



The economic contribution of the UK shipping industry

A Cebr report for Maritime UK

August 2019

Cebr

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Authorship and acknowledgements

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The industry figures making up the broad Maritime Sector are not always additive because some of the reports have been customised to cater for the overlap between certain industries. Simply adding together the industries would therefore produce a degree of double counting. Nonetheless, the broad Maritime report has had this double counting stripped out. Cebr believes fundamentally in the thoroughness and robustness of its approach and, as such, we stand by our own unbiased and fresh examination of the role of the Maritime sector and its constituent industries in the UK.

The report does not necessarily reflect the views of Maritime UK.

London, August 2019

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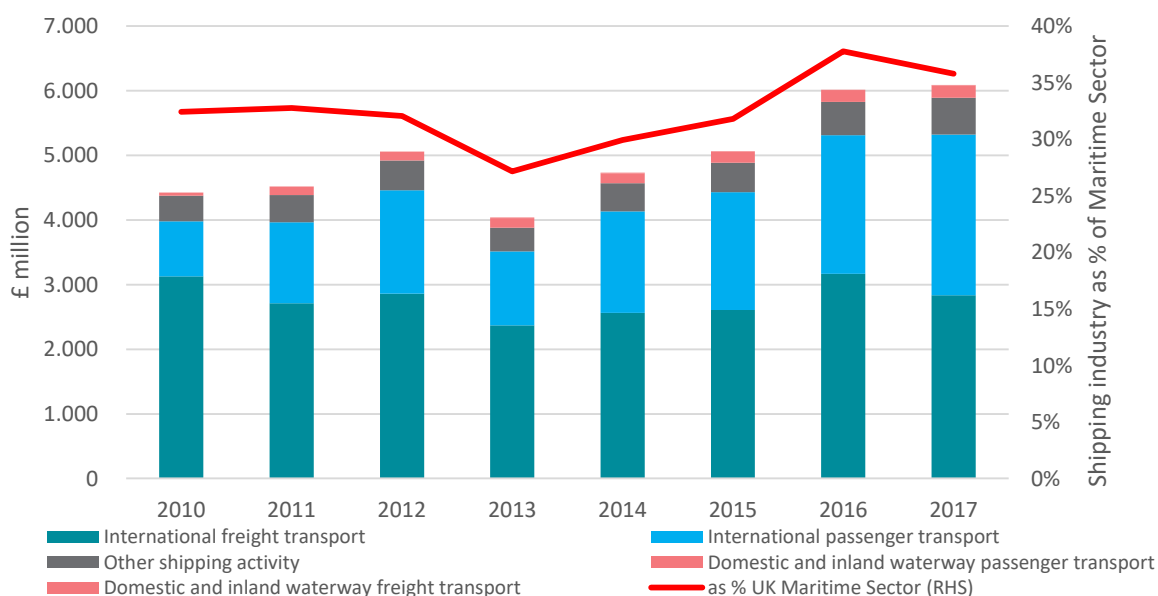
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Executive Summary

- The Centre for Economics and Business Research (Cebr) has been commissioned by Maritime UK to quantify the **economic contribution of the shipping industry to the UK economy**. This report forms one of ten reports, assessing the contribution of the Maritime Sector as a whole, at industry-level, in Scotland, Wales, the Liverpool City Region and the Solent LEP region.
- **The shipping industry consists of various activities, including the transportation of passengers and freight on both inland and international waters.** This report has drawn upon a combination of data sources, including the UK Chamber of Shipping (UKCoS), to quantify both the direct and aggregate economic impact of these activities in the UK economy in the years 2010 to 2017.
- The shipping industry makes a significant macroeconomic contribution to the UK through business turnover, Gross Value Added (GVA), employment and through the compensation of employees. **It is estimated that the shipping industry directly supported £18.9 billion in business turnover, £6.1 billion in GVA and 176,600 jobs (with 59,300 for UK employees) in 2017.** All represent significant increases on 2015 values. These represent 40% of turnover, 36% of GVA and 27% of UK employment directly supported by the UK Maritime Sector in 2017. **The International Transport of Freight is the largest constituent activity within the shipping industry in terms of economic activity,** directly contributing £2.8 billion in GVA and directly supporting around 30,300 jobs for UK employees.
- **The direct contribution of the shipping industry through Turnover, GVA and Employment have all increased since 2010,** when Turnover, GVA and Employment were estimated to be £13.5 billion, £4.4 billion and 52,600 jobs respectively. These represent increases of 41%, 38% and 13% respectively. Figure A below shows trends in the direct contribution of the shipping industry through GVA between 2010 and 2017.

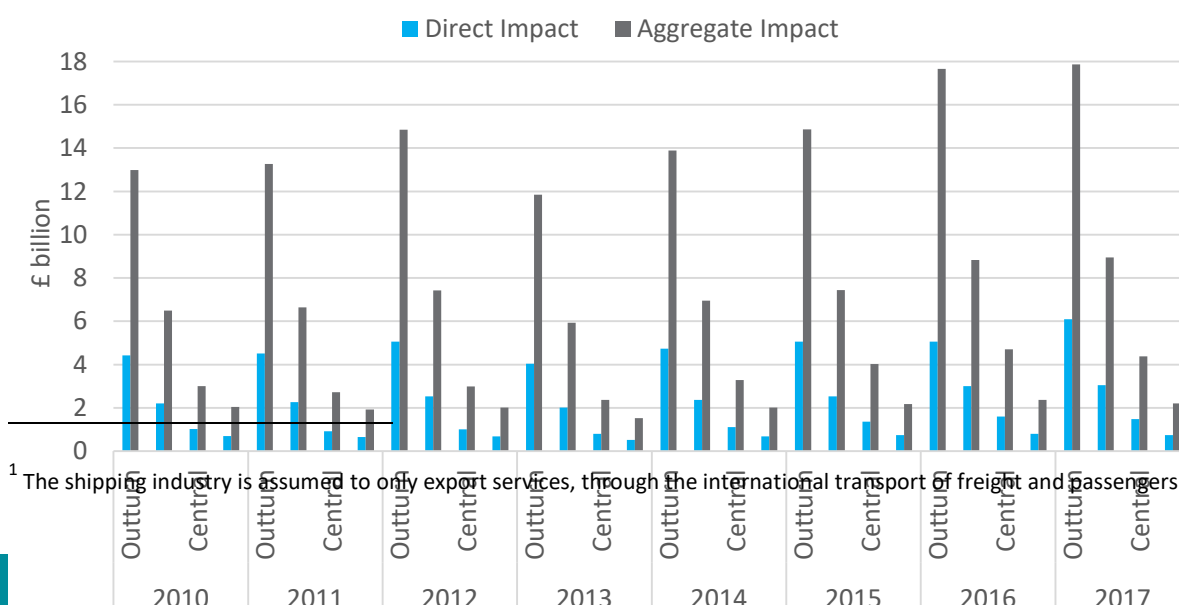
Figure A: The direct contribution of the shipping industry through GVA, and the industry's share of the Maritime Sector's total direct contribution through GVA, 2010-17



Source: FAME, UKCoS, ONS, Cebr analysis

- The shipping industry helps to raise millions of pounds each year to the UK Exchequer. **The industry contributed an estimated £927 million in tax revenues in 2017**, spread across Corporation Tax, Income Tax, National Insurance Contributions (NICs) and Business Rates.
- The industry also plays a significant role in facilitating UK trade, through the exports of services.¹ **In 2017 this export contribution was valued at £5.5 billion.**
- After quantifying the aggregate economic impacts through the industry supply chains and induced effects on expenditures, **it is estimated that the shipping industry helped to support a total of £17.8 billion of GVA in 2017.** This implies that, for every £1 in GVA directly contributed by the industry, a further £2.65 is supported across the UK economy.
- These aggregate economic impacts associated with the shipping industry also extend to business turnover, employment and the compensation of employees. **It is estimated that the shipping industry helped to support a total of £45.0 billion in turnover, 682,000 jobs and £4.8 billion through the compensation of employees in 2017.**
- **While the economic contribution of the industry is spread across all UK regions, the South East contributes the most to GVA, both directly and more widely.** In 2017, it is estimated that the industry in the South East directly contributed £2.1 billion of GVA (35% of the industry) and 19,700 jobs (33% of the UK total). For comparison, when we last conducted this analysis, we found that in 2015 London contributed the most for both employment and GVA. After indirect and induced effects are considered, the aggregate contribution from London rises to £5.8 billion of GVA and 217,000 jobs.
- There is strong evidence that the introduction of the Tonnage Tax regime in 2000 had a significant positive impact on the level of UK-owned shipping tonnage and the economic contribution in subsequent years. **Under a Central Scenario, Cebr estimates that without the Tonnage Tax regime, the shipping industry would have directly contributed £1.5 billion in GVA in 2017, and so £4.6 billion less than the GVA outturn of £6.1 billion.** This extends to 45,000 fewer jobs, £670 million less in tax contributions and £5.1 billion less in exports of Sea Transport services. Once the indirect and induced channels are considered, the reduction in GVA and employment rises to £13.5 billion and 511,000 jobs respectively in 2017. Figure B below shows the estimated GVA impact of the Tonnage Tax regime, comparing the outturn against three scenarios modelled.

Figure B: The direct and aggregate GVA impacts of the UK shipping industry under alternative scenarios, 2010 to 2017



¹ The shipping industry is assumed to only export services, through the international transport of freight and passengers.

Source: FAME, UKCoS, ONS, Cebr analysis

1 Introduction

Cebr is pleased to present this report to Maritime UK on the economic impact of the shipping industry on the UK economy. For the purposes of this study, the shipping industry is defined as comprising of the following activities: **International Passenger Transport** (Cruise and Ferry); **Domestic and Inland Waterway Passenger Transport**; **International Freight Transport** (Bulk, Container, Gas and Tanker); **Domestic and Inland Waterway Freight Transport**; and **Other Shipping Activity**. Other vessels not included in this definition – such as those engaged in activities such as oil and gas, , wind, cable laying, hydrography, and surveying – are captured as part of Cebr’s separate report on the economic contribution of the Marine industry.

This report forms one of ten reports on the economic contribution of the Maritime Sector, which is defined as comprising the following sectors: Individual Shipping; Ports; Leisure Marine; Marine Engineering and Scientific; and Maritime Business Services industries, each comprising a wide range of component activities. The other reports focus on the economic contribution of each of the other four industries at UK level, the economic contribution of the sector in Scotland, Wales, the Solent LEP, Liverpool City Region and the contribution of the Maritime Sector at UK-level. It is therefore important to consider this report as part of the wider framework set out in the ten reports, which set out the impact of the Maritime Sector both at a national and regional level.

Our examination spans the period from 2010 to 2017 (inclusive), with the latter being the latest year for which full data are available, and endeavours to capture the full economic ‘footprint’ of the shipping industry. As such, our report is not confined to direct ongoing contributions to GDP and employment through the shipping industry’s operations and activities in the UK, but also provides assessments of the associated indirect and induced multiplier impacts.

1.1 About Maritime UK

Maritime UK is the industry body for the UK’s Maritime Sector, representing companies and partner organisations in the shipping, ports, leisure marine, marine engineering and scientific and maritime business services industries. It acts to promote the sector, influence government and drive growth.

1.2 Purpose of this report

This study seeks to equip Maritime UK with statistics and figures on the value of the shipping industry to the UK economy, within the context of the value of the Maritime Sector. As such, Cebr has focused on the following key economic indicators: Turnover, Gross Value Added (GVA), Employment, the compensation of employees, the Exchequer contribution (through tax revenues raised) and the export of services.

The study also seeks to identify the contribution of the shipping industry at regional level (across the former Government Office Regions), after accounting for the relatively high concentration of economic activity taking place in the City of London.

1.3 Overview of the study and methodology

Purpose of the study

This report provides a thorough and comprehensive examination of the role of the shipping industry in the UK and its constituent sub-regional economies. It presents a range of analyses demonstrating different aspects of the value contributed by the industry, including direct contributions to GDP and

employment, indirect and induced multiplier impacts and the shipping industry's contribution to the UK Exchequer through tax revenues raised.

An important task has been to develop an in-depth understanding of the shipping industry. To produce a robust study, it is necessary to interrogate the available data to ensure that it captures the full range of activities that should be included in establishing the total economic 'footprint' of the industry. Following the collation of the necessary data capturing these activities, the values of key economic indicators were established to demonstrate the impact of the industry. The key macroeconomic indicators include:

- GVA² contributions to UK and regional GDP generated by the shipping industry, directly and through indirect and induced multiplier impacts.
- Jobs supported by the industry, including direct, indirect and induced jobs through multiplier impacts.
- The value of the turnover of shipping industry and, again, the turnover supported in the UK and regional economies through multiplier impacts.
- The value of employee compensation³ generated by the shipping industry, representing the total remuneration of employees operating in the industry.
- The contribution of the shipping industry through revenues raised for the Exchequer.

Mapping the UK shipping industry

Cebr has followed the definition of the shipping industry as comprising the activity groupings listed below:

- **International passenger transport (cruise and ferry)** (Standard Industrial Classification code 50100) – this consists of a variety of activities including: boat rental; coastal passenger transport; excursion, boat and sightseeing operations; passenger ferrying; water taxis; and other activities involving the transport of passengers over water (excluding inland routes, detailed below).
- **Domestic and inland waterway passenger transport** (Standard Industrial Classification code 50300) – this consists of activities which represent the transport of passengers over inland water. Such activity cover: passenger canal carrying; the transport of passengers via rivers, lakes, ports, canals and harbours; passenger ferry transport (via inland waterways, rivers or estuaries); local authority passenger ferry services; and the rental of boats or pleasure boats with crew for inland water transport.
- **International freight transport (bulk, container, gas and tanker)** (Standard Industrial Classification codes 50300 and 77342) – this grouping combines all activities relating to the international transportation of freight and related seafaring (except on inland waterways), as well as the rent and

² GVA, or gross value added, is a measure of the value from production in the national accounts and can be thought of as the value of industrial output less intermediate consumption. That is, the value of what is produced less the value of the intermediate goods and services used as inputs to produce it. GVA is also commonly known as income from production and is distributed in three directions – to employees, to shareholders and to government. GVA is linked as a measurement to GDP – both being a measure of economic output. That relationship is (GVA + Taxes on products - Subsidies on products = GDP). Because taxes and subsidies on individual product categories are only available at the whole economy level (rather than at the sectoral or regional level), GVA tends to be used for measuring things like gross regional domestic product and other measures of economic output of entities that are smaller than the whole economy.

³ Compensation of employees is the total remuneration, in cash or in kind, payable by an employer to an employee in return for employers' social contributions, mainly consisting of employers' actual social contributions (excluding apprentices), employers' imputed social contributions (excluding apprentices) and employers' social contributions for apprentices.

leasing of water freight transport equipment. These activities consist of sea and coastal freight shipping/ferrying services, heavy lift and launch barge services, and the rental of vessels for sea and coastal freight transport.

- **Domestic and inland waterway freight transport** (Standard Industrial Classification code 50400) – this grouping differentiates freight transport services conducted on inland waterways from those services listed immediately above. It consists of activities such as: freight transport via lakes, estuaries, canals, ports and rivers, harbours and docks; freight transport via inland waterways; and the rental of boats (with crew) for inland waterway services.
- **Other shipping activity** – this reflects the activity of businesses whose primary SIC code is not one of the five listed above. For example, CEMEX – a large company producing aggregates and building materials – runs shipping operations in the UK but would only list shipping activities as one of its secondary SIC codes. CEMEX’s employment in shipping activities are instead captured through the UKCoS Annual Seafarer Employment Survey.⁴

The first stage of the study has involved mapping the activities of the shipping industry against the National Accounts framework, in order to establish clarity on the precise definition of the industry as it maps against the Standard Industrial Classification (SIC) framework.⁵ In essence therefore, this involves taking each of the shipping industry’s activities, and mapping these to the most relevant Standard Industrial Classification (SIC) code in order to identify the activity’s economic data.

It is clear that the majority of the activities of the shipping industry do map onto the SIC framework. In fact, the major activity groupings listed above, with the exception of the last, each correspond to a particular SIC code. As a result, Cebr have been able to exploit company financials data in addition to publicly-available data sources such as the Annual Business Survey to gather data for some constituent activities of the shipping industry. Cebr has therefore drawn upon a combination of publicly-available data, desk research and industry data to quantify the economic contribution from the shipping industry.

Quantifying the direct economic impacts of the shipping industry and data sources

In order to quantify the direct economic impacts of the shipping industry, a number of different approaches have been taken which reflect the degree of alignment (or otherwise) for each shipping activity against the National Accounts framework. They are as follows:

- The major source of data used to quantify the direct economic contribution of the shipping industry is the Financial Accounts Made Easy (FAME)⁶ database, which provides business demography and financial accounts data for companies operating in the UK shipping industry. The FAME database has been used to generate estimates for the business turnover, GVA, employment, the compensation of employees and profitability of the shipping industry.

⁴ The Seafarer Employment Survey is run annually by UKCoS, collecting data from its membership of the number of seafarers they employ under contract from the Department for Transport (DfT) who use the data in the production of the National Statistics publication.

⁵ The United Kingdom Standard Industrial Classification of Economic Activities (SIC) is used to classify business establishments and other standard units by the type of economic activity in which they are engaged.

⁶ The FAME database of companies in the UK and Ireland provided by Bureau van Dijk. It contains information on company filings, SIC codes and industry descriptions, as well as accounts and documents as filed with Companies House.

- The indicative breakdown of shipping industry revenue by vessel type has been sourced from the UKCoS Annual Sea Inquiry.⁷
- FAME data has then been used by extension to quantify the contribution that the shipping industry makes to the UK Exchequer, and the productivity of the industry in terms of GVA per job. Data on foreign seafarer employment and an indicative breakdown of employment by type (officers, rating and shore-based staff) has been sourced from the annual UKCoS Annual Seafarer Employment Survey.
- Data for services exports from the shipping industry has been sourced from both the ONS Pink Book and the UKCoS Annual Sea Inquiry.
- **Quantifying the aggregate economic impacts of the shipping industry**

After collation and interrogation, the direct economic impacts for the shipping industry have then been embedded within Cebr's economic impacts models of the UK economy. For each of the five activity groups, the direct impacts are then combined with the bespoke economic multipliers to generate indirect, induced and so aggregate impacts. These multipliers were calculated by Cebr using our input-output modelling approaches, as these activities are not 'standard' sectors reported in the ONS' input-output tables. Cebr's models establish the relationships between industries through supply chain linkages, as well as industries' linkages with government, capital investors and the rest of the world (through trade).

The models produce three types of impact for four indicators – turnover, GVA, employment, and the compensation of employees. The three types of impact are:

- **Direct impact:** this is the value generated and jobs supported directly by the economic activities of the UK shipping industry.
- **Indirect impact:** this is the value and jobs supported in industries that supply inputs to the UK shipping industry.
- **Induced impact:** this is the value and jobs supported in the wider economy when the direct and indirect employees of the UK shipping industry spend their wages and salaries on final goods and services.

These three impacts are then combined to convey the aggregate impact associated with each activity within the shipping industry in terms of turnover, GVA, employment, and the compensation of employees.

1.4 Structure of the report

The remainder of the report is structured as follows:

- **Section 2** provides an overview of how the Maritime Sector has been defined, and how the shipping industry fits within this definition. Further information is also provided on how the key macroeconomic indicators have been captured or estimated.

⁷ The Annual Sea Inquiry is an annual survey run by UKCoS on its membership, with data uplifted by the ONS to account for companies which are not members of UKCoS.

- **Section 3** outlines the direct economic impacts of the shipping industry. We consider the direct impacts through GVA, employment, the compensation of employees, the industry's contribution to the UK Exchequer through tax revenues, and the value of exported services.
- **Section 4** considers the multiplier impacts of the shipping industry through the activities it stimulates in the local supply chain and in the wider economy when employees directly and indirectly employed by the Solent-based industry spend their wages and salaries in the local and wider economy.
- **Section 5** examines the direct and multiplier impacts of the shipping industry at regional level, as disaggregated by the twelve former Government Office Regions (GORS).⁸
- **Section 6** provides additional analysis of the Tonnage Tax regime and how its introduction is estimated have impacted the UK shipping industry since 2000. Analysis is framed around the counterfactual situation of what would have likely happened to the UK shipping fleet and the economic contribution of the shipping industry had the Tonnage Tax regime not been introduced.

