

## Chapter 3: The economic impact of alcohol

Europe plays a central role in the global alcohol market, acting as the source of quarter of the world's alcohol and over half of the world's wine production. Even for spirits, where production is least concentrated in Europe, some European countries (e.g. the UK, France) are among the world's leading producers. The production of many types of beverages is also felt by some countries and regions to be a part of national identity. Trade is even more centred on Europe, with 70% of alcohol exports and just under half of the world's imports involving the EU. Although the majority of this trade is between EU countries, the trade in alcohol contributes around €9billion to the goods account balance.

It is hard to place a value on the amount of smuggling in the EU, although the European High Level Group on Fraud has estimated that €1.5bn was lost to alcohol fraud in 1996. Any highly-taxed good like alcohol is susceptible to smuggling, but price differences in Europe play little part as much organized smuggling activity involves the system of 'duty suspension'.

Price differences play more of a role in the level of legitimate cross-border shopping, where individuals legally bring back alcohol with them from cheaper countries. At least 1 in 6 tourists returns from trips abroad with alcoholic drinks, carrying an average of over 2 litres of pure alcohol per person in several countries. This seems to represent an increase from past levels, due to increased intra-EU travel, relaxations in travellers' allowances and, more recently, the accession of several new, lower cost countries into the EU.

The economic role of the alcoholic drinks industry is considerable in many European countries. Alcohol excise duties amounted to €25 billion in 2001, excluding sales taxes and other taxes paid within the supply chain – although €1.5 billion is given back to the supply chain through the Common Agricultural Policy (see Chapter 8). Due to the relative inelasticity of the demand for alcohol (see Chapter 7), the average tax rates are a much better predictor of a government's tax revenue than the level of consumption in a country.

Alcohol is also associated with a number of jobs, including over three-quarters of a million in drinks production (mainly wine). Further jobs will also be related to alcohol elsewhere in the supply chain, e.g. in pubs or shops. However, the size of the industry is not necessarily a good guide to the economic impact of alcohol policies – for example, trends in alcohol consumption show no crude correlation with trends in the number of jobs in associated areas such as hotels, restaurants, and bars, suggesting that the effect of changes in consumption may be relatively weak. A reduction in spending on alcohol would also be expected to free consumer funds to be spent on other areas, with the economic impact depending on the exact nature of the new expenditure. While further research needs to be done on this issue, current evidence from alcohol and other sectors suggests that declining consumption may not necessarily lead to job losses in the economy as a whole.

Based on a review of existing studies, the total tangible cost of alcohol to EU society in 2003 was estimated to be €125bn (€79bn-€220bn), equivalent to 1.3% GDP, which is roughly the same value as that found recently for tobacco. The intangible costs show the value people place on pain, suffering and lost life that occurs due to the criminal, social and health harms caused by alcohol. In 2003 these were estimated to be €270bn, with other ways of valuing the same harms producing estimates between €150bn and €760bn. Although these estimates are subject to a wide margin of error, they are likely to be an underestimate of the

*true gross social cost of alcohol (excluding benefits), given the number of areas where it has been impossible to obtain data. Similarly, while the estimates take into account the benefits of alcohol to health systems and loss of life (valued intangibly), there is no research that would enable the other social benefits to be evaluated. This should be only the start of economic contributions to policymaking, with further research quantifying the share of costs that can be avoided, and, in particular, investigating the most cost-effective policies to do this.*

### THE ALCOHOL ECONOMY

Alcohol is a major economic commodity that is associated with substantial governmental tax receipts and considerable consumer expenditure. Indeed, Europe can be considered the centre of the global alcohol industry, acting as both the largest market and the major producer of alcoholic drinks.

As for many other consumer industries in the 'globalized era', however, the production of alcoholic drinks has increasingly become an international arena dominated by drinks brands owned by multinational companies (MNCs). In contrast, the scope of this report is European, while the following chapters primarily look at patterns and trends at the country level. Although the following section fits with the general (country/regional) structure of the report, it must nevertheless be read with the caveat that a full understanding of the contemporary alcoholic beverages industry requires an international focus and a consideration of the corporate governance of MNCs (see Jernigan 1997; Euromonitor and just-drinks.com 2005).

This chapter, therefore, looks first at the production of alcoholic drinks in the countries of Europe, before moving on to international alcohol trade, alcohol-related tax receipts, and employment in alcohol-associated industries.

### Production

#### Wine

The ability to grow vines to make wine has historically been restricted, for reasons of climate, to certain countries, although there have been some tentative suggestions that this might change due to global warming.<sup>1</sup> According to the Commission's inventory at the turn of the millennium, wine is grown in 150 different regions within the EU15 as well as in several of the countries in the EU10 (Czech Republic, Cyprus, Hungary, Malta, Slovenia and Slovakia).<sup>2</sup> The largest single regions in terms of cultivated area are in Spain (Castilla La-Mancha and Extremadura), Italy (Sicilia and Puglia) and France (Gironde and Herault), each of which have over 100,000 hectares of land producing wine (although this partially depends on whether clusters of regional producers are treated as a single or multiple regions). The same three countries also have the highest number of individual wine-producing regions (75 in France, 21 in Italy, 17 in Spain) and the greatest total wine-producing area (over  $\frac{3}{4}$

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<sup>1</sup> Examples of speculations on climate change and viticulture can be found from the Geological Society of America (<http://www.geosociety.org/news/pr/03-35.htm>) and BBC News (<http://news.bbc.co.uk/1/low/world/europe/3288129.stm>).

<sup>2</sup> Data on EU15 wine-producing regions comes from the Commission's official statistics, available at [http://europa.eu.int/comm/agriculture/markets/wine/prod/index\\_en.htm](http://europa.eu.int/comm/agriculture/markets/wine/prod/index_en.htm). Figures presented are the inventory of wine-growing areas conducted 1998-2000, and exclude potential planting rights.

million hectares each, compared to less than ½ million hectares in the other EU15 countries combined).

Unsurprisingly, given these figures, world wine production is particularly dominated by Europe and is concentrated in the trinity of France, Italy and Spain, with around half of world wine production coming from these three countries alone, Figure 3.1. Of the study countries outside the EU, Romania is by far the largest producer, especially for wine – in fact, the combined wine production of Romania and Bulgaria is roughly equal to that of Portugal.

However, global wine surpluses have existed since the 1970s, and have coexisted with a challenge to the European producers from the ‘New World’ countries of the US, Canada, South America, Australia and New Zealand (Spitzer 2002; Furlani *et al.* 2003). These countries now produce a considerable amount of (often branded) wine to compete with European producers – and this has been able to enter the EU more easily due to the outcomes of trade negotiations, with current negotiations threatening further tariff reductions (see Chapter 8). The problems and their response within the Common Agricultural Policy (CAP; also see Chapter 8) have contributed to decreased levels of production in recent years, such that 2002/3 production was 25% down on the average mid-1980s amount. To aid the sector the CAP has tried to induce more expensive quality wine production in place of table wine. Despite a substantial fall in table wine production and a concomitant rise in quality wine though, there is still slightly more table wine produced than quality wine, especially in Italy.

### **Beer**

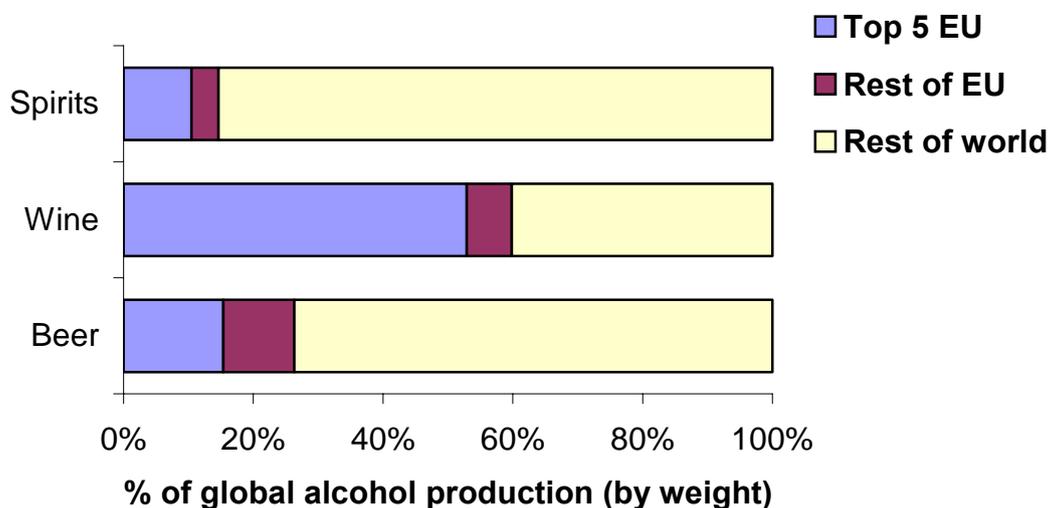
Europe is also important for world beer production, although to a far lesser extent than for wine. Germany alone produces 7.5% of the global total, a figure behind only China and the US, with (in descending order) the UK, Poland, Spain, the Netherlands, Czech Republic, France and Belgium all producing 1-4% of the world’s beer. Although dominated by large brewing multinational companies, there are still a number of local microbreweries using their own production methods and continuing to make up a very small share of the beer market (Euromonitor and just-drinks.com 2005). Most European beers today are types of lager; even the UK, which was for many years an exceptional case preferring ale, has lager making up 70% of its beer market (Tighe and Bussett 2004).

