along this dimension much of today's political debate leads. Baumberg (2006, 537) puts it like this: "However much those working in the public health field may prefer otherwise, the importance of 'economic' arguments when trying to persuade policymakers to act for health cannot be understated."

... and research becomes an industry

Why demands for analyses of what alcohol cost society gained traction in the 1970s and 80s must be understood against the backdrop of this political climate. The question was not confined to the field of alcohol; "cost-of-illness studies abound in the US" (Rice 2000, 177). Consequently, a new industry emerged, populated by experts who said they could say what this or that illness or behaviour cost society. It mattered less that the analytical methods were pointlessly sophisticated in relation to the quality of the data, which were thinner than the Kaiser's finest silk: the important thing was that there were scientists (experts) who were willing to perform such exercises.

Because of the inadequacy of the data and the numerous methodological options, it proved impossible, however, to answer in plain terms the question of alcohol's role in the economy. Because what these analyses – which were conducted in many countries – shared above all were the widely diverging results, both between and within countries. And this was because the studies relied on different methods; the data were unreliable; they explored different types of cost; and the assumptions on which the analyses were

based were uncertain and changed from one study to the next.

It was in this situation representatives of the international alcohol research community procured a set of guidelines for estimating the social costs attributable to alcohol. But the estimates which relied on the definitions provided by the international guidelines were uncertain and imprecise. A 1997 analysis, for example, which took account of the new international guidelines, found that "the annual cost to New Zealand society of alcohol abuse is between \$1 and \$4 billion dollars" (Devlin et al. 1997, 1502). In another report we read, "For the European Union in 1998, the social costs of alcohol have been estimated at between \$65 billion and \$195,000 billion at 1990 prices" (IAS 2007). Estimates like these are, to put it mildly, of limited value. This notwithstanding, in the intervening years a veritable cost estimating industry has consolidated itself, in which, not least, the authors of the guidelines have been active.

The banalisation of politics and politicians' control of the research budget on the one hand, and burgeoning research industry on the other, also explain why the question of alcohol's role in the economy is kept alive. It seems as though the purpose of this type of alcohol research is to supply data to justify a restrictive alcohol policy. The most glaring example is in the question of what alcohol costs society, but it is also noticeable in the series of repetitions of "the purple book", which, when it came out in 1975, represented a new foundation for alcohol policy.¹⁸ Alcohol researchers have assumed the role of the erstwhile temperance movement.¹⁹

Now it cannot be denied that there are

some meaningful studies of alcohol and costs. They often address the issue either by looking on a limited problem area, or by asking whether the revenue derived from alcohol taxes and duties corresponds to the external costs of alcohol use, that is, to the costs imposed on others (i.e. society) than the consumers. One such is a New Zealand study by Felicity Barker (2002). She found that revenue from alcohol taxes in New Zealand 1999/2000 matched an estimate of the actual external costs associated with the use of alcohol, but that they were very likely to be too low if one took into account that there were abstract external costs associated with alcohol use.²⁰

Nonsense upon stilts

In the report *Alcohol in Europe*, Anderson and Baumberg (2006) reviewed 32 cost studies published between 1990 and 2004.²¹ Since then, more studies have appeared along with efforts to make them more politically attractive – there is little, after all, political mileage in knowing what alcohol costs society when compared with a situation without alcohol at all. In some of the later studies, then, one moves a step further on by quantifying the avoidable costs, that is, the fraction assumed to be responsive to political action and behavioural change (Collins & Lapsley 2008; Rehm et al. 2008).²² After having first calculated how much alcohol costs society overall, the fraction believed to be amenable to political intervention is isolated. A set of international guidelines has been compiled on how to go about estimating these costs as well, mainly by the same group that was responsible for the international guidelines on estimating the total costs attributable to alcohol use (Collins et al. 2006).²³

This could, in a way, be called progress, since the unrealistic assumption of using an alcohol-free society as a comparative basis is discarded. But only superficially, because before avoidable costs can be analysed, data are required establishing the total cost to society. And these data are found, as before, by making comparisons with a fictional entity. When that is done, there is the avoidable fraction to determine, that is, one must know how far down alcohol-related harm can be pushed, that is, the so-called feasible minimum. According to the guidelines, there are four ways of computing this minimum.

