# The economic contribution of the UK Ports industry

A Cebr report for Maritime UK

May 2022

**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.

NB The industry figures making up the broad Maritime Sector are not always additive because some of the reports have been customised to cater for the overlap between certain industries. Simply adding together the industries would therefore produce a degree of double counting. Nonetheless, the broad Maritime report has had this double counting stripped out.

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

London, May 2022

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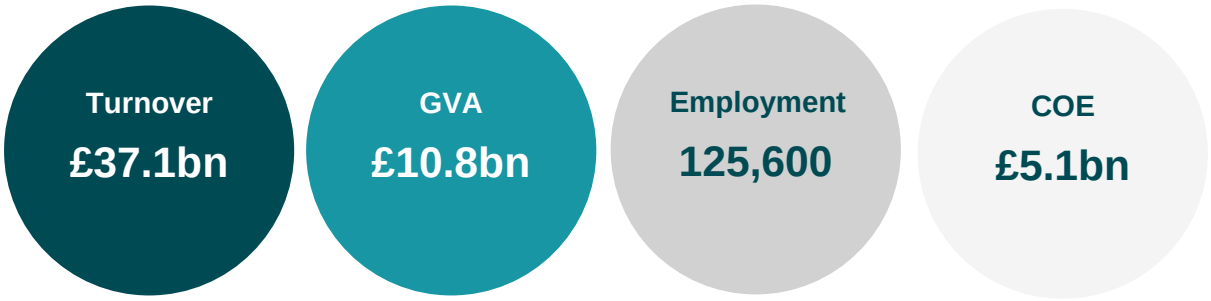
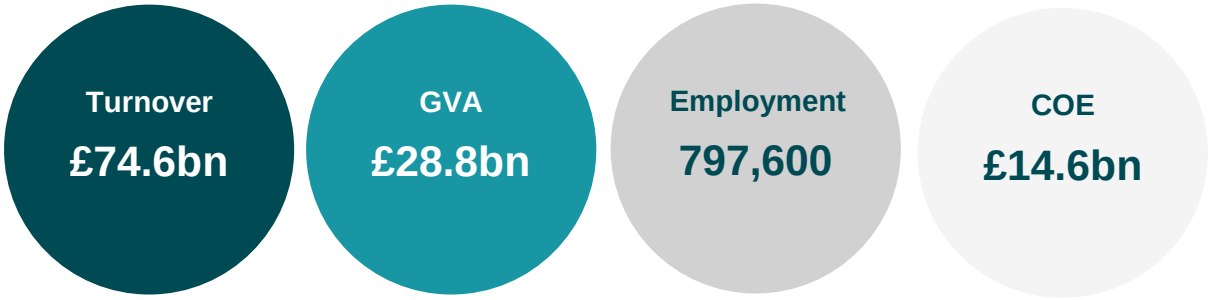
# Headline findings

- The Centre for Economics and Business Research (Cebr) has been commissioned by Maritime UK to quantify the economic contribution of the Ports industry. This report forms one of ten reports which also assess the contribution of the Maritime Sector as a whole, at industry-level, in Scotland, Wales, the Liverpool City Region and in the Solent LEP region.
- In this context, the Ports industry comprises all those activities undertaken in ports. This report draws upon a combination of data sources, to quantify both the direct and aggregate economic impact of these activities in the UK economy in the years 2010 to 2019.
- The Ports industry makes a macroeconomic contribution to the UK through the key macroeconomic indicators: business turnover, Gross Value Added (GVA), employment and the compensation of employees (COE). **It is estimated that in 2019 the Ports industry directly contributed approximately £37.1 billion in business turnover, £10.8 billion in GVA and 125,600 jobs for UK employees.** This respectively equates to 66.9% of turnover, 57.6% of GVA and 56% of employment directly supported by the wider UK Maritime Sector in 2019.




- **A job in the Ports industry generated an average of £85,805 in GVA in 2019**; this lies above both the average productivity of the UK Maritime Sector of £82,329 and the UK-wide level of £56,670.
- The Ports industry also helps to raise millions of pounds each year to the UK Exchequer and makes a sizeable contribution to UK trade through exports of goods and services. **The industry contributed nearly £1.8 billion in tax revenues in 2019, spread across Corporation Tax, Income Tax, National Insurance Contributions (NICs) and Business Rates.** The industry is also estimated to have exported £11.1 billion of goods and services in 2019.
- After quantifying the aggregate economic impacts through the industry supply chains and induced effects on expenditures, **it is estimated that the Ports industry helped to support a total of £28.8 billion of GVA in 2019**. This implies that, for every £1 in GVA directly contributed by the Ports industry, a further £2.67 in GVA is stimulated across the wider UK economy.
- These aggregate economic impacts associated with the Ports industry also extend to turnover, employment and the compensation of employees. **It is estimated that the Ports**