### **Spirits**

Perhaps more than the other two main types of alcoholic drinks, ‘spirits’ is a broad term including a number of drinks that have strong identities in themselves. While some aspects of the production process (i.e. distillation) and the strength of the beverages are relatively similar and give the category some coherence, it is the particular ingredients that give distilled spirit its flavour that sets it apart. Some countries associate a particular spirit with national culture and identity, which has led to fierce efforts to protect the rights to produce these beverages. This can be seen in disputes over Greek aniseed-flavoured spirits (ouzo; Taylor 2004) and Polish bison-grass-flavoured vodka (Zubrowka; Koizol 2003) to name but two.

Unsurprisingly then, some European countries focus ‘spirits production’ primarily on a single type of distilled spirit, although due to partial data coverage it is difficult to investigate this in much detail. Tentatively looking at the EU countries with available data, the UK produces the most whisky and gin (although there is no data for Ireland), while France produces the most liqueurs, and Poland produces the most

vodka.<sup>3</sup> Better data are available looking globally across all spirits drinks, and this shows that production is even less focused on the EU than for beer - over 6 in 7 bottles globally are produced outside the EU. Nevertheless, the UK, France and Germany are among the 10 highest-producing countries for spirits in the world, with Italy, Poland and Spain not far behind.



**Figure 3.1** Global alcoholic beverages production by weight, 2002 (FAOSTAT)<sup>4</sup>

### Total

Across all these beverages, the EU is the world's major source of alcohol, responsible for a quarter of the world's total, equivalent to over 50% more than either China or the US.<sup>4</sup> The EU10 contributes around 3.5% of the global total, mainly through beer but also contributing just under 2% of the world's total wine and spirits production. Despite this considerable role, the current position still represents a decline in global importance given that 5 EU countries alone accounted for a third of the world's alcohol production in 1961 (Germany, France, Italy, Spain and the UK). The change has not come about through a drop in production levels, however; instead, EU production in the past 40 years has risen by 150% (despite the more recent drop in wine production), but this is overtaken by the 250% rise in the rest of the world's recorded production (possibly partly due to increased industrial production and reduced unrecorded home production).

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<sup>3</sup> Spirits production analysis uses Eurostat production data on particular spirits types (available from <http://fd.comext.eurostat.ec.eu.int/xtweb/mainxtnet.do>).

<sup>4</sup> Production analysis is authors' calculations using data from the UN Food and Agriculture Organisation's Statistical division (FAOSTAT) database (<http://apps.fao.org/faostat/>). FAOSTAT production data is only available by weight. Wine production analysis also uses CAP data, which is available by volume only.

## Trade

Europe is even more central to the global alcohol economy when it comes to trade, with more than 70% of all alcohol exports in the world coming from European countries<sup>5</sup> (see Table 3.1). The six countries worldwide exporting the most alcohol are also all European – when combined, the exports from France, the UK, Italy, Spain, the Netherlands and Germany (in order) alone make up over 60% of the world's total. More beer is exported from the Netherlands than any other country in the world, although exports are marginally less concentrated for beer than for other drinks types. For both wine and spirits, the single leading exporter (France for wine, the UK for spirits) and three-quarters of the world's exports are European although the 'New World countries' (see above) have become more important wine exporters in recent years (Furlani *et al.* 2003). Most exports come from the EU15, but several EU10 and accession countries are also important alcohol exporters, including the Czech Republic and Slovenia (both for beer), Bulgaria and Hungary (for wine), and Latvia and Poland (for spirits).

**Table 3.1** World alcohol exports by value, 2003

	<b>Beer</b>	<b>Wine</b>	<b>Spirits</b>	<b>TOTAL</b>
<b>Major exporter</b> (>2% world share)	Netherlands (22% of world beer exports)	France (37% of world wine exports)	UK (34% of world spirits exports)	France (24% of world alcohol exports)
	Germany (13%)	Italy (18%)	France (17%)	UK (14%)
	Belgium (7%)	Spain (9%)	Ireland (5%)	Italy (10%)
	UK (5%)	Portugal (3%)	Netherlands (4%)	Spain (5%)
	Ireland (4%)	Germany (3%)	Sweden (4%)	Netherlands (5%)
	Denmark (4%)		Germany (4%)	Germany (5%)
	France (3%)		Italy (3%)	Ireland (3%)
<b>Medium exporter</b> (0.5% – 2% world share)	Czech Republic	Belgium	Belgium	Belgium
	Italy	Netherlands	Denmark	Denmark
	Portugal	UK		Portugal
	Slovenia			Sweden
	Spain			

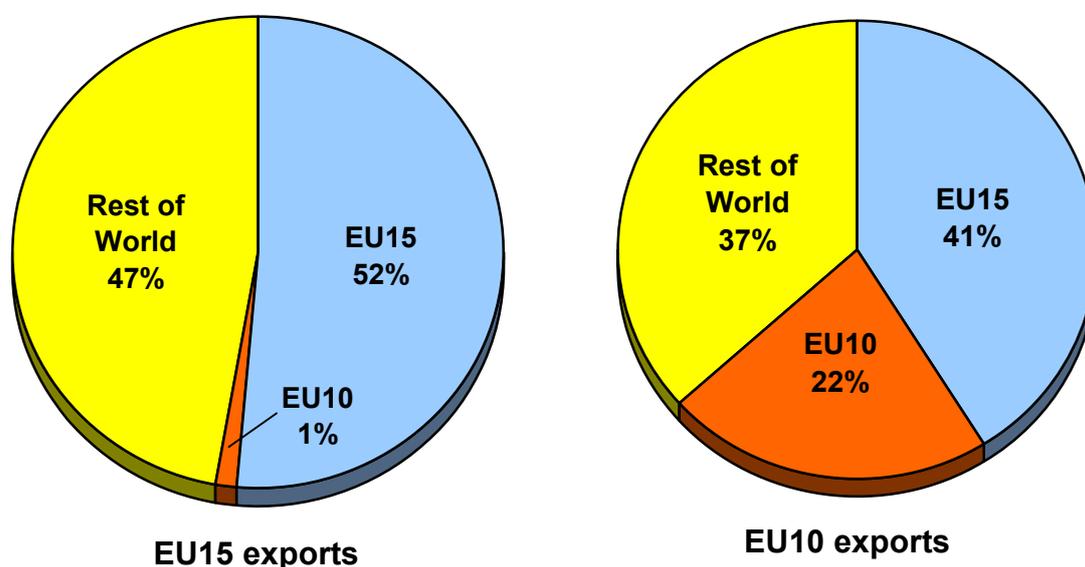
**Source:** authors' analysis of data from the FAOSTAT database.

This alone gives a slightly misleading impression of Europe taken as a whole, as just over half of the exports go elsewhere within the EU rather than the rest of the world (see Figure 3.2). This figure is even higher for the EU10, who export twice as much alcohol to EU15 countries than to other EU10 countries. Indeed, only spirits are more likely to go outside the EU than within it. Nevertheless, €12bn of alcohol was exported from the EU as a whole to the rest of the world in 2002, principally made up of wine (€4.4bn) and spirits (€5.4bn).

<sup>5</sup> Trade analysis is done by value rather than by weight, as it was felt to be a more important measure for investigating trade. This biases the results in favour of high-price exporters (e.g. France, the UK) and underplays the total alcohol exported by the EU10 and accession countries (e.g. Bulgaria, Poland). However, even when looked at by weight,  $\frac{2}{3}$  of the world's alcohol exports by weight originate from the EU. All data is from Eurostat's NewCRONOS and XTNET databases. Note, also, that (as with most trade sources) there are slight divergences in the levels recorded under, for example, 'exports from e.g. UK to France' and 'imports in France from the UK'.

