The Wine and Spirit Trade Association

Economic Impact Assessment

December 2013

Contents

1. Executive Summary

1.1 Background to the study

In October 2013, EY were commissioned by The Wine and Spirit Trade Association (WSTA) to undertake an Economic Analysis of the wine and spirit industry in the UK. WSTA is the UK organisation for the wine and spirit industry representing over 340 companies producing, importing, transporting and selling wines and spirit.

1.2 Summary of key findings

Below is a table summarising the key findings in this report.

Table 1: Key findings

In 2012/3, the wine and spirit industry directly or indirectly supported over £40bn of economic activity in the UK. Of this, £22bn is attributable to activity directly related to the wine and spirit industry, with the remaining £18bn generated through indirect and induced channels.
This economic activity translates into a contribution to Gross Domestic Product worth over £19bn. The largest share is accounted by the wine and spirit industry's direct contribution to GDP (53%) with an additional 38% generated through the industry's supply chain and a further 9% from the additional induced consumption of employees.
The wine and spirit industry directly or indirectly supported around 475,000 jobs in the UK in 2012, with the majority (69%) directly dependent on the industry's activity.
In 2012, the wine and spirit industry contributed a total of £14.5bn to Her Majesty's Treasury (HMT). The majority of this contribution (91%) is directly dependent on the wine and spirit industry's activity, made up of VAT, excise duty, employment taxes and corporation tax.
The ending of the ADE in 2014 would lead to an increase in total contribution to Economic Activity from £43.2bn to £44.2bn for 2014.
Upon removal of the ADE in 2014, Direct Gross Value Added increases from £11.0bn to £11.2bn.
Employment in the wine and spirit industry is expected to increase employment by over 6,000 if the escalator is scrapped.
As a consequence of the assumptions made and the Price Elasticity of Demand (PED) used in the model, the total effect of the removal of the ADE is an increase in the contribution to public finances of £230m in 2014, rising to £265m in 2018.

1.3 Methodology and approach

The economic analysis undertaken by EY includes:

- A snapshot of the impact the wine and spirit industry currently has on the UK in terms of GDP, employment and government revenues measured in terms of direct, indirect and induced effects.
- An impact assessment of the Alcohol Duty Escalator on the wine and spirit industry and the wider economy.

1.3.1 Contribution of the wine and spirit industry

The wine and spirit industry contributes directly to the UK's Gross Domestic Product[1] ("GDP") through the Gross Value Added[2] ("GVA") it produces; it creates jobs throughout its many organisations, and contributes to public finances through direct and indirect taxes.

In addition to this, the wine and spirit industry generates further demand for economic activity through its supply chain and via the increased economic consumption by its employees. This in turn creates additional GDP, supports jobs and contributes to the public purse through a variety of taxes.

The full benefits the wine and spirit industry generates for the UK economy can be estimated by calculating the Direct, Indirect and Induced effects, as defined below:

- The Direct Effect of the wine and spirit industry's activity, i.e. its contribution to the UK's Gross Domestic Product and the jobs it creates;
- The Indirect Effect arising from the wine and spirit industry's demand for goods and services along the supply chain; and
- The Induced Effect of the wine and spirit industry's and its suppliers' employees spending a share of their income on the consumption of goods and services in the wider economy.

In 2012[3], the wine and spirit industry directly or indirectly supported over £40bn of economic activity in the UK. Of this, £22bn is attributable to activity directly related to the wine and spirit industry, with the remaining £18bn generated through indirect and induced channels.

This economic activity translates into a contribution to Gross Domestic Product worth over £19bn. The largest share is accounted by the wine and spirit industry's direct contribution to GDP (53%) with an additional 38% generated through the industry's supply chain and a further 9% from the additional induced consumption of employees.

Table 2: Economic Contribution of the wine and spirit industry, 2012

	2012
Total contribution to Economic Activity (£m)	40,801
Total contribution to GDP (£m)	19,585
Total contribution to employment	474,993
Total contribution to public finances (£m)	14,469

The wine and spirit industry directly or indirectly supported around 475,000 jobs in the UK in 2012, with the majority (69%) directly dependent on the industry's activity. This figure does not include employment at major supermarkets in the UK who support around 800,000 jobs in total. If only 1% of their sales could be attributed to wine and spirits this translates to approximately 8,000 additional jobs supported by the industry.

[1] Gross Domestic Product ("GDP") provides a measure of the total economic activity in a country. It can be measured using income, expenditure or output.
[2] Gross Value Added ("GVA") is a measure of the value of goods and services produced in the economy and can be defined as outputs less the cost of raw materials and other inputs used up in production (intermediate consumption), i.e., the value added by any unit engaged in production.
[3] For the purposes of this study, we define a year as a UK tax year. For example, 2012 is the tax year stemming from April 2012 to end of March 2013.

In 2012, the wine and spirit industry contributed a total of £14.5bn to Her Majesty's Treasury (HMT). The majority of this contribution (91%) is directly dependent on the wine and spirit industry's activity, made up of VAT, excise duty, employment taxes[4] and corporation tax. Indirect and induced contributions to public finances are made up of employment taxes and corporation tax paid by companies and employees in the wine and spirit industry's supply chain.

1.3.2 Impact of the Alcohol Duty Escalator

To assess the impact of the Alcohol Duty Escalator (ADE), two scenarios are compared:

- Scenario 1: ADE continues until April 2014 (ADE is scrapped by the UK Government in 2014. After April 2014, it is assumed that excise duty rises by inflation each year, as was the case prior to the introduction of the ADE).

- Scenario 2: ADE continues until April 2018 (assumes that ADE continues past 2014 and is removed in April 2018). This time frame was chosen to represent another political cycle, whilst still allowing for reliable forecast data. It also ties in with the length of time the current ADE has been implemented for.

There are two impacts of the removal of the ADE on tax receipts. Firstly, Alcohol Duty receipts fall by the same percentage amount as the reduction in Alcohol Duty. However, at the same time, demand increases due to a change in price, which leads to an increase in total tax receipts. Therefore, the overall direction of the change in total tax receipts depends on which of these effects is larger.

Removal in 2014 compared to removal in 2015

It is estimated that if ADE were removed in 2015, rather than 2014, there would be a negative impact on output, GVA, employment and tax revenues in the UK economy in 2014. The total contribution that the wine and spirit industry would make in 2014 would fall from £44.2bn to £43.2bn. This is equivalent to a fall of £469m in GDP, a fall of almost 2% in employment for the sector and a fall in tax receipts of around £250m.

The table below compares the estimated contribution, between 2012 and 2018, that the wine and spirit industry would have on the UK economy under scenario 1 to the extension of the ADE by another year.

Table 3: Comparison of Economic contribution of ADE end in 2014 to ADE end in 2015

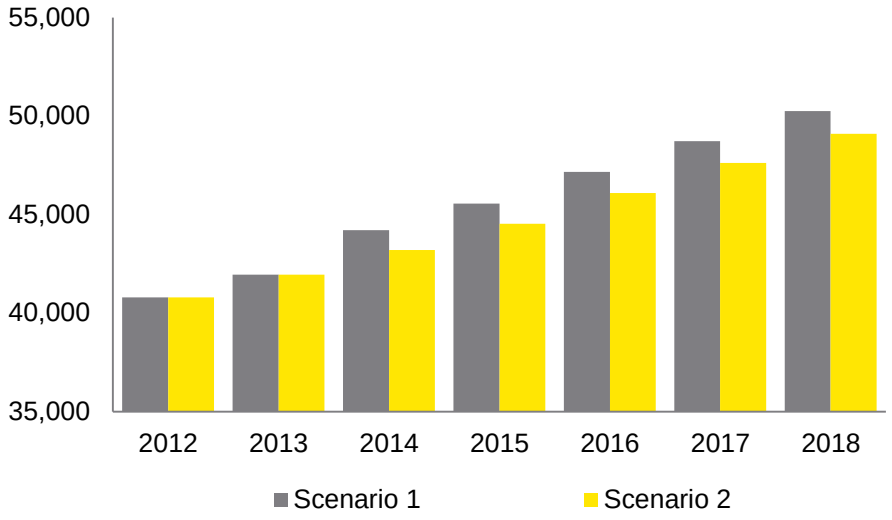
	ADE end in 2014	ADE end in 2015
Total contribution to Economic Activity (£m) in 2014	44,208	43,203
Total contribution to GDP (£m) in 2014	21,193	20,725
Total contribution to employment in 2014	508,988	499,464
Total contribution to public finances (£m) in 2014	15,270	15,012

[4] Employment taxes include employee National Insurance Contributions, employer National Insurance Contributions and Income Tax paid by employees.

Scenario 1 compared to scenario 2

The total impact on contribution to economic activity comparing when ADE is scrapped in 2014 to when it is scrapped in 2018 is shown in Figure 1 below. The industry's contribution to economic activity is estimated to grow at 3% a year on average under scenario 1 compared to 2.68% when ADE is extended to 2018.

Figure 1: Contribution to Economic Activity (£m), by year



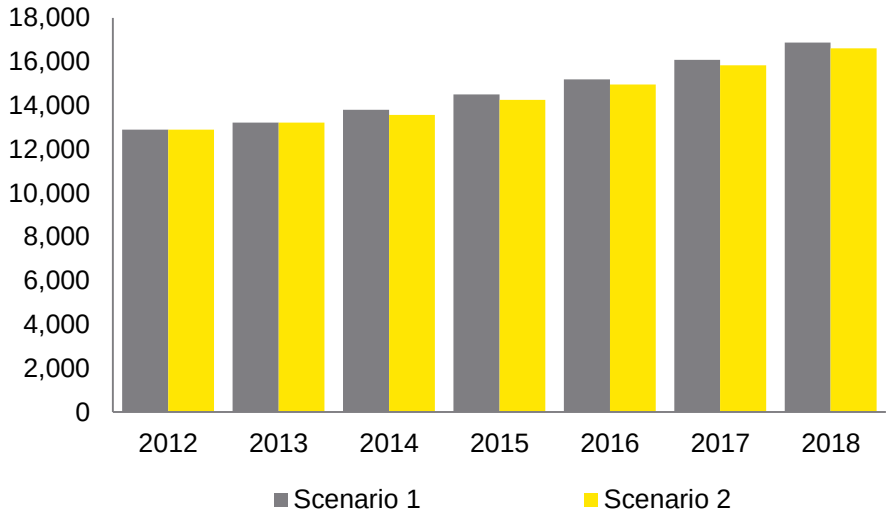
Upon removal of the ADE in 2014, Direct GVA increases from £11.0bn to £11.2bn and employment in the wine and spirit industry is expected to increase by over 6,000 employees.