⁸ These are: Scotland, Wales, Northern Ireland, the East of England, the East Midlands, London, the North East, the North West, the South East, the South West, the West Midlands, and Yorkshire and the Humber.

2 The Maritime Sector and the shipping industry

Here we set out how the Maritime Sector has been defined for the purposes of the study. On a holistic level, the wider sector can be disaggregated into the shipping, ports, marine and maritime business services industries, which in themselves are formed of numerous individual and distinct activities, of which the shipping industry is the focus of this report.

2.1 The definition of the Maritime Sector and its constituent industries

Maritime UK have provided a list of activities which fall under the auspices of the Maritime Sector; Cebr has subsequently undertaken a mapping exercise using this list to identify how each of these four industries aligns with the national accounts. For most Maritime Sector activities, a corresponding Standard Industrial Classification (SIC) code exists which enables the identification and quantification of the direct economic impacts using publicly-available data sources. A minority of activities do not map neatly against the SIC framework, necessitating the use of industry or local-level data for quantification purposes.

- **Shipping industry**
 - International passenger transport (cruise and ferry);
 - Domestic and inland waterway passenger transport;
 - International freight transport (bulk, container, gas and tanker);
 - Domestic & inland waterway freight transport;
 - Other shipping activity.
- **Ports industry**
 - Warehousing and storage;
 - Port activities and management;
 - Stevedores, cargo and passenger handling;
 - Border agency, HMRC and public sector employees operating in ports.
- **Leisure Marine**
 - Recreational marine activities, marine finance and legal activities and general marine services;
 - Boatbuilding (marine leisure vessels);
- **Marine Engineering**
 - Shipbuilding;
 - Marine renewable energy;
 - Marine support activities for offshore oil and gas, engineering and mining;
 - Marine science and academic activities, including government vessels and technical consulting;
- **Maritime Business Services industry**
 - Shipbroking services;
 - Maritime Insurance services;
 - Maritime Financial services;
 - Maritime Legal services;
 - Ship Surveying and Classification activities;
 - Maritime Education (including Maritime university courses and cadetships);
 - Maritime Consultancy; and
 - Maritime Accountancy.

Here we focus solely on the shipping industry. The remainder of this section focuses on how the direct economic impacts of the constituent activities have been measured.

2.2 Quantifying the direct economic impacts of the industry at national level

Here we set out in further detail the approach taken to quantify the direct economic impact of the shipping industry through its constituent activities. Table 1 below shows how activities for the shipping industry have been identified, and the data sources used to capture and quantify the associated economic activity.

Table 1: Mapping of the shipping industry by activity

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S) USED
SHIPPING	International passenger transport (cruise and ferry)	Identified through SIC code 50100, "Sea and coastal passenger water transport".	FAME, BRES
	Domestic and inland waterway passenger transport	Identified through SIC code 50300, "Inland passenger water transport".	FAME, BRES
	International freight transport (bulk, container, gas and tanker)	Identified through SIC codes 50200 and 77342, "Sea and coastal freight water transport", and "Renting and leasing of freight water transport equipment".	FAME, BRES
	Domestic and inland waterway freight transport	Identified through SIC code 50400, "Inland freight water transport".	FAME, BRES
	Other shipping activity	Identified and quantified through UKCoS statistics for shipping-related employment	UKCoS Annual Seafarer Employment Survey, FAME

Source: Maritime UK, Cebr analysis

- Therefore, for the majority of shipping industry activities, business demography data taken from the FAME database has been used to generate UK-level estimates for the direct economic impacts of each activity.

2.3 Quantifying the direct economic impacts of the industry at regional level

Here we set out the approach taken to disaggregate the direct and aggregate economic impacts of the shipping industry at regional level. A full set of estimates for the regional direct economic impacts are provided in Annex A. As it is possible to quantify the economic contribution using SIC codes, by extension the approach taken involves using publicly-available statistics which can be disaggregated at regional level and combining these with the UK-level direct and aggregate impacts for the shipping industry.

- The first step of this approach involved determining the regional disaggregation of employment for each industry activity. The major source of employment data by region was the Business Register and Employment Survey (BRES)⁹, as accessed through NOMIS. Employment data associated with each SIC code for the shipping industry were gathered and an implied regional breakdown estimated after interpolating for some missing information.
- As BRES only provides coverage for Great Britain, employment data in Northern Ireland has been estimated using a combination of BRES and the ONS Annual Business Survey (ABS),¹⁰ the latter providing the proportion of employment in Northern Ireland across the nearest industrial sector category. For the other key macroeconomic indicators – turnover, GVA, and the compensation of employees – ABS has been used alongside the regional employment estimates.
- The major source of employment data by region was the Business Register and Employment Survey (BRES)¹¹, as accessed through NOMIS. Employment data associated with each Standard Industrial Classification code for the shipping industry were gathered and an implied regional breakdown estimated after interpolating for some missing information. Shipping employment in Northern Ireland has been estimated using a combination of BRES and the Annual Business Survey, the latter providing the proportion of employment in Northern Ireland across the broader industrial sector categories.

Other adjustments have been made to the regional disaggregation of the key macroeconomic indicators which represent the direct economic impacts of the shipping industry, in order to reflect differences in economic performance across the regions. These are as follows:

- To account for regional differences in productivity (GVA per employee), the breakdown of GVA has been adjusted using the ONS GVA per employee by region statistics.¹²
- To account for regional differences in pay, wages and salaries paid to employees in the shipping industry have been adjusted using differentials taken from ASHE.¹³ For example, the average wage for an employee in the South East was 4% higher than the UK average in 2017.
- To account for regional variation in the ratio of compensation of employees to GVA in different sectors, the compensation of employees for the industry have been adjusted using regional differentials implied by the closest industry, as sourced from the Annual Business Survey.

The regional disaggregation process can therefore be summarised as follows:

- Estimate the regional disaggregation of employment in the shipping industry by combining the UK employment total with the BRES-implied split;
- Estimate the regional disaggregation of GVA by applying employment-to-GVA ratios, adjusting for regional productivity differentials, and constraining the regional totals to the UK total;

⁹ The Business Register and Employment Survey (BRES), produced by the ONS on an annual basis, is the official source of employee and employment estimates by detailed geography and industry within Great Britain.

¹⁰ The Annual Business Survey is a census of production in the United Kingdom produced by the ONS.

¹¹ The Business Register and Employment Survey (BRES), produced by the ONS on an annual basis, is the official source of employee and employment estimates by detailed geography and industry within Great Britain.

¹² ONS, 2017. Subregional Productivity: Labour Productivity (GVA per hour worked and GVA per filled job) indices by UK NUTS2, NUTS3 subregions and City regions.

¹³ Ibid.

- Estimate the regional disaggregation of turnover by applying regional industry turnover-to-GVA ratios sourced from ABS, again constraining the regional totals to the UK total;
- Estimate the regional disaggregation of the compensation of employees (COE) by applying regional industry COE-to-GVA ratios sourced from ABS, again constraining the regional totals to the UK total.
- Table 2 below shows the breakdown of employment in shipping as implied through BRES data.

Table 2: The estimated regional breakdown of UK employment in shipping as implied by BRES and ABS, 2010 to 2017

EMPLOYMENT	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
England	79.8%	76.4%	77.7%	78.2%	78.9%	80.3%	78.3%	81.5%
Scotland	11.6%	13.1%	13.9%	13.0%	14.8%	12.4%	13.9%	13.9%
Wales	6.0%	7.0%	5.2%	6.0%	4.0%	5.1%	5.5%	2.3%
Northern Ireland	2.6%	3.6%	3.3%	2.8%	2.3%	2.2%	2.3%	2.3%
East of England	7.1%	8.1%	5.4%	6.7%	7.2%	4.8%	9.4%	6.1%
East Midlands	1.7%	0.4%	0.3%	1.2%	5.6%	0.5%	0.1%	0.1%
London	24.0%	26.7%	23.1%	21.5%	25.6%	35.1%	21.8%	22.5%
North East	1.0%	1.1%	0.8%	0.7%	1.2%	1.7%	0.4%	0.2%
North West	7.8%	8.2%	6.6%	8.1%	8.3%	7.8%	9.3%	9.0%
South East	25.1%	23.8%	26.2%	28.6%	24.4%	20.4%	28.4%	33.1%
South West	5.8%	4.2%	9.1%	7.2%	3.6%	6.0%	5.5%	8.3%
West Midlands	3.3%	0.8%	0.4%	0.9%	2.2%	0.8%	1.5%	0.9%
Yorkshire and the Humber	4.2%	3.2%	5.8%	3.2%	0.8%	3.3%	2.0%	1.3%

Source: ONS, Cebr analysis

- The results of this analysis are shown in the final section of this report. The next sections in this report set out the direct and aggregate economic impacts of the shipping industry in the UK.

3 The direct economic impact of the shipping industry

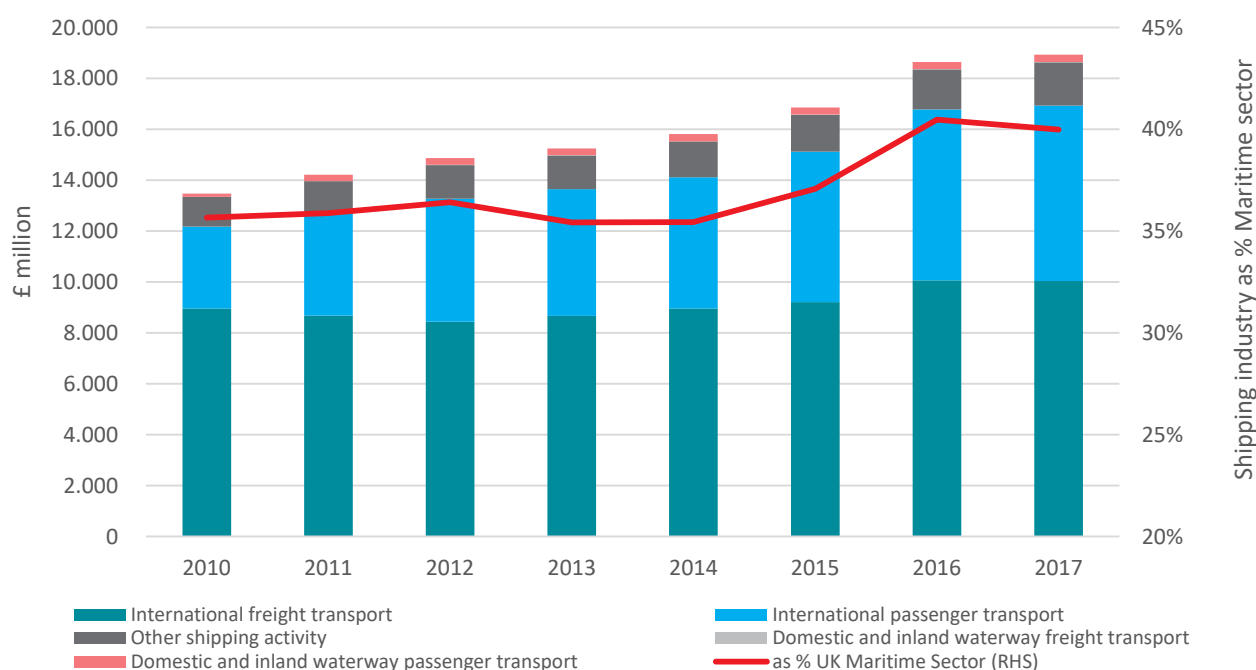
The direct contribution of the shipping industry is measured in terms of the following key macroeconomic indicators: turnover, GVA, employment, the compensation of employees, the Exchequer contribution through tax revenues raised, and exports.

3.1 The direct economic impact through turnover

Turnover by shipping activity

Figure 1 below shows the breakdown of business turnover generated by the shipping industry and its constituent activities between 2010 and 2017. Overall, the industry contributed an estimated £18.9 billion in business turnover in 2017. This is slightly above the 2016 level of £18.6 billion, but a represents a significant increase of 40.5% on 2010. The most significant increases came from 2014-15 and 2015-16, when turnover increased by over £1 billion year-on-year, and over the period the industry grew by an average of 5.0% per year. During this period, the contribution that the shipping industry makes to the total level of turnover contributed by the Maritime Sector has increased slightly, from 35.8% in 2010 to 40.1% in 2017. However in percentage terms, this 2017 value is slightly down on 2016, when the shipping industry made up 40.6% of the UK Maritime Sector.

Figure 1: Estimated turnover of the shipping industry, and share of the Maritime Sector's total direct turnover contribution, 2010 to 2017



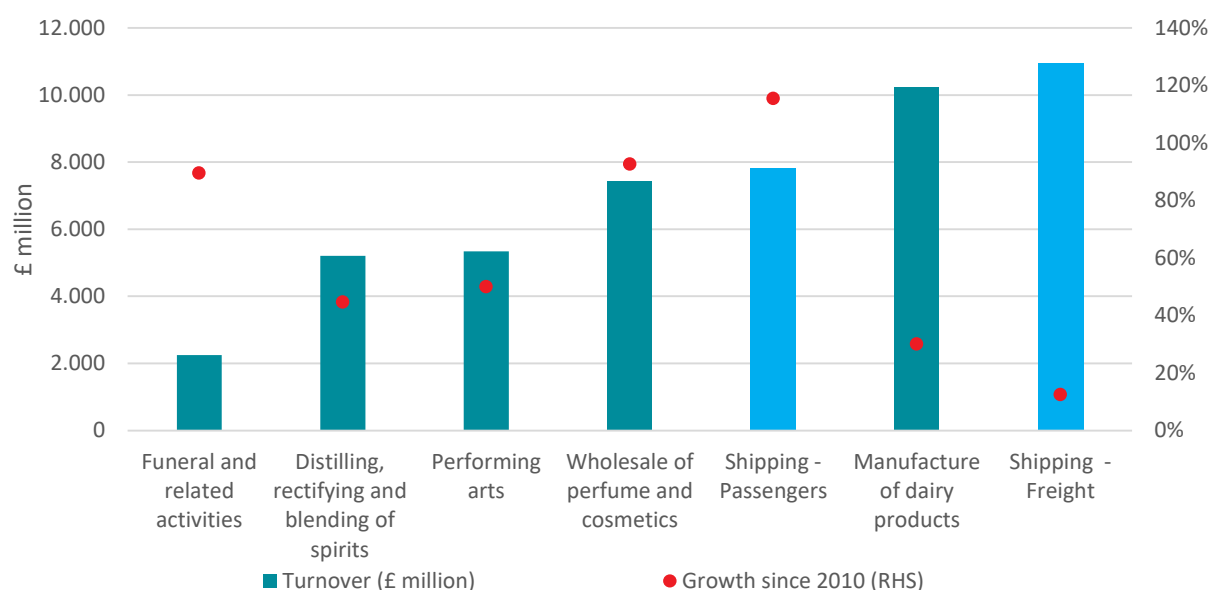
Source: FAME, UKCoS, ONS, Cebr analysis

The largest constituent activity within the shipping industry in terms of turnover directly generated is the international freight transport (bulk, container, gas and tanker) subindustry, with just over £10 billion of business turnover in 2017. After this activity, international passenger transport (cruise and ferry) is the next largest, with £6.9 billion of turnover in 2017. In nominal terms, this industry has grown the most, with business turnover increasing by £3.7 billion from 2010 to 2017. Combined, international passenger

transport and international freight transport contributed 89% of the shipping industry's turnover in 2017. This figure has consistently remained about 90% between 2010 and 2017.

For contextualisation, Figure 2 compares turnover in the freight and passenger activities of the shipping industry with a range of comparative industries of similar size: the manufacture of dairy products; wholesale of perfume and cosmetics; performing arts; distilling, rectifying and blending of spirits; and funeral and related activities. Turnover data has been sourced from the Annual Business Survey (ABS).

Figure 2: The estimated turnover of the shipping industry against comparable industries in 2017, and growth against the 2010 level



Source: FAME, UKCoS, ONS, Cebr analysis

Turnover from domestic and international freight shipping (£11.0 billion) exceeded that from all the comparative industries, while only the manufacture of dairy products (£10.2 billion) generates turnover that exceeds that of domestic and international passenger shipping (£7.8 billion). Turnover generated by freight shipping is estimated to have increased by 12% since 2010. In contrast, passenger shipping directly contributed £7.8 billion in turnover in 2017, but experienced the highest turnover growth of the comparative industries (115%) from 2010-17. This was largely driven by growth in the ferry and cruise sector (international passenger shipping services) turnover since 2010.

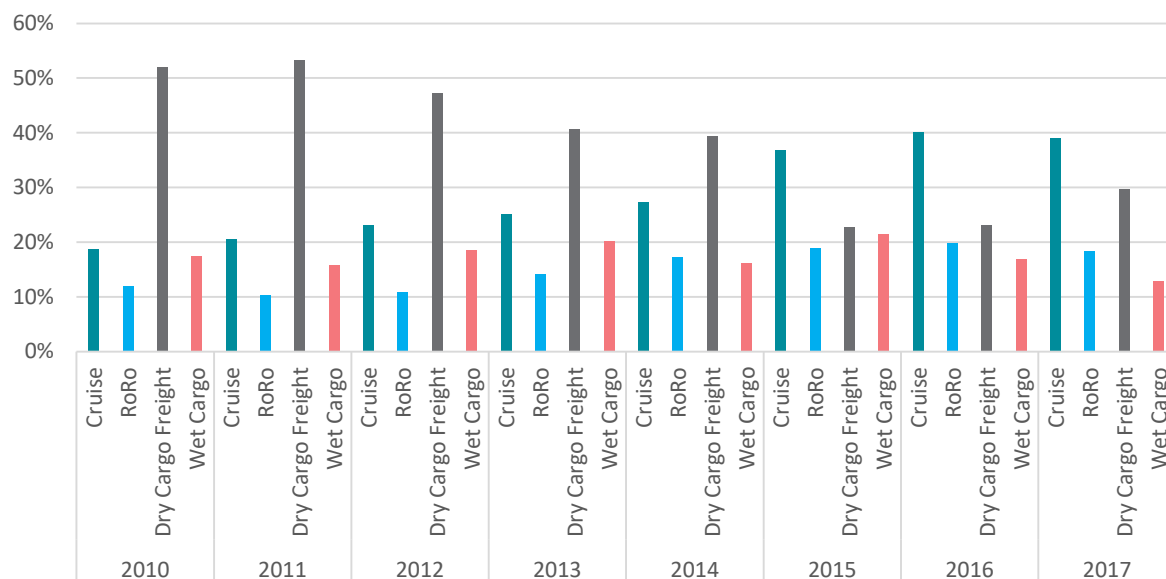
Turnover by type of vessel

Here we examine the breakdown of industry turnover by vessel, drawing upon analysis of the UK Chamber of Shipping's Annual Sea Inquiry (ASI). Figure 3 below shows the percentage share of revenue raised in the years 2010 to 2017, for the following vessel types:

- Cruise (passenger);
- RoRo¹⁴ (passenger and freight);
- Dry cargo freight (inclusive of both dry bulk and container shipping);
- Wet cargo freight services (tanker and gas).

¹⁴ RoRo, or roll-on/roll-off vessels are those designed to carry wheeled cargo (cars, trucks, trailers etc.), which can be driven on at the departure port and driven off at the destination port.

Figure 3: Shares of shipping industry revenue by service type, 2010 to 2017



Source: UKCoS, ONS, Cebr analysis

The percentage share of revenue from dry cargo freight (dry bulk and container) fell from 52% in 2010 to only 23% in 2015, before recovering slightly to 30% in 2017. Meanwhile, revenue from passenger cruise services rose from 19% to 39% over the same period. This reflects the shift in revenue patterns shown in Figure 3 above, and the global trend of strong cruise industry performance.

