IMPROVED BEER TAX GAP: LOWER ESTIMATE

Beer Tax Gap Estimates

This statistical release presents the beer tax gap lower estimates and implied midpoint estimates, which have not previously been published. This follows the publication of the beer tax gap upper estimates in "Measuring Tax Gaps 2011".

The methodology used to produce the beer estimates is still being developed and will continue to be improved.

The beer tax gap lower estimate is calculated using a bottom-up methodology. This means estimates of illicit beer are made directly, using departmental data. The bottom-up methodology is less comprehensive than a top down methodology, as is does not cover all types of fraud. This is one reason why it is suited to a lower estimate. More detail on the methodology is available in subsequent sections.

Results

1.1   Table 1.1 and Figure 1.1 show the upper and lower estimates and an implied midpoint estimate for the illicit market in beer.

1.2   The illicit market share lower estimate shows a generally level trend, at 6 per cent in 2007-08 and 2008-09 and 5 per cent in 2009-10.

1.3   The midpoint is implied by averaging the upper and lower estimates. It shows no clear trend; it decreased from 9 per cent 2007-08 to 8 per cent in 2008-09, then increased to 10 per cent in 2009-10. This is an overall increase of 1 percentage point between 2007-08 and 2009-10.

### Table 1.1: Beer illicit market share and associated revenue losses[2]

	2005-06[3]	2006-07[3]	2007-08	2008-09	2009-10
Illicit Market Shares					
Upper Estimate	8 %	13 %	12 %	10 %	14 %
Implied Midpoint	-	-	9 %	8 %	10 %
Lower Estimate	-	-	6 %	6 %	5 %
Associated Revenue Losses (£million)[1]					
Upper Estimate	450	700	650	550	800
Implied Midpoint	-	-	500	400	500
Lower Estimate	-	-	300	300	250

[1] Includes both duty and VAT.
[2] Figures are independently rounded to nearest £50m or 1%.
[3] – indicates figures are not available.

Figure 1.1: Beer illicit market share
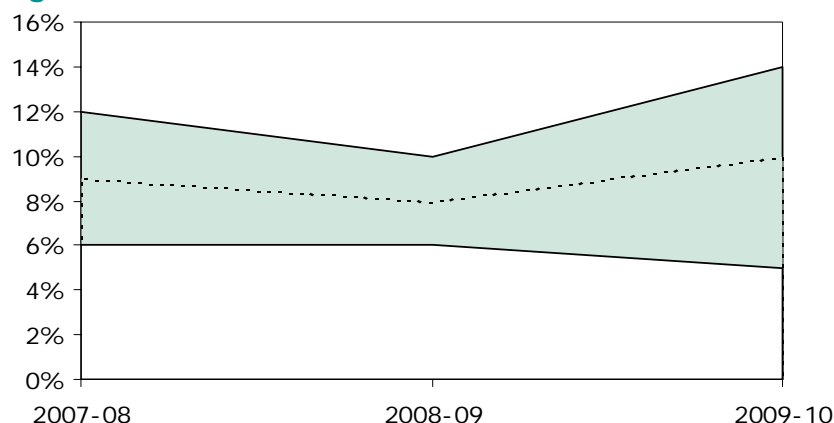
Summary of Methodology

1.4　The beer tax gap lower estimates are produced using a bottom-up methodology. This means estimates of illicit beer are made directly, using departmental data. The following types of illicit beer are included in the lower estimates:

- Diversion of UK produced beer
- Drawback fraud

1.5　There are other known frauds which are not included in the lower estimates. Additionally, there may be other types of beer fraud which we currently do not know about; again these are not included. For this reason, the methodology produces a lower bounding estimate. In order to preserve the lower bounding nature of the estimate, we have used low estimates for a number of assumptions.

1.6　This estimate differs from the upper bounding estimate, which is a top down methodology and therefore includes all types of illicit beer. More detail on the methodology for the upper estimate is available in the publication "Measuring Tax Gaps 2011".

1.7　The estimates should be interpreted as indicators of long term trend, rather than precise estimates of the level or of year-to-year changes. The midpoint is implied by averaging the upper and lower estimates and is only intended as an indicator of the trend – the true tax gap could lie anywhere within the bounds. The bounds do not take account of any systematic tendency to over or under-estimate the size of the tax gap that might arise from the modelling assumptions.