Table 4: Contribution to GVA, Employment and Tax

	ADE to 2014	ADE to 2018
Direct contribution to GDP (£m) in 2014	11,233	10,995
Direct contribution to employment in 2014	351,799	345,273
Direct contribution to public finances (£m) in 2014	13,802	13,572

As a consequence of the assumptions made and the Price Elasticity of Demand (PED) used in the model, the total effect of the removal of the ADE is an increase in the contribution to public finances of £230m in 2014, rising to £262m in 2018 (Figure 2).

Figure 2: Contribution to public finances (£m), by year



1.3.3 Other considerations for the wine and spirit industry

The analysis does not capture the potential losses to the economy that are caused by alcohol fraud, nor does it consider the impact of alcohol fraud. Examples and impacts of alcohol fraud include the re-labelling of products so that health warnings or contents are mis-represented, non-payment of tax which leads to tax gaps for the government. HMRC estimates that alcohol fraud results in revenue losses to the UK Government of up to £1.2bn per year[5]. The UK is particularly susceptible to alcohol fraud due to cross-Channel smuggling of cheaper goods from continental Europe. Regulations that put further pressure on UK prices and the resulting impact on affordability may exacerbate the issue further.

This report does not analyse the impact on fraud of the regulatory pressures faced by the industry, and therefore may be underestimate the potential benefits from the removal of the ADE.

[5] Source: HMRC

2. Overview of the wine and spirit industry

The wine and spirit industry covers a diverse range of economic activity including export industries for products such as such as Scotch Whisky and gin, a fledgling but growing wine industry, large producers, logistics companies and large and small retailers.

2.1 The UK wine industry

The UK wine industry sold 144 million nine litre cases of wine in 2012[6] and is dominated by importers from traditional wine producing countries, such as Australia (17% of UK sales), Italy (15%) and France (15%). The UK is a major consumer of wine but only a minor producer, accounting for just 0.25% of total wine sales in the UK[7].

In recent years the production of wine in the UK has been helped by warmer British summers and production is expected to expand in the future. The area of vines planted in England and Wales has doubled from 761 hectares in 2004 to approximately 1,500 hectares today.[8] 448 commercial vineyards, such as Denbies Wine Estate, now operate in the UK, with 131 wineries producing 3,020,445 bottles in 2011[9]. Of these bottles, around 60% are sparkling wine, with the 2010 harvest marking the first time that sparkling wine production exceeded still wine.

Despite a small, but growing, production market for wine, the UK has a variety of companies operating further down the supply chain after wine has been imported. For example, in some cases wine is imported in tanks, and is bottled, packaged and labelled in the UK. These bottles of wine are then distributed and sold to UK consumers via wholesalers and retailers (both in the on-trade and the off-trade).

2.2 The UK spirit industry

In contrast to the UK wine Industry, the spirit market is underpinned by UK production. The UK is the largest single country supplier of spirit to the UK market, accounting for 31% of total domestic spirit consumption[10].

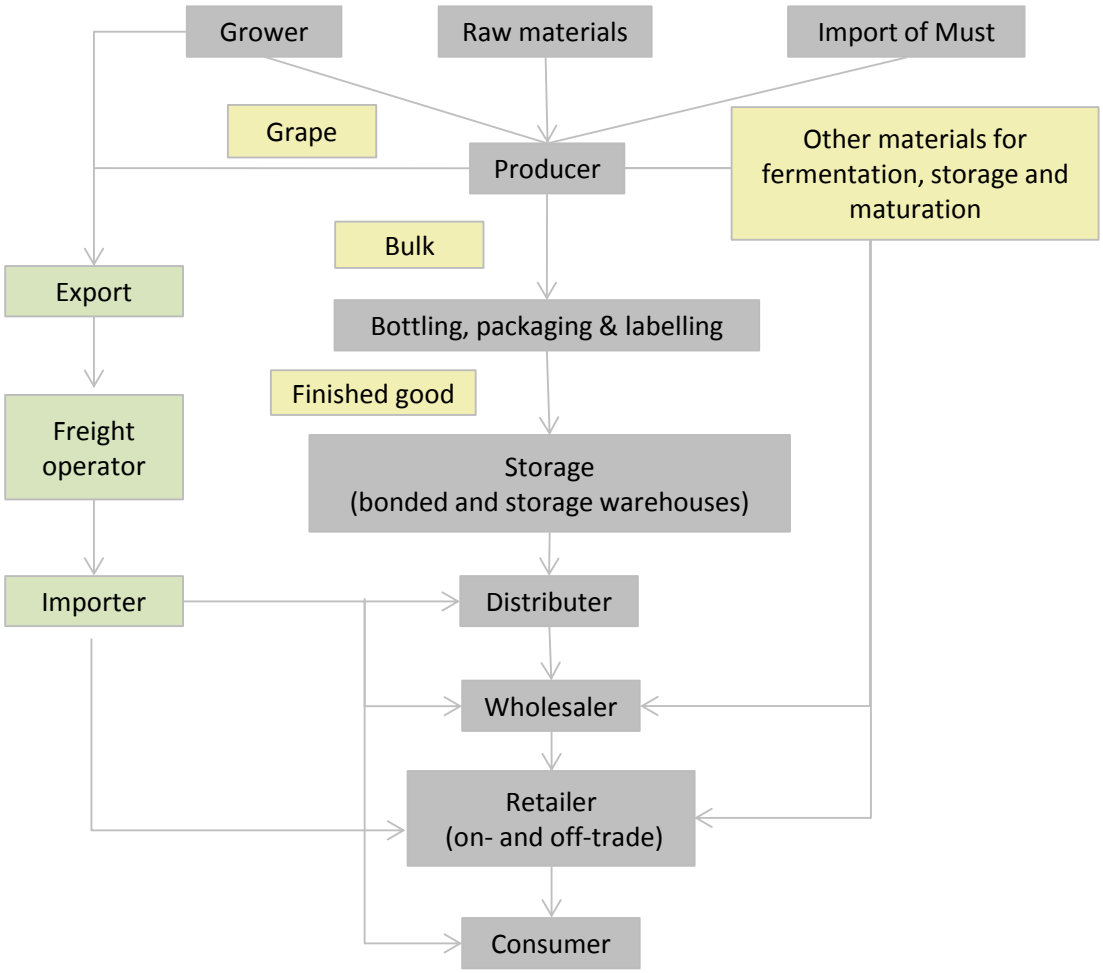
According to HMRC Registrations (September 2013), there are 213 registered distilleries in the UK. Of these, over 70% (152) are based in Scotland producing Scotch Whisky, the most produced spirit in the UK and an important export product[11] that is consumed in 200 countries across the world. The UK also produces vodka and gin, whose exports amount to around 20% of the world's gin export market[12].

[6] The IWSR, 21 May 2012
[7] English wine Producers
[8] Useful Fact Sheet, English wine Producers
[9] WSTA (2013), UK Wine and Spirit: Market Overview
[10] Ibid
[11] "Scotch Whisky accounts for a quarter of UK food and drink exports" Scotch Whisky Association
[12] WSTA Spirit Market Report, IWSR Data, December 2012

2.3 Definition of the wine and spirit industry

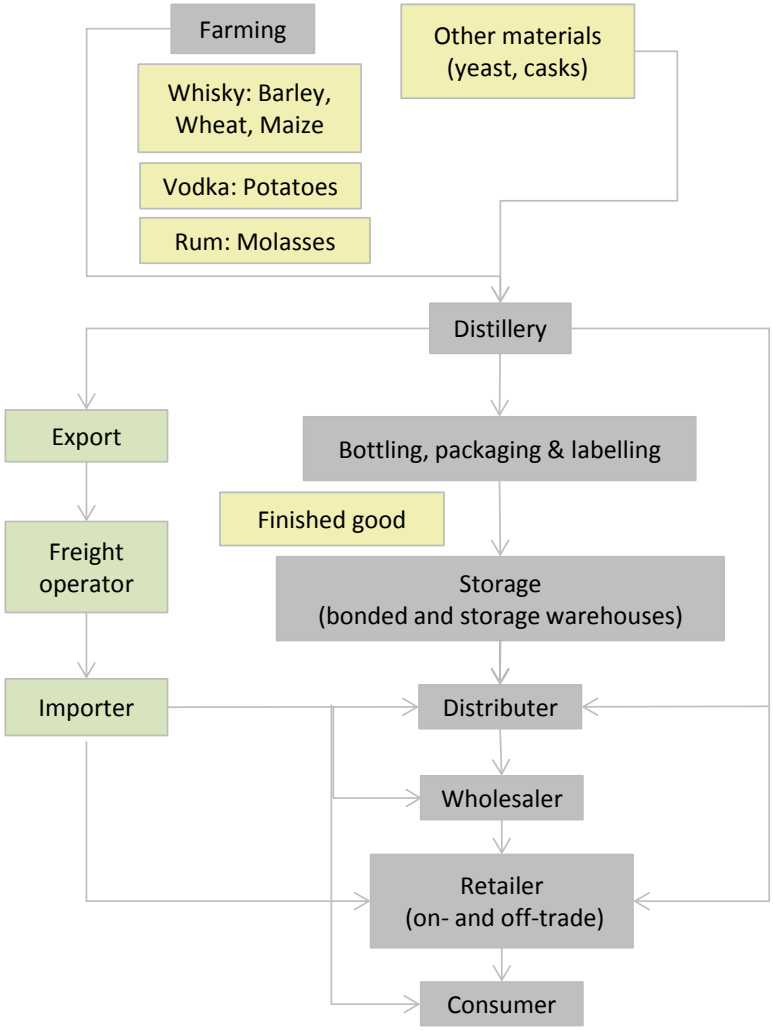
Figure 3 summarises the supply chain of the UK wine industry. The majority of wine currently sold in the UK market is imported, and so parts of the supply chain including producers have a relatively small presence in the UK market. However, a large variety of bottlers, distributers, wholesalers and retailers in the UK wine industry are present.

Figure 3: Supply Chain map of wine Industry



The UK spirit industry is mapped in Figure 4. Unlike the UK wine industry, there is a large production market for spirit, in particular Scotch Whisky, gin and vodka. Consequently, the production stage is relatively large and underpins companies further down the supply chain such as bottlers and distributers.

Figure 4: Supply chain map of spirit industry



For the purposes of this study we define the UK wine and spirit industry as bottlers, producers, distributers, importers, wholesalers (mark-up only), on-trade retailers (mark-up only) and off-trade retailers (mark-up only).