Industry profitability

Despite the fall and then recovery in business turnover, average profitability (as measured using the aggregated ratio of gross profits to turnover) in the shipping industry is estimated to have increased since 2010. Table 3 shows trends in profitability across each industry activity.

Table 3: Estimated profitability (gross profit ratio) of the shipping industry and constituent activities, 2010 to 2017

Profitability	2010	2011	2012	2013	2014	2015	2016	2017
UK Maritime Sector	17.3%	17.0%	18.7%	19.6%	21.5%	20.0%	20.5%	20.2%
UK shipping industry	16.4%	17.3%	19.6%	19.8%	22.9%	24.1%	25.6%	24.1%
International passenger transport (cruise and ferry)	10.7%	24.0%	27.7%	30.6%	34.6%	36.6%	41.8%	39.0%
Domestic and inland waterway passenger transport	22.8%	33.4%	33.9%	35.3%	41.2%	44.9%	46.9%	44.9%
International freight transport (bulk, container, gas and tanker)	18.4%	13.7%	14.6%	13.1%	15.6%	15.6%	14.2%	13.2%
Domestic and inland waterway freight transport	8.9%	4.8%	7.6%	5.3%	2.4%	8.2%	18.9%	15.6%
Other shipping activity	15.2%	19.0%	21.0%	21.1%	23.5%	26.3%	26.3%	26.3%

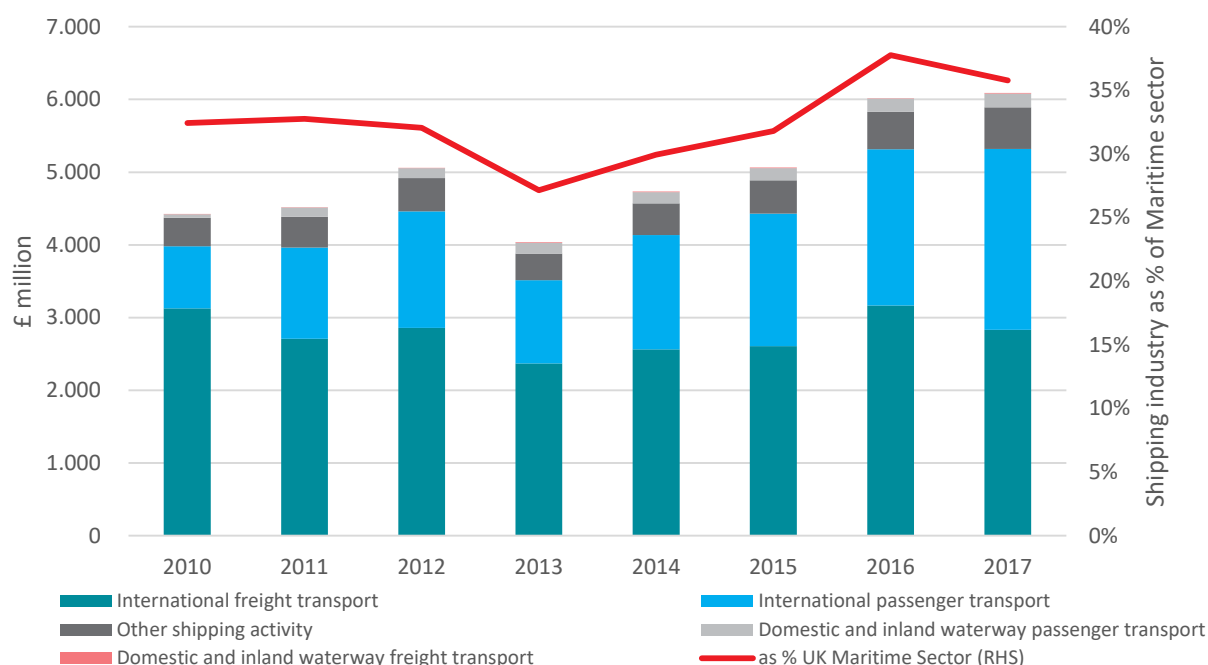
Source: FAME, UKCoS, ONS, Cebr analysis

The overall profitability of the shipping industry, which in 2010 was slightly lower than the Maritime Sector average, has been consistently higher every year since. From 2013 to 2017 this divergence has increased, from 0.2 percentage points in 2013 to 3.9 in 2017. This is driven by both a slight decrease in Maritime Sector profitability, and a 4.3 percentage point increase in shipping industry profitability. Overall, the profitability in the shipping industry has increased by 7.7 percentage points (46.8%) from 2010 to 2017. Domestic and inland waterway passenger transport was the most profitable activity throughout the assessed period, although the profitability of international passenger transport (cruise and ferry) grew the most, and given its much greater relative size, is arguably the most important in driving the overall shipping industry profitability.

3.2 The direct economic impact through GVA

This subsection illustrates the contributions in terms of the GVA from the shipping industry to UK GDP. Figure 4 below shows this direct impact, disaggregated by industry activities in the years 2010 to 2017, as well as the shipping industry's share of GVA directly generated by the Maritime Sector.

Figure 4: The direct contribution of the shipping industry through GVA, and the industry's share of the Maritime Sector's total direct contribution through GVA, 2010 to 2017

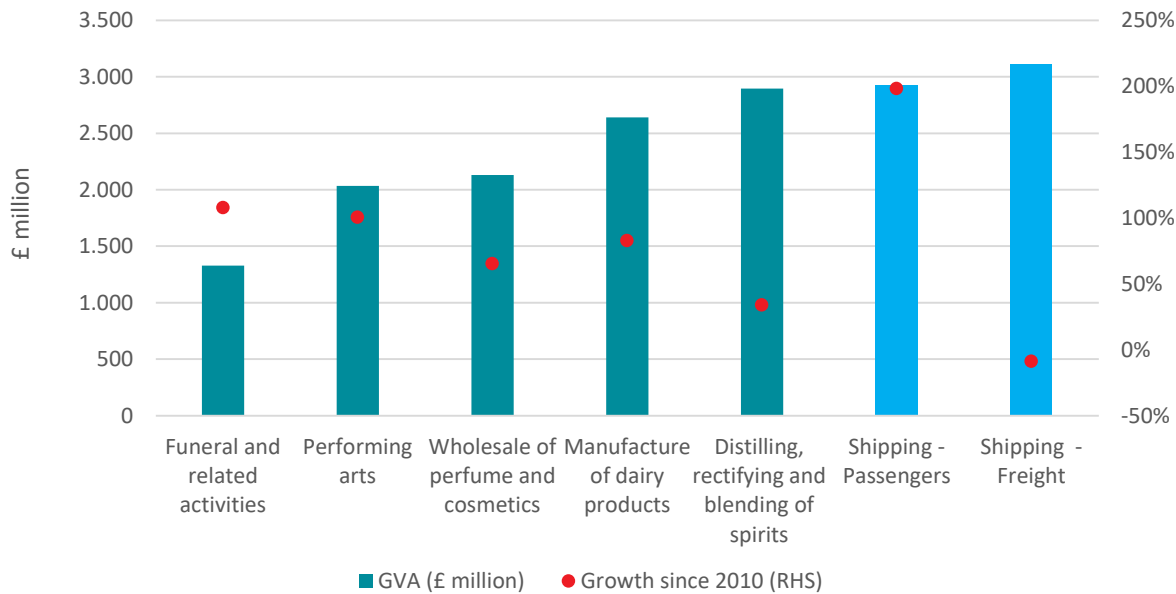


Source: FAME, UKCoS, ONS, Cebr analysis

It is estimated that the shipping industry directly contributed a total of £6.1 billion in GVA in 2017, an increase from the £4.4 billion in 2010. The majority of this increase came in the second half of the period, with GVA actually falling to below 2010 levels, from 2012 to 2013. From 2013 to 2017, GVA increased by £2.1 billion (51%). Overall, the shipping industry is estimated to have contributed 35.9% of the UK Maritime Sector's direct contribution through GVA in 2017, compared to 32.9% in 2010.

This trend of increasing GVA contributions to the UK economy, can be seen further in Figure 5, as well as the GVA of the shipping industry in 2017 against comparable industries.

Figure 5: GVA of the shipping industry against comparable industries in 2017, and growth against the 2010 level



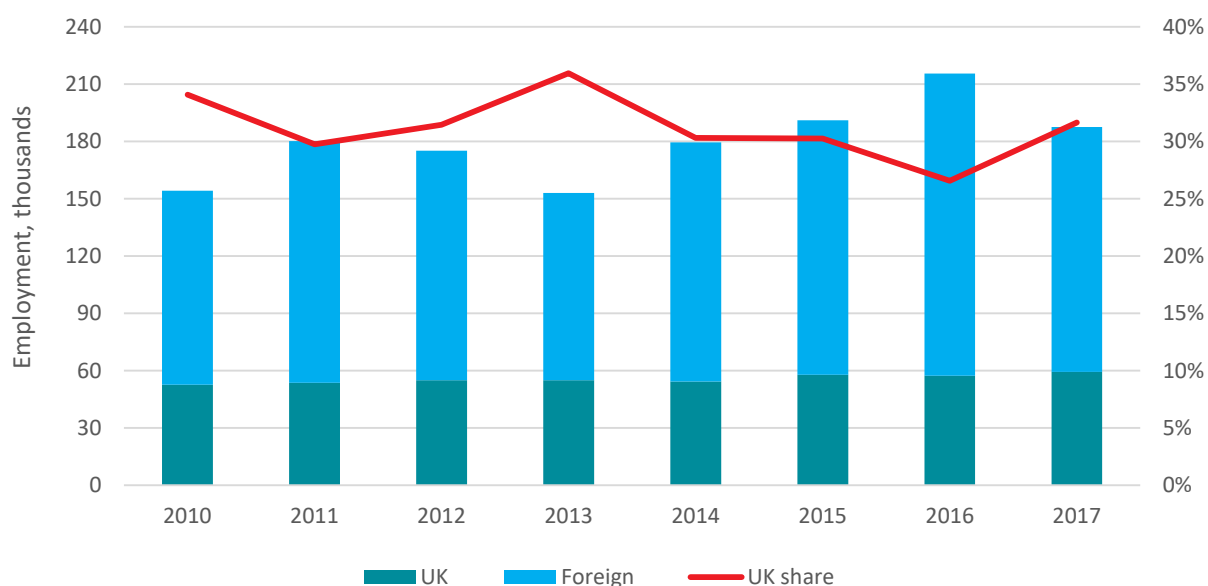
Source: FAME, UKCoS, ONS, Cebr analysis

In terms of the direct GVA contribution in 2017, the GVA contributed due to the shipping of both passengers and freight is larger than for all of the comparative industries. The domestic and international shipping of passengers contributed £2.9 billion in GVA, while this figure rises to £3.1 billion for the shipping of freight. For comparison, the closest other industry is the distilling, rectifying and blending of spirits, which also directly produced £2.9 billion in GVA in 2017, however closer examination shows this was £32 million less than the shipping of passengers. As for turnover, the shipping of passengers again has the highest growth in direct GVA between 2010 and 2017, with the 2017 level exceeding that of 2010 by 198%. In contrast, the GVA contribution from freight shipping declined slightly (9%). On average, the direct GVA contribution from the non-shipping comparative industries grew by 78% from 2010 to 2017, although none came close to the growth rate of passenger shipping.

3.3 The direct economic impact through employment

In addition to its contribution through GVA, the shipping industry also directly supports a significant number of jobs, both for foreign and UK employees (seafarers and shore-based). Figure 6 below shows the total level of employment in the UK shipping industry between 2010 and 2017, broken down by the employment of foreign and UK nationals.

Figure 6: The direct contribution of the UK's shipping industry through employment, and the industry's share of the Maritime Sector's total direct contribution, 2010 to 2017



Source: FAME, UKCoS, ONS, Cebr analysis

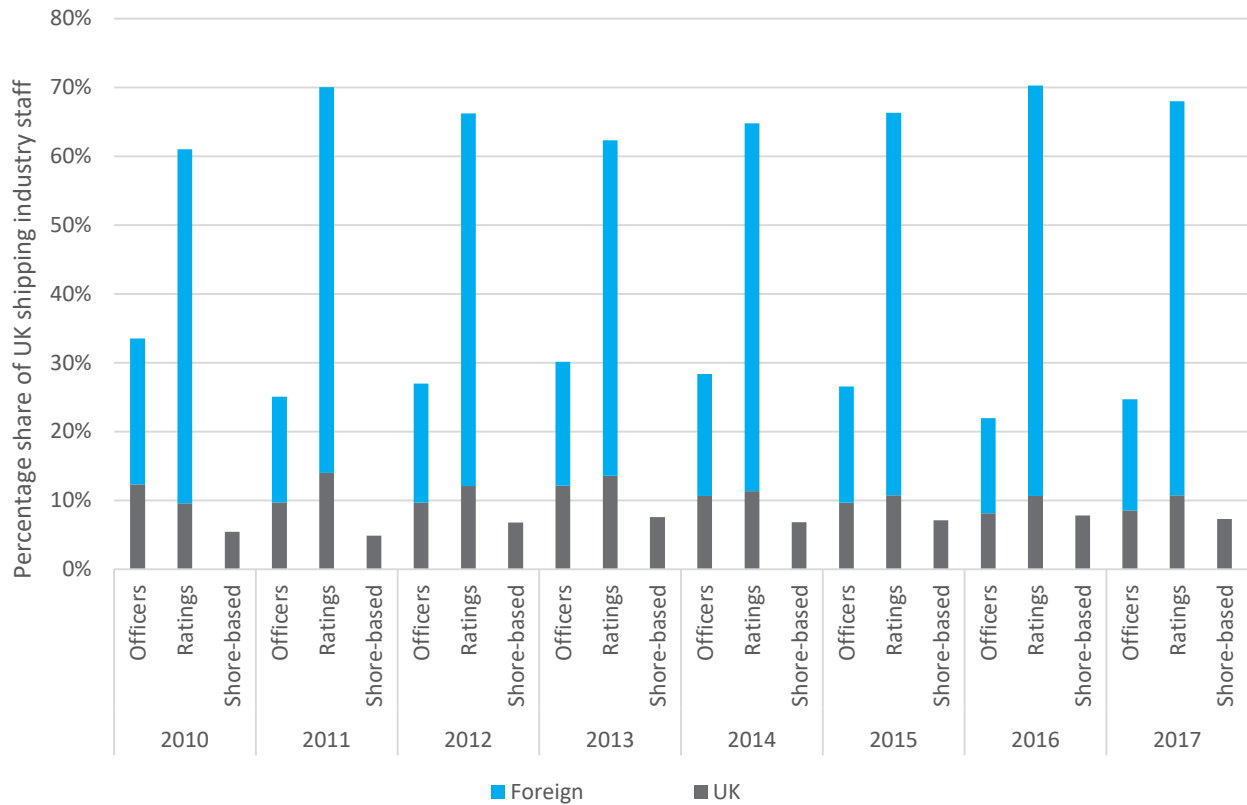
The total level of employment increased by 25% from 2010 to 2017, from 145,200 to 181,300. These headline numbers however mask significant volatility over the assessed period, with employment increasing by 25,400 from 2010 to 2011, before declining back to near 2010 levels by 2013. From 2013 to 2016, employment then increased to the 2016 peak of 210,700, before falling 14% to 181,300 in 2017.

The share of foreign nationals employed was significantly more volatile than the UK share, with a range of 62,100 over the period, compared to just 6,800 for UK employment. A significant part of this variation is likely due to the crewing arrangements of cruise lines, which employ tens of thousands of individuals. As such, the share that is attributable to the UK actually tends to decrease when total employment increases. The peak for UK nationals was in 2013 (38%), as total employment fell substantially, driven by a 20,400 person fall in foreign employment. Over the entire period, the share attributable to UK nationals has decreased slightly, from 36.2% to 32.7%, although in raw terms the number of jobs attributable to UK nationals did increase, by 12.9%.

Employment by type

Figure 7 below shows the breakdown of foreign and UK national employment by type: officers, ratings and shore-based staff, with this breakdown sourced from the UKCoS Annual Seafarer Employment Survey.

Figure 7: Foreign and UK employment share in the shipping industry by type, 2010 to 2017



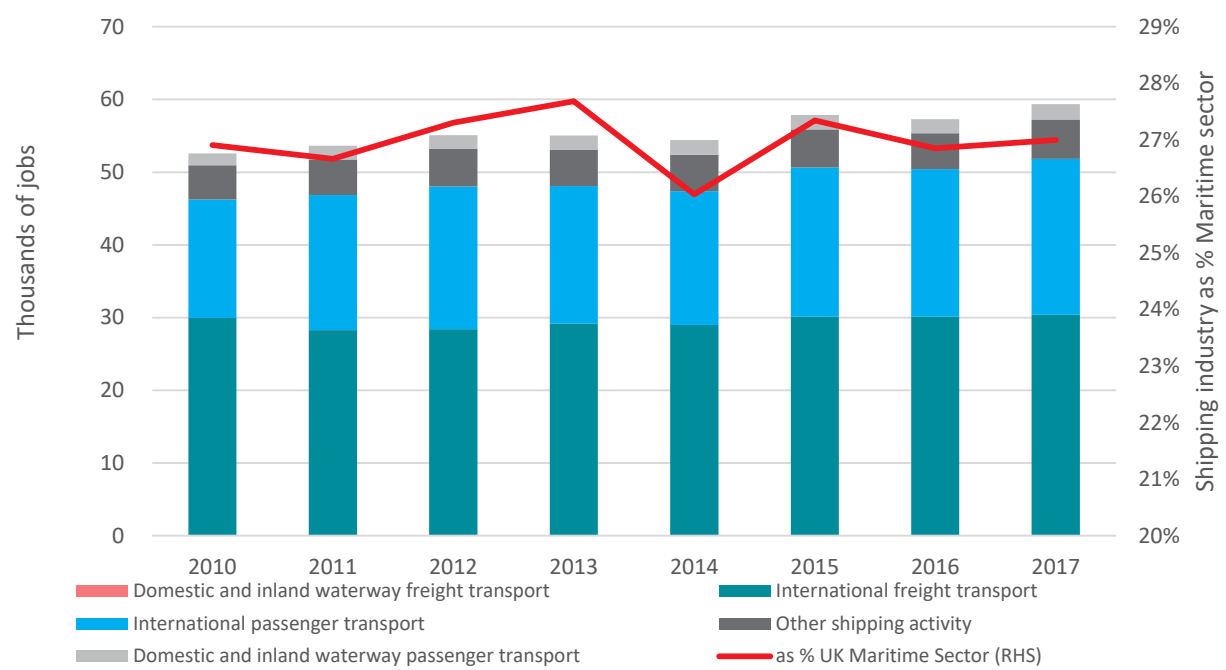
Source: UKCoS, Cebr analysis

For every year bar 2013 (when they made up 49%), foreign ratings staff make up at least half of all UK shipping industry workers. Ratings staff is a general term for skilled support roles on a ship. For UK nationals, the dominant employment share changed over the period. In 2010, the share of UK officers (12.3%) exceeded that for ratings staff (9.6%), however from 2011, and in every year since, ratings staff have outnumbered officers. This split was 10.8% and 8.7% respectively for ratings staff and officers in 2017. Shore-based workers made up the lowest number of employees in each period.

UK employment by shipping activity

Figure 8 below highlights the direct contribution of the shipping industry to UK employment, disaggregated by individual industry activity. For the remainder of this section, this refers to the employment of UK-based workers.

