



The economic contribution of the UK Maritime Business Services industry

A 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 however 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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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 (MBS) 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 Maritime Business Services industry consists of various highly-productive and specialised activities, including Financial, Legal, Insurance, Shipbroking, Education, Ship Surveying, Accountancy and Consultancy activities.**
- 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 £6.6 billion in business turnover, £2.8 billion in GVA and 23,500 jobs in 2017.** This respectively equates to 14.0% of turnover, 16.3% of GVA and 10.7% of employment directly supported by the wider UK Maritime sector in 2017.
- **Maritime Insurance is the largest constituent activity within the industry in terms of economic activity, directly contributing £1.4 billion in GVA and directly supporting around 8,600 jobs in 2017.** Combined, Maritime Insurance services, Shipbroking and Legal activities dominate the industry, with 83% of GVA and 76% 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 £117,600 in GVA in 2017; this compares favourably to the Maritime Sector of £77,400. The average profitability (gross profit as a share business turnover) of the Maritime Business Services industry was just over 18% in 2017, close to the Maritime Sector average of 20%.
- 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 £1 billion in tax revenues in 2017, 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 £7.2 billion of GVA in 2017.** This implies that, for every £1 in GVA directly contributed by the industry, a total of £2.61 in GVA is supported 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 £14.8 billion in turnover, 80,600 jobs and £3.3 billion through the compensation of employees in 2017.**
- **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 2017, it is estimated that the industry in London directly contributed £2.3 billion of GVA (84% of the industry) and 18,300 jobs (77% of the industry), indicating a greater productivity than the UK average for the MBS industry. After indirect and induced effects are considered, the aggregate contribution from London rises to £5.1 billion of GVA and 55,900 jobs.

1 Introduction

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

The MBS 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.¹ 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.

A key aspect of the Maritime Sector's Maritime 2050 strategy is to maintain this position as a global leader in MBS. This will be done through investment into areas like maritime education. The industry is also a major net exporter to international markets, thereby making a significant contribution to UK trade.

This report forms one of ten reports on the economic contribution of the Maritime Sector, which is defined as comprising the 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 industries at UK level, the economic contribution of the sector in Scotland, the Solent LEP, Wales, Scotland and the contribution of the Maritime sector at UK-level. It is therefore important to consider this report as part of the wider framework.

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 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 industry body for the UK's maritime sector, bringing together the shipping, ports, leisure marine, marine engineering and scientific and Maritime Business Services industries.

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, the Exchequer contribution (through tax revenues raised) and exports of goods and services.

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.

¹ Maritime UK. (2019). ['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:

- GVA² 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 compensation³ 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 services;
- Maritime Insurance services;
- Maritime Financial services;
- Maritime Legal services;
- Ship Surveying and Classification activities;

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 $(GVA + \text{Tax on products} - \text{Subsidies on products} = \text{GDP})$. 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.

- Maritime Education (including Maritime university courses and cadetships);
- Maritime Consultancy; and
- Maritime Accountancy.

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. 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, 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 limits 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 drawn upon desk research, meetings and insight from industry representatives, existing analysis by PwC, Maritime London and The City of London Corporation 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

To analyse the Maritime Business Services Sector (MBS), Cebr has drawn from several data sources for each of the different sub-industries. As such, this section will outline the unique methodology of each sub-industry in turn.

MBS 1 – Shipbroking

We have primarily drawn from The City of London Corporation and Maritime London, 'The UK's Global Maritime Professional Services: Contribution and Trends'⁴ (produced by PwC), to quantify the economic contribution of Shipbroking to the MBS industry. This study provides an estimate for GVA in 2014 and rather than scaling the data for the whole period (2010 to 2017) using the closest available SIC code, we used a bottom-up analysis of the industry to reveal its trends.

The bottom up analysis provides a sub-set of the Shipbroking industry, hence why we rely on PwC's estimate of the sub-industry to complete the picture. Turnover, Employment, Wages and Salaries and Export estimates have been found using ratios from the closest available SIC code in the ONS' Annual Business Survey (ABS), Supply-Use Tables (SUT) and Bureau Van Dijk's 'Financial Accounts Made Easy' (FAME) database.

MBS 2 – Maritime Insurance

The analysis of Marine Insurance has been principally driven by insight from representatives of the industry from the International Underwriting Association (IUA). The statistical report by the IUA mapped out the Maritime Insurance market from 2010 to 2017 (inclusive).⁵ We also obtained insight into market shares of major firms in the industry from representatives at the IUA. From this we were able to scale the report's

⁴ PwC (2016). 'The UK's Global Maritime Professional Services: Contribution and Trends.'

⁵ IUA. (2018). 'London Company Market Statistics Report'.

findings appropriately to account for the entire industry. Given the lack of financial data in the ONS' ABS, we augmented these findings with the PwC study and results from FAME to derive each key macroeconomic indicator.

MBS 3 – Maritime Financial Services

For Maritime Financial services, we relied predominately on the findings from The City of London Corporation and Maritime London's 2016 study, scaling the results over the period by growth trends found from the broader financial sector and SUTs data. This was again supplemented by FAME data.

MBS 4 – Maritime Legal Services

This sub-industry's analysis was driven heavily by insight from representatives from the London Maritime Arbitrations Association (LMAA), and the legal sector report from TheCityUK: 'Legal Excellence, Internationally Renowned UK Legal Services 2018'.⁶ This report is for the whole legal industry in the UK and was scaled-down to Maritime Legal Services using the ONS Business Register and Employment Survey (BRES) and shares of Maritime Solicitors from major law firms. Similar to the other sub-industries, these GVA figures were used alongside ratios found in ONS datasets to acquire the other macroeconomic indicators.

MBS 5 – Ship Surveyor and Classification Activities

For Ship Surveyor and Classification activities, Cebr contacted those classification society members of the International Association of Classification Societies (IACS)⁷ with a registered UK office, in order to ascertain employment in the years 2010 to 2017 inclusive. The direct economic contribution from these activities have then been estimated using these employment statistics as a basis, complemented by results found in FAME and ABS.

MBS 6 – Maritime Education

For Maritime Education, a bottom-up approach was implemented, utilising FAME and financial accounts of institutions. The list of education institutions was found from Maritime London's member list and through discussions with representatives from the MBS industry. This was augmented with ONS datasets and the aforementioned 2016 study.

MBS 7 – Maritime Consultancy

The analysis for Maritime Consultancy was entirely a bottom-up analysis through financial accounts, annual reports and company data. Similar to the other Maritime Sector sub-industries, we use FAME, ABS, BRES and other publically available data to derive ratios from the closest relevant SIC code to generate the complete list of macroeconomic indicators.

MBS 8 – Maritime Accountancy

For Maritime Accountancy, data was used from the The City of London Corporation and Maritime London's prior study. Similar to Maritime Financial services, this was scaled over the 2010 to 2017 period, based on growth rates found in the ONS SUTs. This analysis was also complemented with additional findings from FAME to produce the set of macroeconomic indicators.

⁶ TheCityUK. (2018). 'Legal Excellence, Internationally Renowned UK Legal Services 2018'.

⁷ 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.

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 eight 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, 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 and jobs supported in industries that supply inputs to the UK Maritime Business Services industry.
- **Induced impact:** this is the value 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).⁸

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 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, leisure marine, marine engineering and scientific 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 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 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.

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. This has involved combining existing PwC analysis with that of publicly-available data sources, industry representative insight and bottom-up analysis.

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 is utilised in some 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	Data Source(s)	Estimation Approach
Turnover	PwC, ONS Annual Business Survey, Business Register and Employment Survey	Turnover for all industry activities has been individually estimated using GVA-to-Business turnover ratios for the nearest industry within the Annual Business Survey. For example, for Maritime Accountancy, the GVA-to-turnover ratio for the Accountancy sector has been applied.
Compensation of Employees	PwC, ONS Annual Business Survey, Supply Use Tables	Compensation of employees 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, estimates have also been derived using compensation of employee to GVA ratios as sourced from the ONS Supply Use tables.
Wages and Salaries	PwC, Annual Survey of Hours and Earnings (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 SIC code) or job (by Standard Occupational Classification (SOC) code)

Profitability	PwC, ONS Supply Use Tables	The (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

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.

When conducting our bottom-up analysis of the MBS Sector, we found that between 75% and 85% of MBS activities were located in the London region. Therefore, we have distributed regional activity for each indicator based on these findings, for example, London was found to account for 84% of MBS GVA and thus the remaining 26% was allocated based on the economic activity of the ports industry in each region.⁹ 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.¹⁰ For example, the average employee in London in 2017 was 42% more productive than the average UK employee, while the average employee in the North East was 13% 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 Annual Survey of Hours and Earnings (ASHE).
- 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 Section 5 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.

⁹ The allocation of MBS activity based on port activity comes from the assumption that maritime related services primarily operate within or close to ports. Data on this type of activity is not generally available to produce a rigorous disaggregation and thus we rely on this assumption which may over and understate certain regions, but should reflect major maritime hubs.

¹⁰ ONS. (2019). [‘Subregional productivity: labour productivity indices by UK NUTS2 and NUTS3 subregions’](#).

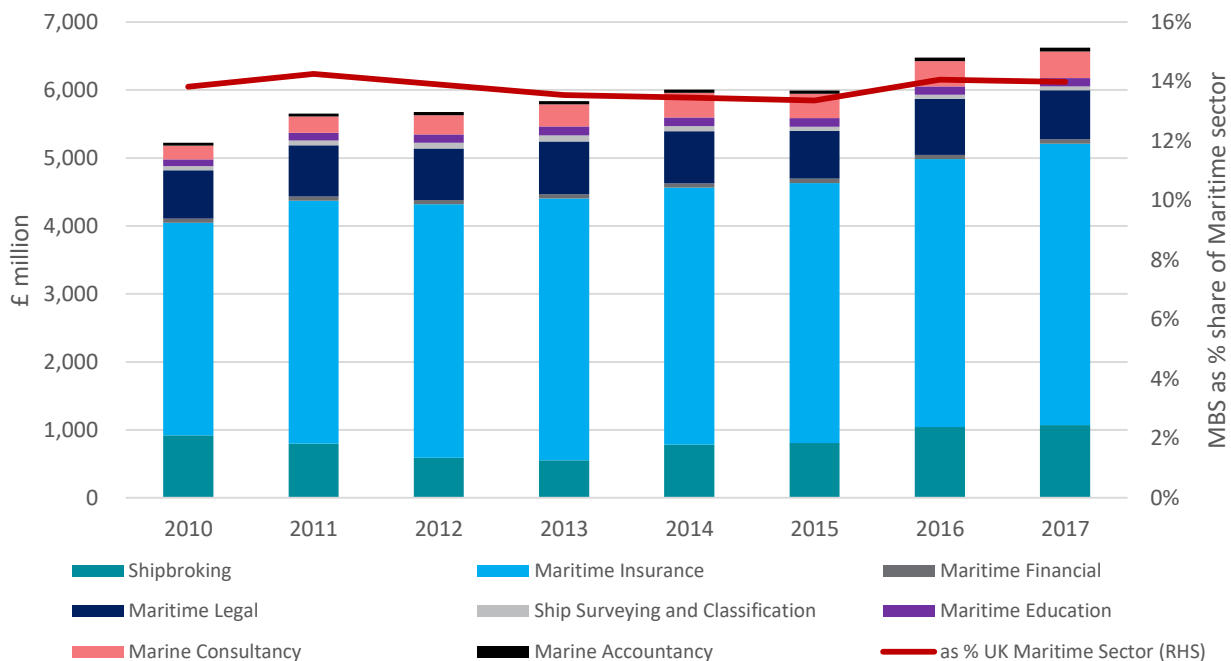
3 The direct economic impact of the Maritime Business Services industry

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 2017. Overall, the industry contributed an estimated £6.6 billion in business turnover in 2017, an increase of 2.2% from the 2016 level and significantly above the period average of £5.9 billion. This growth can be mainly attributed to Maritime Insurance Services and Shipbroking.

