



# **SPLITTING THE BILL: ALCOHOL'S IMPACT ON THE ECONOMY**

**AN INSTITUTE OF ALCOHOL STUDIES REPORT**

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## EXECUTIVE SUMMARY

Economic questions are central to the formation of alcohol policies, such as the setting of alcohol taxes, licensing requirements and marketing regulations. In particular, arguments around income, employment and trade are regularly used by the alcohol industry to resist measures to discourage consumption and harm. Such arguments are premised on the assumption that a successful alcohol industry is beneficial to the UK economy.

This report critically examines that assumption. It attempts to do three things:

- i. Collate the basic facts about the impact of the alcohol industry on the UK economy and how this has changed in recent years. This involves reviewing both the benefits (income, jobs, exports and taxes), and, as importantly, the costs (in terms of sickness, unemployment and deaths) that it generates.
- ii. Analyse how changes in alcohol consumption affect the economy – and in particular, determine whether reducing drinking is likely to have negative economic consequences.
- iii. Describe the likely effect on the alcohol industry of two major recent policy developments - the raising of the minimum wage and Britain's exit from the EU.

It finds little convincing evidence to suggest that lower spending on alcohol would harm the UK economy, and indeed offers some grounds to believe that reducing drinking could be of economic benefit.

## Alcohol's impact on the UK Economy: Benefits

### National Income

The alcohol industry is a small, but not insignificant, part of the UK economy, contributing £46 billion a year, around 2.5% of total GDP, to national income. This income is split evenly between the production (e.g. brewers, distillers) and retail (e.g. pubs, bars, supermarkets) of alcohol. Brewing beer for the domestic market (especially the on-trade), and distilling spirits for export are particularly significant economic activities in the UK.

**The UK alcohol market shrank by 5%** in real terms between 2004 and 2014, with lower per capita consumption and the shift of sales from pubs, bars and clubs to supermarkets and off-licenses contributing equally to this trend. If there had been **no shift in drinking from the on-trade to the off-trade**, this would be worth £6 billion to the UK alcohol market, and would have **prevented any decline in revenue**.

### Employment, Wages and Productivity

We estimate that the alcohol industry is responsible for around 770,000 jobs, around 2.5% of all UK employment, the vast majority (506,000) of which are in pubs, clubs and bars. Such on-trade jobs are typically part-time and poorly paid: only a third of employees have full-

time positions, and their **median wage of £6.82 is the second lowest of all occupations** tracked by the Office for National Statistics. By contrast, alcohol producers provide relatively few jobs (fewer than 30,000), but these tend to be better paid, with average wages exceeding £16 per hour.

These differences in wages reflect the fact that the manufacture of alcohol has higher productivity than its sale, as a result of the high mechanisation of breweries and distilleries. However, productivity appears to have fallen in both sectors since 2011.

Despite pub closures, employment has been relatively resilient: **full-time jobs in pubs rose by 7%** between 2009 and 2014, though there are fewer part-time positions, and employment in bars and clubs has fallen.

It is sometimes argued that the alcohol industry is a particularly important employer in poorer or rural areas with few alternative sources of jobs. However, there are only seven local authorities where the alcohol producers account for more than 1% of jobs, and we find **no systematic relationship between an area's prosperity and its dependence on alcohol industry employment.**

## Trade

The UK has a small surplus in alcohol trade of £1.7 billion, almost entirely attributable to the export of spirits. However, this accounts for just 2% of the country's overall current account deficit.

## Government Finances

The Government raises £11 billion in tax revenue from alcohol excise duty in England. A lack of reliable figures means it is difficult to compare this against the cost of alcohol to the taxpayer, which likely ranges between £8-12 billion.

## Alcohol's impact on the UK Economy: Costs

Unlike most other products, the sale of alcohol also carries a number of costs to the UK economy, due to the health and social problems associated with its consumption:

- **Presenteeism:** Though quantifying its prevalence and magnitude is tricky, evidence suggests that alcohol consumption reduces people's productivity at work.
  - 28% of UK workers admit going to work hungover, and most believe this negatively affected their performance.
- **Absenteeism:** A number of studies have found that high levels of drinking, particularly in men, is linked to higher rates of absence from work.
  - An Australian study found high risk drinkers are 53% more likely to be absent from work on any given day.
  - Studies from Sweden and Norway show that a one litre increase in total per capita alcohol consumption is associated with a **13% increase in absence in men.**

- **Unemployment:** A number of studies have found that heavy drinking is associated with a higher risk of unemployment.
  - The most prominent UK study suggests that being a problem drinker is **equivalent to the effect of not having a degree** on a person's chances of finding work.
- **Premature Death:** Alcohol-related deaths reduce the size of the labour force.
  - It has been estimated that **167,000 years of working life were lost** in England in 2015 due to alcohol, 16% of all working years lost.

Quantitative estimates of these costs are of limited reliability, but established government methodologies suggest they are **in the range of £8-11 billion (0.4-0.6% of GDP)**.

These narrow economic costs account for a fraction of the **total societal harm** associated with alcohol – including healthcare and crime costs. **These wider costs have been estimated to range between £21-52 billion.**

## The Effect of Lower Alcohol Consumption on the Economy

Reducing the harm associated with alcohol is likely to involve lower consumption. For example, the World Health Organization has recommended per capita consumption as one of the key indicators of its target of a 10% reduction in the harmful use of alcohol.

Such a prospect might cause alarm on economic grounds. However, there is **little reason to believe lower alcohol consumption would have a negative effect on the economy** – indeed, it may boost national income. Lower alcohol consumption may not have any economic impact, if people maintain their spending on alcohol by buying more expensive drinks – as we have shown, recent falls in consumption would have had no impact on industry revenue if drinkers had not shifted from pubs to supermarkets.

Yet even if spending on alcohol declines, **spending on other goods is likely rise to compensate and so boost other industries** – the net effect of this shift to the alcohol industry and gain to other sectors is ambiguous.

In the 'long run' (when productive capacity is the main constraint on the economy) lower alcohol consumption is **likely to have a positive effect** by boosting productivity and labour supply, by reducing absenteeism, presenteeism, unemployment and premature mortality.

In the '**short run**' (when a shortage of demand is the main constraint on the economy), the **effect is more uncertain** and depends critically on what products are substituted for alcohol. Without a detailed and rigorous modelling exercise, this is impossible to discern with any confidence, though:

- modelling in the US suggests lower alcohol spending can raise employment.
- the Office for National Statistics' economic multiplier estimates suggest a 10% decrease in alcohol spending could increase or decrease national income by at most £1 billion.

The Office for Budget Responsibility's analysis suggests that the **long run effects are more relevant to the UK economy at the present time.**

Such theoretical arguments are bolstered by the lack of empirical evidence to suggest that lower alcohol spending is bad for the economy. Indeed, in the only relevant academic study, **econometric analysis of US states suggests that a 10% increase in per capita consumption is associated with a 0.4% decrease in per capita income growth.**

Taken together, these indicators suggest that **the impact of even a large shift in alcohol consumption on the economy is likely to be small** – a fraction of a percentage point of GDP.

The effect of a shift in spending away from alcohol has similarly ambiguous implications for employment in the short run, but should boost employment in the long run by increasing labour force participation.

How alcohol consumption is reduced may be as economically consequential as how much it falls by. In the short run, maintaining spending in the on-trade is more important for employment; but in the long run, the higher productivity in the off-trade is more salient. Different alcohol policies affect different segments of the industry differently – for example, a minimum unit price would discourage drinking in the off-trade, but most likely have little effect on the on-trade.

## Recent Policy Developments

The national living wage will have a particularly significant effect on the on-trade, given the relatively low wages that are standard in the industry. It is likely to lead to price rises in pubs, bars and clubs, which could well exacerbate the shift towards supermarkets.

There remains significant uncertainty over the implications of Britain's exit from the EU for the alcohol industry, in terms of trade access, the ability to employ migrant workers and future regulations.

## INTRODUCTION

A simplistic view of government alcohol policy sees it as trying to balance two sets of objectives: health and safety on one hand, and financial and economic considerations on the other.<sup>1</sup> On this view, measures such as taxing alcohol, licensing its sale and regulating its marketing involve taking steps to reduce the death, injury and disease associated with drinking, while simultaneously trying to minimise loss of the jobs, wages, exports, tax and profits associated with the alcohol industry. In cabinet, we can imagine this tension playing out in terms of the Health and Home Secretaries arguing for measures to reduce drinking, while the Chancellor and Business Secretary try to encourage it.

This picture is clearly too crude (not least because it excludes any consideration of individual freedom or pleasure, or the numerous other issues at stake), but it reflects a common framing of the debate. In particular, the ground of the economy is often ceded by public health advocates as the terrain of the industry. Consequently, it is sometimes taken for granted that lower alcohol sales would be economically harmful. For example, last year, the British Beer and Pub Association responded to a reported 1.5% decline in the beer market by calling for lower beer duty in order to “safeguard jobs” and protect a “fragile recovery”.<sup>2</sup>

Yet it is far from obvious that the government should be in the business of supporting the beer industry. If people do not spend money on beer, they will buy other products, and other industries will prosper as a result, creating jobs and paying wages elsewhere. Is there any reason to be concerned about the beer, or alcohol, industry specifically? Moreover, alcohol also has potential negative effects for the economy that most other commodities do not – as a result of drinking, workers risk premature death, unemployment, absence and lower productivity at work.

This report attempts to address these issues by providing a balanced analysis of the economics of alcohol policy. It comprises three sections. The first provides an overview of the role that the alcohol industry plays in the British economy, and the costs and benefits that it generates. It finds that alcohol accounts for a small but not insignificant share of British GDP – 2.5% - and that this output is shared fairly evenly between production (primarily breweries and distilleries) and retail (pubs, bars, clubs, restaurants, hotels, supermarkets and off-licenses). However, employment is dominated by retailers, which we estimate account for over two-thirds of all UK alcohol industry jobs. These jobs are typically part-time, poorly paid and relatively unproductive, and overwhelmingly held by younger workers. By contrast, relatively few jobs are in manufacturing, but these are more secure and better paid.

On the other side of the scales, section I also looks at the negative effects of drinking to the economy, finding persuasive evidence it reduces productivity by causing people to miss work through sickness or rendering them less effective (for example, because of hangovers). There is also strong reason to believe that alcohol has a negative effect on the labour force, as heavy drinkers find it hard to find and maintain a job, and in the most extreme cases, die prematurely. These costs are difficult to quantify precisely, but established government

1 Room, R. (1999), The idea of alcohol policy, *Nordisk Alkohol & Narkotikatidskrift* 16 (English Supplement), p8.

2 British Beer & Pub Association (2016), Budget 2016 – latest UK beer sales figures show pressing need for another cut in beer duty, says BBPA. Available from: <<http://bit.ly/2l6Oohh>>. [Accessed 11 October 2016].

methodologies imply they are in the order of £8-11 billion a year (accounting for a substantial share of the total social costs of alcohol, estimated to range between £21-52 billion).

The first section further explores the alcohol industry's effects on regional and international economic balances, showing that alcohol exports make a modest contribution to reducing the UK's current account deficit, and finding no evidence that the industry reduces regional inequalities. The impact of alcohol on the government finances, in terms of raising taxes and causing expenditure, is also discussed: though reliable figures are hard to come by, the costs from alcohol to the public purse are probably slightly less than it generates in taxes (though it is important to remember that alcohol taxes seek not just to cover the cost to the Treasury, but also ought to account for wider costs to society).<sup>3</sup>

The second section attempts to draw out the policy implications of the first. It primarily addresses the question of how the British economy would be affected by a change in alcohol consumption. It points out that it is possible there may be no effect on alcohol industry revenue, if people simply buy fewer, more expensive drinks, but then goes on to look at the impact of a fall in spending. It argues that lower alcohol spending is likely to be good for the economy in the long run, boosting productivity and so growth. Conversely, higher drinking would probably restrain productivity growth. In the short run, the effects are more ambiguous, depending crucially on what the money spent on alcohol would otherwise be used for – without greater certainty on that, the effects are fundamentally unknowable.

Section II also looks at the macroeconomic effects of encouraging or discouraging different forms of drinking. It finds that drinking in pubs, clubs and bars (rather than buying alcohol in shops and supermarkets to drink at home) causes less short term disruption to the industry and encourages employment, but typically in low wage, low productivity sectors. Spirits, beer and cider stimulate the domestic economy, but generate less tax than wine, which is typically imported but taxed at a higher rate than other drinks.

Finally, section III looks at the impact of two major policy changes that are not directly targeted at the alcohol industry: the National Living Wage and Britain's exit from the European Union. It finds that both of these are likely to have a significant disruptive effect.

Most of the analysis in this report refers to the year 2014, as this is the most recent available year for many metrics. In some cases, we have chosen to use 2014 rather than 2015 data to ensure comparability across sections.

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<sup>3</sup> Bhattacharya, A. (2016), *Dereliction of Duty: Are UK alcohol taxes too low?*. London: Institute of Alcohol Studies.

This is a report about the economic effects of alcohol. It is worth emphasising what a narrow brief that is. Alcohol has devastating health consequences, contributing to over one million hospitalisations each year<sup>4</sup> and accounting for 10% of the UK burden of disease and death.<sup>5</sup> It is a major driver of crime, implicated in around half of all violent attacks.<sup>6</sup> It goes without saying that these are undesirable consequences, but from a purely economic perspective, they simply move resources around, meaning the country spends more on healthcare and law enforcement and less on other goods and services. To reduce the debate around alcohol policy to a purely economic one and ignore these facts would be callous and inappropriate. Economics can only ever be part of the story. This report attempts to get that part straight.

## Key Definitions and Measures

The **alcohol industry** here refers to all businesses involved in the production and sale of alcohol. This includes, but is not limited to: farmers, distilleries, breweries, packaging manufacturers, distributors, wholesalers, pubs, bars, clubs, restaurants, hotels, supermarkets and off-licenses.

The concept of **the economy** used in this report is more difficult to define precisely. In the broadest terms, it refers to the material wellbeing of the country, or more simply how rich we are. The key measure of the performance of the economy is national income, output, or GDP (Gross Domestic Product). These all refer to the same thing: the total value of goods and services produced in a country.

**Economic growth** refers to the rate at which GDP is increasing – the rate at which the country is getting richer.

Given the key social and financial difficulties associated with joblessness, the rate of unemployment is the other critical indicator which this report will focus on. In the long term, a number of other factors influence the economy, including productivity, trade balance and the government's deficit and debt – these will also be considered.

4 HSCIC (2016), Statistics on Alcohol England, 2016, p2.

5 Balakrishnan, R. et al (2009), The burden of alcohol-related ill health in the United Kingdom, *Journal of Public Health* 31:3, pp366-73.

6 Office for National Statistics (2016), Nature of Crime Tables Year Ending March 2015. Available from: <<http://bit.ly/2kj2We4>>. [Accessed 13 December 2016].

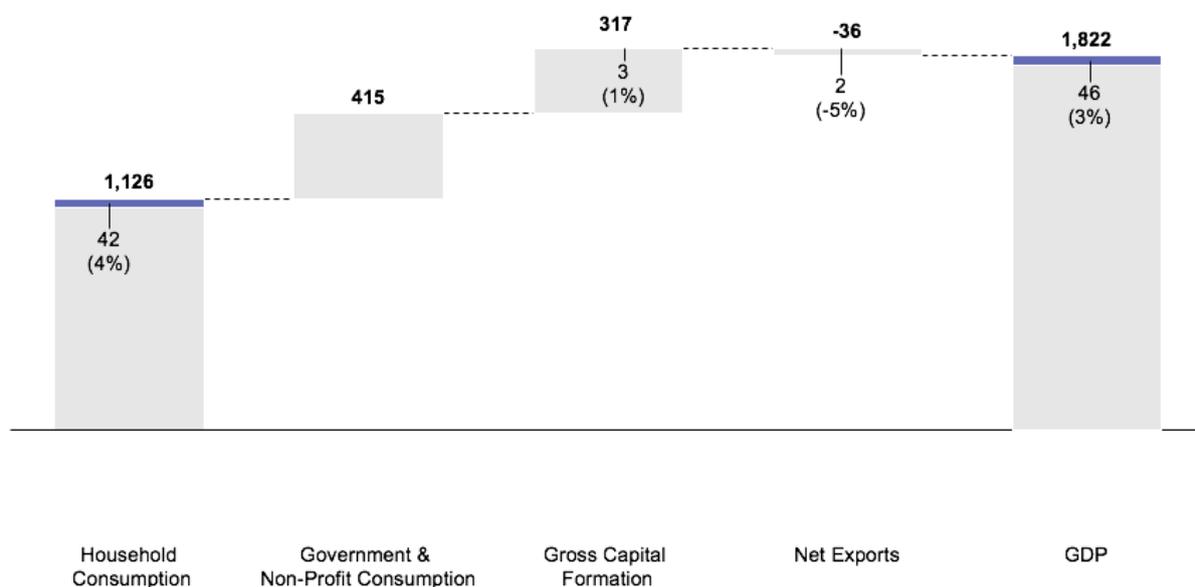
# SECTION I: ALCOHOL'S IMPACT ON THE UK ECONOMY

## National Income

### Overview

The alcohol industry is a small, but not insignificant part of the UK economy, representing around 2.5% of GDP and 3.7% of consumer spending. In other words, £2.50 in every £100 earned in the UK as a whole comes from alcohol. Estimates of the precise value of this activity vary, but we believe that production and sale of alcohol was worth £46 billion to the UK economy in 2014.<sup>1</sup>

**Figure 1: Alcohol Industry's Share of UK GDP, 2014 (£billion)**

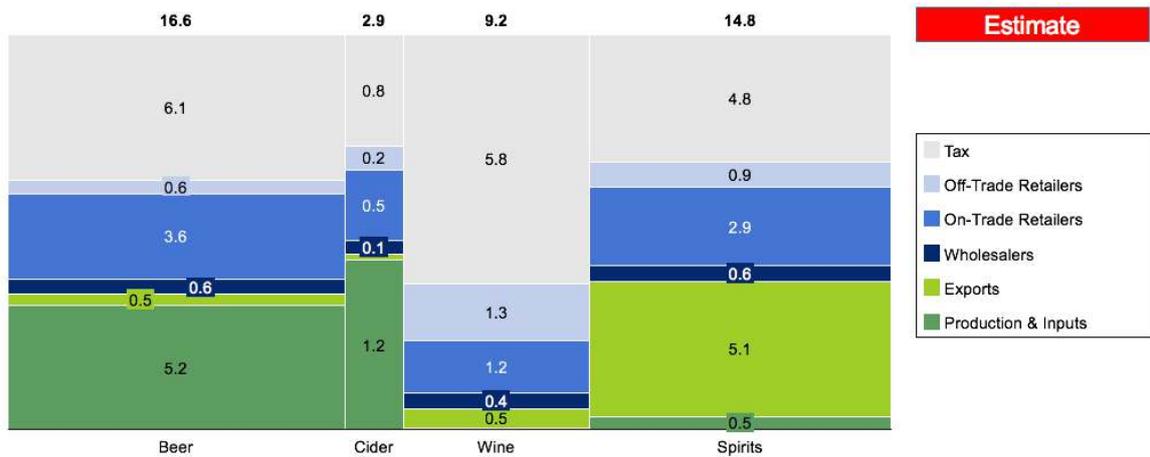


Source: ONS Blue Book, MESAS Alcohol Retail Sales Dataset, ONS Supply & Use Tables, ONS Annual Business Survey, IAS analysis

Figure 2 maps out how different products and services contribute to producing this economic value. We have had to make a number of assumptions (outlined in appendix A) to reach these figures, particularly the split between on-trade, off-trade and producers, so these estimates may not be precisely correct. However, we believe they offer an accurate guide to approximate value share of each activity.

<sup>1</sup> Appendix A explains how this figure was estimated.