Figure 8: The direct contribution of shipping industry through UK employment, and the industry’s share of the Maritime Sector’s direct UK employment contribution, disaggregated by industry activity, 2010 to 2017

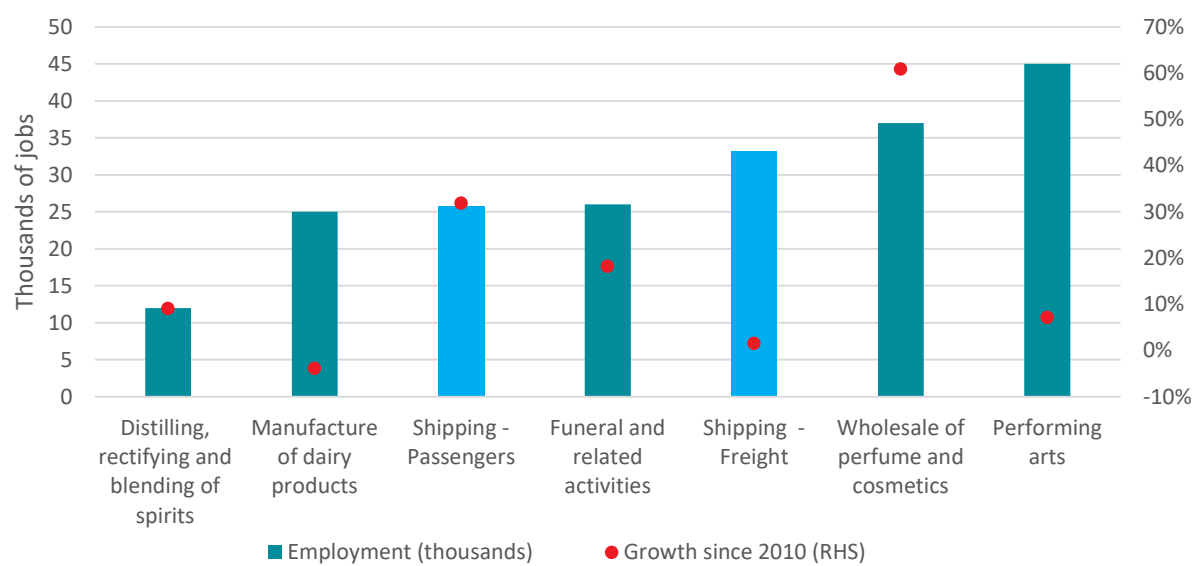


Source: FAME, UKCoS, ONS, Cebr analysis

It is estimated that the shipping industry directly supported around 59,400 jobs for UK employees in 2017, up from 52,600 jobs in 2010. As a share of total employment directly supported by the Maritime Sector, employment in the shipping industry has been relatively consistent, at around 27%. As with turnover and GVA, in each year the international transport of freight and passenger activities contributed the lion’s share of employment, with 87% in 2017.

Figure 9 compares the direct contribution that the shipping industry made through UK employment in 2017 against comparable industries.

Figure 9: Employment of the shipping industry against comparable industries in 2017, and growth against the 2010 level



Source: FAME, UKCoS, ONS, Cebr analysis

Employment in passenger shipping activities in 2017 was 32% higher than in 2010, the second strongest growth of any of the industries considered. For comparison, employment in freight shipping marginally increased (by 2%), however this was still higher growth than in the manufacture of dairy products industry. As the variance in the two shipping growth rates shows, it was the strong increase in employment in passenger shipping that primarily drove the total increase in UK employment in the shipping industry seen in Figure 8.

Industry productivity

Based on trends in GVA and employment, UK-based employees operating in the shipping industry are highly productive, as measured by GVA per job.

Table 4 below shows the estimated productivity of each industry activity across the years 2010 to 2017, and compared against the average productivity level of the Maritime Sector and the UK as a whole. The shipping industry as a whole is more productive than the broader Maritime Sector and the UK (on average); while the average industry job generated £102,600 in GVA in 2017, the average job in the UK economy only generated £54,300.

Table 4: Productivity (GVA per job) in the shipping industry and constituent activities against the Maritime Sector and UK economy, 2010-17

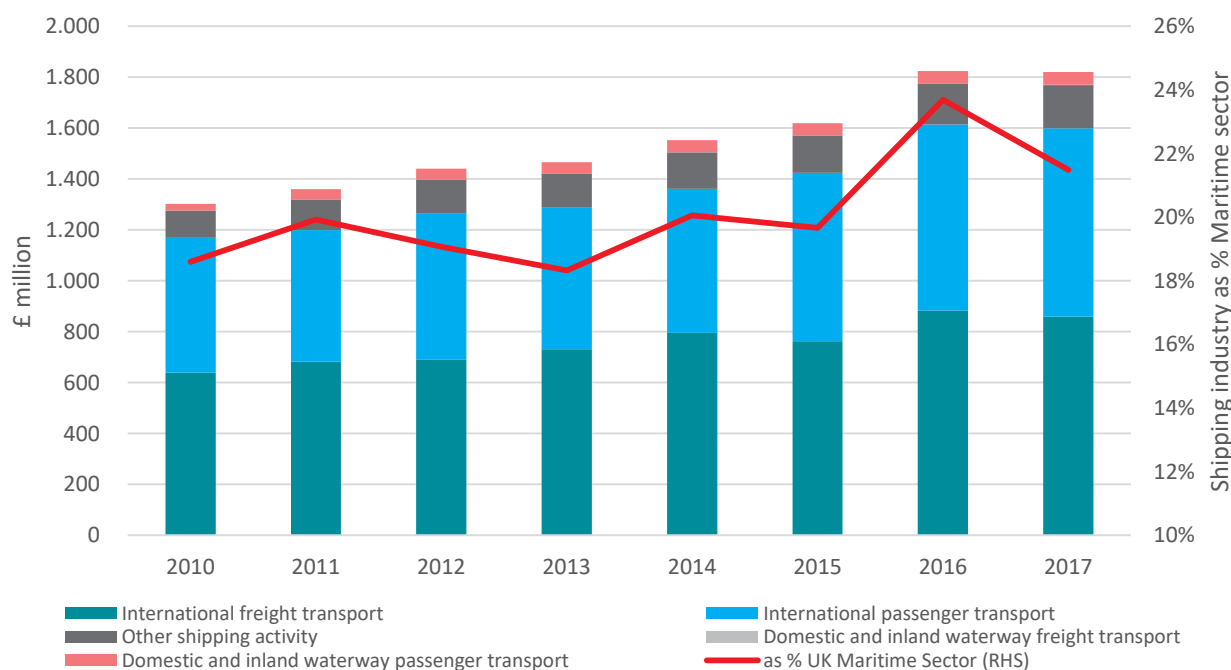
GVA per employee	2010	2011	2012	2013	2014	2015	2016	2017
UK economy	£46,215	£47,176	£48,355	£49,691	£50,877	£51,619	£53,013	£54,330
UK Maritime Sector	£69,604	£68,364	£77,962	£74,469	£75,408	£75,028	£74,429	£77,214
UK shipping industry	£84,132	£84,291	£91,852	£73,355	£86,987	£87,524	£104,994	£102,589
International passenger transport (cruise and ferry)	£52,521	£67,688	£81,360	£60,663	£85,548	£88,955	£105,600	£115,825
Domestic and inland waterway passenger transport	£28,369	£69,799	£71,158	£75,725	£78,054	£84,047	£92,476	£90,305
International freight transport (bulk, container, gas and tanker)	£104,523	£95,979	£100,979	£81,367	£88,597	£86,746	£105,610	£93,651
Domestic and inland waterway freight transport	£62,154	£74,361	£53,605	£106,777	£106,881	£120,444	£59,690	£72,892
Other shipping activity	£83,411	£85,499	£89,887	£73,097	£86,235	£87,172	£104,748	£105,468

Source: FAME, UKCoS, ONS, Cebr analysis

3.4 The direct economic impact through the compensation of employees

Figure 10 illustrates the employee compensation which is directly supported by the shipping industry, disaggregated by activity. It also illustrates the proportion of all direct employee compensation in the Maritime Sector which is directly supported by the industry. This analysis only considers the compensation paid to UK-based employees.

Figure 10: The direct contribution of the shipping industry to the compensation of employees, 2010 to 2017, £ million



Source: FAME, UKCoS, ONS, Cebr analysis

It is estimated that the shipping industry directly contributed £1.8 billion through the compensation of employees in 2017. Once again, the international transport of freight and passenger activities contributed the highest share (88% in 2017). The total employee compensation paid by the shipping industry increased 40% from 2010 to 2017, despite a minor decrease from 2016 to 2017. In percentage terms, the peak over the assessed period was also 2016, when the employee compensation directly paid by the shipping industry made up 23.8% of the total for the Maritime Sector.

3.5 The direct contribution to the UK Exchequer

This section discusses the contribution of the shipping industry to the UK Exchequer. For each activity within this industry, Cebr have calculated the contributions in terms of the tax heads listed below. It has been assumed that the shipping industry does not generate Value-Added Tax (VAT) revenues for the UK Exchequer, with zero-rating applying to shipping services provided by the industry.¹⁵

- Income Tax;
- National Insurance Contributions (NICs) – from both employees and employers;
- Corporation Tax;
- National Non-Domestic Rates (Business Rates).

For the personal taxes listed above, Income Tax and NICs revenues have been calculated by applying tax rates to the estimated wages and salaries paid to employees operating in each industry activity; rates

¹⁵ The following services are zero-rated by HMRC: Passenger transport in a vehicle, boat or aircraft that carries not less than ten passengers; International freight transport that takes place in the UK and its territorial waters; Domestic leg of freight transport to or from a place outside the EU; and Ship repairs and maintenance. Further information on the list of zero-rated and VAT-exempt goods and services can be found here: <https://www.gov.uk/guidance/rates-of-vat-on-different-goods-and-services#transport-freight-travel-and-vehicles>

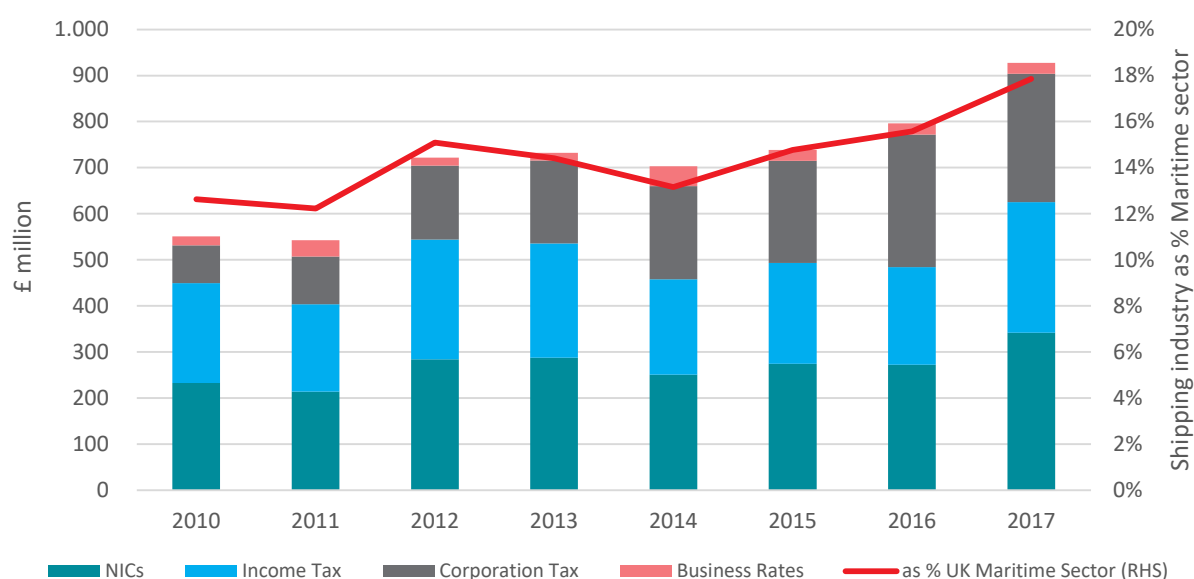
and thresholds have been sourced from HMRC for the years 2010 to 2017. Wages and salaries for employees have been sourced from FAME and the Annual Survey for Hours and Earnings (ASHE).¹⁶

For the business taxes listed above, Corporation Tax revenues have been estimated by combining the revenues raised through the Tonnage Tax regime, with estimates for Corporation Tax raised from businesses who opt to not use the Tonnage Tax regime. As Tonnage Tax liabilities are calculated based on gross tonnage, rather than profits, the actual revenue raised from the regime is miniscule in the context of the total tax revenues raised from the Maritime Sector and in general.

For those businesses not using the Tonnage Tax regime, Corporation Tax revenues have been estimated by applying HMRC estimates for Average Effective Tax Rates (AETRs) to the estimated gross profit of each industry activity. Business Rates have been estimated using the average level of Business Rates paid as a proportion of GVA, drawing upon the ONS Annual Business Survey (ABS).

Figure 11 below shows the direct contribution of the shipping industry to the UK Exchequer across the years 2010 to 2017, disaggregated by tax head.

Figure 11: The direct contribution of the shipping industry to the UK Exchequer and as a share of the Maritime Sector's total contribution to the UK Exchequer, 2010 to 2017



Source: FAME, UKCoS, ONS, HMRC, Cebr analysis

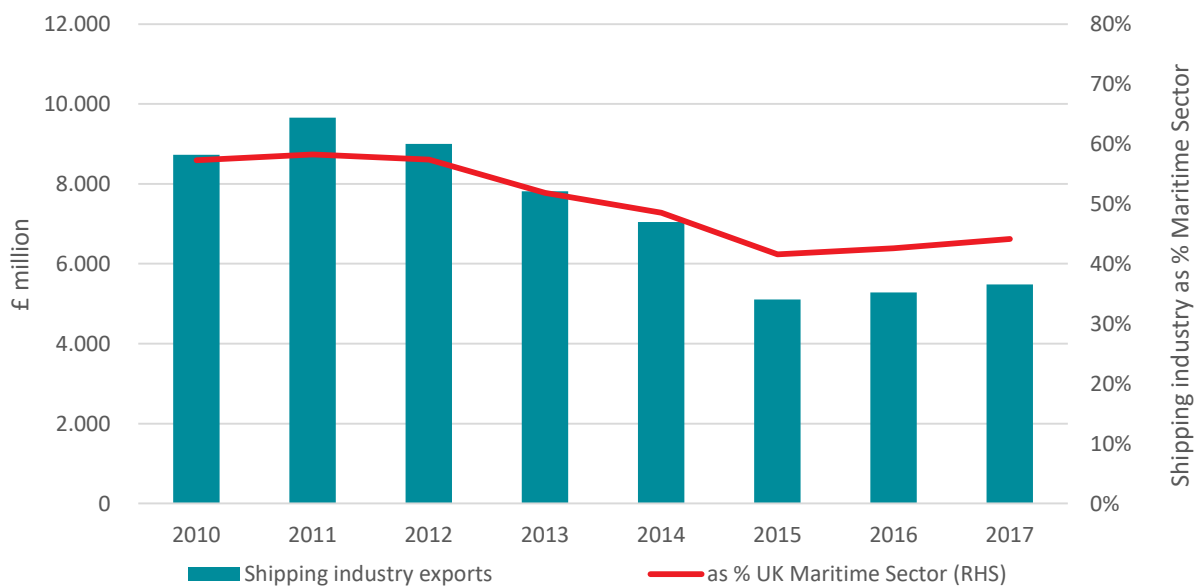
The shipping industry is estimated to have directly generated £927 million in tax revenues for the UK Exchequer in 2017. This increased year-on-year in every year except 2014, when a slight fall of £30 million occurred. Over the entire period, total exchequer contributions increased by £377 million (68.4%). The most notable factor in this was the significant increase in corporation tax paid, which increased from £83 million to £279 million over the period. By 2017, the total exchequer contribution was predominately an even three way split between income tax, NICs and Corporation Tax (all between 30% and 37%), with the remaining 2.5% made up of Business Rates. Overall, tax revenues raised from the shipping industry represented 17.9% of the total tax revenues directly generated by the wider UK Maritime Sector. This share has increased slightly from 12.6% in 2010.

¹⁶ The Annual Survey of Hours and Earnings (ASHE) provides data on the levels, distribution and make-up of earnings and hours worked for UK employees by sex and full-time or part-time status in all industries and occupations.

3.6 The direct contribution to the UK's exports of services

In this final subsection we consider the contribution that the shipping industry makes to exports from the UK. In this context, the shipping industry is assumed to only export services, through the transport of freight and passengers internationally. Figure 12 shows trends in the value of services exports from the shipping industry between 2010 and 2017, with exports then expressed as a share of the total value of Maritime Sector exports across the same period.

Figure 12: Exports of services from the shipping industry, 2010 to 2017



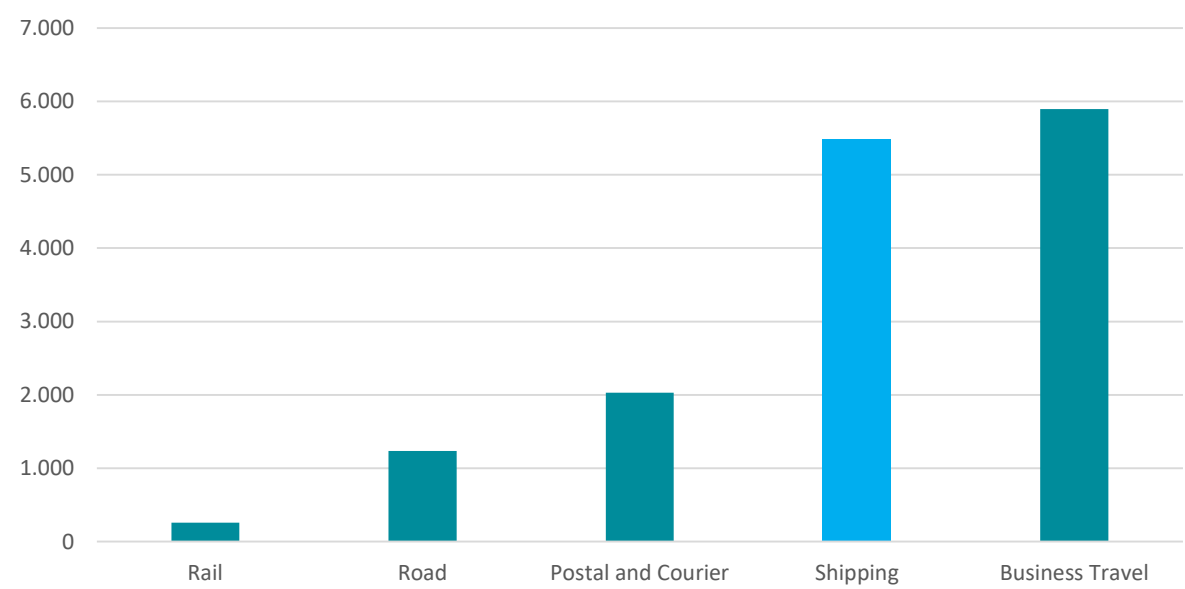
Source: UKCoS, ONS, Cebr analysis

The shipping industry's exported services were valued at £5.5 billion in 2017, in comparison to £8.7 billion in 2010. Exports have fallen in recent years as overseas income reported in the Annual Sea Inquiry has fallen; as a consequence, the proportion of Maritime Sector exports supported by the shipping industry fell from 57.3% in 2010 to 42.3% in 2015. Despite this, there has been a slight recovery since 2015, with the value of services exports increasing by £0.4 billion, and the shipping industry's percentage contribution to total Maritime Sector exports increasing in turn to 44.1%.

Figure 13 compares exports from the shipping industry against those from other comparable transport industry activities. The value of exports of services from the shipping industry was easily larger than the value of exports from Road, Rail and Postal and Courier activities, and slightly lower than the value of Business Travel¹⁷ exports (just under £6.0 billion).

¹⁷ Business Travel (ONS series FJPG) consists of expenditure by seasonal and border workers (FJCQ), as well as exports through other business travel services (FJNO).