2.4 Policy Environment

2.4.1 Government Alcohol Strategy

In March 2012, the UK Government launched its "Alcohol Strategy", aimed at dealing with alcohol-related harm such as violent crime and health problems[13]. Causes were defined as cheap and too readily available alcohol which is due to the prioritisation of industry needs over community concerns, insufficient challenge to people whose drinking harms others, and businesses which tolerate and even encourage this behaviour[14].

To combat this behaviour, the Government proposed the following policy initiatives:

[13] HM Government, The Government's Alcohol Strategy, March 2012
[14] Taxation proposals apply across the UK while provisions on crime and policing, alcohol licencing and pricing apply to England and Wales.

Pricing, taxation and promotion

- Minimum Unit Pricing (MUP): a uniform minimum price per unit of alcohol across all drinks, the level of which is subject to consultation.
- A possible ban on multi-buy promotions in the off-trade, subject to consultation.

Licencing and local action

- Extend the range of tools and powers given to local agencies to challenge irresponsible consumers and businesses, including changes to public health, new Police and Crime Commissioners and rebalancing the Licensing Act 2003.

Working with the alcohol industry

- Review of Alcohol Guidelines and continue to work through the Responsibility Deal with the alcohol industry.

Changing consumer behaviour

- Marketing campaign to inform consumers of the risks associated with alcohol.

In July 2013, the MUP proposal was dropped by the UK Government due to lack of concrete evidence[15]. However, it will remain a "policy under consideration". Instead, the coalition will introduce a ban on alcohol being sold below the rate of duty plus VAT, which is expected to come into force before Spring 2014. The proposed ban on multi-buy promotions in the off-trade was also scrapped, again due to lack of evidence[16].

In contrast, Scotland, which has its own law-making powers, is set to proceed with MUP. The plan cleared the first legal hurdle in the country in May 2013, despite a challenge launched by the Scotch Whisky Association (SWA), Spirits Europe and the Comité Européen Des Enterprises, Vins and suggestions that the proposal would contravene European competition legislation.

2.4.2 Tax environment

2.4.2.1 VAT

The standard rate of VAT in the UK is 20% and applies to all alcoholic beverages. No applicable reduced rates apply to alcohol sold in the on-trade (unlike the majority of other European countries)[17].

Between 2000 and 2008, the standard VAT rate in the UK remained at 17.5%. Due to the global economic downturn in 2008, the UK government decided to decrease the standard VAT rate from 17.5% to 15% with the aim of stimulating consumer spending in the economy. The rate then returned to 17.5% in 2011 as part of the coalition Government's plans to reduce the UK budget deficit.

When VAT was cut to 15% excise duty was increased so that the overall price of these goods would remain constant. However, this increase in duty was not cut when VAT returned to 17.5% or even 20%.

2.4.2.2 Alcohol Duty Escalator

For several years before the 2008 budget alcohol duty was increased in line with inflation. Prior to the introduction of the duty there were campaigns to increase the real value of tax on alcohol in order to tackle the perceived social impact of alcohol consumption. For example

[15] Home Office, Next steps following the consultation on delivering the Government's alcohol strategy, July 2013
[16] Ibid
[17] EY (2013), The Hospitality Sector in Europe, report to the Brewers of Europe

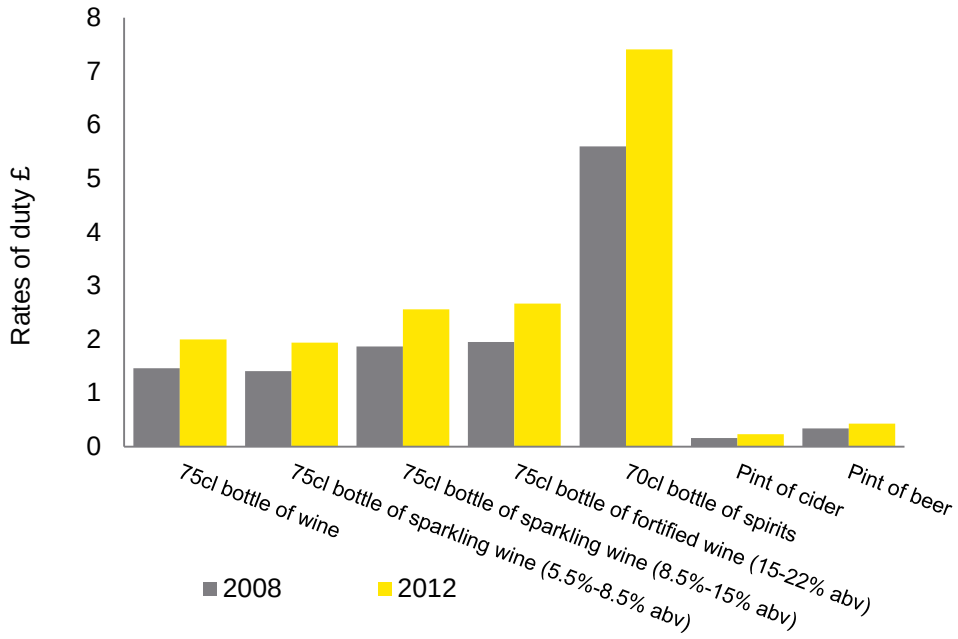
the Alcohol Health Alliance claimed that by increasing the tax on alcohol by 10% the deaths from alcohol could be reduced by 10-30%.

In the 2008 budget it was announced that all duty rates on alcohol products would be increased by 6% with immediate effect. The reasoning behind the increase was the increasing affordability of alcohol as a result of increasing incomes and falling prices (in real terms). This immediate rise of 6% was combined with the introduction of the alcohol duty escalator, to increase duties 2% above the rate of inflation each year, for the following four years.

The escalator was initially planned to end in 2012 but in the 2010 budget it was announced that it would be continued to 2015, with the aim of raising an additional £300m of revenue. Duty on cider was also increased by 10% in the 2010 budget, considerably above the escalator rate of increase, to address a 'long standing anomaly' where cider was taxed less than beer. Stronger ciders were re-classified as 'made-wine' and thus attracted an additional higher rate of taxation.

Figure 5 compares the rates of duty for alcoholic beverages in 2008 and 2012. The largest absolute change in duty was the £1.81 increase for spirit. Duty rates for wines increased, on average, by 37%, which is a smaller rise than cider (44%) but greater than beer (26%).

Figure 5: Rates of duty for alcoholic beverages in 2008 and 2012



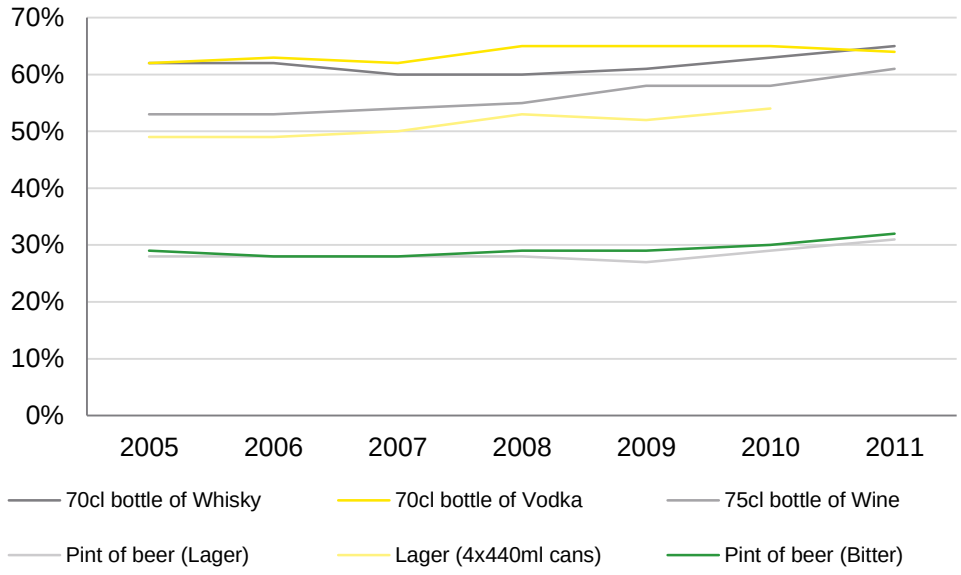
Source: HMRC Alcohol Factsheet 2012

Following a successful campaign by the Campaign for Real Ale (CAMRA), the British Beer and Pub Association (BPPA) and the Society for Independent Brewers, the escalator was removed for beer in the 2013 budget, along with a cut in duty of 1p per pint (instead of the planned 3p rise). The reason stated behind the ending of the escalator on beer was to support the British pub industry, citing that 'we have lost 10,000 pubs over the last decade'. The escalator remained in place for other spirits, on the presumption that this has less of an impact on the on-trade. This was accompanied by statements at the time around encouraging responsible drinking through regulation of the on-trade.

For both wine and spirit the rate of duty has increased significantly since the escalator was introduced. The rate of duty for all types of wine had been increasing prior to the period of the escalator, but to a lesser degree. For spirit the duty rate had not changed for several years prior to the escalator. Figure 6 shows how tax as a percentage of final price is higher for wine

and spirit than for pints of beer. The tax as a percentage of final price for pints of lager and bitter has remained at around 30% between 2005 and 2011, whereas for whisky and vodka it is over double this at around 62%.

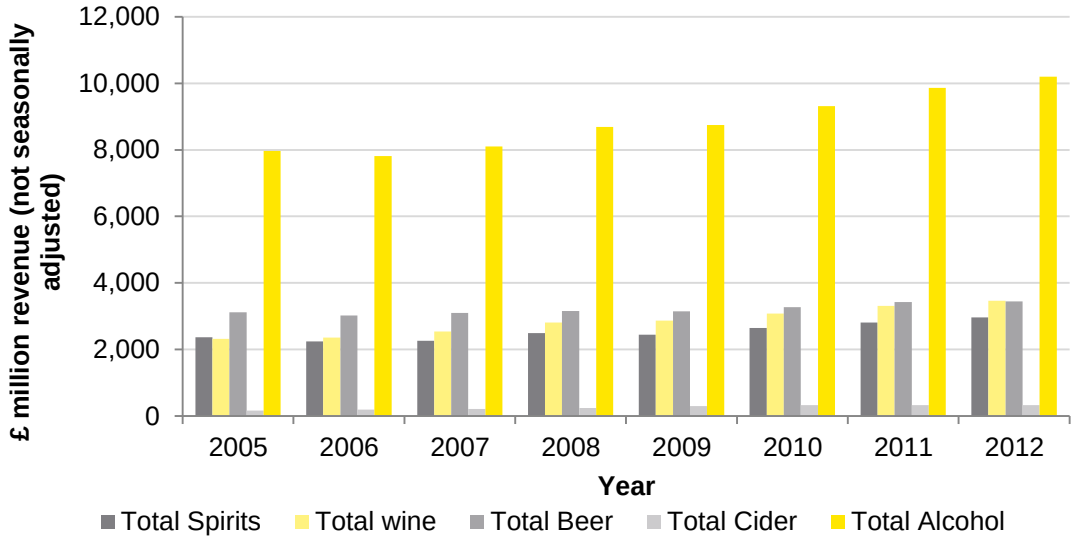
Figure 6: Tax as a percentage of final price



Source: HMRC Alcohol Factsheet 2012

Overall the revenue from alcohol duty has steadily increased since 2005, as shown in Figure 7 below. The composition of revenue to the exchequer from alcohol has changed as well as the amount of revenue. Beer is no longer the largest contributor to alcohol duty revenues, as its contribution is now at least equalled by wine.