Methodological Annex: Lower Estimate

Overview

1.8 The beer tax gap lower estimates are produced using a bottom-up methodology. This means estimates of the illicit market are made directly, by estimating the fraud components that make up the illicit market. The following types of illicit beer are included in the lower estimate:

- Diversion of UK produced beer
- Drawback fraud

1.9 Some of this illicit beer is recovered through HMRC compliance activity, so this is subtracted to give the net tax gap. The tax gap estimate is therefore defined by:

Lower Estimate of Beer Illicit Market	=	Diversion Fraud (UK Produced Beer)	+	Drawback Fraud	-	Seizures of Illicit Beer

1.10 A number of beer frauds are not included in this methodology as we are currently unable to estimate them. This is one of the reasons it is a lower bounding estimate. These include:

- Smuggled beer
- Diversion of foreign produced beer
- Counterfeit beer

1.11 There may also be other types of fraud which we do not know about; again, these are not covered by the estimate.

Diversion Fraud (UK Produced Beer)

1.12 Diversion fraud occurs when beer is moved in duty suspense to the EU and is subsequently diverted back into the UK under the cover of false documentation. The taxes are not declared on the beer and the illicit product enters the UK market.

1.13 We estimate that diversion fraud is equal to the amount of beer moved in duty suspense from the UK to certain high risk EU member states, minus legitimate demand for UK branded beer in those countries. That is, we assume that any UK beer which is not feeding demand abroad will be diverted back to the UK illicit market:

Diversion Fraud (UK Beer Only)	=	Duty Suspended Beer Moved to High Risk EU Countries	-	Legitimate Demand in High Risk EU Countries

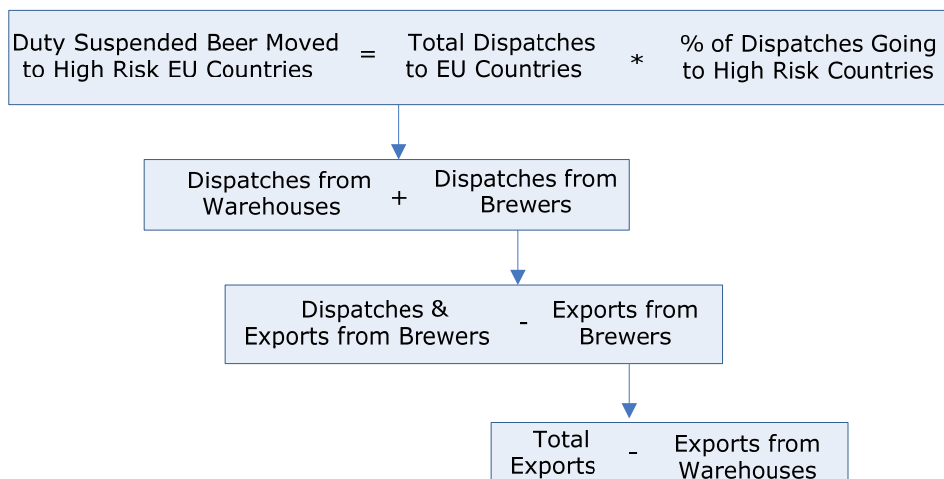1.14 The total amount of beer moved in duty suspense from the UK to the EU includes dispatches from both excise warehouses and brewers. Dispatches from excise warehouses are taken directly off the warehouse return (W1 form). Dispatches from brewers are estimated from data on the brewers return (EX46 form).

Total Beer Dispatches	=	Dispatches from Warehouses	+	Dispatches from Brewers

1.15 Brewers return data is for dispatches (movements to EU countries) and exports (movements to non-EU countries) and it cannot be disaggregated. Therefore, to estimate dispatches from brewers, we subtract an estimate of exports from brewers.