**industry helped to support a total of £74.6 billion in turnover, 797,600 jobs and £14.6 billion through the compensation of employees in 2019.**




- We expect the Ports industry to experience modest growth over the five-year horizon after 2020 in nominal terms. Our forecast indicates that turnover and GVA are **set to grow at a Compounded Annual Growth rate (CAGR) of 2.1% over the considered period. This translates into a cumulative nominal growth of 8.6% for 2021-2025, in nominal terms**, which is similar to the growth experienced over the five years directly preceding the pandemic. Our forecasting approach is primarily based on trends in port freight traffic as well as the general transport and storage sector of the UK economy. We note from discussions with industry that there is a weakening of the relationship between volume growth and what the industry itself regards as value creation, a conscious strategy of many port operators. However, given that these are long-term strategies, and our forecast models the industry's short to medium-term trajectory, volume remains a relevant driver for growth over this period.

# 1. Introduction

Cebr is pleased to present this report to Maritime UK on the economic impact of the Ports industry on the UK economy. For the purposes of this study, the Maritime Sector is broadly defined as comprising of the individual shipping, ports, marine engineering and scientific (MES), marine leisure and Maritime Business Services (MBS) industries; each of these industries comprises numerous and diverse activities which are reflected in the study.

This report forms one of ten reports on the economic contribution of the Maritime Sector. The other reports focus on the economic contribution of each of the other four industries at UK level, the contribution of the sector in Scotland, Northern Ireland, Liverpool City Region and 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 ten reports, which set out the impact of the Maritime Sector both at a national and regional level.

In this context of this report, the Ports industry is defined as encompassing a range of constituent activities, categorised under port, shipping and shipbuilding activities.

Our examination spans the period from 2010 to 2019 (inclusive), with the latter being the latest year for which full data are available, and endeavours to capture the full economic 'footprint' of the Ports industry. As such, our report is not confined to direct ongoing contributions to GDP and employment through the Ports industry's operations and activities in the UK, but also provides assessments of the associated indirect and induced multiplier impacts.

Maritime UK previously commissioned Cebr in 2017 and in 2019 to produce the same study focused on measuring the impact of the maritime sector on the UK economy.

## 1.1 About Maritime UK

Maritime UK is the umbrella body for the maritime sector, bringing together the shipping, ports, services, engineering and leisure marine industries. Their purpose is to champion and enable a thriving maritime sector. Maritime UK has responsibility for the coordination and delivery of industry recommendations within Maritime 2050.

## 1.2 Purpose of this report

This research provides up-to-date insights on the size and performance of the UK Ports industry, presenting a range of statistics and figures which demonstrate different aspects of the economic value brought by the industry to the UK economy. The intention of this is to empower Maritime UK with a thorough and comprehensive knowledge and evidence base, such that they can support and advocate for the industry across the UK.

As such, Cebr has focused on the following key economic indicators: business turnover, 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 Ports industry at a regional level (across the former Government Office Regions).

It should be noted that given the data lags associated with many of the official national statistics used within this study, it is not possible for our analysis to capture the full extent to which the industry was directly affected by the COVID-19 pandemic in 2020/21. As such, because of the timeframe examined in this report, this research offers a picture of the value of the Ports industry right before the pandemic occurred. Further to this, our research does consider the impacts of Covid in our Forward Look section, where we provide forecasts for the Ports industry as well as the other four Maritime industries; the four regions included within our analysis; and for the Maritime Sector in the UK as a whole.

## 1.3 Overview of the study and methodology

### Objectives of the study

This report provides a thorough and comprehensive examination of the role of Ports industry in the UK and its constituent regional economies. It presents a range of analyses demonstrating different aspects of the value contributed by the overall industry, including direct contributions to GDP and employment, indirect and induced multiplier impacts and the Ports industry's contribution to the UK Exchequer through tax revenues raised.

To produce a robust study, it is necessary to analyse the available data to ensure that it captures the full range of activities that should be included in establishing the total economic 'footprint' of the industry. Following the collation of the necessary data which capture these activities, the values of key economic indicators were established to demonstrate the impact of the industry. The key macroeconomic indicators include:

- GVA[1] contributions to UK and regional GDP generated by the Ports 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 the Ports industry and, again, the turnover supported in the UK and regional economies through multiplier impacts.
- The value of employee compensation[2] generated by the Ports industry, representing the total remuneration of employees operating in the industry.