- by using etiological fractions based on relative risk and prevalence data
- by using the comparable society with the lowest prevalence of the illness or condition in focus (“the Arcadian normal”)²⁴
- by using WHO data on etiological fractions, mortality and morbidity
- by using information on what can be achieved by political measures

In extension of the avoidable cost studies there is, such as in the WHO programme CHOICE,²⁵ an underlying desire to find the best “policy mix” to limit the harm attributable to the substance in question. This is apparently done by mimicking how, on the basis of economic theory based on marginal changes, one can estimate optimal input of political measures given a specific budget. To do this, one needs first to estimate the cost-effectiveness of the different political options, preferably in a cost-benefit mode, to make sure the options’ various benefits are taken into account.

A review of the different policy measures’ cost effectiveness is given in Chisholm et al. (2006), while the exten-

sion towards cost-benefit analyses is one of the tasks of the misleadingly entitled EU-funded research programme SMART (Standardizing Measurement of Alcohol Related Troubles), whose purpose is to “develop standardized methodology of cost-benefit analyses of alcohol policies to evaluate the economic impact of existing alcohol policies in the EU” (EU 2007). New research guidelines are therefore in the works, and the research industry can make itself ready for new assignments.

Now due credit to the authors of the international guidelines. They are conscious of many of the weaknesses of the analyses (Collins et al. 2006; Single 2009), and that many of the analyses of social costs have faced criticism, the burden of which is that costs attributable to alcohol use are estimated on the basis of a fictional, totally alcohol-free society; that action taken to prevent alcohol-related problems is not considered as creating value in a social sense; that insufficient weight is given to the positive effects of alcohol consumption; and that the estimates are uncertain and necessarily subjective (Melberg 2010).

The latest study of this type to come to my attention is a report issued in July 2009 by the New Zealand consultancy, BERL Economics. The report applied the

international guidelines and the Australian professors David Collins and Helen Lapsley, who were members of all of the working groups that compiled the international guidelines in this field of study, were external consultants and ensured the quality of the report before publication.

The report makes an even greater effort to inflate the total social costs in assuming that 50 per cent of all alcohol consumed in New Zealand in 2005–06 was positively harmful. It meant that the effect of the consumption of all males who drank on average the equivalent of 1 litre of beer or more, and females who drank an average of a half-litre of beer or more per day (alcoholic strength 5 per cent by volume), was wholly detrimental. This assumption added another \$342 million to the attributable costs. The BERL report was subjected to immediate criticism from economists who, not least, emphasised the pleasure alcohol brings to some (Crampton & Burgess 2009). In an Internet article, the report is called *Nonsense Upon Stilts* (Crampton 2009). Not by any means, I am afraid, an inappropriate description.

Øyvind Horverak, Researcher

SIRUS

Box 565 Sentrum

0157 Oslo, Norway

E-mail: oh@sirus.no

NOTES

1 If Norwegian alcohol research is seen as a science of control, according to Slagstad's definition in *De nasjonale strateger* (i.e. research aimed at delivering information of use to public authorities and administrations), one risks, according to Holst, “becoming so obsessed about pleasing the apparatus of government that one accepts

any and every [research] contract, right or wrong.” If correct, this article should be read as a warning of the danger of falling into this particular pitfall, to use Holst's (2009) expression.

2 An official referendum was held in 1920 on whether to introduce total prohibition. A majority of 35,000 rejected the idea.