Figure 7: Alcohol Duty Revenue



Source: HMRC Alcohol Bulletin

3. Contribution of the wine and spirit industry

The wine and spirit industry contributes directly to the UK's Gross Domestic Product[18] ("GDP") through the Gross Value Added[19] ("GVA") it produces; it creates jobs throughout its many organisations, and contributes to public finances through direct and indirect taxes.

In addition to this, the wine and spirit industry generates further demand for businesses throughout the UK through the supply chain and the wages paid to employees. This in turn creates additional GDP, supports jobs and contributes to the public purse through taxes.

In the following sections we present our estimate of these effects. Our results are based on the methodology described in Appendix A.

3.1 Direct, Indirect and Induced effect

The full benefits that the wine and spirit industry generates for the UK economy can be estimated by calculating the Direct, Indirect and Induced effects, as defined below:

- The Direct Effect of the wine and spirit industry's activity, i.e. its contribution to the UK's Gross Domestic Product and the jobs it creates;
- The Indirect Effect arising from the wine and spirit industry's demand for goods and services along the supply chain; and
- The Induced Effect of the wine and spirit industry's and its suppliers' employees spending a share of their income on the consumption of goods and services in the wider economy.

For the purposes of this study, and to estimate the direct estimate of the wine and spirit industry we define the industry as set out in section 2.3.

3.2 Contribution to the UK Economy

In 2012, the wine and spirit industry directly or indirectly supported over £40bn of economic activity in the UK; a 3% increase over the previous year.

Table 5: Contribution to Economic Activity in (£m), by year

	2007	2008	2009	2010	2011	2012
Direct	15,058	17,812	19,597	21,155	21,986	22,455
Indirect	11,344	11,819	12,830	13,824	14,559	15,021
Induced	2,440	2,622	2,900	3,096	3,240	3,326
Total	**28,843**	**32,253**	**35,327**	**38,074**	**39,785**	**40,801**

Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

This translates into a contribution to Gross Domestic Product worth over £19bn. The largest share is accounted for by the wine and spirit industry's direct contribution to GDP, which in 2012 was £10.4bn; 53% of the total.

[18] Gross Domestic Product ("GDP") provides a measure of the total economic activity in a country. It can be measured using income, expenditure or output.
[19] Gross Value Added ("GVA") is a measure of the value of goods and services produced in the economy and can be defined as outputs less the cost of raw materials and other inputs used up in production (intermediate consumption), i.e., the value added by any unit engaged in production.

An additional £7.5bn came from the Gross Value Added generated by the wine and spirit industry's supply chain (38%), and a further £1.7bn (9%) from the additional induced consumption of employees.

Table 6: Contribution to Gross Domestic Product (£m), by year

	2007	2008	2009	2010	2011	2012
Direct	7,050	8,307	9,156	9,817	10,182	10,396
Indirect	4,983	5,969	6,553	7,085	7,363	7,512
Induced	1,135	1,345	1,482	1,586	1,644	1,677
Total	**13,168**	**15,621**	**17,191**	**18,488**	**19,189**	**19,585**

Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

3.3 Contribution to Employment

The wine and spirit industry directly or indirectly supported approximately 475,000 jobs in the UK in 2012.

The majority of jobs (327,697 in 2012, 69% of total) are directly dependent on the wine and spirit industry's activity, being those employees working for companies directly involved in the industry, for example producers or bottlers. This figure does not include employment at major supermarkets in the UK who support around 800,000 jobs in total. If only 1% of their sales could be attributed to wine and spirits this translates to approximately 8,000 additional jobs supported by the industry.

The remaining 31% is split between employment generated by the industry's supply chain (109,836) and the wider economy as a result of increases in household disposable incomes from the industry and its supply chain (37,460).

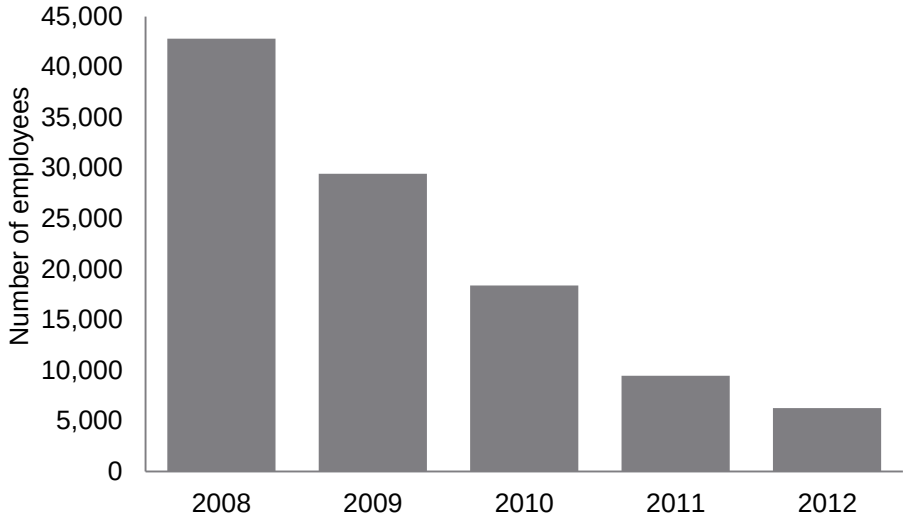
Table 7: Direct, Indirect and Induced Employment, by year

	2007	2008	2009	2010	2011	2012
Direct	221,340	264,137	293,574	311,970	321,440	327,697
Indirect	87,126	92,196	99,763	103,594	107,132	109,836
Induced	28,479	30,282	33,577	35,142	36,495	37,460
Total	**336,945**	**386,615**	**426,914**	**450,707**	**465,068**	**474,993**

Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

Since 2008, there has been a decrease in the rate of growth of employment in the wine and spirit industry. In 2008, almost 43,000 more people were employed in the industry compared to the previous year, compared to just over 6,000 extra employees in 2012 compared to 2011. This fall in growth may be a reflection of the impact of the ADE on the industry, in addition to the wider economic environment. However, it is important to note that despite these combined effects, the industry still had capacity to create employment. If the ADE were to be scrapped in 2014, this may help to increase growth in employment to pre-ADE levels.

Figure 8: Year on year change in direct employment



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

3.4 Contribution to Public Finances

In 2012, the wine and spirit industry contributed £14.3bn to Her Majesty's Treasury (HMT).

The majority of this contribution (91%) is directly dependent on the wine and spirit industry's activity, made up of VAT, excise duty, employment taxes[20] and corporation tax.

An additional £1bn came from the tax contribution of the supply chain (7%) and a further £0.3bn (2%) from the additional induced consumption of employees. Both the indirect and induced tax contributions are made up of employment taxes[21] and corporation tax paid by companies and employees in the wine and spirit industry's supply chain.

Table 8: Tax contribution (£m), by year

	2007	2008	2009	2010	2011	2012
Direct	9,620	10,548	10,316	11,263	12,415	12,898
Indirect	797	865	939	984	1,019	1,044
Induced	245	265	293	308	320	328
Total	**10,662**	**11,678**	**11,548**	**12,555**	**13,754**	**14,269**

Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS and HMRC

[20] Employment taxes are made up of employee National Insurance contributions, employer National Insurance contributions and Income tax paid by employees.
[21] Ibid.

4. Impact of the Alcohol Duty Escalator

4.1 Scenarios

In this section, two different scenarios relating to the potential impact of the Alcohol Duty Escalator (ADE) are compared:

- Scenario 1: Alcohol Duty Escalator continues until 2014
- Scenario 2: Alcohol Duty Escalator continues until 2018

4.2 Economic Impact Assessment Model

The Economic Impact Assessment model used here is a static model. Consequently, there are limitations to the model's ability to estimate dynamic flows stemming from the removal of the ADE and the impact this has on the rest of the economy.

The Economic Impact Assessment model is a partial equilibrium model which simulates a single period market outcome with and without the ADE. Each solution of the model is, therefore, static in nature. Dynamic models of impacts on the rest of the economy are difficult to estimate and generally quite sensitive to model specification and parameter values. Therefore, this model simulates the effect of the ADE in a static setting, using a representative year as the basis for estimating annual impacts.

4.3 Economic Impact Flows

Page 17 presents an illustration of how the removal of the ADE would flow through to impact the UK economy. When the ADE is scrapped, it is assumed that Alcohol Duty is now equal to inflation (measured by the Consumer Price Index (CPI)), as was the case prior to the introduction of the ADE in 2008. This leads to a fall in Alcohol Duty.

4.3.1 Passthrough to Wholesalers, Retailers and Consumers

Alcohol Duty is applied to producers of wine and spirit, and these producers may or may not pass on the decrease in Alcohol Duty to wholesalers or retailers. In this analysis it is assumed that 100% of the change in Alcohol Duty is passed through to wholesalers and retailers, who in turn pass 100% of the change in Alcohol Duty on to consumers.

4.3.2 Price Elasticity of Demand

When Alcohol Duty decreases, this will lead to a change in price for consumers of wine and spirit. To estimate this change in price, the change Alcohol Duty is multiplied by the percentage pass through from producers to wholesalers and retailers and the percentage pass through from wholesalers and retailers to consumers.

A change in price will change the amount of wine and spirit that consumers demand based on their price elasticity of demand (PED). PED shows the responsiveness of the quantity demanded of a good or service to a change in its price.

A PED between zero and minus one implies that an increase in price of 1% will lead to a decrease in demand of less than 1%. In this case, the demand for the good is said to be relatively inelastic because changes in price have a relatively small effect on the quantity of good demanded.

On the other hand, when PED is less than minus one (e.g. -1.5), this implies that an increase in price of 1% will lead to a decrease in demand of more than 1%. Here, demand for the good is said to be relatively elastic because changes in price have a relatively large effect on the quantity of good demanded.