1 GVA, or gross value added, is a measure of the value of production in the national accounts. Conceptually it can be considered the value of what is produced, less the value of intermediate goods and services used to produce it. GVA is distributed in three directions – to employees, to shareholders and to government. It is often used as the proxy for the contribution of a sector or industry to GDP: strictly this relationship is GVA + Taxes on products - Subsidies on products = GDP.

2 Compensation of employees (COE) or employee compensation, is the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter. This consists of wages paid to employees; employers' actual social contributions (excluding apprentices); employers' imputed social contributions (excluding apprentices); and employers' social contributions for apprentices.

- The contribution of the Ports industry through revenues raised for the Exchequer.
- The value of goods and services exported by the activities comprising the Ports industry.

In addition to the core modelling and analysis, we also undertake a range of comparisons to contextualise the findings, including:

- How the economic indicators vary over the period 2010-2019.
- How the economic indicators vary across the different sub-industries within ports.
- How the economic indicators for the Ports industry vary across the different UK nations and regions.
- How the indicators for the Ports industry compare with other important industries of the UK economy.

**Mapping the UK Ports industry**

Here we set out how the Maritime Sector and, by extension, how the Ports industry has been defined for the purposes of the study. On a holistic level, the wider Maritime 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.

Building up on the experience gained through previous studies for Maritime UK, Cebr has subsequently undertaken a mapping exercise using this list to identify how each of these five industries aligns with the national accounts. For most industry 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.

The mapping of the Maritime Sector has remained the same as in the 2019 Cebr study, and the Ports industry specifically is broken down as follows:

- **Ports activities** (warehousing and storage; port activities and management; stevedores, cargo and passenger handling; border agency, HMRC and public sector employees operating in ports)
- **Shipping activities** (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.)
- **Shipbuilding**

Here we focus solely on the Ports industry. A full breakdown and description of how the overall Maritime Sector has been defined can be found in Section 2 of this report.

### Quantifying the direct economic impacts of the Ports industry

The first stage of the study involved mapping the activities of the Ports industry against the National Accounts framework, in order to establish clarity on the precise definition of activities as they map against the Standard Industrial Classification (SIC) framework.[3]

In essence therefore, this involves taking each of the sector and industry's activities, and mapping these to the most relevant Standard Industrial Classification (SIC) code in order to identify the activity's economic data. In the case of the Ports industry, all activities except those that involve public sector employees can be mapped neatly onto the National Accounts framework. As a result, Cebr has been able to exploit company financials data to gather data for most of the constituent activities of the industry.

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

- The major source of data used to quantify the direct economic contribution of the Ports industry is the Financial Accounts Made Easy (FAME) database, [4] which provides business demography and financial accounts data for companies. The FAME database has been used to generate estimates for the business turnover, GVA, employment, the compensation of employees and industry profitability. For the public sector activities which cannot be separately identified through the use of SIC codes, Cebr has drawn upon publicly available data sources such as government statistics.
- As FAME does not provide data on exports of goods and services, data have instead been sourced from different sources, including the ONS Pink Book or industry sources such as the UK Chamber of Shipping's (UKCoS) Annual Sea Inquiry. In some instance the ONS Supply Use Tables have been used to generate estimates.
- Data for the direct economic contribution of each sub-industry have by extension been used to quantify the contribution that the Ports industry makes to the UK Exchequer, and the productivity of the industry in terms of GVA per job.

A more detailed description of the sources used for each Ports industry activity can be found in the next section of this report.

3 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.

4 FAME is a company financials database which provides detailed information on UK and Irish companies as taken from annual reports and other sources up to the latest available year. FAME has been used to establish the aggregated contribution of businesses in the Marine industry to the UK economy in terms of turnover, employee numbers and GVA.

### Quantifying the aggregate economic impacts of the Ports industry

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

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

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

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

### Changes from 2019 Cebr study

The main change in our methodology affecting our analysis for the Ports industry is reflected within our aggregate impact analysis. Since our 2019 study, Cebr has made several changes to our input-output models, which underpin the calculation of the aggregate impacts. Firstly, we have updated the underlying supply-use data within the models, to reflect updated ONS data released over the intermediary period. This means the models now represent a more contemporaneous structure of the economy. Secondly, we have further refined our input-output modelling framework. The conceptual framing of our methodology remains the same, but for industries which span multiple SIC codes (such as the Maritime Sector and many of the constituent industries) the models themselves have been adjusted to remove potential double-counting and simplify the required data inputs.