Looking in the reverse direction, just under half the world's alcohol trade goes to EU countries, with  $\frac{1}{5}$  of these starting outside Europe and the rest coming from other EU countries. Wine imports are more concentrated on the EU than other beverages (the UK taking 20%, the most out of any country worldwide), but even so around a third of world beer and spirits imports go to the EU (the US being higher than the EU for spirits but not beer imports). Given the EU15's dominance as an exporter it is unsurprising that most of the alcohol going in to the EU15 comes from other EU15 countries, although EU10 countries are also more likely to import from other EU10 countries (around 20% of their imports). More wine is imported from outside the EU than any other drink, with only a negligible amount of beer coming from outside the EU (€2.3bn for wine, €0.1bn for beer).

Taking the European Union as a whole, the trade in alcohol accounts for 1.3% of all exports and 0.3% of all imports, thereby contributing €8.9bn to the goods account balance, with such trade not necessarily affected by European and domestic policy to reduce the harm done by alcohol. Exports are concentrated in the EU15 to a greater extent than imports, which explains the slight trade deficit for alcohol in the EU10.



**Figure 3.2** Destinations of EU alcohol exports (by value) **Source:** authors' analysis of data from the Eurostat XNET database.

## Smuggling

Beneath the level of official records, there is also an illegal trade in alcohol in Europe (see also Chapter 4), often by diverting goods that are held in 'duty suspension'.<sup>6</sup> By its nature, it is obviously difficult to obtain reliable statistics on illicit trade, which

<sup>6</sup> Within the EC, alcoholic beverages move in 'duty suspension' where the tax is only paid when and where the goods are released for consumption. Smuggling and tax fraud sometimes take place when the goods are illegally diverted from their (low-tax) claimed destination to a new (high-tax) one. Some Member States believe that most of the illicit trade in alcohol occurs in this way (Wells, Gerrard, and Hubbard 2005), although others believe that cross-border smuggling is also a major problem (see COM (2004) 223).

makes estimating the scale of smuggling in Europe difficult. The only existing estimate for the EU15 comes from the European High Level Group on Fraud, which estimated that €1.5bn was lost due to fraud in 1996, equivalent to around 8% of the total alcohol excise duty at the time (High Level Group on Fraud in the Tobacco and Alcohol Sectors 1998). However, it is unclear how this estimate was derived, and there have been no estimates either for more recent years or including the EU10. Even country-level estimates suffer from considerable problems, with the UK estimate of total duty losses for spirits best expressed as a range going from £650m to zero – a position that the national statistics office is currently trying to rectify (HM Customs and Excise 2004).

Given the difficulties of evaluating the extent of smuggling, it is difficult to monitor any trends in the illegal trade. Although the single market and increased passenger movement may be expected to increase the possibilities for fraud, the indications are that there are different trends in Europe – for example, Ireland, the UK and France believe they have experienced increased diversion fraud, while Portugal has seen more duty evasion (COM (2004) 223).

Although any heavily taxed product will be susceptible to fraudulent activity, this does not mean that reduced, uniform tax rates will reduce the level of smuggling (UK Treasury Select Committee 2000; Wells, Gerrard, and Hubbard 2005). In fact, smuggling of tobacco (which has been analysed in more detail) was more likely to

#### Box 3.1 – ALCOHOL SMUGGLING

- It is – by its nature – hard to place a value on the amount of smuggling in the EU
- However, the European High Level Group on Fraud has estimated that €1.5bn was lost to alcohol fraud in 1996
- Any highly-taxed good like alcohol is susceptible to smuggling, but price differences in Europe play little part

occur from the expensive north of Europe to the cheaper south (Joossens and Raw 2000), probably related to less 'transparent' governments in Southern Europe (Merriman, Yurekli, and Chaloupka 2000). Price differentials do increase the incentive to smuggle goods (especially for small-scale smuggling by individuals in single vehicles), but any highly-taxed good like alcohol is susceptible to smuggling – which makes the

chances of being caught of key importance for the large-scale, organised smuggling operations that make up the bulk of the problem for alcohol. Improved enforcement is, therefore, an effective tool against smuggling, as seen in the UK (UK Treasury Select Committee 2005) and Spain (Joossens and Raw 2000) and also reflected in several measures within the Council Regulation on administrative cooperation in the field of excise duties (16 Nov 2004; Regulation 2073/2004).

### Tax losses and the European internal market

Alongside tax losses through illegal actions, domestic taxes can be legally avoided if drinks are bought abroad and transported back to their home country by travelling individuals themselves. This is particularly important in areas of Europe where there are large price differentials across small distances, such as in the Öresund region (where beer in Denmark costs 40% of the price in Sweden) and Helsinki-Talinn (where spirits in Estonia cost 25% of the price in Finland) (Karlsson and Tigerstedt 2005). Cross-border shopping is a sizeable component of consumption in several countries – for example, cross-border purchases in Denmark and Sweden accounted

for over 15% of all alcohol consumed in 2000 (Elinder *et al.* 2003; COM (2004) 223), a figure that has risen to over 25% in Sweden in 2004 (SoRAD 2005). The only comparative data comes from the ECAS survey, which found that at least 1 in 6 tourists in each country returned with alcohol purchased abroad – rising to over half of tourists in the higher-tax countries such as the UK, Finland and Sweden. The amount purchased in these countries (in the survey, Finland, Sweden and the UK) as well as Germany was also much greater than elsewhere (France and Italy), averaging two litres or more of pure alcohol per importer (see Table 3.2).

**Table 3.2** Legal imports of alcohol by European tourists aged 18-64, in litres of pure alcohol per tourist (excluding alcohol over the indicative travellers allowances).

	Finland	France	Germany	Italy	Sweden	UK
<i>Beer</i>	0.3	0.0	0.0	0.0	0.2	0.1
<i>Wine</i>	0.4	0.1	0.1	0.0	0.3	0.4
<i>Spirits</i>	0.2	0.0	0.3	0.0	0.2	0.6
<b>TOTAL *</b>	1.1	0.1	0.5	0.04	0.9	1.4
<b>TOTAL per importer *</b>	<b>2.5</b>	<b>1.4</b>	<b>2.9</b>	<b>0.8</b>	<b>2.3</b>	<b>5.0</b>

\* Adjusted upwards by 1.25 to correct for under-reporting of numbers of trips (based on data from Sweden)

Source: ECAS study (Leifman 2001)

The current level represents an increase from past purchasing patterns, according to a number of countries' reports of trends in legitimate cross-border shopping. This is likely to be a result of the relaxation of travellers' allowances for intra-EU purchases in recent years, as well as increased intra-EU travel and 'globalization' more generally (see Chapter 4). For example, the UK estimates that losses have increased fourfold 1992-9 (COM (2004) 223), while Finland's EC membership in 1995 was estimated to increase private imports by 3-10 times (Österberg 1996, cited in Vingilis, Lote, and Seeley 1998). The accession of 10 new states to the European Union also introduced new nearby areas of price differentials (such as the Helsinki-Tallinn area mentioned above), with tourist sales reported to have more than doubled in Estonia, and the average purchase of vodka per buyer increasing from around 1L to 3L (Ahermaa and Josing 2005). Following this rise in consumption and the lowered taxes in Finland to reduce this incentive (see Chapter 8), the Finnish government saw a sharp fall in tax revenue in 2004 while the Estonian government saw an equally sharp increase (Österberg 2005). The current levels of cross-border shopping may increase yet further if proposals for new European legislation are agreed by Member States; this is discussed further under 'European alcohol taxes' in Chapter 8.

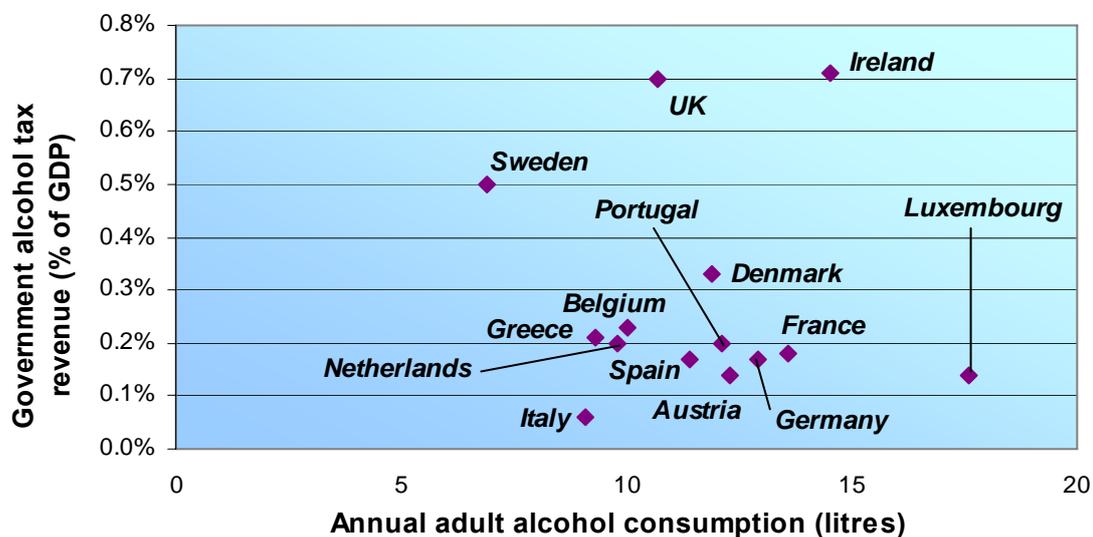
### National economies

Alcohol-specific taxes, aside from being an effective policy for reducing harm (see Chapter 6), are an important source of revenue for many national Governments. Official figures show that alcohol excise duties make up between 0.5% and 3% of total tax income in EU15 Member States, giving a total of €25bn in 2001 (COM (2004) 223). This is, however, far less than was gained previously when, in the absence of well-developed commercial and income taxes, taxes on specific goods were a key part of a government's income. For example, alcohol excise duties in late

nineteenth-century Britain made up over 40% of British exchequer income (Harrison 1971), while even since 1965, the importance of all taxes on specific goods and services in OECD countries has halved (measured as a % of total taxation; OECD 2001).