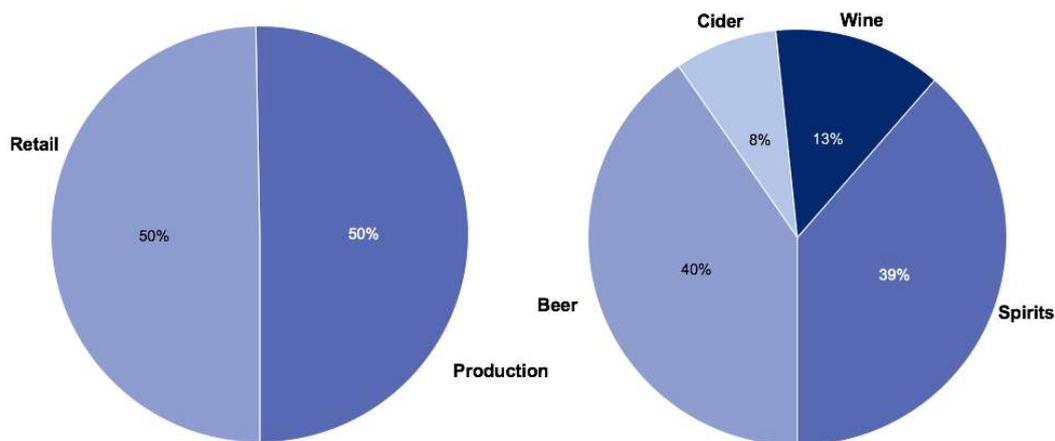
**Figure 2: UK Alcohol Industry Value Added, 2014 (£billion)<sup>2</sup>**



Source: MESAS Alcohol Retail Sales Dataset, HMRC Alcohol Bulletin, ONS Annual Business Survey, HMRC uktradeinfo, IAS analysis

There are a number of noteworthy points in figure 2. Firstly, the UK makes as much money from selling as from producing alcohol (see figure 3). This is because a large share of the economic value of the alcohol industry comes from pubs, bars and clubs, where consumers are paying as much for the environment as for the drinks they consume.

**Figure 3: Share of Non-Tax UK Alcohol Industry Value, 2014**



Source: MESAS Alcohol Retail Sales Dataset, ONS Annual Business Survey, HMRC uktradeinfo, IAS analysis

Second, within retail, the off-trade (supermarkets and off-licenses) retains little of the market's value, even though it sells a larger quantity of alcohol than the on-trade. This is because the off-trade mainly provides a cheap and convenient location to buy alcohol, but adds little value to the product itself, which is why people continue to pay a premium to go to pubs, clubs and bars.

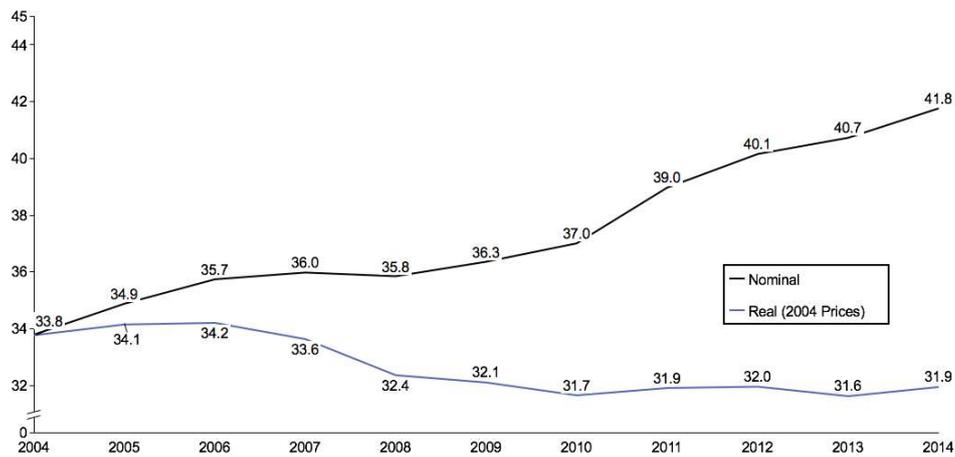
Third, the vast majority of the economic value of alcohol production in the UK comes from two different activities: brewing beer for the domestic market (largely to be sold in the on-trade) and distilling spirits for export (predominantly Scotch whisky). Consequently, beer and spirits each account for around 40% of the UK alcohol industry (see figure 3).

2 Excludes Gross Capital Formation. See Appendix A for methodology.

## Recent Trends

The domestic UK alcohol market has been stagnant for a number of years. Adjusting for inflation, spending on alcohol has fallen since 2006 (see figure 4).

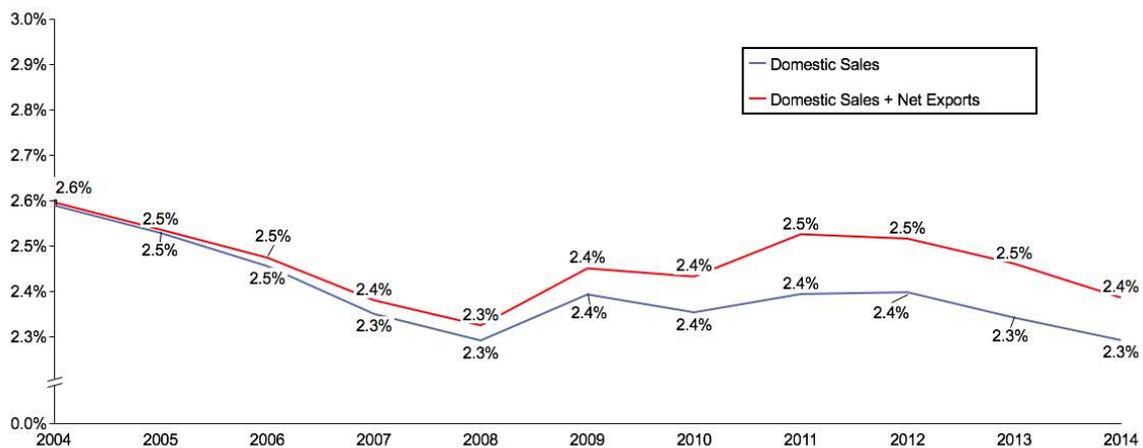
**Figure 4: UK alcohol spending (£billion)**



Source: MESAS Alcohol Retail Sales Dataset, ONS Consumer Price Inflation, IAS analysis

Growing exports have, to a small extent, mitigated falling domestic revenue, but overall the position of alcohol in the UK economy has deteriorated over the past 15 years. In 2001, British people spent 2.6% of GDP on alcohol, but by 2014 this had dropped to 2.3% (see figure 5). Adding net exports (that is, exports minus imports) adds 0.1% to this figure, and softens the fall, but does not change the long-term trajectory. Note that the apparent recovery in 2009 in figure 5 is merely an artefact of the recession – the relative position of alcohol improved because spending on other goods and services fell more sharply.

**Figure 5: Alcohol Industry as a % of UK GDP**



Source: MESAS Alcohol Retail Sales Dataset, ONS Gross Domestic Product at Market prices, IAS analysis

Adjusting for inflation, between 2004 and 2014, the UK alcohol market shrank by 5%. Two trends have made an almost equal contribution to this decline: people are drinking less, and

people are shifting their drinking to the off-trade. The former is more widely recognised – between 2004 and 2014 annual alcohol consumption in Great Britain fell from 10.5 litres to 9.2 litres per adult, a 13% decline.<sup>3</sup> However, this decline may have gone into reverse: per capita consumption rose in 2014 and 2015, but remains well below its peak.<sup>4</sup>

The shift of consumption from the on-trade to the off-trade has been no less stark. In 2004, 57% of all alcohol was sold in the off-trade – by 2014, this had risen to 69%.<sup>5</sup> Given the higher price of alcohol in the on-trade, this represents a significant revenue loss. If the 12% of the market that had moved to the off-trade had not done so, it would be worth £6 billion to the alcohol industry in 2014, without any change in the level of consumption. The shift from on-trade to off-trade has been as important as lower levels of drinking in weakening the alcohol market – we estimate that it has caused at least an 11% decline.<sup>6</sup>

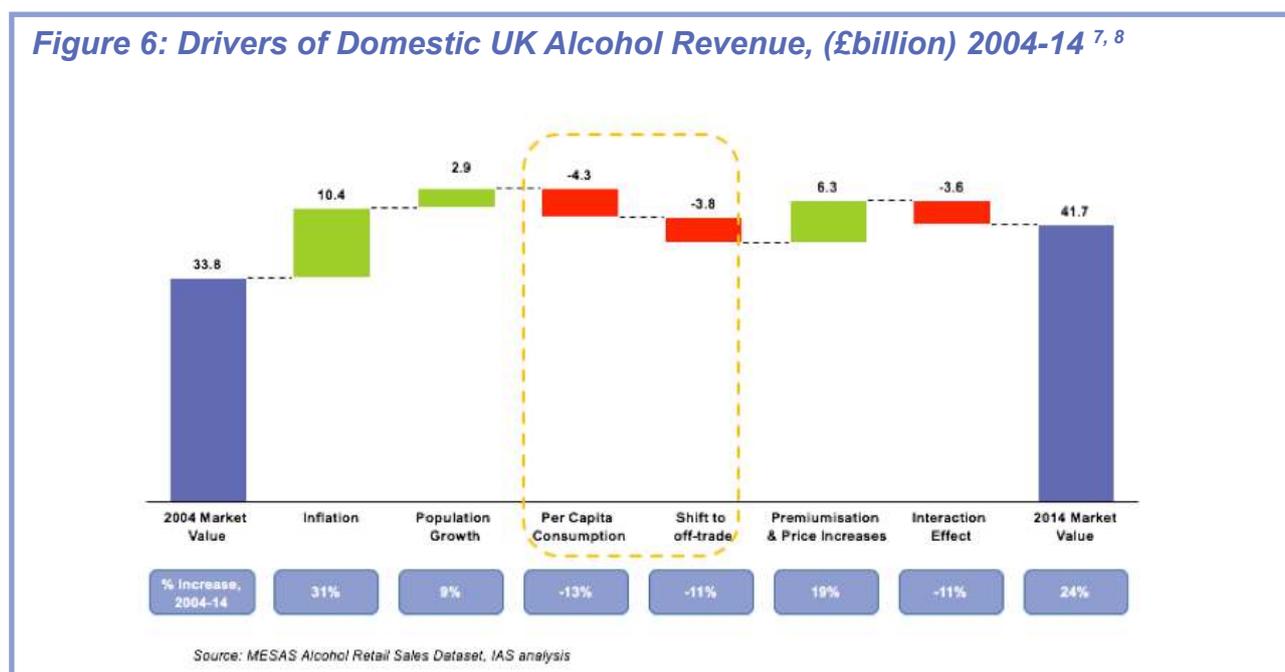


Figure 6 puts these elements together to tell the story of the UK alcohol market between 2004 and 2014. The tailwinds of inflation and population growth should have boosted the market by £13 billion in that period, but in actual fact, the market grew by only £8 billion: a real-terms (i.e. inflation-adjusted) decline. This is because of lower per capita consumption and the shift to the off-trade, which each contributed £4 billion to the decline. However, the industry has succeeded in mitigating these trends by increasing the price paid per litre of alcohol above the rate of inflation – both through ‘premiumisation’ (encouraging

3 NHS Health Scotland (2016), Alcohol retail sales dataset 1994 to 2015 – May 2016, MESAS alcohol sales and price update May 2016. Available from: <<http://www.healthscotland.com/documents/27345.aspx>>. [Accessed 11 October 2016].

4 Ibid.

5 Ibid.

6 The discrepancy between the £6 billion figure cited here and the £3.8 billion used in figure 6 is due to the fact that the £6 billion is based on 2014, rather than 2004 data. The smaller figure is in 2004 prices, and so does not include the 31% inflation between 2004 and 2014. It also uses the price premium between on and off-trade from 2004, which was significantly smaller than the price premium in 2014. In other words, the ‘missing’ £2.2 billion is allocated to inflation and interaction effect in figure 6.

7 See appendix C for methodology.

8 The interaction effect accounts for the fact that these changes did not occur in isolation, and so influenced one another. As note 6 above shows, there is a difference in the size of the shift to off-trade effect, depending on whether we calculate in 2004 or 2014 prices. Similarly, the full effect of lower per capita consumption is understated if we use 2004 or 2014 average expenditure per unit.

consumers to trade-up to more expensive drinks) and like-for-like price increases. In fact, figure 5 suggests that population growth and premiumisation/price increases more than make up for the loss of revenue due to lower consumption. In other words, *the industry would still be in growth if it weren't for the shift to the off-trade.*

## Employment

### Overview

Estimating the number of alcohol industry jobs in the UK is a tricky task because of the difficulties of precisely allocating jobs to different industries. In the broadest terms, there are three types of occupation that might be included:

1. Jobs involved in the production of alcohol e.g. brewer, distillery production manager
2. Jobs involved in the sale of alcohol e.g. barman, restaurant waiter, hotel staff
3. Jobs supplying inputs and services to alcohol producers and retailers e.g. farmer, packaging manufacturer, advertiser

The first group of jobs (in breweries, distilleries etc.) should obviously be included. The second and third groups are trickier, since they are not solely focused on alcohol but also support the production and sale of other products. We may be happy to consider the majority of pub jobs as part of the alcohol industry, even though they also involving serving food. However, it would be misleading to include all jobs in licensed restaurants and hotels, since these roles are not primarily devoted to selling alcohol. In these cases, we have allocated a proportion of jobs to the alcohol industry, in line with share of revenue attributed to alcohol. So, for example, since we estimate 6% of restaurant revenue comes from alcohol, we attribute 6% of restaurant jobs to alcohol. We apply the same process to group 3, so that a certain number of construction, advertising etc. jobs are linked to the alcohol industry, in line with the amount of work those sectors do for the alcohol industry. Within the alcohol industry, we have split jobs between beer, wine, spirits and cider in line with the revenue each of those generates.

It has been argued that estimates along these lines can be misleading, as they oversimplify the relationship between demand for products and employment.<sup>9</sup> For example, we should be wary of suggesting that lower alcohol consumption will necessarily lead to substantial job losses in the pub sector. This may not be the case because, say, additional food sales may compensate for the drop in demand. Nevertheless, the method described above can give us an indication of the scale of employment in the alcohol industry.

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<sup>9</sup> Godfrey, C. & Hardman, G. (1987), Data Note – 11. Employment in the U.K. Alcohol and Tobacco Industries, British Journal of Addiction 82:10, p1165.

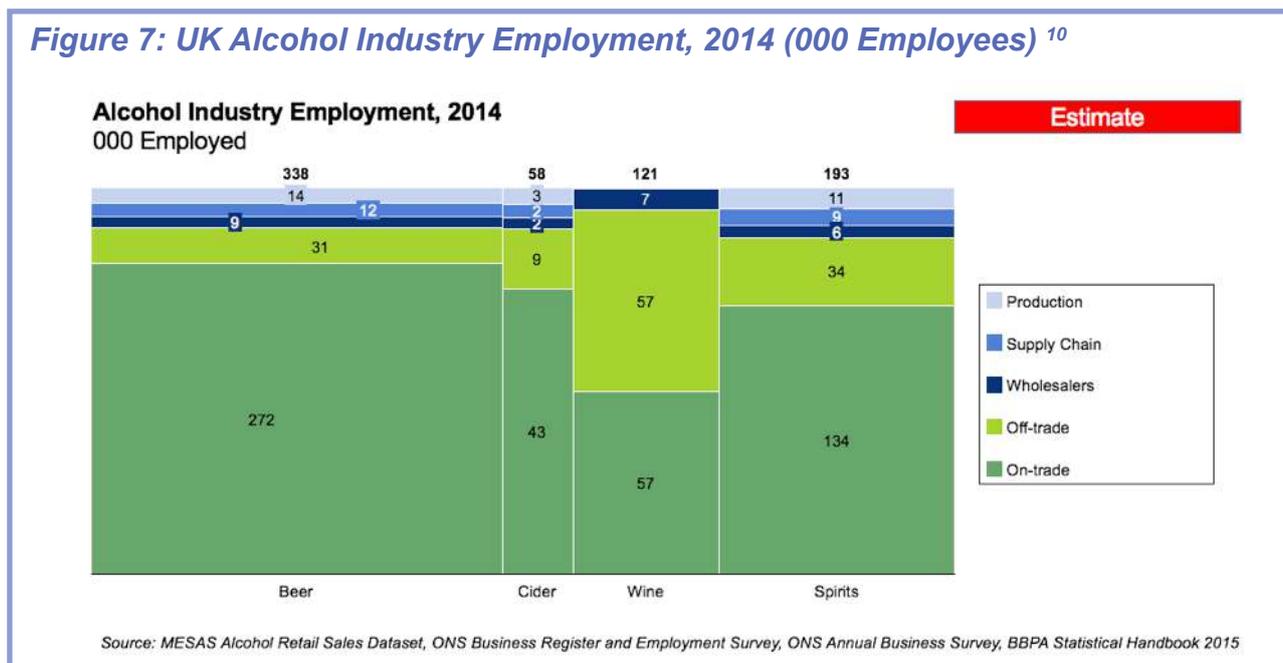
**Figure 7: UK Alcohol Industry Employment, 2014 (000 Employees)**<sup>10</sup>

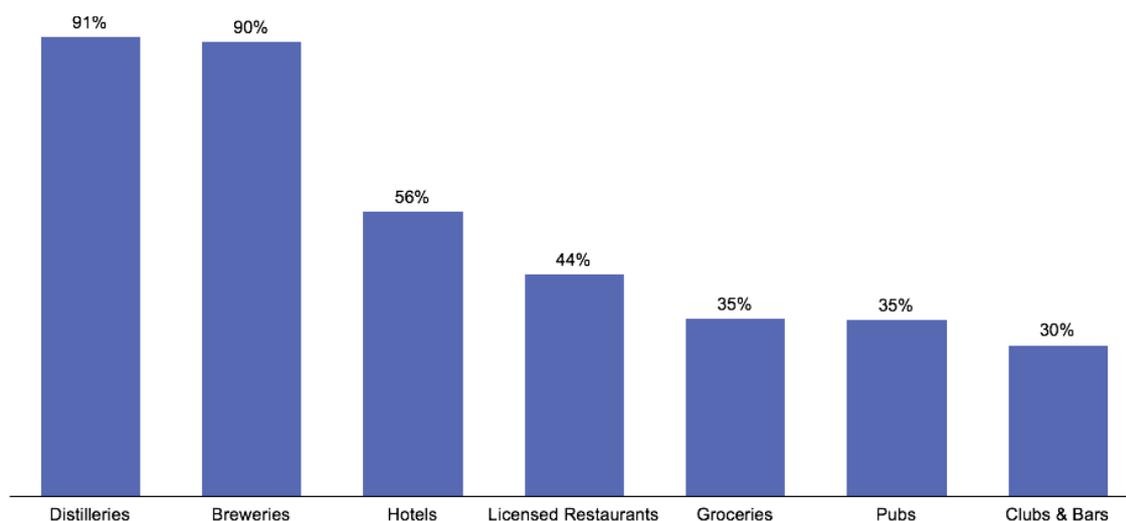
Figure 7 provides our estimate of the number and distribution of jobs. It shows that relatively few people are involved in the direct manufacture of alcohol – fewer than 30,000 in total, mostly in breweries and distilleries. By contrast, the vast majority (over 80%) of alcohol industry jobs are in retail, and specifically retail in the on-trade (which accounts for two-thirds of all alcohol industry jobs). 490,000 people are employed by pubs, clubs and bars, and most of these jobs can be linked to alcohol.<sup>10</sup> Reflecting its close association with pubs, almost half of all alcohol industry jobs are related to the production and sale of beer.

In total, we estimate that the alcohol industry is responsible for 770,000 UK jobs. This means that it accounts for 2.5% of all jobs, more or less in line with its share of GDP.