## 1.4 Structure of the report

The remainder of the report is structured as follows:

- **Section 2** provides a more detailed overview of how the Maritime Sector has been defined, and how the Ports industry fits within this description. 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 Ports 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 Ports 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 Ports industry at a regional level, as disaggregated by the 12 International Territorial Level 1 regions (ITL 1).[5]
- **Section 6** provides forecasting analysis for the Ports industry in the context of the current economic climate, with a focus on the impact of Covid-19 on the sector.
- **Annex A: Full set of direct economic impacts by region** contains the full set of direct economic impacts of the Ports industry by region.
- **Annex B: Supplementary results of aggregate economic impact analysis** sets out the supplementary results of the aggregate economic impact analysis, providing the findings from our updated input-output modelling and its associated multipliers.

5 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 Ports 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 engineering and scientific (MES), leisure marine and maritime business services industries, which in themselves are formed of numerous individual and distinct activities, of which the MES industry is the focus of this report.

## 2.1 The definition of the Maritime Sector and its constituent industries

Building up on the experience gained through previous studies for Maritime UK, Cebr has subsequently undertaken a mapping exercise based on the previous study to identify how each of these five industries align with the national accounts. For most industry 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 industry**
  - → Recreational marine activities, marine finance and legal activities and general marine services;
  - → Boatbuilding (marine leisure vessels);
- **Marine engineering and scientific industry**
  - → 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.

In this report we focus solely on the Ports 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 aspects of the industry map against the National Accounts framework.

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

Table 1 below shows how activities for the Ports industry have been identified, and the data sources used to capture and quantify the associated economic activity. As it is possible to separately identify shipping and shipbuilding activities using SIC codes (and for ports by assuming that activity taking place in a council ward with a port is ports-related), business demography data taken from the FAME database has been the major source of information used to generate UK-level estimates for the direct economic impacts of each activity.

Table 1: Mapping of the Ports industry by activity

| GROUPING | ACTIVITY | MAPPING | SOURCE(S) USED |
|---|---|---|---|
| PORTS | Warehousing and Storage | Identified through SIC code 52101, "Operation of Warehousing and Storage Facilities for Water Transport activities". Activities are then mapped to council wards containing major and minor UK ports. | FAME, BRES |
| | Port Authority Management, Port Security and Marshals, Port Marine and Vessel Management Services, Marine Pilots, Port Harbour Support Vessels, and Engineering and Maintenance | Identified through SIC code 52220, "Service activities incidental to water transportation". Activities are then mapped to council wards containing major and minor UK ports. | FAME, BRES |
| | Stevedores, cargo and passenger handling including crane/vehicle/plant drivers/operators | Identified through SIC code 52241, "Cargo Handling for Water Transport Activities". Activities are then mapped to council wards containing major and minor UK ports. | FAME, BRES |
| | Border Agency, Home Office and HMRC staff operating in Ports | Identified as public sector employees operating in UK ports. | Institute for Government, Port Freight Statistics, Cebr analysis |
| SHIPPING | International passenger transport (cruise and ferry) | Identified through SIC code 50100, "Sea and Coastal Passenger Water Transport". | FAME, BRES |
| | Domestic and inland waterway passenger transport | Identified through SIC code 50300, "Inland Passenger Water Transport". | FAME, BRES |
| | International freight transport (bulk, container, gas and tanker) | Identified through SIC codes 50200 and 77342, "Sea and coastal freight water transport", and "Renting and Leasing of Freight Water Transport Equipment". | FAME, BRES |
| | Domestic and inland waterway freight transport | Identified through SIC code 50400, "Inland Freight Water Transport". | FAME, BRES |
| | Other shipping activity | Identified through UKCoS statistics for shipping-related employment. | UKCoS Manpower Survey |
| SHIPBUILDING | Shipbuilding and Marine Engineering | Identified through SIC codes 3011 ("Building of ships and floating structures") and 3315 ("Repair and Maintenance of Ships and Boats") | FAME, BRES |

*Source: Maritime UK, Cebr analysis*

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

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

The first step of this approach involved determining the regional disaggregation of employment for each activity. The major source of employment data by region was the Business Register

and Employment Survey (BRES), [6] as accessed through NOMIS. Employment data associated with each SIC code for the Ports industry were gathered and an implied regional breakdown estimated after interpolating for some missing information. As BRES only provides coverage for Great Britain, employment data in Northern Ireland has been estimated using a combination of BRES and the ONS Annual Business Survey (ABS),[7] the latter providing the proportion of employment in Northern Ireland across the nearest industrial sector category. For the other key macroeconomic indicators – turnover, GVA, and the compensation of employees – ABS has been used alongside the regional employment estimates.

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

- To account for regional differences in average productivity (GVA per employee), the breakdown of GVA has been adjusted using the ONS GVA per employee by region statistics.[8]
- To account for regional differences in wages and salaries, estimated wages and salaries paid to employees in the Ports industry have been adjusted using differentials taken from ASHE.[9]
- To account for regional variation in the ratio of compensation of employees to GVA in different sectors, the compensation of employees for the industry have been adjusted using regional differentials implied by the closest industry, as sourced from the Annual Business Survey.