- 3 The gist of the debate can be found in Esa Österberg (1983).
- 4 “Observe that expenditure on the judiciary, health care, poor relief etc. should not be considered as an addition cost. The ill and the poor cost no more than the healthy. The loss derives from lower revenues.” Ohlin, op. cit., note p. 101.
- 5 Even in economics it is seldom one finds people as directly reduced to a pure production input factor. It is typical of much of the thinking around alcohol and the economy to view people purely in terms of their attributes for the value generating process. We find nothing of Kant’s philosophy on the intrinsic value of the individual, and on always seeing the individual as an end in itself, not simply as a means of creating wealth in this discussion.
- 6 Fisher estimated productivity loss on the basis of an average daily consumption of five glasses each of 10 grams alcohol, which adds up to just under 23 litres pure alcohol annually. In the period 1911–15, alcohol consumption in the US, according to the National Institute of Health was 2.56 US gallons (9.7 litres) pure alcohol per capita. Fisher, however, sets average consumption per capita in the immediate pre-prohibition years at 4.72 US gallons (17.9 litres) (p. 45). The estimated figure of 23 litres alcohol per year as the average consumption may refer to adult males, who did account for most of the blue collar workforce. If so, the estimated average consumption of women becomes approximately half the consumption of men. Österberg (op. cit., p. 90) believes actual US consumption to have been around 2.6 litres per capita per year before prohibition, and alleges that Fisher multiplied actual consumption by ten. Österberg may have confused US gallons with litres, and not taken into consideration that the industry work force mainly consisted of men.
- 7 The system had been introduced in Stockholm in 1914 (the Stockholm system).
- 8 The author was engaged as an economist at the National Institute for Alcohol and Drug Research in 1974, and my first assignment for the institute was to give a keynote address at a conference called *Alcohol and Society on Alcohol in the Economy and Alcohol Research*. Then as now, I took issue with the question itself (Horverak 1976).
- 9 The author was a participant at the meeting, which attracted delegates from Australia, Canada, the Netherlands, New Zealand, Norway, South Africa(?), UK, and US.
- 10 “The approach typically focuses on two main types of societal costs associated with the particular illness or injury: direct medical and non-medical costs and indirect costs of lost productivity due to morbidity or premature mortality.” <http://www.ers.usda.gov/briefing/foodsafety/glossary.htm>
- 11 In some cases an attempt will be made to quantify the suffering of the drinker, of loved ones, of victims of physical abuse and traffic accidents etc.
- 12 Some of these costs are funded by alcohol taxes and duties, since alcohol is heavily over-priced. Any shortfall after these revenues have been spent has to be met by society. In a cost-of-illness study, income from alcohol levies is disregarded.
- 13 We discount the so-called consumer surplus, so the consumer does better overall. This benefit declines somewhat because the consumers themselves will have bills to pay for medical treatment of conditions attributable to alcohol use. In a social profit and loss account, these expenses are offset by the positive impact of production on the national income.
- 14 Melberg (2010) has an interesting discussion of the problems raised by the assumption that consumers act on the basis of complete information and make rational choices.
- 15 “If the costs of substance production and use are knowingly and freely borne by producer or consumer as the result of a rational decision-making process they should be classified as private costs. It can be assumed that, in these circumstances, there exist private benefits of production or consumption which at least equal the private costs.” Single et al. 2003, p. 21.
- 16 In a 1996 study, Collins and Lapsley estimated that 20 per cent of consumed alcohol

- was consumed by people dependent on alcohol. In a later study (Collins and Lapsley 2008), the estimated proportion was 30 per cent. In a 2009 study from New Zealand, on which Collins and Lapsley served as consultants, 50 per cent of all alcohol was estimated to be harmful. (BERL 2009.) This notwithstanding, the fraction of the price made up by alcohol taxes will not be a cost to society since taxes represent more revenue to the state.
- 17 Now the international guidelines and Ohlin may interpret ‘economy’ differently. But given the discussion of section 2.2.2 in Single et al. (2003), all production would appear to be seen as generating income.
- 18 In addition to the 1975 *Alcohol Control Policies in Public Health Perspective* – “the purple book” – are *Alcohol Policy and the Public Good* (1994); *Alcohol: No Ordinary Commodity*, (2003); and *Alcohol: No Ordinary Commodity*, second edition, (2010).
- 19 Roizen and Fillmore (1999) address the problem of the politicisation of alcohol studies in connection with the emergence of the new paradigm which replaced the old illness model, i.e. the total consumption model and prevention paradox, and say, among other things, “At the end of the day, we are still funded and delegated to reduce the [scale of the] ‘alcohol problem’, a term in which also contains the quandary, i.e. ‘problem’?” (p. 301)
- 20 Barker’s study uses data collected by Devlin, op. cit. But because she assumes that only 5 per cent of lost production can be seen as external costs, while the rest is imposed on those concerned in the form of lower wage incomes, the variation in the estimate of the external costs is not as wide as in Devlin.
- 21 Referred to by Pekka Sulkunen in *Drugs: Education, prevention and policy* Vol. 13:503–506 under the somewhat ambivalent heading: Arithmetic utopias: Comments on Anderson & Baumberg, *Alcohol in Europe*.
- 22 “Avoidable costs are those costs which are amenable to public policy initiatives and behavioral changes” (Single et al. 2003, s. 24). They correspond to WHO’s “avoidable burden”, i.e. the aspect of the illness or unfortunate incident which could be avoided by political action targeting one or more of the causes of the disease.
- 23 According to the Introduction, they have convened an International Steering Committee on Estimating the Avoidable Costs of Substance Abuse, and are inviting “governments and organizations that plan to undertake pilot studies on estimating avoidable costs of substance abuse ... to become members of the International Steering Committee” (p. 2). The industry is taking aim at expansion.
- 24 One problem adhering to this approach is the competition between causes of death. Say, for example, that in a given society, the numbers dying from lung cancer is very small. That would affect the numbers dying of other causes. Now if the best performing society on every separate cause of death is selected for comparative purposes, this factor will be left out of the equation, and the minimum figures therefore unrealistically low. I was made aware of this point by my colleague Einar Ødegård, in connection with his work on drug overdose mortality in different countries.
- 25 The programme *CHOosing Interventions that are Cost Effective*, CHOICE is an archetypal product of neo-liberalism. Created by WHO in 1998, its purpose is to deliver information to politicians as to which measures produce most health for a given budget. The method is set out in the guidelines *Generalized Cost-Effectiveness Analysis*, GCEA (WHO 2003).