It is interesting to contrast figure 7 with figure 2, to see that for similar levels of output, retailers employ many more people than producers. This reflects the fundamental differences in their production techniques. Breweries and distilleries are highly mechanised, and so employ only a small number of relatively skilled, well-paid and highly productive workers. Retail (and on-trade retail in particular) is far more labour-intensive, and so employs vast numbers of low-skilled, poorly paid, relatively unproductive workers.

The first point to make in comparing employment in alcohol production and retail is that the majority of retail jobs are part-time. Only a third of jobs in pubs are full-time, with an even smaller proportion in clubs and bars (see figure 8). Similarly, a majority of jobs in licensed restaurants and grocery stores are part-time, along with just under half of hotel positions. By contrast, over 90% of roles in breweries and distilleries are full-time.

<sup>10</sup> ONS, Business Register and Employment Survey.

**Figure 8: Proportion of Jobs that are Full-time by Industry, 2014**

Source: ONS Business Register and Employment Survey

Jobs in pubs, clubs and bars are among the lowest paid in the British economy. With a median hourly wage in 2015 of £6.82, of the hundreds of industries tracked by the ONS, only retail sales via stalls and markets pays worse.<sup>11</sup> Notably, this is below the National Living Wage for over 25s of £7.20 per hour introduced by the Government in April 2016.<sup>12</sup> 60-70% of those employed in pubs, clubs and bars were paid below the incoming adult National Living Wage a year before its adoption (though many of them were too young to qualify for this rate). Though this low level of wages is partly a function of the number of part-time jobs in the sector, the median wage for full-time employees in the sector is still relatively low at £7.59.<sup>13</sup>

Pay for workers in other retail channels is also low. The median wage in the restaurant industry is identical to that in pubs, clubs and bars – also £6.82. Hotels pay slightly more at £7.35 per hour. The off-trade is not much better. The median wage for employees of stores specialising in drinks is £7.00, while general grocery stores pay an average wage of £8.07. These are all well below the national average of £11.80, and the service-sector average of £11.53.

By comparison, alcohol production is relatively well remunerated. Median pay in breweries is £18.02 an hour, well above the national average, and even the average for manufacturing – £12.88.<sup>14</sup> Distilleries pay only slightly less on average, £16.31. In both industries, over 90% of employees are paid more than £8.00 – that is, above the retail average.

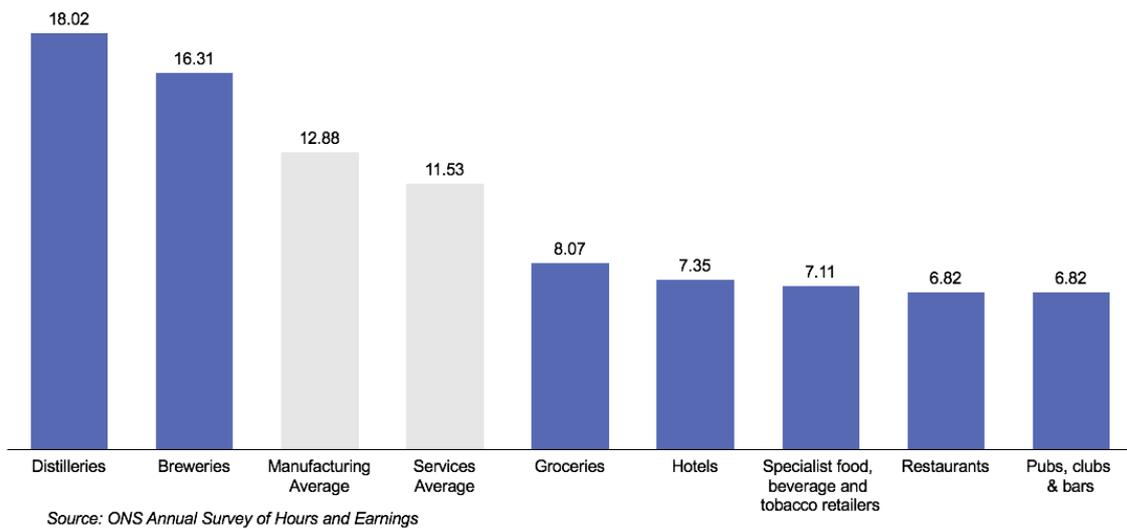
11 ONS (2015), Industry (4 digit SIC) – ASHE: Table 16.5a. Available from: <<http://bit.ly/2kZnfKE>>. [Accessed 11 October 2016].

12 Gov.uk (2016), National Minimum Wage and National Living Wage rates. Available from: <<https://www.gov.uk/national-minimum-wage-rates>>. [Accessed 11 October 2016].

13 ONS (2015), Industry (4 digit SIC) – ASHE: Table 16.5a, op. cit.

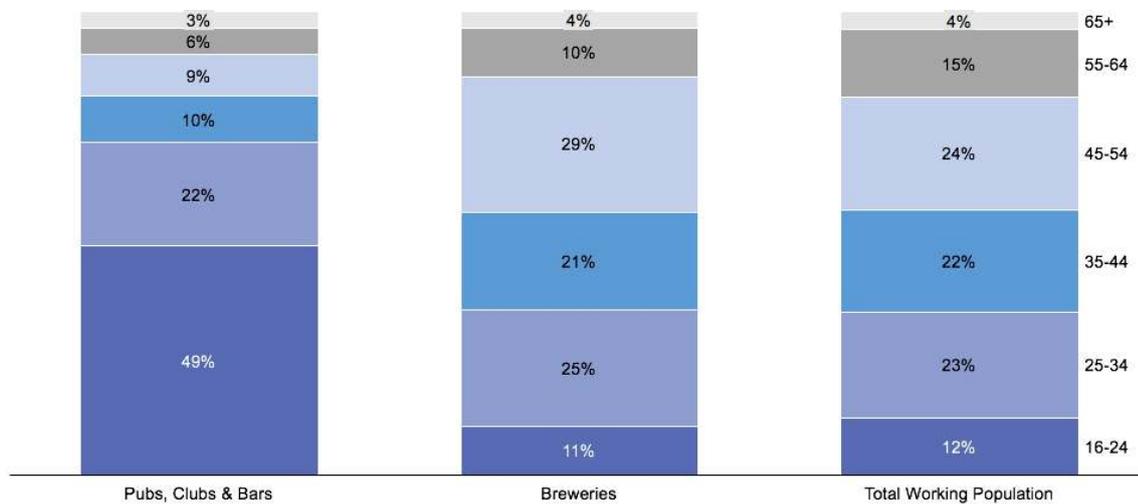
14 Ibid.

**Figure 9: Median Gross Hourly Wage (£), 2014**



The bulk of alcohol retail jobs are held by younger workers. Almost half of those working in pubs, clubs and bars are under 25, and nearly three-quarters under 35. 16-24 year olds account for only a slightly smaller share of restaurant jobs (40%), and grocery store workers are also younger than average (26% 16-24 compared to 12% in the total working population).<sup>15</sup> By contrast, the alcohol production workforce is much more representative of the working population as a whole (see figure 10).

**Figure 10: Age of Workers by Industry, 2014**



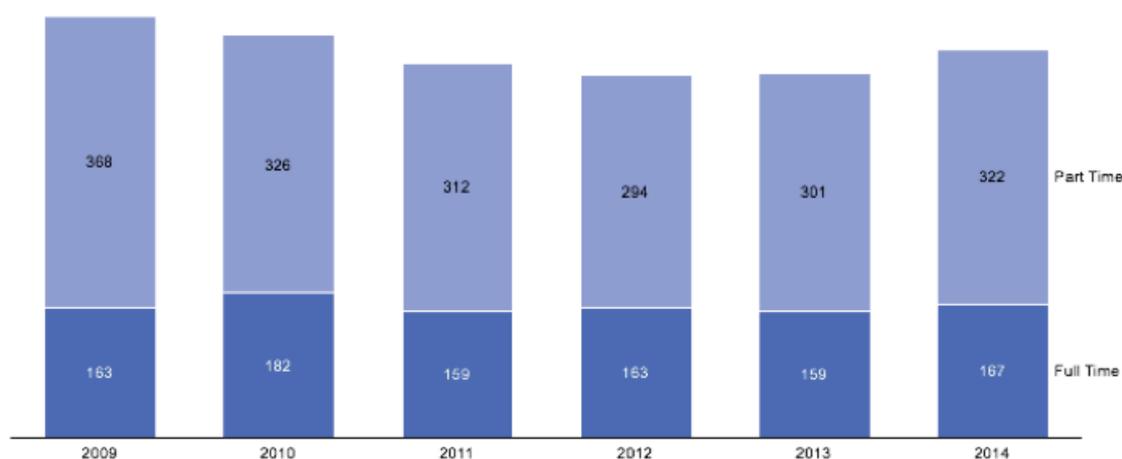
<sup>15</sup> ONS (2016), User requested data: 4 digit occupation and 4 digit industry by age bands in England, Wales, Scotland, Northern Ireland and UK and Gb totals: Jan to Dec 2015. Available from: <http://bit.ly/2kBKsSg>. [Accessed 11 October 2016].

## Recent Trends

Falling alcohol consumption in the on-trade has led to an increasingly difficult trading environment for pubs, clubs and bars, leading to many closures. According to the ONS, their number has fallen from nearly 50,000 in 2008 to just over 39,000 in 2014, a decline of some 21%.<sup>16</sup>

However, the employment impact of this decline has been less severe than might have been expected. Full-time jobs have been remarkably resilient, and in fact, between 2009 and 2014 the number of full-time employees in pubs, clubs and bars *increased* by 2%. Instead, job losses have tended to be in part-time positions, which fell by 13% between 2009 and 2014.<sup>17</sup> Though changes in survey methodology mean that data prior to 2009 not directly comparable, national statistics suggest a similar picture since the turn of the century: a shift towards more full-time employment, and cuts to the number of part-time jobs.<sup>18</sup>

**Figure 11: Employment in Pubs, Clubs and Bars (000 Employees)**



Source: ONS Business Register and Employment Survey

It is also notable that job losses have been far more severe in bars and clubs than in pubs. Between 2009 and 2014, employment in bars and clubs fell from 110,000 to 75,000 – a drop of 31%, with reductions in both full and part-time jobs. By contrast, pub jobs only fell by 2% overall from 422,000 to 414,000. The number of full-time jobs in pubs increased by 7% over the period.<sup>19</sup>

Employment in other hospitality industries has also been growing – the number of jobs in licensed restaurants rose 17%, while employment in hotels rose by 14% between 2009 and 2014, with strong growth in both part-time and full-time positions.

Meanwhile, alcohol manufacturing employment has been fairly stable, rising slightly (4%) between 2009 and 2014. However, this aggregate number masks a shift from breweries,

<sup>16</sup> ONS, Annual Business Survey.

<sup>17</sup> ONS, Business Register and Employment Survey.

<sup>18</sup> ONS, Annual Business Inquiry.

<sup>19</sup> ONS, Business Register and Employment Survey.

where the number of jobs fell by 4%, to distilleries, where the number of jobs rose by 10%.<sup>20</sup> It should be noted, though, that these trends have not been consistent year on year, and that employment in both industries has fluctuated year-on-year over the period.

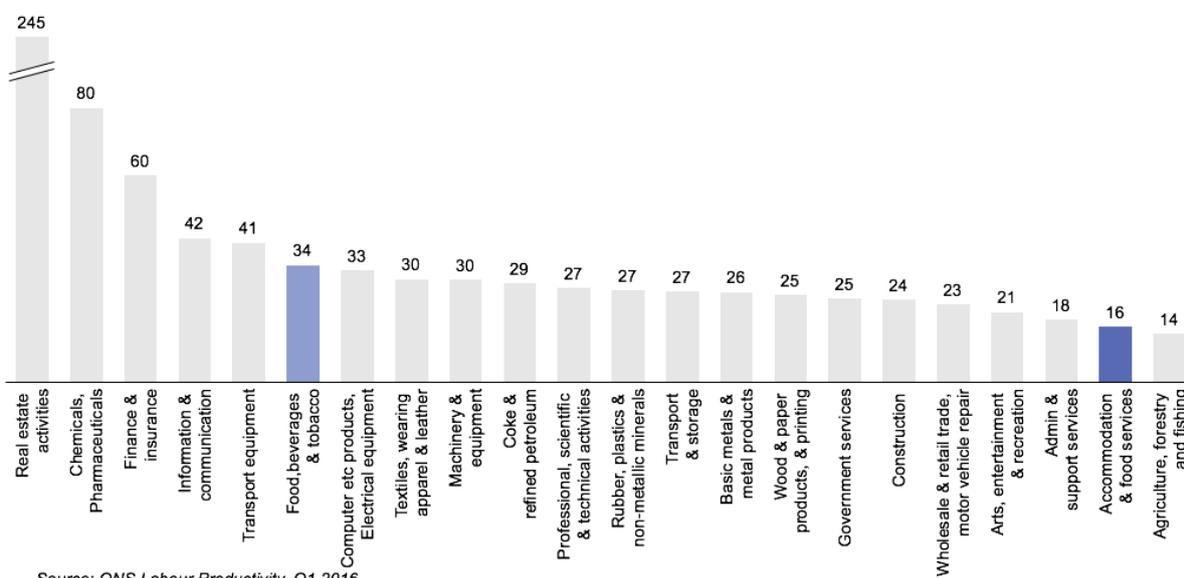
## Productivity

### Overview

“Ask any economist what he sees as the biggest risk to the country’s growth prospects and the reply is the same: ‘productivity’”, wrote the *Economist* in 2015.<sup>21</sup> Productivity – defined as the amount of output produced per hour worked – is an important driver of long term economic growth. Higher productivity reflects greater use of technology and better management and production techniques, which fundamentally drive economic performance. Yet productivity growth in the UK since the recession has been poor, both by historic and international standards, leading to growing concern among policymakers.<sup>22</sup>

A key determinant of the underlying productivity of a sector is how labour intensive it is. Jobs that rely more on human labour are typically less productive; those that are more automated can typically produce more per hour worked. The sale of alcohol in pubs, clubs, bars, restaurants and hotels is a fairly manual job. It is no surprise, then, that these jobs are among the least productive in the economy. Workers in accommodation and food services produce £16.30 per hour, the lowest of any sector of the economy bar agriculture, forestry and fishing.<sup>23</sup>

**Figure 12: Productivity by Industry, 2013 (£ per hour worked)**



20 Ibid.

21 The Economist (2015), Under the bonnet, The Economist (30 May). Available from: <<http://econ.st/2knTmSB>>. [Accessed 11 October 2016].

22 Ibid.

23 ONS (2016), Labour Productivity, Q1 2016. Available from: <<http://bit.ly/2kiU2NS>>. [Accessed 11 October 2016].

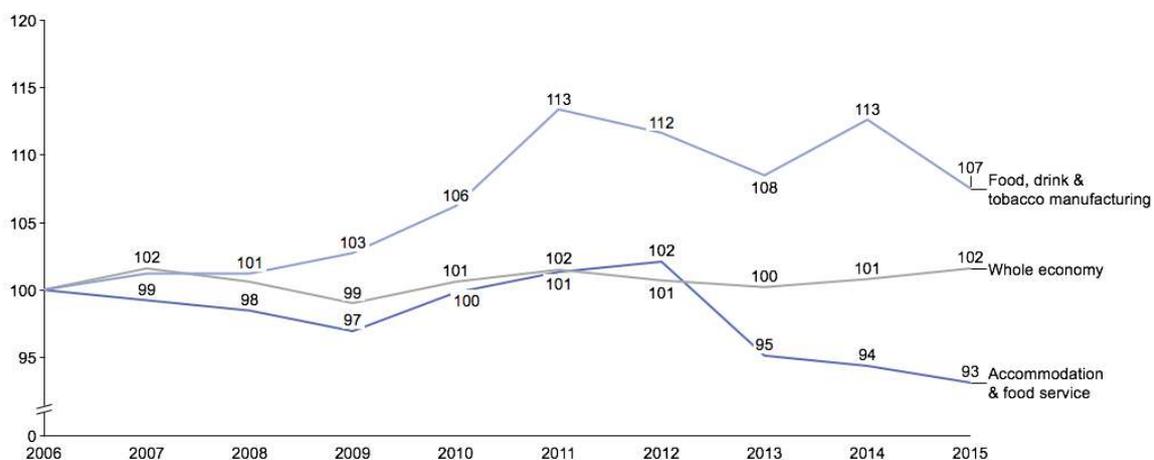
By comparison, alcohol production is highly automated, hence the low levels of employment in the sector. As a result, productivity is high, as with most manufacturing jobs. Though separate numbers on alcohol manufacturing are not available, food, beverage and tobacco manufacturing as a whole produces £34.20 per hour, more than double the hospitality sector.<sup>24</sup> However, we do know that beverage manufacturing wages are higher than food, but lower than tobacco, and wages are a good proxy for productivity, so this productivity number is unlikely to be wildly misleading.

These differences in productivity thus help explain both the different levels of employment between alcohol manufacturing and sale, but also the different wage levels. Because workers in breweries and distilleries are more productive, they tend to be better paid.

## Recent Trends

Both retail and production of alcohol appear to have contributed to the UK's recent productivity issues. Productivity growth has been especially slow in accommodation and food service, where output per hour is now 7% lower than in 2006. For the economy as a whole, productivity has risen by 2% over that period. Though specific data on alcohol are unavailable, food, drink and tobacco manufacturing has fared better, with 7% productivity growth since 2006. However, its recent performance has been more concerning: output per hour fell by 5% between 2011 and 2015.

**Figure 13: Productivity by Industry, 2006-15 (Indexed, 2006=100)**



Source: ONS Labour Productivity, Q1 2016

## Regional Balance

While the data above refers to national aggregates, the geographical distribution of economic activity is an important consideration for economic policy, too. Industries which may not be particularly significant at a national level may have critical importance for particular regional economies. For example, the Scotch Whisky Association (SWA) emphasises its role in rural Scottish communities, claiming that “Distilleries are a source of jobs in areas that might

otherwise find it hard to sustain them".<sup>25</sup> Similarly, cider production is often associated with employment in the English West Country.<sup>26</sup>

One way to verify these claims is to look at different areas' dependence on the alcohol industry for employment. Given the relatively small number of people employed in alcohol manufacturing, it should not be surprising that there are few places where alcohol producers are significant employers. Manufacturing accounts for less than 0.03% of jobs in over half of local authorities. There are only seven where its share is greater than 1%: four Scottish authorities with a number of distilleries and three brewing areas (see figure 14).<sup>27</sup>

**Figure 14: Local Authorities with the highest proportion of jobs in alcohol manufacturing<sup>28</sup>**

		% Jobs
1	Moray	3.3%
2	East Staffordshire	2.5%
3	West Dunbartonshire	2.5%
4	Clackmannanshire	2.4%
5	Selby	2.1%
6	Herefordshire, County of	1.6%
7	Argyll and Bute	1.3%
8	Mid Suffolk	1.0%
9	Fife	1.0%
10	North Dorset	1.0%

Even in Moray, where alcohol producers account for 3.3% of all jobs, and distilleries 2.9% (a total of 1,000 jobs), this is far from the dominant industry. According to the ONS, schools employed 2,500 people (7.1%), hospitals 2,000 (6.0%) and groceries 1,900 people (5.5%). The manufacture of biscuits and cakes (largely Walkers shortbread) employs substantially more than the distilleries – around 1,700 people.<sup>29</sup>

Alcohol retail, of course, is a much more significant employer. However, in the majority of local authorities, pubs, clubs and bars account for less than 2% of total employment, and less than 1% of full-time jobs. Again, there are a few local authorities where this is particularly high, with over 4% of employment in pubs, clubs and bars in six local authorities, and Richmondshire (5.7%) and North Norfolk (5.3%) the areas where industry employment is most prominent.

