



# **The economic contribution of the UK Maritime Business Services industry**

A report for Maritime UK

September 2017

**Cebr**

**Disclaimer**

Whilst every effort has been made to ensure the accuracy of the material in this document, neither Centre for Economics and Business Research Ltd nor the report's authors will be liable for any loss or damages incurred through the use of the report.

**Authorship and acknowledgements**

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them.

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

London, September 2017

# Contents

<b>Executive Summary</b>	<b>4</b>
<b>1 Introduction</b>	<b>5</b>
1.1 About Maritime UK	5
1.2 Purpose of this report	5
1.3 Overview of the study and methodology	6
1.4 Structure of the report	8
<b>2 The Maritime Sector and the Maritime Business Services industry</b>	<b>9</b>
2.1 The definition of the Maritime sector and its constituent industries	9
2.2 Quantifying the direct economic impacts of the industry	10
2.3 Quantifying the direct economic impacts of the industry at regional level	12
<b>3 The direct economic impact of the Maritime Business Services industry</b>	<b>13</b>
3.1 The direct economic impact through turnover	13
3.2 The direct economic impact through GVA	14
3.3 The direct economic impact through employment	16
3.4 The direct economic impact through the compensation of employees	17
3.5 The direct contribution to the UK Exchequer	18
3.6 The direct contribution to the UK's export of goods and services	19
<b>4 The aggregate economic impact of the Maritime Business Services industry</b>	<b>21</b>
4.1 The aggregate economic impacts through turnover	21
4.2 The aggregate economic impacts through GVA	22
4.3 The aggregate economic impacts through employment	25
4.4 The aggregate economic impacts through the compensation of employees	27
<b>5 The regional economic impact of the Maritime Business Services industry</b>	<b>29</b>
5.1 The direct economic impact of the industry by UK region	29
5.2 The aggregate economic impact of the industry by UK region	32

## Executive Summary

- The Centre for Economics and Business Research (Cebr) has been commissioned by Maritime UK to quantify the economic contribution of the Maritime Business Services industry. This report forms one of seven reports which also assess the contribution of the Maritime sector as a whole, at industry-level, in Scotland, and in the Solent LEP region.
- **The Maritime Business Services industry consists of various highly-productive activities, including Financial, Legal, Insurance, Shipbroking, Education, Accountancy and Consultancy activities.** This report draws upon existing research by PwC in 2016 in order to quantify the aggregate economic contribution of the industry, both at UK and regional level.
- The Maritime Business Services industry makes a substantive macroeconomic contribution to the UK through business turnover, Gross Value Added (GVA), employment and through the compensation of employees. **It is estimated that the industry directly supported just over £4.5 billion in business turnover, £2.0 billion in GVA and 11,500 jobs in 2015.** This respectively equates to 11.3% of turnover, 13.9% of GVA and 10.3% of employment directly supported by the wider UK Maritime sector in 2015.
- **Maritime Insurance is the largest constituent activity within the industry in terms of economic activity, directly contributing £1.3 billion in GVA and directly supporting around 6,300 jobs in 2015.** Combined, Maritime Financial, Insurance and Legal activities dominate the industry, with 82% of GVA and 65% of employment.
- **Not only this, employees in the industry are found to be highly productive in each year considered;** the average employee is estimated to contribute £174,400 in GVA in 2015; this compares favourably to the Maritime sector of £77,900. The average profitability (gross profit as a share business turnover) of the Maritime Business Services industry was just over 20% in 2015, close to the Maritime sector average of 23%.
- By extension of its significant direct contributions to GVA and employment, the Maritime Business Services industry also helps to raise millions of pounds each year to the UK Exchequer. **The industry contributed an estimated total of £590 million in tax revenues in 2015, spread across VAT, Corporation Tax, Income Tax, National Insurance Contributions (NICs) and Business Rates.**
- After quantifying the aggregate economic impacts through the industry supply chains and induced effects on expenditures, **it is estimated that the Maritime Business Services industry helped to support a total of £5.0 billion of GVA in 2015.** This implies that, for every £1 in GVA directly contributed by the industry, a total of £2.48 in GVA is generated across the wider UK economy.
- These aggregate economic impacts associated with the Maritime Business Services industry also extend to business turnover, employment and the compensation of employees. **It is estimated that the Maritime Business Services industry helped to support a total of £11.2 billion in turnover, 64,500 jobs and £2.4 billion through the compensation of employees in 2015.**
- **The vast majority of economic activity directly contributed and more widely supported by the Maritime Business Services industry is to be found in London.** In 2015, it is estimated that the industry in London directly contributed £1.7 billion of GVA (86% of the industry) and 9,200 jobs (80% of the industry). After indirect and induced effects are considered, the aggregate contribution from London rises to £3.3 billion of GVA and 35,400 jobs.

# 1 Introduction

Cebr is pleased to present this report to Maritime UK on the economic impact of the Maritime Business Services industry on the UK economy.

The Maritime Business Services industry comprises a variety of high-value activities for which the UK is acknowledged as a world leader, including shipbroking, legal, insurance, consultancy, accountancy and financial services. For Maritime insurance, the UK boasts a 35% share of global marine insurance premiums, and 60% of Protection and Indemnity (P&I) insurance.<sup>1</sup> The combination of the UK's stable business environment, the depth of its available talent pool, and the agglomeration effect stimulated by the close proximity of shipbroking, insurance and financial activities within the City of London, all help to maintain the UK's leading position as a Maritime Business Services hub. Not only this, the industry is a major net exporter to international markets, thereby making a significant contribution to UK trade.

This report forms one of seven reports on the economic contribution of the Maritime sector, which is defined as comprising the individual Shipping, Ports, Marine 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 three industries at UK level, the economic contribution of the sector in Scotland, the Solent LEP, 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 six 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 2015 (inclusive), with the latter being the latest year for which full data are available, and endeavours to capture the full economic 'footprint' of the Maritime Business Services industry. As such, our report is not confined to direct ongoing contributions to GDP and employment through the Maritime Business Services 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 promotional body for the UK's maritime sector, representing companies and partner organisations in the shipping, ports, marine 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 Maritime Business Services industry to the UK economy, within the context of the value of the wider Maritime sector. As such, Cebr has focused on the following key economic indicators: employment, Gross Value Added (GVA), the compensation of employees and the Exchequer contribution (through tax revenues raised).

The study also seeks to identify the contribution of the Maritime Business Services 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.

<sup>1</sup> Maritime UK, <https://www.maritimeuk.org/about/our-sector/maritime-business-services/>



### 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 Maritime Business Services 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 Maritime Business Services industry's contribution to the UK Exchequer through tax revenues raised.

An important task has been to develop an in-depth understanding of the Maritime Business Services 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 aggregate 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 considered include:

- GVA<sup>2</sup> contributions to UK and regional GDP generated by the Maritime Business Services 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 Maritime Business Services industry and, again, the turnover supported in the UK and regional economies through multiplier impacts.
- The value of employee compensation<sup>3</sup> generated by the Maritime Business Services industry, representing the total remuneration of employees operating in the industry.
- The contribution of the Maritime Business Services industry through revenues raised for the Exchequer.

#### Mapping the UK Maritime Business Services industry

In order to identify these economic impacts, Cebr has followed the definition of the Maritime Business Services industry as comprising the major activity groupings listed below:

- Shipbroking and miscellaneous transport services;
- Maritime Insurance, Financial and Legal services;
- Ship Surveying and Classification activities;
- Maritime Education (including Maritime university courses and cadetships);
- Maritime Consultancy;
- Maritime Accountancy.

<sup>2</sup> 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.

<sup>3</sup> 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.

The first stage of the study has involved mapping the activities of the Maritime Business Services 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.<sup>4</sup> In essence therefore, this involves taking each of the industry's activities, and mapping these to the most relevant Standard Industrial Classification (SIC) code in order to identify the activity's economic data.

However, it is clear that the activities of the Maritime Business Services industry do not map neatly onto the SIC framework. For instance, while Accountancy services and activities can be identified through SIC code 69201, there is no separate distinction within the national accounts framework for Maritime Accountancy activities specifically. Similarly, while Ship surveyor activities can be identified through SIC code 71200, this particular activity is bundled with a number of other (in this context) unrelated activities. As a result, this precludes the use of publicly-available data sources such as the Annual Business Survey to gather data on the Maritime Business Services industry. Cebr has therefore exclusively drawn upon desk research, existing PwC analysis and industry-level data to quantify the contributions made through Maritime Business Services activities.

### **Quantifying the direct economic impacts of the Maritime Business Services Industry and data sources**

With the exception of Ship surveying and classification activities, Cebr has drawn upon analysis from the 2016 PwC research report for the City of London Corporation, 'The UK's Global Maritime Professional Services: Contribution and Trends'<sup>5</sup>, to quantify the economic impact of the Maritime Business Services industry. Specifically, we have drawn upon the analysis which quantifies the direct contribution of each activity in terms of GVA and employment. These direct GVA and employment estimates relate to the year 2014; for the years 2010 to 2013 and 2015, Cebr have estimated the direct economic impacts using wider industry trends, drawing upon publicly-available sources such as the ONS Annual Business Survey.<sup>6</sup>

In order to estimate the other macroeconomic indicators necessary to capture the economic contribution of the industry – business turnover, profitability, compensation of employees, wages and salaries – the PwC estimates have been combined with data taken from publicly-available data sources. For example, the turnover-to-GVA ratio for the wider Accountancy sector, as sourced from the Annual Business Survey, has been used to estimate business turnover for Maritime Accountancy activities.

For Ship surveyor and classification activities, Maritime UK and Cebr contacted those classification society members of the International Association of Classification Societies (IACS)<sup>7</sup> with a registered UK office, in order to ascertain employment in the years 2010 to 2015 inclusive. The direct economic contribution from these activities have then been estimated using these employment statistics as a basis.

### **Quantifying the aggregate economic impacts of the Maritime Business Services Industry**

After collation and interrogation, the direct economic impacts for the Maritime Business Services 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.

<sup>4</sup> 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.

<sup>5</sup> PwC (2016). 'The UK's Global Maritime Professional Services: Contribution and Trends.'

<sup>6</sup> The ONS Annual Business Survey (ABS) is the main structural business survey conducted by ONS. It crosses most business sectors, collecting financial data from businesses' end year accounts, including turnover, wages and salaries, purchases of goods and services, stocks and capital expenditure.

<sup>7</sup> The International Association of Classification Societies (IACS) is a not-for-profit membership organisation of classification societies that establish minimum technical standards and requirements that address maritime safety and environmental protection and ensures their consistent application.

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, the compensation of employees, and employment.

The three types of impact are:

- **Direct impact:** this is the value generated and jobs supported directly by the economic activities of the UK Maritime Business Services industry.
- **Indirect impact:** this is the value generated and jobs supported in industries that supply inputs to the UK Maritime Business Services industry.
- **Induced impact:** this is the value generated and jobs supported in the wider economy when the direct and indirect employees of the UK Maritime Business Services 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 Maritime Business Services industry in terms of GVA, employment, business turnover, 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 Maritime Business Services industry fits within this definition. Further information is also provided on how the key macroeconomic indicators have been captured or estimated;
- Section 3 outlines the direct economic impacts of the Maritime Business Services industry. We consider the direct impacts through GVA, employment, the compensation of employees, and contribution to the UK Exchequer through tax revenues contributed by the industry.
- Section 4 considers the multiplier impacts of the Maritime Business Services industry through the activities it stimulates in the local supply chain and in the wider economy when employees directly and indirectly employed by the industry spend their wages and salaries in the local and wider economy.
- Section 5 examines the direct and multiplier impacts of the Maritime Business Services industry at regional level, as disaggregated by the 12 former Government Office Regions (GORS).<sup>8</sup>

<sup>8</sup> 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 Maritime Business Services industry

Here we set out how the wider 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 latter 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 transport of passengers;
  - Transport of passengers on inland waterways;
  - International transport of freight;
  - Transport of freight on inland waterways.
- **Ports industry**
  - Warehousing and storage;
  - Port activities and management;
  - Stevedores, cargo and passenger handling;
  - Border agency, HMRC and public sector employees operating in ports.
- **Marine industry**
  - Shipbuilding;
  - Boatbuilding (marine leisure vessels);
  - Marine renewable energy;
  - Marine support activities for offshore oil and gas, engineering and mining;
  - Recreational marine activities, marine finance and legal activities and general marine services;
  - Marine science and academic activities, including government vessels and technical consulting;
- **Maritime Business Services industry**
  - Shipbroking and other miscellaneous transport services;
  - Maritime insurance, finance and legal services;<sup>9</sup>
  - Ship surveying and classification;
  - Maritime Education (including university courses and cadet training);
  - Maritime Consultancy;
  - Maritime Accountancy.

Here we focus solely on the Maritime Business Services industry. The remainder of this section focuses on how the direct economic impacts of the constituent activities have been measured, in light of difficulties in establishing how the industry maps against the national accounts framework.

<sup>9</sup> These activities are distinct from those Insurance, Financial and Legal activities taking place within the Marine industry, and the contribution of these activities are treated and quantified separately as a result.

## 2.2 Quantifying the direct economic impacts of the industry

Here we set out in further detail the approach taken to quantify the direct economic impact of the Maritime Business Services industry through its constituent activities. With the exception of ship classification and surveying activities, this has involved combining existing PwC analysis with that of publicly-available data sources. For ship classification and surveying activities, this has involved direct evidence-gathering from ship classification organisations.

### Quantifying the direct economic impacts for Shipbroking, Maritime insurance, finance and legal services, Maritime Consultancy and Maritime Accountancy

Table 1 below shows the direct and indirect economic impact of the Maritime Business Services industry activities in 2014 as estimated by PwC, which forms the basis of the analysis presented in this report.

*Table 1: The direct contribution to UK GVA and employment from Maritime Business Services activities in 2014*

Indicator	Employment	GVA			
Activity	Direct Impact (thousands)	Direct Impact (£m)	Indirect Impact (£m)	Induced Impact (£m)	Aggregate impact (£m)
Insurance	6.3	1,300	1,000	600	2,900
Law	1.0	300	160	160	620
Shipbroking	2.4	230	115	170	515
Finance	0.2	30	10	10	50
Education	0.6	55	25	80	160
Accounting	0.4	40	15	20	75
Consulting	0.3	25	25	10	60

Source: PwC

In order to firstly quantify the direct economic impacts of these activities in other years – and to generate estimates for other key macroeconomic indicators such as business turnover, exports, profitability, and the compensation of employees – it is necessary to combine the analysis presented in Table 1 with other, publicly-available sources. Table 2 below summarises the approach taken to estimate the other indicators.