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, IUA, FAME, Cebr analysis

Maritime Insurance, Shipbroking and Maritime Legal services dominate the business turnover generated by the industry, accounting for 90% of turnover in 2017. From within this grouping, Maritime Insurance contributes the largest proportion of business turnover generated, with approximately £4.1 billion in 2017.

An interesting point to mention is that the insurance market has shown significant growth over the period (up £1 billion in 2017 compared to 2010). The general view of the industry is that growth in maritime insurance is soft, in correlation with a slow growth within the wider shipping industry. It is however clear that the insurance market dominates the MBS industry and in 2017 had a turnover of approximately £3.1 billion more than the next largest sub-industry, Shipbroking.

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 shows trends in profitability across each activity. The overall profitability of the industry now lies close to the Maritime Sector average and the sub-industries Marine Education and Ship Surveying and Classification exceeding the Maritime sector average significantly.

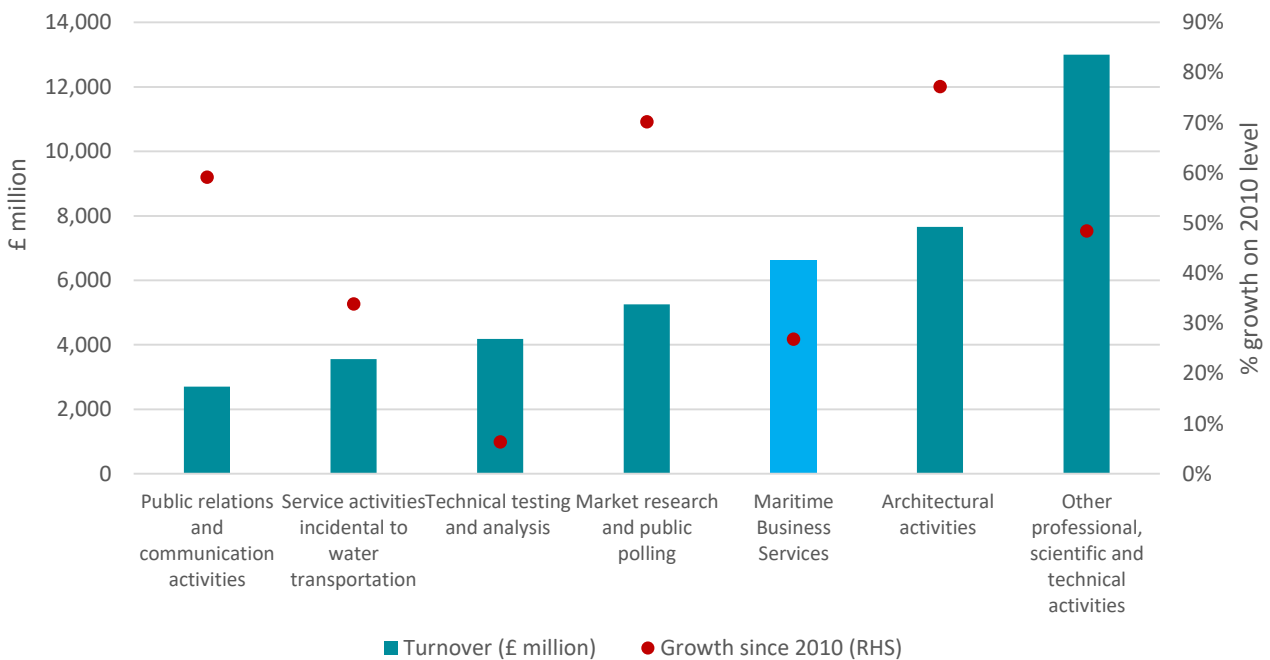
Table 3: Estimated average profitability (gross profit ratio) of the Maritime Business Industry and constituent activities

Profitability	2010	2011	2012	2013	2014	2015	2016	2017
UK Maritime sector	17.3%	17.0%	18.7%	19.7%	21.6%	20.0%	20.5%	20.2%
UK Maritime Business Services industry	12.8%	13.4%	16.3%	17.7%	21.1%	15.9%	18.8%	18.2%
Shipbroking	15.2%	14.2%	14.8%	16.6%	15.8%	17.1%	17.2%	17.7%
Insurance	12.4%	14.1%	18.0%	19.5%	24.7%	16.2%	19.8%	19.8%
Financial	16.5%	18.4%	16.6%	14.7%	13.0%	14.1%	14.5%	14.3%
Legal	10.4%	9.5%	10.9%	11.8%	13.0%	12.5%	11.6%	12.0%
Ship Surveying and Classification	38.4%	35.8%	39.8%	27.9%	31.0%	32.3%	31.2%	28.0%
Marine Education	23.0%	22.9%	25.0%	28.0%	37.0%	38.1%	33.3%	28.9%
Marine Consultancy	5.0%	4.9%	6.1%	7.4%	7.9%	7.5%	8.7%	9.4%
Marine Accountancy	10.5%	9.8%	11.9%	11.8%	13.7%	13.4%	14.5%	15.2%

Source: PwC, ONS, IUA, FAME, Cebr analysis

To place this direct contribution in context, Figure 2 below compares turnover in the MBS Sector against that of comparable industry activities; 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 2017, £ million, and growth against the 2010 level



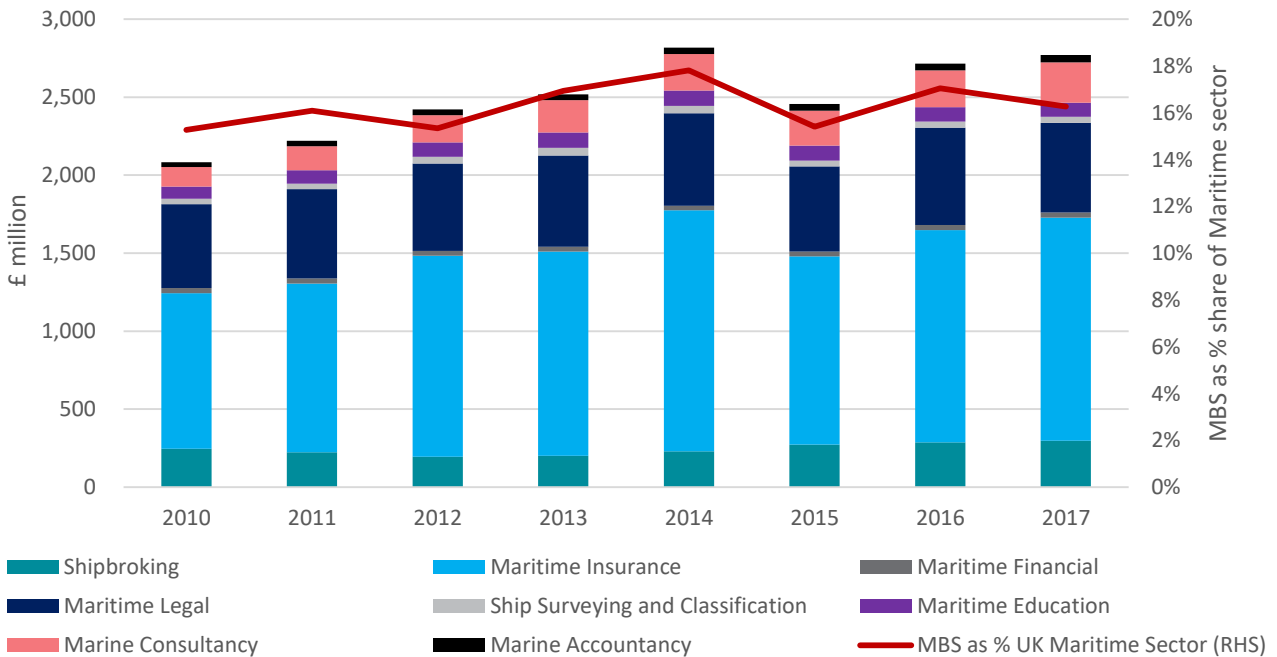
Source: PwC, ONS, IUA, FAME, Cebr analysis

The Maritime Business Services industry, with £6.6 billion of turnover directly generated in 2017, ranks ahead of market research and public polling (£5.3 billion), technical testing and analysis activities (£4.2 billion), service activities to water transport (£3.6 billion) and public relations and communication (£2.7 billion), but behind architectural activities (£7.6 billion) and other professional, scientific and technical activities (£13.0 billion). As shown in Figure 2 above, business turnover generated by the Maritime Business Services industry was 27% greater in 2017 than in 2010. Turnover growth for the comparable industries and activities listed above was sporadic; while business turnover from architectural activities grew by 77% between 2010 and 2017, turnover from technical testing and analysis was only 6% greater over the same period.

3.2 The direct economic impact through GVA

Figure 3 below shows this direct impact, disaggregated by industry activities in the years 2010 to 2017 inclusive. It is estimated that the Maritime Business Services industry directly contributed a total of £2.8 billion in GVA in 2017, rising from £2.1 billion in 2010. It is an industry dominated by its Insurance, Legal services and Shipbroking; these activities accounted for an average of 84% of the direct GVA contribution. Of the remaining share, the largest contributor was from Marine Consultancy, which contributed £258 million of GVA in 2017. Maritime Insurance contributed the lion’s share of GVA in each year, with £1.4 billion of GVA in 2017. Overall, the Maritime Business Services industry is estimated to have contributed 16.3% of the UK Maritime Sector’s direct contribution through GVA in 2017.

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



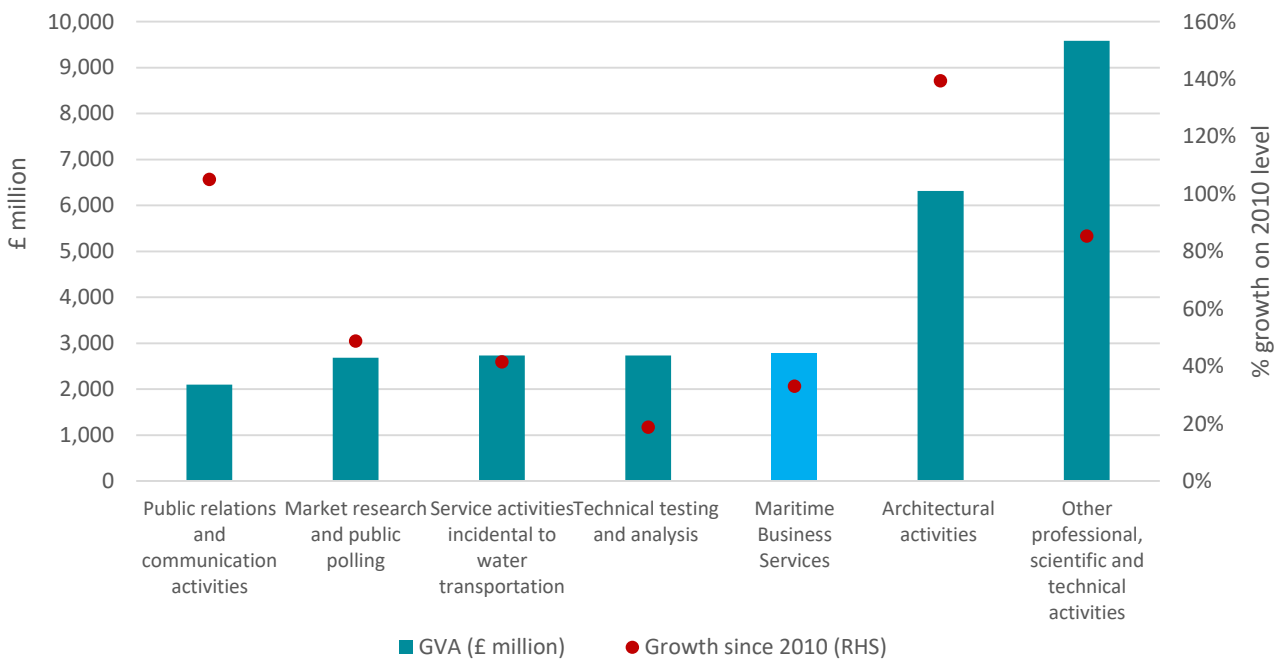
Source: PwC, ONS, IUA, FAME, Cebr analysis

Maritime Education, although small compared to the rest of the MBS industry, is becoming an increasingly important area for the wider Maritime Sector. Although not distinct in Figure 3 above, Maritime Education’s direct GVA contribution has increased by 20% over the period 2010 to 2017. This is in line with the Maritime 2050 strategy where a key area of development is in people. Skills are vitally important in the

Maritime Sector and with the emergence of international competitors, such as Singapore, it is important the UK retain its skill advantage.¹¹

Following Figure 3, 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 2017, the industry is larger than public relations and communication activities, with £2.8 billion against £2.0 billion. The industry’s GVA was 33% higher in 2017 than in 2010.