25 Scotch Whisky Association (2015), *The Economic Impact of Scotch Whisky Production in the UK*, p8.

26 Exeter Express & Echo (2013), *Good news for Devon jobs as cider makers more than double in number*, Exeter Express & Echo. Available from: <<http://bit.ly/2kKeYMI>>. [Accessed 11 October 2016].

27 ONS, *Business Register and Employment Survey*.

28 Ibid.

29 Ibid.

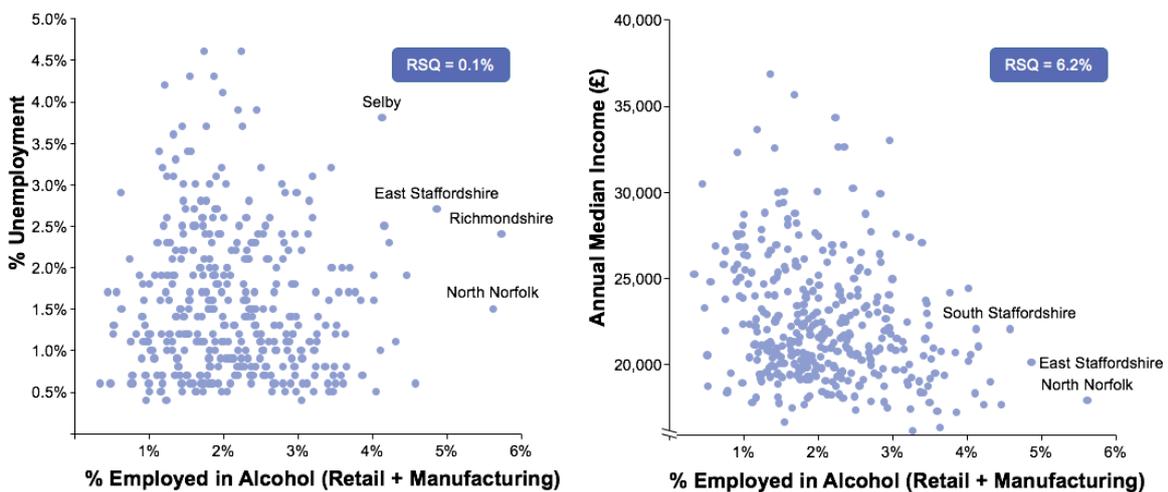
**Figure 15: Local Authorities with the highest proportion of jobs in alcohol retail**

		% Jobs
1	Richmondshire	5.7%
2	North Norfolk	5.3%
3	South Staffordshire	4.5%
4	Weymouth and Portland	4.2%
5	Craven	4.1%
6	West Devon	4.1%
7	Isle of Wight	4.0%
8	Eden	3.8%
9	Suffolk Coastal	3.8%
10	Wyre	3.7%

Source: ONS, Business Register and Employment Survey

As the SWA suggests, these jobs are particularly valuable if they are in poorer areas, or those where jobs are more scarce. However, we find no systematic relationship between an area's prosperity and its dependence on alcohol industry employment. As figure 16 shows, areas with higher unemployment or lower incomes are not significantly more likely to have a high share of jobs related to alcohol. Separating out retail and manufacturing jobs does not produce any more significant results.

**Figure 16: Relationship between proportion of jobs in alcohol and unemployment and income in Local Authorities**



Source: ONS Business Register and Employment Survey, ONS Regional Labour Market: Claimant Count by Unitary and Local Authority, ONS Annual Survey of Hours and Earnings

However, even if there does not appear to be a general relationship between the strength of local economies and the prominence of the alcohol industry within them, there are a handful of poorer places that have substantial numbers of industry jobs. For example, Argyll & Bute and Selby are in the top 10 local authorities for both proportion of jobs in alcohol

manufacturing and unemployment rate. Moray and North Norfolk have median incomes 17-18% below the national average. Thus there are a small number of areas where large declines in the alcohol industry could have important consequences for the local economy.

## Trade

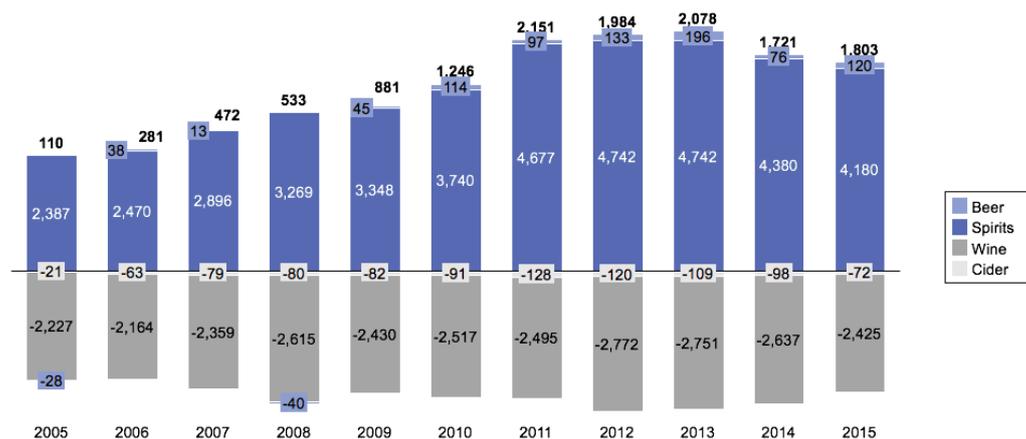
There is some debate about the extent to which trade deficits are a cause for concern. Large deficits may be unsustainable over the long term as they must be financed by borrowing from abroad. The UK has had a current account deficit (that is, it has imported more than it exports) for most of the past twenty years.

However, the UK has a trade surplus in alcohol: in 2014, it spent £4.3 billion on importing alcohol, but raised £6.0 billion through exports.<sup>30</sup> This surplus of £1.7 billion is relatively small in relation to the UK's overall trade figures: it offsets 2.0% of the total current account deficit of £85 billion, and 1.4% of the deficit in goods of £123 billion (stripping out the UK's surplus in services).<sup>31</sup>

The alcohol surplus is almost entirely driven by spirits, and in particular whisky. In 2014, the UK exported £3.9 billion more whisky (£4.4 billion more spirits) than it imported. The UK also had a small surplus in beer of £76 million. On the other side of the balance sheet, the UK is a large net importer of wine, running a deficit of £2.6 billion. The cider market is too small to affect the overall numbers, but here too the UK runs a deficit, importing £140 million and exporting just £42 million in 2014.<sup>32</sup>

The UK's trade surplus with respect to alcohol is a relatively new phenomenon. As recently as 2005, exports only exceeded imports by £110 million. Rapid growth in spirits exports, which nearly doubled – from £2.8 billion to £5.4 billion – between 2005 and 2009, accounts for most of the change.

**Figure 17: UK Alcohol Trade Balance, 2005-15 (£m)**



Source: HMRC uktradeinfo

30 HM Revenue & Customs uktradeinfo, Build your own tables. Available from: <https://www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Table.aspx>. [Accessed 11 October 2016].

31 ONS (2016), Dataset: Balance of Payments. Available from: <http://bit.ly/2kBUXVC>. [Accessed 11 October 2016].

32 HM Revenue & Customs uktradeinfo, Build your own tables, op. cit.

## Government Finances

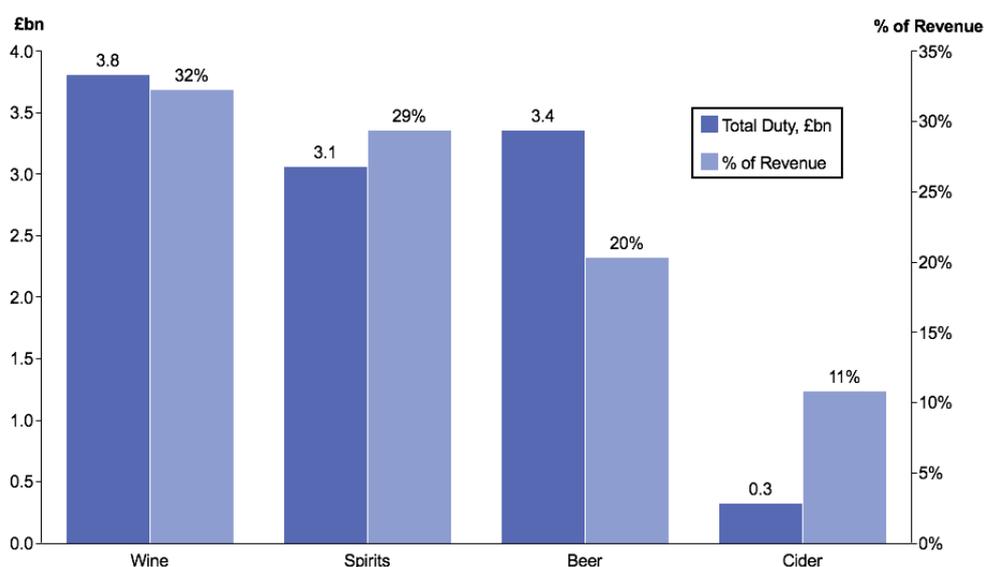
A different angle on the economic impact of alcohol is its effect on the government's finances. Note that this is a separate question from alcohol's impact on the economy as a whole – the extent to which taxes on alcohol recover costs to the public purse is to some extent independent of whether the jobs, wages and profits of the alcohol industry are beneficial to the wider economy.

The alcohol industry generates £18 billion a year in value added tax (VAT) and excise duty, plus more in income tax, National Insurance, corporation tax and rates (which are more difficult to estimate with available data). However, of these, only the £13 billion raised by excise duty (and the VAT levied on excise duty) are specific to the alcohol industry and would not be raised from other products if people shifted their spending away from alcohol.<sup>33</sup>

Historically, alcohol duty was one of the major sources of government finance, but its importance has diminished over time. As a share of total public sector receipts, duty has fallen significantly from 2.9% in 1980-81 to 1.9% today.<sup>34</sup>

Duty revenue is split fairly evenly between wine, beer and spirits, with wine generating the most for the government in absolute terms. Relative to sales, wine and spirits produce more tax as they face a higher rate of duty – roughly a third of the sales price, compared to a fifth for beer. In both absolute terms and as a share of sales price, it is clear that cider raises much less tax than other categories – a third as much as wine and spirits for each pound of sales, reflecting a significantly lower tax rate.

**Figure 18: Duty revenue by product, 2014 (£billion, % of sales revenue)**



Source: HMRC Alcohol Bulletin June 2016, MESAS Alcohol Retail Sales Dataset

33 HM Revenue & Customs (2016), Alcohol Bulletin June 2016. Available from: <http://bit.ly/2knOsVk>. [Accessed 11 October 2016].

34 Ibid; HM Revenue & Customs (2013), Alcohol Factsheet 2012-13. Available from: <http://bit.ly/2lHooGQ>. [Accessed 13 October 2016]; Office for Budget Responsibility (2016), Public finances databank. Available from: <http://budgetresponsibility.org.uk/data/#databank>. [Accessed 13 October 2016].

However, alcohol also imposes costs on the government. As with the economic costs discussed below, it is many years since the government provided an official estimate of these figures, and it is beyond the scope of this report to carry out a full evaluation.<sup>35</sup> However, we can collate available estimates to produce an indication of the likely magnitude of these costs.

The official estimate of the cost of alcohol to the health service in England is NHS England's tally of £3.5 billion in 2009/10.<sup>36</sup> The cost to the criminal justice system was estimated by the Government to be £1.8 billion in 2001.<sup>37</sup> It is likely to be at a similar level today: one analysis, which merely adjusted these numbers for inflation and lower crime rates found that alcohol-related crime cost the public purse £1.6 billion in 2015.<sup>38</sup>

Another cost that ought to be taken into consideration is the impact of alcohol on social care, given the association between drinking and child neglect and mistreatment.<sup>39</sup> These costs may be sizeable, given that the proportion of child social care costs that are alcohol-related have been estimated by the Centre for Public Health to be between 14-34%.<sup>40</sup> Applying these proportions to the total local government child social care budget, provides an estimate of £1.1-2.8 billion.<sup>41</sup> Less directly, the government finances suffer from the negative economic impact of alcohol, shrinking the tax base. As discussed below (page 31), standard estimates suggest that businesses would produce £8-11 billion more in output in the absence of alcohol. This would generate higher income tax, national insurance, corporation tax, value added tax and various other sources of revenue for the government. Given that the government receives 33% of GDP on average in taxes,<sup>42</sup> this implies that the cost to the Treasury of these wider economic costs is in the range of £2.6-3.6 billion. It should be emphasised that these costs are not exhaustive, and there may be other costs to the public purse that are missing from this account.

Taken together, these suggest that the fiscal costs of alcohol in England and Wales are in the order of £8-12 billion. Though there remains uncertainty about the precise cost of alcohol to the UK Government, it is close to, but perhaps slightly below the revenue generated from excise duty (£11 billion, stripping out Scotland and Northern Ireland).<sup>43</sup> Some have taken this as an argument for reducing alcohol duty.<sup>44</sup> This does not follow. The purpose of tax on alcohol

35 The Institute of Economic Affairs produced such an estimate in 2015, though it omits certain costs and uses a particularly narrow definition of alcohol-attributable healthcare costs. It also does not account for foregone taxes due to lower national income or social care costs. See Snowdon, C. (2015), Alcohol & the Public Purse: Do drinkers pay their way, IEA Discussion Paper No. 63; Institute of Alcohol Studies (2015), Response to the IEA's Discussion paper, 'Alcohol and the Public Purse'. Available from: <<http://www.ias.org.uk/uploads/pdf/IAS%20reports/rp17092015.pdf>>. [Accessed 13 October 2016].

36 NHS England (2012), The cost of alcohol harm to the NHS in England (2009/10). Available from: <<http://bit.ly/2lGaMur>>. [Accessed 13 October 2016].

37 Cabinet Office (2003), Alcohol misuse: How much does it cost?, p59.

38 Snowdon, C. (2015), op. cit.

39 Forrester D., Harwin J. (2006) Parental substance misuse and child care social work: findings from the first stage of a study of 100 families. *Child and Family Social Work* 11, 325-35; Forrester D., Harwin J. (2008) Parental substance misuse and child welfare: outcomes for children two years after referral. *British Journal of Social Work*, 1518-35.

40 Jones, L. et al (2010) The economic and social costs of alcohol-related harm in Leeds 2008-09. Liverpool: Centre for Public Health, p22.

41 Department for Communities & Local Government (2016), Local authority revenue expenditure and financing England: 2015 to 2016 final outturn. Available from: <<http://bit.ly/2kj2nBc>>. [Accessed 25 January 2017].

42 Office for Budget Responsibility (2016), March 2016 Economic and fiscal outlook: charts and tables, Table 4.5.

43 The £13 billion cited above, multiplied by 88% - the share of duty raised in England and Wales. HMRC (2015), A disaggregation of HMRC tax receipts between England, Wales, Scotland and Northern Ireland, p22. Available from: <<http://bit.ly/2kBLBcw>>. [Accessed 19 September 2016].

44 Snowdon, C. (2015), op. cit.

is not (primarily, if at all) to compensate the government for the costs it imposes. Alcohol duty has a range of functions: raising revenue to fund government activities, addressing the market failures resulting from 'externalities' (costs imposed by drinkers on others) and promoting public health among others. It is therefore unlikely that the optimal level of alcohol duty would aim to be fiscally neutral. The IAS report *Dereliction of Duty* explores these issues in greater detail.<sup>45</sup>

## Economic Costs of Alcohol

Any thorough analysis of alcohol's impact on the economy has to account for the negative effect alcohol consumption has on people's ability to work productively. Alcohol can impair a person's performance at work, cause sickness or injury that keeps them off work temporarily, make it difficult for them to find or hold down a job, or, most drastically, end their lives. Such eventualities are of course, primarily misfortunes for the people and families involved. However, they also have consequences for the wider economy. Research on the economic costs of alcohol has tended to focus on four types of cost (in ascending level of gravity): presenteeism, absenteeism, unemployment and premature mortality.

### Presenteeism

'Presenteeism' refers to the phenomenon of alcohol consumption reducing a person's ability to carry out their job to the best of their ability. This is often as a result of trying to work drunk or hungover, but more broadly includes those who are suffering more acute or long term ailments as a result of their drinking. Alcohol has well-documented effects on the drinker's cognitive and motor skills, long after it has been consumed.<sup>46</sup> As a result, drinkers in the workplace are not only less efficient, but may also place themselves and those around them at risk of injury. Moreover, presenteeism can have a disruptive effect on a workplace, as colleagues have to 'manage' or cover for the drinker.

Presenteeism is clearly a difficult phenomenon to observe, since it is not easy to identify from the outside whether a person is performing to their full capacity. As a result, studies of presenteeism have generally depended on self-reports of workers and businesses' perceptions of the problem. This means we ought to be a bit sceptical of some of the numerical estimates associated with presenteeism, as these may be subject to biased reporting and often depend on people being able to quantify the impact of their drinking on their work. For example, it is dubious whether the average person can precisely discern the difference between a 20% and a 30% drop in effectiveness. Yet these issues do not mean we can ignore presenteeism: they mean it is just as likely to be understated as overstated – for example, because people do not want to admit to the negative effects of their drinking. Indeed, it has been suggested that presenteeism has a greater productivity cost than absenteeism.<sup>47</sup>

A number of non-academic studies have found that drinking regularly impedes workplace productivity. A survey commissioned by the health insurance agency Willis PMI last year found that 28% of workers admitted ever having gone to work with a hangover, while 11% of men, and 4% of women claimed to do so regularly.<sup>48</sup> These figures are of a similar order

45 Bhattacharya, A. (2016), *Dereliction of Duty*, op. cit.

46 IAS (2016), Factsheet: The health impacts of alcohol. Available from: <<http://bit.ly/2bXbGDJ>>. [Accessed 13 October 2016].

47 Science Group of the European Alcohol and Health Forum (2011), *Alcohol, Work and Productivity*, p9.

48 Frith, B. (2016), The impact of employees' heavy drinking on business, *HR Magazine* (13 May). Available from: <<http://bit.ly/2lATmn9>>. [Accessed 13 October 2016].

of magnitude to previous research (although slightly lower, as would be expected given the decline in alcohol consumption in the interim). A 2008 Norwich Union/ICM survey found 32% had ever been to work hungover<sup>49</sup>, while a 2006 PruHealth/YouGov poll reported 17% had done so in the last month.<sup>50</sup> The vast majority of hungover workers believed alcohol to have negatively impacted their effectiveness – 83% according to PruHealth.<sup>51</sup> Between a third and a half suggest it leaves them tired, sleepy, slow and unproductive. Between 10 and 22% believe it causes them to make mistakes.<sup>52</sup>

Academic research has tended to focus more on the reduced productivity of heavy and high risk drinkers, who are likely to be impaired by more chronic health issues. For example, a large Australian study found that those who identify themselves with drug and alcohol problems are over twice as likely to rate their performance at work poorly.<sup>53</sup> A US study found that heavy drinkers were more likely to report having problems doing their job or arguing with their supervisor.<sup>54</sup>

Many businesses also recognise alcohol as a problem. A 2007 survey found that a third of Liverpool companies think they are affected by alcohol, and of these 87% feel the effect is negative.<sup>55</sup> A similar study in Belgium found that CEOs and Human Resource managers estimated dependent drinkers are 30% less productive than the rest of their staff. This figure was extrapolated to estimate that presenteeism cost businesses the equivalent of 2.8% of their wage bill.<sup>56</sup>

In sum, there is compelling evidence that presenteeism does have a negative effect on many businesses and the economy in general, though there is a lack of robust academic evidence on the scale of the problem.

## Absenteeism

The impact of alcohol on absence from work is the most studied of the economic costs of alcohol, with most research finding that heavier drinkers spend more time off work. These absences can range from short term sickness as a result of the previous day's drinking (e.g. hangovers) to more severe chronic and acute conditions, such as alcohol poisoning and liver disease.