1.16 Exports from brewers are estimated as total exports, from Customs Handling of Import and Export Freight (CHIEF), minus exports from excise warehouses (W1 form):

$$\text{Dispatches from Brewers} = \text{Dispatches \& Exports from Brewers} - \text{Exports from Brewers}$$

$$\text{Total Exports} - \text{Exports from Warehouses}$$
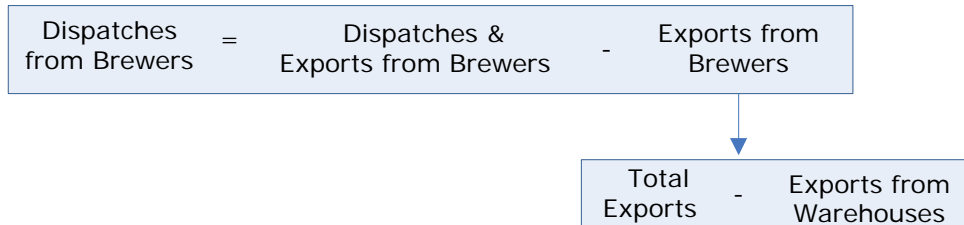
1.17 Certain EU countries are considered riskier than others for beer diversion. To preserve the lower bounding nature of this estimate, we only include dispatches to the highest risk countries. These countries cannot be disclosed for operational reasons.

1.18 The estimate of beer dispatches, described in 1.14 and 1.15, cannot be broken down to the recipient country. Therefore we use an alternative data source, UK trade data, which does include a breakdown by country. The proportion of beer dispatched to countries considered to be high risk is taken from UK trade data and applied to the estimated total dispatches to produce an estimate for dispatches to these selected high risk countries.

1.19 UK trade data is not used to directly estimate dispatches to these countries as it does not include certain types of movements. More detail is provided on this later.

1.20 To summarise:

$$\text{Duty Suspended Beer Moved to High Risk EU Countries} = \text{Total Dispatches to EU Countries} * \text{\% of Dispatches Going to High Risk Countries}$$

$$\text{Dispatches from Warehouses} + \text{Dispatches from Brewers}$$

$$\text{Dispatches \& Exports from Brewers} - \text{Exports from Brewers}$$

$$\text{Total Exports} - \text{Exports from Warehouses}$$

Drawback Fraud

1.21 Drawback fraud occurs when goods are moved to the EU and the duty is reclaimed via drawback. Duty is then paid at the lower rate in the destination country and the goods are illicitly returned to the UK.

1.22 To estimate drawback fraud, we estimate the volume of beer corresponding to high risk drawback claims, then we subtract the legitimate demand for beer in the destination countries:

$$\text{Drawback Fraud} = \text{High Risk Drawback Claims, Converted to Volume of Beer} - \text{Legitimate Demand in High Risk EU Countries}$$

1.23 Drawback is considered to be high risk if it is claimed for dispatch by a business not part of the large business service (LBS). The value of these drawback claims are converted to volumes of beer by dividing by the average duty rate for beer.

1.24 The volume is then adjusted using the proportion of dispatches going to high risk countries. This gives an estimate of the amount of beer going to high risk countries with drawback claimed by small and medium sized businesses:

$$\text{High Risk Beer for Drawback} = \frac{\text{Value of Drawback Claims (non LBS, for Dispatch)}}{\text{Average Beer Duty Rate}} * \text{\% of Dispatches Going to High Risk Countries}$$

Legitimate Demand in EU Countries

1.25 Some of the beer moved to high risk countries will be supplying legitimate demand within those countries, rather than being diverted to the UK illicit market. We make one overall estimate of legitimate demand in EU countries, and subtract it from the total of high risk beer dispatches and high risk beer for drawback.

1.26 We have purposely attempted to over-estimate legitimate demand as this produces an under-estimate of the illicit market, in order to maintain the lower bounding nature of the tax gap estimate.

1.27 The estimate of legitimate demand in other countries includes:

- cross border shopping bought by UK residents

- legitimate consumption abroad, which may include: consumption by UK expatriates; consumption by UK residents on vacation or while working abroad; consumption by foreign nationals; beer in transit to other countries.

$$\text{Legitimate Demand in EU Countries} = \text{Cross Border Shopping by UK Residents} + \text{Legitimate Consumption Abroad}$$

1.28 Cross border shopping is estimated using data from the International Passenger Survey (IPS). More detail is provided in paragraph 1.42. Only passengers from the high risk countries are included.