Aside from taxes targeted on alcohol, there are also a number of general taxes on alcoholic products, including an estimated €34bn in 1998 from general sales taxes (VAT; Naert, Naert, and Maex 2001). Other taxes that apply to various businesses in the alcohol supply chain can include income tax and national insurance contributions for employees, corporation taxes, and business rates (Thurman 2000). It should also be noted that €1.5 billion of this tax revenue is given back to parts of the alcoholic drinks supply chain, in the form of support for wine production in the EU's Common Agricultural Policy (see Chapter 8).

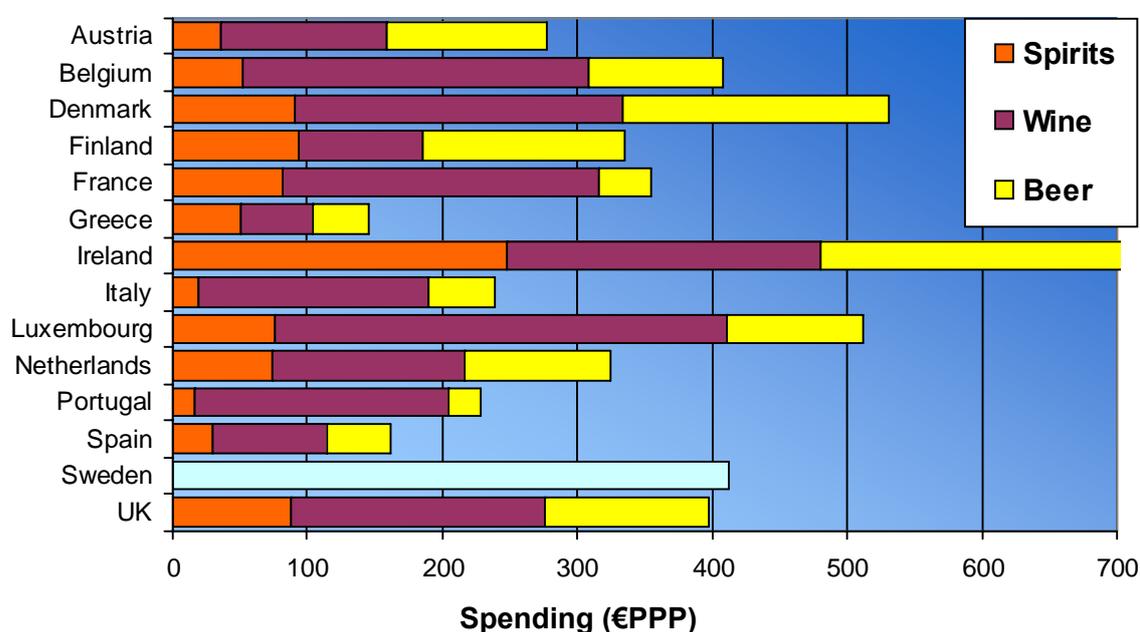
While it may be predicted that the tax from alcohol depends on the total amount of alcohol drunk in a country, the evidence suggests that this is not the case – for example, the Nordic countries consume considerably less than Italy and Switzerland while collecting higher tax receipts. Looking across Europe more thoroughly (Figure 3.3), there is no apparent correlation between the revenue from alcohol-specific taxes (as a % of government revenue or % of GDP) and per capita consumption. The best predictors of the importance of alcohol-specific taxes are unsurprisingly the average alcohol tax rates (see Chapter 9), which relate very closely to the income from alcohol taxes.<sup>7</sup> Conversely, this also demonstrates the relative price inelasticity of alcoholic beverages, although the price elasticities are nevertheless of a size that shows a noticeable effect on alcohol consumption (the effectiveness of taxes from an alcohol policy perspective is discussed in Chapter 7).



**Figure 3.3** Alcohol consumption and alcohol tax revenue in the EU15. **Source:** Eurostat, cited by COM (2004) 223.

<sup>7</sup> The level of household expenditure on alcoholic drinks and the price of alcohol also relate to the tax take, presumably through the impact of taxation on price and the impact of price on household expenditure. Consumption data in 2001 taken from the WHO Health For All database; household expenditure data taken from the Eurostat Household Expenditure Survey (HES) in the most recent year (1999); price data taken from Eurostat Price Level Indices for alcoholic drinks in 2001; analysis conducted by the authors.

By far the greatest proportion and level of expenditure on alcohol in Europe is found in Ireland, with each household spending nearly €PPP1700<sup>8</sup> on alcohol each year.<sup>9</sup> This is three times the level of any other country, and over ten times as much as Greece (see Figure 3.4). More generally, expenditure is much lower in the wine-producing countries than in the rest of the EU15, reflecting the relatively low price of alcohol in Southern Europe (see Chapter 9). The proportion of expenditure on different types of drink tends to follow the same pattern as consumption in general (see Chapter 4), although with certain exceptions such as Greece spending proportionally more than Finland on spirits, and Belgium spending more of its alcohol expenditure on wine than Spain. The total spend on alcohol has increased in most of Europe since data were first collected systematically in 1988 (with the increase happening primarily in the early 1990s), yet increasing wealth in the EU15 also means that proportionally less of disposable income is spent on alcohol in most countries (see Figure 3.4).



**Figure 3.4** Household expenditure on alcohol in the EU15 in 1999.

**Notes:** The scale ignores Irish beer expenditure of €PPP1200 as this would distort the scale. Sweden has no beverage-specific data available. **Source:** Household Budget Survey 1999, Eurostat.

<sup>8</sup> Purchasing power parity (PPP) allows costs to be scaled by the relative prices in different countries, so that the figures would buy the same amount of goods in each country. The resulting values are therefore in purchasing-power adjusted euros, or '€PPP'.

<sup>9</sup> Authors' own analysis of data from the HES which took place in 1988, 1994 and 1999; data available from Eurostat and the Commission report on health surveys in Europe 1997-2000 (European Commission 2003).

## Employment

Another way of approaching the alcohol economy is to look at the numbers of people whose working lives are linked to alcohol. Estimates from the 1990s suggest that nearly 850,000 people in the EU15 work in *producing* alcoholic drinks, mainly wine (Naert, Naert, and Maex 2001). However, it is harder to estimate the numbers of employees whose jobs are *indirectly* dependent on alcohol, such as in marketing, retailing, wholesaling and packing. In the EU15, the industry-funded Amsterdam Group (TAG) has estimated this as 2½ million jobs (Naert, Naert, and Maex 2001), but neither TAG nor the study authors have been able to provide any details as to how this figure was calculated.

Even in the major wine-producing countries, the majority of the alcohol-related employment is estimated to be in the Hotels, Restaurants and Catering sector (HoReCa), which also includes jobs in pubs and bars. This sector is the worst paid in Europe, in contrast to brewing which is better paid than the manufacturing sector as a whole (Room and Jernigan 2000).<sup>10</sup> It also contains more part-time workers than most service sectors in the EU15, although it is unclear whether the TAG employment estimate above is for all employees or full-time equivalent workers.