*Table 2: Estimation approach taken to estimate other direct economic impacts of the Maritime Business Services industry*

Indicator	Source(s)	Estimation Approach
Turnover	PwC, ABS	Turnover for all industry activities has been individually estimated using GVA-to-Business turnover ratios for the nearest industry within the Annual Business Survey (ABS). For example, for Maritime Accountancy, the GVA-to-turnover ratio for the Accountancy sector has been applied.
Compensation of Employees	PwC, ABS	Turnover for all industry activities has been individually estimated using GVA-to-Compensation of Employees ratios for the nearest industry grouping within the Annual Business Survey. As a sense check and for the Financial and Insurance industries (which do not feature in the ABS), estimates have also been derived using Compensation of Employees to GVA ratios, as sourced from the ONS Supply Use tables.
Wages and Salaries	PwC, ASHE	Total wages and salaries paid to employees in the industry have been estimated using average wages and salaries statistics taken from the Annual Survey of Hours and Earnings (ASHE). Industry activities have been aligned to the nearest industry (by Standard Industrial Classification (SIC) code) or occupation (by Standard Occupational Classification (SOC) code)

Source: PwC, ONS, Cebr analysis

Table 2: Estimation approach taken to estimate other direct economic impacts of the Maritime Business Services industry (cont.)

Indicator	Source(s)	Estimation Approach
Profitability	PwC, ONS Supply Use Tables	The profitability (gross profitability) of industry activities have been estimated by estimating the gross profit ratio of the nearest industry. Specifically, this has involved estimating the component of Gross Operating Surplus which is Gross Profit, after eliminating other components such as mixed income, rental costs and consumption of fixed capital.
Exports	PwC, ONS Supply Use Tables	Industry exports have been estimated by applying the ratio of exports of goods and services to total output for the nearest industry, as sourced from the ONS Supply Use tables.

Source: PwC, ONS, Cebr analysis

In order to generate direct economic impact estimates for other years (2010 to 2013, and 2015), insights taken from the PwC report have been combined with annual data for the nearest industry, as sourced from the Annual Business Survey and Business Register and Employment Survey (BRES).<sup>10</sup>

### Quantifying the direct economic impacts for Ship Classification and Surveying activities

As the PwC report does not focus on ship classification and surveying activities, Maritime UK and Cebr contacted those classification society members of the International Association of Classification Societies (IACS)<sup>11</sup> with a registered UK office, in order to ascertain the numbers of their staff employed in ship surveying and classification activities in the years 2010 to 2015 inclusive. Cebr received responses from the following classification societies conducting these activities in the UK:

- Bureau Veritas;
- DNV GL;
- Lloyd's Register;
- Class NK;
- RS (The Russian Maritime Register of Shipping).

For the other IACS members with offices in the UK for which no data on ship classification employment were received, Cebr have estimated levels of employment by assuming that a fixed proportion of their total employment relates to ship surveying and classification activities. The total level of employment for Ship Classification societies has been sourced from Bureau van Dijk's FAME database.<sup>12</sup>

After estimating the total level of UK employment associated with ship classification activities, the GVA directly contributed by this activity has been estimated using GVA to Employment ratios for the Technical testing and analysis sector, as sourced from the Annual Business Survey. The other key macroeconomic indicators have then been estimated as described in Table 2 above.

<sup>10</sup> The Business Register and Employment Survey (BRES) is the ONS official source of employee and employment estimates by detailed geography and industry published on an annual basis. Unlike the Annual Business Survey, BRES can provide estimates for employment in the Financial Services industry.

<sup>11</sup> The International Association of Classification Societies (IACS) is a not-for-profit membership organisation of classification societies that establish minimum technical standards and requirements that address maritime safety and environmental protection and ensures their consistent application.

<sup>12</sup> Financial Accounts Made Easy (FAME) is a database of companies in the UK and Ireland covering financials and other information such as industry descriptions, directors and managers and subsidiaries. FAME provides detailed information as taken from annual reports and other sources up to the latest available year.

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

In this final subsection we set out the approach taken to disaggregate the direct and aggregate economic impacts at regional level. Ordinarily, the approach taken to disaggregate the direct economic impacts of the Maritime Business Services industry would involve combining the direct economic impacts at UK-level with publicly-available statistics which can be disaggregated at regional level. However, this approach is precluded as a result of the difficulties in mapping the industry against the national accounts framework.

Following discussions with the authors of PwC's 2016 report, it has been suggested to Cebr that approximately 80% of the economic activity of the Maritime Business Services industry is concentrated in London.<sup>13</sup> Therefore, 80% of UK employment and GVA directly supported by the Maritime Business Services industry has been attributed to the London region across all the years considered. The remaining 20% of industry activity has been allocated based on the economic activity of the Ports industry in each region. For further information on the regional disaggregation of Ports industry activities, please refer to Cebr's separate report on the economic activity of the UK Ports industry.

Other adjustments have been made to the regional disaggregation of the key macroeconomic indicators which represent the direct economic impacts of the Maritime Business Services 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.<sup>14</sup> For example, the average employee in London in 2015 was 46% more productive than the average UK employee, while the average employee in the North East was 10% less productive.
- To account for regional differences in wages and salaries, estimated wages and salaries paid to employees in the Maritime Business Services industry have been adjusted using differentials taken from ASHE.<sup>15</sup> For example, the average wage for an employee in the South East was 4% higher than the national average in 2015.
- 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 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 Maritime Business Services industry in the UK.

<sup>13</sup> PwC estimate, 2017.

<sup>14</sup> ONS, 2017. Subregional Productivity: Labour Productivity (GVA per hour worked and GVA per filled job) indices by UK NUTS2, NUTS3 subregions and City regions.

<sup>15</sup> Ibid.

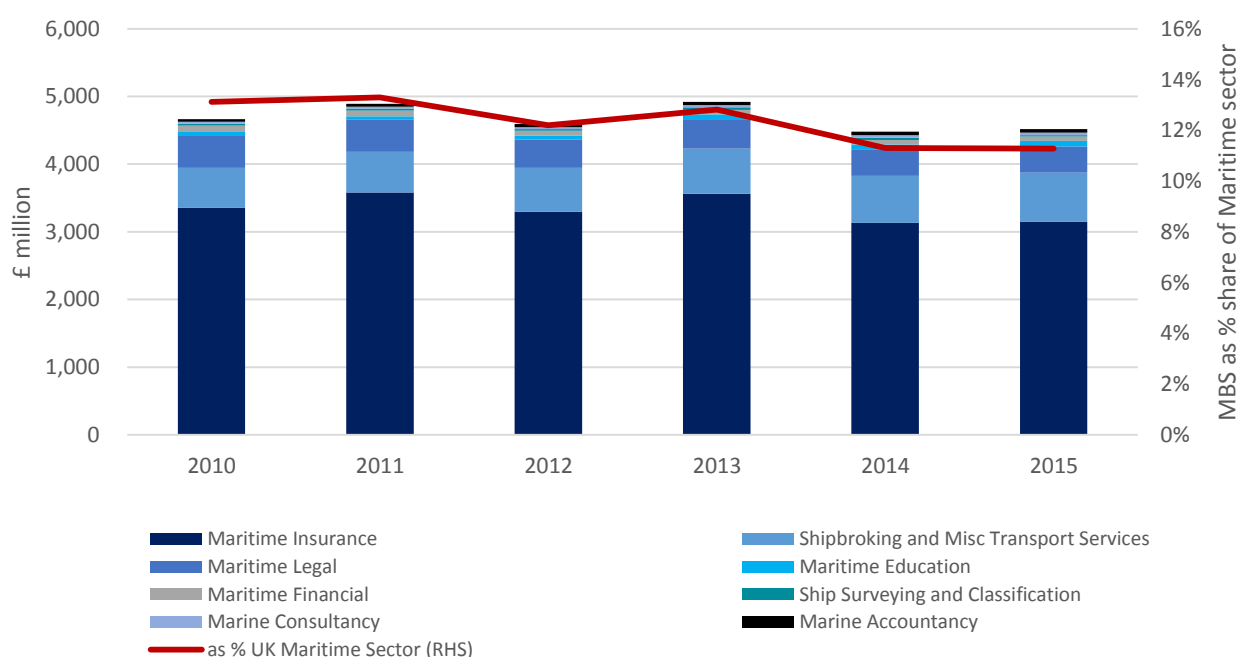
### 3 The direct economic impact of the Maritime Business Services industry

In this section we set out estimates for the direct contribution of the Maritime Business Services industry to the following key macroeconomic indicators: Business turnover, GVA, employment, the compensation of employees, and the Exchequer contribution through tax revenues raised. After quantifying the direct contributions made through the first three of these activities, the contribution that the Maritime Business Services industry makes to the wider UK Maritime sector is then examined.

#### 3.1 The direct economic impact through turnover

Figure 1 below shows the breakdown of business turnover generated by the Maritime Business Service industry and its constituent activities between 2010 and 2015. Overall, the industry contributed an estimated £4.5 billion in business turnover in 2015, an increase of 0.8% from the 2014 level but slightly below the period average of £4.7 billion. The slight fall can be attributed to falling GVA-turnover ratios observed across the wider Insurance, Financial and Legal sectors in recent years.

Figure 1: The estimated turnover of the Maritime Business Services (MBS) industry, £ million and share of the Maritime sector's total turnover



Source: PwC, ONS, Cebr analysis

Maritime Insurance, Financial and Legal activities dominate the business turnover generated by the industry, with 80% of industry turnover in 2015 – this is consistent with the other macroeconomic indicators of the industry (discussed further below). From within this grouping, Maritime Insurance contributes the largest proportion of business turnover generated, with approximately £3.2 billion in 2015.

Despite the slight fall in business turnover, profitability (as measured using the ratio of gross profits to turnover) in the Maritime Business Services industry is estimated to have increased since 2010. Table 3 overleaf shows trends in profitability across each activity. The overall profitability of the industry now lies close to the Maritime sector average.



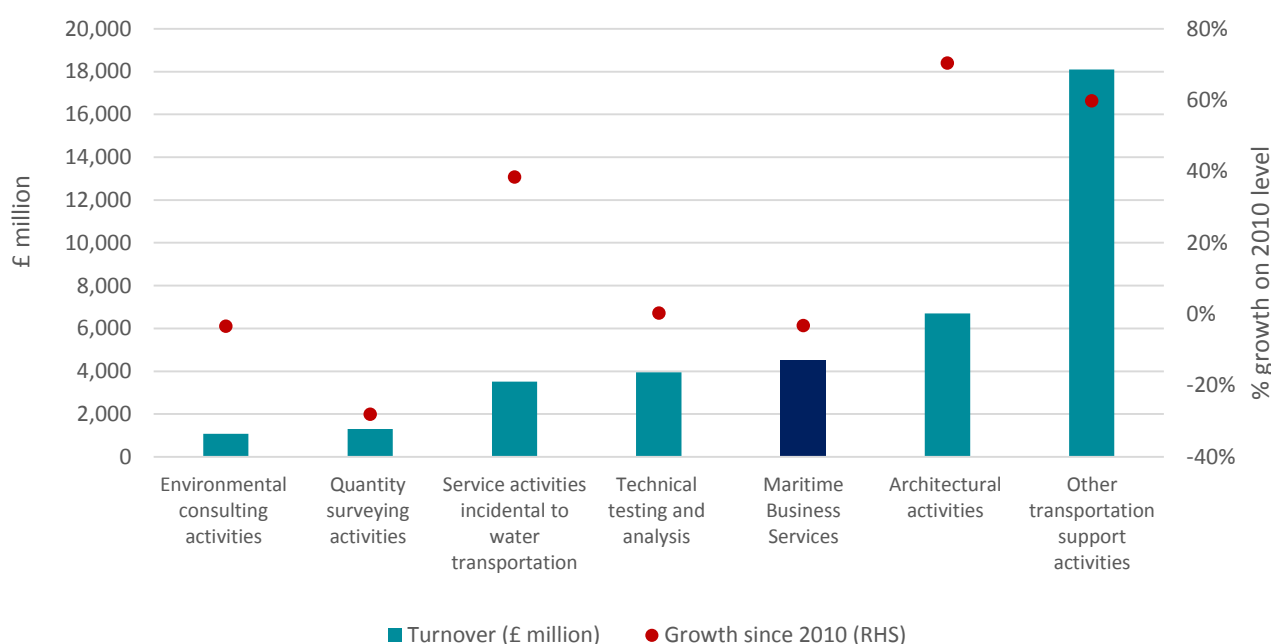
Table 3: Estimated average profitability (gross profit ratio) of the Maritime Business Industry and constituent activities

Profitability	2010	2011	2012	2013	2014	2015
<b>UK Maritime sector</b>	<b>19.7%</b>	<b>20.4%</b>	<b>21.9%</b>	<b>21.9%</b>	<b>23.1%</b>	<b>22.8%</b>
<b>UK Maritime Business Services industry</b>	<b>11.6%</b>	<b>12.8%</b>	<b>15.4%</b>	<b>16.6%</b>	<b>20.1%</b>	<b>20.1%</b>
Shipbroking and Misc. Transport Services	0.6%	0.7%	0.6%	1.0%	0.8%	0.5%
Insurance, Finance and Legal Services	13.1%	14.5%	17.8%	19.1%	23.7%	23.8%
Ship Surveying and Classification	28.6%	25.4%	27.0%	25.1%	24.3%	27.7%
Marine Education	23.0%	22.9%	25.0%	28.0%	37.0%	38.1%
Marine Consultancy	4.4%	4.2%	5.4%	6.8%	8.1%	7.4%
Marine Accountancy	10.2%	9.4%	11.6%	11.6%	13.6%	14.2%

Source: PwC, ONS, Cebr analysis

To place this direct contribution in context, Figure 2 below compares turnover in the freight and passenger activities of the Shipping industry against that of comparable transport industry activities across air, road and rail; nominal turnover growth against the 2010 level is also shown for each industry activity. Turnover data for the comparable industries has been sourced from the Annual Business Survey (ABS).