REFERENCES

- Alkoholkomisjonens flertallsinnstilling (1915): Indstilling til Lov om salg og skjænkning avbrændevin, øl, vin fruktvin og mjød (The Alcohol Commission's Majority Report: A Proposal to Law on Sales and Serving Spirits, Beer, Wine, Fruit Wine, and Mead). Kristiania: Social- og Industridepartementet
- Anderson, P. & Baumberg, B. (2006): Alcohol in Europe. London: Institute of Alcohol Studies (Table 3.3)
- AS Vinmonopolet (1936): Faglige meddelelser (Professional information), 15 september 1936
- Babor, T. & Caetano, R. & Casswell, S. & Edwards, G. & Giesbrecht, N. & Graham, K. & Grube, J. W. & Grunewald, P. & Hill, L. & Holder, H. D. (2003): Alcohol: No Ordinary Commodity. Oxford University Press
- Barker, F. (2002): Consumption Externalities and the Role of Government: The Case of Alcohol. Working Paper 02/25, New Zealand Treasury
- Baumberg, B. (2006): The global economic burden of alcohol: a review and some suggestions. *Drug and Alcohol Review* 25: 537–551
- BERL Economics (2009): Costs of Harmful Alcohol and Other Drug Use. Report to the Ministry of Health and ACC. Wellington: BERL Economics
- Brun-Gulbrandsen, S. (1966): Henvendelse fra Statens Edruskapsråd om undersøkelse av det offentlige utgifter når det gjelder alkoholskadene og undersøkelse av alkoholens nasjonaløkonomiske skadevirkninger (A request from the National Temperance Board of a study of public costs of alcohol injuries and the national economic costs of alcohol). Statens institutt for alkoholforskning, styrenotat 29. april 1966
- Bruun, K. & Edwards, G. & Lumio, M. et al. (1975): Alcohol Control Policies in Public Health Perspective. Forssa: The Finnish Foundation for Alcohol Studies Vol. 25
- Chisholm, D. & Doran, C. & Shibuya, K. & Rehm, J. (2006): Comparative cost-effectiveness of policy instruments for reducing the global burden of alcohol, tobacco and illicit drug use. *Drug and Alcohol Review* 25: 553–565
- Collins, D. J. & Lapsley, H. M. (1996): The social costs of drug abuse in Australia in 1988 and 1992. Report prepared for the Commonwealth department of Human Services and Health
- Collins D. & Lapsley H. & Brochu S. & Easton B. & Pérez-Gómez A. & Rehm J. & Single E. (2006): International Guidelines for the Estimation of the Avoidable Costs of Substance Abuse. 1st edition–November 2006. Downloaded from the Health Canada website (www.hc-sc.gc.ca)
- Collins, D. J. & Lapsley, H. M. (2008): The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/05. Report for the Australian Government, Department of Health and Ageing
- Collins D. J. & Lapsley, H. M. (2008): The avoidable costs of alcohol abuse in Australia and the potential benefits of effective policies to reduce the social costs of alcohol, Australian Government, Department of Health and Ageing
- Crampton, E.: <http://www.scribd.com/doc/22589631/Nonsense-Upon-Stilts> Downloaded 18th January 2010
- Crampton, E. & Burgess, M. (2009): The Price of Everything, The Value of Nothing: A (Truly) External Review of BERL's Study Of Harmful Alcohol and Drug Use. Working paper no.10/2009, Christchurch, New Zealand: Department of Economics and Finance, College of Business and Economics, University of Canterbury
- Currie, G. & Dymond Kerfoot, K. & Donaldson, C. & Macarthur, C. (2000): Are cost of injury studies useful? *Injury Prevention* 6: 175–176
- Dahlgren, T. (1924): Handbok i alkoholfrågan (A Guide to the Alcohol Question). Stockholm: 171–220
- Dahlgren, T. (1930): Alkohol och national-ekonomi (Alcohol and national economy). Tirfing hefte 3: 65–78
- Devlin, N. J. & Schuffham, P. A. & Bunt, L. J. (1997): The social costs of alcohol abuse in New Zealand, *Addiction* 92 (11): 1491–1505