When interpreting these figures, it is important to remember that the strength of the direct relationship between alcohol consumption and employment in alcohol-related industries is unclear (see right). Despite the simplicity of the implicit model sometimes suggested in debates (reduced consumption leads to reduced output leads to job losses leads to higher unemployment), most of these connections in practice require assumptions that rarely hold fully (Godfrey and Hartley 1990). Even for production, stable consumption levels of a particular beverage can happen at the

### BOX 3.2: WHAT AFFECTS ALCOHOL-RELATED EMPLOYMENT?

**In theory:** employment depends on much more than just the amount drunk (Godfrey and Hartley 1990):

- **Consumer preferences (1)** – a shift towards drinks produced abroad can reduce the number of jobs in domestic production, without any effect on consumption levels.
- **Consumer preferences (2)** – the number of jobs in associated industries (esp. in HoReCa<sup>i</sup>) will depend on when and how people choose to drink, e.g. whether people drink alcohol in pubs/bars or at home.
- **Labour process** – this is particularly important for jobs in production. For example, output per employee in European distilleries rose by over 50% between 1983 and 1989 (Molyneux *et al.* 1993).
- **Other** – wage rates, the cost of capital, and a myriad of other economic factors will also influence employment levels.

**In practice:** a crude analysis of Eurostat data shows that there is no relationship between trends in HoReCa<sup>i</sup> employment and alcohol consumption. In several countries employment and consumption levels even go in opposite directions (e.g. Italy; see Figure 3.5).

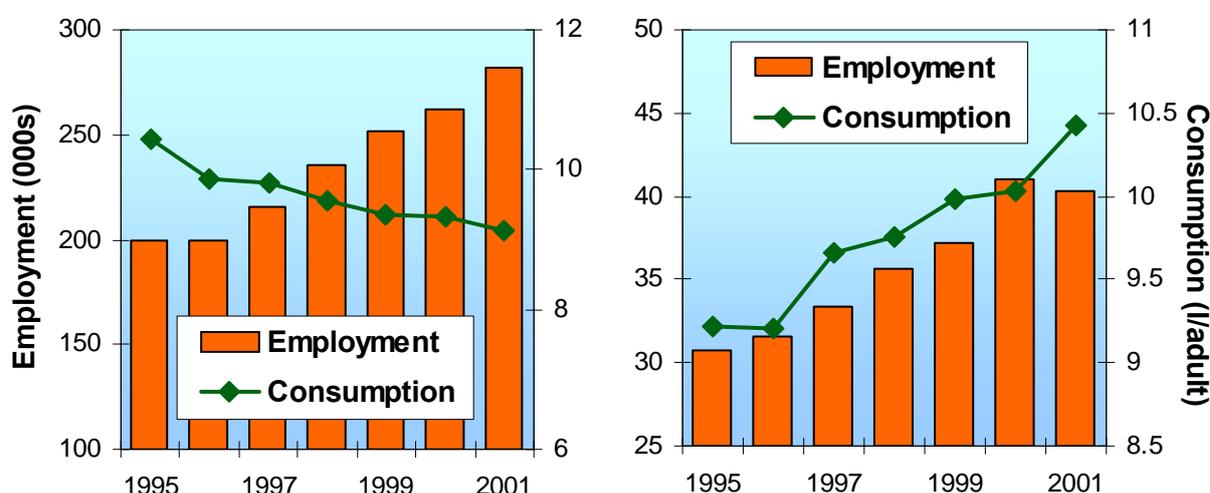
This suggests that the effect of drinking levels on employment levels in industries linked to alcohol may be relatively weak.

<sup>i</sup> HoReCa = HOtels, REstaurants and CAtering (and also includes bars).

<sup>10</sup> Data on part-time work and levels of pay from the Commission analysis of the Structural Business Statistics and authors' analysis of the Labour Force Survey, available from Eurostat.

same time as falls in employment, such as the 50% fall in European brewery employment at the same time as a much slighter fall in beer consumption (Molyneux *et al.* 1993).<sup>11</sup>

The detached nature of many of the jobs from consumption becomes particularly clear when looking at the HoReCa<sup>12</sup> sector, which (as mentioned above) constitutes the bulk of the employment that has been claimed by The Amsterdam Group to relate indirectly to alcohol. A crude examination of Eurostat data in 24 EU countries and 3 other study countries show an average relationship of trends in HoReCa employment and alcohol consumption that is indistinguishable from zero.<sup>13</sup> Fewer data are available for the numbers of jobs in bars, but where data exists the same possibilities appear to hold (the lack of a definite relationship is illustrated by Figures 3.5 and 3.6). Insufficient data exist to test whether similar results would be found where bars are almost exclusively based around alcohol (rather than including coffee, food etc.). These figures tentatively suggest that the direct effect of levels of consumption on employment levels in HoReCa may be relatively weak – although more robust and sensitive research is clearly needed to investigate this further.



Figures 3.5 (Employment in bars in **Italy**; left) and 3.6 (Employment in hotels, restaurants and bars in **Finland**; right), demonstrating the heterogeneity of links of consumption to jobs

More consequentially, a reduction in the consumption of alcohol would also free up money for consumers to spend on other products or services, which could lead to either an *increase* or a *decrease* in total employment in the economy depending on the structure of the industry following the new consumption (Godfrey and Hartley 1990). Although no specific research exists to suggest what would happen for reduced drinking, there have been a number of studies that have looked at the case of tobacco. The situation here is unlikely to be identical to that for alcohol (given e.g. the different importance of the HoReCa sector), but it offers an insight into how health-motivated consumption changes can impact upon employment as a whole. In a situation of a dramatic reduction or complete cessation of smoking, most of the studies reviewed within a World Bank/WHO project estimated that there would be a

<sup>11</sup> Authors' own calculation from employment data taken from TAG (Molyneux *et al.* 1993) and The Brewers of Europe ([http://stats.brewersofeurope.org/stats\\_pages/employees.asp](http://stats.brewersofeurope.org/stats_pages/employees.asp)).

<sup>12</sup> HoReCa = HOTEls, REStaurants and CAtering (and also includes bars).

<sup>13</sup> Authors' own calculation from Eurostat data. Note that these are based on simple bivariate correlations on a limited number of data points (years) and, as such, are both crude and relatively insensitive to weak trends – hence the recommendations for further research (see chapter 10).

net employment *gain* in all of the non-tobacco producing countries (Jacobs *et al.* 2000). In the case of the US, where tobacco-production is concentrated in certain areas, it has been estimated that the gain in jobs in non-producing regions even outweighs the loss of jobs in tobacco-producing regions. While this still offers no clue as to the direction of the net result for alcohol, this demonstrates the fallacy in simply using the number of jobs associated with alcohol as an indicator of the cost of reduced consumption.

It should be stressed here that this is not to deny the size of alcohol-related industries within Europe; as mentioned above, there are a considerable number of jobs across Europe that are due to alcohol, and the production of alcoholic beverages is an important economic activity in Europe. Perhaps most importantly, further research is clearly needed – not only to determine the practical effect of alcohol control policies on economic outcomes, but also to estimate transparently the number of jobs linked to alcohol and the factors determining changes in their levels (see Recommendations in Chapter 10). From a policymaking perspective however, the current, but limited, evidence suggests that changing consumption will not necessarily lead to job gains/losses in the economy as a whole, and may not even lead to large changes in employment in sectors relatively closely linked to alcohol such as restaurants and bars.

### THE SOCIAL COST OF ALCOHOL IN EUROPE

Increasingly at the European level, major health and social problems are being expressed as a single monetary value in what is termed a ‘social cost’ or ‘cost-of-illness’ study (The ASPECT Consortium 2004; Peterson *et al.* 2005). In similar fashion, the original specification for this report included the need for an estimate of the social cost of alcohol in Europe, and this chapter discusses a new estimate undertaken for this report. Given constraints of time and money, this estimate has been based on the most thorough review yet conducted of existing national-level studies. Summaries of the results are presented here and in Chapter 6, and a detailed discussion of the methodology and results are published in Baumberg & Anderson (submitted).

From the outset, it should be borne in mind that a social cost study does not provide any information as to which policies (if any) are cost-effective. Social cost estimates are a starting point for economic contributions to research rather than the end-point, and the importance of further analyses such as cost-benefit analyses is discussed at the end of this chapter. Furthermore, the figures are often misunderstood or misused – for this reason, any reader who wishes to use these figures is advised to consult Box 3.3 to ensure that the results are used accurately. Although this study is a marked improvement on previous estimates of the social cost of alcohol in Europe, many methodological concerns remain and these are both discussed below and also inform the recommendations made in Chapter 10. Nevertheless, the results below are the best estimate of the full scale of alcohol-attributable harm in contemporary Europe, and it is hoped that aside from their intrinsic interest they can provide an academic and political spur to further action and research.

### Method

A long-standing problem with social cost studies has been the eclectic methodologies used by different studies. To get around this, the present review split each study into

its component costs (e.g. health, crime), and investigated the methodology underlying each component. Those that met a given methodological standard were then scaled according to an appropriate indicator (e.g. total health expenditure), with the final estimates reflecting the range of studies that met the standard. The exact methodological standards are detailed in Baumberg & Anderson (submitted), but in general are based as far as possible upon the WHO Guidelines on Estimating the Costs of Substance Abuse (Single *et al.* 2003).