Figure 13: Exports of services from the shipping industry and comparable transportation activities, 2017, (£ million)



Source: ONS, Cebr analysis

4 The aggregate economic impact of the shipping industry

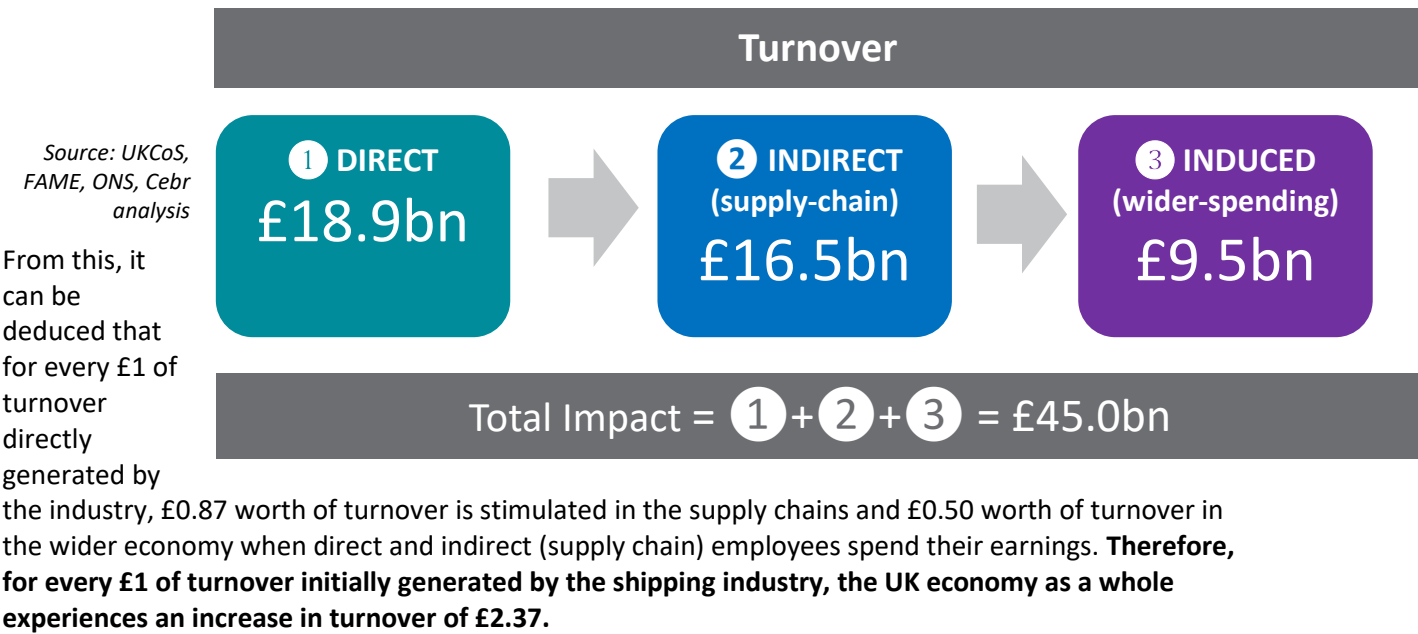
The aggregate economic impacts of the shipping industry, take into account the indirect (or supply chain) and induced (employee spending) impacts that arise from the activities of firms within this industry.

The four macroeconomic indicators for which the aggregate economic impact have been calculated are as follows: business turnover; GVA; employment; and the compensation of employees. Multipliers have been generated from Cebr’s economic impact model for the UK.

4.1 The aggregate economic impacts through turnover

Figure 14 below illustrates the turnover multipliers for the shipping industry within the UK. An aggregate turnover footprint of £45.0 billion is supported in the UK due to the economic activity of the shipping industry.

Figure 14: Turnover multiplier impacts of the UK shipping industry, 2017



There is a large disparity amongst areas within this aggregate economic contribution. International freight transport (bulk, container, gas and tanker) contributed £23.8 billion to turnover in the UK. In contrast, domestic and inland waterway freight transport – a relatively tiny proportion of the industry in terms of economic activity – supported an aggregate turnover impact of £33 million in 2017. These disaggregated impacts in their entirety can be seen in Table 5.

Table 5: Turnover impact of the shipping industry by industry activity, 2017, £ million

Turnover in 2017	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
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Total	18,936	16,546	9,481	44,963
International passenger transport (cruise and ferry)	6,891	6,021	3,450	16,363
Domestic and inland waterway passenger transport	286	250	143	679
International freight transport (bulk, container, gas and tanker)	10,039	8,772	5,027	23,837
Domestic and inland waterway freight transport	14	12	7	33
Other shipping activity	1,706	1,490	854	4,050

Source: UKCoS, FAME, ONS, Cebr analysis

Table 6 below presents in each year the direct contribution to turnover from the shipping industry, alongside our estimate of the composite turnover multiplier that applies to the entire industry. The total turnover impact has grown from £32.0 billion in 2010 to £45.0 billion in 2017.

Table 6: Direct and total turnover impact of the shipping industry, 2010 to 2017, £ million

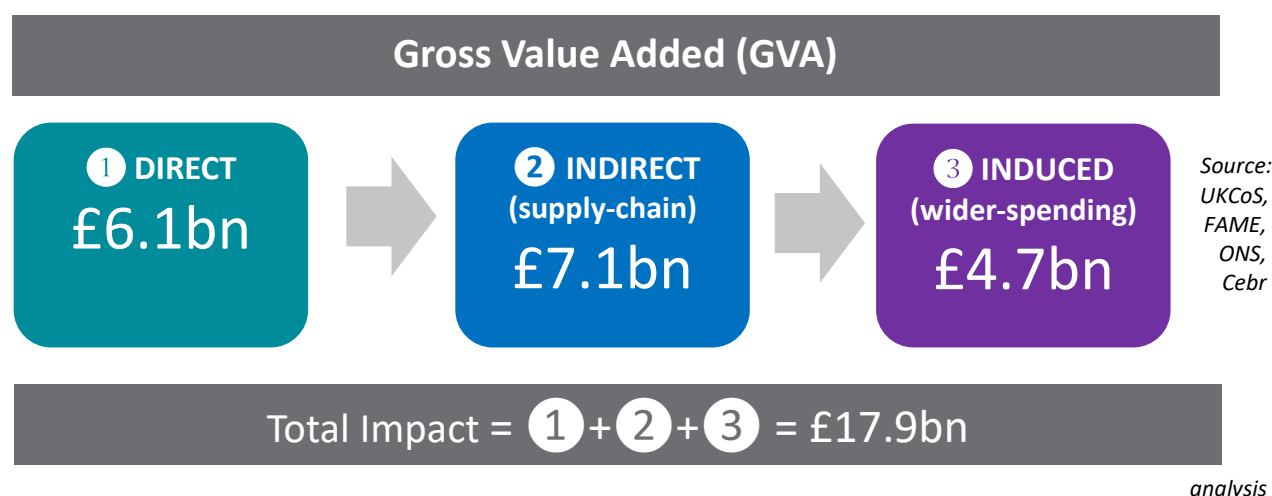
	Direct Impact	Composite Turnover multiplier	Aggregate Support
2010	13,478	2.37	32,004
2011	14,223		33,772
2012	14,869		35,307
2013	15,253		36,218
2014	15,808		37,537
2015	16,853		40,019
2016	18,640		44,261
2017	18,936		44,963

Source: UKCoS, FAME, ONS, Cebr analysis

4.2 The aggregate economic impacts through GVA

As was done for turnover, Figure 15 illustrates the aggregate GVA impact, supported by the shipping industry within the UK.

Figure 15: GVA multiplier impacts of the UK shipping industry, 2017



A total aggregate GVA footprint in the UK of £17.9 billion is supported by the shipping industry. The direct impact of £6.1 billion is augmented by an indirect impact of £7.1 billion of GVA supported and a £4.7 billion induced impact. From this, it can be calculated that **for every £1 of GVA initially generated by the shipping industry, the UK economy as a whole experiences an increase in GVA of £3.74.**

Table 7 below shows the estimated direct and total GVA impacts from the individual industry activities when taken in isolation. The shipping industry directly contributed £6.1 billion in GVA in 2017, and provided an aggregate support of £17.9 billion in GVA. Within this aggregate economic contribution, international freight transport supported £8.3 billion of GVA in the UK.

Table 7: GVA impact of the shipping industry by industry activity, 2017, £ million

GVA in 2017 (£m)	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Total	6,090	7,120	4,655	17,865
International passenger transport (cruise and ferry)	2,486	2,907	1,901	7,294
Domestic and inland waterway passenger transport	190	222	145	557
International freight transport (bulk, container, gas and tanker)	2,834	3,314	2,166	8,314
Domestic and inland waterway freight transport	8	10	6	25
Other shipping activity	571	668	437	1,676

Source: UKCoS, FAME, ONS, Cebr analysis

Table 8 below presents in each year the direct contribution to GVA from the shipping industry, alongside our estimate of the composite GVA multiplier that applies to the entire industry. The total GVA impact has increased from £13.0 billion in 2010 to £17.9 billion in 2017.

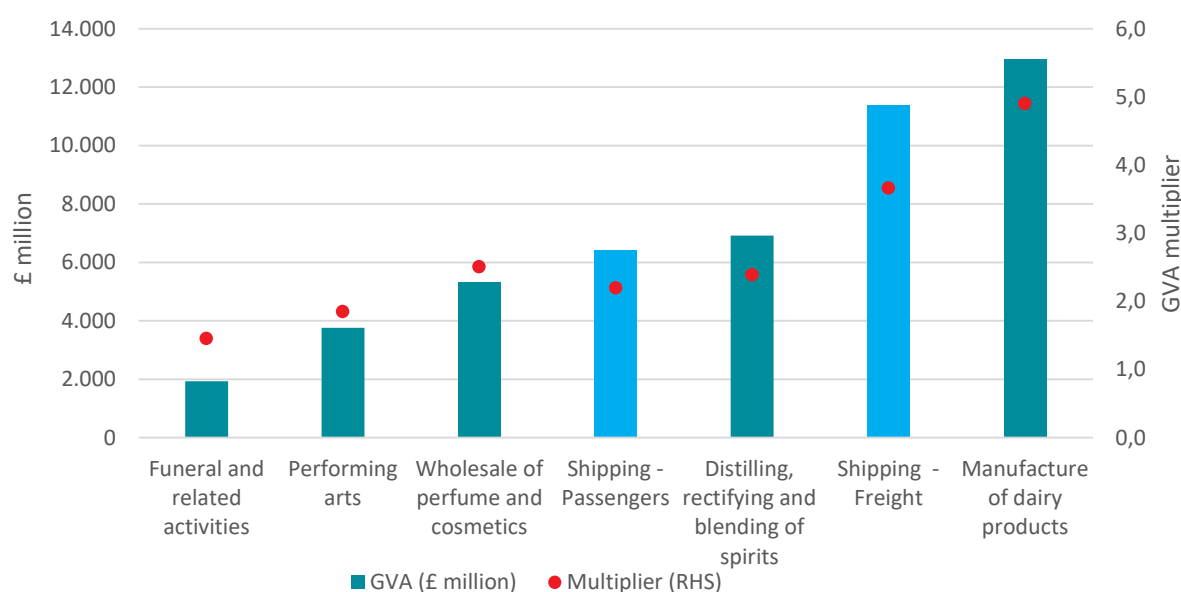
Table 8: Direct and aggregate GVA impact of the shipping industry, 2010 to 2017, £ million

	Direct Impact	Composite GVA multiplier	Total Support
2010	4,424	2.93	12,979
2011	4,520		13,261
2012	5,060		14,844
2013	4,038		11,845
2014	4,732		13,883
2015	5,065		14,859
2016	6,017		17,652
2017	6,090		17,865

Source: UKCoS, FAME, ONS, Cebr analysis

To place these results in context, Figure 16: The aggregate GVA impact and aggregate GVA multiplier of the shipping industry against comparable industries, 2017 compares the total GVA impact of the shipping industry to the comparable transport activities identified in the previous section. In addition, the GVA multipliers associated with each activity are also presented.

Figure 16: The aggregate GVA impact and aggregate GVA multiplier of the shipping industry against comparable industries, 2017

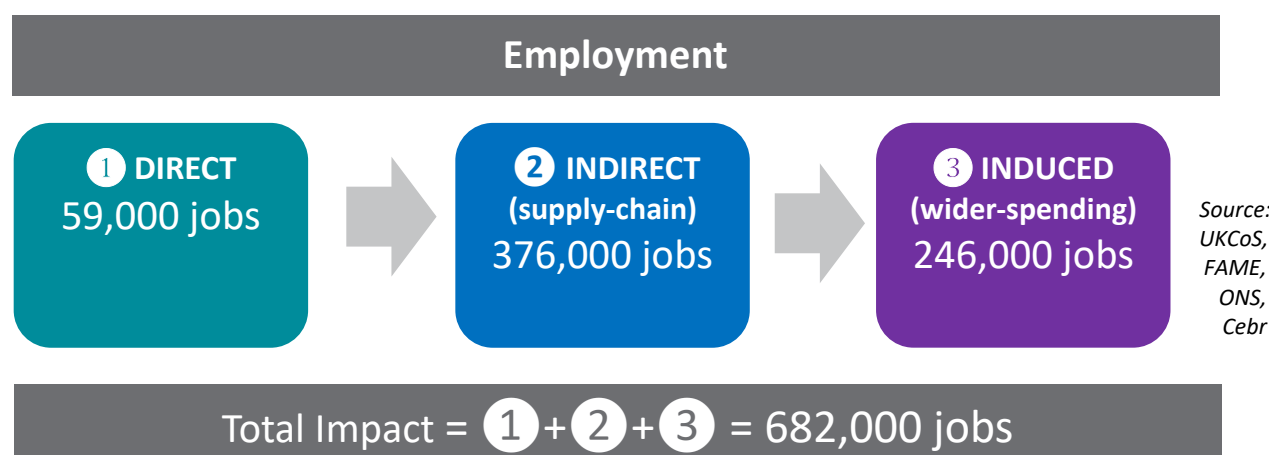


Source: UKCoS, FAME, ONS, Cebr analysis

4.3 The aggregate economic impacts through employment

Here we examine the aggregate economic impact of the shipping industry through the employment of UK-based workers. Figure 17 illustrates the employment multipliers for the industry within the UK. A substantial total of 682,000 jobs were supported by the shipping industry in 2017.

Figure 17: Employment multiplier impacts of the shipping industry, 2017



analysis

Another way of conceptualising this is that for every job supported by the shipping industry, 6.3 jobs are stimulated in the industry's supply chains and a further 4.1 jobs supported in the wider economy when direct and indirect (supply chain) employees spend their earnings. For each of the major economic variables considered, this is by far the largest multiplier found. **For every job initially provided by the shipping industry, a total of 11.5 jobs were supported across the UK economy.**

Table 9 shows the estimated aggregate UK employment impacts from shipping industry activities when taken in isolation.

Table 9: Employment impact of the shipping industry by industry activity, 2017, thousands of jobs

Employment in 2017	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Total	59	376	246	682
International passenger transport (cruise and ferry)	21	136	89	247
Domestic and inland waterway passenger transport	2	13	9	24
International freight transport (bulk, container, gas and tanker)	30	192	126	348
Domestic and inland waterway freight transport	0.1	0.7	0.5	1.3
Other shipping activity	5	34	22	62

Source: UKCoS, FAME, ONS, Cebr analysis

An inspection of the intermediate consumption trends of water transport services (which in itself almost entirely captures shipping industry activities as defined in the study) within the ONS Supply Use Tables shows the extent of the shipping industry's linkages with other industries; **the shipping industry predominately consumes a significant amount of economic output from industries such as employment services, construction, warehousing and storage, and legal services. As these industries are heavily labour-intensive, this is the cause of the high employment multiplier.**

Table 10 presents in each year the direct contribution through employment from the shipping industry, alongside the domestic employment multiplier that applies to the entire industry. The aggregate employment impact has increased by 13%, from around 604,000 jobs in 2010 to 682,000 jobs in 2017.

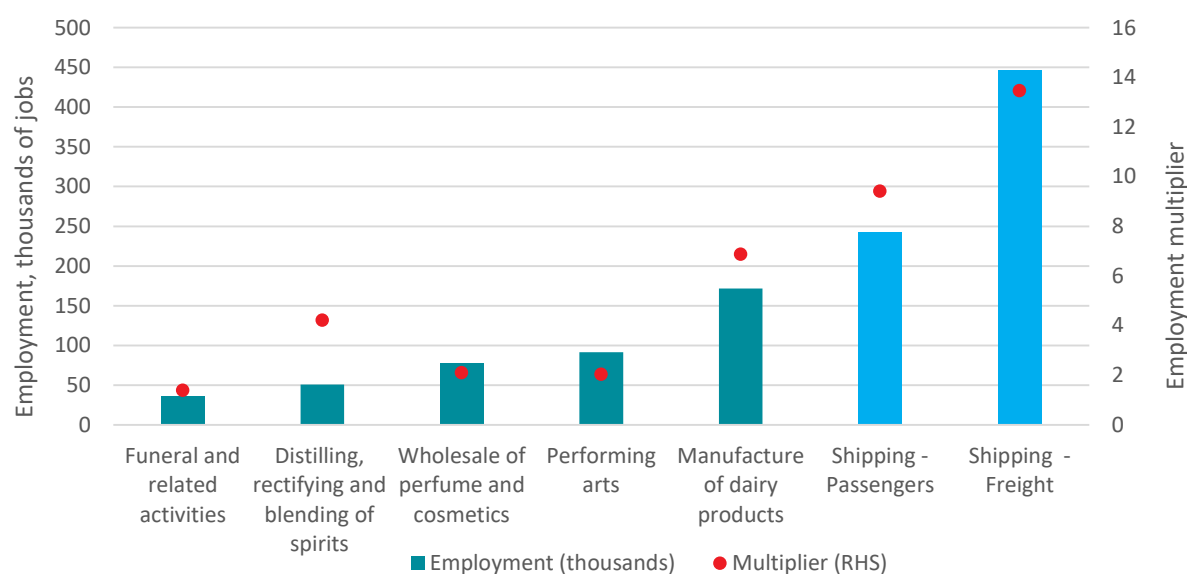
Table 10: Direct impact and aggregate employment supported in the shipping industry, 2010 to 2017

	Direct Impact	Composite Employment multiplier	Total employment impacts
2010	52,587	11.48	603,911
2011	53,627		615,851
2012	55,088		632,626
2013	55,045		632,138
2014	54,405		624,783
2015	57,872		664,599
2016	57,309		658,138
2017	59,362		681,715

Source: UKCoS, FAME, ONS, Cebr analysis

To place these results in context, Figure 18 compares the total employment impact of the shipping industry in 2017 against the comparable industries and activities identified in the previous section. In addition, the employment multipliers associated with each activity are also presented.

Figure 18: The aggregate employment impact and aggregate employment multiplier of the shipping industry against comparable industries and activities, 2017



Source: UKCoS, FAME, ONS, Cebr analysis

As a result of having the two highest employment multipliers, the shipping industry has a much higher aggregate employment impact in 2017 relative to its direct impact, in comparison to the other

comparative industries assessed in Section 3.3. This is the case for both the shipping of passengers and freight, where the multipliers are 9.4 and 13.5 respectively. Overall, the aggregate employment supported by the shipping of passengers and freight is 242,000 jobs and 446,000 jobs respectively, while the nearest level of employment supported by one of the comparative industries is 172,000 (manufacture of dairy products).

4.4 The aggregate economic impacts through the compensation of employees

In this final subsection we consider the aggregate economic impact of the shipping industry through the compensation of employees. As for the aggregate employment impact, this only considers the compensation paid to UK-based workers. Figure 19 illustrates the direct, indirect and induced compensation of employee impacts associated with the industry.