In this model, estimates of PED from HMRC's Econometric Analysis of Alcohol Consumption in the UK, published in December 2010, are used. These are shown below.

	Price Elasticity of Demand
Wine – Retail On-trade	-0.456
Wine – Retail Off-trade	-0.538
Spirit – Retail On-trade	-1.153
Spirit – Retail Off-trade	-0.899

Source: HMRC (2010), Econometric Analysis of Alcohol Consumption in the UK

The PEDs for wine (both retail on- and off-trade) and spirit off-trade are less than minus 1, indicating that demand is relatively inelastic. On the other hand, the PED for spirit bought in the on-trade is elastic, suggesting that consumers are more responsive to prices in restaurants / bars / clubs than supermarkets and off-licences.

The PED for wine is higher in the off-trade than the on-trade, which perhaps reflects the fact that consumers are more likely to shop around in the off-trade. The opposite result occurs for spirit, where the PED for on-trade is higher.

4.3.3 Change in Revenue and Employment

It is assumed that the percentage change in demand leads to the same percentage change in demand for revenue and employment.

4.3.4 Change in tax receipts

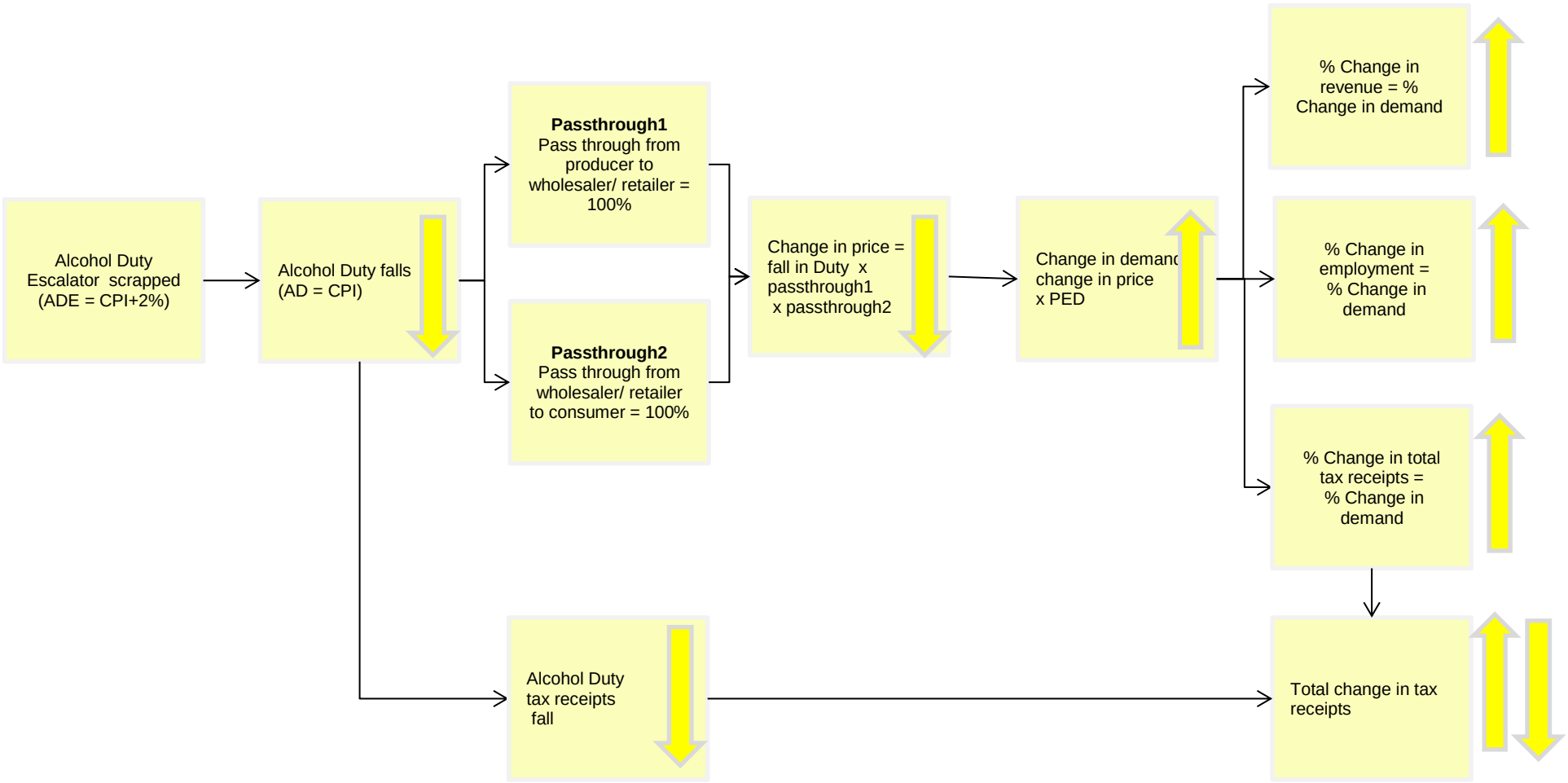
There are two impacts of the removal of the ADE on tax receipts:

1. Alcohol Duty receipts fall by the same percentage amount as the reduction in Alcohol Duty

2. Demand increases due to a change in price, which leads to an increase in total tax receipts

Therefore, the overall direction of the change in total tax receipts depends on which of these effects is larger.

Figure 9: Economic Flows stemming from the removal of the ADE



4.4 Scenario 1: ADE scrapped in 2014

The first scenario assumes that the ADE is scrapped by the UK Government in 2014. After 2014, it is assumed that excise duty rises by inflation each year, as was the case prior to the introduction of the ADE.

In this section of the report we also present an estimation of the impact that the ADE would have on the 2014 budget, compared to the impact of extending the ADE by one more year.

4.4.1 Contribution to the UK Economy

The table below presents the estimated contribution that the wine and spirit industry would have on the UK economy under scenario 1 from 2012 to 2018.

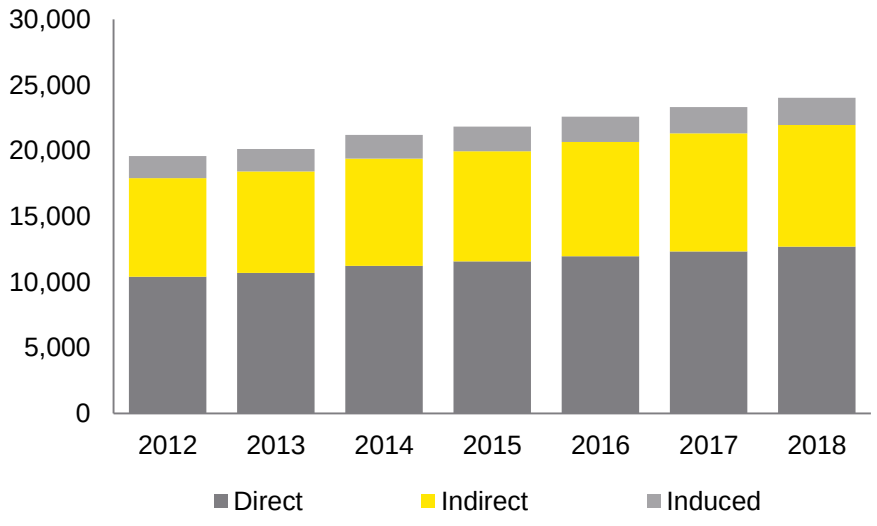
Table 9: Contribution to Economic Activity in (£m), by year

	2012	2013	2014	2015	2016	2017	2018
Direct	22,455	23,082	24,317	25,051	25,924	26,768	27,587
Indirect	15,021	15,444	16,295	16,808	17,411	18,005	18,592
Induced	3,326	3,419	3,596	3,705	3,833	3,958	4,079
Total	**40,801**	**41,945**	**44,208**	**45,564**	**47,169**	**48,731**	**50,258**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

In 2018 a contribution of £50,258m in economic activity translates into a contribution to GDP worth over £24bn (presented in Figure 10 and Table 10 below). The largest share is accounted for by the wine and spirit industry's direct contribution to GDP, which in 2018 is estimated to be £12.7bn; 53% of the total. An additional £9.2bn came from the GVA generated by the wine and spirit industry's supply chain (38.5%) and a further £2bn (8.5%) from the additional induced consumption of employees.

Figure 10: Contribution to Gross Domestic Product (£m), by year



Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

Table 10: Contribution to Gross Domestic Product (£m), by year

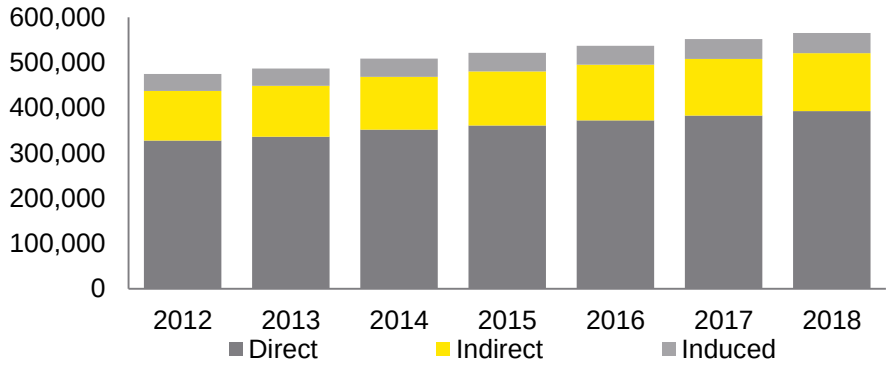
	2012	2013	2014	2015	2016	2017	2018
Direct	10,396	10,684	11,233	11,564	11,959	12,336	12,698
Indirect	7,512	7,723	8,148	8,398	8,694	8,983	9,265
Induced	1,677	1,724	1,813	1,866	1,930	1,991	2,050
Total	**19,585**	**20,131**	**21,193**	**21,828**	**22,583**	**23,310**	**24,013**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

4.4.2 Contribution to Employment

If ADE were to be scrapped in 2014, the wine and spirit industry is estimated to directly or indirectly support 565,555 jobs in the UK by 2018, representing average yearly growth of 2.5% from 2012.

Figure 11: Contribution to Employment, by year



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

The majority of jobs (392,511 in 2018, 69% of total), are directly dependent on the wine and spirit industry's activity, and are those employees working for companies directly involved in the industry, for example producers or bottlers. The remaining 31% is split between the industry's supply chain (128,142) and the wider economy (44,632).