One of the largest and most-cited studies in this field is Roche et al's survey of over 13,000 Australians, which found that 'high risk' drinkers (over 53 UK units per week for men, 36

49 Norwich Union Healthcare (2008), UK employees admit that regular drinking affects their jobs. [Press Release]. Available from: <<http://www.aviva.co.uk/media-centre/story/4048/uk-employees-admit-that-regular-drinking-affects-t/>>. [Accessed 13 October 2016].

50 Institute of Alcohol Studies (2014), Factsheet: Alcohol in the workplace. Available from: <<http://bit.ly/2l6UZlF>>. [Accessed 13 February 2017]. See also Norwich Union Healthcare (2008), op. cit.; Harkins, C., Morleo, M. & Cook, P.A. (2008), Alcohol in Business and Commerce Survey: Workplace Alcohol Questionnaire – 2007. Liverpool: Centre for Public Health, health@work and Liverpool NHS Primary Care Trust.

51 Institute of Alcohol Studies (2014), op. cit.

52 Ibid, Norwich Union Healthcare (2008), op. cit.

53 Holden, L et al (2011), Health-related productivity losses increase when the health condition is co-morbid with psychological distress: findings from a large cross-sectional sample of working Australians, BMC Public Health 11, pp417–426.

54 Ames, G.M., Grube J.W. & Moore, R.S. (1997), The relationship of drinking and hangovers to workplace problems: an empirical study, Journal of Studies on Alcohol 58:1, pp37–47.

55 Harkins, C., Morleo, M. & Cook, P.A. (2008), op. cit.

56 Tecco, J., Jacques, D. & Annemans, L. (2013), The cost of alcohol in the workplace in Belgium, Psychiatria Danubina 25 supp2, pp118-23.

for women)<sup>57</sup> are 53% more likely to be absent from work on any given day than low risk drinkers. It also found that 'risky' drinkers (37-53 per week for men, 19-36 for women)<sup>58</sup> were 31% more likely to be absent than low risk drinkers.<sup>59</sup> In a US study, McFarlin and Fals-Stewart draw a direct link from drinking to absence by showing that workers are twice as likely to be off the day after they drink.<sup>60</sup> The association between individual consumption and time off work has been corroborated by a range of international studies<sup>61</sup> (although with a few dissenting findings).<sup>62</sup> It is particularly clear for high risk drinkers, dependent drinkers and men. In the UK context, Marmot et al found a 'u-shape' relationship between consumption and sick leave, whereby 'moderate' drinkers (roughly 11-30 units per week for men and 7-20 units for women) were absent less than both abstainers and heavy drinkers<sup>63</sup>, a finding which has been replicated in some other studies.<sup>64</sup> However, they found no clear relationship between drinking and absence in women.

At a population level, two prominent papers have shown that higher average levels of consumption are correlated with greater use of sickness leave, using National Insurance data. Coincidentally, both produce the exact same result – one in Sweden, the other in Norway – a one litre increase in total alcohol consumption per capita is associated with a 13% increase in absence in men, but no significant effect in women.<sup>65</sup>

While most research into absenteeism focuses on the relationship between a person's alcohol consumption and their own attendance at work, it is increasingly recognised that drinking has spillover effects on others. For example, recent research in both Australia and the USA has suggested that absence due to somebody else's drinking (for example, a spouse or a co-worker) is as frequent as absence due to one's own drinking.<sup>66</sup>

## Unemployment

The relationship between alcohol and unemployment is more contested, but generally economic studies have tended to find that heavy drinking is associated with a greater risk of joblessness. Teasing out the relationship between the two is inherently tricky because of the difficulty of establishing causation and isolating the effects of drinking – for example, the trauma of losing work may cause people to drink, while people in employment have more money to spend on alcohol.

57 Converted from 42 and 28 Australian standard drinks per week for men and women respectively.

58 Converted from 29 and 15 Australian standard drinks per week for men and women respectively.

59 Roche, A.M. et al (2008), Workers' drinking patterns: the impact on absenteeism in the Australian work-place, *Addiction* 103:5, pp738-748.

60 McFarlin, S.K. & Fals-Stewart, W. (2002), Workplace absenteeism and alcohol use: a sequential analysis, *Psychology of Addictive Behaviors* 16:1, pp17-21.

61 Jarl, J. & Gerdtham U. (2012), Does drinking affect long-term sickness absence? A sample selection approach correcting for employment and accounting for drinking history, *Applied Economics* 44:22, pp2811-25; Johansson, E., Bockerman, P. & Uutela, A. (2008), Alcohol consumption and sickness absence: evidence from microdata, *European Journal of Public Health* 19:1, pp19-22; Jones, S., Casswell, S. & Zhang, J.F. (1995), The economic costs of alcohol-related absenteeism and reduced productivity among the working population of New Zealand, *Addiction* 90:11, pp1455-61; Holden et al (2011), op. cit.; Science Group of the European Alcohol and Health Forum (2011), op. cit, p18.

62 Science Group of the European Alcohol and Health Forum (2011), op. cit, p18.

63 Marmot, M.G. et al (1993), Alcohol consumption and sickness absence: from the Whitehall II study, *Addiction* 88:3, pp369-82.

64 Jarl, J. & Gerdtham U. (2012), op. cit.

65 Norstrom, T. (2006), Per capita alcohol consumption and sickness absence, *Addiction* 101:10, pp1421-7; Norstrom, T. & Moan, I.S. (2009), Per capita alcohol consumption and sickness absence, *European Journal of Public Health* 19:4, pp383-8.

66 Laslett, A.-M., The range and magnitude of alcohol's harm to others. Deakin West, Australian Capital territory: Alcohol Education and Rehabilitation Foundation, p143; Greenfield, T.K. et al (2016), Work Absenteeism and Other Workplace Harms from Other Drinkers in the United States [Presentation], 42nd Annual Alcohol Epidemiology Symposium of the Kettil Bruun Society for the Social and Epidemiological Study of Alcohol (May 30-June), Stockholm.

The most prominent UK analysis was carried out by MacDonald and Shields. Using a range of instrumental variables (factors correlated directly with drinking but not employment, such as smoking or not having chronic health conditions), they find that 'problem' drinking – indicated by drinking over 45 units a week, or by reporting things like guilt, loss of control, feeling the need to cut down and drinking in morning – reduces the likelihood of working between 7% and 31%.<sup>67</sup> This suggests that the effect of being a problem drinker is roughly equivalent to the effect of not having a degree on a person's chances of finding a job.

A 2011 literature review found eight studies that addressed the impact of high risk or dependent drinking on unemployment and used sufficiently robust statistical methods to suggest a causal connection (typically controlling for confounding variables and using techniques such as instrumental variables). All eight suggested heavy drinking increases the risk of unemployment.<sup>68</sup> There are a few contradictory studies that have reported the opposite conclusion – for example, Feng et al find problem drinkers are no less likely to be in work<sup>69</sup> – though these constitute a minority. As with absenteeism, the negative impact of alcohol on employment has been more consistently established in men than in women.

## Premature Death

Finally, in many cases, alcohol consumption leads to death. The majority of these deaths occur before people reach retirement age<sup>70</sup>, and so the loss of these workers comes at a cost to the economy. For example, Public Health England's (PHE) recent review of the evidence on the burden of alcohol to society estimated that in 2015 there were 167,000 years of working life lost due to alcohol, accounting for 16% of all working years lost in England.<sup>71</sup>

However, from an economic perspective, those who die early due to alcohol do not just produce additional resources – they also consume them.<sup>72</sup> PHE's estimate of 167,000 years of *working* life lost to alcohol each year in England represents just over half of the total 301,000 years of life lost.<sup>73</sup> In other words, for almost every worker that is taken from the economy by alcohol, there is another not in work that the economy needs to support.

Economic analysis of the costs of premature death is therefore tricky. It is true that the size of the economy - the nation's GDP - would be significantly higher if alcohol-related mortality were to fall. However, this is potentially misleading in that it does not reflect the fact that this extra income would be shared between more people. Thus the impact on GDP *per capita* may be the more relevant measure. The fact that alcohol consumption kills people at a relatively young age, and so has a negative effect on the proportion of working age to retired people, means that the effect on income per person is still likely to be negative, though the effect is not likely to be as large as the impact on overall national income.

67 MacDonald, Z. & Shields, M.A. (2004), Does problem drinking affect employment? Evidence from England, *Health Economics* 13:2, pp139-55.

68 Henkel, D. (2011), Unemployment and substance use: a review of the literature (1990-2010), *Current Drug Abuse Reviews* 4:1, p12.

69 Feng, W. et al (2001), The impact of problem drinking on employment, *Health Economics* 10:6, pp509-21.

70 ONS (2016), Statistical bulletin: Alcohol Related Deaths in the United Kingdom: Registered in 2014. Available from: <<http://bit.ly/2knPPU7>>. [Accessed 13 October 2016].

71 Public Health England (2016), The Public Health Burden of Alcohol and the Effectiveness and Cost-Effectiveness of Alcohol Control Policies: An evidence review, p40.

72 Moller, L. & Matic, S. (2010), Best practice in estimating the costs of alcohol – Recommendations for future studies Copenhagen: WHO Europe, p32.

73 Public Health England (2016), op. cit.

## Other costs

While these four types of economic cost – presenteeism, absenteeism, unemployment and premature mortality – are the most widely recognised, there are others worth mentioning, at least in passing.

Alcohol impedes productive work in a range of ways that are difficult to robustly estimate. For example, drinking may lead to workplace accidents, traffic delays due to drink driving, crime and vandalism, which may all divert people and resources from productive work.

The discussion above has focused on the impact of drinking on working adults. Yet alcohol may also have long-lasting effects on children, which harm their economic productivity as they grow up. Education is widely held to be an important determinant of a country's economic performance. Young people's drinking has been consistently associated with lower educational attainment, though there is some debate about whether this link is causal.<sup>74</sup> More broadly, parental drinking can negatively affect a child's development in a range of ways, from foetal alcohol syndrome to the environmental stresses of growing up around domestic conflict. One US study has found that having a parent with problem drinking increases a person's likelihood of unemployment or being in a low paid job in adulthood.<sup>75</sup>

Changes in consumption of alcohol may have an array of wider 'ripple effects' with ambiguous consequences for the economy.<sup>76</sup> If people are healthier as a result of drinking less, they may be more likely to invest in education and training. They may also earn more, which could encourage them to work more, or to retire earlier. Increases in life expectancy could lead to higher rates of savings in anticipation of longer retirements, which could lead to lower demand for goods and services today, but higher investment and growth in the future. Money saved from addressing the costs of alcohol – for example healthcare, criminal justice, property damage – may be redirected to more productive forms of spending.

## Economic Benefits of Workers' Consumption?

A full account of the economic impact of workers' drinking alcohol ought also to acknowledge the possibility that it may have some economic benefits. For example, the survey of Liverpool businesses mentioned above found a number of people citing the positive role of alcohol in aiding relaxation, team building and bonding with clients (though these respondents were outnumbered by those claiming alcohol had a negative impact on their workforce).<sup>77</sup>

The best empirical evidence for such a view is the common finding that up to a certain level, higher alcohol consumption is associated with higher wages.<sup>78</sup> Given that a person's wages typically reflect their value to their employer, this may suggest that moderate drinking leads to higher productivity.

74 Institute of Alcohol Studies (2016), Factsheet: Underage drinking, pp24-5. Available from: <http://www.ias.org.uk/uploads/pdf/Factsheets/FS%20Underage%20drinking%20082016.pdf>. [Accessed 13 October 2016].

75 Balsa, A.I. (2008), Parental Problem-drinking and Adult Children's Labor Market Outcomes, *Journal of Human Resources* 43:2, pp454-86.

76 Moller & Matic (2010), op. cit., p24.

77 Harkins, C., Morleo, M. & Cook, P.A. (2008), op. cit.

78 Peters, B.L. (2004), Is there a wage bonus from drinking? Unobserved heterogeneity examined, *Applied Economics* 36:20, pp2299-2315.

However, while some do indeed suggest that this reflects a causal link<sup>79</sup>, most economists are wary of drawing such conclusions. More common is the view that this result is an artefact of the data. This may be partly because of the 'former drinker or abstainer error' (whereby people's drinking habits are misclassified because their current level of drinking does not reflect the fact they have recently cut down or taken up drinking).<sup>80</sup> It may also be because heavier drinkers share certain characteristics unrelated to their drinking which improve their productivity.<sup>81</sup> For example, there is some evidence that drinkers tend to be more sociable and extroverted.<sup>82</sup> This, in turn, may reflect how closely alcohol is associated with social occasions where extroverts are more comfortable. The key point is that it is the underlying personality traits driving both the drinking behavior and the success at work, with some analyses suggesting that these underlying traits may explain the entire wage premium received by heavier drinkers.<sup>83</sup> Thus, the evidence that alcohol may carry economic benefits remains contested at best.

## Quantifying the Economic Costs of Alcohol

This section so far has sought to establish that drinking has certain negative effects on the economy – in particular, presenteeism, absenteeism, unemployment and premature death. It has not yet provided much indication of the size of these effects, and the overall financial impact they have. The two most prominent attempts to do so come from the UK and Scottish Governments' assessments of the cost of alcohol to society. However, both are a number of years old, and suffer from methodological limitations.

The most recent UK Government estimate of the cost of alcohol to the economy in England and Wales is £7.3 billion in 2009-10.<sup>84</sup> This reflects lost national income, setting aside healthcare and crime costs, which are added to reach the figure of £21 billion, the much cited full cost to society.<sup>85</sup> More recent estimates from Public Health England suggest that the full societal cost of alcohol consumption in England may be as high as £52 billion, but these are not made at a detailed enough level to determine the proportion of these costs that are economic.<sup>86</sup>

The Scottish Government's analysis relates to 2007 and finds that alcohol's cost to the Scottish economy in that year was £866 million.<sup>87</sup> On a per capita basis, this is 28% higher than the UK Government's 2009-10 estimate of £7.3 billion. This largely reflects higher levels of drinking in Scotland, where per capita consumption was 22% higher in 2010.<sup>88</sup> Moreover,

79 MacDonal, Z. & Shields, M.A. (2001), The Impact of Alcohol Consumption on Occupational Attainment in England, *Economica* 68:271, pp427-53.

80 Science Group of the European Alcohol and Health Forum (2011), op. cit., pp21-2

81 Peters, B.L. (2004), op. cit.

82 Cited in Lye, J. & Hirschberg, J. (2010). Alcohol consumption and human capital: a retrospective study of the literature, *Journal of Economic Surveys* 24:2, pp309–338.

83 Peters, B.L. (2004), op. cit.

84 Home Office (2012) A Minimum Unit Price for Alcohol Impact Assessment. London: Home Office, p. 5.

85 Ibid.

86 Burton, R. et al (2016), A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective, *The Lancet* doi: [http://dx.doi.org/10.1016/S0140-6736\(16\)32420-5](http://dx.doi.org/10.1016/S0140-6736(16)32420-5).

87 York Health Economics Consortium, University of York (2010), The Societal Cost of Alcohol Misuse in Scotland for 2007. Edinburgh: Scottish Government Social Research. Note that researchers at Aberdeen University refreshed this study in 2010, making significant changes to the methodology for estimating economic costs, though the overall estimated costs was of similar magnitude to the Scottish Government study. For simplicity, we do not refer to the Aberdeen University study here. See Johnston, M. et al (2012), Inequalities in the Distribution of the Costs of Alcohol Misuse in Scotland: A Cost of Illness Study, *Alcohol and Alcoholism* 47:6, pp. 725–31.

88 NHS Health Scotland (2016), op. cit.

the Scottish Government's analysis, unlike the UK Government's, includes an estimate of the impact of presenteeism, and as such is more comprehensive.

Figure 19 compares these estimates on an absolute and a per capita basis. It implies that the total UK economic cost is in the order of £8-11 billion (multiplying the UK's population by £131 and £167 – the per capita economic costs of alcohol in figure 19). This represents 0.4-0.6% of the UK's GDP, and up to a quarter of the value of the alcohol industry. However, unlike the value generated by the alcohol industry, these costs, if reversed, would represent a clear gain to the economy, rather than displacing economy activity from elsewhere.

**Figure 19: Summary of Estimates of Costs of Alcohol to the UK Economy (£billion)**

	UK Government Method	Scottish Government Method
Countries covered	England & Wales	Scotland
Year	2009/10	2007
<b>Share of total costs</b>		
Absenteeism	26%	22%
Presenteeism	0%	21%
Unemployment	33%	20%
Premature death	41%	37%
Per Capita Cost	£131	£167
<b>Total Cost</b>	<b>£7.3 billion</b>	<b>£866 million</b>

These numbers can provide a rough indication of the order of magnitude of the economic costs of alcohol, but they have a number of limitations which mean we cannot have confidence in their precise value. Some of these limitations relate to a lack of evidence and the age of the studies. In particular, as described above, there is a shortage of robust academic research on the prevalence and extent of alcohol-related presenteeism, with the Scottish Government's estimate relying on less reliable commercial surveys. The precise functional relationship between alcohol consumption and unemployment is also subject to debatable assumptions.

More generally, however, there are significant conceptual and methodological complexities inherent to any study which tries to quantify the economic costs of alcohol. Typically, and in both government studies, the approach is to estimate the number of potential working hours or days lost to alcohol and to multiply the by average labour costs. But it is questionable whether either of these are the right numbers to be using.

Estimates of the cost of alcohol-related unemployment or premature mortality usually assume that every day that a person could be working but is not due to alcohol is a loss to the economy. This is called the 'human capital' approach. Yet this assumes that the unemployed could easily find paid work and those who die prematurely cannot be replaced. These are not plausible assumptions. Yet the main alternative, the 'friction cost' approach, swings too far to the other extreme, assuming that no jobs are lost or created as a result of changes in alcohol consumption, and so counts only the time and costs involved in hiring different workers – these are typically 1-3% of the human capital estimate. This

approach depends heavily on speculative assumptions about the length of such frictional periods and has been criticised for failing to account for the distinctive specialist skills that specific individuals may have. The friction cost approach also risks committing the 'lump of labour' fallacy, which suggests that there is a fixed number of jobs in the economy. In practice, expanding the labour force has often led to higher job creation, as with the absorption of women into the workforce in the second half of the 20<sup>th</sup> century. Nevertheless, it is often argued that the human capital approach, though it might be the best we can do, tends to overestimate the number of days lost to alcohol-related unemployment and premature mortality. This would suggest that the government estimates overstate these costs in the UK.

Similar considerations apply to the use of average labour costs to estimate the cost to the economy of lost labour time due to presenteeism, absenteeism, unemployment and premature mortality. On the one hand, this may well be an underestimate, since wages do not capture the value created by a worker that is retained by an employer as profit. Gross Value Added, by contrast, captures the full market value of a worker's production. For example, imagine a shoemaker makes five shoes a day, worth £20 each: £100 worth of goods. They are paid £50 a day. If they miss a day of work, five fewer shoes are produced, and so the economy is £100 worse off. This lost £100 is captured by the GVA approach, but not the earnings approach, which would put the economic cost of this missed day at only £50. Using GVA would double the cost of working time lost to alcohol at a stroke.

On the other hand, wages may overestimate the value of lost time due to absenteeism and presenteeism. This is because they do not account for 'coping strategies' to make up for absent or underperforming workers. Most tasks do not have to be done at a particular time by a particular person, not all tasks are of equal priority, and most people do not work consistently at the same pace through the working week, month or year. As a result, the effect of absenteeism or presenteeism can be mitigated by colleagues taking on additional workload, the employee 'making it up' when back to full functionality and by cancelling unimportant tasks. One study suggests that only 25-30% of these costs remain after accounting for coping mechanisms. However, it is important to remember that such mechanisms may incur productivity losses themselves – for example, retaining extra staff to maintain sufficient 'slack' to account for absences.