Figure 19: Multiplier impacts for the compensation of employees for the UK shipping industry, 2017

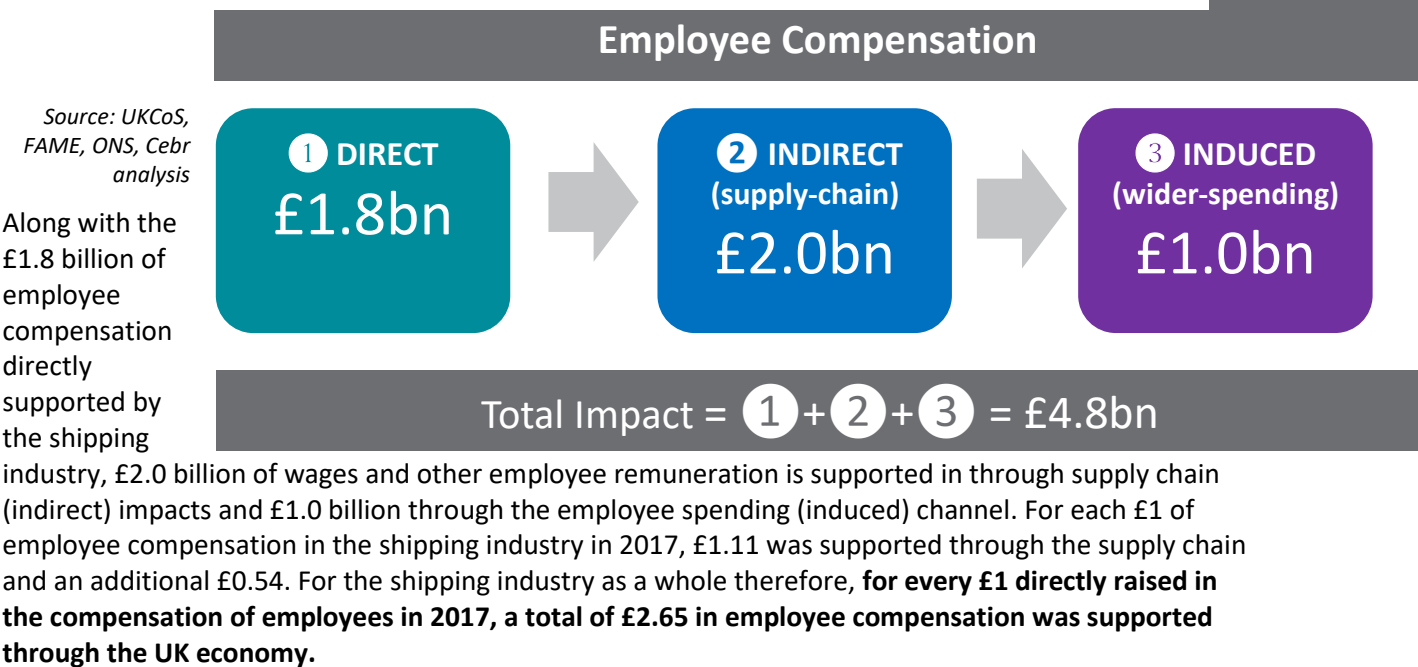


Table 11 shows the direct and aggregate impact through the compensation of employees across each industry activity. Of the total employee compensation supported in 2017, nearly half (£2.3 billion) was supported by international freight transport. International passenger transport was the other major constituent industry, with an aggregate compensation supported of £2.0 billion.

Table 11: Impact through the compensation of employees of the shipping industry by industry activity, 2017, £ million

Employee compensation in 2017	Direct Impact	Indirect Impact	Induced Impact	Total Impact
Total	1,820	2,021	975	4,816

International passenger transport (cruise and ferry)	740	821	396	1,957
Domestic and inland waterway passenger transport	50	55	27	132
International freight transport (bulk, container, gas and tanker)	860	955	461	2,275
Domestic and inland waterway freight transport	1	1	0	2
Other shipping activity	170	189	91	450

Source: UKCoS, FAME, ONS, Cebr analysis

Finally, Table 13 below shows the progression in the direct and aggregate impact through the compensation of employees in the shipping industry, from 2010 to 2017. The aggregate impact through the compensation of employees has grown from £3.3 billion in 2010 to £4.8 billion in 2017. This increase of 45% occurred steadily and consistently over the assessed period.

Table 12: Direct and aggregate impact through the compensation of employees of the shipping industry, 2010 to 2017, £ million

	Direct Impact (£m)	Composite Employee Compensation multiplier	Aggregate Support (£m)
2010	1,302	2.65	3,447
2011	1,359		3,598
2012	1,441		3,814
2013	1,466		3,879
2014	1,553		4,109
2015	1,620		4,286
2016	1,825		4,829
2017	1,820		4,816

Source: UKCoS, FAME, ONS, Cebr analysis

5 The regional economic impact of the shipping industry

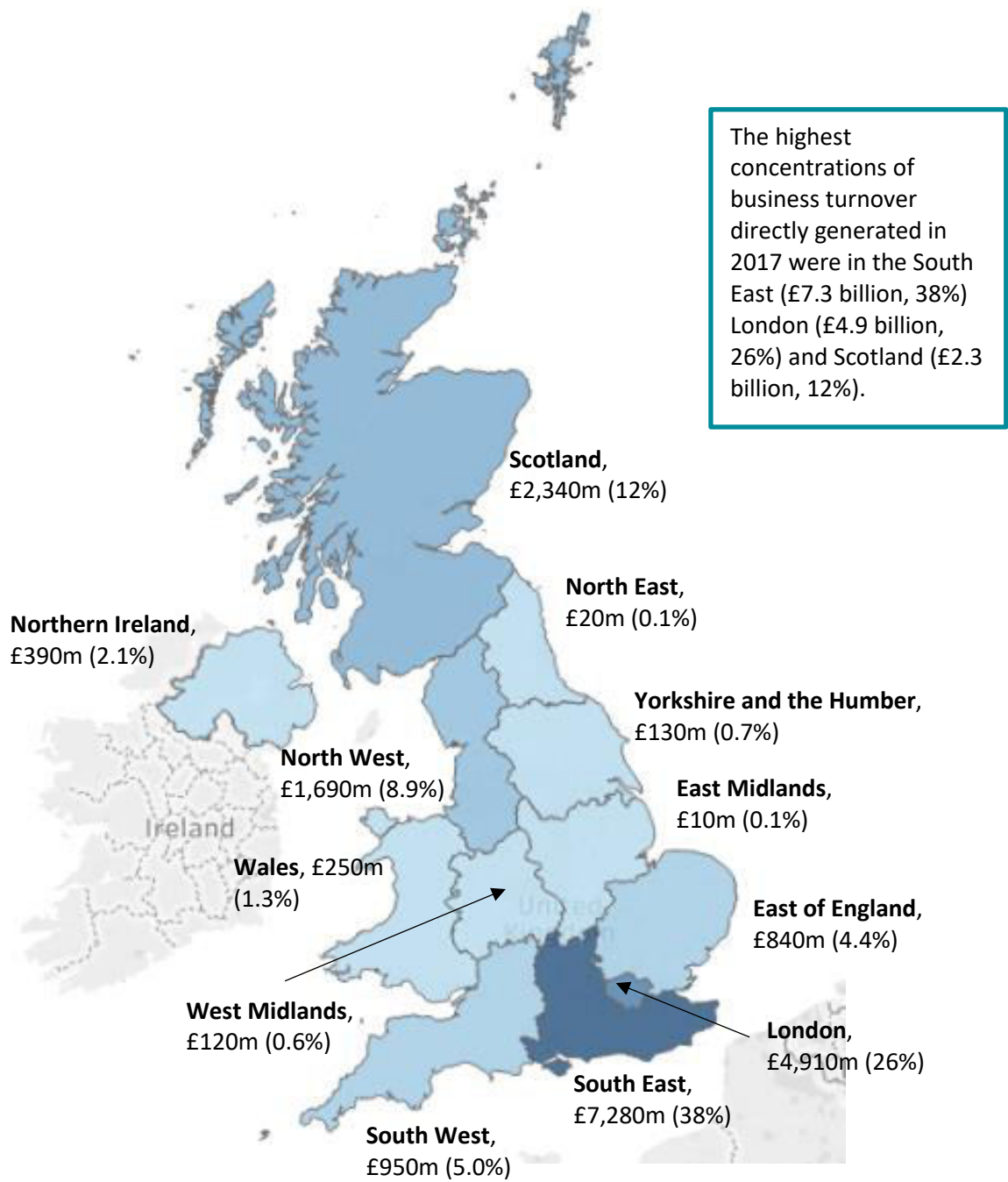
We can apportion the direct and aggregate impacts found in Sections 3 and 4 to the constituent regions in the UK. This is done for each of the four major economic variables used; turnover, GVA, employment and employee compensation. A full set of regional direct economic impacts for each year over the period 2010 to 2015 can be found in Annex A.

5.1 The direct economic impact of the shipping industry by UK region

Business turnover and GVA

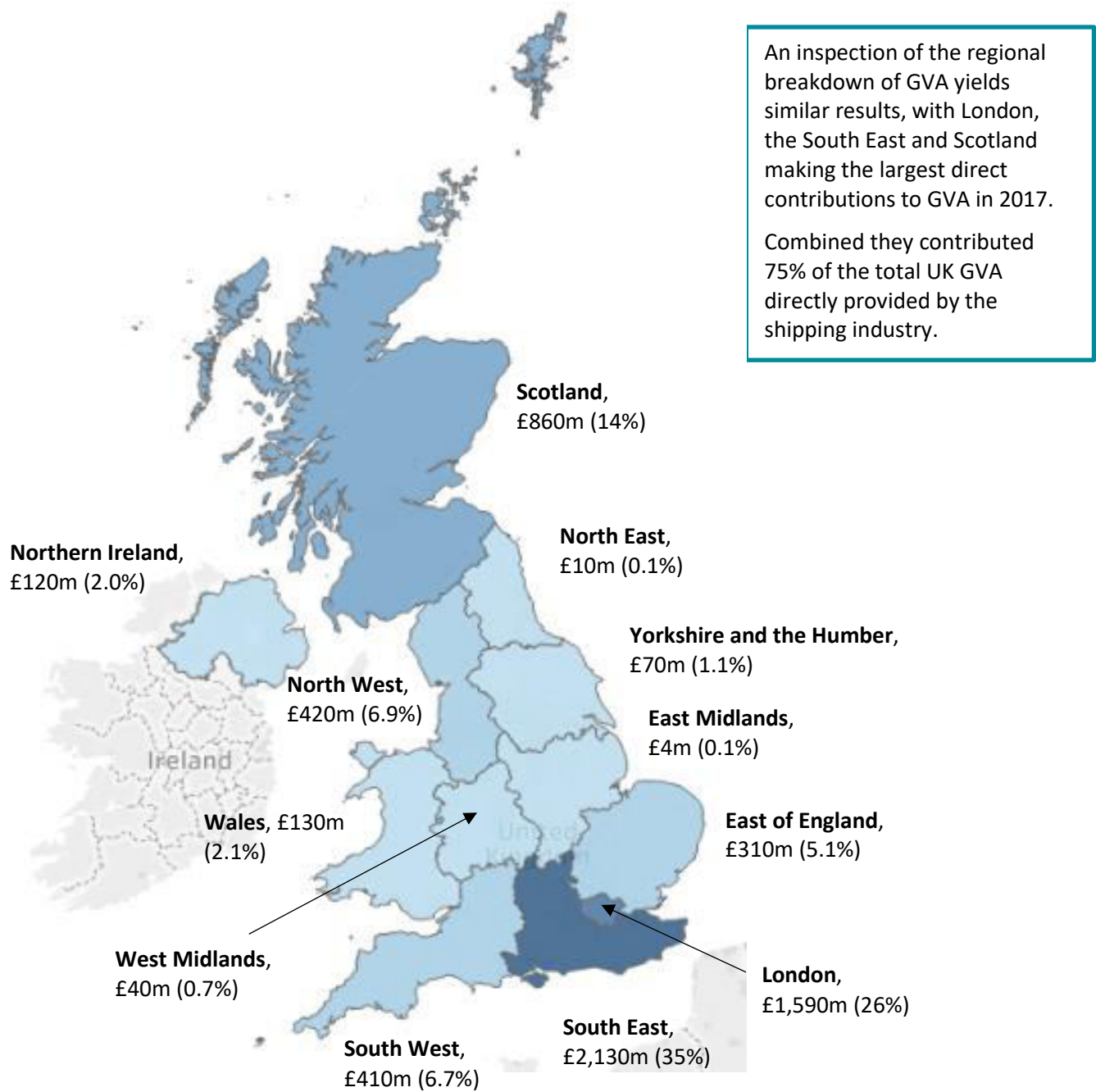
Figure 20 and Figure 21 overleaf show the estimated regional breakdown of business turnover and GVA directly supported by the shipping industry in 2017.

Figure 20: Regional breakdown of turnover directly contributed by the shipping industry, 2017, £ million



Note: Figures rounded to nearest £10 million. Source: UKCoS, FAME, ONS, Cebr analysis

Figure 21: Regional breakdown of GVA directly contributed by the shipping industry, 2017, £ million

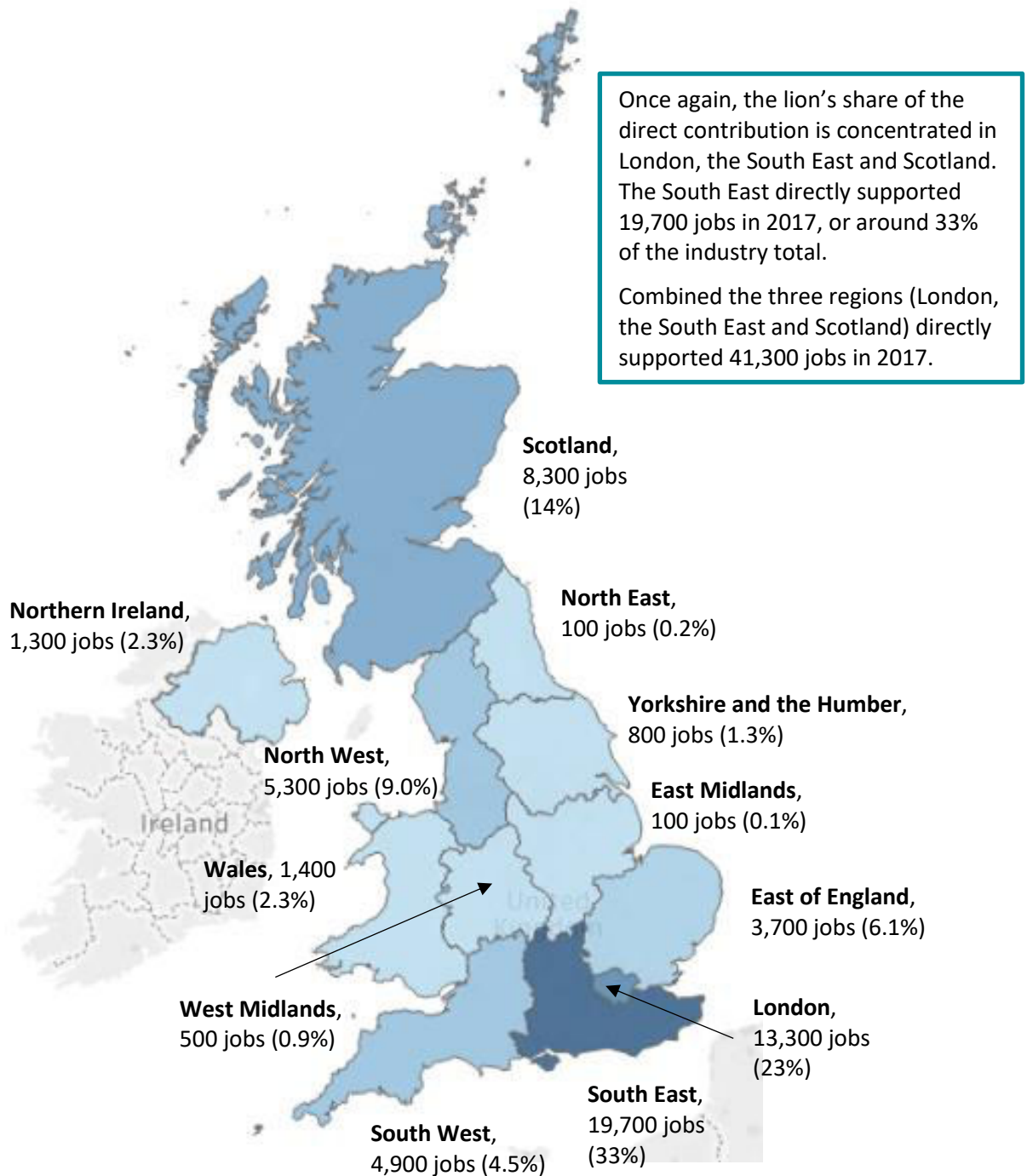


Note: Excluding those below £10m, figures rounded to nearest £10 million. Source: UKCoS, FAME, ONS, Cebr analysis

Employment and the Compensation of Employees

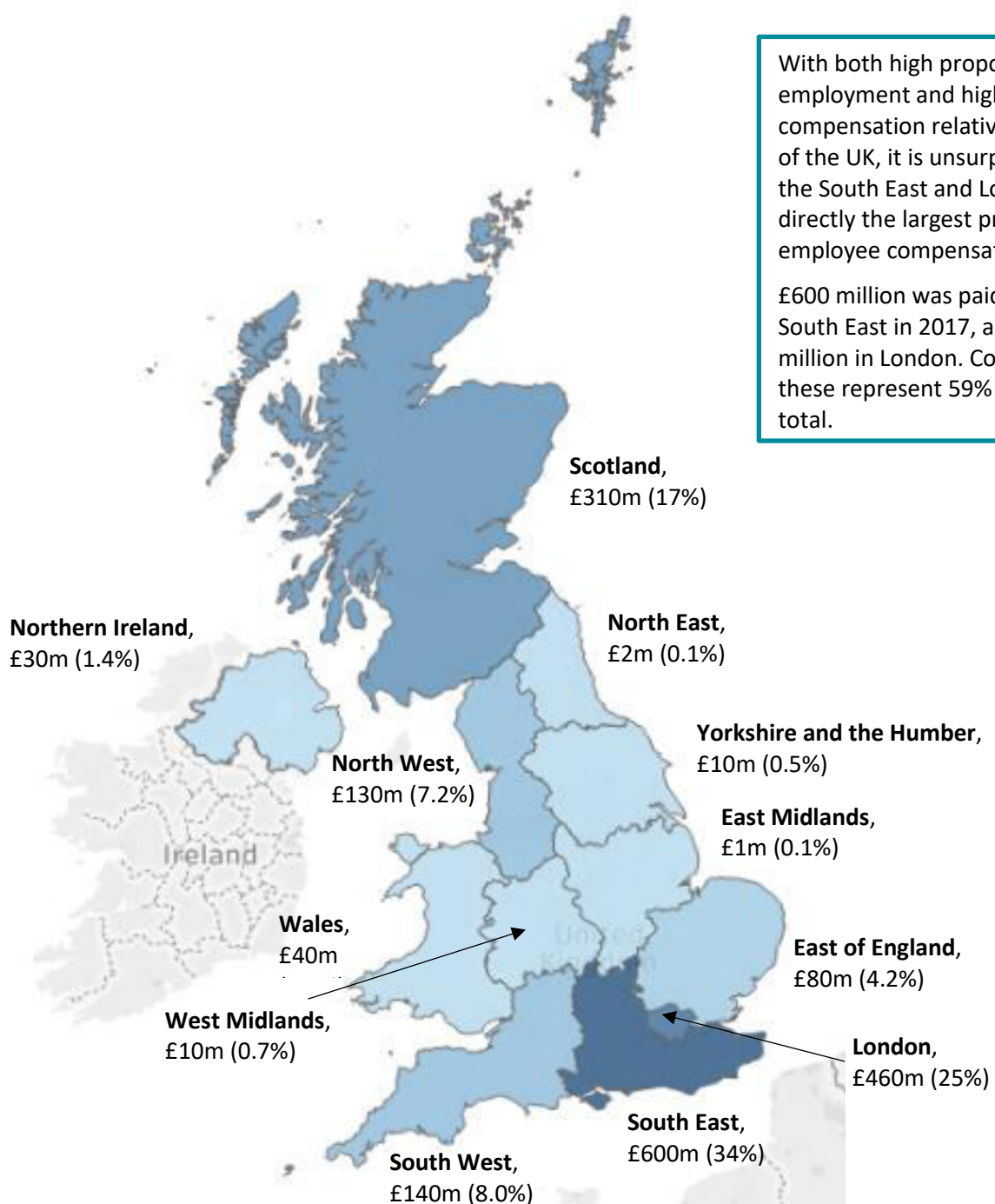
Figure 22 and Figure 23 show the estimated regional breakdown of employment and the compensation of employees directly supported by the shipping industry in 2017.