- Edwards, G. & Anderson, P. & Babor, T.F. & Casswell, S. & Ferrence, R. & Giesbrecht, N. & Godfrey, C. & Holder, H. & Lemmens, P. (1994): *Alcohol Policy and the Public Good*. Oxford University Press
- EU (2007): Public Health Executive Agency, Scientific Unit, Luxembourg. Application form for the project Standardizing Measurement of Alcohol Related Troubles (SMART)
- Fisher, I. (1926): *Prohibition at Its Worst*. New York: The Macmillan Company
- Gahn, H. (1928): Till frågan om alkoholens vinst- och förlustkonto (To the Question of the Loss and Profit Account of Alcohol). *Tirfing* (3–5): 33–80
- Gjelsvik, R. (2004): *Utredning av de samhällsøkonomiske kostnadene relatert til alkohol*. Bergen: Rokkansenteret/HEB
- Godfrey, C. & Maynard, A. (1989): The Economics of Addiction: the role of the economist in addictions research, *British Journal of Addiction* 84 (10): 1109–1112
- Hirsch, J. L. (1908): *Sprit-industriens nationalekonomiske betydning (The National Economic Importance of the Spirits Industry)*. *Statsøkonomisk tidsskrift* 266–278
- Holst, C. (2009): "I beste mening. Opposisjonsvitenskapens fallgruver (For the best. The pitfalls of oppositional science)." In: Nuland, B. R. & Tranøy, B. S. & Christensen, J. (red.): *Hjernen er alene*: 159–175. Universitetsforlaget, Oslo
- Horverak, Ø. (1976): *Alkoholen i samhøllsøkonomien og alkoholforskningen. I Alkoholforskningen og samfunnet (Alcohol in the National Economy and Alcohol Research)*. Statens institutt for alkoholforskning/Statens edrskapsdirektorat, Oslo.
- Jarl, J. & Johansson, P. & Eriksson, A. & Eriksson, M. & Gerdtham, U. G. & Hemström, O. & Selin, K. H. & Lenke, L. & Ramstedt, M. & Room, R. (2008): The societal cost of alcohol consumption: an estimation of the economic and human cost including health effects in Sweden, 2002. *European Journal of Health Economics* 9: 351–360
- Johansson, L. (1995): *Systemet lagom (The appropriate system)*. Lund University Press
- Khennet, H. (1929): Till frågan om alkoholens vinst- och förlustkonto (To the Question of the Loss and Profit Account of Alcohol). *Tirfing* hefte (1–2): 20–26
- Leontaridi, R. (2003): *Alcohol misuse: how much does it cost?* London: Cabinet Office
- Melberg, H. O. (2010): *Conceptual problems with studies of the social cost of alcohol, smoking and drug use*. Submitted paper
- Myrdal, G. (1930): *Alkoholens vinst- och förlustkonto (The Loss and Profit Account of Alcohol)*. *Tirfing* hefte (4): 106–109
- Mäkelä, K. & Österberg, E. (1979): Notes on analyzing economic costs of alcohol use, *Drinking and drug practices surveyor*, 15
- NOU 2008: 11 *Yrkessykdommer (Occupational Diseases)*. s. 65
- NU(B) 1980: 21 *Alkohol och ekonomi i Norden (Alcohol and Economy in the Nordic countries)*. Stockholm 1980
- Ohlin, B. (1930): *Nationalekonomiske synpunkter på alkoholfrågan (National Economic Views on the Alcohol Question)*. *Tirfing* hefte (4): 97–105
- Ohlin, B. (1939): *Nationalekonomiska synpunkter på alkoholfrågan (National Economic Views on the Alcohol Question)*. *Blå Boken* 16. årg Stockholm. (Quoted from Österberg 1983)
- Rehm J. & Gnam, W. H. & Popova, S. & Patra, J. & Sarnocinska-Hart, A. (2008): *Avoidable Cost of Alcohol Abuse in Canada 2002*. Centre for Addiction and Mental Health, Canada
- Rice, D. P. (2000): Cost of illness studies: what is good about them? *Injury Prevention* 6: 177–179
- Roizen, R. & Fillmore, K. M. (1999): *Annalkande kris för den socialvetenskapliga alkoholforskningen? (The Coming Crises in Alcohol Social Science?)* *Nordisk alkohol- & narkotikatidskrift* 16 (4–5): 296–310
- Saar, I. (2009): *The Societal Costs of Alcohol Misuse in Estonia*, *European Addiction Research* 15: 56–62
- Scharffenberg, J. (1908): *Sprit-industriens nationalekonomiske betydning (The National Economic Importance of the Spirits Industry)*. *Statsøkonomisk tidsskrift* 278–291
- Single, E. (2009): Why we should still estimate the costs of substance abuse even if we needn't pay undue attention to the bottom line. *Drug and Alcohol Review* 28: 117–121
- Single, E. & Robson, L. & Xie, X. & Rehm, J.