Legitimate Consumption Abroad

1.29 We could not find reliable data regarding legitimate consumption abroad. Therefore, we estimate it based on the assumption that in a certain year when dispatches were low, there was negligible illicit activity and therefore all dispatches to the high risk countries were consumed legitimately. This is likely to provide an over-estimate of legitimate consumption abroad, as there would likely be some level of fraud in these years. This supports the methodology being a lower estimate of the tax gap.

1.30 For stability, an average of two years is used: 2000-01 and 2001-02. For simplicity, we will refer to these two years as the 'base year'.

1.31 Brewers return data is not available for years prior to 2007. Consequently we use an alternative data source, UK trade data, to estimate dispatches in the base year.

1.32 In the base year we assume that all dispatches supply either cross border shopping by UK residents or legitimate consumption abroad. We subtract an estimate of cross border shopping in the base year from dispatches in the base year; the remainder is assumed to be legitimate consumption abroad:

$$\text{Legitimate Consumption Abroad} = \text{Dispatches to High Risk Countries in Base Year} - \text{Cross Border Shopping in Base Year}$$
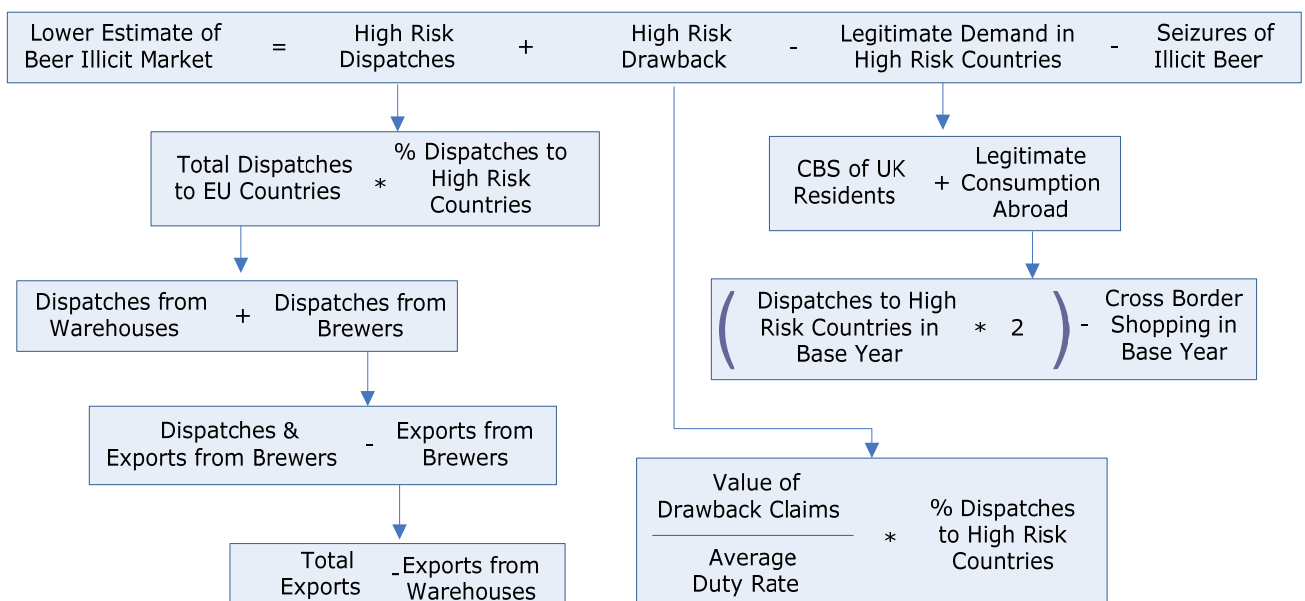
1.33 We believe that UK trade data may underestimate beer dispatches in the base year as it does not record certain types of beer movement. These include:

- goods in transit

- deliveries to embassies

- deliveries to Navy, Army & Air Force Institutes (NAAFI).

Additionally, as the threshold for recording goods on UK trade data is quite high in beer terms, beer may have a higher proportion of small traders than other commodities. This may mean the standard adjustment applied to UK trade data to account for small traders may be too low for beer.

1.34 To account for these concerns we uplift the UK trade data. There is very little evidence to indicate the actual level of under-reporting. Comparison with our calculated dispatches in later years led us to apply a factor of two. Again, the high level of this adjustment may result in this being an over estimate, but this is in keeping with the lower bounding methodology for the tax gap.