Figure 2: The estimated turnover of the Maritime Business Services industry against comparable industries in 2015, £ million, and growth against the 2010 level



Source: PwC, ONS, Cebr analysis

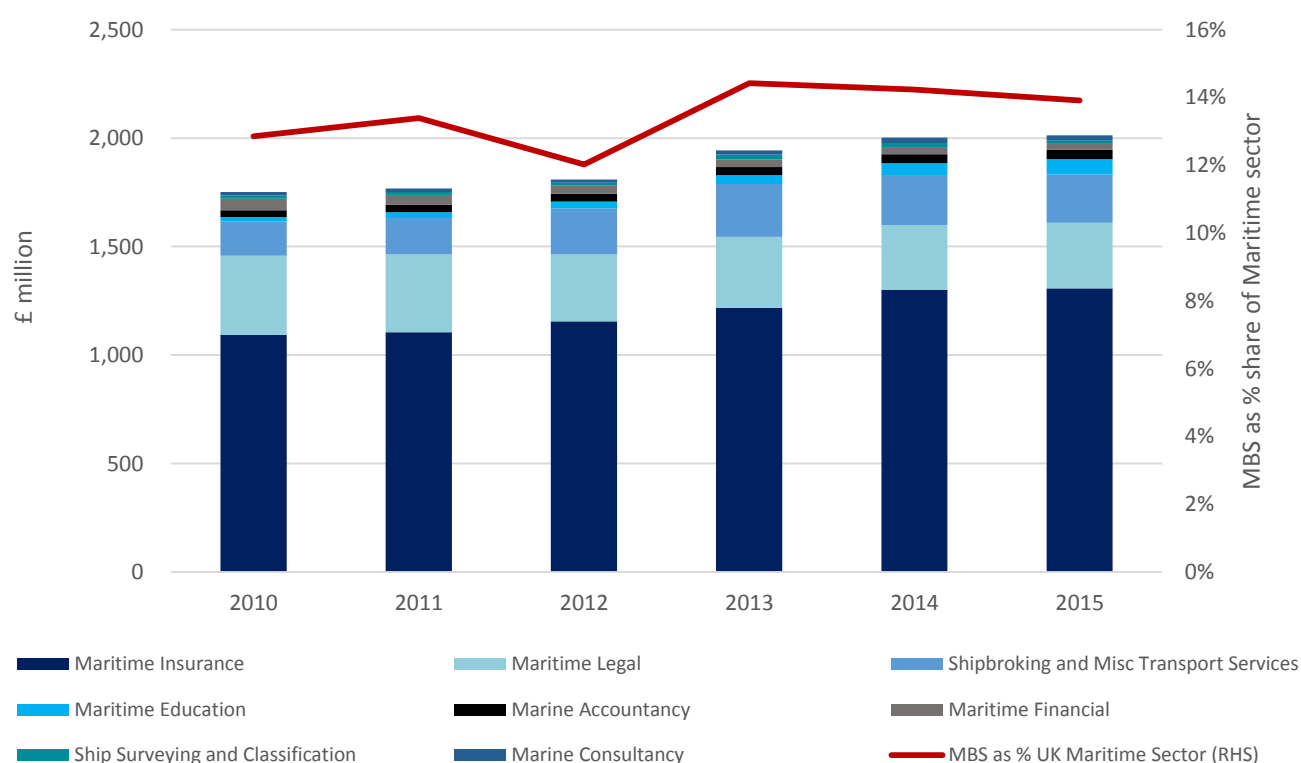
The Maritime Business Services industry, with £4.5 billion of turnover directly generated in 2015, ranks ahead of Technical testing and analysis activities (£3.9 billion), Quantity surveying activities (£1.3 billion) and Environmental consulting activities (£1.1 billion), but behind Architectural activities (£6.7 billion). As shown in Figure 2 above, business turnover generated by the Maritime Business Services industry remained broadly stable since 2010; the 2015 level is estimated to be 3% lower than in 2010. Turnover growth for the comparable industries and activities listed above was sporadic; while business turnover from Architectural activities grew by 70% between 2010 and 2015, turnover from Quantity surveying activities fell by 28% over the same period.

### 3.2 The direct economic impact through GVA

This subsection illustrates the contributions in terms of the GVA from Maritime Business Services industry to UK GDP. Figure 3 below shows this direct impact, disaggregated by industry activities in the years 2010

to 2015 inclusive. It is estimated that the Maritime Business Services industry directly contributed a total of £2.0 billion in GVA in 2015, rising from £1.8 billion in 2010. It is an industry dominated by its Insurance, Financial and Legal services activities; these activities contributed an average of 83% of the direct GVA contribution of the entire industry in the period considered, although this fell slightly from 86% in 2010 to 82% in 2015. Of the remaining share, the largest contributor was from Shipbroking and miscellaneous transport service activities, which contributed £220 million of GVA in 2015. Maritime Insurance contributed the lion's share of GVA in each year, with £1.6 billion of GVA in 2015. Overall, the Maritime Business Services industry is estimated to have contributed 11.9% of the UK Maritime sector's direct contribution through GVA in 2015.

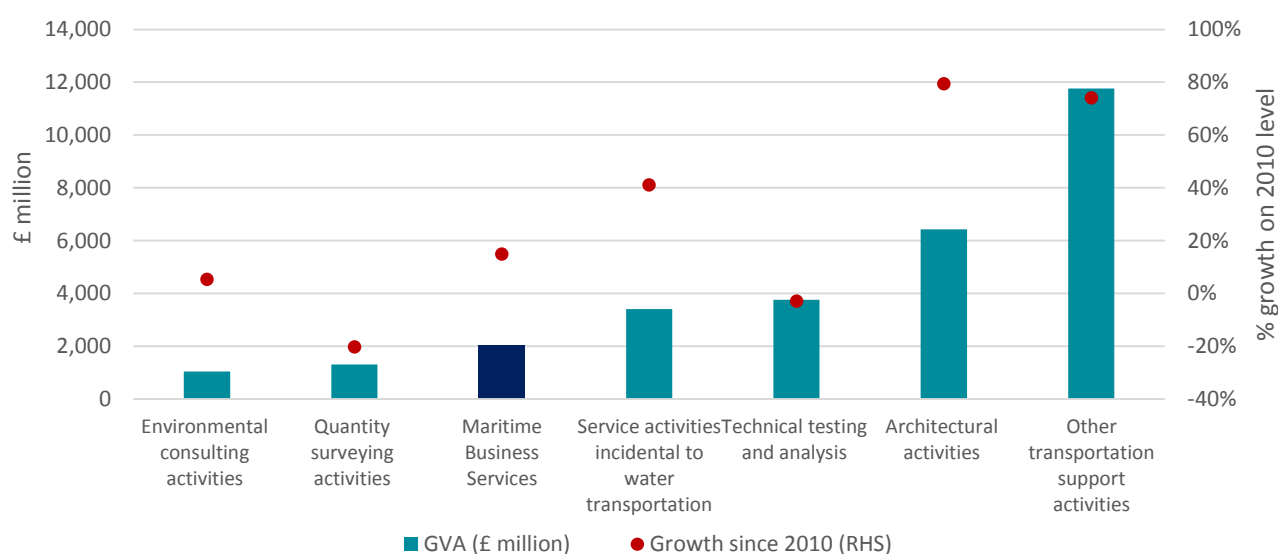
*Figure 3: The direct contribution of UK Maritime Business Services industry through GVA, £ million, and the industry's share of the Maritime sector's total direct contribution through GVA*



Source: PwC, ONS, Cebr analysis

Following Figure 2, Figure 4 below compares GVA trends in the Maritime Business Services industry against those of comparable activities. In terms of the direct GVA contribution in 2015, the industry is larger than Quantity surveying activities, with £2.0 billion against £1.3 billion. The industry's GVA was 15% higher in 2015 than in 2010.

Figure 4: The estimated GVA of the Maritime Business Services industry against comparable industries in 2015, and growth against the 2010 level

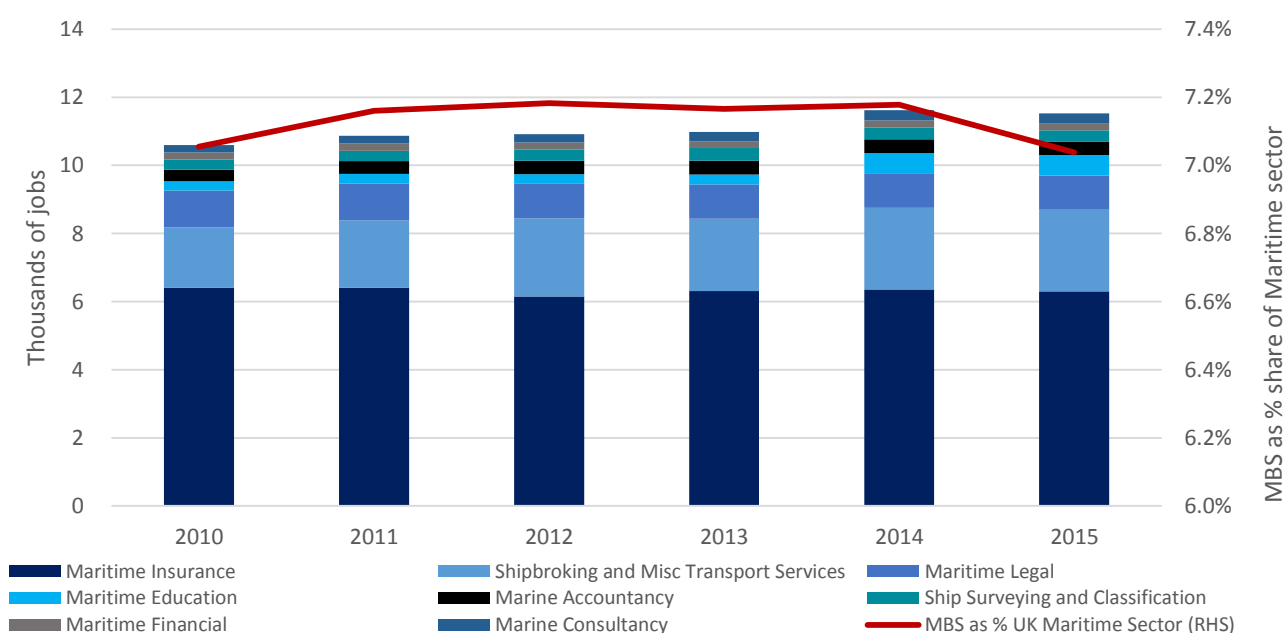


Source: PwC, ONS, Cebr analysis

### 3.3 The direct economic impact through employment

In addition to its contribution through GVA, the Maritime Business Services industry also directly supports a significant number of jobs. Figure 5 below highlights the direct contribution of the Maritime Business Services industry to UK employment, again disaggregated by individual industry activity.

Figure 5: The direct contribution of UK Maritime Business Services industry through employment, thousands of jobs, and the industry's share of the Maritime sector's direct employment contribution



Source: PwC, ONS, Cebr analysis

It is estimated that the Maritime Business Services industry directly supported around 11,500 jobs in 2015, an increase from 10,600 jobs in 2010. The industry's share of total employment directly supported by the Maritime sector remained broadly constant over this period, on average around 10% of Maritime sector employment. As with GVA, in each year Maritime Insurance, Financial and Legal services directly contributed the majority of employment within the industry – 65% of employment in 2015. After this, Shipbroking directly supported around 2,400 jobs in 2015.

Based on trends presented in Figures 3 and 5, employees operating in the Maritime Business Services industry are highly productive, as measured by GVA per employee. Table 4 below shows the estimated productivity of each industry activity across the years 2010 to 2015, and compared against the average productivity level of the Maritime sector as a whole. We observe that the Maritime Business Services industry as a whole is more than twice as productive in every year considered – largely driven by the Insurance, Financial and Legal services proffered by the industry.

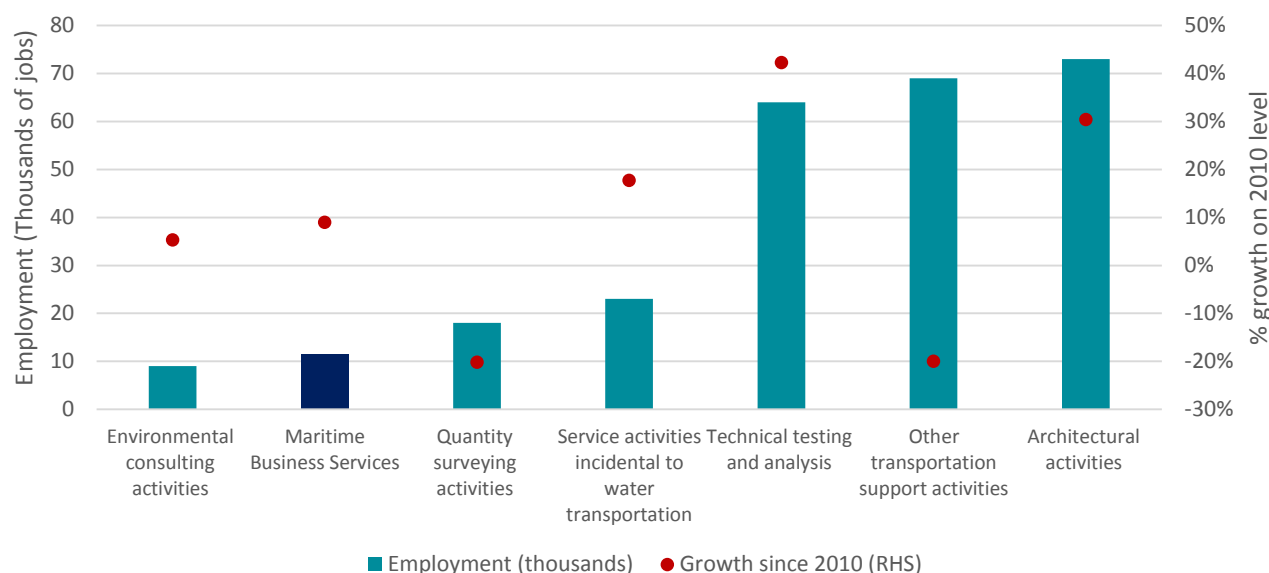
Table 4: Productivity (GVA per job) in the Maritime Business Services industry and constituent activities

GVA per employee	2010	2011	2012	2013	2014	2015
<b>UK Maritime sector</b>	<b>£76,273</b>	<b>£73,557</b>	<b>£85,822</b>	<b>£76,130</b>	<b>£75,917</b>	<b>£77,897</b>
<b>UK Maritime Business Services industry</b>	<b>£165,400</b>	<b>£162,763</b>	<b>£165,805</b>	<b>£176,989</b>	<b>£173,426</b>	<b>£174,416</b>
Shipbroking and Misc Transport Services	£88,893	£85,258	£92,996	£114,900	£95,833	£93,094
Insurance, Finance and Legal Services	£196,197	£196,049	£203,587	£210,129	£217,333	£218,326
Ship Surveying and Classification	£51,178	£43,755	£39,638	£57,653	£65,882	£40,313
Maritime Education	£74,869	£92,296	£105,430	£143,274	£91,667	£117,524
Marine Consultancy	£78,099	£74,483	£65,832	£71,837	£83,333	£74,918
Marine Accountancy	£95,102	£91,678	£94,911	£89,443	£100,000	£108,336

Source: PwC, ONS, Cebr analysis

Figure 6 below compares the direct contribution that the Maritime Business Services industry made through UK employment in 2014 against comparable industries and activities. The direct employment contribution of the Maritime Business Services industry is smaller than a number of comparable activities, despite having grown by 9% between 2010 and 2015.