Table 11: Direct, Indirect and Induced Employment, by year

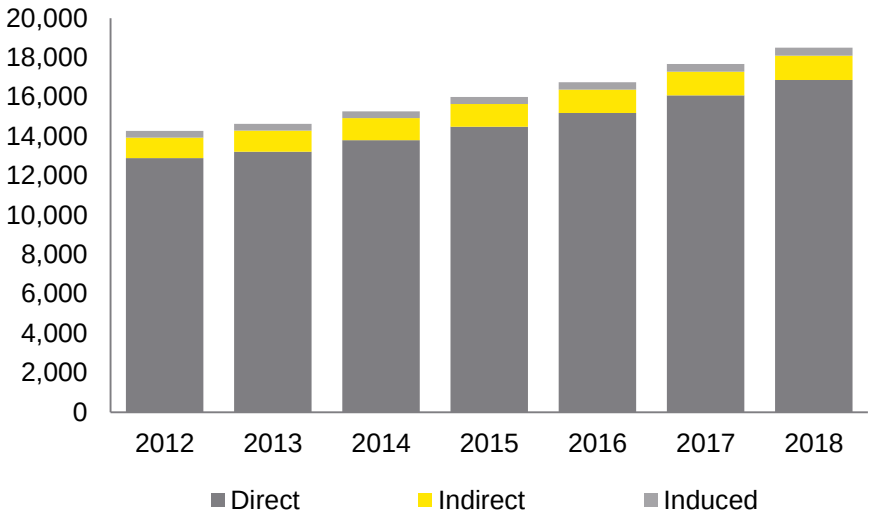
	2012	2013	2014	2015	2016	2017	2018
Direct	327,697	336,315	351,799	361,085	372,412	382,864	392,511
Indirect	109,836	112,253	117,081	119,682	122,824	125,727	128,412
Induced	37,460	38,427	40,108	41,149	42,402	43,560	44,632
Total	**474,993**	**486,994**	**508,988**	**521,916**	**537,638**	**552,150**	**565,555**

Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

4.4.3 Contribution to Public Finances

The figure below presents the estimated tax contribution of the wine and spirit industry between 2012 and 2018 under scenario 1.

Figure 12: Tax Contribution (£m), by year



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

The majority of this contribution (91% on average) is directly related to the wine and spirit industry's economic activity, and is made up of VAT, excise duty, employment taxes and corporation tax (Table 12).

Table 12: Tax Contribution (£m), by year

	2012	2013	2014	2015	2016	2017	2018
Direct	12,898	13,222	13,802	14,494	15,194	16,083	16,865
Indirect	1,044	1,068	1,117	1,144	1,176	1,207	1,235
Induced	328	336	352	361	372	383	392
Total	**14,269**	**14,626**	**15,270**	**15,999**	**16,742**	**17,672**	**18,493**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

4.4.4 Impact compared to ending ADE in 2015

It is estimated that if ADE were removed in 2015, rather than 2014, there would be a negative impact on output, GVA, employment and tax revenues in the UK economy in 2014. The total contribution that the wine and spirit industry would make in 2014 would fall from £44.2bn to £43.2bn. This is equivalent to a fall of £469m in GDP, a fall of almost 2% in employment for the sector and a fall in tax receipts of around £250m.

The table below compares the estimated contribution, between 2012 and 2018, that the wine and spirit industry would have on the UK economy under scenario 1 to the extension of the ADE by another year.

Table 13: Comparison of Economic contribution of ADE end in 2014 to ADE end in 2015

	ADE end in 2014	ADE end in 2015
Total contribution to Economic Activity (£m) in 2014	44,208	43,203
Total contribution to GDP (£m) in 2014	21,193	20,725
Total contribution to employment in 2014	508,988	499,464
Total contribution to public finances (£m) in 2014	15,270	15,012

These figures show the extent to which a delay of one year before scrapping the ADE can have an impact on output, GDP, employment and contribution to public finances.

4.5 Scenario 2: ADE scrapped in 2018

Scenario 2 assumes that ADE continues past 2014 and is scrapped in 2018 and estimates the impact this would have on the economic contribution of the wine and spirit industry. This section of the report presents results from this analysis and compares this to results from scenario 1.

4.5.1 Contribution to the UK Economy

The table below presents the estimated contribution that the wine and spirit industry would have on the UK economy under scenario 2 from 2012 to 2018.

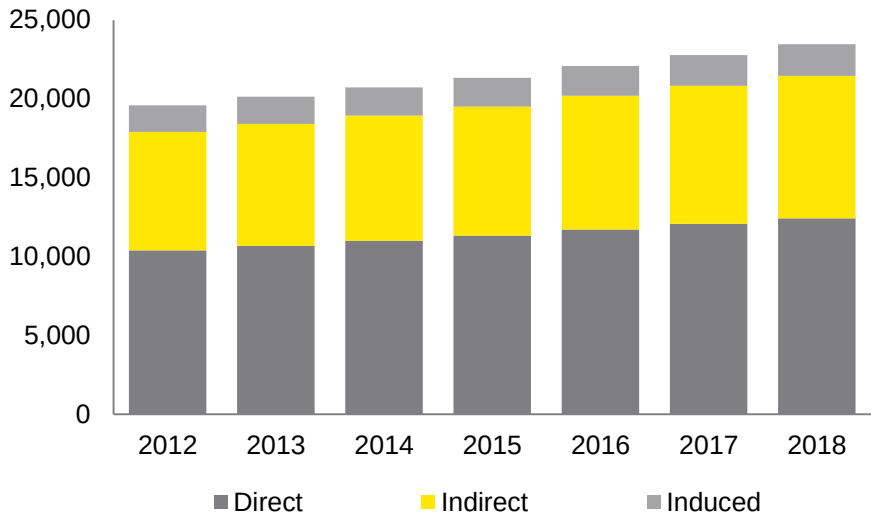
Table 14: Contribution to Economic Activity in (£m), by year

	2012	2013	2014	2015	2016	2017	2018
Direct	22,455	23,082	23,767	24,483	25,335	26,157	26,955
Indirect	15,021	15,444	15,917	16,417	17,005	17,583	18,155
Induced	3,326	3,419	3,520	3,627	3,752	3,873	3,992
Total	**40,801**	**41,945**	**43,203**	**44,527**	**46,092**	**47,614**	**49,101**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

In 2018 a contribution of £49,101m in economic activity translates into a contribution to GDP worth over £23bn (presented in Figure 13 and Table 15 below). The largest share is accounted for by the wine and spirit industry's direct contribution to GDP, which in 2018 is estimated to be £12.4bn; 53% of the total. An additional £9bn came from the GVA generated by the wine and spirit industry's supply chain (38%) and a further £2bn (9%) from the additional induced consumption of employees.

Figure 13: Contribution to Gross Domestic Product (£m), by year



Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

Table 15: Contribution to Gross Domestic Product (£m), by year

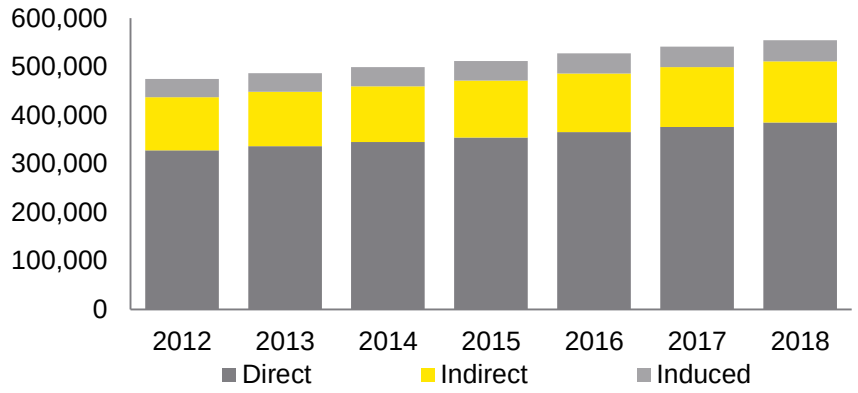
	2012	2013	2014	2015	2016	2017	2018
Direct	10,396	10,684	10,995	11,319	11,705	12,073	12,427
Indirect	7,512	7,723	7,955	8,199	8,487	8,768	9,043
Induced	1,677	1,724	1,774	1,827	1,889	1,949	2,006
Total	**19,585**	**20,131**	**20,724**	**21,345**	**22,081**	**22,790**	**23,476**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

4.5.2 Contribution to Employment

If ADE were to continue until 2018, the wine and spirit industry is estimated to directly or indirectly support approximately 555,025 jobs in the UK in 2018.

Figure 14: Contribution to Employment, by year



Source: EY's calculations are based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

The majority of jobs (385,234 in 2018, 69% of total) are directly dependent on the wine and spirit industry's activity, being those employees working for companies directly involved in the industry, for example producers or bottlers. The remaining 31% is split between the Industry's supply chain (125,910) and the wider economy (43,881).

Table 16: Direct, Indirect and Induced Employment, by year

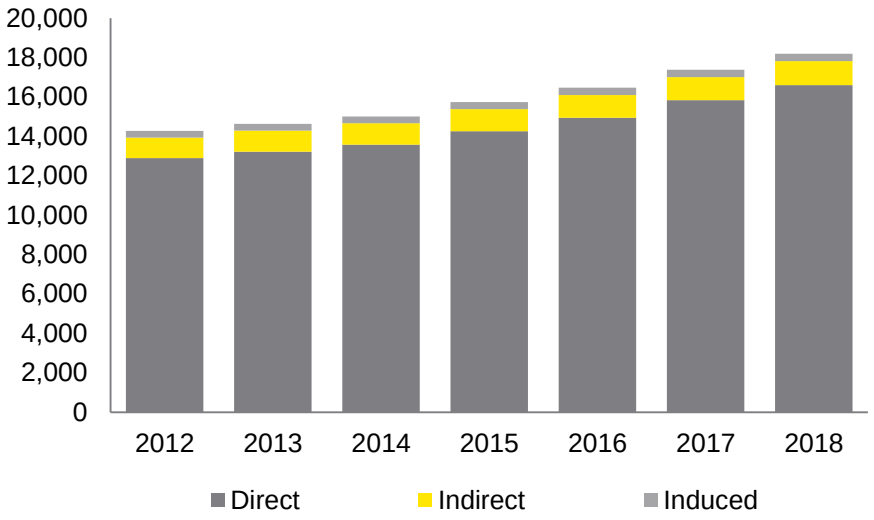
	2012	2013	2014	2015	2016	2017	2018
Direct	327,697	336,315	345,273	354,396	365,509	375,765	385,234
Indirect	109,836	112,253	114,761	117,322	120,413	123,268	125,910
Induced	37,460	38,427	39,430	40,455	41,687	42,826	43,881
Total	**474,993**	**486,994**	**499,464**	**512,173**	**527,609**	**541,858**	**555,025**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

4.5.3 Contribution to Public Finances

The figure below presents the estimated tax contribution of the wine and spirit industry between 2012 and 2018 under Scenario 2.