Figure 4: The estimated GVA of the Maritime Business Services industry against comparable industries in 2017, and growth against the 2010 level



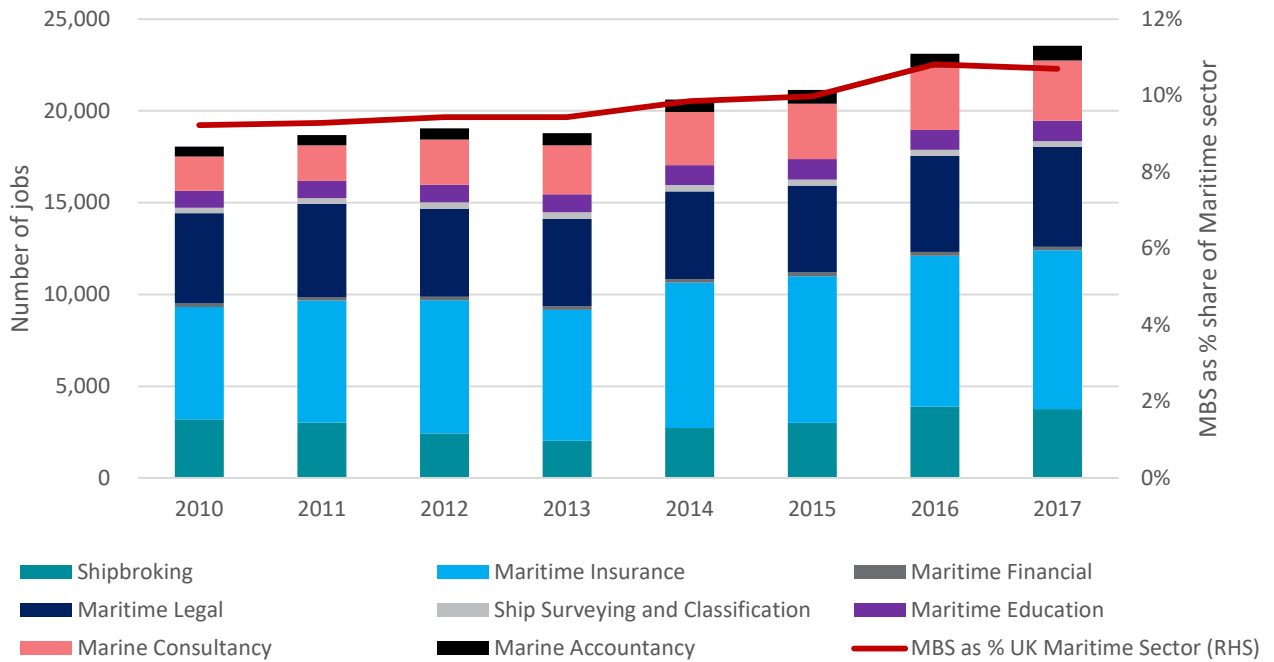
Source: PwC, ONS, IUA, FAME, Cebr analysis

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

¹¹ Department for Transport. (2019). ‘Maritime 2050’.



Source: PwC, ONS, IUA, FAME, Cebr analysis

It is estimated that the Maritime Business Services industry directly supported around 23,500 jobs in 2017, an increase from 18,100 jobs in 2010. The industry’s share of total employment directly supported by the Maritime sector increased over this period, rising from 9% to 11% of Maritime sector employment. As with GVA, in each year Maritime Insurance, Legal services and Shipbroking directly contributed the majority of employment within the industry – 76% of employment in 2017. After this, Marine Consultancy directly supported around 3,300 jobs in 2017.

Given the emphasis placed on skill development and retaining the comparative advantage the UK has in the MBS industry, employment may continue to grow across the eight sub-industries while the UK strives to meet its goals of the Maritime 2050 strategy.¹²

Based on trends presented in Figure 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 2017, 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 almost twice as productive in every year considered – largely driven by the Insurance services, Financial services and Ship Surveying industries. This is typically the case with service based industries and is hence not surprising to see the MBS industry significantly above the Maritime Sector and UK average.

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

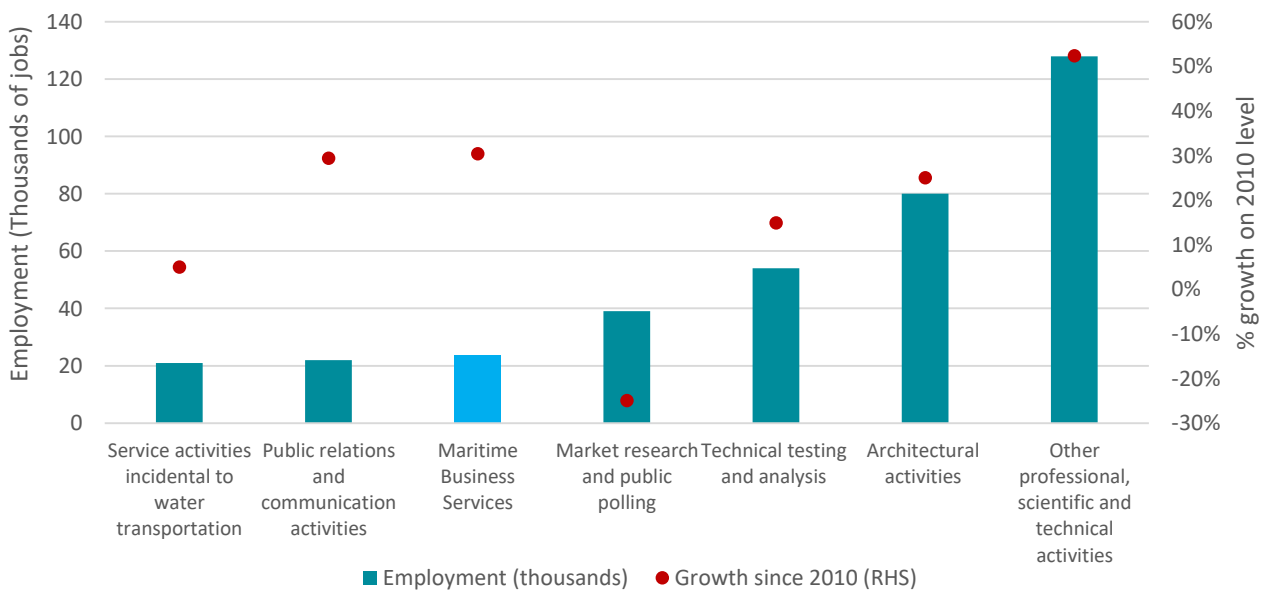
¹² Department for Transport. (2019). ‘Maritime 2050’.

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	£69,760	£68,554	£78,170	£74,721	£75,599	£75,209	£74,609	£77,358
UK Maritime Business Services industry	£115,334	£118,760	£127,112	£134,049	£136,625	£116,112	£117,503	£117,632
Shipbroking	£77,137	£73,982	£80,697	£99,705	£84,246	£90,812	£74,000	£79,377
Insurance	£162,983	£162,599	£177,484	£183,497	£195,163	£150,919	£165,445	£165,445
Financial	£176,337	£172,696	£156,690	£159,194	£150,000	£160,192	£170,151	£171,618
Legal	£109,259	£112,685	£116,714	£122,737	£124,188	£115,319	£119,041	£105,478
Ship Surveying and Classification	£114,732	£117,961	£126,103	£132,993	£136,961	£115,702	£116,831	£117,305
Maritime Education	£71,736	£79,147	£87,621	£92,362	£91,667	£89,887	£87,345	£85,438
Marine Consultancy	£67,100	£80,154	£71,203	£77,997	£80,634	£73,967	£68,679	£78,543
Marine Accountancy	£57,736	£59,673	£59,947	£54,325	£58,563	£56,306	£59,712	£58,515

Source: PwC, ONS, IUA, FAME, Cebr analysis

Figure 6 below compares the direct contribution that the Maritime Business Services industry made through UK employment in 2017 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 30% between 2010 and 2017.

Figure 6: The estimated employment of the Maritime Business Services industry against comparable industries in 2017, and growth against the 2010 level

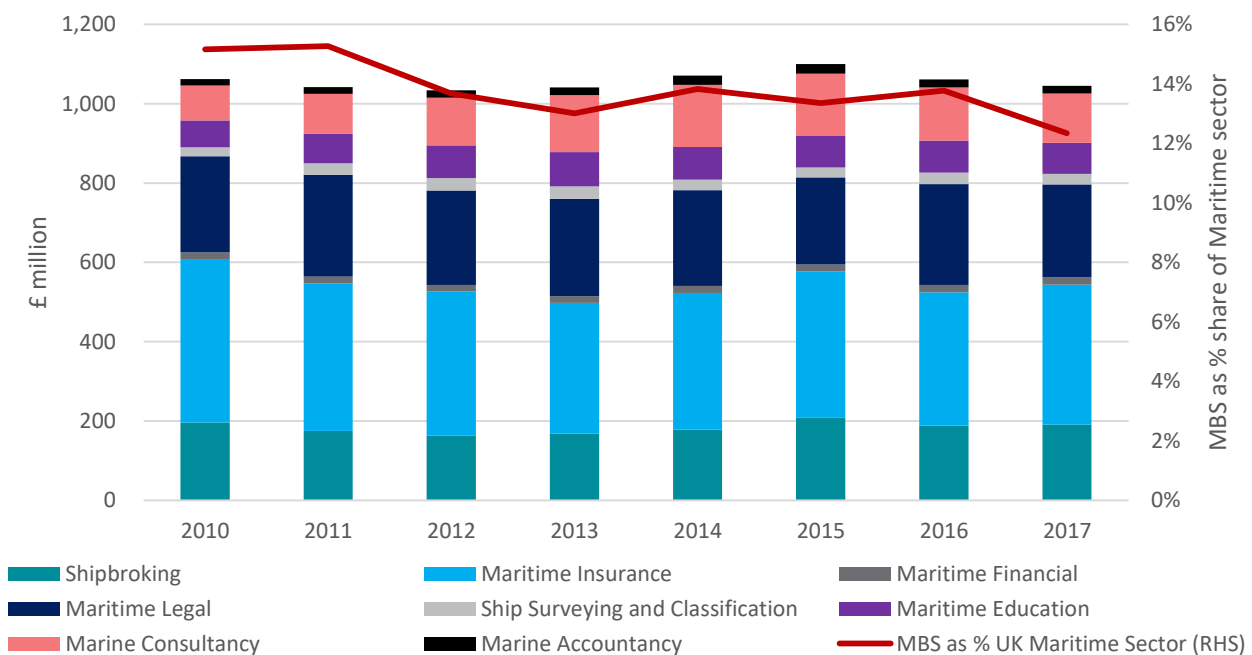


Source: PwC, ONS, IUA, FAME, Cebr analysis

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 2017, £ million



Source: PwC, ONS, IUA, FAME, Cebr analysis

It is estimated that the Maritime Business Services industry directly contributed just over £1 billion through the compensation of employees in 2017; this total has remained fairly stable since 2010. Once again, Maritime Insurance, Legal services and Shipbroking activities support the largest amount of employee compensation directly supported. Overall, the total value of compensation of employees directly supported across the Maritime Sector from the UK Maritime Business Services industry is estimated to be 12.3% in 2017, down from 15.2% in 2010.