Figure 6: The estimated employment of the Maritime Business Services industry against comparable industries in 2015, and growth against the 2010 level

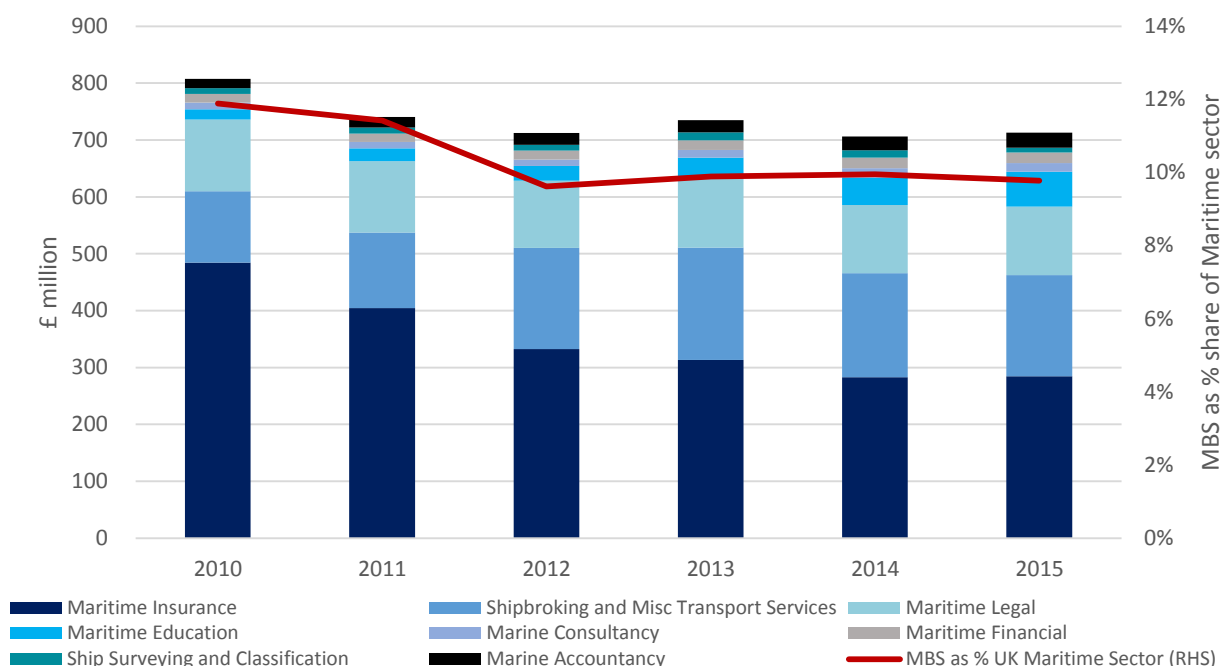


Source: PwC, ONS, Cebr analysis

### 3.4 The direct economic impact through the compensation of employees

Figure 7 below illustrates the compensation of employees which is directly supported by the Maritime Business Services 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.

Figure 7: The direct contribution of Maritime Business Services through the compensation of employees, 2010 to 2015, £ million



Source: PwC, ONS, Cebr analysis

It is estimated that the Maritime Business Services industry directly contributed just over £710 million through the compensation of employees in 2015; this total has fallen by around £100 million since 2010 as the proportion of compensation of employees to GVA has fallen across the wider Legal, Financial and Insurance sectors. Once again, Maritime Insurance, Financial and Legal services activities support the largest amount of employee compensation directly supported. Overall and as a consequence of this, the total value of compensation of employees directly supported across the Maritime sector from the UK Maritime Business Services industry is estimated to have fallen from 11.9% in 2010 to 9.8% in 2015.

### 3.5 The direct contribution to the UK Exchequer

This section discusses the contribution of the Maritime Business Services industry to the UK Exchequer. For each activity within this industry, Cebr have calculated the contributions in terms of:

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

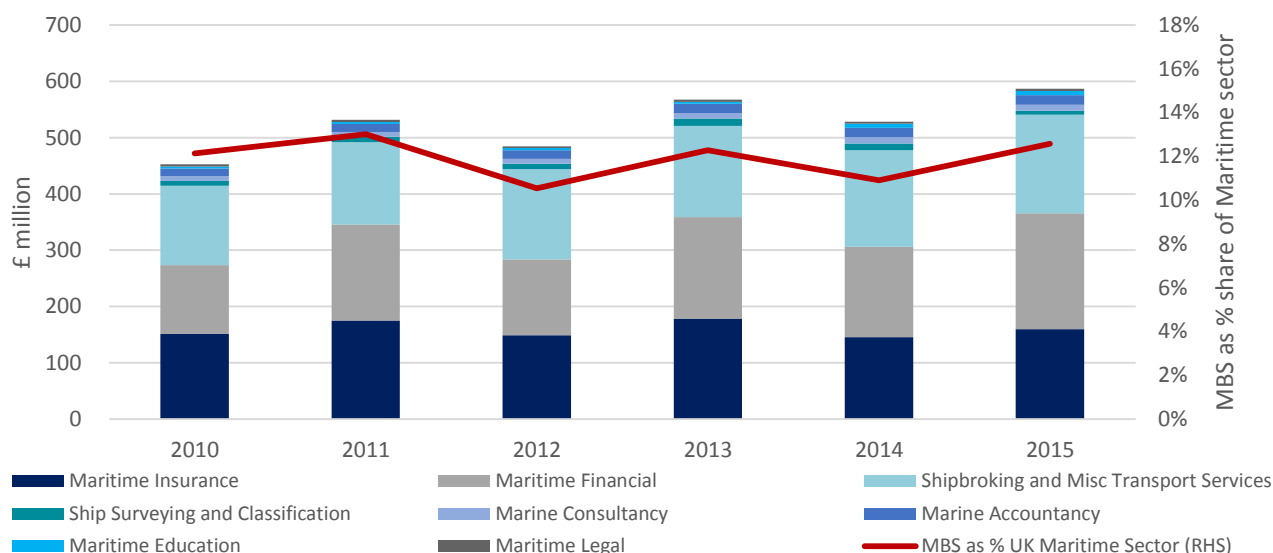
For the personal taxes listed above, Income Tax and NICs revenues have been calculated by applying tax rates to the estimated wages and salaries paid to employees operating in each industry activity; rates and thresholds have been sourced from HMRC for the years 2010 to 2015. Wages and salaries for employees have been sourced from the Annual Survey for Hours and Earnings (ASHE)<sup>16</sup>. For the business taxes listed above, 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

<sup>16</sup> 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.



estimated using the average level of Business Rates paid as a proportion of GVA, drawing upon the ONS Annual Business Survey (ABS). Figure 8 below shows the direct contribution of the Maritime Business Services industry to the UK Exchequer, disaggregated by industry. It is estimated that the industry directly contributed just under £590 million of tax revenues in 2015, or around 12.5% of the Maritime sector total.

Figure 8: The direct contribution of the Maritime Business Services industry to the Exchequer, £ million, 2010 to 2015

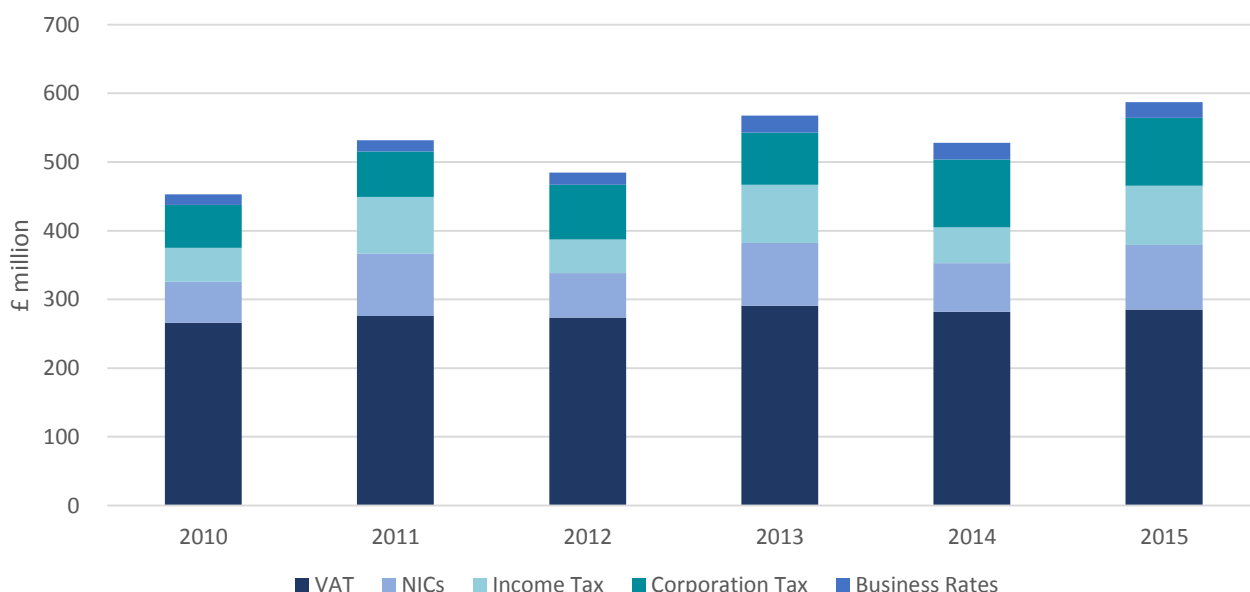


Source: PwC, ONS, Cebr analysis

Marine Insurance, Financial and Legal services contributed an average of 62% of the Maritime Business Services industry's contribution to the Exchequer, rising from 61% in 2010 to 63% in 2015. This represents an increase of 33% in this activity's tax contributions, from £280 million to £370 million. In aggregate, the industry's direct Exchequer contribution grew by 35%, from £450 million in 2010 to £590 million in 2015.

Figure 9 below disaggregates the Exchequer contribution by tax head, across 2010 to 2015.

Figure 9: The direct contribution of Maritime Business Services to the Exchequer, £ million, 2010 to 2015, by tax head



Source: PwC, ONS, Cebr analysis

VAT forms the bulk of Exchequer contributions from the Maritime Business Services industry, averaging 49% of tax receipts from the sector from 2010 to 2015; this is despite the assumed zero contribution from those businesses performing Maritime Financial and Insurance activities. After VAT, the industry is estimated to have contributed £180 million in Income Tax and National Insurance Contributions in 2015.

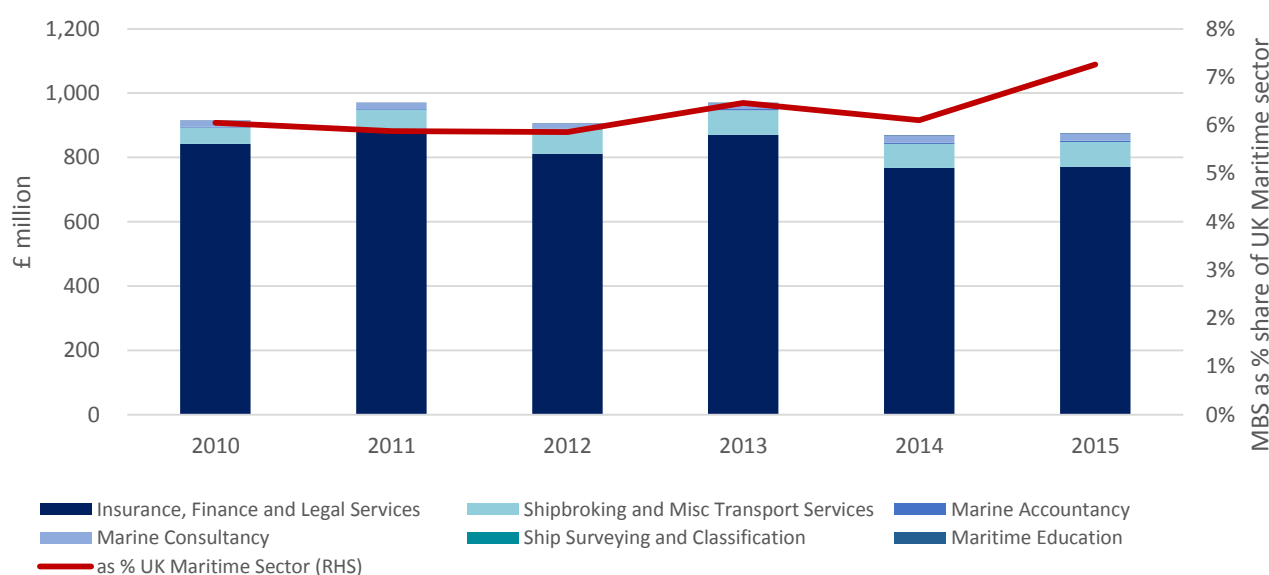
### 3.6 The direct contribution to the UK's export of goods and services

In this final subsection we consider the contribution that the Maritime Business Services industry makes to goods and services exported from the UK. No data exist on industry exports, which have instead been estimated by assuming that the level of exports for an industry activity is the same as that of the wider sector within which it sits.