The review ultimately included 21 European studies (with a further 9 international studies used for sensitivity analyses), although for several cost components only a small number of studies passed the methodological standards, Table 3.3.

### **Box 3.3 – FOUR WAYS TO AVOID MISINTERPRETING A SOCIAL COST STUDY**

1. What is a 'social cost of alcohol'? The social cost of alcohol is the cost to society of everything that happens in Europe in 2003 which would not happen in a world without alcohol. It does not show how much could be saved by any particular policy measure (see chapter 6), nor does it show how much could be saved if alcohol suddenly vanished (some of the costs are unavoidable consequences of previous alcohol consumption).
2. Are *intangible* costs real money? Intangible costs are a way of turning non-monetary harms – such as pain or loss of life – into a monetary figure. This means they do not exist as money in the real world, and cannot be compared to economic costs such as GDP, or the cost of a hospital. However, they not only present a fuller picture of the scale of alcohol-related harm but also avoid treating some people's deaths as a 'benefit' to society.
3. Who pays these costs? These are the costs of alcohol for the whole of society and not just costs to governments (in France and Australia, the government has been estimated to pay about 15%-25% of the tangible costs). Although some of the cost is paid by the drinker, large amounts are also paid by other people and count as 'externalities' (see discussion in text). Most of the intangible costs are the value of lost life, which mainly but not exclusively lie with the drinker, although the intangible cost of alcohol dependence (to family members) and crime are over 25% of the total.
4. How much are the social benefits of alcohol worth? Very few social benefits of alcohol have been evaluated, although health benefits are taken into account for health costs and the intangible cost of lost life. It should also be remembered that the economic side of alcohol – i.e. jobs and economic value-added – cannot simply be treated as social benefits (see discussion in text). Taxes are also not a 'social benefit' as they simply transfer money between different groups in society, although they would clearly be relevant for investigating the cost to governments. Future research should attempt to quantify a greater number of the social benefits of alcohol, although it is recognised that this is methodologically problematic.

**Table 3.3 – the social cost of alcohol in different studies <sup>A</sup>**

Country	Year of Cost	Total tangible costs	Total cost per capita (inc. intangible costs)	Health	Treatment	Prevention	Crime	Criminal damage	Traffic accident damage	Lost productivity from lost life	Absenteeism	Unemployment
		% GDP	PP € 2003 <sup>B</sup>	% of health spend			% of POS <sup>C</sup>	% (per thousand) of GDP				
Belgium (Industry-funded) [1]	1999	2.4	586	2.6	<0.1		1.4 <sup>D</sup>		6.2	4.7	<0.1	2.3
Denmark [2]	1996	0.9	218	3.4			10.5		1.2	1.7	0.4–0.5	
Finland [3]	1990	1.3–1.8	482–823	0.9–1.4	1.2	0.5-0.6	12.7-13.9	0.6		6.5–10.3	0.5-0.6	
France [4,5]	1997	1.2–1.4	256–300	2.4		<0.1			2.7–2.8	4.4–6.5	0.4–0.5	
France [6]	1996	-	-	0.2–0.3			-	-	-	-	-	
Germany [7]	1995	1.1	253	2.3	0.2	<0.1			0.4	3.7	0.8	
Ireland [8]	2003	1.6	447	4.4			7.8				7.8	
Italy [9]	1994	0.7–0.8	134–153	1.7–1.9	0.2					1.3–1.6	1.7–1.8	
Latvia [10]	1999	1.8	113	n/c	0.5				1.7			
Netherlands [11]	2000	0.7	171	0.3	0.2		1.4 <sup>D</sup>	0.7				2.4
Netherlands (Industry-funded) [12] <sup>E</sup>	1996	0.3	78	0.7	0.2		3.7	0.7			<0.1	
Norway [13]	2001	1.2–2.1	447–729	0.7–1.3	1.0-1.6		1.9		<0.1	1.6–9.3	1.0–1.1	0.6
Portugal [14]	1995	0.5	73	0.5	<0.1				0.7	0.9	<0.1	
Scotland [15]	2001-2	0.7	296–360	1.4	<0.1	<0.1	14.4				0.9	1.3
Slovak Republic [16]	1994	3.1	292	4.9			16.9			5.4	6.6	12.1
Slovenia [17]	2002	0.3	50	0.5						2.6	0.1	
Spain [18]	1998	0.7	129	2.4	0.3	<0.1	2.6				1.4	
Sweden [19]	1998	5.5	1,194	5.5		2.4	3.6	1.0		9.6	7.1	

Country	Year of Cost	Total tangible costs	Total cost per capita (inc. intangible costs)	Health	Treatment	Prevention	Crime	Criminal damage	Traffic accident damage	Mortality – tangible	Absenteeism	Unemployment
				% of health spend								
Switzerland [20]	1998	0.5–0.7	435–482	1.4	0.1				0.3	1.4–2.6		0.6
England & Wales [21]	2001	1.5–1.7	456–497	2.8–3.3	0.1		10.6	1.6		2.6	2.0	2.4
<b>EU mean</b>				<b>2.3</b>	<b>0.5</b>	<b>0.2<sup>F</sup></b>	<b>12.4</b>	<b>0.9</b>	<b>1.7<sup>D</sup></b>	<b>3.9</b>	<b>1.6</b>	<b>1.5</b>
EU minimum				1.4	0.1	<0.1	10.6	0.6	<sup>D</sup>	2.6	1.0	0.6
EU maximum				3.3	1.6	2.4	13.9	1.6	<sup>D</sup>	6.5	2.0	2.4
Australia [22,23]	1998/9	0.9–1.0	286–315	n/c			8.4-15.9 <sup>G</sup>		1.2	n/c	0.1	
Canada [24]	1992	0.9–1.3	195–265	1.3–1.6	0.4	0.2	12.3		0.7	2.5–5.4		
Japan [25]	1993	1.9	381	4.9					<0.1	2.6	0.1	
New Zealand [26]	1990	4.7	4289	n/c						8.2	0.2	
New Zealand [27]	1991	1.4–2.4	234–386	1.3			25.0–51.6			0.3–0.6		3.8-11.3
New Zealand [28]	1996	-	-	-			-	-	1.7	-	-	
USA [29,30]	1992	2.3	666–731	1.5	0.5		6.4 <sup>G</sup>	<0.1	1.2	4.2		
USA [31]	1985	1.7	447	1.1			9.2 <sup>G</sup>	<0.1	0.6	5.7		
USA [32]	1995	-	-	-			-	-	1.0	-	-	

**SHADED FIGURES ARE THOSE THAT MET THE METHODOLOGICAL CRITERIA FOR THAT COST COMPONENT, AND WERE THEREFORE INCLUDED IN THE MEAN/MINIMUM/MAXIMUM SUMMARY VALUES.**

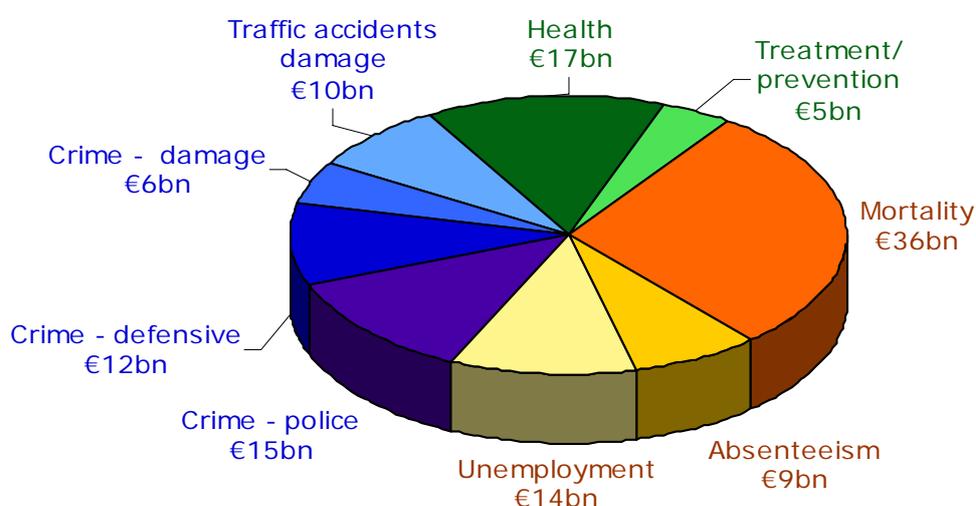
**Notes:** n/c means that the methodology used was *not comparable* with other studies. **(A)** Types of cost that were only investigated in a single study are not shown here. Figures may differ from reported figures in study summaries as they are taken from the range of values reported in the detail of the original study, and also remove costs excluded on theoretical grounds from the current study (mainly transfer payments). **(B)** Total cost is inflated to 2003 prices and adjusted for purchasing power. **(C)** POS = Public order spend. **(D)** See discussion in Methods and Results in Baumberg and Anderson (submitted). **(E)** Costs to government only. **(F)** Prevention mean excludes Sweden as an outlier. **(G)** Study includes a downward adjustment for the causal role of alcohol.