Illicit Market Lower Estimate

1.35 In summary, the illicit market is estimated as:

$$\text{Lower Estimate of Beer Illicit Market} = \text{High Risk Dispatches} + \text{High Risk Drawback} - \text{Legitimate Demand in High Risk Countries} - \text{Seizures of Illicit Beer}$$

$$\text{High Risk Dispatches} = \text{Total Dispatches to EU Countries} * \text{\% Dispatches to High Risk Countries}$$

$$\text{Total Dispatches to EU Countries} = \text{Dispatches from Warehouses} + \text{Dispatches from Brewers}$$

$$\text{Dispatches from Warehouses} = \text{Dispatches \& Exports from Brewers} - \text{Exports from Brewers}$$

$$\text{Dispatches from Brewers} = \text{Total Exports} - \text{Exports from Warehouses}$$

$$\text{Legitimate Demand in High Risk Countries} = \text{CBS of UK Residents} + \text{Legitimate Consumption Abroad}$$

$$\text{Legitimate Consumption Abroad} = \left(\text{Dispatches to High Risk Countries in Base Year} * 2 \right) - \text{Cross Border Shopping in Base Year}$$

$$\text{High Risk Drawback} = \frac{\text{Value of Drawback Claims}}{\text{Average Duty Rate}} * \text{\% Dispatches to High Risk Countries}$$

Implied Midpoint Estimate

1.36 The implied midpoint estimate is calculated as the average of the upper and lower estimates. It is only intended as an indicator of long term trend – the true tax gap could lie anywhere within the bounds.

1.37 The upper and lower bounding estimates should be interpreted as indicators of long term trend, rather than precise estimates of the level or of year-to-year changes. The bounds do not take account of any systematic tendency to over or under-estimate the size of the tax gap that might arise from the modelling assumptions.

Illicit Market Share

1.38 The direct estimate of the volume of illicit beer is converted into an estimate of the proportion of the total market that is supplied through the illicit market – the Illicit Market Share:

$$\text{Illicit Market Share} = \frac{\text{Illicit Market}}{\text{Total UK Consumption}} * 100$$

Total UK Consumption

1.39 Total UK Consumption is calculated as the sum of legitimate UK consumption and the illicit market:

$$\text{Total UK Consumption} = \text{Legitimate UK Consumption} + \text{Illicit Market}$$

Legitimate UK Consumption

1.40 Estimates of legitimate consumption have two elements

- UK duty paid consumption
- Cross border shopping and duty free

UK Duty Paid Consumption

1.41 Estimates of UK duty paid consumption are taken directly from returns to HMRC (clearances data) of the volumes of beer on which duty have been paid, along with the actual amounts of money.

Cross Border Shopping and Duty Free

1.42 Estimates of consumption of goods purchased as cross border shopping are based on figures produced from the International Passenger Survey (IPS). This provides estimates of the volume of beer brought back by UK travellers. The IPS figures are weighted by the Office for National Statistics (ONS) to represent the total cross border shopping entering the UK.

1.43 This estimate does not cover sales made on-board ferries. Therefore commercially provided data for deliveries of beer to ferries are used to supplement the cross border shopping estimate, and provide a complete figure.

1.44 An estimate of the volume of duty free beer brought into the country is calculated in the same way, using passengers from coming outside the EU.

1.45 Cross border shopping is therefore:

Cross Border Shopping	=	Goods Bought Overseas	+	Goods Bought On-Board Ferries	+	Duty Free

Conversion to Monetary Losses

1.46 Revenue losses associated with the illicit market are estimated by combining the illicit market information with price data, duty and VAT rate information. The formula to convert the volume into revenue is:

Losses = (Beer Duty + (Average Price * VAT Fraction)) * Illicit Volume

where:

- average beer prices are derived from the data provided by the ONS

- the VAT fraction is the portion of the retail price which is VAT – for example a 17.5 per cent VAT rate is equivalent to 7/47 VAT fraction

1.47 This method of converting volume into monetary losses assumes that VAT is also lost on all illicit beer. In some cases the illicit beer is sold in legitimate outlets and VAT may be paid on these sales. So this may not always be the case and therefore lead to an overestimate of losses.