For example, exports from Maritime Legal activities expressed as a proportion of turnover from this activity is assumed to be the same as that of the wider Legal services sector. Exports of goods and services across each industry activity have been estimated using the ratio of goods and services exports to wider industry turnover as sourced from the ONS Supply Use Tables.

Figure 10 below shows trends in exports of goods and services from the Maritime Business Services industry between 2010 and 2015, and exports expressed as a share of total Maritime sector exports across the same period. The Maritime Business Services industry exported goods and services valued at £880 million in 2015; exports have remained broadly stable over the period considered. However, as a consequence of exports falling across the wider Maritime sector (discussed in more detail in Cebr's separate report on the economic contribution of the Maritime sector), the proportion of sector exports supported by the Maritime Business Services industry has risen from 6% in 2010 to just over 7% in 2015.

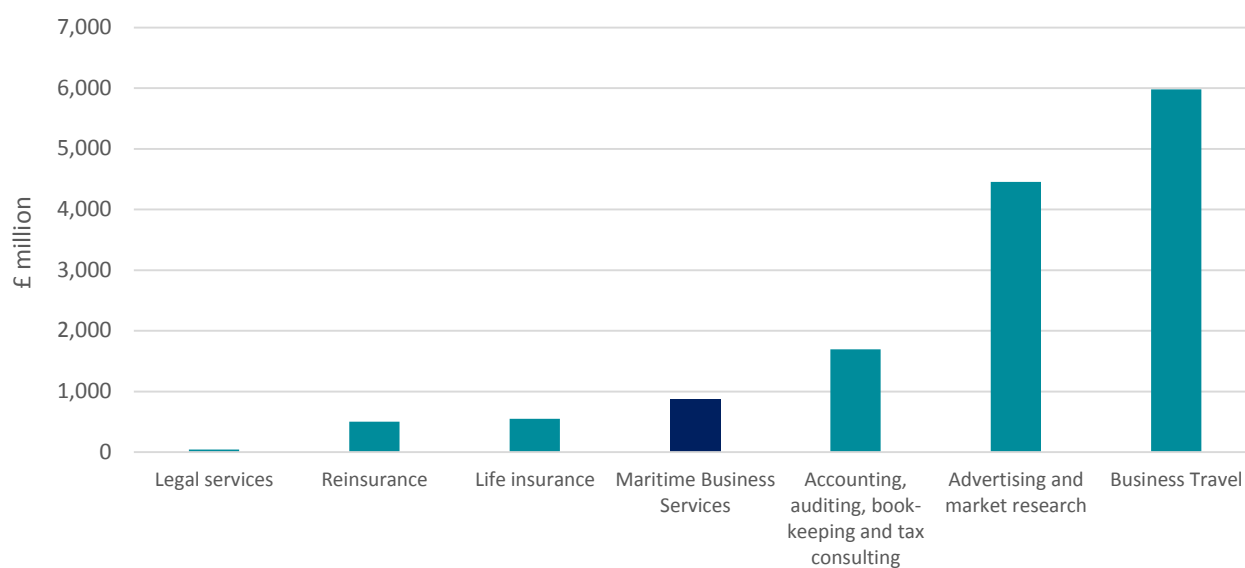
Figure 10: Exports of goods and services from the Maritime Business Services industry, £ million



Source: PwC, ONS, Cebr analysis

To place the value of Maritime Business Services exports in context, Figure 11 below shows industry exports in 2015 in comparison to that exports of comparable services, drawing upon information from the ONS Pink Book. Maritime Business Services – with exports of £880 million in 2016 – lies ahead of exports from the wider Life insurance industry (£550 million) and behind the wider Accounting, auditing, book-keeping and tax consulting grouping of activities (£1.7 billion).

Figure 11: Exports of services from the Maritime Business Services industry in 2015 against comparable activities, £ million



Source: PwC, ONS, Cebr analysis

In the next section we examine how the direct contribution that the Maritime Business Services industry makes through turnover, GVA, employment and the compensation of employees translates into aggregate economic impacts through indirect and induced effects.

## 4 The aggregate economic impact of the Maritime Business Services industry

This section sets out the aggregate economic impacts of the Maritime Business Services industry, by taking into account the indirect (or supply chain) and induced (employee spending) impacts that arise from the activities of firms within this industry.

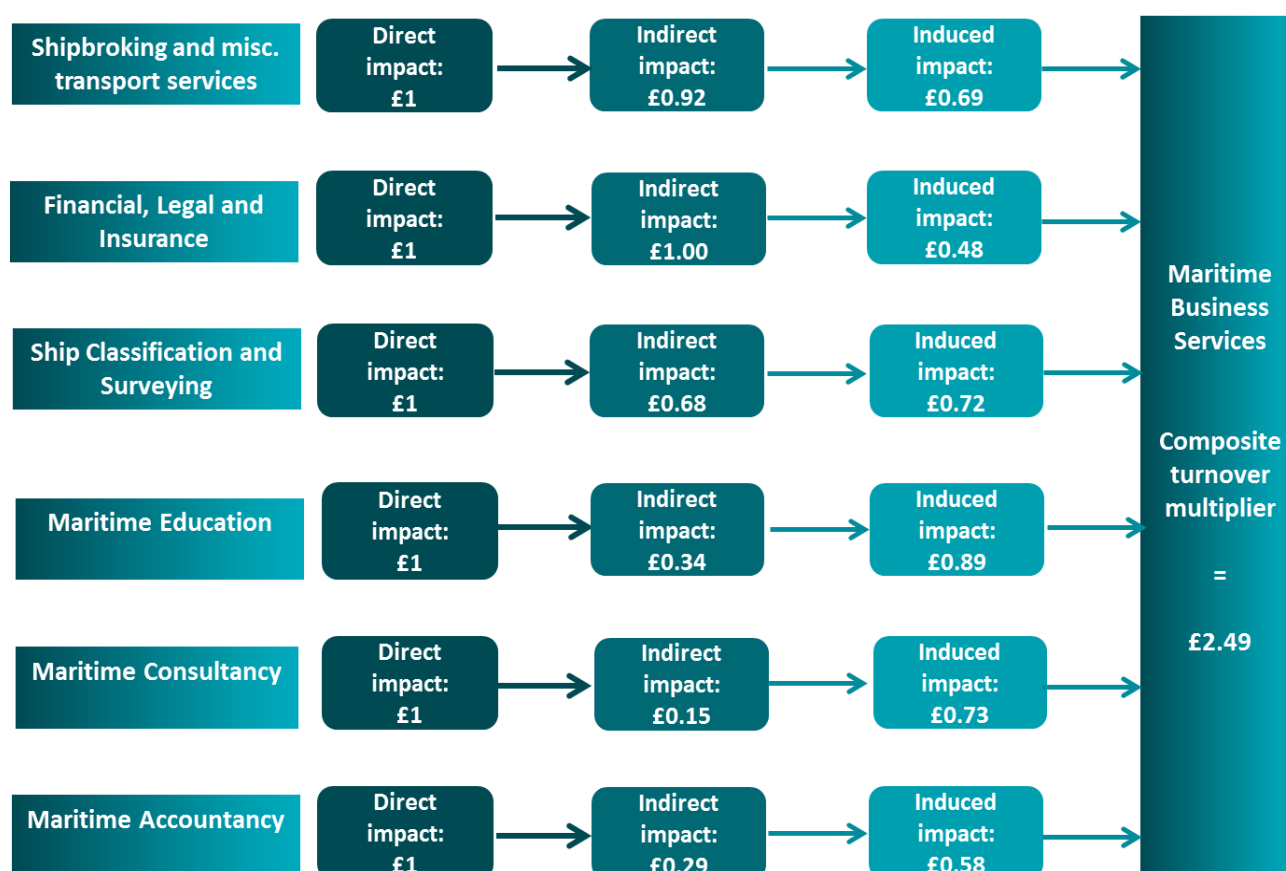
The four macroeconomic indicators for which the aggregate economic impact have been calculated are as follows: turnover; GVA; employment; and the compensation of employees. Multipliers have been generated from Cebr's economic impact model for the UK.

### 4.1 The aggregate economic impacts through turnover

Figure 12 below illustrates the turnover multipliers for the Maritime Business Services industry within the UK, disaggregated by industry activity. The interpretation is that, for example, for every £1 of direct turnover generated by the Maritime Consultancy activities of the industry, £0.15 worth of GVA is stimulated in the supply chains and £0.73 worth of turnover in the wider economy when direct and indirect (supply chain) employees spend their earnings.

**Therefore, after combining each industry activity, for every £1 of turnover initially generated by the Maritime Business Services industry, the UK economy as a whole experiences an increase in turnover of £2.49.**

Figure 12: Turnover multiplier impacts of the UK Maritime Business Services industry in 2015



Source: PwC, ONS, Cebr analysis

Table 5 below shows the estimated aggregate turnover impacts from the individual industry activities when taken in isolation. The Maritime Business Services industry directly contributed £4.5 billion in turnover in 2015; once the indirect and induced economic channels are taken into consideration the industries contributed just over £11.2 billion in turnover.

*Table 5: Turnover impact of the Maritime Business Services industry in 2015, £ million*

Turnover in 2015	Direct Impact	Indirect Impact	Induced Impact	Aggregate impact
<b>TOTAL</b>	<b>4,517</b>	<b>4,339</b>	<b>2,375</b>	<b>11,230</b>
Shipbroking and Misc. Transport Services	725	665	502	1,893
Insurance, Finance and Legal Services	3,598	3,610	1,727	8,935
Ship Surveying and Classification	20	14	15	49
Maritime Education	83	29	74	186
Marine Consultancy	37	6	27	69
Marine Accountancy	53	15	30	98

Source: PwC, ONS, Cebr analysis

Table 6 below presents in each year the direct contribution to turnover from the Maritime Business Services industry, alongside our estimate of the composite turnover multiplier that applies to the entire industry. We observe that the wider turnover impact is slightly lower than in 2010, but that this impact has remained broadly stable since 2010.

*Table 6: Direct and aggregate turnover impact of the Maritime Business Services industry, 2010 to 2015, £ million*

	Direct Impact	Composite Industry multiplier	Aggregate impact
2010	4,666	2.49	11,605
2011	4,892	2.49	12,164
2012	4,592	2.49	11,424
2013	4,921	2.49	12,236
2014	4,479	2.49	11,136
2015	4,517	2.49	11,230

Source: PwC, ONS, Cebr analysis

## 4.2 The aggregate economic impacts through GVA

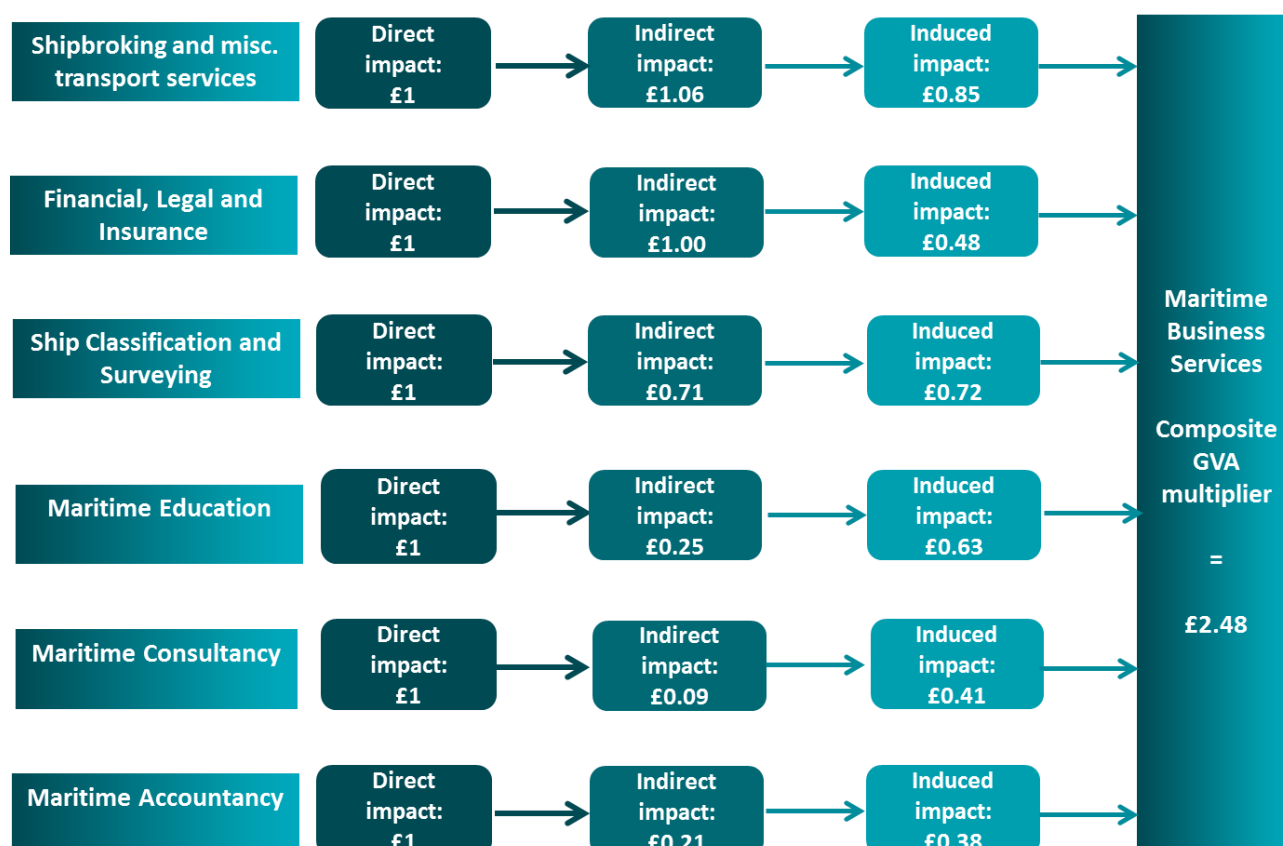
Figure 13 below illustrates the GVA multipliers for the Maritime Business Services industry within the UK, disaggregated by industry activity.