3.5 The direct contribution to the UK Exchequer

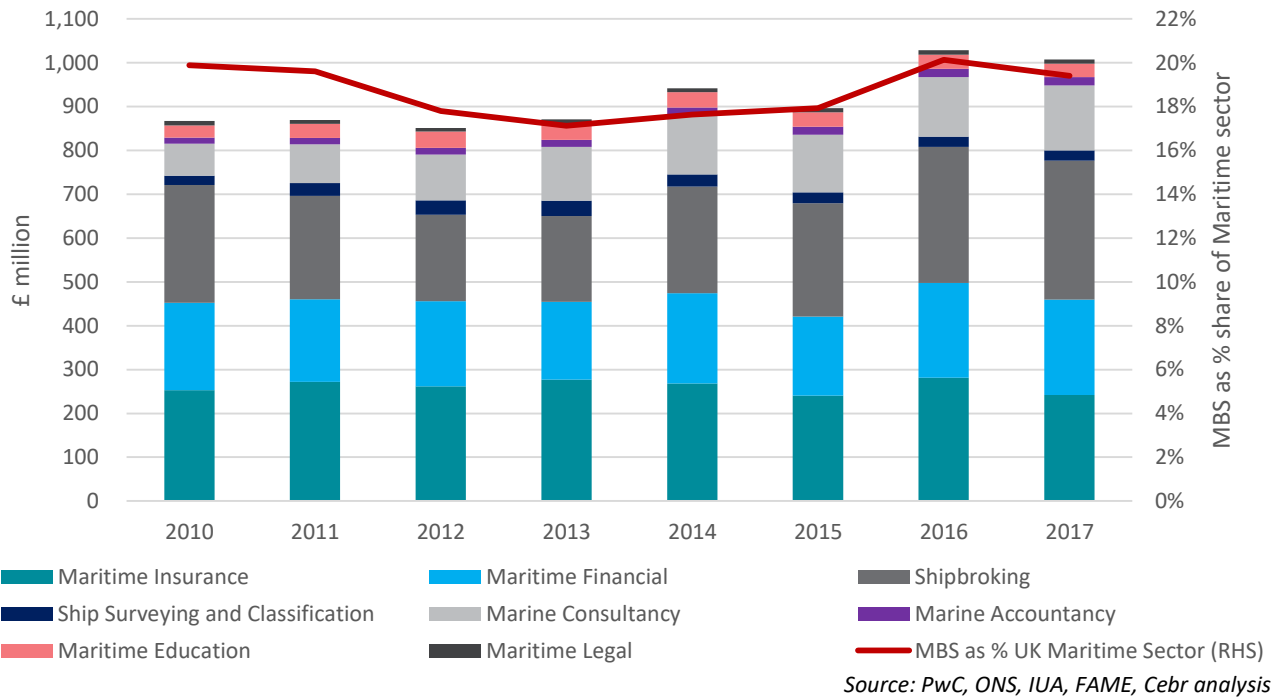
This section discusses the contribution of the Maritime Business Services industry to the UK Exchequer. For each activity within this industry, Cebr have calculated the contributions in terms of:

- 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 2017. Wages and salaries for employees

have been sourced from the Annual Survey for Hours and Earnings (ASHE)¹³. 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 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 over £1 billion of tax revenues in in 2017, or around 19.4% of the Maritime Sector total.

Figure 8: The direct contribution of the Maritime Business Services industry to the Exchequer, £ million, 2010 to 2017

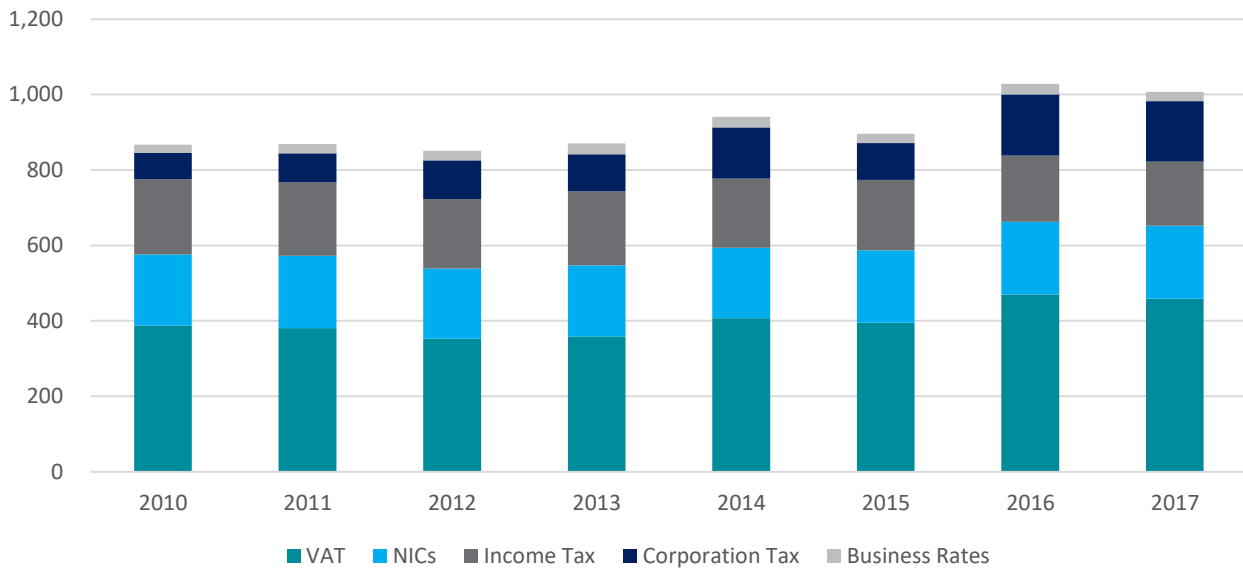


Marine Insurance, Legal services and Shipbroking contributed an average of 57% of the Maritime Business Services industry’s contribution to the Exchequer, falling from 61% in 2010 to 57% in 2017. In aggregate, the industry’s direct Exchequer contribution grew by 16%, from £870 million in 2010 to £1 billion in 2017.

Figure 9 below disaggregates the Exchequer contribution by tax head, across 2010 to 2017.

Figure 9: The direct contribution of Maritime Business Services to the Exchequer, £ million, 2010 to 2017, by tax head

¹³ 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.



Source: PwC, ONS, IUA, FAME, Cebr analysis

VAT forms the bulk of Exchequer contributions from the Maritime Business Services industry, averaging 44% of tax receipts from the sector from 2010 to 2017; 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 £360 million in Income Tax and National Insurance Contributions in 2017.

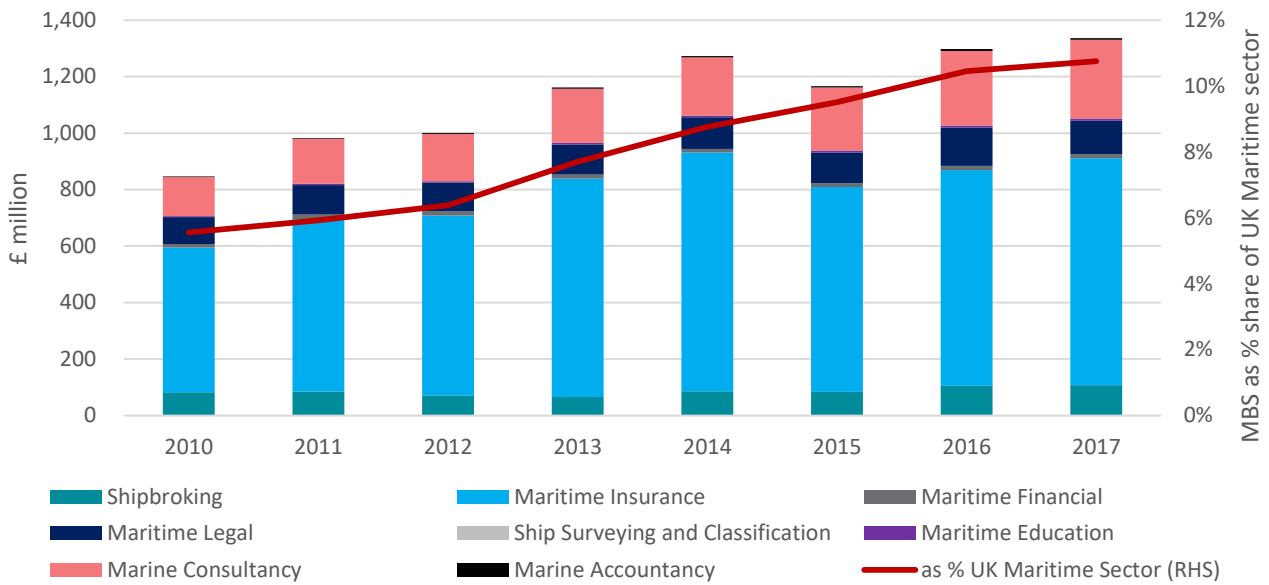
3.6 The direct contribution to the UK's export of goods and services

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 2017, 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 £1.3 billion in 2017; exports have grown considerably over the period considered. The proportion of sector exports supported by the Maritime Business Services industry has risen from 6% in 2010 to just under 11% in 2017.

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



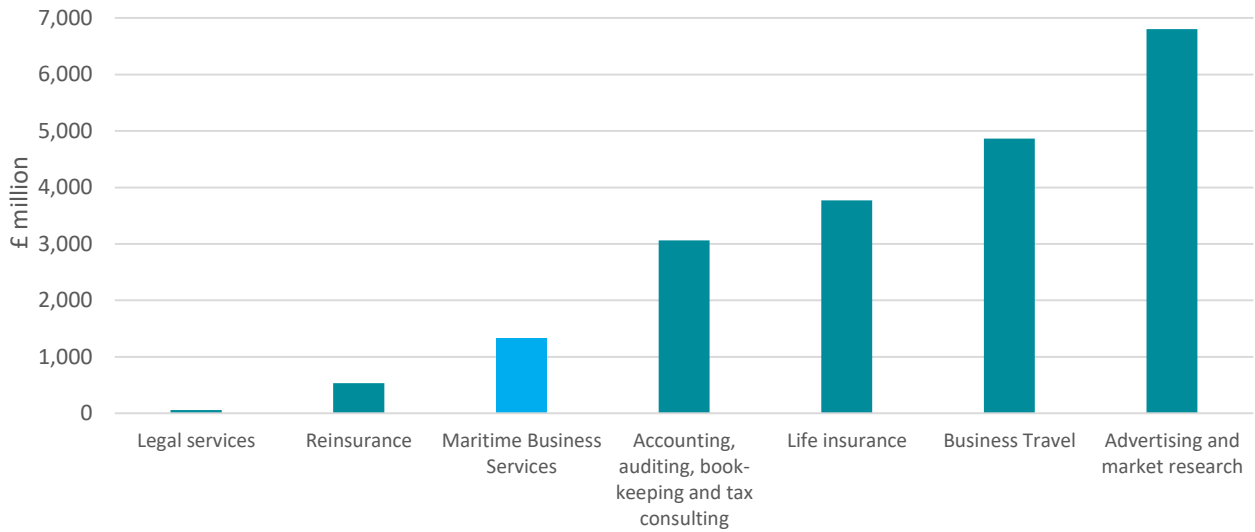
Source: PwC, ONS, IUA, FAME, Cebr analysis

Figure 10 clearly illustrates the MBS industry’s importance to the wider Maritime Sector. Despite increasing competition in Singapore and Greece, the UK MBS industry is growing year on year, aside from a dip in 2015. This also reflects the UK’s ambition to maintain the UK as a global hub for maritime business services and the relevant investment into the industry will help sustain this continued growth. One of the substantial goals of the 2050 strategy is to promote the UK regime to SMEs and international companies as a prime location for business.¹⁴

To place the value of Maritime Business Services exports in context, Figure 11 below shows industry exports in 2017 in comparison to that exports of comparable services, drawing upon information from the ONS Pink Book. Maritime Business Services – with exports of £1.3 billion in 2017 – lies ahead of exports from the Reinsurance and Legal Services (£535 million and £62 million respectively) and behind industries like Accounting and auditing (£3.1 billion), Business Travel (£4.9 billion) and Advertising and market research (£6.8 billion).