The regional disaggregation process can therefore be summarised as follows:

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

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

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

8 ONS, 2019. Subregional Productivity: Labour Productivity (GVA per hour worked and GVA per filled job) indices by UK ITL1, ITL2 and ITL3 subregions.

9 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.

- Estimate the regional disaggregation of turnover by applying regional industry turnover-to-GVA ratios sourced from ABS, again constraining the regional totals to the UK total;
- Estimate the regional disaggregation of the compensation of employees (COE) by applying regional industry COE-to-GVA ratios sourced from ABS, again constraining the regional totals to the UK total.

### Ports

Table 2 below shows the breakdown of employment in ports as implied through BRES data. The regions with the largest shares of employment in ports themselves are the South East, Scotland and the North West.

Table 2: The estimated regional breakdown of UK employment in ports activities as implied by BRES and ABS, 2010 to 2019

| EMPLOYMENT | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| England | 78% | 76% | 78% | 76% | 76% | 78% | 77% | 78% | 78% | 80% |
| Scotland | 14% | 15% | 15% | 16% | 17% | 14% | 15% | 16% | 16% | 15% |
| Wales | 5% | 6% | 4% | 5% | 4% | 4% | 4% | 2% | 3% | 2% |
| Northern Ireland | 3% | 4% | 4% | 3% | 3% | 3% | 4% | 4% | 4% | 4% |
| East of England | 9% | 9% | 8% | 8% | 8% | 6% | 9% | 8% | 9% | 7% |
| East Midlands | 2% | 1% | 1% | 1% | 3% | 1% | 1% | 1% | 1% | 1% |
| London | 13% | 14% | 13% | 11% | 13% | 18% | 11% | 11% | 10% | 14% |
| North East | 5% | 4% | 4% | 5% | 5% | 4% | 3% | 3% | 2% | 2% |
| North West | 10% | 10% | 9% | 11% | 11% | 13% | 13% | 12% | 13% | 15% |
| South East | 19% | 20% | 25% | 21% | 20% | 19% | 22% | 25% | 26% | 26% |
| South West | 10% | 9% | 11% | 12% | 10% | 11% | 11% | 12% | 11% | 10% |
| West Midlands | 2% | 1% | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 1% |
| Yorkshire and the Humber | 9% | 9% | 7% | 5% | 4% | 6% | 5% | 6% | 5% | 4% |

*Source: BRES, Cebr analysis*

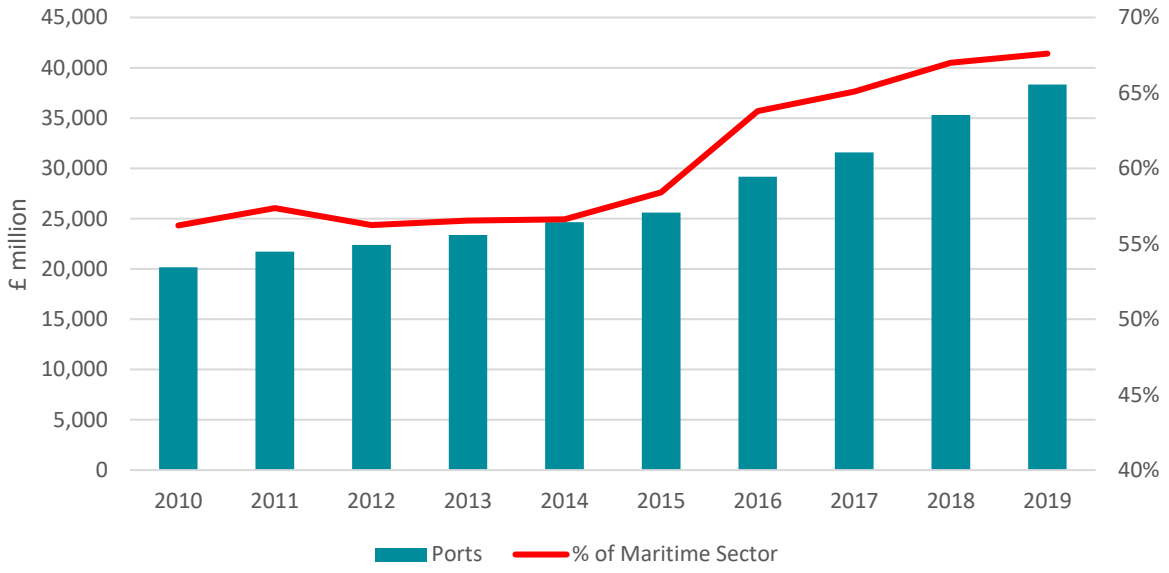
# 3. The direct economic impact of the Ports industry in the UK

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

## 3.1 The direct economic impact through turnover

This section examines the level of turnover which is directly supported by the Ports industry. Figure 1 below illustrates the direct impact of the Ports industry through turnover in the period 2010-2019, both in absolute levels and as a percentage of the total direct contribution from the UK Maritime Sector.