The interpretation is that, for every £1 of direct GVA generated by the Shipbroking and miscellaneous transport services activities of the industry, £1.06 worth of GVA is stimulated in the supply chains and £0.85 worth of GVA in the wider economy when direct and indirect (supply chain) employees spend their earnings. The Maritime Business Services industry directly contributed to just over £2 billion towards UK GDP in 2015; once the indirect and induced economic channels are taken into consideration the industries contributed £5.0 billion in GVA.

**Therefore for every £1 of GVA initially contributed by the Maritime Business Services industry, the UK economy as a whole sees an increase in GVA of £2.48.** This wider contribution is influenced by the high GVA multipliers associated with Maritime Insurance and Shipbroking.



Figure 13: GVA multiplier impacts of the UK Maritime Business Services industry in 2015



Source: PwC, ONS, Cebr analysis

Table 7 below shows the estimated aggregate GVA impacts from Maritime Business Services industry activities when taken in isolation. Given the relatively high contribution that the combined Maritime Financial, Insurance and Legal activities make directly through GVA (see previous section), it is unsurprising that these activities also contribute the largest proportion of the aggregate GVA impact.

Table 7: GVA impact of the Maritime Business Services industry in 2015, £ million

GVA in 2015	Direct Impact	Indirect Impact	Induced Impact	Aggregate impact
<b>TOTAL</b>	<b>2,012</b>	<b>1,919</b>	<b>1,056</b>	<b>4,987</b>
Shipbroking and Misc. Transport Services	223	236	189	649
Insurance, Finance and Legal Services	1,639	1,645	787	4,071
Ship Surveying and Classification	13	9	10	32
Maritime Education	71	18	45	133
Marine Consultancy	22	2	9	34
Marine Accountancy	43	9	16	69

Source: PwC, ONS, Cebr analysis

From the above we can see that the combined Maritime Insurance, Financial and Legal activities had the largest aggregate GVA impact of £4.1 billion in 2015, followed by Shipbroking and Miscellaneous Transport services. Of the different activities, the highest overall GVA multiplier is associated with the latter, at 2.9. With direct impacts relatively small in comparison, the aggregate GVA impact from the remaining industry activities was just under £270 million in 2015.

Table 8 below presents the direct contribution to GVA alongside our estimate of the composite GVA multiplier that applies to the entire industry, an estimated 2.48 in 2015. The aggregate GVA impact from the Maritime Business Services industry has increased from £4.4 billion to £5.0 billion in 2015.

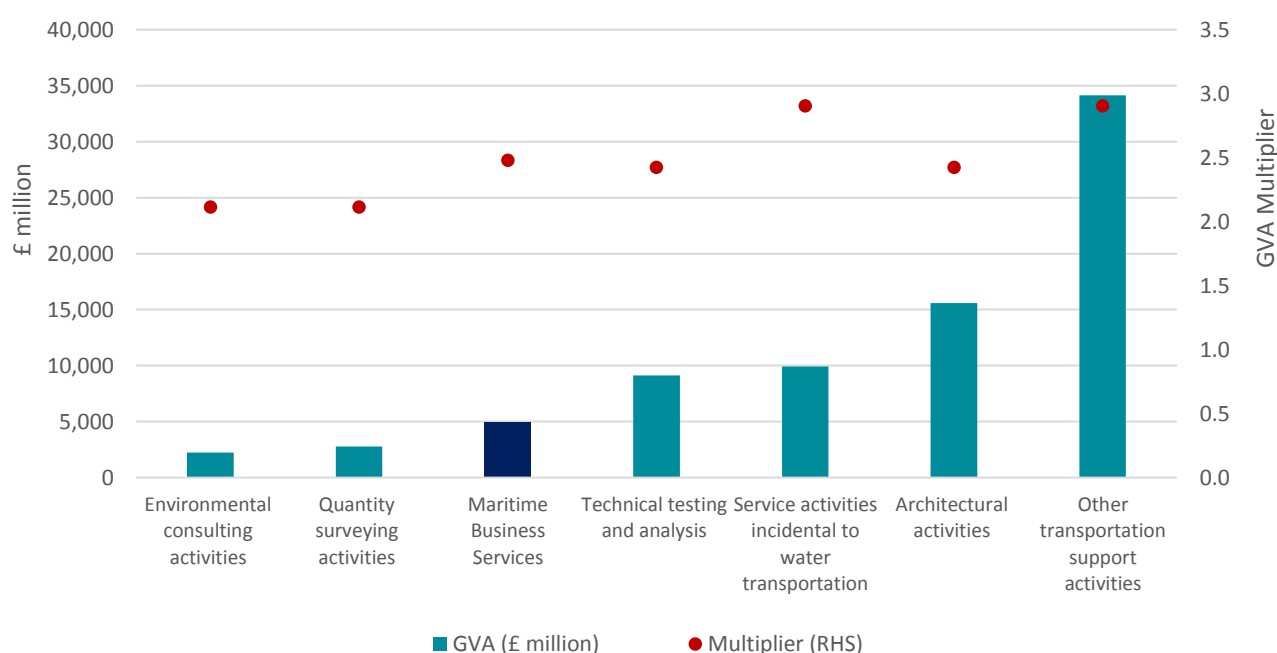
*Table 8: Direct and aggregate GVA impact of the Maritime Business Services industry, 2010 to 2015, £ million*

	Direct Impact	Composite Industry multiplier	Aggregate impact
2010	1,752	2.49	4,359
2011	1,768	2.49	4,399
2012	1,810	2.50	4,516
2013	1,943	2.50	4,850
2014	2,003	2.48	4,976
2015	2,012	2.48	4,987

*Source: PwC, ONS, Cebr analysis*

To place these results in context, Figure 14 below compares the total GVA impact of the Maritime Business Services industry in 2015 against the comparable transport activities identified in the previous section. In addition, the GVA multipliers associated with each activity are also presented.

*Figure 14: The aggregate GVA impact and GVA multiplier of the Maritime Business Services industry against comparable industries in 2015*



*Source: PwC, ONS, Cebr analysis*

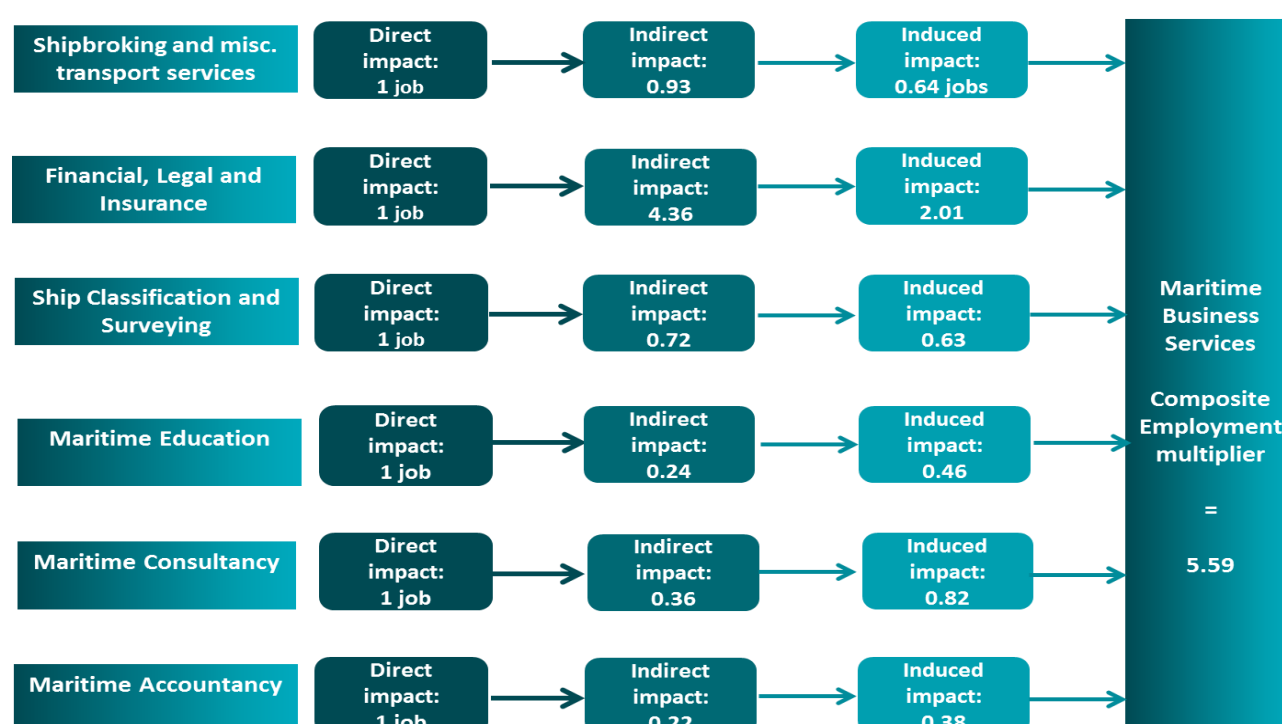
Maritime Business Services generated a total GVA impact of £5.0 billion in 2015, in comparison to £2.8 billion from Quantity Surveying activities and £9.1 billion from Technical testing and analysis activities. However, the GVA multiplier associated with the Maritime Business Services industry was higher, at 2.48 against 2.11 and 2.42 from the respective comparators.

In other words, while Architectural activities generated a total GVA impact of £15.6 billion in 2015, its GVA multiplier was 2.42. This means that for each additional £1 of GVA initially generated through this activity, a total of £2.42 in GVA was generated in the wider economy – compared to £2.48 for the Maritime Business Services industry.

### 4.3 The aggregate economic impacts through employment

Here we examine the aggregate economic impact of the Maritime Business Services industry through employment. Figure 15 below illustrates the employment multipliers for the Maritime Business Services industry within the UK, disaggregated by industry activity. The interpretation here is that, for every job supported by the Maritime Business Services industry, 3.1 jobs are stimulated in the industry's supply chains and a further 1.5 jobs supported in the wider economy when direct and indirect (supply chain) employees spend their earnings. **In other words, for every job initially supported by the Maritime Business Services industry, the UK economy as a whole experiences an increase of 5.6 jobs.** This relatively high employment multiplier is primarily driven by the high indirect employment impact associated with the Financial, Insurance and Legal activities grouping.

Figure 15: Employment multiplier impacts of the UK Maritime Business Services industry, 2015



Source: PwC, ONS, Cebr analysis

The combined number of jobs directly supported by all Maritime Business Services sub-sector in 2015 was 11,500, whilst 64,500 were supported once the indirect and induced impacts of the industry are taken into account. Table 9 below shows the estimated aggregate employment impacts from Maritime Business Services industry activities when taken in isolation.

Table 9: Aggregate employment impact of the Maritime Business Services industry, 2015, thousands of jobs

Employment in 2015	Direct Impact	Indirect Impact	Induced Impact	Aggregate impact
<b>TOTAL</b>	<b>11.5</b>	<b>35.5</b>	<b>17.5</b>	<b>64.5</b>
Shipbroking and Misc. Transport Services	2.4	2.2	1.5	6.2
Insurance, Finance and Legal Services	7.5	32.7	15.1	55.3
Ship Surveying and Classification	0.3	0.2	0.2	0.8
Maritime Education	0.6	0.1	0.3	1.0
Marine Consultancy	0.3	0.1	0.2	0.6
Marine Accountancy	0.4	0.1	0.2	0.6

Source: PwC, ONS, Cebr analysis

Table 10 below presents the direct contribution to employment alongside our estimate of the composite employment multiplier that applies to the entire industry, an estimated 5.59 in 2015. The aggregate employment impact from the Maritime Business Services industry is estimated to have increased 63,500 jobs to 64,500 jobs in 2015.

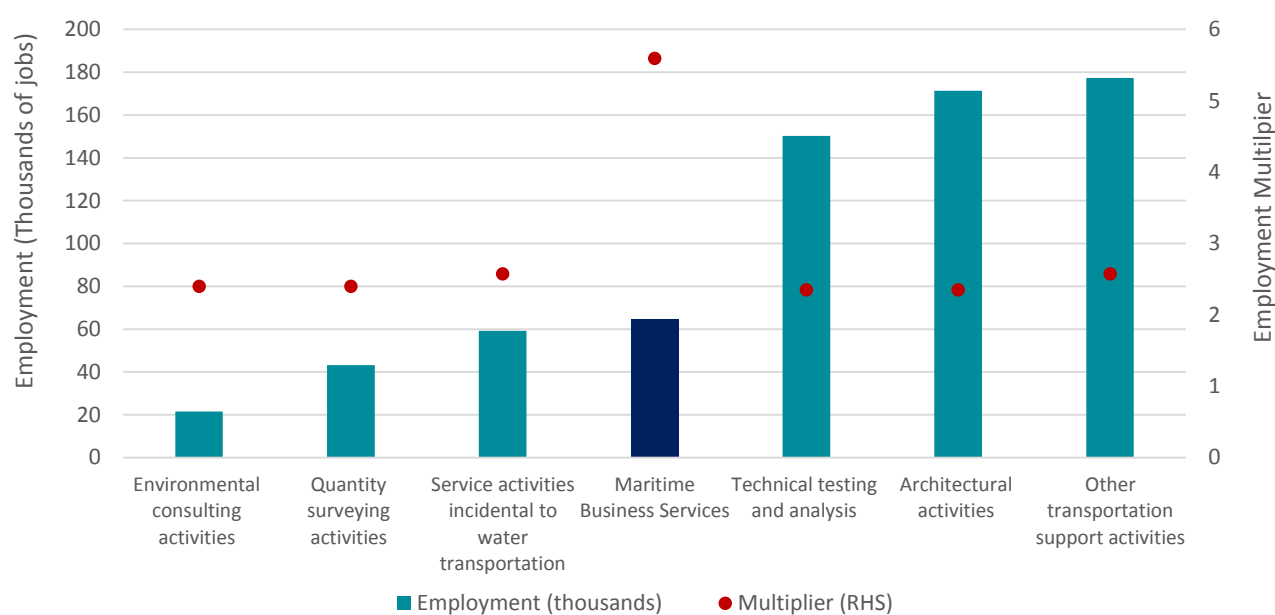
Table 10: Direct and aggregate employment impact of the Maritime Business Services industry, 2010 to 2015, thousands of jobs

	Direct Impact	Composite Industry multiplier	Aggregate employment impacts
2010	10.6	5.98	63.4
2011	10.9	5.89	64.0
2012	10.9	5.73	62.5
2013	11.0	5.78	63.4
2014	11.5	5.58	64.5
2015	11.5	5.59	64.5

Source: PwC, ONS, Cebr analysis

To place these results in context, Figure 16 below compares the total employment impact of the Maritime Business Services industry in 2015 against the comparable transport activities identified in the previous section. In addition, the employment multipliers associated with each activity are also presented.