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

¹⁴ Department for Transport. (2019). ‘Maritime 2050’.



Source: PwC, ONS, IUA, FAME, 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.

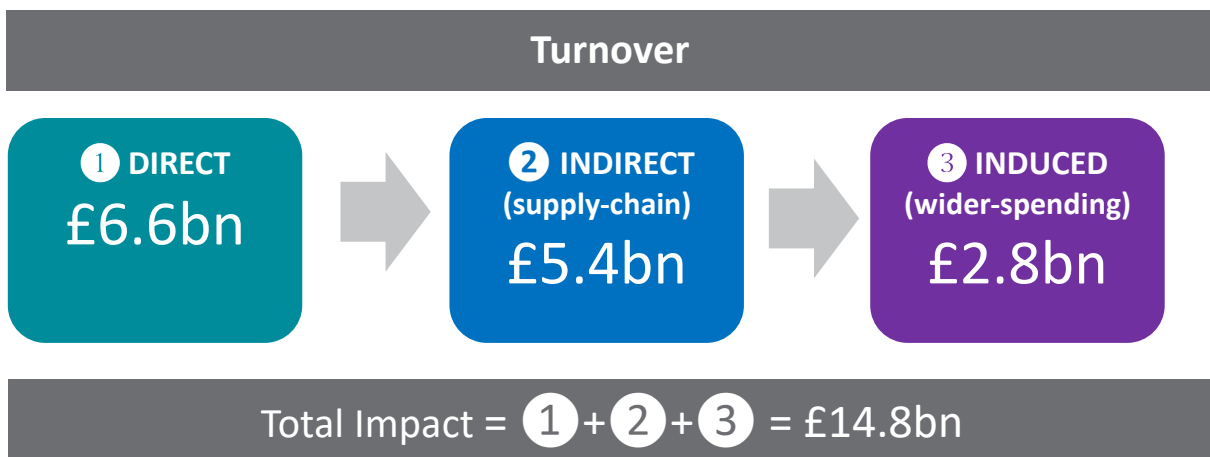
The four macroeconomic indicators for which the aggregate economic impact have been calculated are as follows: turnover; GVA; employment; and the compensation of employees. Multipliers have been generated from Cebr’s economic impact model for the UK.

4.1 The aggregate economic impacts through turnover

Figure 12 below illustrates the direct, indirect and induced impact of the maritime business services industry within the UK. The MBS industry directly contributed £6.6 billion, indirectly contributed £5.4 billion through wider supply chain impacts and had an induced effect of £2.8 billion. In turn the MBS industry’s aggregate impact in 2017 is £14.8 billion.

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 support in turnover of £2.21.

Figure 12: Turnover multiplier impacts of the UK Maritime Business Services industry in 2017



Source: PwC, ONS, IUA, FAME, Cebr analysis

Table 5 below shows the estimated aggregate turnover impacts from the individual industry activities when taken in isolation. It is clear that Marine Insurance is the dominant activity within the wider industry followed by Shipbroking and Marine Legal services.

Table 5: Turnover impact of the Maritime Business Services industry in 2017, £ million

Turnover in 2017	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact	Direct Multiplier	Indirect Multiplier	Induced Multiplier	Aggregate Multiplier
Shipbroking	1,069	1,074	623	2,765	1.00	1.00	0.58	2.59
Marine Insurance	4,143	3,722	1,499	9,363	1.00	0.90	0.36	2.26
Marine Finance	64	36	30	130	1.00	0.56	0.47	2.04
Marine Legal	720	265	301	1,287	1.00	0.37	0.42	1.79
Ship Surveying and Classification	59	34	35	128	1.00	0.57	0.60	2.17
Maritime Education	121	35	90	246	1.00	0.29	0.74	2.04
Marine Consultancy	392	208	204	803	1.00	0.53	0.52	2.05
Marine Accountancy	56	14	29	99	1.00	0.25	0.53	1.78

Source: PwC, ONS, IUA, FAME, 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 lower than in 2010 and that total MBS turnover impact has grown by £3 billion over the period to £14.6 billion.¹⁵

Table 6: Direct and aggregate turnover impact of the Maritime Business Services industry, 2010 to 2017, £ million

	Direct Impact	Composite domestic output multiplier	Total turnover impacts
2010	5,224	2.23	11,667
2011	5,653	2.22	12,563
2012	5,676	2.21	12,533
2013	5,836	2.20	12,862
2014	6,006	2.22	13,319
2015	6,623	2.11	13,959
2016	6,478	2.20	14,222
2017	6,623	2.21	14,624

Source: PwC, ONS, IUA, FAME, Cebr analysis

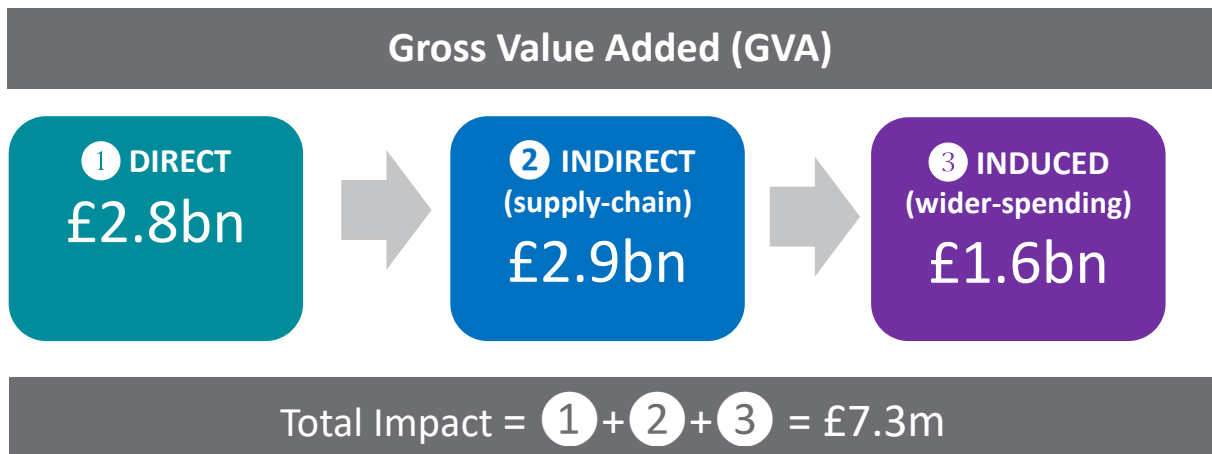
4.2 The aggregate economic impacts through GVA

Figure 13 below illustrates the GVA multipliers for the Maritime Business Services industry within the UK. The MBS directly contributed £2.8 billion in GVA, indirectly contributed £2.9 billion through supply chains and had an induced effect of £1.6 billion. The aggregate impact on GVA is £7.3 billion.

Therefore for every £1 of GVA initially contributed by the Maritime Business Services industry, the UK economy as a whole sees a stimulus in GVA of £2.73. This wider contribution is influenced by the high GVA multipliers associated with Marine Insurance and Shipbroking.

¹⁵ Figures may not match due to rounding.

Figure 13: GVA multiplier impacts of the UK Maritime Business Services industry in 2017



Source: PwC, ONS, IUA, FAME, 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 Insurance, Marine Legal Services and Shipbroking 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 2017, £ million

GVA in 2017	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact	Direct Multiplier	Indirect Multiplier	Induced Multiplier	Aggregate Multiplier
Shipbroking	298	401	265	964	1.00	1.35	0.89	3.24
Marine Insurance	1,431	2,086	914	4,431	1.00	1.46	0.64	3.10
Marine Finance	33	20	17	70	1.00	0.62	0.52	2.14
Marine Legal	574	168	184	925	1.00	0.29	0.32	1.61
Ship Surveying and Classification	38	22	22	82	1.00	0.57	0.58	2.15
Maritime Education	91	20	51	162	1.00	0.22	0.55	1.77
Marine Consultancy	258	140	138	536	1.00	0.54	0.53	2.08
Marine Accountancy	46	8	17	71	1.00	0.17	0.37	1.54

Source: PwC, ONS, IUA, FAME, Cebr analysis

From the above we can see that the combined Maritime Insurance had the largest aggregate GVA impact of £4.4 billion in 2017, followed by Shipbroking and Marine Legal services. Of the different activities, the highest overall GVA multiplier is associated Shipbroking, at 2.9.

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.

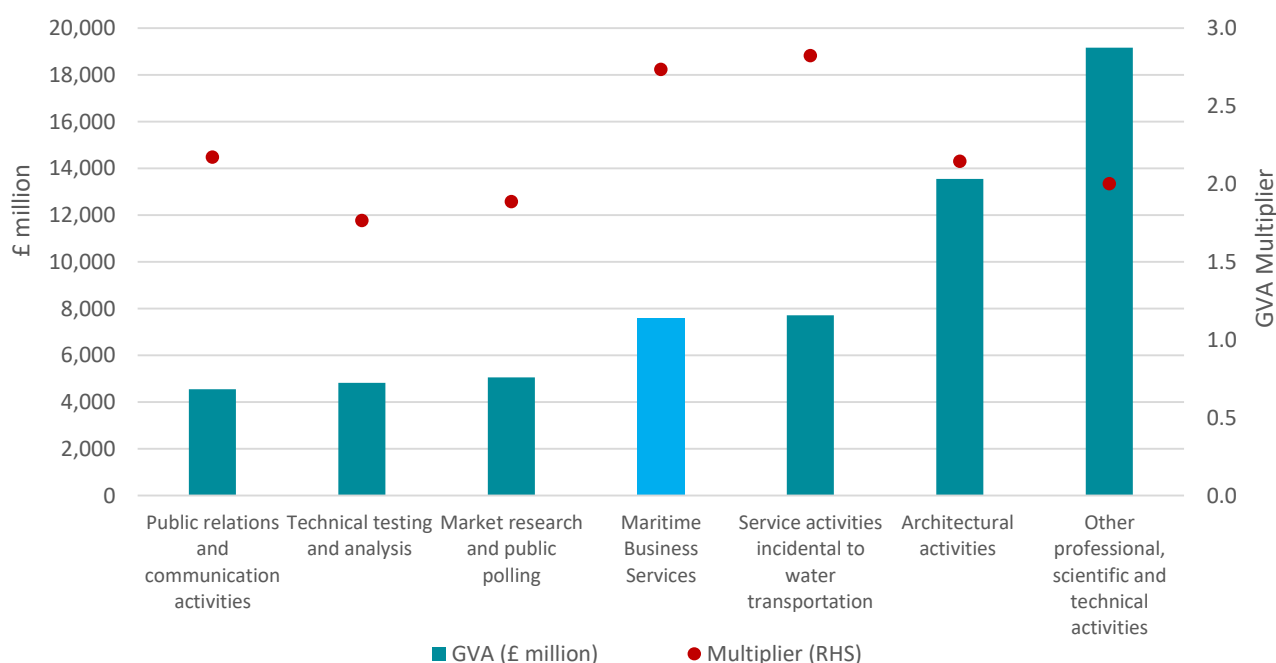
Table 8: Direct and aggregate GVA impact of the Maritime Business Services industry, 2010 to 2017, £ million