- (1996): The Costs of Substance Abuse in Canada 1992. Canadian Centre on Substance Abuse
- Single, E. & Collins, D. & Easton, B. & Harwood, H. & Lapsley, H. & Maynard, A. (1996): International Guidelines on Estimating the Costs of Substance Abuse. Ottawa: Canadian Centre of Substance Abuse
- Single, E. & Collins, D. & Easton, B. & Harwood, H. & Lapsley, H. & Kopp, P. & Wilson E. (2003): International guidelines for estimating the costs of substance abuse. Second edition, World Health Organization 2003
- Sommarin, E. (1925): Nagon nationalekonomiska synpunkter på alkoholfrågan (Some National Economic Views on the Alcohol Question). *Tirfing* (8–9): 113–122
- Sommarin, E. (1930): Till frågan om alkoholens vinst- och förlustkonto (To the Question of the Loss and Profit Account of Alcohol). *Tirfing* hefte (6): 175–183
- Stortingsforhandlingene (1845): 7: 494 ff. Innstilling fra Næringskomite 2. (Report from Industry Committee 2).
- Warmus H. (2000): Disease-specific estimates of direct and indirect costs of illness and NIH support. Washington, DC: National Institutes of Health, November 1995, April 1997, February 2000. (Quoted from Rice 2000).
- World Health Organization (2000): International Guide for Monitoring Alcohol Consumption and Related Harm
- World Health Organization (2003): WHO Guide to Cost-Effectiveness Analysis. http://www.who.int/choice/publications/p_2003_generalised_cea.pdf
- Xie, X. & Rehm, J. & Single, E. & Robson, L. & Paul, J. (1998): The Economist Cost of Alcohol Abuse in Ontario, *Pharmacological Research* 37 (3): 241–249
- Österberg, E. (1983): Calculating the Costs of Alcohol: The Scandinavian Experience. In: Grant, M. & Plant, M. & Williams, A. (eds.): *Economics and Alcohol*, Gardner Press Inc., New York
- 1911 års nykterhetskommittés betänkande X, Bilag 1. Den nationalekonomiska betydelsen av allmänt rusdryckförbud. Avgitt i 1916 (Report X from the Temperance Committee of 1911. Annex 1. The National Economic Importance of a Ban on Alcohol. Delivered in 1916). Stockholm 1916.