Figure 16: The aggregate employment impact and employment multiplier of the Maritime Business Services industry against comparable industries in 2015



Source: PwC, ONS, Cebr analysis

Maritime Business Services generated a total employment impact of 65,000 jobs in 2015, higher than service activities incidental to water transportation (59,000 jobs), Quantity surveying activities (43,000 jobs) and Environmental consulting activities (22,000 jobs). At 5.59, the employment multiplier associated with the Maritime Business Services industry is significantly higher than the respective comparators.

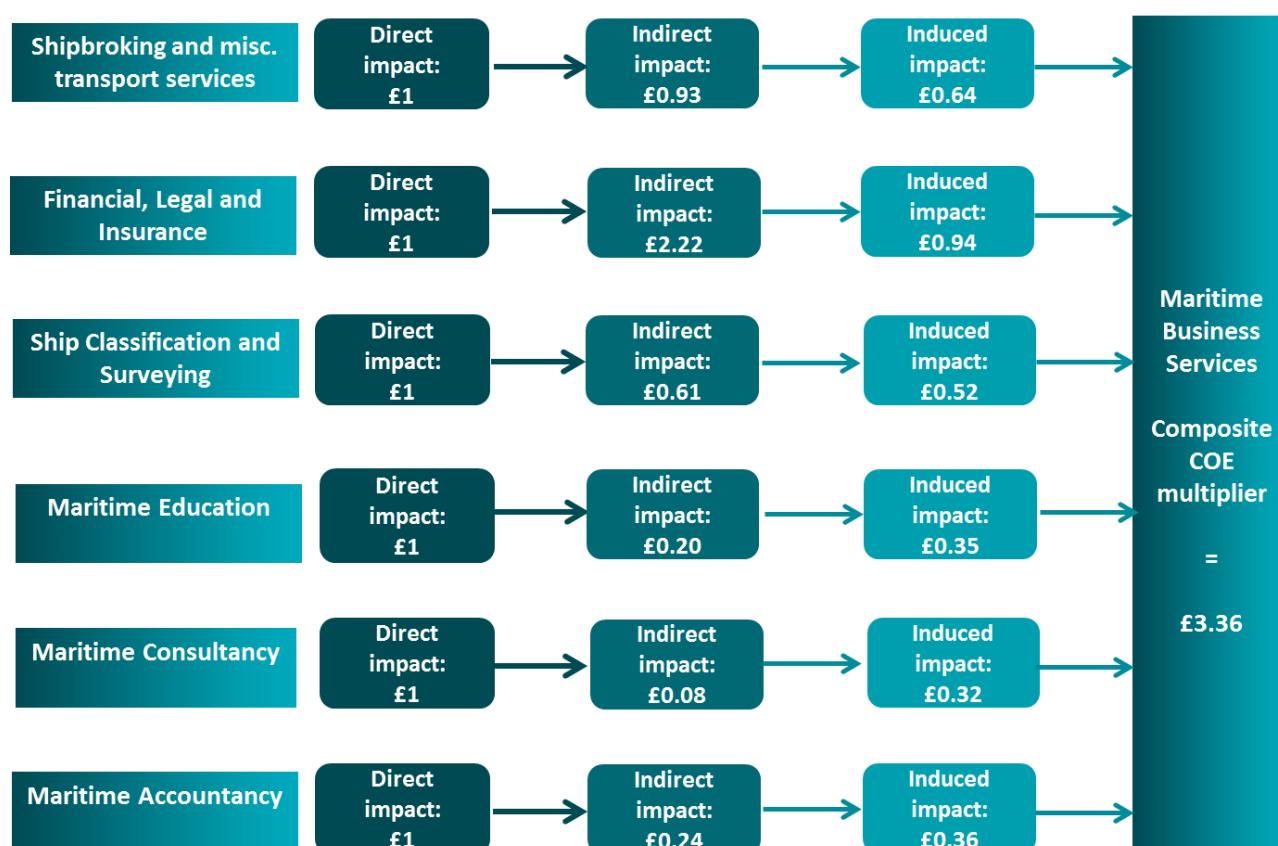
In other words, while Architectural activities generated a total employment impact of 171,000 jobs in 2015, its employment multiplier was 2.35. This means that for each additional job initially supported through this activity, a total 2.35 jobs were supported in the wider economy – compared to 5.59 jobs for Maritime Business Services industry.

#### 4.4 The aggregate economic impacts through the compensation of employees

In this final subsection we consider the aggregate economic impact of the Maritime Business Services industry through the compensation of employees. Figure 17 below illustrates the direct, indirect and induced compensation of employee impacts associated with the industry, disaggregated by industry activity.

Here the interpretation is that, for every £1 of employee compensation directly supported by the Maritime Business Services industry, '£X' of wages and salaries and other employee remuneration is supported in total throughout the economy through supply chain (indirect) and employee spending (induced) channels. For example, for each £1 of employee compensation in Maritime Accountancy in 2015, £0.24 is supported through the supply chain and an additional £0.36 is supported through employee expenditures – yielding an aggregate impact of £1.60. **For the Maritime Business Services industry as a whole, for every £1 initially contributed through the compensation of employees in 2015, a total of £3.36 in employee compensation was supported in the UK economy.**

Figure 17: Aggregate contribution of Maritime Business Services to the compensation of employees



Source: PwC, ONS, Cebr analysis

Table 11 overleaf shows the estimated aggregate impacts through the compensation of employees from Maritime Business Services industry activities, when taken in isolation. A total of £2.4 billion through the compensation of employees was supported by the Maritime Business Services industry in 2015, with this total once again dominated by Insurance, Finance and Legal Services.



Table 11: Impact through the compensation of employees of the Maritime Business Services industry in 2015, £ million

Compensation of Employees in 2015	Direct Impact	Indirect Impact	Induced Impact	Aggregate impact
<b>TOTAL</b>	<b>713</b>	<b>1,130</b>	<b>552</b>	<b>2,394</b>
Shipbroking and Misc. Transport Services	178	165	114	457
Insurance, Finance and Legal Services	424	940	398	1,761
Ship Surveying and Classification	8	5	4	17
Maritime Education	61	12	21	95
Marine Consultancy	15	1	5	21
Marine Accountancy	27	6	10	43

Source: PwC, ONS, Cebr analysis

Table 12 below presents the direct contribution to GVA alongside our estimate of the composite compensation of employees (COE) multiplier that applies to the entire industry, an estimated 3.5 in 2015. The composite multiplier has fallen since 2010, in line with falling compensation of employees-to-GVA ratios observed across the wider UK Financial, Insurance and Legal industries in recent years. As a consequence, the aggregate impact has fallen from £3.2 billion in 2010 to £2.4 billion in 2015.

Table 12: Direct and aggregate compensation of employees (COE) impact of the Maritime Business Services industry, 2010 to 2015, £ million

	Direct Impact	Composite Industry multiplier	Aggregate COE impacts
2010	808	3.97	3,207
2011	741	3.81	2,823
2012	713	3.60	2,563
2013	735	3.48	2,555
2014	706	3.38	2,386
2015	713	3.36	2,394

Source: PwC, ONS, Cebr analysis

The next and final section covers the direct and aggregate economic impacts of the Maritime Business Services industry at regional level.

## 5 The regional economic impact of the Maritime Business Services industry

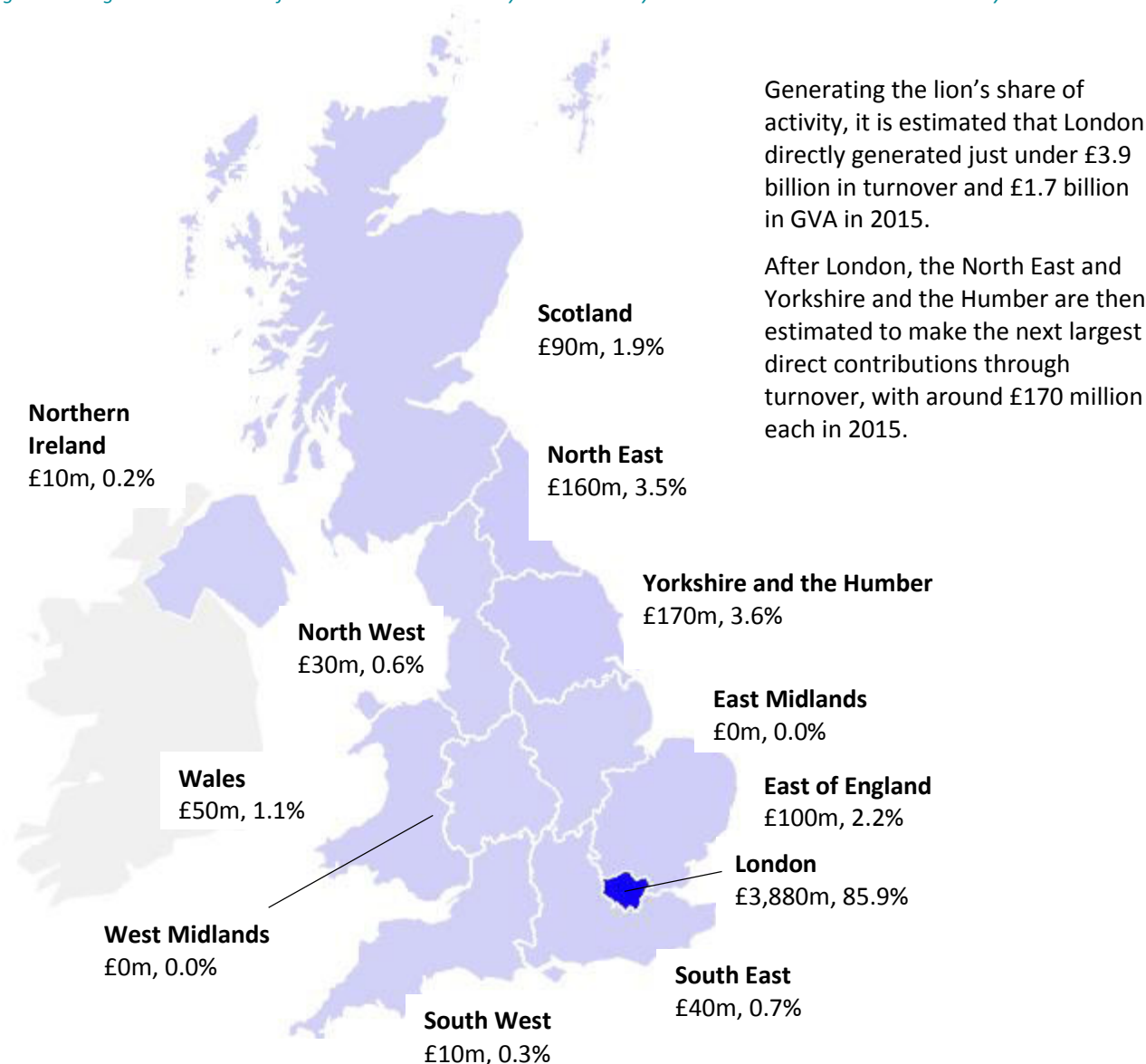
In this final section we examine the economic contribution of the Maritime Business Services industry across the different UK regions. It has been assumed that 80% of the economic activity of the industry is concentrated in London, while also accounting for productivity differentials between the different regions). The remaining activity has been allocated based on the activity of the Ports industry in each region.

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

#### Business turnover and GVA

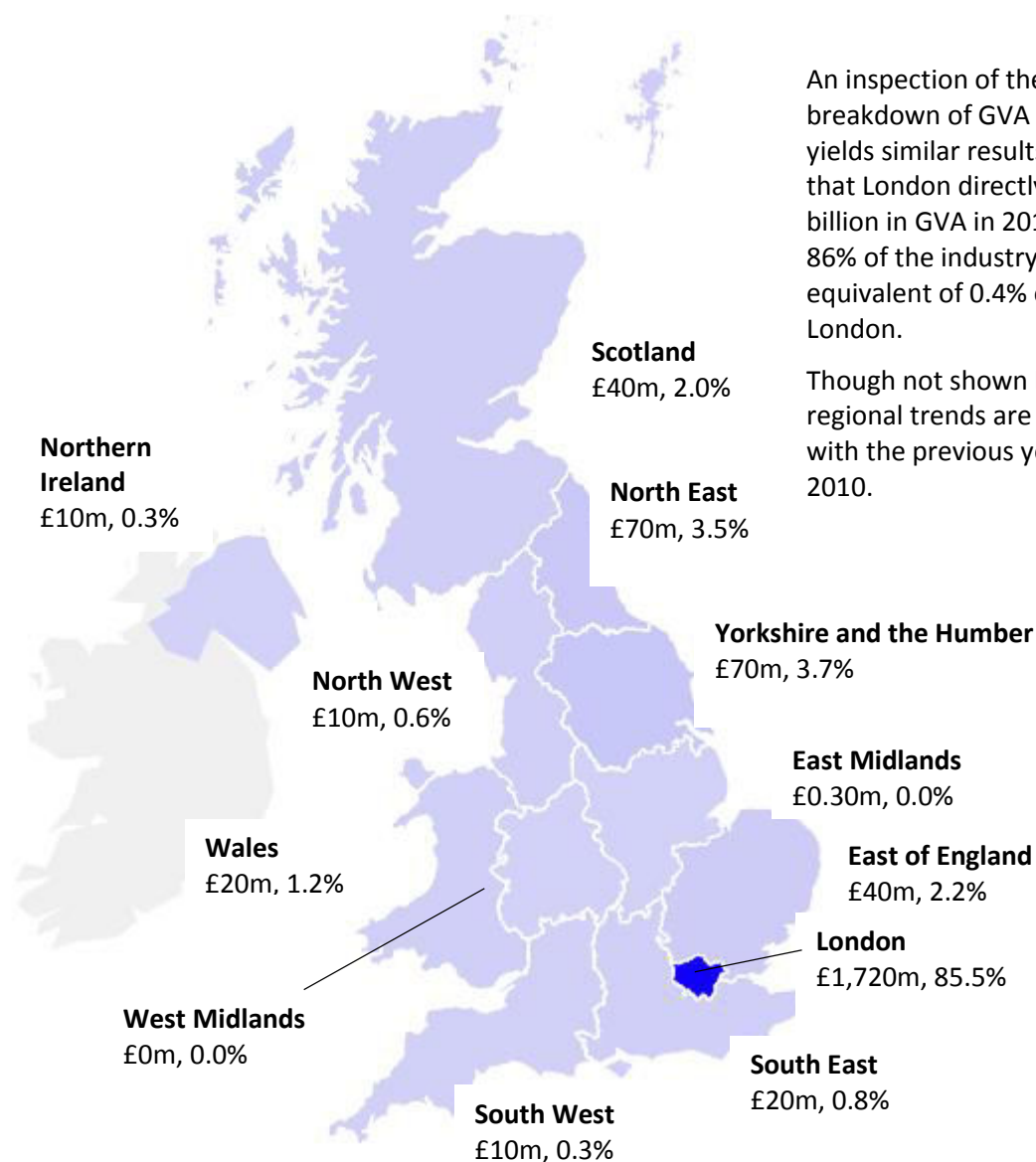
Figures 18 and 19 below show the estimated regional breakdown of business turnover and GVA directly supported by the Maritime Business Services industry in 2015.