	Direct Impact	Composite GVA multiplier	Total GVA impacts
2010	2,083	2.57	5,342
2011	2,219	2.55	5,665
2012	2,422	2.59	6,265
2013	2,517	2.57	6,481
2014	2,816	2.62	7,368
2015	2,455	2.58	6,345
2016	2,715	2.68	7,278
2017	2,769	2.73	7,574

Source: PwC, ONS, IUA, FAME, Cebr analysis

To place these results in context, Figure 14 below compares the total GVA impact of the Maritime Business Services industry in 2017 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 2017



Source: PwC, ONS, IUA, FAME, Cebr analysis

Maritime Business Services generated a total GVA impact of £7.6 billion in 2017, in comparison to £4.6 billion from Public relations and communication activities and £13.5 billion from Architectural activities. However, the GVA multiplier associated with the Maritime Business Services industry was higher, at 2.73 against 2.17 and 2.15 from the respective comparators.

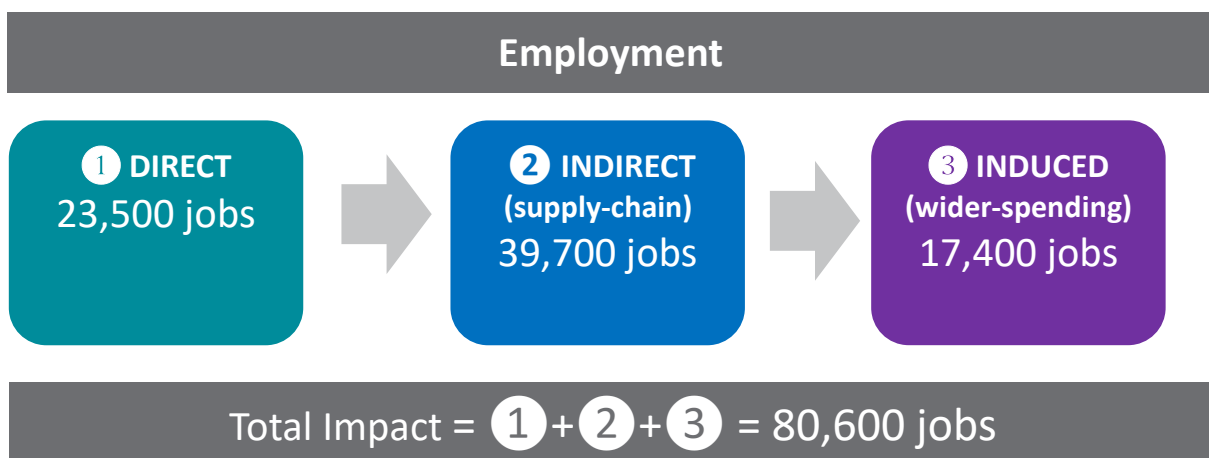
In other words, while Architectural activities generated a total GVA impact of £13.5 billion in 2017, its GVA multiplier was 2.15. This means that for each additional £1 of GVA initially generated through this activity, a total of £2.15 in GVA was supported in the wider economy – compared to £2.73 for 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 impacts of the Maritime Business Services industry within the UK. The MBS industry directly supports 23,500 jobs, indirectly supports 39,700 jobs and has an induced effect of supporting 17,400 further jobs. The aggregate impact of the MBS industry on employment is 80,600 jobs.

In other words, for every job initially supported by the Maritime Business Services industry, the UK economy as a whole supports 3.3 jobs. This relatively high employment multiplier is primarily driven by the high indirect and induced employment impact associated with the Marine Insurance Services (3.4 and 5.6 respectively).

Figure 15: Employment multiplier impacts of the UK Maritime Business Services industry, 2017



Source: PwC, ONS, IUA, FAME, Cebr analysis

The combined number of jobs directly supported by all Maritime Business Services sub-industry in 2017 was 23,500, while 77,500 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. This makes clear Maritime Insurance's importance to the industry.

Table 9: Aggregate employment impact of the Maritime Business Services industry, 2017, thousands of jobs

Employment in 2017	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact	Direct Multiplier	Indirect Multiplier	Induced Multiplier	Aggregate Multiplier
Shipbroking	3.8	4.5	2.2	10.5	1.00	1.21	0.58	2.79
Marine Insurance	8.6	29.3	10.6	48.5	1.00	3.39	1.22	5.61
Marine Finance	0.2	0.4	0.2	0.8	1.00	1.89	1.11	4.00
Marine Legal	5.4	2.6	2.3	10.4	1.00	0.48	0.43	1.91
Ship Surveying and Classification	0.3	0.2	0.1	0.7	1.00	0.57	0.45	2.02
Maritime Education	1.1	0.2	0.4	1.8	1.00	0.21	0.38	1.59
Marine Consultancy	3.3	2.3	1.4	7.0	1.00	0.69	0.42	2.12
Marine Accountancy	0.8	0.1	0.2	1.1	1.00	0.14	0.27	1.41

Source: PwC, ONS, IUA, FAME, 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 3.29 in 2017. The aggregate employment impact from the Maritime Business Services industry is estimated to have increased from 60,200 jobs in 2010 to 77,500 jobs in 2017.

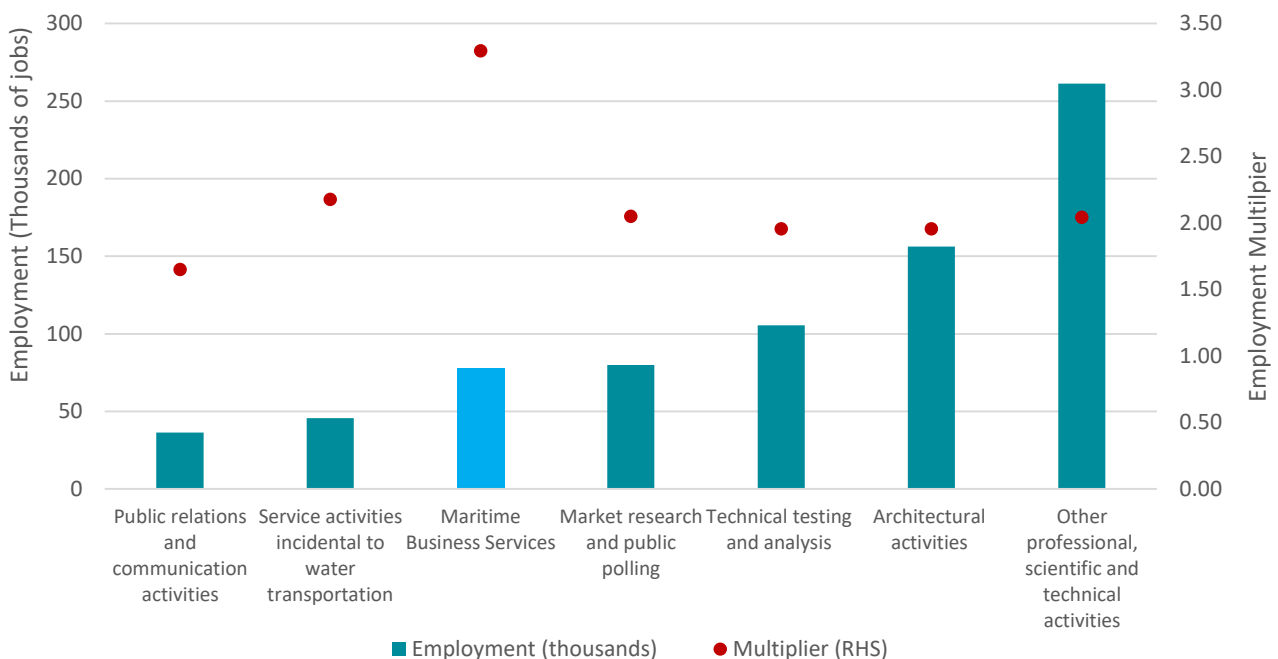
Table 10: Direct and aggregate employment impact of the Maritime Business Services industry, 2010 to 2015, thousands of jobs

	Direct Impact	Composite Employment multiplier	Total employment impacts
2010	18.1	3.33	60.2
2011	18.7	3.38	63.2
2012	19.1	3.45	65.7
2013	18.8	3.43	64.4
2014	20.6	3.47	71.4
2015	21.1	3.45	72.9
2016	23.1	3.25	75.0
2017	23.5	3.29	77.5

Source: PwC, ONS, IUA, FAME, Cebr analysis

To place these results in context, Figure 16 below compares the total employment impact of the Maritime Business Services industry in 2017 against the comparable 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 2017



Source: PwC, ONS, IUA, FAME, Cebr analysis

Maritime Business Services generated a total employment impact of 77,500 jobs in 2017, higher than service activities incidental to water transportation (45,700 jobs) and Public relations and communication activities (36,300 jobs). At 3.29, the employment multiplier associated with the Maritime Business Services industry is significantly higher than the respective comparators with the next highest being service activities incidental to water transportation at 2.18.

In other words, while Architectural activities generated a total employment impact of 156,300 jobs in 2017, its employment multiplier was 1.95. This means that for each additional job initially supported through this activity, a total 1.95 jobs were supported in the wider economy – compared to 3.29 jobs for Maritime Business Services industry.

A possible reason why the Maritime Business Services industry has a significantly greater employment multiplier compared to the other industries listed above could be due to the industries serviced by its activities. The Maritime Sector involves many labour intensive industries as it is the primary form of transport. For example, it transports raw materials and first-stage production goods, thus supporting labour intensive industries. Maritime Business Services are in effect a branch of this; the transportation of raw materials is insured against and thus is partly supported by the maritime insurance industry. In contrast, Architectural activities is likely to only support capital intensive businesses due to the nature of the industry it operates within.

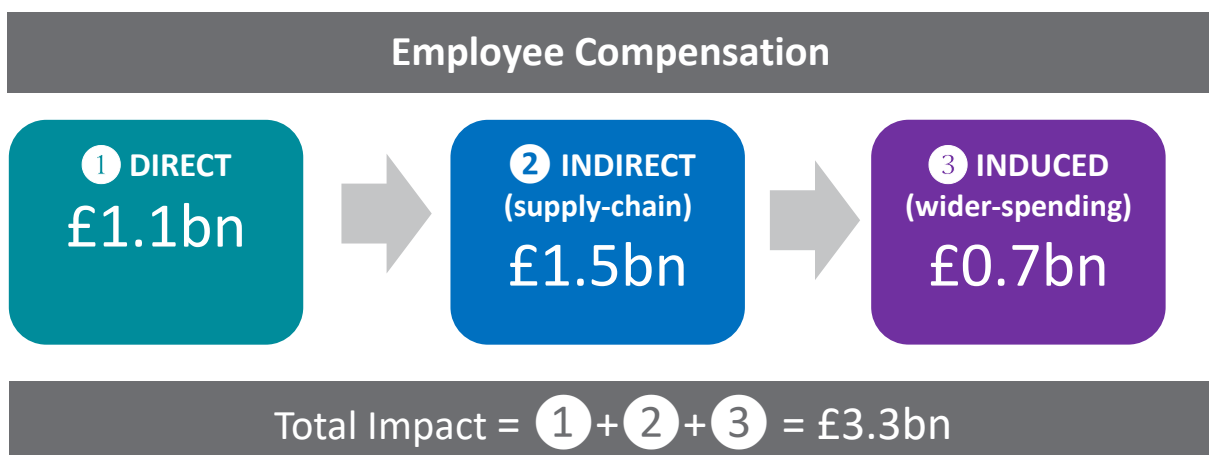
4.4 The aggregate economic impacts through the compensation of employees

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.