Figure 1: The estimated turnover of the Ports industry, and share of the Maritime Sector's total turnover




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

It is estimated that the total direct impact of the Ports industry through turnover in 2019 was approximately £37.1 billion. This constitutes approximately 66.9% of the total direct impact of the Maritime Sector through turnover. As illustrated, this direct turnover contribution has been fairly consistent from 2010 to 2019; increasing every year and reaching its highest value in 2019.

Not only has turnover from the Ports industry grown over the nine-year period, average profitability (as measured using the aggregated ratio of gross profits to turnover) in the Ports industry is also estimated to have increased since 2010 and compares favourably to that of the overall UK Maritime Sector.

Turnover from the Ports industry has the possibility of growing further and faster as ports across the UK adopt modern technologies increasing efficiency and profitability of the ports. This is in line with the development of Smart Ports where automated processes and improved

supply chain technology will increase the competitive advantage of UK ports. Adopting new technology and developing Smart Ports across the UK is one of the key strategies outlined in the UK Maritime 2050 report.[10]

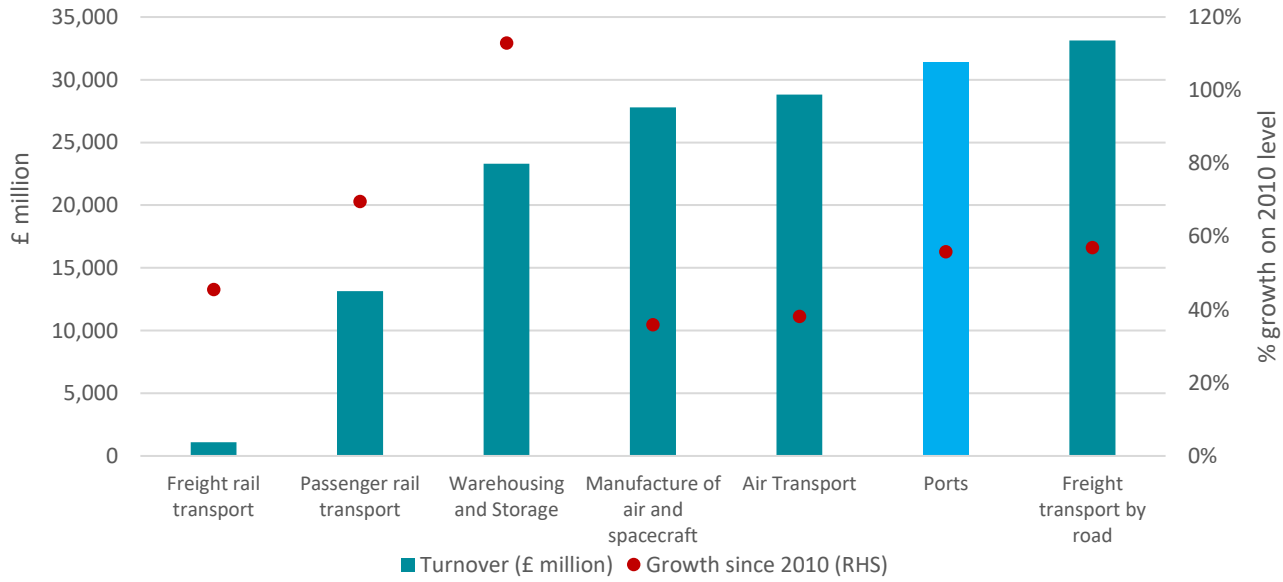
Table 3: Estimated profitability (average gross profit ratio) of the Ports industry and constituent activities

| Profitability | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| UK Maritime Sector | 18.0% | 17.3% | 18.4% | 19.2% | 21.1% | 20.3% | 21.0% | 20.2% |
| UK Ports industry | 16.8% | 16.7% | 18.1% | 18.3% | 20.4% | 20.8% | 21.4% | 20.9% |

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

To place the direct contribution through turnover in context, Figure 2 below compares the port industry's direct contribution through turnover 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 have been sourced from the Annual Business Survey.