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The final estimates present the cost to all of European Union society in 2003 of all past and current alcohol consumption, compared to a society without alcohol (with the exception of health costs; see the discussion of 'social benefits' below). While an alcohol-free society is not necessarily the most useful comparison, it does provide an estimate of the full range of alcohol-related consequences and was by far the most common method found in the reviewed studies (both the implications of this and further research recommendations are discussed below). It is also important to note that the estimate does not include 'transfer costs' – that is, the large sums of money that one group in society gives to another group due to alcohol-related effects, such as disability benefits. While these costs are not relevant for the 'social cost' perspective taken by most of the studies reviewed, they are clearly of large importance for the 'external costs' often considered in policymaking, and this is considered in more detail at the end of this chapter.

### Main results

The total tangible cost of alcohol to the European Union is €125bn (€79bn-€220bn) in 2003, equivalent to 1.3% of GDP (0.9%-2.4%) and shown in Table 3.4. Actual spending on alcohol-related problems accounts for €66bn of this, while potential production not realised due to absenteeism, unemployment and premature mortality accounts for a further €59bn. The total tangible cost broken down into the cost components is shown in Figure 3.7, and illustrates the spread of costs across different domains of human life (the components are also discussed in Chapter 6).



**Figure 3.7** The tangible cost of alcohol in Europe 2003, by cost component

This figure uses the conventional method for valuing health and mortality costs in social cost studies, and despite some methodological differences can, therefore, be compared to a recent estimate for the cost of tobacco in Europe of €98bn-€130bn in 2000 (The ASPECT Consortium 2004).

Two other studies in the past few years have also made tentative estimates of the social cost of alcohol in Europe. The first was within a WHO-EURO project and used five studies to estimate crudely that the social costs of alcohol were 1-3% of GDP, equivalent to €100bn-300bn in 2001 (Gutjahr and Gmel 2001). More recently, a wider project on the cost of brain disorders within Europe estimated the total cost of

addictive disorders (alcohol and drugs) to be over €55bn in 2004, with a further €50bn due to alcohol- and drug-related crime (Andlin-Sobocki and Rehm 2005). Unusually, this was based on the cost per person dependent on alcohol, despite under one-fifth of premature mortality costs in Germany coming from people with alcohol use disorders (Bergmann and Horch 2002). The results presented above use a much more detailed methodology than either of these studies, and can, therefore, be expected to provide a more accurate result.

**Table 3.4** The social cost of alcohol in Europe, 2003

	<b>Cost</b> (€ billion)	<b>Minimum</b> (€ billion)	<b>Maximum</b> (€ billion)
<b>Tangible costs – direct</b>			
Healthcare	17	11	28 <sup>A</sup>
Treatment & prevention <sup>C</sup>	5	1	18
Crime – police, courts, prisons	15	13	24 <sup>B</sup>
Crime – defensive and insurance <sup>D</sup>	12	7	17 <sup>B</sup>
Crime – property damage	6	3	16 <sup>B</sup>
Traffic accidents – damage	10	6	16
<b>SUBTOTAL</b>	<b>66</b>	<b>40</b>	<b>118<sup>1</sup></b>
<b>Tangible costs – productivity losses</b>			
Absenteeism <sup>C</sup>	9	9	19
Unemployment <sup>C</sup>	14	6	23
Premature mortality	36	24	60
<b>SUBTOTAL</b>	<b>59</b>	<b>39</b>	<b>102</b>
<b>TOTAL TANGIBLE COSTS</b>			
	<b>125</b>	<b>79</b>	<b>220<sup>1</sup></b>
<b>Intangible costs</b>			
Psychosocial & behavioural effects <sup>D</sup>	68	37	68
Crime – victims' suffering <sup>D</sup>	12 <sup>F</sup>	9 <sup>F</sup>	52 <sup>B, F</sup>
Loss of healthy life <sup>E</sup>	258 <sup>F</sup>	145 <sup>F</sup>	712 <sup>F</sup>
<b>TOTAL INTANGIBLE COSTS<sup>F</sup></b>	<b>270<sup>G</sup></b>	<b>154<sup>G</sup></b>	<b>764<sup>G</sup></b>

<sup>1</sup>Totals do not add due to rounding. **Notes:** (A) This excludes health benefits, while minimum and headline figures are for the net effect compared to the lowest-risk level of drinking; (B) Cost of crime *related to* rather than *caused by* alcohol, and is therefore a maximum figure for the cost of alcohol; (C) Cost areas with higher levels of uncertainty; (D) Costs based on a single study; (E) Excludes loss of life due to homicide to avoid potential double-counting with intangible costs of crime; (F) The main estimate is based on a QALY valuation of 3-times each country's GDP per capita (EU25 average of €64,000); the minimum value is based on €32,000 per QALY; and the maximum value is based on €158,000 per QALY [the rationales behind these figures are detailed in Baumberg and Anderson (submitted), and can also be obtained from the authors]; (G) Psychosocial & behavioural effects excluded from the intangible subtotal to avoid potential double-counting with loss of healthy life.

Aside from the tangible monetary costs, alcohol causes an intangible cost of €152bn-€764bn, which incorporates the value people place on pain, suffering and life itself due to crime and lost healthy life due to alcohol. As explained Box 3.3, this intangible cost is not an 'economic loss' in the normal sense of the term and cannot be compared to e.g. GDP (nor can it be simply added to the tangible cost, given that they both include estimated values for lost life but the estimates are done in different ways). However, this cost offers a more accurate estimate of the full economic and human cost of alcohol to the EU, as well as avoiding several problems within the tangible way of valuing human life (see below).

### Methodological issues

Although the present study avoids some pitfalls of previous studies, there are a number of remaining methodological issues that should be noted. First, the estimates are subject to a wide margin of error, as found for all cost-of-illness studies (Single and Easton 2001). Combined with data limitations and a lack of good studies from the EU10, this has made it impossible to adjust the costs for any measure of harm in individual countries. Given evidence that the costs are likely to vary considerably between countries (see Chapters 4-6), the cost estimates are only presented for the EU as a whole. Recommendations for overcoming these limitations are mentioned briefly in the research recommendations within Chapter 10.

A second problem relates to the assumptions that are made in social cost studies (Single *et al.* 2003), including the different rates used for reducing future costs to present-day values. Most studies also treat the lost production due to alcohol-attributable unemployment as irreplaceable by other people without jobs, which is of debatable validity (Maynard, Godfrey, and Hardman 1994). A Danish study that instead assumed that these people are replaced after a period of 3 months produced a figure for this cost component that was 100 times lower, although the authors of the Danish study argue that the original assumption is more accurate in the current economic situation (Sundhedsministeriet [Ministry of Health] 1999).

A further problem results from applying the same logic as in the discussion on alcohol and employment above: in the absence of alcohol, the same money would be spent on another consumer good or service. However, it is clearly possible that spending on alcohol would be replaced by another good with a non-zero social cost. It is, therefore, recommended (cf. Chapter 10) that the same research that investigates the economic impact of changing alcohol consumption on the wider economy should examine the potential costs in consumer choices that replace alcohol.

Despite these continuing concerns, the number of potential harms that were not valued suggest that the figure is likely to be an underestimate of the true gross social cost of alcohol (although it is impossible to say whether the net cost figure is an under- or over-estimate given the omission of the social benefits below). The non-valued harms include impaired on-the-job productivity (Gjelsvik 2004), (although see tentative attempts in Single, Robson, and Xie 1996; Harwood, Fountain, and Livermore 1998; García-Sempere and Portella 2002; Jeanrenaud *et al.* 2003) a share of the crimes committed by people using *both* alcohol and drugs (Collins and Lapsley 2002; Pernanen *et al.* 2002), property damage from workplace accidents (Bergmann and Horch 2002; Eurostat 2004), employer costs and travel delays due to drink-

driving accidents (Miller, Lestina, and Spicer 1998; Miller and Blewden 2001), insurance administration costs (Collicelli 1996), social welfare payment administration (Harwood 2000; Harwood, Fountain, and Livermore 1998) (Salomaa 1995; Single, Robson, and Xie 1996) and lost productivity for several groups including prisoners, crime victims and carers (Salomaa 1995; Collicelli 1996; Brecht, Poldrugo, and Schädlich 1996; Harwood, Fountain, and Livermore 1998; Bergmann and Horch 2002).