Figure 22: Regional breakdown of employment directly contributed by the shipping industry, 2017, £ million



Note: Figures subject to rounding to nearest 100 jobs. Source: UKCoS, FAME, ONS, Cebr analysis

Figure 23: Regional breakdown through the compensation of employees directly contributed by the shipping industry, 2017, £ million



Note: Excluding those below £10m, figures rounded to nearest £10 million. Source: UKCoS, FAME, ONS, Cebr analysis

5.2 The aggregate economic impact of the shipping industry by UK region

This final subsection examines the aggregate economic impact of the shipping industry across each region for the four macroeconomic indicators covered in the previous subsection.

In order to estimate the aggregate economic impact of the industry at regional level, the direct economic impacts as already estimated were combined with Cebr's regional economic impact models, within which the activities of the shipping industry were separately identified and isolated.

The aggregate economic impacts for business turnover and GVA by region

Table 13 shows the breakdown of direct and aggregate economic impacts for business turnover and GVA in 2017, alongside the composite industry multiplier for each region.

Table 13: Regional breakdown of aggregate business turnover and GVA supported by the shipping industry, 2017, £ million

	Turnover			GVA		
Region:	Direct Impact	Multiplier	Aggregate Support	Direct Impact	Multiplier	Aggregate Support
Scotland	2,340	2.22	5,197	862	2.72	2,343
Wales	248	2.13	530	127	2.60	331
Northern Ireland	393	2.12	834	119	2.58	309
East of England	841	2.21	1,859	311	2.72	845
East Midlands	14	2.14	29	4	2.62	10
London	4,914	2.05	10,051	1,593	2.53	4,033
North East	20	2.13	42	8	2.59	21
North West	1,688	2.19	3,702	422	2.69	1,135
South East	7,283	2.22	16,165	2,124	2.74	5,811
South West	948	2.28	2,160	408	2.80	1,145
West Midlands	121	1.92	233	41	2.31	94
Yorkshire and the Humber	126	2.15	270	66	2.62	172

Source: UKCoS, FAME, ONS, Cebr analysis

For both turnover and GVA, the highest aggregate level of support was associated with the South East, London and Scotland, in that order. Every £1 of direct turnover and GVA supported the greatest aggregate level in the South West. The lowest levels of economic support for turnover and GVA were felt in the East Midlands and North East.

The aggregate economic impacts for employment and the compensation of employees by region

Finally, Table 14 shows the breakdown of direct and aggregate economic impacts for employment and the compensation of employees in 2017, alongside the shipping industry multiplier for each region.

Table 14: Regional breakdown of aggregate employment and employee compensation supported by the shipping industry, 2017

Region:	Employment (jobs)			Compensation of Employees (£ million)		
	Direct Impact	Multiplier	Aggregate Support	Direct Impact	Multiplier	Aggregate Support
Scotland	8,264	10.96	90,573	314	2.47	775
Wales	1,379	10.66	14,701	38	2.38	91
Northern Ireland	1,340	10.65	14,270	26	2.36	61
East of England	3,650	11.02	40,230	77	2.48	192
East Midlands	56	10.72	605	1	2.38	2
London	13,325	10.59	141,051	456	2.33	1,060
North East	117	10.68	1,252	2	2.38	4
North West	5,342	10.93	58,366	131	2.45	323
South East	19,677	11.04	217,169	609	2.49	1,518
South West	4,933	11.16	55,077	145	2.54	368
West Midlands	520	10.01	5,202	12	2.16	26
Yorkshire and the Humber	758	10.72	8,127	9	2.39	21

Source: UKCoS, FAME, ONS, Cebr analysis

Very similar trends are seen for employment and employee compensation, as for turnover and GVA. The highest levels of aggregate support are enjoyed in the South East, London and Scotland, in that order. Considering the aggregate level of support again, a total of 69% of jobs, and 75% of employee compensation are experienced in these three regions. The highest employment and employee compensation multipliers are again in the South West, while the lowest multiplier for both is in the West Midlands. The low impacts in the East Midlands, North East and Yorkshire and the Humber (particularly with respect to previous years, as seen in Annex A) are driven by the reduced share of employment attributable to these regions, as implied by BRES.¹⁸ Within these regions, key were the declining employment in the international passenger transport (cruise and ferry) subindustry in the North East, international freight transport (bulk, container, gas and tanker) in Yorkshire and the Humber, and the domestic and inland waterway passenger transport and international freight transport subindustries in the East Midlands.

¹⁸ For more methodological detail, see Section 2.3.

6 The economic impact of the Tonnage Tax regime on the shipping industry

This final section of the report sets out Cebr's estimates on the benefits of the Tonnage Tax regime. This system, a fully-approved EU State Aid, was introduced in 2000 as a means to support the UK shipping industry, seeking to boost the size of the declining UK fleet and to increase the levels of training imparted on UK seafarers. While the revenues raised through the Tonnage Tax regime for the UK Exchequer are minimal, Cebr estimate that the gains in terms of economic performance from introducing the regime far outweigh the associated costs of deferred Corporation Tax revenues.

As a counterfactual situation, it is ultimately impossible to determine the performance of the UK shipping industry in an environment in which the Tonnage Tax regime was not in place. However, it is clear that given the marked reversal in the performance and size of the UK shipping fleet following the introduction of the Tonnage Tax regime, and the contemporaneous macroeconomic conditions and experience of other European countries, the impact of Tonnage Tax is unlikely to be coincidental. The analysis presented in this section therefore seeks to quantify the economic contribution that the UK would have forgone had the Tonnage Tax regime not been introduced. This economic contribution is measured through the GVA, UK employment and exports that would have been forgone and draws upon the direct economic impacts analysis presented earlier in this report. The benefits from the higher levels of seafarer training imparted, while important, are not considered here.

6.1 About Tonnage Tax

In July 2000, the UK Government introduced a new optional tax regime for the UK Shipping Sector - the Tonnage Tax regime. The Tonnage Tax regime allows shipping companies with qualifying vessels to pay Corporation Tax liabilities based upon the gross tonnage for the ships they operate, rather than paying based upon the actual profits of the company (as is normally the case). In other words, the regime provides an alternative way of calculating the taxable profits of UK shipping businesses.

For those companies which opt in to using the Tonnage Tax regime, a fixed level of 'profit' which is subject to Corporation Tax is calculated based on the net tonnage of a vessel and the number of days a year in which the vessel is in operation. A decreasing profit rate is applied for higher tonnage brackets. Therefore in some circumstances it is possible for a company which has opted into the Tonnage Tax regime to have to pay Corporation Tax to the UK Exchequer despite making a loss. The regime is attractive for both pecuniary and planning reasons. For the former, participating companies typically face net tax liabilities far lower than they would have under the standard Corporation Tax regime, thereby increasing flexibility in company financing options. For the latter, the regime provides certainty, with companies able to determine level of tax payable at any particular time.

Alongside supporting funding for seafarer training, the objective of the Tonnage Tax regime was to reverse the steady decline in UK-owned commercial vessels; with a strong relationship between international trade, employment and shipping, the UK's continuing prosperity is partly tied to the size of its shipping fleet. It is widely perceived that the introduction of the regime was a strong contributing factor in the marked uptick in the size of the shipping fleet and the net value of trade in shipping services. In 2005, the House of Commons Transport Committee noted that "The tonnage tax regime has led to an increase in the number of ships on the UK register and a small increase in the UK owned fleet."¹⁹ In 2011,

the Office for Tax Simplification (OTS)²⁰ argued for the regime to be maintained to allow the UK shipping industry to compete effectively, also noting that “If tonnage tax were to be abolished there is a danger that, in a highly mobile industry where shipping companies can migrate from the UK and register their ships in foreign jurisdictions at short notice, companies would abandon the UK.” The UK has not been alone in bringing in such a regime to support its domestic shipping industry. As identified in the paper, “Tonnage tax: it is working?”²¹, almost all maritime EU countries now operate similar regimes, including: Greece; Netherlands; Norway; Denmark; Finland; Spain; Ireland; Belgium; and France, alongside many others globally. This is particularly relevant given the UK’s Maritime 2050 strategy report, where retaining competitive advantage in the industry is a priority,²² upholding the UK as a prime location domestic and international companies.

To further highlight the significant impact that Tonnage Tax is likely to have had Figure 24 shows the trend of declining deadweight tonnage²³ of UK-owned shipping vessels up to 1999 (just before the Tonnage Tax regime was introduced), as well as the trade balance in sea transport services as recorded in the ONS Pink Book (including disbursements in ports). UK fleet tonnage data is sourced from the Department for Transport’s shipping fleet data tables.²⁴ An important caveat to note here is that only ships of 500 gross tonnes²⁵ and above are included here in the total deadweight tonnage (so some smaller vessels will be omitted) and secondly that it only includes trading vessels, (those that carry cargo or passengers), and will therefore not include vessels such as those operating in offshore oil and gas, for instance.

19 House of Commons Transport Committee. (2005). ‘Tonnage Tax: Second Report of Session 2004-05’.

20 Office for Tax Simplification. (2011). ‘Review of tax reliefs, Final Report’.

21 Leggate. H., & McConville. J. 2006. “Tonnage tax: is it working?”, Maritime Policy & Management

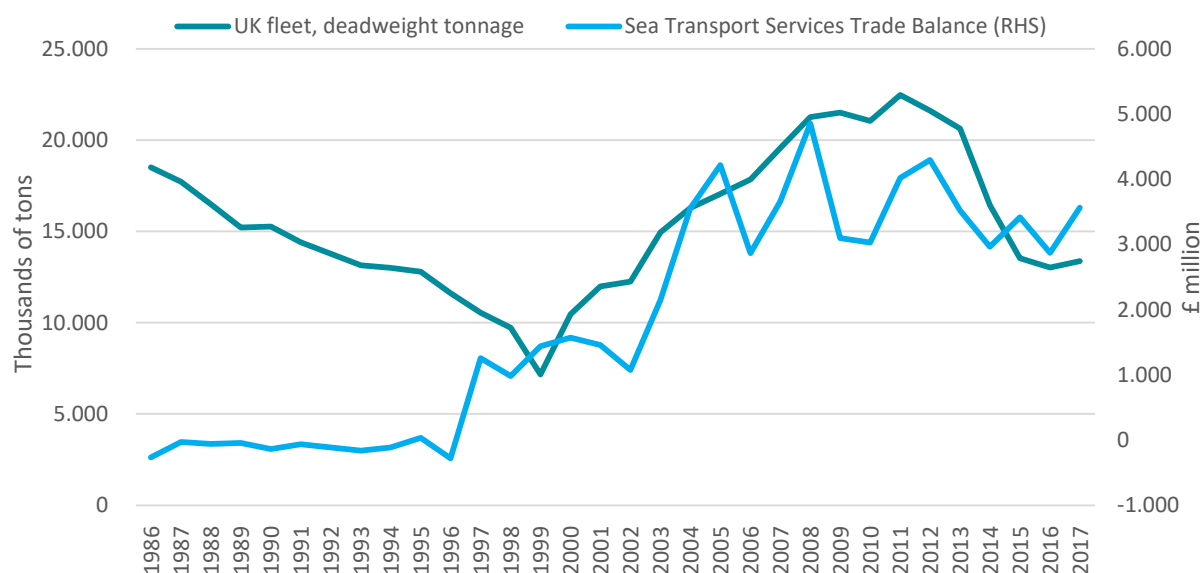
22 Department for Transport. (2019). ‘Maritime 2050’.

23 Deadweight tonnage is the weight, measured in tons, of all the cargo, fuel, dry provisions, and supplies carried on board a ship. In other words, it refers to the weight of the volume of water displaced by a vessel in normal seagoing condition.

24 Department for Transport. (2019). ‘UK owned trading vessels of 500gt and over by type, number and tonnage’.

25 Gross tonnage is a non-linear measure of a ship’s overall internal volume (defined by the International Maritime Organization as “the moulded volume of all enclosed spaces of the ship”), and is by definition not a measure of a ship’s weight or mass.

Figure 24: Deadweight tonnage of UK-owned shipping vessels; UK trading balance in sea transport services, 1986 to 2017



Source: UKCoS, Department for Transport, ONS, Cebr analysis

From 1986 and prior to 2000, the total deadweight tonnage of UK-owned vessels was declining year-on-year by an average of 6.8% per annum; this decline accelerated in 1999 to 26.3%. Similarly, the UK trade balance in sea transport services was marginally in deficit in every year up to 1994, where 1995 had a surplus of £33 million, falling to a deficit of £278 in 1996. Sea Transport Service Trade Balance from 1997 to 2018 has been in surplus with it peaking in 2008 at £4,854 million surplus.

We observe a marked reversal in trend for total deadweight tonnage of UK-owned vessels after 2000. The total level of deadweight tonnage immediately recovered to 10.5 million tonnes. Year-on-year growth since then has averaged at 5.1%, although there has once again been a decline following 2011. However, 2016 and 2017 have begun to show an end in the decline.

6.2 Quantifying the economic impact of the Tonnage Tax regime

Summary of the approach

The objective of this section is to compare what has happened to the shipping industry in the current circumstances (i.e. following the introduction of the Tonnage Tax regime) against scenarios in which the Tonnage Tax regime had not been introduced.

The first step involves estimating the size of the UK shipping fleet in these counterfactual scenarios in the years following 2000, as measured through deadweight tonnage. After determining the likely path of the UK shipping fleet after 2000 without the Tonnage Tax, the relationship between the key macroeconomic indicators of interest – GVA, employment, tax revenues and exports – and this level of deadweight tonnage is then determined, drawing upon the direct economic impacts outlined earlier in this report. The difference between deadweight tonnage outturns and deadweight tonnage in the counterfactual can then be translated into the direct and aggregate economic contribution that would have been forgone had the Tonnage Tax regime not been introduced.

The impact of Tonnage Tax on the UK-owned shipping fleet and the key macroeconomic indicators

In order to determine the likely path of the UK shipping fleet in an environment where the Tonnage Tax regime had not been introduced, Cebr have presented the following three scenarios alongside the actual path of the size of the UK-owned shipping fleet:

- **Outturn** – this is the deadweight tonnage of the UK shipping fleet (comprising vessels of 500 gross tons or above) under the current regime – in other words, what has actually happened to the total deadweight tonnage of the UK-owned shipping fleet between 1986 and 2017.
- **Low Scenario** – this scenario assumes that the size of the UK shipping fleet would be half that as under the current regime. For example, in 2017 the deadweight tonnage of the UK-owned shipping fleet was just over 13.4 million tonnes; under the Low Scenario deadweight tonnage is assumed to have fallen to 6.7 million tonnes.
- **Central Scenario** – this scenario assumes that deadweight tonnage followed a declining fitted exponential trend between 1986 and 1999, with this trend assumed to continue after 2000. The Central Scenario reflects the persistent fall in the size of the UK-owned shipping fleet prior to 2000.
- **Upper Scenario** – this scenario utilises a fitted econometric model which attempts to control for other factors which are likely to have influenced growth (or decline) in the size of the UK-owned shipping fleet. These other factors, expressed in growth terms include growth in world trade and the oil price; a dummy variable to represent the introduction of the Tonnage Tax regime in 2000 has been included.

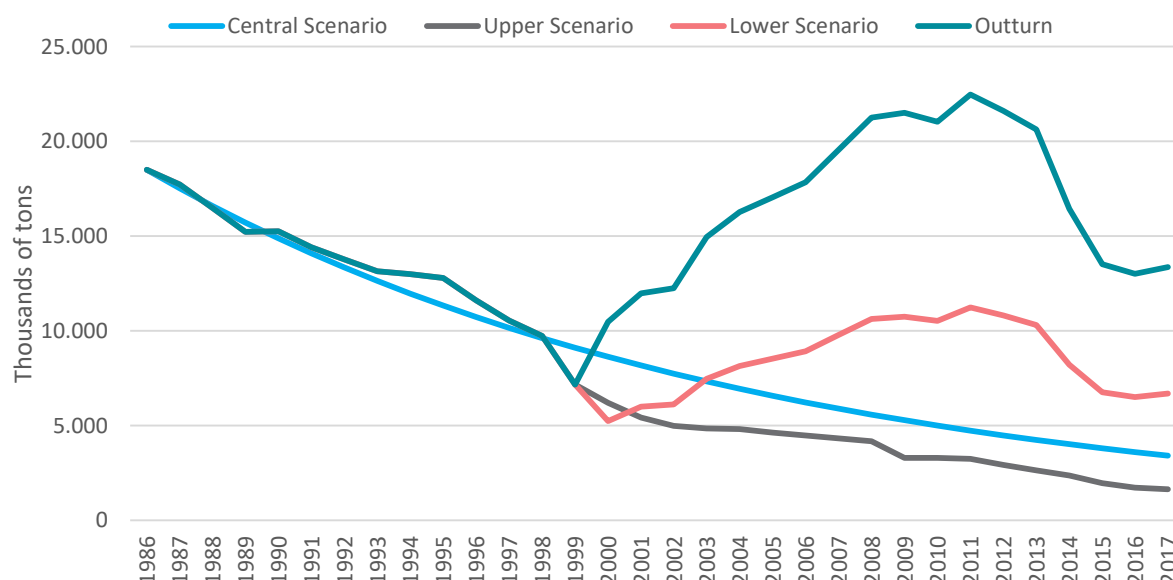
After quantifying the impact on the total level of deadweight tonnage under the three scenarios described above, it is assumed that there is a proportional relationship between the direct contribution that the shipping industry makes through GVA, UK employment, the contribution to the UK Exchequer (tax revenues) and exports.

The impact of Tonnage Tax on the aggregate economic impact of the shipping industry has been estimated by assuming that, with the sole exception of the Ports industry, all other industries in the shipping industry's supply chain would have been negatively affected by the reduction in shipping activity. We assume that the ports industry would not have been affected by the reduction in economic activity from the UK shipping industry, as UK ports could have continued to provide their services to foreign-owned ships; the aggregate economic impact of the shipping industry relating to Ports has therefore been maintained.

6.3 The impact of Tonnage Tax on the UK-owned shipping fleet

Figure 25 below shows the path of total deadweight tonnage for the UK-owned shipping fleet under three different scenarios since 2000, alongside the outturn since 1986. As a fitted trend based on data from 1986 to 1999, the Central Scenario necessarily does not map neatly onto the outturn values prior to 2000. Under the Lower Scenario, total deadweight tonnage would have fallen as low as 6.7 million tonnes by 2017; under the Central and Upper Scenarios the levels of deadweight would have been 3.4 million and 1.6 million tonnes respectively.