Figure 2: The estimated turnover of the Ports industry against comparable industries in 2019, and growth against the 2010 level




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

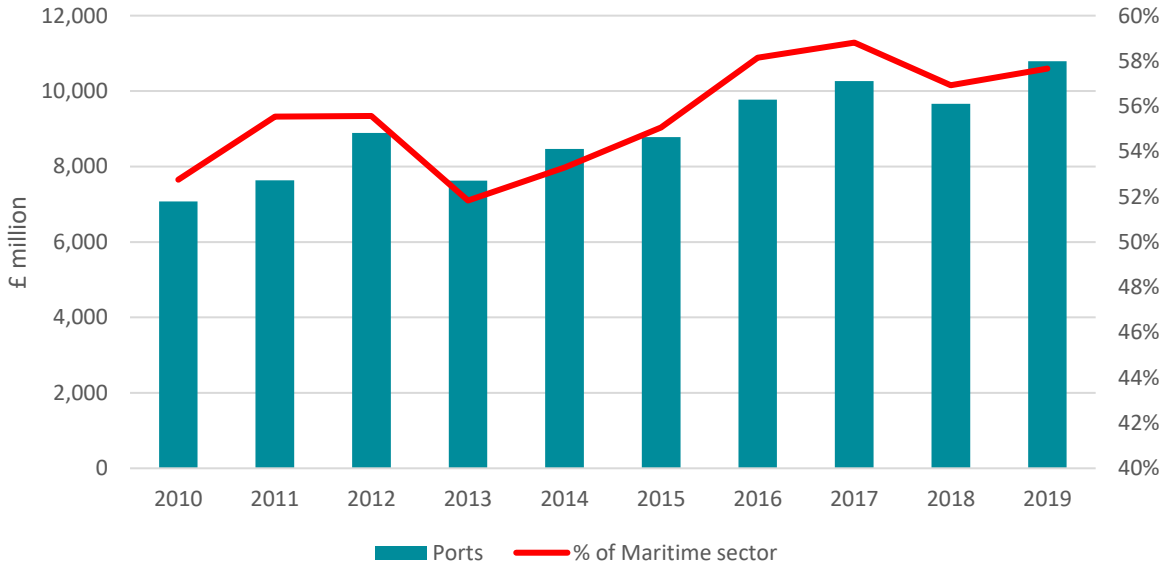
Relative to the comparison activities, the Ports industry experienced the fourth largest growth between 2010 and 2019; at 56%. In contrast, freight rail transport grew only 46% relative to its 2010 level. The estimated turnover of the Ports industry therefore exceeded that of the air transport, warehousing and storage, passenger rail transport and freight rail transport industries.

10 Department of Transport. (2019). 'Maritime 2050'.

## 3.2 The direct impact through GVA

This subsection firstly illustrates the direct contributions in terms of the GVA from the Ports industry to UK GDP. Figure 3 depicts this direct impact across the years 2010 to 2019; both in absolute levels (left axis) and as a percentage of the total Maritime Sector turnover contribution (right axis). It is estimated that the Ports industry directly contributed approximately £10.8 billion to GVA in 2019. This constitutes approximately 57.6% of the total direct GVA contribution from the UK Maritime Sector in the same year.

Figure 3: The direct contribution of the Ports industry through GVA, and the industry's share of the Maritime Sector's total direct contribution through GVA