Figure 15: Tax Contribution (£m), by year



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

Under this scenario, tax contributions are expected to grow by 2.6% on average per annum, reaching £18.8bn in 2018. The majority of this contribution (91% in 2018) is directly dependent on the wine and spirit industry's activity, made up of VAT, excise duty, employment taxes and corporation tax. An additional £1.2bn comes from the tax contribution of the supply chain (6%) and a further £0.4bn (2%) from the additional induced consumption of employees.

Table 17: Tax Contribution (£m), by year

	2012	2013	2014	2015	2016	2017	2018
Direct	12,898	13,222	13,572	14,256	14,948	15,829	16,603
Indirect	1,044	1,068	1,094	1,120	1,152	1,182	1,210
Induced	328	336	345	355	366	376	385
Total	**14,269**	**14,626**	**15,012**	**15,731**	**16,466**	**17,387**	**18,198**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS and HMRC

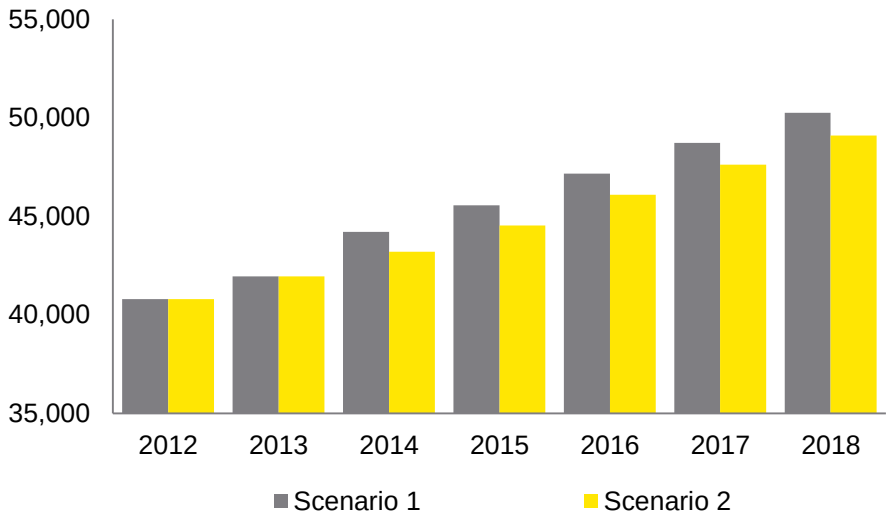
4.6 Comparison of Scenario 1 and Scenario 2

This section of the report compares the impact of the expected ending of the ADE in 2014 (Scenario 1) and the impact of the continuation of the ADE to 2018 (Scenario 2).

Economic Contribution

Figure 16 compares the total contribution to economic activity of scenario 1 to scenario 2. The industry's contribution to economic activity is estimated to grow at 3% a year on average under scenario 1 compared to 2.68% when the ADE is extended to 2018 in scenario 2.

Figure 16: Total Contribution to Economic Activity, Scenario 1 vs. Scenario 2



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

Table 18 presents an estimation of the contribution of the wine and spirit industry from 2012 to 2018, assuming ADE ends in 2014, while Table 19 shows the contribution to economic activity when the ADE is extended to 2018.

Table 18: Contribution to Economic Activity (£m), by year – Scenario 1

	2012	2013	2014	2015	2016	2017	2018
Direct	22,455	23,082	24,317	25,051	25,924	26,768	27,587
Indirect	15,021	15,444	16,295	16,808	17,411	18,005	18,592
Induced	3,326	3,419	3,596	3,705	3,833	3,958	4,079
Total	**40,801**	**41,945**	**44,208**	**45,564**	**47,169**	**48,731**	**50,258**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

The impact of the removal of the ADE in 2014 has an effect on the wine and spirit industry's contribution to economic activity each year up to 2018. By 2018, the difference between the industry's direct contribution to economic activity increases to £632m; with indirect and induced impacts increasing to £437m and £87m respectively.

Table 19: Contribution to Economic Activity (£m), by year - Scenario 2

	2012	2013	2014	2015	2016	2017	2018
Direct	22,455	23,082	23,767	24,483	25,335	26,157	26,955
Indirect	15,021	15,444	15,917	16,417	17,005	17,583	18,155
Induced	3,326	3,419	3,520	3,627	3,752	3,873	3,992
Total	**40,801**	**41,945**	**43,203**	**44,527**	**46,092**	**47,614**	**49,101**

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS

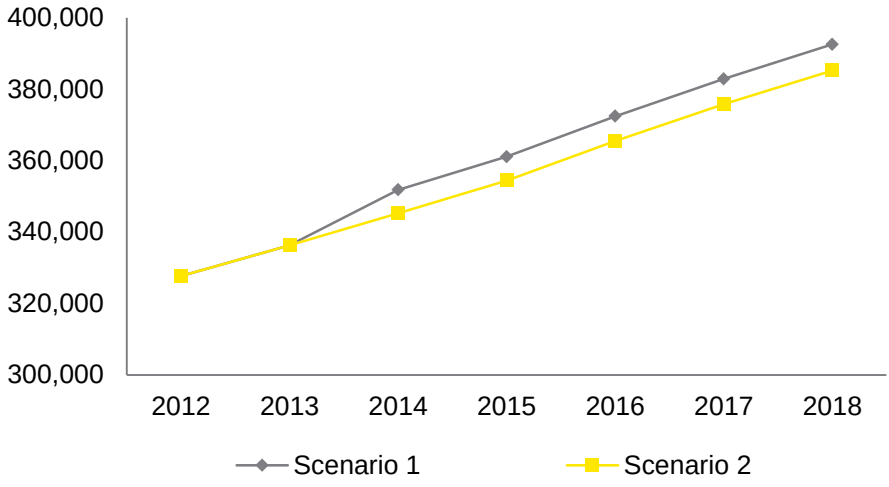
Contribution to GVA, Employment and Tax

The removal of the ADE also leads to an increase in Direct GVA, employment and tax contributions from 2014 to 2018 compared that when the ADE continues to 2018.

Figure 17 compares the direct contribution to employment of scenario 1 to that of scenario 2. The industry's direct contribution to employment is estimated to grow at 2.61% a year on average under scenario 1 compared to 2.34% when the ADE is extended to 2018 in scenario 2.

The relative gap between scenarios remains constant over time because this analysis uses a static model. As previously mentioned in section 4.2, the static nature of the Economic Impact Assessment model means that it can only simulate a single period market outcome with and without the ADE.

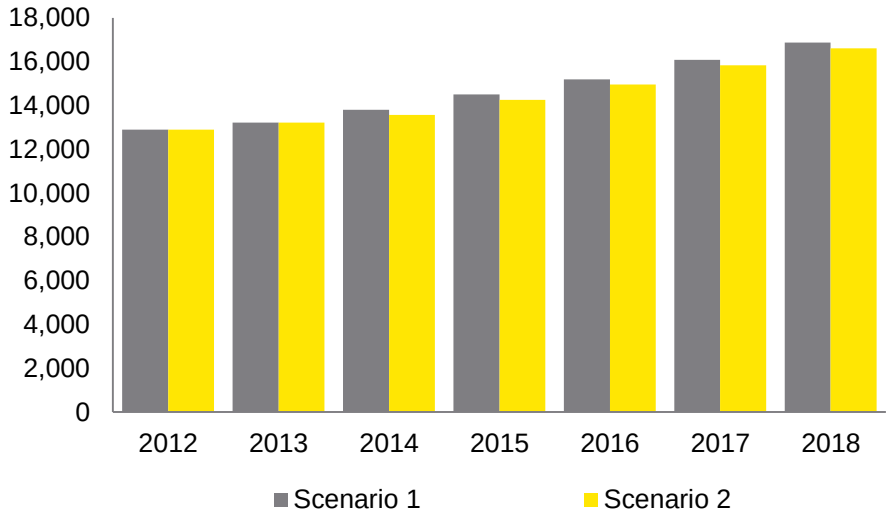
Figure 17: Direct Contribution to Employment, Scenario 1 vs Scenario 2



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS and HMRC

Figure 18 compares the direct contribution to public finances for scenario 1 and scenario 2. Due to the assumptions made and the PED used, the total effect of the removal of the ADE is an increase in the contribution to public finances of £230m in 2014, rising to £262m in 2018.

Figure 18: Contribution to public finances (£m), by year



Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS and HMRC

Table 20 presents an estimation of the direct contribution of the wine and spirit industry to GDP, employment and public finances from 2012 to 2018, assuming ADE ends in 2014, while Table 21 shows comparable figures when the ADE is extended to 2018.

Table 20: Contribution to GVA, Employment and Tax, by year – Scenario 1

	2012	2013	2014	2015	2016	2017	2018
Direct contribution to GDP (£m)	10,396	10,684	11,233	11,564	11,959	12,336	12,698
Direct contribution to employment	327,697	336,315	351,799	361,085	372,412	382,864	392,511
Direct contribution to public finances (£m)	12,898	13,222	13,802	14,494	15,194	16,083	16,865

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS and HMRC

Table 21: Contribution to GVA, Employment and Tax, by year - Scenario 2

	2012	2013	2014	2015	2016	2017	2018
Direct contribution to GDP (£m)	10,396	10,684	10,995	11,319	11,705	12,073	12,427
Direct contribution to employment	327,697	336,315	345,273	354,396	365,509	375,765	385,234
Direct contribution to public finances (£m)	12,898	13,222	13,572	14,256	14,948	15,829	16,603

Source: EY's calculations based on data provided to us from WSTA from Companies House and nationally available statistics from the ONS and HMRC

Table 22 summarises the absolute difference between scenario 1 and scenario 2.

Table 22: Absolute differences between Scenario 1 and Scenario 2

	2012	2013	2014	2015	2016	2017	2018
Direct contribution to Economic Activity (£m)	0	0	550	568	589	611	632
Direct contribution to GDP (£m)	0	0	238	245	254	263	271
Direct contribution to employment	0	0	6,526	6,689	6,903	7,099	7,277
Direct contribution to public finances (£m)	0	0	230	238	245	254	262

5. The outlook for the wine and spirit industry

The wine and spirit industry supports a diverse range of organisations of various sizes, ranging from large international export and production industries to logistics companies, fledgling wine companies and a variety of differently sized retailers.