The use of average wages to estimate the cost of alcohol-related unemployment has also been challenged. Such an approach fails to account for the fact that alcohol-related unemployment is associated with a range of characteristics, such as lower education levels and mental health problems, which mean that such people would be unlikely to earn as much as the average worker.

As described above (pages 31-2), there is a further reason why the economic costs of premature mortality are likely to be overestimated. Both government studies, perhaps because their remit is to look at social costs rather than narrow economic ones, only look at the effect of premature mortality on GDP, not GDP per capita. As a result, they account only for the economic benefits of not losing deceased workers from the labour force, but not the costs of supporting deceased people outside the workforce. This risks overestimating the economic costs of such premature deaths.

To summarise: government estimates of the cost of alcohol consumption to the economy suggest it is in the order of £8-11 billion. However, there are a number of data limitations and controversial methodological judgements underpinning these estimates which mean we cannot have full confidence in them, though without more detailed study it is not clear whether they are overestimates or underestimates.

## SECTION II: THE EFFECT OF LOWER ALCOHOL CONSUMPTION ON THE ECONOMY

To this point, we have only described the effects of alcohol production, sale and consumption on the UK economy. This is interesting in itself, and important groundwork for what follows, but it does not yet offer any guidance for action. In this section, and the following one, we investigate what this all means for government policy.

Specifically, we look at the question of what the likely impact of lower alcohol consumption and spending would be on the wider economy. Any reductions in the levels of alcohol-related harm are likely to involve people drinking less. 23% of adults drink above the Chief Medical Officers' lower risk drinking guideline level of 14 units per week. The World Health Organization has recommended per capita consumption as one of the key indicators of its target of a 10% reduction in the harmful use of alcohol.

Nevertheless, economic arguments are often used to challenge and resist measures to discourage alcohol consumption, such as raising alcohol taxes and minimum unit pricing. Similar objections were raised by tobacco companies against anti-smoking regulations. We suggest that while there is a lot of uncertainty around the economic effects of lower drinking, the overall impact is likely to be small, and may in fact be positive.

We then compare different measures for reducing alcohol consumption, and find that those that have greater impact on the off-trade, like minimum unit pricing, are less likely to cause unemployment or lower output in the short run, although they may have negative effects on economic productivity and growth in the long run. Finally, we compare the economic effects of shifting consumption between different drink types.

### **Would lower spending on alcohol be bad for the economy?**

#### **Lower consumption does not necessarily mean lower spending**

The first point to make in evaluating the economic impact of lower alcohol consumption is that there may not necessarily be any. People can cut down their drinking without reducing their spending on alcohol, as long as they are willing to pay more for their drinks. As a recent article in the trade news website *just-drinks* points out, "Moderation per se is not a negative message for the alcohol sector to work with, and nothing in itself to be feared... Indeed, the 'drink less, but drink better' mantra has been a constant theme in the alcohol sector for decades".

In fact, as figure 5 shows, price increases and encouraging consumers to trade up their drinks would have fully compensated for the decline in volume consumption between 2004 and 2014 if only people had continued to drink in the on-trade. In such a scenario, lower alcohol consumption would have little effect on the output and employment of the alcohol market. It would, further, be likely to have wider economic benefits as absenteeism, presenteeism, unemployment and mortality were reduced.

## The importance of displaced spending and net effects

Suppose, however, that alcohol spending did fall with lower consumption. What would the economic impact be then? Alcohol industry groups often demand government support in order to protect output and employment *within* the alcohol industry. For example, in 2014, the Wine and Spirit Trade Association (WSTA) called for a reduction in alcohol taxes on the basis that employment in the wine and spirit industry would rise by 6,000 jobs. Conversely, in 2016, the British Beer and Pub Association (BBPA) responded to a 1.5% fall in beer sales by suggesting tax cuts in order to “safeguard jobs” and protect a “fragile recovery”.

Yet these arguments reflect only one side of the balance sheet. If the alcohol industry grows, this displaces demand and jobs that would have been created in other sectors. If it declines, money spent on alcohol will be spent elsewhere and stimulate other sectors of the economy. What matters is the net effect on output and employment across all industries.

This logic is reflected in the UK Government's own analysis of the costs of alcohol, which concludes that “the output, income and employment generated by the alcohol industry are not measures of social benefits attributable to alcohol” because they could be replaced by other industries.

## Theoretical economic effects of displacing spending on alcohol

That said, we cannot necessarily assume that jobs and income lost in the alcohol industry would be entirely replaced on a one-for-one basis by gains in other parts of the economy. Overall, there may be a net gain or loss. Moreover, changes in alcohol consumption also have wider economic effects as they influence presenteeism, absenteeism, unemployment and mortality.

To analyse the overall impact of these changes we have to introduce an important conceptual distinction from economic theory between the long run and the short run.

## The Short Run and the Long Run

The **long run** is defined as the period where the **economy is operating at full productive capacity** – there is full employment, all machinery and infrastructure is in full use. In other words, output is equal to its full maximum potential. In the long run, **the only way to increase growth is to increase the economy's productive capacity**. This can be done by increasing the size of the labour force, investing in greater infrastructure and most importantly by increasing productivity, through improvements in technology and management.

By contrast, the **short run** is defined as the period when the economy is operating short of its full productive capacity because of a **shortage of demand**: people are unwilling or incapable of buying all the goods and services that could potentially be produced. In the short run, **growth results from boosting demand** by increasing disposable income, increasing government spending, encouraging people to buy domestic rather than foreign goods or reducing saving. However, this is only effective up to the point that the demand equals the economy's productive capacity, and there is no longer a shortage of demand. Once this point is reached, the economy enters the long run. Beyond this point, increasing aggregate demand has no effect, since producers are incapable of increasing production to meet the extra demand.

The **short run and long run are theoretical constructs**, rather than literally describing periods of time. However, as the names suggest the short run is generally a better guide to the drivers of growth in the short term, while long run analysis is more appropriate to the long term.

**Figure 20: Long Run Aggregate Supply and Demand Curves**

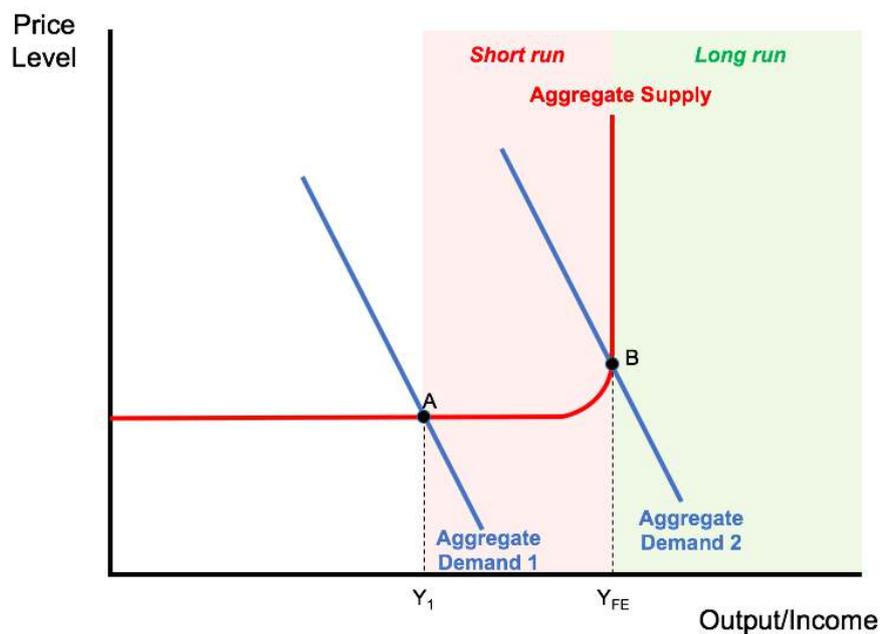


Figure 20 represents this logic in diagram form. If the economy is at point A, increasing aggregate demand to point B raises output and income. However, at point B the economy is at  $Y_{FE}$  – its maximum production level. Increasing demand beyond this point is ineffective as the economy cannot produce any more.

A shift in demand for alcohol has the potential to influence the economy in both the short run and the long run. Specifically, such a shift has six different effects. The discussion below runs through the effects of a decrease in spending on alcohol, but it is important to note these are symmetrical; an increase in alcohol spending would have exactly the opposite effect.

1. *Saving*: If people reduce their alcohol spending, they may save some of this money, and so increase the rate of saving in the economy. In the short run, a higher rate of saving means lower consumer spending, and so lower demand in the economy. This, in turn, leads to lower income and employment. In the long run, however, higher saving rates mean more finance is available for investment in technology and infrastructure, which increases the country's productive capacity.
2. *Imports*: Money that is not spent on alcohol may increase or decrease demand for goods that are themselves imported, or which source more or less of their supply chains in Britain. If the net effect of the switch is to increase imports, this reduces demand for British-produced goods and services and so reduces UK output and employment. This in turn, reduces aggregate demand, and the size of the economy in the short run.
3. *Wages*: A third structural effect of lower spending on alcohol is that it shifts production between sectors that pay a different share of income in wages as opposed to retaining it as profits. A higher wage share increases short run demand in the economy as wages are more likely to be spent on consumption than profits.
4. *Fiscal policy*: Through its taxes and spending, the government influences demand in the economy. If the government spends more than it raises in taxes (i.e. if it runs a deficit), it injects more money into the economy. If it spends less and runs a surplus, it sucks demand out of the economy. Spending on alcohol is relatively highly taxed (because it attracts excise duties which few other products face). As a result, if people spend less on alcohol this will likely reduce government tax receipts and naturally increase the deficit. If the government takes no further action, this deficit will boost the economy in the short run, although some argue that higher government deficits and debt undermine growth in the long run.<sup>89</sup> Alternatively, the government may respond to a lower tax take by raising other taxes or cutting spending, which cancels out this effect.<sup>90</sup>
5. *Productivity*: If resources are diverted away from the alcohol industry, they may be deployed in sectors that are more or less productive, and where productivity is growing more or less quickly. Productivity is a key determinant of long run growth. Moving resources to sectors with a higher level of productivity will cause a jump in the economy's productive capacity. If productivity grows more quickly in these sectors, the long run growth rate will be higher, too.

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89 Reinhart, C.M. & Rogoff, K.S. (2010), Growth in a Time of Debt, American Economic Review 100:2, pp573-8.

90 Although even if the level of the deficit is unchanged, this may have structural effects on the balance between government and consumer spending, and between different taxes, which may have macroeconomic consequences.

6. *Labour Force:* As described above, lower alcohol consumption brings with it lower absenteeism, presenteeism, unemployment and mortality due to drinking. These increase the long run productive capacity of the economy by increasing both the size of the labour force and its productivity.

**Figure 21: Summary of macroeconomic effects of a shift in alcohol spending**

Short run effects	Long run effects
Change in savings rate	Change in investment due to change in savings rate
Change in demand for imports	Change in productivity level and growth
Change in wages share of income	Labour force effects of alcohol consumption
Change in fiscal policy	

## Long run impact of a shift in alcohol spending

As figure 21 summarises, an increase or reduction in spending on alcohol has different effects in the long and short run. Though it is not possible to precisely estimate the net impact of these effects on the UK economy without a sophisticated modelling exercise beyond the scope of this report, we can at least work through the logic of these processes to have a directional idea of their consequences.

Let us start with the long run, the right hand side of the table. The three effects described all point in the direction of lower spending on alcohol being good for the economy in the long run. If people buy less alcohol, they may choose to save some of the money they would have spent on it. Conversely, money spent on alcohol cannot possibly be saved. As a result, lower alcohol spending will likely lead to an (admittedly modest) increase in the savings rate, encouraging higher levels of investment.

A shift away from the alcohol industry is likely to increase productivity too. As we saw on pages 18-9, the alcohol industry has relatively low productivity, and productivity growth in the sector has been relatively slow. The extremely low wages in pubs and bars suggest these industries are particularly unproductive. To put it another way, jobs in pubs and bars are among the least efficient uses of labour for the economy. If this labour is deployed elsewhere, productivity will rise and grow more quickly.

Finally, lower alcohol consumption would almost certainly lead to lower presenteeism, absenteeism, unemployment and mortality. The first of these increases productivity, the last three increase labour supply. Together, they increase productive capacity and increase long run growth.

In the long run, therefore, lower spending on alcohol would most likely increase income and growth, while higher spending on alcohol probably slows economic growth.

## Short run impact of a shift in alcohol spending

The short run impact of a shift in spending from alcohol to other products is much more ambiguous. Most critically, it depends on what the money not spent on alcohol would otherwise be used for. This is extremely difficult to predict. Moreover, the overall net effect on aggregate demand through savings, imports, wages, and fiscal policy depends on complex

interactions that require detailed modelling to fully understand.

To our knowledge, no such model has been produced for the UK, though researchers at the University of Illinois and Johns Hopkins University have made use of the Regional Economic Models, Inc (REMI) model to estimate the macroeconomic effect of changes in alcohol spending in the US.<sup>91</sup> The REMI model uses data on the connections between 169 sectors of the economy to simulate the effects of changes in demand on output, employment, wages, trade and prices.

The REMI model suggests that reducing alcohol consumption through excise taxes has a positive effect on the economy, provided the tax revenues are reinvested by the government. In such scenarios, job growth in other sectors more than compensates for any decline in alcohol industry jobs. For example, the REMI model finds that a 25 cent per drink tax would generate 95,000 jobs in California, 35,000 in Texas and 29,000 in New York.<sup>92</sup>

While it is beyond the scope of this report to replicate such analysis for the UK, the Office for National Statistics (ONS) produces some relevant numbers that can provide some indication of how it might look. The REMI model combines four different approaches to modelling: input-output, general equilibrium, econometric and economic geography.<sup>93</sup> The ONS calculates data underpinning the first of these: input-output tables.

The ONS uses data on the linkages between different industries to estimate the indirect spillover effects for the broader economy of changes in demand for a particular good. The basic logic runs like this: if more alcohol is produced, manufacturers and retailers will have to increase their output. In doing so, they will have to make more purchases from their suppliers – for example, pubs and supermarkets will commission more construction work; producers will buy more bottles from glassware companies etc. These suppliers, in turn, will make more purchases from *their* suppliers, and so on. Moreover, each of these companies will pay more money to their workers, who will spend more, and raise demand for other products.

The net effect of this ripple through the economy is referred to as the economic multiplier. The ONS estimates that the economic multiplier for alcoholic beverages is 1.91, meaning that for every £1 spent on alcohol, an additional 91p of value is created in the wider economy.<sup>94</sup> This is one of the higher multipliers in the economy, ranked 20<sup>th</sup> out of the 127 product types analysed by the ONS.

However, as we have already emphasised, whether spending on alcohol is good or bad for the economy depends critically on how that money would otherwise be used. Soft drinks have an even higher multiplier than alcohol – 2.18. Consequently, if people cut their spending on alcohol by 10% (£3.7 billion, excluding imports) and spent it all on soft drinks, the multiplier suggests the economy would grow by £1 billion overall. Many food products also tend to have higher multipliers – a weighted basket of food products has a multiplier

91 Science Daily (2014), Alcohol taxes can improve health, lead to more jobs, Science Daily (November 18). Available from: <<https://www.sciencedaily.com/releases/2014/11/141118072524.htm>>. [Accessed 13 October 2016].

92 Johns Hopkins Bloomberg School of Public Health Center on Alcohol Marketing and Youth, Consumer Costs and Job Impacts from State Alcohol Tax Increases. Available from: <<http://www.camry.org/research-to-practice/price/alcohol-tax-tool/index.html>>. [Accessed 13 October 2016].

93 Regional Economic Models, Inc., The REMI Model [website]. Available from: <<http://www.remi.com/the-remi-model>>. [Accessed 5 January 2017].

94 ONS (2014), Dataset: UK input-output analytical tables. Available from: <<http://bit.ly/2knKLPH>>. [Accessed 13 October 2016].

of 2.04, implying if people spent 10% less on alcohol and 10% more on food, the economy would be £0.5 billion larger. On the other hand, most products have a lower multiplier than alcohol. A weighted average of all non-alcohol products carries a multiplier of 1.67. This implies that if people spent 10% less on alcohol, and reallocated the money in proportion to the rest of their spending, there would be a cost to the economy of £0.9 billion. Remember, crucially, that these effects only apply to the short run, when demand, not supply, is the constraint on the economy, and so producers are operating short of their full capacity.

Thus different assumptions on how people spend the money they save on alcohol can make a substantial difference to the impact lower consumption has on the economy. This mirrors the findings of a study of the tobacco industry, whose estimates of the impact of a 40% reduction in spending ranged from a loss of 22,000 to a gain of 165,000 jobs, depending on the assumptions made about where this spending was redirected.<sup>95</sup>

While multiplier analysis is attractive because it provides precise numbers, these estimates have a number of limitations which mean we must treat them with caution. Firstly, the ONS only estimates 'indirect' effects – the effect of greater output in an industry – but not 'induced' effects – the effect of greater spending power due to wage rises. Thus the ONS multipliers underestimate the full magnitude of shifting demand.

Secondly, multiplier analysis assumes constant returns to scale. That is, it assumes that to produce 10% more beer, a brewery must hire 10% more labour, 10% more equipment, 10% more bottles etc. In practice, the relationship may not be so straightforward – for example, firms may choose to wait until output rises above a certain threshold before building a new factory, and muddle along with what they have until then. In practice, employment, wages and supply chain effects are unlikely to be as volatile as demand and output.

## Are we in the long run or the short run?

The analysis above suggests (but does not conclusively demonstrate) that lower spending on alcohol is likely to be good for the economy in the long run, but that there is greater uncertainty about its impact in the short run. Which of these should we be more concerned about, the long run or the short run?

Recall that economic growth in the short run comes from boosting aggregate demand, and that this is only effective if the economy is short of full productive capacity. This means that the extent to which short run models accurately reflect the economy depends on the size of the 'output gap', the amount of spare capacity in the economy before it is at its maximum potential. Unfortunately, estimates of the output gap are subject to extreme uncertainty and controversy. However, the Office for Budget Responsibility (OBR) estimates that the UK is just 0.2% below full capacity (other economic forecasters put it slightly higher, but few believe it is over 1%).<sup>96</sup>

If the OBR is correct, this means that in 2016 economic growth is more dependent on boosting Britain's productive capacity than increasing aggregate demand. As we saw on pages 37-8, shifting demand to or from alcohol affects productive capacity in three ways. Firstly, if people do not spend money on alcohol, they are more likely to save it. This in turn

95 Buck, D. et al (1995), op. cit.

96 Office for Budget Responsibility (2016), Economic and Fiscal Outlook November 2016. London: HM Stationery Office, p42.

reduces the cost of borrowing, and in the long run spurs investment, which should improve productivity. Second, output shifts from less productive to more productive sectors. If fewer people are employed in pubs and bars, they will be employed in other industries – and as we saw on pages 18-9, these jobs will almost certainly be more productive. Finally, lower alcohol consumption increases labour supply and working efficiency by reducing absenteeism, presenteeism, unemployment and mortality. This in turn boosts output.