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 the MBS in 2017, £1.29 is supported through the supply chain and an additional £0.58 is supported through employee expenditures – yielding an aggregate impact of £2.87.

For the Maritime Business Services industry as a whole, for every £1 initially contributed through the compensation of employees in 2015, a total of £2.87 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, IUA, FAME, Cebr analysis

Table 11 shows the estimated aggregate impacts through the compensation of employees from Maritime Business Services industry activities, when taken in isolation. A total of £3.1 billion through the compensation of employees was supported by the Maritime Business Services industry in 2017, with this total once again dominated by Marine Insurance Services (£1.7 billion) and Shipbroking (£0.6 billion).

Table 11: Impact through the compensation of employees of the Maritime Business Services industry in 2017, £ million

Compensation of Employees in 2017	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact	Direct Multiplier	Indirect Multiplier	Induced Multiplier	Aggregate Multiplier
Shipbroking	221	252	120	593	1.00	1.14	0.54	2.69
Marine Insurance	353	974	337	1,664	1.00	2.76	0.95	4.71
Marine Finance	19	12	8	39	1.00	0.65	0.42	2.07
Marine Legal	234	100	85	419	1.00	0.43	0.36	1.79
Ship Surveying and Classification	23	12	9	44	1.00	0.52	0.39	1.91
Maritime Education	78	14	23	115	1.00	0.18	0.30	1.48
Marine Consultancy	182	95	70	347	1.00	0.52	0.39	1.91
Marine Accountancy	26	5	8	39	1.00	0.19	0.30	1.49

Source: PwC, ONS, IUA, FAME, Cebr analysis

Table 12 below presents the direct contribution to compensation of employees (COE) alongside our estimate of the COE multiplier that applies to the entire industry, an estimated 2.7 in 2017. 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 £3.3 billion in 2010 to £3.1 billion in 2017.

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

	Direct Impact	Composite Employee Compensation multiplier	Total employee compensation impacts
2010	1,062	3.08	3,272
2011	1,042	2.98	3,101
2012	1,034	2.95	3,052
2013	1,041	2.85	2,969
2014	1,071	2.87	3,077
2015	1,100	2.93	3,227
2016	1,116	2.76	3,078
2017	1,135	2.70	3,067

Source: PwC, ONS, IUA, FAME, 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. We estimated London's activity through a bottom-up analysis and insight from PwC's report and redistributed the remaining activity to the other regions based on port activity.

5.1 The direct economic impact of the industry by UK region

Business turnover and GVA

Figure 18 and 19 below show the estimated regional breakdown of business turnover and GVA directly supported by the Maritime Business Services industry in 2017.

Figure 18: Regional breakdown of Business Turnover directly contributed by the Maritime Business Services industry in 2017, £m

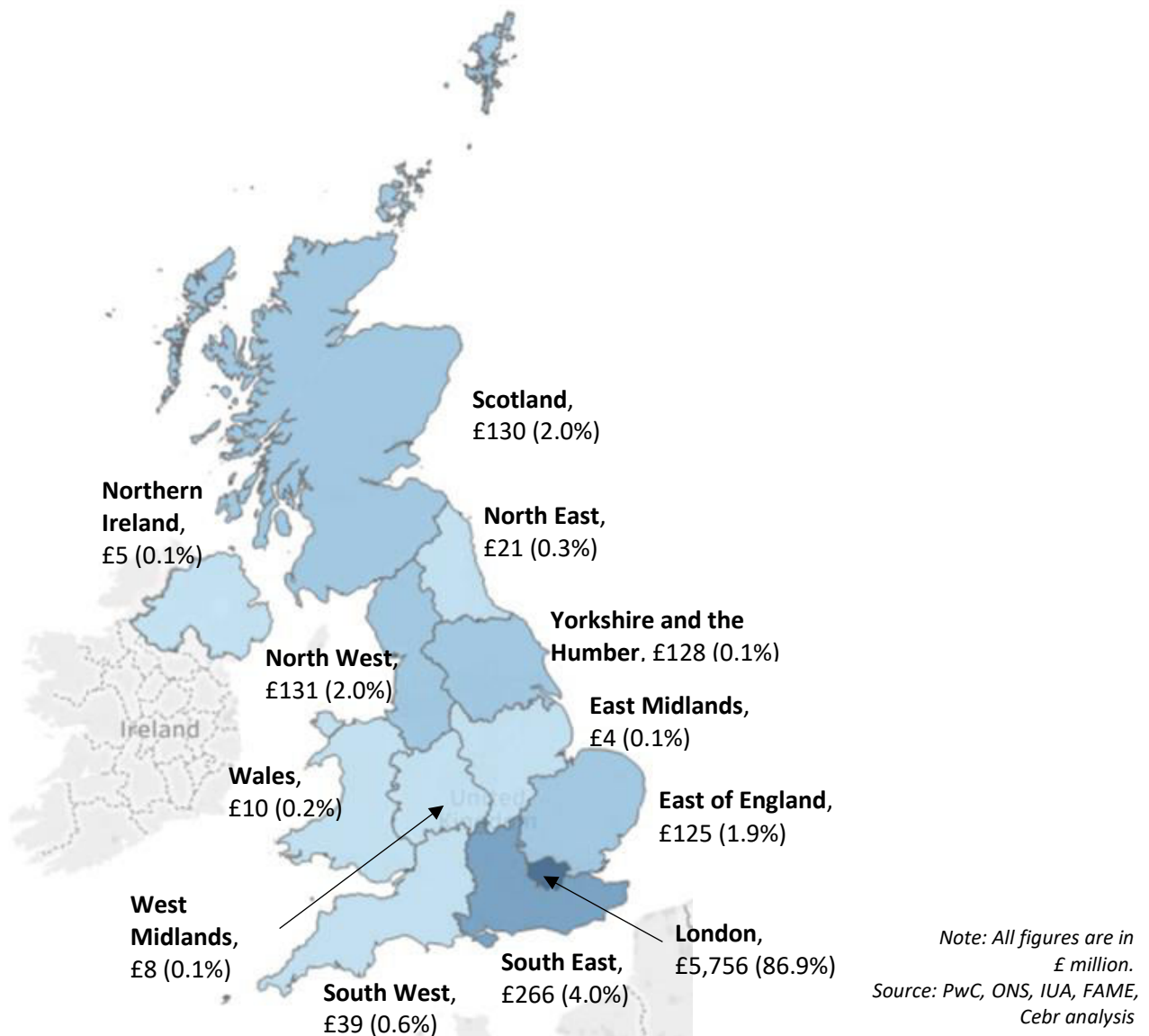
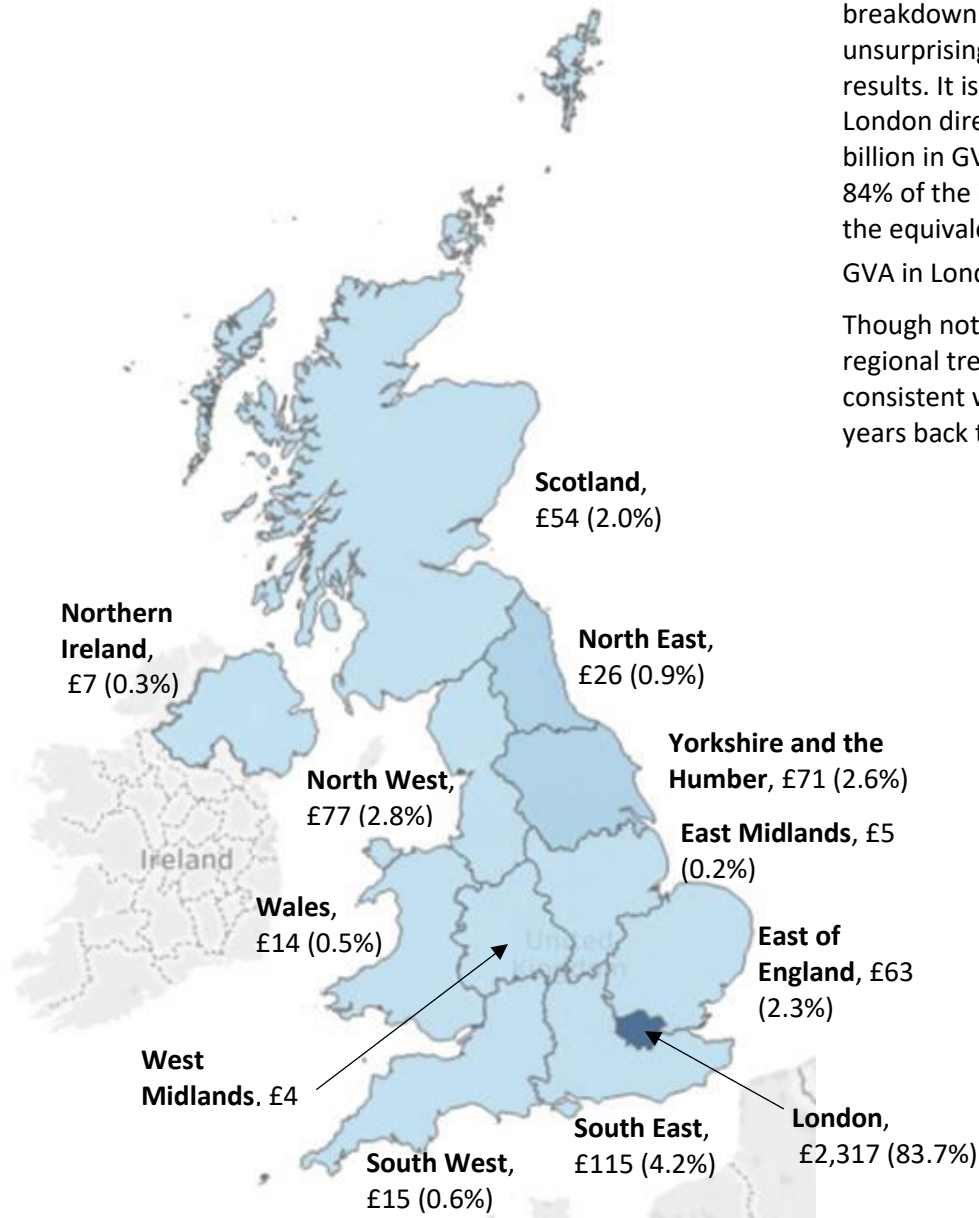


Figure 19: Regional breakdown of GVA directly contributed by the Maritime Business Services industry in 2017, £m



An inspection of the regional breakdown of GVA unsurprisingly yields similar results. It is estimated that London directly generated £2.3 billion in GVA in 2017, or around 84% of the industry total. This is the equivalent of 0.5% of total GVA in London.¹⁶