As shown in this report, the wine and spirit industry is a vital contributor to the UK economy through economic growth, tax revenues, jobs and exports: in 2012 it supported almost 475,000 jobs and contributed over £14bn to HMT in direct, indirect and induced tax revenues.

The wine and spirit industry offers a range of employment opportunities across the skills spectrum: from the highly qualified, to low-skilled and "breakthrough" jobs for those just entering the labour market. Large producers offer a variety of ways for employees to develop their skills, for example the Pernod Ricard University which hosts training and development programmes for Pernod Ricard and Barcardi's talent development programs. The sector has also seen a recent shift towards apprenticeship schemes, with Diageo offering four electrical and mechanical engineering apprenticeships to local students in Scotland[22].

Despite this significant contribution to the UK economy, the industry faces regulatory pressures, most significantly the ADE which remains in place for wine and spirit, despite the remove of the ADE for beer in the 2013 budget (along with a cut in duty of 1p per pint (instead of the planned 3p rise)).

The reason stated behind the ending of the escalator on beer was to support the British pub industry, citing that 'we have lost 10,000 pubs over the last decade'. The escalator remained in place for wine and spirit, on the presumption that this has less of an impact on the on-trade. However, the wine and spirit industry is critical to the health of the pub industry with sales accounting for 41% of the value of alcohol sold in the on-trade.[23]

The wine and spirit industry is now one of the most heavily taxed in the EU: it has the second highest tax for wine and the fourth highest for spirit[24]. As a consequence, UK consumers face some of the highest prices for alcohol in Europe (behind only Sweden, Finland and Ireland) leading to a fall in total alcohol sales, with both off-trade and on-trade sales down from 2012 levels.[25]

An additional consequence of high tax rates applied to the alcohol industry is the potentially higher incentive to commit alcohol fraud by re-labelling products, non-payment of tax or cross-channel buying. Alcohol fraud results in revenue losses of up to £1.2bn per year[26] for the government, measured using the tax gap methodology[27]. As we do not model the impact on fraud of the regulatory pressures faced by the industry, we may be underestimating the potential benefits from the removal of the ADE.

Future tax policies adopted by the UK government may exacerbate or remediate the shift in alcohol sales and prices, and hence having a clear understanding of the economic impact of policy changes will be essential for policy makers.

[22] http://www.thespiritsbusiness.com/2013/04/diageo-targets-schools-for-scotch-apprenticeships/
[23] WSTA Budget Submission 2013
[24] WSTA (2013) UK wine and Spirit: Market Overview, September 2013
[25] WSTA market report 2012
[26] Source: HMRC
[27] The tax gap is defined as the difference between total amounts of taxes owed versus the amount the Government actually receives

Appendix A Methodology

Economic activities are related to one another within the wider economy through a dense network of supplier-customer relations, and thus produce effects that cross corporate and sector borders.

Each unit of output produced in a specific sector of the economy requires the production of additional units of goods and services in other parts of the economy to fulfil its input requirements.

Production of an additional unit of any good or service also requires the application of additional amounts of labour.

Therefore any increase in the demand for goods and services in the economy will trigger yet more demand for other goods and services, to fulfil the input needs described above.

The amount of labour as well as the quantity and type of goods and services necessary to produce an additional unit of output is industry specific and depends on the technology used.

The Input-Output model developed by Wassily Leontiev describes such relationships and allows quantifying such additional demand for labour, goods and services through the computation of industry-specific multipliers.

Using the Input-Output model as its main building block, the Economic Impact Assessment methodology allows quantifying a productive activity's total contribution to the wider economy.

Within this framework, three distinct effects can be identified and measured:

- A Direct Effect arising from the initial increase in economic activity, the GVA it generates and the additional jobs it creates;
- An Indirect Effect arising from the additional demand of goods and services along an industry's supply chain; and
- An Induced Effect arising as an effect of households spending a share of the additional income generated through the provision of labour on the consumption of goods and services.

A comprehensive assessment of the wine and spirit industry's contribution to the UK economy has been produced using an Economic Impact Assessment methodology.

The Economic Impact Assessment quantifies the effect of the wine and spirit industry's activity on three key economic variables:

1. Gross Domestic Product
2. Employment
3. Government Revenue

Direct effect

The wine and spirit industry's productive activity contributes directly to the UK's economic activity; it contributes to the Country's GDP through the Gross Value Added it creates; and it supports jobs.

The wine and spirit industry's direct contribution to the UK's Gross Domestic Product is the Gross Value Added it generates in the course of its productive activity. This has been calculated by summing the revenues from Bottlers, Importers, Distributers and Producers

from Companies House and ONS turnover data. This is then added to the mark-up that Wholesalers and On- and Off-trade retailers add to the cost price of alcohol. This mark-up is estimated by applying mark-up percentages taken from a literature review and analysis of pricing data from WSTA to Retail sales data produced by Nielsen and CGA Strategy.

The wine and spirit industry's Direct GVA is calculated through the application of GVA / Output ratios to the Direct Output. GVA / Output ratios can be calculated at the industry level from official data from the Office of National Statistics ("ONS").

The wine and spirit industry's direct employment has been measured using employment data from Companies House, National employment data from the ONS and figures published by the WSTA[28].

The wine and spirit industry's direct contribution to Government Revenue has been calculated from data from Companies House on taxes paid, HMRC data on VAT receipts and Alcohol Duty receipts and employee taxes paid. Employment taxes are calculated using direct employment and estimates of income taxes and National Insurance contributions on the average salary in the Industry.

Indirect effect

The wine and spirit industry's activity generates additional demand for the factors of production at the national level through the domestic component of its supply chain.

Each section of the wine and spirit industry purchases of goods and services, therefore supporting the businesses that supply such goods and services. These businesses in turn generate additional economic output, Gross Value Added and employment; and in turn generate additional demand for goods and services along their supply chain.

The additional effect of the suppliers' own supply chain has been estimated using Type I multipliers obtained from Input-Output tables.

The indirect effect on GDP has been calculated through the application of Type I GVA multipliers (obtained from Input-Output tables) to the direct Output.

The indirect effect on employment has been calculated through the application of Type I employment multipliers to Direct Employment. These are also obtained from Input-Output tables.

Total tax revenue has been calculated as the sum of Corporate Income Tax ("CIT"), employees' Income Tax ("IT") and National Insurance ("NI"). These have been estimated using data from Her Majesty's Revenue & Customs ("HMRC") and ONS.

Induced effect

As household disposable income increases due to the increased provision of labour services, so does their spending, as determined by their Marginal Propensity to Consume (MPC). Household spending in turn generates economic activity within the economy to satisfy the additional Demand for goods and services.

The increase in consumption of local goods resulting from the induced effect can be computed by multiplying the additional household disposable income by the Marginal Propensity to Consume, adjusted by the ratio of imports to local production at the product level.

Marginal Propensity to Consume, import ratios and household consumption patterns will be obtained from the ONS.

[28] WSTA (2013), UK wine and Spirit: Market Overview, September 2013

Multiplier calculations

Output multipliers are obtained from Input Output tables, through a mathematical process known as Leontiev Inverse. Input Output tables are readily available for the UK from the ONS.

By applying industry GVA / Output ratios and apparent labour productivity measures to the Output multipliers thus obtained, industry level GVA multipliers and employment multipliers will be produced.

GVA / Output ratios and apparent labour productivity measures are obtainable from statistical data published by the ONS.

Model Assumptions

We make the following assumptions as part of our modelling.

	Description	Assumption
Mark-up cost basis	To avoid double counting the value added by producers / wholesalers or retailers we will only consider the mark-up applied to the relevant goods at each stage of the supply chain. We will assume the mark-up to be (value of sales – cost of goods).	**Off-trade** Independent stores are stocked from wholesale. Supermarket trade is stocked from producers. **On-trade** Clubs and independent restaurants and bars are stocked from wholesale. Chain restaurants and bars are stocked from producers.
Mark-up (%)	Wholesalers, on-trade retailers and off-trade retailers apply different mark-up (%) to wine and spirit. Our assumptions here are based on a literature review and the WSTA Market Report 2013.	**wine** Wholesale: 30% On-trade retail: 50% Off-trade retail: 275% **Spirit** Wholesale: 30% On-trade retail: 50% Off-trade retail: 650%
Non- W&S activity	Industry turnover data provided to us from Companies House includes companies whose activity involves economic activity other than that attributable to W&S.	We make an assumption on the proportion of W&S activity on a company by company basis.
Multiple stages of the supply chain	Companies House data categorises companies by economic activity, however for many it includes several categories (companies whose activity involves more than one stage of the wine and spirit industry supply chain).	We make an assumption on their main activity on a company by company basis.

Appendix B Data Sources

Data Source	Title	Year
BPPA	UK Consumption of Alcoholic Drinks per head of population aged 15 and over	1969 – 2010
CGA Strategy	Volume and Value of Sales data	2011 – 2013
Companies House	Brewers and Distillers report	2008 – 2012
Companies House	Wine Merchants report	2008 – 2012
Eurostat	Annual detailed enterprise statistics for industry	2008 – 2011
Eurostat	Annual detailed enterprise statistics on manufacturing subsections	2000 – 2008
HMRC	Alcohol Factsheet March 2012	1994 - 2011
HMRC	Alcohol Bulletin – August 2013	2008 – 2012
IFS	Public sector revenue composition	2003/4 – 2016/17
IWSR	Annual report on consumption of alcoholic drinks	2009 – 2012
Mintel	Dark spirits and liqueurs report – August 2013	2011 – 2013
Mintel	White Spirits and RTDs report – UK – March 2012	2011 – 2016
Mintel	Sparkling and Fortified wine report – UK – September 2012	2013 – 2018
NHS Health Scotland	MESAS Alcohol retail sales dataset	1994 – 2012
NHS Health Scotland	MESAS Off-trade price band distribution data	2009 - 2012
Nielsen	Report on on-trade and off-trade retail sales of alcoholic drinks, by category	2009 – 2013
ONS	Annual Business Inquiry	2000 – 2008
ONS	Annual Business Survey	2008 – 2011
ONS	Annual Business Register and Employment Survey	2008 – 2011
ONS	Consumer Price Indices – May 2013	1998 - 2012
ONS	Supply and Use Tables	1997 – 2011
ONS	PRODCOM – UK Manufacturers' sales and trade data by product	2010 – 2012

Oxford Economics	Forecast data (CPI, Employment, Exports, GDP)	2011 – 2020
Spirits Europe	EU tax rates for alcohol	As of May 2013
WSTA	Quarterly Market Reports	2010 – 2013
WSTA	Spirits Market Report	2012