Figure 25: Total level of deadweight tonnage for UK-owned shipping fleet, outturn versus Lower, Central and Upper Scenarios



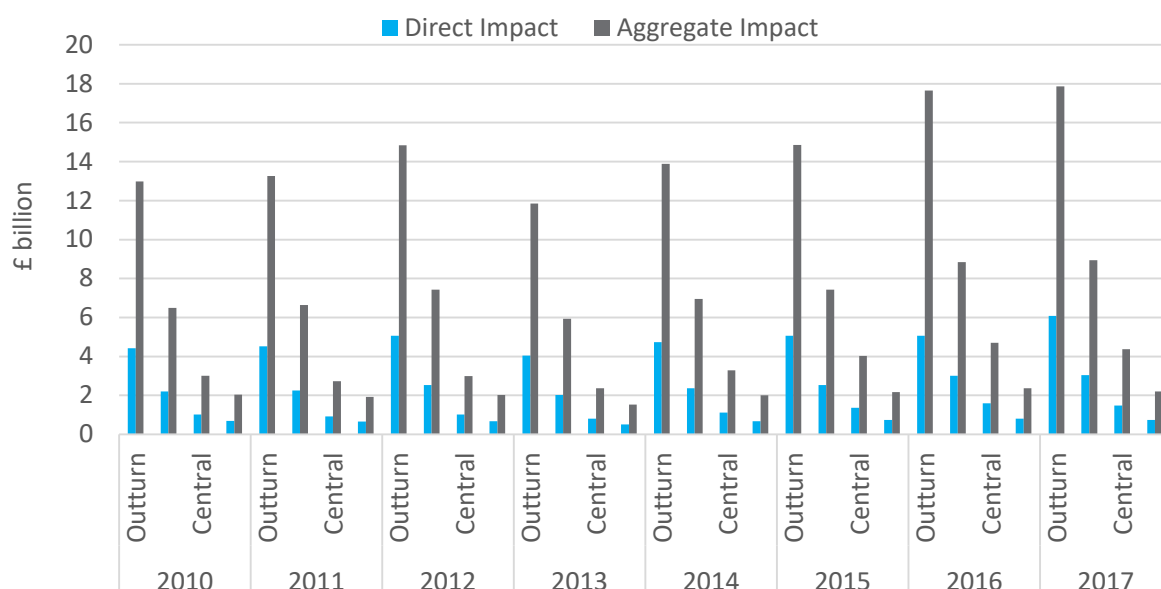
Source: UKCoS, Department for Transport, ONS, Cebr analysis

Under all three scenarios, deadweight tonnage would have been markedly lower than under the outturn; in 2017 total deadweight tonnage had fallen but was still recorded at 13.4 million tonnes, in comparison to 7.2 million tonnes in 1999. Given the large discrepancies in deadweight tonnage, it is clear therefore that is a good deal of evidence to suggest that the economic contribution of the shipping industry would have been considerably lower without the introduction of the Tonnage Tax regime.

6.4 The impact of Tonnage Tax on GVA

Figure 26 shows the projected impact across the years 2010 to 2017 under the three scenarios described earlier in this section.

Figure 26: The direct and aggregate GVA impacts of the UK shipping industry under alternative scenarios



Source: UKCoS, Department for Transport, ONS, Cebr analysis

Under the most conservative (Lower) scenario, the direct impact through GVA in 2017 would have been £3.0 billion, and thus £3.1 billion less than the outturn of £6.1 billion. Under the Upper Scenario, the direct GVA impact in 2017 would have been £0.7 billion, and so £5.4 billion (89%) less than the outturn.

To place the 2017 Lower Scenario direct impact in context, this is equivalent to a loss of 0.15% of UK GDP in 2017; expressed in terms of the contribution of a sector, this would be comparable to the UK economy losing the entire direct GVA contribution from the dairy manufacturing (£2.6 billion) or Distilling, rectifying and blending of spirits (£2.9 billion) industries, or most of other services incidental to water transportation (£2.7 billion).

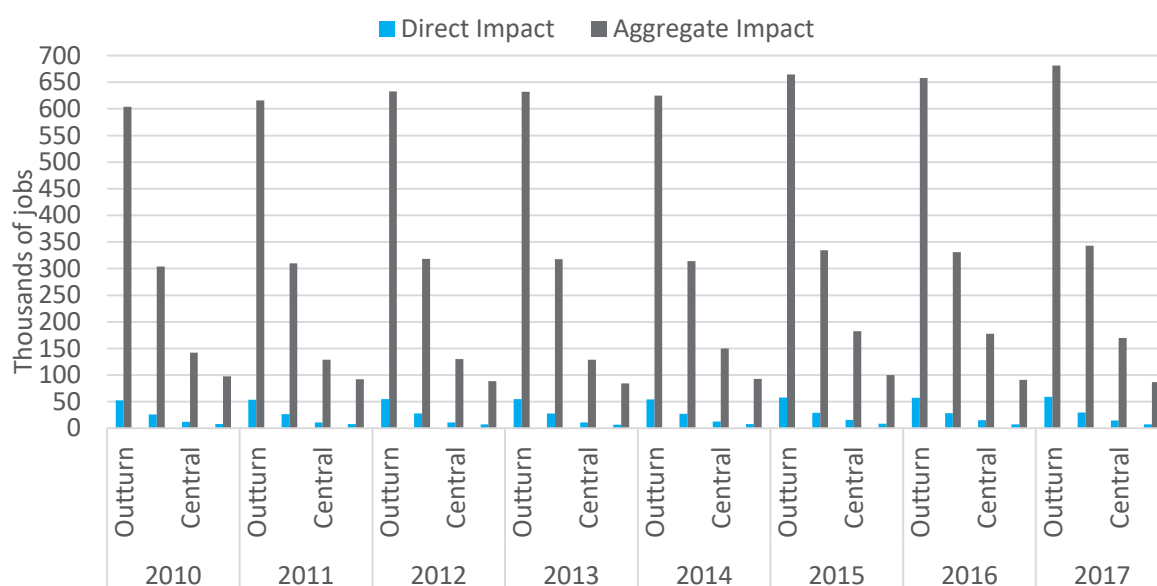
After the indirect and induced impacts are considered, the difference in the GVA contribution is accentuated under the three different scenarios. Under the Central Scenario, the loss of indirect and induced impacts means that the shipping industry would have only had a total GVA impact of £4.4 billion in 2017, and so £13.5 billion less than the outturn total impact of £17.9 billion.

6.5 The impact of Tonnage Tax on UK employment

Here we examine the impact of Tonnage Tax on the direct and aggregate impact on UK employment from the shipping industry.

Figure 27 below shows the projected impact across the years 2010 to 2017 under the three scenarios against the outturn.

Figure 27: The direct and aggregate employment impacts of the UK shipping industry under alternative scenarios



Source: UKCoS, Department for Transport, ONS, Cebr analysis

In 2017 the shipping industry directly supported 59,400 jobs, but under the Central Scenario this direct employment contribution would have only been 14,500 jobs; this is equivalent to a reduction of 76%. This difference would have been more pronounced in 2010, when the direct employment impact under the Central scenario would have been 12,200 jobs and so 47,200 fewer jobs than the outturn level. Even under the more conservative Lower Scenario, there would be 29,700 fewer jobs for UK employees in the shipping industry in 2017 had the Tonnage Tax regime not been introduced.

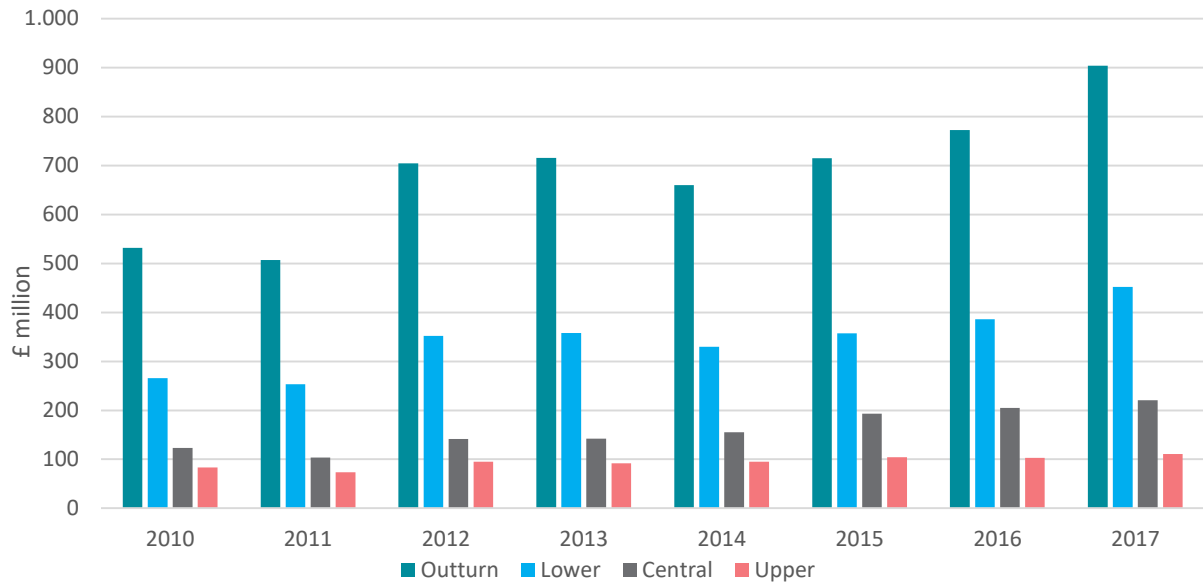
To place the 2017 Lower Scenario direct employment impact of 29,700 jobs in context, this is equivalent to a loss of 0.09% of total UK employment; expressed in terms of the contribution of a sector, this would be more significant to the UK economy than losing the entire direct employment contribution from the clothing manufacturing industry (26,000 jobs) or the combined radio and television broadcasting activities (26,000 jobs).

Once the indirect and induced impacts are considered as part of the Central Scenario, without the Tonnage Tax regime, only a total of 166,000 jobs would have been supported by the shipping industry across the UK economy in 2017, in comparison to the outturn of 679,900 jobs.

6.6 The impact of Tonnage Tax on the UK Exchequer Contribution and Trade

After considering GVA and employment impacts, Figure 28 below shows the contribution of the shipping industry to the UK Exchequer under each of the scenarios against the outturn. A total of £900 million in tax revenues was raised from the industry in 2017; under the Central scenario, this contribution would have fallen to £220 million, the Lower scenario to £450 million and with the most pessimistic (Upper) scenario projecting a yield of only £110 million in the same year.

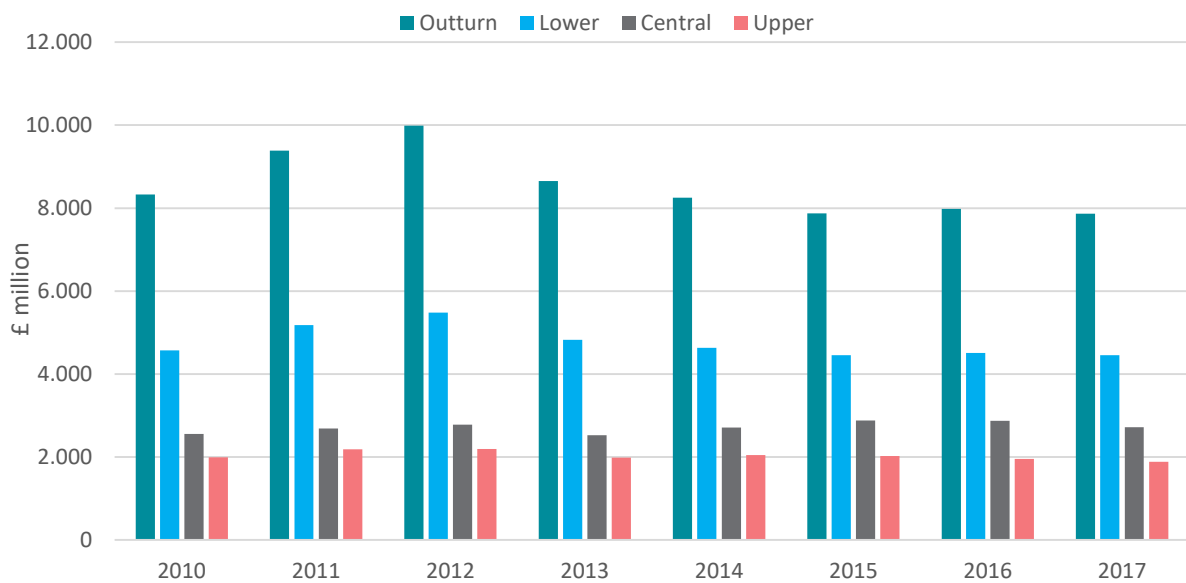
Figure 28: The contribution of the UK shipping industry to the UK Exchequer under alternative scenarios



Source: UKCoS, Department for Transport, ONS, Cebr analysis

Figure 29 shows the contribution of the shipping industry through the exports of services under each of the scenarios against the outturn. It is assumed that exports of disbursement services would not have been affected by the introduction of the Tonnage Tax regime (on the assumption that UK ports would continue to export disbursements services to foreign ships); however, all other exports of services are linked to the tonnage of the UK shipping fleet. Conversely, it is assumed that imports of shipping services, aside from disbursements, would have been unaffected if the Tonnage Tax regime had not been introduced; however, imports of disbursement services would have been reduced in line with the reductions in the size of the UK-owned shipping fleet.

Figure 29: The contribution of the UK shipping industry to service exports under alternative scenarios

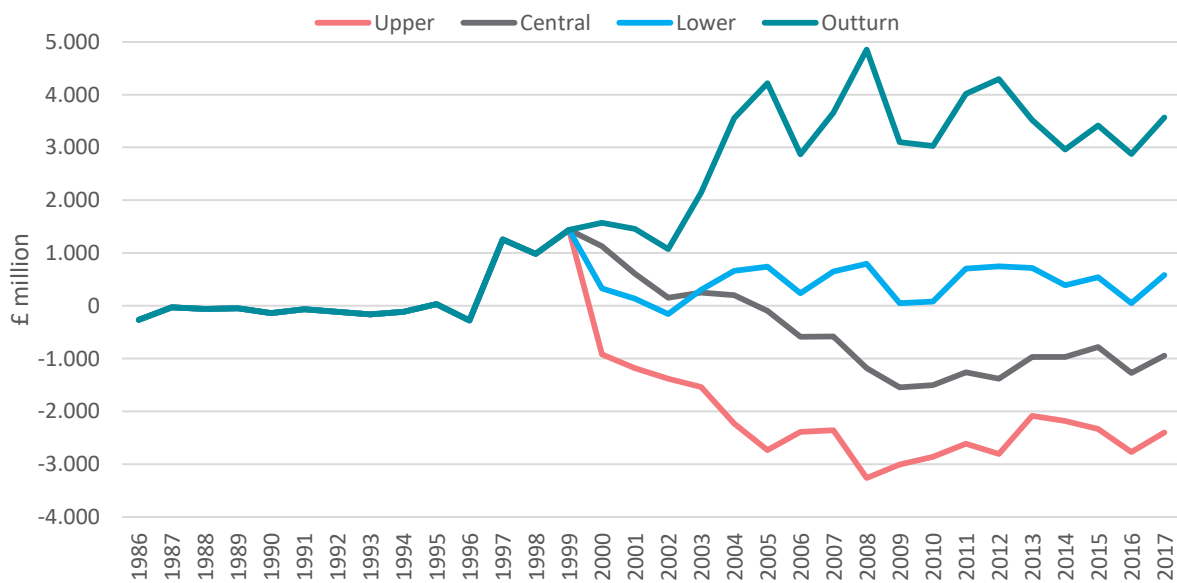


Source: UKCoS, Department for Transport, ONS, Cebr analysis

Under the Central Scenario, it is estimated that the value of exports from the shipping industry and exports of disbursements from Ports would have been £2.7 billion in 2017, in comparison to the outturn of £7.9 billion. Even under the optimistic Lower Scenario, service exports would have fallen to £4.5 billion.

Finally, following Figure 24 earlier in this section, Figure 30 shows the projected trend in the trade balance of Sea Transport service exports after 2000 based on the three different scenarios against the outturn.

Figure 30: The Sea Transport exports trade balance under alternative scenarios



Source: UKCoS, Department for Transport, ONS, Cebr analysis

Under the Central and Upper scenarios, the trade balance would have fallen negative (i.e. the value of sea transport imports would have exceeded that of exports) throughout the whole period 2000 to 2017. Under the Central Scenario, the trade balance would have £0.9 billion in deficit in 2017, in contrast to the outturn value of £3.6 billion surplus. The Lower scenario post 2002 would have remained positive for the entire period, peaking at £0.8 billion in 2008.

Annex A: Full set of direct economic impacts by region

Table A.1: Direct economic impact of the shipping industry through turnover, 2010 to 2017, £ million

TURNOVER	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	13,478	14,223	14,869	15,253	15,808	16,853	18,640	18,936
England	11,425	11,456	12,207	12,290	12,692	13,770	15,345	15,954
Scotland	1,045	1,495	1,366	2,196	2,283	1,964	2,322	2,340
Wales	573	924	979	563	594	766	575	248
Northern Ireland	436	347	316	203	239	354	398	393
East of England	987	1,332	999	1,105	904	652	1,315	841
East Midlands	101	29	26	148	624	43	7	14
London	4,170	5,336	4,975	4,033	5,207	7,300	4,857	4,914
North East	106	90	52	102	143	216	45	20
North West	1,093	992	1,025	1,243	901	812	1,755	1,688
South East	3,862	3,081	3,987	4,247	4,164	3,689	6,318	7,283
South West	537	314	698	964	414	682	642	948
West Midlands	195	58	24	125	265	94	215	121
Yorkshire and the Humber	372	226	422	322	70	281	191	126

Source: FAME, UKCoS, ONS, Cebr analysis

Table A.2: Direct economic impact of the shipping industry through GVA, 2010 to 2017, £ million

GVA	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	4,424	4,520	5,060	4,038	4,732	5,065	6,017	6,090
England	3,713	3,619	4,048	3,272	3,802	4,133	4,806	4,982
Scotland	440	532	664	485	680	619	817	862
Wales	172	230	204	182	154	217	273	127
Northern Ireland	100	140	144	98	96	96	121	120
East of England	274	312	236	238	292	203	482	312
East Midlands	59	13	13	40	204	20	2	4
London	1,570	1,648	1,574	1,195	1,530	2,104	1,662	1,593
North East	38	40	33	25	47	67	21	8
North West	311	312	285	286	320	299	459	423
South East	1,005	1,003	1,296	1,122	1,162	1,043	1,747	2,125
South West	191	148	365	232	136	238	266	409
West Midlands	112	27	14	29	84	32	72	41
Yorkshire and the Humber	153	115	232	104	28	126	94	66

Source: FAME, UKCoS, ONS, Cebr analysis

Table A.3: Direct economic impact of the shipping industry through employment, 2010 to 2017, jobs

EMPLOYMENT	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	52,587	53,627	55,088	55,045	54,405	57,872	57,309	59,362
England	41,982	40,961	42,793	43,067	42,934	46,482	44,881	48,379
Scotland	6,098	7,004	7,633	7,136	8,032	7,152	7,950	8,264
Wales	3,133	3,739	2,866	3,305	2,174	2,977	3,163	1,379
Northern Ireland	1,373	1,923	1,794	1,536	1,265	1,261	1,315	1,340
East of England	3,710	4,338	2,970	3,692	3,924	2,769	5,407	3,650
East Midlands	879	213	183	677	3,044	308	28	56
London	12,605	14,312	12,708	11,817	13,909	20,345	12,474	13,325
North East	524	586	443	407	671	965	251	117
North West	4,085	4,378	3,645	4,478	4,518	4,481	5,314	5,342
South East	13,189	12,736	14,413	15,750	13,298	11,792	16,267	19,677
South West	3,067	2,240	5,022	3,985	1,950	3,447	3,143	4,933
West Midlands	1,723	422	225	481	1,218	443	859	520
Yorkshire and the Humber	2,200	1,735	3,185	1,781	402	1,932	1,140	758

Source: FAME, UKCoS, ONS, Cebr analysis

Table A.4: Direct economic impact of the shipping industry through the compensation of employees, 2010 to 2017, £ million

COMPENSATION OF EMPLOYEES	2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	1,302	1,359	1,441	1,466	1,553	1,620	1,825	1,820
England	973	1,001	1,137	1,143	1,192	1,239	1,397	1,442
Scotland	145	171	143	222	259	275	313	314
Wales	151	148	118	92	91	84	88	38
Northern Ireland	33	40	43	9	11	21	26	26
East of England	93	120	95	109	86	56	120	77
East Midlands	10	3	2	17	49	8	1	1
London	347	446	445	392	506	614	455	456
North East	6	8	8	9	13	32	4	2
North West	71	80	86	105	68	93	139	131
South East	350	277	380	355	403	277	545	609
South West	60	39	87	112	38	119	99	145
West Midlands	13	6	3	13	23	16	21	12
Yorkshire and the Humber	24	21	30	30	6	24	14	9

Source: FAME, UKCoS, ONS, Cebr analysis