## Empirical evidence of the relationship between alcohol spending and the economy

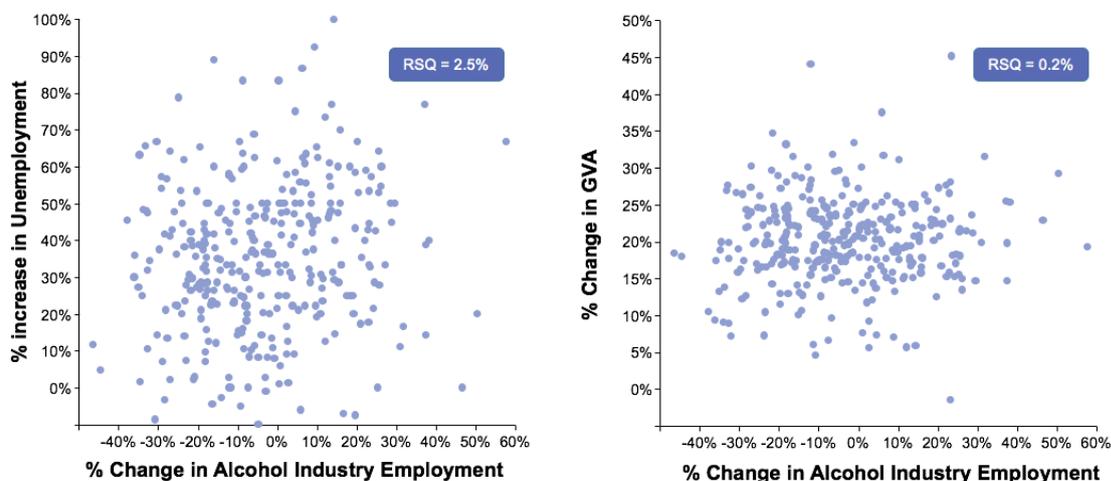
The discussion to this point has been fairly abstract and theoretical. What empirical evidence is there on the effect of alcohol expenditure on national income? Unfortunately, there is very little to go on, but this section looks at two types of evidence: the relationship between recent actual declines in alcohol spending and the UK economy, and econometric analysis of the relationship between drinking and income.

### a. Recent declines in alcohol spending have not had an obvious negative effect on the economy

It is of course simplistic to draw crude correlations between the alcohol industry and the overall state of the economy. However, doing so has the benefit of putting the relative significance of the alcohol industry in perspective, undermining more pessimistic arguments by demonstrating that declining alcohol spending does not spell disaster for the wider economy.

One way to show this is to investigate the relationship between the alcohol industry and the rest of the economy at a local level. Using employment in alcohol production, pubs and bars as a proxy for industry activity in an area, we looked at whether those areas with a greater decline suffered from lower growth or significant increases in unemployment. We found no such evidence, as figure 22 shows. Changes in alcohol industry jobs were unrelated to the overall macroeconomic conditions.

**Figure 22: Change in Alcohol Industry Employment, Unemployment and Gross Value Added by Local Authority in England, 2004-08**



Source: ONS Business Register and Employment Survey, ONS Regional Labour Market: Modelled Unemployment for local and unitary authorities, ONS Regional Gross Value Added (Income Approach by local authority level)

This evidence is clearly far from conclusive. While it shows no clear and obvious relationship between the performance of the alcohol industry and prosperity and unemployment, that does not necessarily mean that none exists. We do not know what the counterfactual is, and whether a more successful alcohol sector would provide more jobs and income still. It could well be that the effect is swamped by other trends, given how small the alcohol industry is relative to the rest of the economy.

b. Econometric analysis suggests alcohol consumption negatively affects growth

Academics have utilised more rigorous methods in seeking to isolate the impact of shifts in the alcohol industry on the wider economy. In a 2014 paper, Cesur and Kelly use econometrics to estimate the effect of beer consumption on economic growth, using data from US states between 1971 and 2007.<sup>97</sup> Initially, Cesur and Kelly investigate the correlation between changes in the volume of beer drunk per head and growth in incomes, controlling for a range of variables, including the initial level of income of the state, the state's level of tax and spending, the size of its labour force, its demographics and its education level. This analysis does not find a statistically significant association.

However, looking at the direct relationship between beer consumption and growth may be misleading because of reverse causation: rising incomes may cause people to drink more beer, obscuring the impact of beer consumption on income. Cesur and Kelly attempt to address this issue by isolating a factor they believe influences beer consumption, but not income: excise duties. They find that in cases where beer consumption rises because of a cut to beer taxes, income growth slows (and vice-versa for a fall in consumption due to tax increases). Specifically, they estimate that a 10% increase in per capita consumption is associated with a statistically significant 0.41 percentage point drop in annual income growth. To put this in perspective, this means that a 10% increase in beer consumption would reduce the rate of economic growth by around a quarter.

To strengthen their point, Cesur and Kelly test the direct relationship between beer duty and growth and find that states with higher levels of duty, controlling for other factors, grow at a faster rate. They estimate that a 25% increase in beer taxes is associated with a 0.24 percentage point increase in income growth. They conclude:

Our results do, contrary to the claims of the Distilled Spirits Council and Beer Serves America, suggest that alcohol excise taxes do not harm economic activity at the aggregate level. If anything, our results show that beer excise tax rates are directly linked to economic growth.<sup>98</sup>

The key assumption of Cesur and Kelly's paper is that alcohol taxes and economic growth do not directly influence one another, but only through changes in consumption. However, it could be objected that governments are more likely to raise taxes in difficult financial conditions – for example, alcohol duty was raised in the UK in 2008 in anticipation of the tough fiscal conditions brought about by the recession. Cesur and Kelly attempt to deflect this concern by pointing out that tobacco taxes are not significantly correlated with economic growth, suggesting there is no general relationship between excise taxes and growth, and that their findings are specific to alcohol.

97 Cesur, R. & Kelly, I. R. (2014), Who pays the bar tab? Beer consumption and economic growth in the United States, *Economic Inquiry* 52:1, pp477-94.

98 Cesur, R. & Kelly, I.R. (2014), op. cit., p490.

## On balance, alcohol's impact on the economy is likely to be fairly small

Over the previous few pages, we have looked at a range of ways of estimating the impact of alcohol on the economy. Because of the inescapable uncertainty around the issue, we cannot pretend to have quantified it with any precision. The analysis above should give us an indication of the magnitude, though, and it is likely that the overall impact – in macroeconomic terms – is fairly small.

Cesur and Kelly's estimates are among the more optimistic about the economic consequences of reducing alcohol, finding that a 10% decrease in per capita beer consumption boosts the annual rate of income growth by 0.41% in the US – a significant gain, raising growth rates by a quarter in their dataset. However, it is worth emphasising that such a large drop in alcohol consumption would be a fairly dramatic occurrence. To put it in context, the largest recent single year fall in UK alcohol consumption was 4.1% in 2008, as the recession was taking hold.<sup>99</sup> Moreover, Cesur and Kelly urge caution in the interpretation of their results: beer consumption was fairly stable in the period they study, so we should be careful in extrapolating their findings to more radical shifts in consumption.

Perhaps the biggest issue with extrapolating Cesur and Kelly's findings to the UK is that such large economic gains appear inconsistent with standard estimates of the economic costs of alcohol. As discussed on page 31, standard estimates suggest that the economic benefit of eliminating *all* drinking would be around 0.4-0.6% of GDP. Yet Cesur and Kelly's findings imply that just a 10% reduction would boost GDP by 0.4% *each year*. This discrepancy could be because the government estimates of the costs of alcohol are too low. But without a clearer idea of where such gains could come from, there are strong grounds to be sceptical that such a large economic benefit would result from lower alcohol consumption.

Note that the government estimates of the economic costs of alcohol as 0.4-0.6% GDP imply a relatively low ceiling on the economic benefits of reducing alcohol-related presenteeism, absenteeism, unemployment and premature mortality. These suggest major reductions in alcohol consumption would boost growth by a fraction of a percent.

The multiplier method (described on page 39-40) suggests that shifting consumption from alcohol to other products could bring economic gains (or indeed losses). Again, however, these are unlikely to be substantial – they suggest a 10% decrease in alcohol consumption could affect the size of the economy by at most £1 billion. This is not an inconsiderable sum of money, but in the context of the whole UK economy, it is a rounding error – less than 0.1% of GDP.

As we have emphasised, these numbers are indicative only, and not intended as a substitute for a more thorough modelling exercise. However, we are sceptical as to whether changes in alcohol consumption would be likely to have a major effect on the size of the economy, for good or for ill.

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99 NHS Health Scotland (2016), op. cit.

## How would lower spending on alcohol affect employment?

### Long run employment effects

It should by now be clear that, by definition, in the long run, the economy is at its full productive capacity. This implies full employment. In practical terms, full employment does not mean nobody will be out of work, but rather that the country is at its 'natural rate of unemployment'. In such a scenario, among other reasons, unemployment may be frictional (workers in the process of moving between jobs), due to a lack of mobility, or caused by a mismatch between skills and employers' needs.

In such a situation, employment can be increased only through structural changes in the labour force, such as women entering work, immigration and, most relevantly, by increasing labour force participation – for example, by getting people with alcohol misuse disorders back into work. Thus lower alcohol consumption may increase employment in the long run.

As described above, the Office for Budget Responsibility maintains that the economy is operating at close to full capacity, and so the UK is near the natural rate of unemployment. The fact that the unemployment rate is currently 4.8% suggests we are close – unemployment has rarely fallen below 5% in the past 40 years.<sup>100</sup>

### Short run employment effects

In the short run, shifts in demand can affect the overall level of employment in two ways. They can affect the level of output in the economy. As an indicative view of the potential scale of such effects, let us use the multiplier estimates described above (page 39-40), which suggested that the economy would grow by or shrink by £1 billion in response to a 10% shift in demand for alcohol. Given that average UK GDP per worker was £59,000 a year in 2014, this would imply employment would rise or fall by 17-25,000.<sup>101</sup>

Yet national averages may be misleading here – the second effect is that output will shift between more or less labour-intensive industries. Pubs, clubs and bars employ many more people for every pound they earn than the average business: GVA per worker in the trade was £18,000 in 2014. It was the same in restaurants, and £23,000 in supermarkets. This is partly a result of the high proportion of part-time staff (which inflates the total number of employees), and partly the relative lack of productivity of these sectors. By contrast, GVA per worker is very high in alcohol manufacturing – £266,000 for spirits and £115,000 for beer.<sup>102</sup> Thus a fall in spending on alcohol involves shifting away from one sector with very high labour intensity (alcohol retail), but also from a sector with very low labour intensity (alcohol production).

The net effect of overall economic growth, and shifts between sectors is difficult to estimate without a detailed model, and as with output, it depends crucially on what people choose to spend their money on rather than alcohol. However, the 'employment effects' produced by

100 ONS (2016), Time series: Unemployment rate. Available from: <<http://bit.ly/2kK5XTe>>. [Accessed 5 January 2016].

101 ONS (2016), Gross Domestic Product (GDP). Available from: <https://www.ons.gov.uk/economy/grossdomesticproductgdp>; GDP; ONS (2016), Overview of the UK population: February 2016. Available from: <<http://bit.ly/2lAMiXC>>. [Accessed 13 October 2016].

102 ONS, Annual Business Survey.

the ONS provide some indication of the size of these effects. These estimate the number of full-time equivalent (FTE) jobs produced in the economy by a £1 million increase in demand for a sector. Unsurprisingly, food and beverage service has a relatively high employment effect – 23 FTEs per £1m, ranked 21st of the 127 industries covered. By contrast alcohol manufacture has a low employment effect, creating 10 jobs for every £1m, ranked 91st.

We can apply these estimates to the scenarios described above – a £1 billion boost to the economy due to a shift to soft drinks and £0.9 billion loss to the economy as alcohol spending is spread around the economy. The net impact on jobs from a 10% decrease in spending on alcohol varies from a gain of 20,000 FTE jobs to a loss of 17,000 jobs.

To reiterate, these are not robust estimates of the likely economic effect of changes in alcohol spending, but should provide an indication of the magnitude of such effects, based on available evidence. The potential gain or loss of 15-20,000 jobs is significant, of course, but should be seen in perspective of the wider economy. Such a shift would account for a 0.07% change in total employment. Moreover, this would not occur overnight, but over a number of months and years.

It is also important to emphasise that it is not only the number of jobs in the economy that matters – the quality of jobs is also important: how secure and well paid they are. These are likely to be inversely related – as economic activity shifts away from pubs, clubs and bars, there will be fewer but better paid jobs; as it shifts from breweries and distilleries there will be more, but less well paid.

## How do different ways of reducing alcohol consumption affect the economy?

The discussion to this point has talked about the economic impact of a change in alcohol consumption and spending without specifying the details of this shift. Yet *how* alcohol consumption rises or falls may be as significant as *how much* it changes.

The key changes that matter are where people drink and what they drink. In light of the differences between on-trade and off-trade and different drinks types discussed above we can surmise the following.

In terms of where people drink, sales in the on-trade are preferable for employment in the short run, because the labour intensity of the on-trade means that it creates more jobs. However, this reflects a lack of productivity that means in the long run, jobs in the off-trade are a more efficient use of labour. Similarly, because prices are higher in the on-trade, a reduction in the volume of on-trade drinking will have a much bigger impact on industry revenue, and in turn aggregate demand, than a similar decrease in off-trade sales. This is why the decline of on-trade drinking has been so devastating for the industry, as figure 5 shows. Yet the corollary of this is that reducing drinking in the on-trade is likely to lead to a higher savings rate than reducing drinking in the off-trade, and this will be better in the long run.

In terms of what people drink, beer and spirits are relatively high productivity domestic industries, and so carry economic benefits in both the short run and long run. In the short run, they sustain aggregate demand by reducing imports (particularly beer, the vast majority of which is produced in the UK). In the long run, their above average productivity (especially

in the case of spirits) supports economic growth. Wine is much more likely to be imported, and so reduces domestic demand in the short run and brings little productivity benefit in the long run. However, wine and spirits generate substantially more tax for the government than beer.<sup>103</sup>

Different policies to reduce harmful consumption have different effects on what and where people choose to drink, and in turn, different economic consequences. Some policies — for example, mass media campaigns or restrictions on advertising — are relatively indiscriminate and so are likely to have similar effects across different types of beverage and retailer. Licensing regulations are more flexible and can be used to encourage or discourage drinking in either the on- or the off-trade, either deliberately or unintentionally.

Alcohol duties are similarly flexible in terms of beverage type. For example, the UK Government's tendency to raise tax on wine before other categories and cut it last probably reduces demand for imports. However, the same rate of duty applies equally to the on-trade and the off-trade (although there is some evidence that duty rises benefits the on-trade relative to the off-trade, while duty cuts do the reverse).<sup>104</sup>

Minimum unit pricing (the imposition of a floor price per unit below which alcohol cannot be sold) has minimal impact on the on-trade but would raise prices significantly in the off-trade. Compared with other alcohol policies, this is more likely to support employment and demand in the short run, although it may undermine productivity in the long run.

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103 Cider consumption broadly has the same economic advantages and disadvantages as beer

104 Bhattacharya, A. (2016), Beer duty cuts – don't believe the hype, Institute of Alcohol Studies Blog (17 September). Available from: <<http://www.ias.org.uk/Blog/Beer-duty-cuts-dont-believe-the-hype.aspx>>. [Accessed 13 October 2016].

## SECTION III: RECENT POLICY DEVELOPMENTS

Of course, the alcohol industry is not only influenced by alcohol-specific policy, but also by many other policies that affect the wider economy. This section examines the likely effect of two the most significant in recent years: the introduction of the national living wage and Britain's exit from the European Union.

### What is the impact of the living wage on the alcohol industry?

The National Living Wage (NLW) was introduced in April 2016, and raised the hourly minimum wage for over-25s from £6.70 to £7.20, with a target of exceeding £9 by 2020.<sup>105</sup> The overall effects of the measure on the economy are disputed, but the OBR forecasts that it will raise productivity and reduce employment, with the net result that real GDP will be 0.1% lower by 2020. Unemployment is expected to be 60,000 higher as a result of the change.<sup>106</sup>

Hospitality, among the lowest paying sectors of the economy (page 15-6), has been heavily affected by the change. As described above, the majority of pub, club and bar employees earned below the NLW prior to its introduction. However, only half of workers in the industry are covered by the legislation since 49% are under 25 (page 16). Using conservative assumptions, we estimate that the cost to pubs, clubs and bars of implementing the full living wage to over 25s would be in the order of £125m (see appendix D for details). Catton Hospitality believe the cost to the entire hospitality industry is at least £372m.<sup>107</sup>

The hospitality trade has responded in a number of different ways. Most obviously, the NLW encourages them to hire under 25s at the expense of older workers. In a recent survey, 31% of pubs said that they would stop employing workers over the age of 25. Otherwise, the cost is split between cutting employment costs and passing price increases onto customers. As of July, 24% had reduced staffing hours, and 21% staffing levels,<sup>108</sup> but 56% intend to cut more jobs in the future.<sup>109</sup> Around 4 in 10 have raised prices to compensate.<sup>110</sup>

The off-trade is expected to be less affected by the NLW, at least initially. Most major supermarkets had a basic wage above £7.20 even before April.<sup>111</sup> However, many fewer grocery employees (26%) are under 25, so more of the lowest paid workers in the sector will be affected by a rising living wage.<sup>112</sup>

105 BBC News (2016) The new National Living Wage and you (1 April). Available from: <<http://www.bbc.co.uk/news/business-33463231>>. [Accessed 13 October 2016].

106 Office for Budget Responsibility (2016), Economic and fiscal outlook March 2016. London: HM Stationery Office, pp204-5.

107 Berry, M. (2016), The National Living Wage: How is it going to impact pubs?, Publican's Morning Advertiser (29 March). Available from: <<http://bit.ly/2kK8VXP>>. [Accessed 13 October 2016].

108 CGA Peach (2016), The National Living Wage: what pub restaurant groups really think. Available from: <<http://bit.ly/2kK97qa>>. [Accessed 13 October 2016].

109 Ibid; Berry, M. (2016), PMA survey: Only 20% see the new national living wage as positive, Publican's Morning Advertiser (30 March). Available from: <<http://www.morningadvertiser.co.uk/Legal/Legislation/National-Living-Wage-pubs-April-2016>>. [Accessed 13 October 2016].

110 Ibid.

111 Felstead, A. (2015), Big UK supermarkets adopt different living wage strategies, Financial Times (28 October). Available from: <<http://www.ft.com/cms/s/0/1b3abf2a-7c08-11e5-98fb-5a6d4728f74e.html#axzz4KhEWzHUB>>. [Accessed 13 October 2016].

112 ONS (2016), 4 digit occupation and 4 digit industry by age bands in England, Wales, Scotland, Northern Ireland and UK and GB totals: Jan to Dec 2015. Available from: <<http://bit.ly/2kBKsSg>>. [Accessed 19 September 2016].

The net result is that it is likely, though not inevitable, that prices will rise higher in the on-trade than the off-trade, exacerbating the ongoing shift away from pubs to supermarkets.

## What is the impact of Brexit on the alcohol industry?

Britain's decision last June to leave the European Union has cast its shadow over most political and economic issues. Alcohol is no different. While there remains huge uncertainty over how things will change, we can anticipate the following issues:

### Trade

The alcohol industry was briefly drawn into the referendum campaign in March 2016, with then Prime Minister David Cameron claiming that the UK's exports of wine and spirits (predominantly whisky) were dependent on the access to the EU market, and the trade deals negotiated by the EU with other countries.<sup>113</sup> Sales to the EU accounted for 35% of British alcohol exports in 2014.<sup>114</sup> This is reflected in the fact that 90% of Wine and Spirit Trade Association members favoured remaining in the EU, seeing it as good for their business.<sup>115</sup>

The decision to leave the EU has led to significant uncertainty over the terms on which British alcohol producers will be able to sell their products in the EU, and further uncertainty over whether trade terms with other countries will be more favourable. However, at least in the short term, the decision has weakened the pound, which means that exports will be cheaper for people abroad.<sup>116</sup>

### Immigration

A central issue in the referendum debate was immigration. While the specific terms of the post-EU settlement have many years of negotiation to go, it is clear that the Government will seek greater controls over migration from the EU, and, most likely, to reduce the number of EU immigrants.<sup>117</sup> This is a source of concern for the hospitality sector, which is "reliant on our migrant workforce", according to Association of Licensed Multiple Retailers chief executive Kate Nicholls.<sup>118</sup> 17% of workers in hospitality and food services are non-UK nationals, with 11% from European Economic Area.<sup>119</sup>

To lose a significant proportion of these employees would tighten the labour market, and in doing so have similar effects to the national living wage – it may lead to lower employment in the industry, and higher wage costs. This, in turn, could lead to higher prices, particularly in the on-trade, and so accelerate the shift towards the off-trade.