### Social benefits

Although only a small number of the reviewed studies consider any of the social benefits of alcohol consumption (see also Box 3.3), the estimates above account for the health benefits of alcohol for two cost components. First, the intangible costs of lost life are based on Disability-Adjusted Life Years after accounting for the current health benefits of alcohol relative to a situation of no drinking, based on the Global Burden of Disease study (GBD; see Chapter 6). Second, the health costs use an adjustment based on a Swiss costing (Jeanrenaud *et al.* 2003) that calculated the current health benefits of alcohol consumption relative to a situation of light drinking.<sup>14</sup>

There are also several benefits that are not included in this study for methodological reasons:

1. **There may be ‘cost savings’ that arise from non-working people who die prematurely, so that they do not consume resources.** The implications of this have proved to be problematic if misinterpreted, as it could be taken to mean that the lives of people over around age 55 years are a net cost to society (Meltzer 1997).<sup>15</sup> This can be avoided by valuing life through people’s willingness to pay to change health risks (the intangible approach presented above) rather than simply by their contribution to the economy (the tangible approach).
2. **There may also be ‘cost savings’ in healthcare as people’s early deaths prevent them from getting a disease that is more costly to treat.** These ‘cost savings’ are particularly likely for preventing fatal diseases (Bonneux *et al.* 1998). One study has estimated that *eliminating* alcohol-attributable health harms would produce additional costs in nursing homes, although there would be savings overall in the health system (the savings being further increased due to the ‘cost’ of the health benefits of alcohol; Collins and Lapsley 2002). However, this method has only been used outside of Europe, is not compatible with the methods of the European studies reviewed, and is incompatible with other European level estimates such as for heart disease (Peterson *et al.* 2005) and tobacco (The ASPECT Consortium 2004).

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<sup>14</sup> The ideal comparison for examining the health benefits would be the lowest-risk level of alcohol consumption (i.e. the ‘nadir’, which is equivalent to ‘light drinking’ at some ages; see chapter 5). However, the closest potential adjustment to the cost estimates was to use the situation of light drinking in the Swiss study; furthermore, it was not possible to recalculate the GBD figures for this situation. Nevertheless, and as discussed in chapter 6, the difference between these alternative situations is much less for years of life lost than for numbers of deaths – this suggests that the effect of this discrepancy is likely to be relatively minor.

<sup>15</sup> Evidently most people over age 55 years are still in the workforce, but age 55 years is the point that – at least in the US – the expected *lifetime* resource use outweighs the expected *lifetime* production of an individual.

3. **Probably the main benefit of alcohol derives from the pleasure that people get from drinking it (see Chapter 4 and Leontaridi 2003).** While economists have devised theoretical methods for valuing this (Leontaridi 2003), there are some problematic assumptions relating to the nature of addiction (Easton 1997; Aslam *et al.* 2003) as well as substantial methodological difficulties in performing this calculation for alcohol (such that no European study that was reviewed has attempted it) (Collins and Lapsley 2002).
4. **There may be further external benefits of alcohol in terms of its ability to 'catalyse' social interactions and to help in the creation of social networks or social capital.** However, such benefits are generally anecdotal rather than supported by research; no study has attempted to attach a value to these, and it is unclear what methodological basis could underpin any such valuation (Leontaridi 2003).

### Economic analyses and policymaking

As implied by the previous discussion in this chapter, it must be remembered here that the social cost of alcohol should not simply be set alongside the economic role of alcoholic beverages (Lehto 1995; Leontaridi 2003). Even in the hypothetical situation examined by the costing studies (that alcohol disappeared overnight), the likely outcome depends on the size of the industry in question (Single *et al.* 2003). For small-scale production, it is reasonable to assume that resources will be re-used to a similar level in the medium- to long-term. For larger industries, there may be a noticeable detrimental impact on the national economy depending on whether the industry was a major exporter, whether consumption expenditure moves to a domestically produced replacement or not, and whether the substantial funds that are ploughed into wine production through the CAP were put to a labour-intensive use such as public services.

The social cost estimates above do however need to be considered alongside other economic analyses. As mentioned in Box 3.3, the social cost is not the same as the external cost – that is, the cost of someone's drinking to other people in society. This is based on a view taken from economic theory that governments should set a level of alcohol taxation so that the full costs of the decision to drink are accounted for in the price (Godfrey 2004). No European studies have calculated a cost on this basis, but studies do exist for other developed economies such as the US (Manning *et al.* 1989; Heien and Pittman 1993) and New Zealand (Barker 2002). It is difficult to explore the implications of these studies for the European situation, however, as the definition of what is an 'external' cost varies enormously, and also because drinkers' health costs are often a private cost in the US, while are predominantly publicly borne in Europe. One European study, from France (Fenoglio, Parel, and Kopp 2003), did, however, divide the total cost between different sectors of society, and found that the greatest costs were borne by private companies (48%), while drinkers and other households bore 38% and governments only 14%.

While externality studies are another useful tool for policymaking, they evidently omit any consideration of the broad range of costs borne by the individual drinker, and are most useful when conducted alongside rather than in place of the more common social cost studies. This is particularly true given two contentious results of the assumptions in many externality studies – first, that any harm within the household (such as to the drinker's partner, or children) is counted as a private cost; and second, that drinkers are both fully rational and fully informed of the risks when they

decide to drink (Collins and Lapsley 2002; Single *et al.* 2003). This does not necessarily mean that external costings will be lower than social costings however, as there are substantial costs that are *not* considered in a social cost study that should be calculated within an externalities study – in particular, the general class of ‘transfers’ of money that includes government social welfare expenditure.

### Health and economic success

Although cost-of-illness studies are a “*useful first step*” (Suhrcke *et al.* 2005) in demonstrating the size of the harms that are linked to a particular condition or risk factor, they suffer from a number of drawbacks in addition to their methodological weaknesses. These relate in particular to what they *do not show*, which as Box 3.3 suggests, covers a range of highly policy-relevant questions. Most of all, their counterfactual scenario of an alcohol-free world means that they say nothing about whether a given policy option will produce a social benefit or not.

Following on from this, it is important to treat an estimate of the social or external cost of alcohol as the start rather than the end of economic contributions to policymaking. As Collins and Lapsley (2000) have noted, further research should:

1. quantify the share of costs that can be avoided;
2. evaluate the policy investments that should be made to avoid them; and
3. monitor how effective the resulting policies have been in reducing costs.

Similarly, a recent report funded by the European Commission has noted that “*since human capital matters for economic outcomes and since health is an important component of human capital, health matters for economic outcomes*” (Suhrcke *et al.* 2005:9). This leads them to the similar conclusion that cost-benefit analyses of public health interventions “*would represent the ultimate and necessary step in order to enable a direct comparison of the returns to health investment with alternative uses of money*” (Suhrcke *et al.* 2005:14). In this context, the WHO programme on Choosing Interventions that are Cost-Effective (CHOICE) is one promising step in such a direction, and this is discussed at the end of Chapter 7.

## CONCLUSION

Alcohol is a major part of the social, cultural and economic life of European citizens, with the countries of Europe dominating the global alcohol market. Europeans are employed in the production, sale, and advertising of alcoholic drinks, and many European governments collect above 1% of their tax income from excise duties on alcohol. However, due to the relative inelasticity of alcohol consumption, the government’s alcohol tax revenue depends primarily on the level of taxation rather than the level of consumption (the effects of taxes being discussed further in Chapter 7). Furthermore, a crude analysis shows no strong effect of changes in consumption on the number of jobs in industries linked to alcohol (suggesting the effect may be relatively weak), while analyses from other fields suggest that the economic impact of changes in one consumer good depend on how consumers change their spending patterns. While further research is needed on this issue, it appears that changes in the consumption of alcoholic beverages will not necessarily have effects in the same direction on the economy as a whole, despite the size of the alcoholic beverages industry in many European countries.

There is a social cost attached to alcohol, with the tangible cost estimated at €125bn (€79bn-€220bn) in 2003, for the European Union as a whole. This is very similar to the social cost of tobacco in Europe (€98bn-€130bn in 2000). This does not take into account a value that people place on pain, suffering and life itself due to crime and lost healthy life due to alcohol, which has been estimated at €270bn (although different valuations of these intangibles produce a range of €150-760bn). Although these costs take into account the health benefits (largely from heart disease), they do not account for the social benefits of alcohol. Having considered the economic impact of alcohol, the next two chapters discuss the health impact of alcohol on individuals and on Europe as a whole.

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