Figure 18: Regional breakdown of Business Turnover directly contributed by the Maritime Business Services industry in 2015



Note: Figures subject to rounding to nearest £10 million. Source: PwC, ONS, Cebr analysis

Figure 19: Regional breakdown of GVA directly contributed by the Maritime Business Services industry in 2015



An inspection of the regional breakdown of GVA unsurprisingly yields similar results. It is estimated that London directly generated £1.7 billion in GVA in 2015, or around 86% of the industry total. This is the equivalent of 0.4% of total GVA in London.

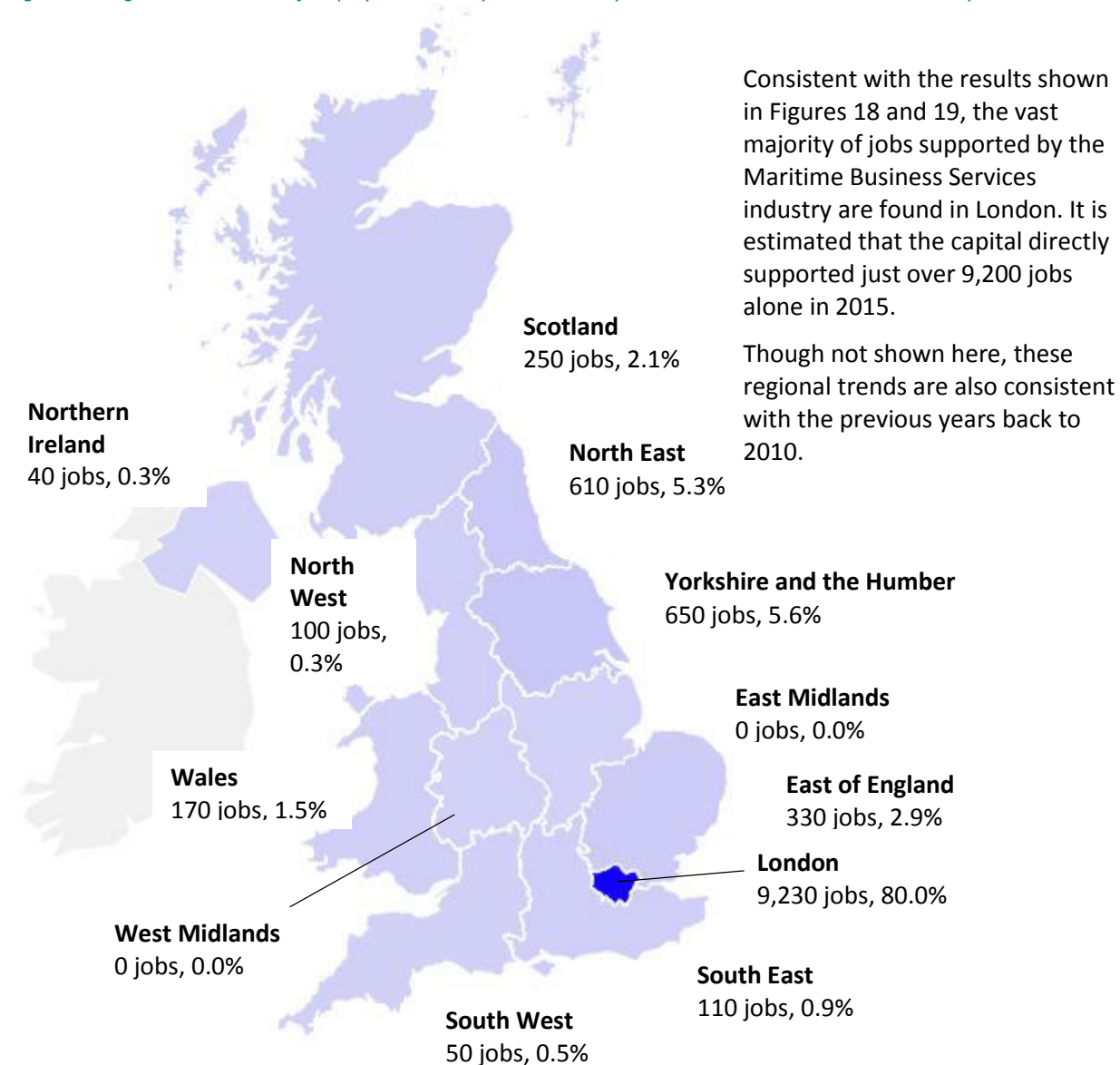
Though not shown here, these regional trends are also consistent with the previous years back to 2010.

Note: Figures subject to rounding to nearest £10 million. Source: PwC, ONS, Cebr analysis

## Employment and the Compensation of Employees

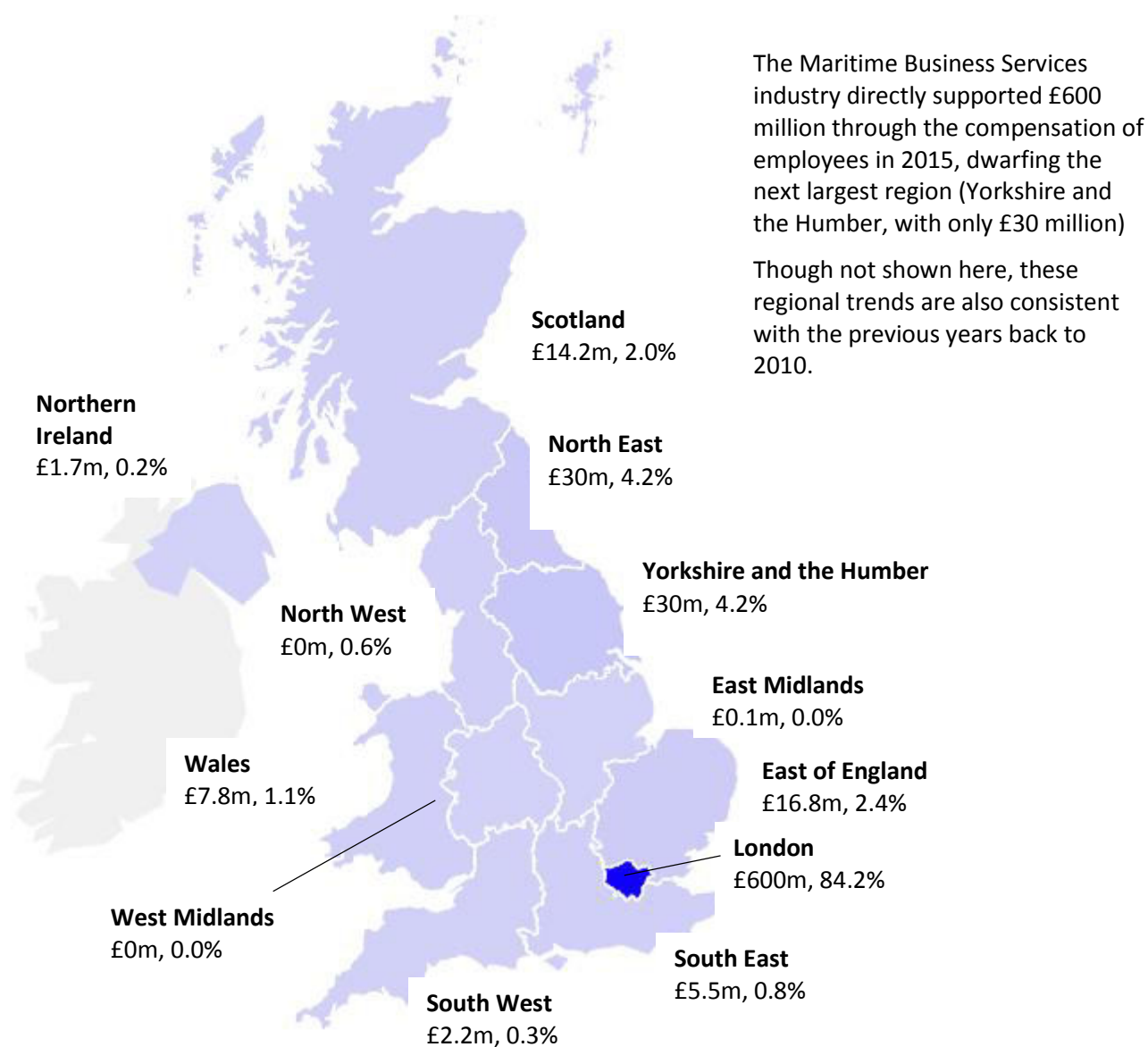
Figures 20 and 21 show the estimated regional breakdown of employment and the compensation of employees directly supported by the Maritime Business Services industry in 2015. Once again, the lion's share of the direct contribution is concentrated in London, with an estimated 9,200 in jobs and £600 million through the compensation of employees.

*Figure 20: Regional breakdown of employment directly contributed by the Maritime Business Services industry in 2015*



*Note: Figures subject to rounding to nearest 10 jobs. Source: PwC, ONS, Cebr analysis*

Figure 21: Regional breakdown of the direct contribution through the Compensation of Employees by the Maritime Business Services industry in 2015



Note: Figures subject to rounding. Source: PwC, ONS, Cebr analysis

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

This final subsection examines the aggregate economic impact of the Maritime Business Services 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 suite of regional economic impact models, within which the activities of the Maritime Business Services industry were separately identified and isolated. It should be noted that the economic impact multipliers as estimated for each region are necessarily lower than the equivalent multiplier for the Maritime Business Services industry as a whole, reflecting the leakage of impacts when the activity of the industry in a particular region imports inputs from elsewhere in the UK outside that region.

### The aggregate economic impacts for business turnover and GVA by region

Table 13 below shows the breakdown of direct and aggregate economic impacts for business turnover and GVA in 2015, alongside the composite industry multiplier for each region. It is estimated that from a total of £3.8 billion in turnover and £1.7 billion in GVA directly contributed by the Maritime Business Services industry in 2015, a total of £7.3 billion and £3.2 billion respectively was sustained in the UK economy. The highest multiplier impacts are actually found in the South East in 2015, rather than London.

*Table 13: Regional breakdown of the direct and aggregate impacts through turnover and GVA by the Maritime Business Services industry in 2015*

Region	Turnover (£ million)			GVA (£ million)		
	Direct Impact	Industry Multiplier	Aggregate impact	Direct Impact	Industry Multiplier	Aggregate impact
Scotland	89	2.30	205	40	2.29	93
Wales	50	2.27	113	24	2.25	53
Northern Ireland	11	2.42	26	5	2.40	12
East of England	102	2.72	278	44	2.69	118
East Midlands	1	2.33	2	0	2.31	1
<b>London</b>	<b>3,995</b>	<b>1.91</b>	<b>7,626</b>	<b>1,721</b>	<b>1.92</b>	<b>3,301</b>
North East	161	2.36	380	70	2.34	163
North West	27	2.40	65	12	2.38	29
South East	35	2.60	90	16	2.58	40
South West	14	2.34	33	6	2.32	15
West Midlands	0	-	0	0	-	0
Yorkshire and the Humber	169	2.29	388	74	2.27	168

Source: PwC, ONS, Cebr analysis

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

Finally, Table 14 below shows the breakdown of direct and aggregate economic impacts for employment and the compensation of employees in 2015, alongside the composite industry multiplier for each region. The industry in London is estimated to have supported around 35,500 jobs and £1,900 million in employee compensation across the UK economy in 2015.

*Table 14: Regional breakdown of the direct and aggregate impacts through employment and the compensation of employees by the Maritime Business Services industry in 2015*

Region	Employment (Thousands)			Compensation of Employees (£ million)		
	Direct Impact	Industry Multiplier	Aggregate impact	Direct Impact	Industry Multiplier	Aggregate impact
Scotland	0.2	5.06	1.2	14.2	3.64	51.5
Wales	0.2	4.98	0.9	7.8	3.71	29.0
Northern Ireland	0.0	5.46	0.2	1.7	3.84	6.6
East of England	0.3	6.44	2.1	16.8	4.49	75.5
East Midlands	0.0	5.19	0.0	0.1	3.72	0.4
<b>London</b>	<b>9.2</b>	<b>3.84</b>	<b>35.4</b>	<b>600.2</b>	<b>3.10</b>	<b>1,858.3</b>
North East	0.6	5.25	3.2	29.9	3.89	116.6
North West	0.1	5.39	0.6	4.4	3.98	17.7
South East	0.1	6.00	0.6	5.5	4.20	23.2
South West	0.1	5.18	0.3	2.2	3.79	8.5
West Midlands	0.0	-	0.0	0.0	-	0.0
Yorkshire and the Humber	0.6	5.03	3.3	30.1	3.85	116.1

Source: PwC, ONS, Cebr analysis