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

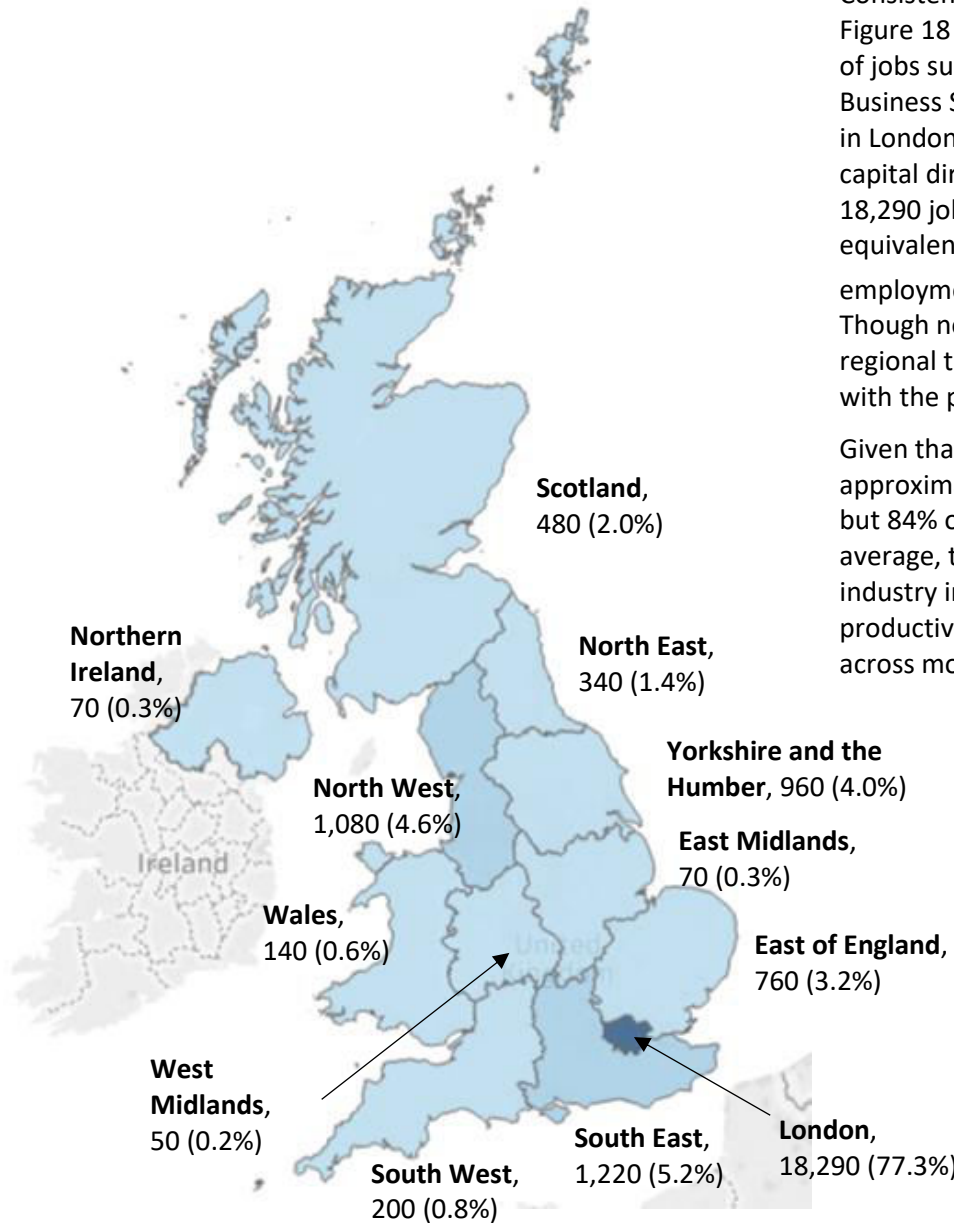
Note All figures are in £ million.
Source: PwC, ONS, IUA, FAME, Cebr analysis

¹⁶ ONS. (2018). 'regional economic activity by gross value added'.

Employment and the Compensation of Employees

Figure 20 and 21 show the estimated regional breakdown of employment and the compensation of employees directly supported by the Maritime Business Services industry in 2017. Once again, the lion’s share of the direct contribution is concentrated in London, with an estimated 18,290 in jobs and £940 million through the compensation of employees.

Figure 20: Regional breakdown of employment directly contributed by the Maritime Business Services industry in 2017, 000 jobs



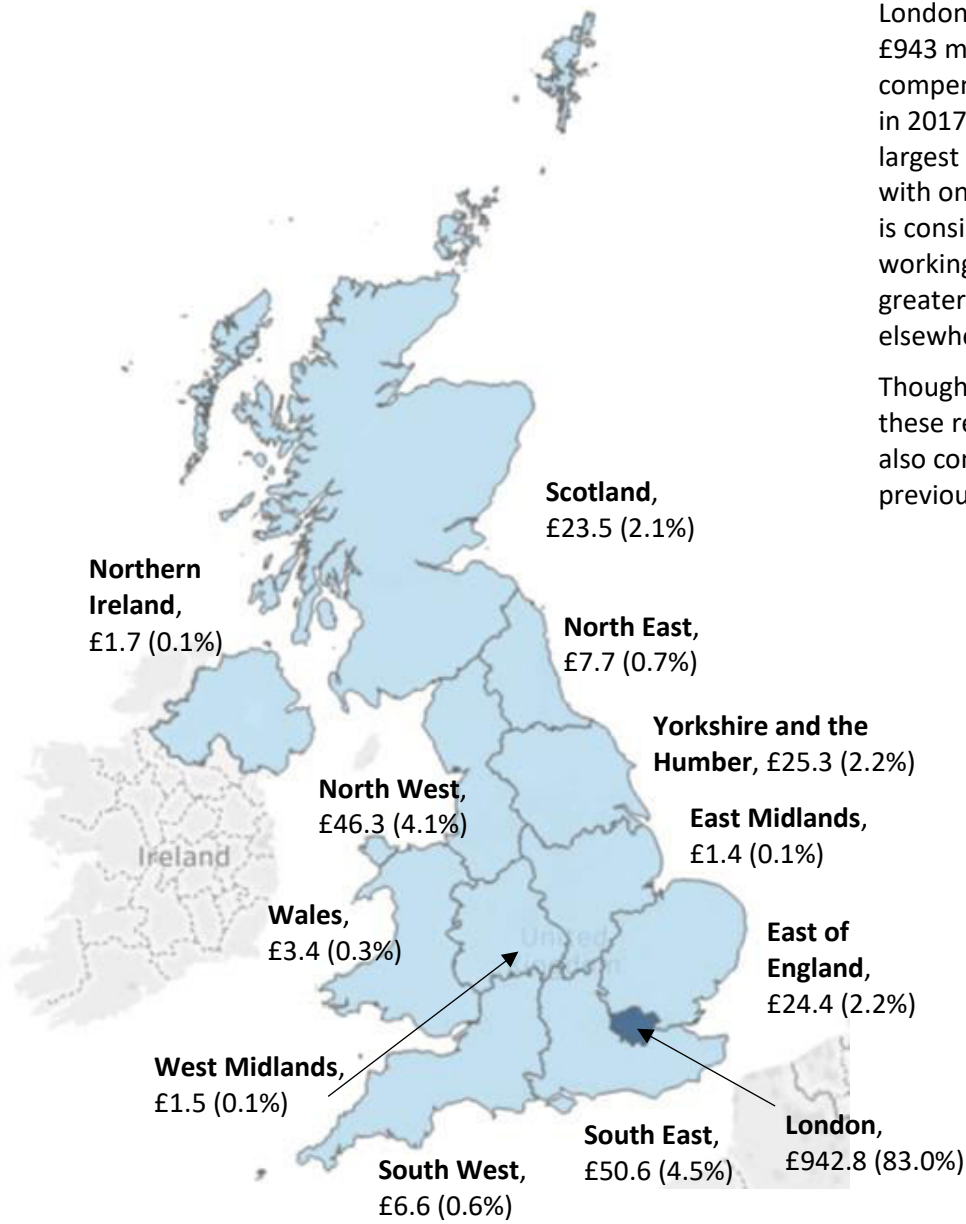
Consistent with the results shown in Figure 18 and 19, the vast majority of jobs supported by the Maritime Business Services industry are found in London. It is estimated that the capital directly supported just over 18,290 jobs alone in 2017, equivalent to 0.4% of total employment in London.¹⁷ Though not shown here, these regional trends are also consistent with the previous years back to 2010.

Given that London accounts for approximately 77% of employment, but 84% of GVA, it is clear that, on average, those who work in the MBS industry in London have a greater productivity. This is usually the case across most industries in the UK.

*Note: figures subject to rounding to nearest 10.
Source: PwC, ONS, IUA, FAME, Cebr analysis*

Figure 21: Regional breakdown of the direct contribution through the Compensation of Employees by the Maritime Business Services industry in 2017, £m

¹⁷ ONS BRES data



London directly supported £943 million through the compensation of employees in 2017, dwarfing the next largest region (South East, with only £51 million). This is consistent with those working in London having a greater productivity than elsewhere in the country.

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

*Note All figures are in £ million.
Source: PwC, ONS, IUA, FAME, 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 2017, alongside the composite industry multiplier for each region. It is estimated that from a total of £6.6 billion in turnover and £2.8 billion in GVA directly contributed by the Maritime Business Services industry in 2017, a total of £12.4 billion and £6.3 billion respectively was sustained in the UK economy. The highest multiplier impacts are actually found in the South West and in the East of England in 2017, rather than London.

Table 13: Regional breakdown of the direct and aggregate impacts through turnover and GVA by the Maritime Business Services industry in 2017

Region	Turnover, £m			GVA, £m		
	Direct Impact	Industry Multiplier	Total impact	Direct Impact	Industry Multiplier	Total impact
Scotland	130	2.14	278	54	2.57	140
Wales	10	2.05	21	14	2.55	35
Northern Ireland	5	2.06	10	7	2.64	18
East of England	125	2.16	270	63	2.68	170
East Midlands	4	2.12	9	5	2.64	13
London	5,756	1.83	10,546	2,317	2.20	5,087
North East	21	2.07	44	26	2.56	67
North West	131	2.17	285	77	2.64	205
South East	266	2.15	572	115	2.61	301
South West	39	2.19	85	15	2.66	41
West Midlands	8	1.98	16	4	2.38	9
Yorkshire and the Humber	128	2.10	269	71	2.54	180

Source: PwC, ONS, IUA, FAME, 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 2017, alongside the composite industry multiplier for each region. The industry in London is estimated to have supported around 56,000 jobs and £2.3 million in employee compensation across the UK economy in 2017.

Table 14: Regional breakdown of the direct and aggregate impacts through employment and the compensation of employees by the Maritime Business Services industry in 2017

	Employment, 000s	Compensation of Employees, £m
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Region	Direct Impact	Industry Multiplier	Total impact	Direct Impact	Industry Multiplier	Total impact
Scotland	0.5	3.65	1.8	23.5	2.89	67.8
Wales	0.1	3.65	0.5	3.4	1.95	6.6
Northern Ireland	0.1	3.69	0.3	1.7	2.03	3.4
East of England	0.8	3.81	2.9	24.4	2.54	62.1
East Midlands	0.1	3.81	0.3	1.4	2.04	2.8
London	18.3	3.06	55.9	942.8	2.45	2,313.4
North East	0.3	3.68	1.2	7.7	2.02	15.5
North West	1.1	3.81	4.1	46.3	2.77	128.5
South East	1.2	3.75	4.6	50.6	2.80	142.0
South West	0.2	3.82	0.8	6.6	3.11	20.7
West Midlands	0.0	3.40	0.2	1.5	2.53	3.9
Yorkshire and the Humber	1.0	3.61	3.4	25.3	2.41	61.2

Source: PwC, ONS, IUA, FAME, Cebr analysis