113 Craig, J. (2016), PM: Brexit Could Batter Britain's Booze Trade, Sky News (22 March). Available from: <<http://news.sky.com/story/pm-brex-it-could-batter-britains-booze-trade-10215361>>. [Accessed 13 October 2016].

114 HM Revenue & Customs uktradeinfo, Build your own tables, op. cit.

115 Robinson, N. (2016), Cameron: 'a stronger alcohol industry lies within the EU', Publican's Morning Advertiser (29 March). Available from: <<http://www.morningadvertiser.co.uk/Drinks/Wine/Cameron-on-EU-referendum-alcohol-safer-within>>. [Accessed 13 October 2016].

116 Eads, L. (2016), Brexit a 'rude awakening' for the drinks industry, The Drinks Business (11 July). Available from: <<http://bit.ly/2l6O4iw>>. [Accessed 13 October 2016].

117 Swinford, S. (2016), Theresa May considers banning migrants from coming to Britain unless they have a job, Telegraph (5 September). Available from: <<http://bit.ly/2knYhTu>>. [Accessed 13 October 2016].

118 Gross, O. (2016), Theresa May's rejection of points-based immigration 'beneficial' for pubs, Publican's Morning Advertiser (13 September). Available from: <<http://bit.ly/2kZtePx>>. [Accessed 13 October 2016].

119 ONS (2016), User requested data: The nationality of workers in employment in the UK by industry sector, 2015. Available from: <<http://bit.ly/2kCeR2N>>. [Accessed 13 October 2016].

## Regulation

The potential for conflict between public health policies and trade rules is now well established.<sup>120</sup> Most notably, EU treaties have been used to obstruct the Scottish Government's legislation of a minimum unit price for alcohol. However, such regulations and institutions have also been seen as threatening to developing countries' ability to control their own alcohol markets. If this trend is reversed, it may have negative consequences for British alcohol producers' ability to market their products abroad (though it may also bring health benefits for those countries).

Renegotiation of these instruments will affect governments' capacity to implement policies to reduce alcohol harm, though it is not yet clear whether this freedom will be enhanced or restricted. In general, if governments can control alcohol more effectively, this would be expected to have a negative effect on the alcohol industry. However, this need not necessarily be the case – for example, modelling of the effects of a minimum unit price suggest that retailers would gain revenue.<sup>121</sup> Moreover, the effects of policies in shifting demand between products and channels may be as significant as the overall effect on the market. For example, if the EU's Directives on tax are lifted the UK will be able to tax wine and cider proportionate to their strength, which would be likely to divert sales from these products towards beer and spirits.

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120 Institute of Alcohol Studies (2016), Factsheet - The alcohol industry, pp47-8. Available from: <http://www.ias.org.uk/Alcohol-knowledge-centre/The-alcohol-industry.aspx> [Accessed 19 September 2016].

121 Angus, C. et al (2016), Model-based appraisal of the comparative impact of Minimum Unit Pricing and taxation policies in Scotland. Sheffield: SchARR, University of Sheffield, pp55-6.

## CONCLUSION

This report has surveyed the role of alcohol in the British economy. It has shown that the alcohol industry represents a small but not insignificant part of the economy, comprising two very different types of activity, of roughly equal size. The manufacture of alcohol (primarily beer and spirits) employs relatively few people (fewer than 30,000), but their work is relatively well paid and productive. By contrast, the sale of alcohol, particularly through pubs, clubs and bars, employs many more people (over 500,000), but in relatively unproductive and low paid positions.

Contrary to industry claims, we found few areas that are significantly reliant on alcohol industry jobs, and little to suggest that areas that are poorer or have higher unemployment are any more likely to look to the industry for economic activity. The UK runs a small trade surplus in alcohol (£1.7 billion), but this is small relative to the overall current account deficit (£85 billion).

There is substantial evidence that alcohol imposes major costs to the British economy – it contributes to people being less productive at work (presenteeism), missing work (absenteeism), failing to find work, and in the most extreme cases, dying prematurely. Quantifying these costs is trickier, though the best available estimates suggest it is in the range of £8-11 billion (this accounts only for economic costs and not health and crime, and so should not be compared with the £21-52 billion estimated wider social costs of alcohol).

The report also looked at the effect of reducing demand for alcohol on the economy. It finds little reason to suspect that lower levels of drinking would have a negative effect on the economy, and in fact, some reason to think it would be beneficial. Lower presenteeism, absenteeism, unemployment and mortality are clear benefits. However, in the long run, less drinking may boost productivity by encouraging saving and diverting labour to more productive sectors. At a time when productivity is the major challenge facing the UK economy, such shifts could bring economic benefits.

The 'short run' effect – in the sense used by economists to refer to the period when there is a shortage of demand in the economy – of lower alcohol spending is more ambiguous. Yet the Office for Budget Responsibility's economic indicators suggest this is less relevant to the present state of the UK economy than long run considerations.

Academic econometric studies from the US do not find any evidence that lower alcohol consumption is bad for economic growth. Indeed, they suggest that lowering drinking could *increase* the rate of income growth.

*How* alcohol consumption is reduced may be as economically consequential as *how much* it falls by. Lower on-trade spending is bad for the industry, and for employment and incomes in the short run, but may have productivity benefits in the long run. Reducing beer and spirit consumption is worse for the British economy (though not the Treasury) than reducing wine consumption. Different alcohol policies affect different segments of the industry differently – for example, a minimum unit price would discourage drinking in the off-trade, but most likely have little effect on the on-trade.

Alcohol policy is far from the only government influence on the alcohol industry. In particular, the National Living Wage and Britain's exit from the European Union present major challenges, with significant consequences on the economy at large.

## RECOMMENDATIONS FOR FUTURE RESEARCH

This report has attempted to address the question of how the British economy would be affected by changes in alcohol consumption, using the relevant economic theory and available economic statistics and calculations. Throughout, we have been at pains to emphasise that this question cannot be adequately answered without a robust modelling exercise that is beyond the scope of this report. Such numbers as we have produced are only indicative and not a substitute for such a project.

It should be clear, then, that there would be significant benefit from a study that pulled together the logic and data in this report to model the macroeconomic impact of changes in alcohol consumption, along the lines of the REMI model in the US. Ideally, this study would not just reflect the impact of changes in demand for alcohol and its substitutes, but also the supply-side effects of lower consumption on labour participation and productivity.

Unfortunately, as this report has discovered, there are major gaps in our understanding of these supply-side costs. In particular, it has been many years since anybody undertook a comprehensive review of the economic costs of alcohol in the UK, meaning that the most widely used government estimates rely on methodology and assumptions that do not necessarily reflect the latest available evidence. Updating these estimates would be another fruitful programme of work.

However, such a project would be limited by the lack of robust evidence on a number of economic consequences of drinking. Chief among these is presenteeism, where we have to rely on commercial research because of a lack of academic evidence of its prevalence. Another area where there is surprisingly little research is the relationship between unemployment and drinking in the UK, where our best evidence comes from a single paper over ten years ago. Further research into these areas would help us to better understand the relationship between alcohol and the economy.

## APPENDICES

### Appendix A: UK alcohol industry output and value added

We use NHS Health Scotland's Monitoring and Evaluating Scotland's Alcohol Strategy (MESAS) project's retail sales database as the primary source for our data on the size of the UK alcohol market.<sup>122</sup> We believe this is the most reliable set of figures, as it draws on primary data from Nielsen and CGA Strategy, which are widely regarded as the most authoritative sources of information on off-trade and on-trade sales, respectively. This dataset was also the one most consistent with other data sources – for example, the Wine and Spirit Trade Association's estimate of £39 billion sales is too small to account for plausible producer and retailer margins.<sup>123</sup> Finally, the MESAS numbers are broadly consistent with the volume of alcohol cleared for duty.<sup>124</sup>

MESAS provide estimates for the volume and value of sales through the on-trade and off-trade in Scotland, England and Wales. In 2014, this came to a total of £40.6 billion. However, to account for the fact that MESAS' data does not cover Northern Ireland, this number was scaled up by 2.9%, in line with Northern Ireland's share of alcohol duty revenue, to produce £41.7 billion.<sup>125</sup>

This £41.7 billion represents the UK's domestic consumption of alcohol. To calculate domestic production, we need to subtract imports and add exports. HMRC data shows that in 2014, imports were valued at £4.3 billion, while exports generated £6.0 billion, meaning that net exports were £1.7 billion.<sup>126</sup> Adding this to domestic consumption gives us a figure of £43.4 billion for domestic production.

To arrive at the alcohol industry's contribution to UK GDP, we need to add gross capital formation. We estimate this to be £2.6 billion. For alcohol producers, we take the £0.6 billion capital expenditure recorded by drinks manufacturers in the ONS Annual Business Survey.<sup>127</sup> For restaurants, pubs, clubs, bars, hotels and grocery retailers, we multiply the capital expenditure they record in the Annual Business Survey by our estimate of the percentage of their turnover that comes from alcohol (see appendix B). This sums to £1.8 billion. We attribute a further £0.1 billion of capital spending from alcohol producers' supply chain, using data from the ONS' Supply and Use tables for capital expenditure, and weighting by proportion of turnover that comes from sales to alcohol producers.<sup>128</sup> Adding £2.6 billion of capital formation to the £43.4 billion domestic production brings us to our estimate of £46.0 billion for the alcohol industry's contribution to GDP.

122 NHS Health Scotland (2016), op. cit.

123 WSTA (2015), WSTA Market Overview 2015 Edition. London: International Wine & Spirit Centre.

124 HM Revenue & Customs (2016), op. cit.

125 HMRC (2015), A disaggregation of HMRC tax receipts between England, Wales, Scotland and Northern Ireland, p22. Available from: <<http://bit.ly/2kBLBcw>>. [Accessed 19 September 2016].

126 HM Revenue & Customs uktradeinfo, Build your own tables, op. cit.

127 ONS, Annual Business Survey.

128 ONS (2016), Supply and Use Tables, 1997-2014.

To split domestic consumption into the categories in figure 2, we multiply it by the share of sales of beer, cider, wine and spirits from MESAS (we have categorised RTDs as spirits, fortified wines as wines, and perry as cider).

Import and export revenue by drinks category is taken from the HMRC data mentioned above.<sup>129</sup>

To split tax revenue, we take the figures provided by HMRC on the amount of duty paid on each product, and add VAT at 20% of pre-tax sales value.<sup>130</sup>

The value attributed to the on-trade is calculated by making assumptions about the gross margin received on each product type in the on-trade and applying these to revenue (excluding VAT). Beer and cider are assumed to generate margins of 35%, while wine and spirits are assumed to generate margins of 60%. This implies an average margin of 45%, which is in line with the margin achieved by pubs, clubs and bars in the Annual Business Survey.<sup>131</sup> The higher margins on wine and spirits are justified with reference to industry data.<sup>132</sup>

Wholesaler value added was taken from the Annual Business Survey, and split between products in proportion to the summed value of on-trade and off-trade retail sales for each product.<sup>133</sup>

Total off-trade value was taken as the balance once other items had been subtracted from total value, and distributed between categories in a way that approximated the results of assuming a 20% margin for beer and cider and 30% margin for wine and spirits. This fits with reported margins from US convenience stores.<sup>134</sup>

Producers' value is based on producers' share of value in the ONS' supply and use tables.<sup>135</sup>

## Appendix B: UK alcohol industry employment

Our primary source for employment data is the ONS' Business Register and Employment Survey (BRES). We were generously granted access to detailed results via the Nomis service.<sup>136</sup>

Estimates for employment in production by category were taken directly from BRES. Wholesaler employment was taken from the same source, and split between products in proportion to beer, cider, wine and spirits' share of total alcohol sales.

To calculate on-trade employment, we took the number of people employed in restaurants, beverage service activities and hotels according to the Annual Business Survey (ABS),<sup>137</sup>

129 HMRC, uktradeinfo.

130 HMRC, Alcohol Bulletin June 2016.

131 ONS, Annual Business Survey.

132 Wine and Spirit Trade Association (2013), Economic Impact Assessment December 2013, p32.

133 ONS, Annual Business Survey.

134 NPS Commercial Services Program (2014), Technical Bulletin: 2014 Convenience Store Markup Percentages. Available from: <http://bit.ly/2kZlCg1>. [Accessed 19 September 2016].

135 ONS (2016), Supply and Use Tables, 1997-2014.

136 <https://www.nomisweb.co.uk/>.

137 ONS, Annual Business Survey.

and multiplied these by the proportion of revenue in each industry we estimated to come from alcohol. These proportions were calculated by first calculating alcohol revenue in each channel, multiplying the total sales from MESAS by the share of each product sold in each channel from the BBPA.<sup>138</sup> These revenues were then divided by total revenue for each industry, taken from the ABS.

Off-trade employment is calculated by the same method, dividing off-trade alcohol revenue (from appendix A) by total revenue (for grocery and specialist beverage retailers) from the ABS to get the proportion of revenue from alcohol. This proportion is multiplied by total employment in the sector, from the ABS. This total figure is then distributed in proportion to the share of off-trade alcohol revenue from beer, cider, wine and spirits estimated in appendix A.

Supply chain jobs are calculated by taking the proportion of revenue in each industry from supplying alcohol producers, the beverage service industry and grocery stores and multiplying it by the number of people each industry employs. Employment data comes from BRES. The percentage of sales to the alcohol industry for each industry is calculated using ONS Supply and Use data.<sup>139</sup> Only industries which rely on alcohol producers and retailers for more than 1% of their sales are considered material enough to be included. Linkages that are clearly unrelated to the alcohol industry – for example the sale of food to pubs, bars and clubs are also excluded. These jobs are attributed between drinks categories in proportion to each product's share of total UK sales.

## Appendix C: UK alcohol revenue drivers

To produce figure 6, we attempted to isolate the contributions of different market trends on the change in UK alcohol expenditure between 2004 and 2014, holding everything else constant. We did so using NHS Health Scotland's MESAS data for the reasons outlined above in appendix A.<sup>140</sup>

We began by calculating the impact of inflation. The Consumer Price Index rose by 31% between 2004 and 2014, so we applied this to UK alcohol expenditure in 2004 (£33.8 billion) to find that inflation alone would have contributed £10.4 billion to the alcohol industry's revenue.<sup>141</sup>

We then used MESAS' data on the size of the 16+ population to estimate the effect of population growth. Since this age group grew by 9% between 2004 and 2014, this implies that population growth contributed £2.9 billion to industry revenue growth.

MESAS' data also suggests that UK per capita consumption among over 16s fell by 13% from 10.5 litres per head to 9.2 litres per head between 2004 and 2014. Multiplying 2004 expenditure by 13% suggests that falling per capita consumption reduced revenue by £4.3 billion.

To calculate the impact of the shift from the on- to off-trade, we began with the observation

138 British Beer & Pub Association (2016), Statistical Handbook 2016, Table B13.

139 ONS (2016), Supply and Use Tables, 1997-2014.

140 NHS Health Scotland (2016), op. cit.

141 ONS (2017), Time series: CPI All Items Index: Estimated pre-97 2015=100. Available from: <https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/d7bt/mm23> [Accessed 26 January 2017].

that the on-trade's share of volume sales has fallen from 43% to 31% between 2004 and 2014 (from MESAS). This 12% of the market would have accounted for 59 million litres of pure alcohol in 2004 (we use the 2004 market size as we want to strip out the effect of population growth and shifts in per capita consumption). The average price per litre of alcohol in 2004 was £102.93 in the on-trade, but £39.19 in the off-trade, a differential of £63.74. Multiplying this differential by 59m produces £3.8 billion, the negative impact of the shift to the off-trade on alcohol revenue.

To calculate the impact of price increases above inflation (holding volume and channel share constant), we multiply the volume of alcohol sold in both the on-trade and off-trade in 2004 by average price per litre in each channel in 2014. Summing these, we find that spending on alcohol would have been £50.4 billion at 2014 prices, which is £16.7 billion greater than the 2004 market size of £33.8 billion. We then strip out inflation by subtracting the £10.4 billion we calculated above, to produce a net effect of £6.3 billion.

Finally, we need to account for interaction effects – the consequence of the fact that all these trends have taken place simultaneously, and so affect the magnitude of one another. For example, the price discrepancy between on and off-trade increased between 2004 and 2014, which means that our estimate of the effect of channel shift is an underestimate. Similarly, the full effect of lower per capita consumption is understated because we do not account for increases in the average price paid per litre. Summing the estimates we have made above comes to £11.5 billion. But we know that alcohol expenditure actually only rose by £7.9 billion. This implies that the interaction effect is -£3.6 billion to bring these numbers into balance.

## Appendix D: Estimated impact of the National Living Wage

The Office for Budget Responsibility (OBR) forecasts that by 2020 the National Living Wage (NLW) will be set at £9.35.<sup>142</sup> Using the OBR's inflation forecast,<sup>143</sup> this is equivalent to £8.61 in 2015 prices. ONS' Annual Survey of Hours and Earnings suggests that workers at least up to the 80<sup>th</sup> percentile (£8.38) in pubs, clubs, and bars are paid less than this.<sup>144</sup> Since 49% of workers in the sector are under 25 and unaffected by the NLW, we need to exclude this group. We assume that the worst paid workers in the sector are all under 25, and so the NLW only affects workers between the 50<sup>th</sup> and 80<sup>th</sup> percentile. This is clearly a conservative assumption, because some under 25s may be better paid than some over 25s, and also because some people above the 80<sup>th</sup> percentile will be affected.

We make a further conservative assumption, which is that workers in a particular decile are paid at the upper limit. Thus we assume that everybody between the 50<sup>th</sup> and 60<sup>th</sup> percentile is paid £7.00, when in practice it is only those exactly in the 60<sup>th</sup> percentile that is actually paid this rate. We assume those between the 50<sup>th</sup> to 60<sup>th</sup> percentile are paid £1.61 extra per hour; those between the 60<sup>th</sup> and 70<sup>th</sup> are paid £0.40 extra and those between the 70<sup>th</sup> and 80<sup>th</sup> £0.23 – this brings them all up to £8.61.

142 Office for Budget Responsibility (2015), Economic and Fiscal Outlook November 2015. London: HM Stationery Office, p201.

143 Office for Budget Responsibility (2015), Economic and Fiscal Outlook November 2015, Table 1.7.

144 ONS (2015), Industry (4 digit SIC) – ASHE: Table 16.5a, op. cit.

To calculate the total number of hours worked in each group, we assume that those in the 50-60<sup>th</sup> percentile work 20 hours a week, those in the 60-70<sup>th</sup> work 30, and those 70-80<sup>th</sup> work 40. This reflects the fact that 30% of club and bar workers, and 35% of pub workers, are full-time.<sup>145</sup> Again, we make the conservative assumption that the worst paid workers are all part-time. Multiplying the number of people in each decile by their assumed working hours implies the 50-60<sup>th</sup> percentile works 46.9 million hours a year, the 60-70<sup>th</sup> works 70.4 million and 70-80<sup>th</sup> 93.9 million.

Multiplying the total working hours in each decile by the incremental wage that needs to be paid in each decile implies that the National Living Wage will cost £125.2 million, assuming no change in labour demand.

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145 ONS, Business Register and Employment Survey.

# SPLITTING THE BILL: ALCOHOL'S IMPACT ON THE ECONOMY

## **An Institute of Alcohol Studies report written by Aveek Bhattacharya**

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**Alliance House 12 Caxton Street London SW1H 0QS**

**Telephone 0207 222 4001**

**Email [info@ias.org.uk](mailto:info@ias.org.uk)**

**Twitter [@InstAlcStud](https://twitter.com/InstAlcStud)**

**[www.ias.org.uk](http://www.ias.org.uk)**

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