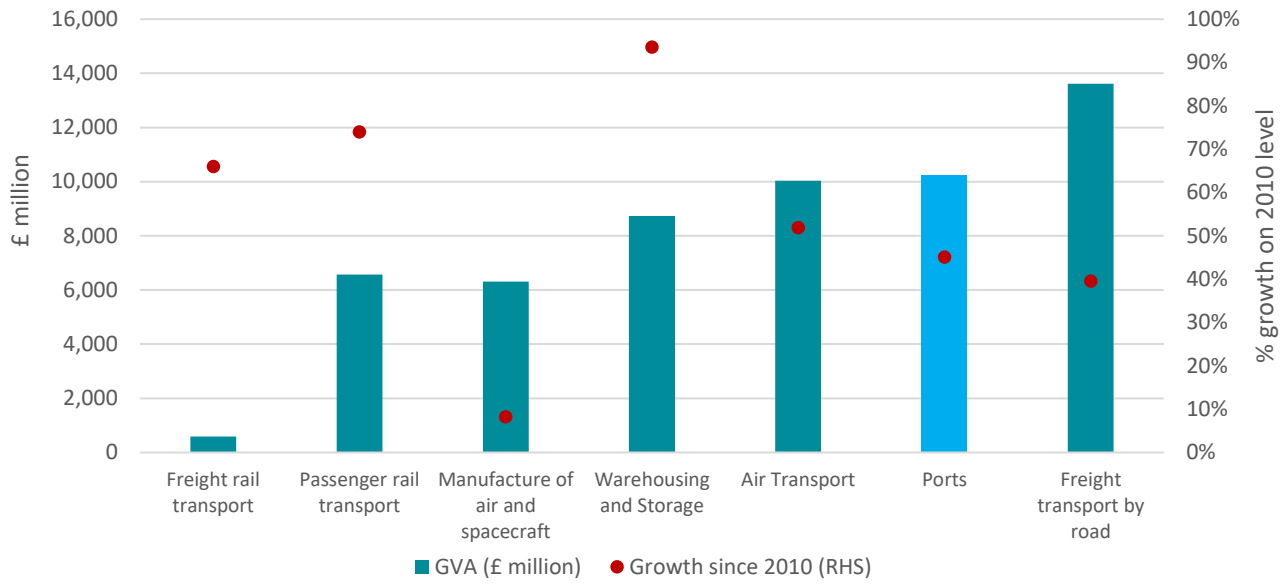



*Source: FAME, UKCoS, ONS, Cebr analysis*

In addition, although not quantified in this study, the Ports industry plays a key role in facilitating a variety of other value-adding activities. These include some leisure marine activities, fishing, and both marine oil and gas production, as well as associated support activities.

Following Figure 2, Figure 4 below compares GVA trends in the Ports industry against those of comparable activities. The Ports industry had the second highest direct GVA contribution in 2019 only exceeded by freight transport by road. However, Ports had a relatively low GVA growth rate of 45%, only surpassing freight transport by road and manufacture of air and spacecraft out of the comparable activities.

Figure 4: The estimated GVA of the Ports industry against comparable industries in 2019, and growth against the 2010 level

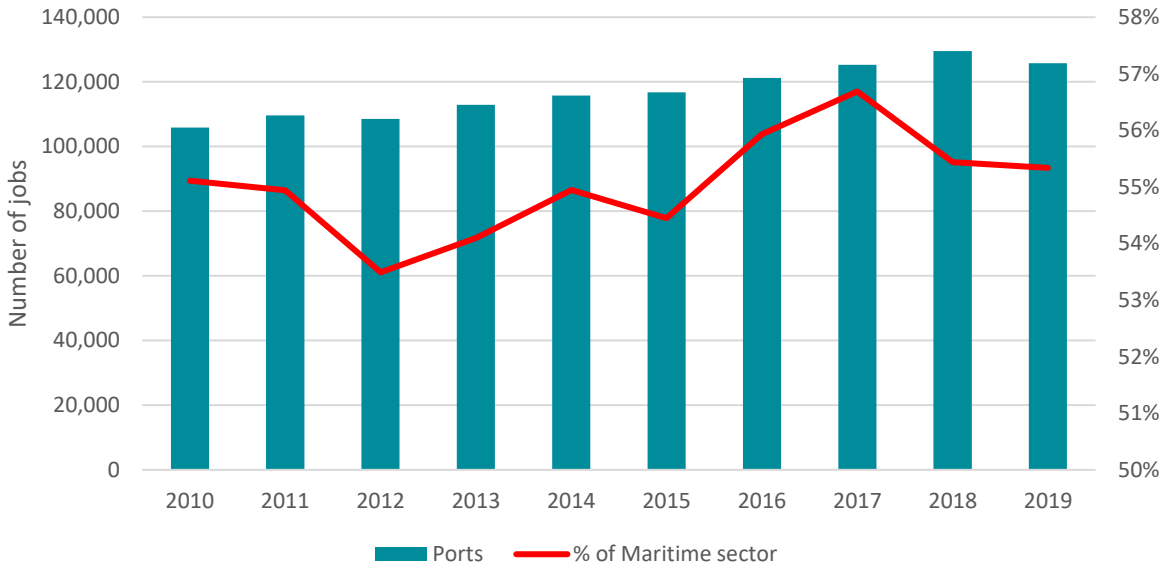



*Source: FAME, UKCoS, ONS, Cebr* analysis

## 3.3 The direct contribution through employment

In addition to its contribution through GVA, the Ports industry also directly supports a significant number of jobs. Figure 5 below shows the estimated direct employment impact for Ports industry for each year from 2010 to 2019; both in absolute levels (left axis) and as a percentage of the total Maritime Sector turnover contribution (right axis).

Figure 5: The direct contribution of the Ports industry to UK employment, and the share of the total direct Maritime Sector contribution to UK employment, 2010 to 2019




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

It is estimated that the Ports industry directly contributed approximately 126,000 jobs in 2019. This constituted approximately 56% of the Maritime Sector direct job contribution in that year. As illustrated, the direct contribution is relatively consistent across the years – both in absolute magnitude and as a percentage of the Maritime Sector direct employment contribution.

Based on the trends in GVA and employment presented in Figure 3 and Figure 5, employees operating in the Ports industry are highly productive, as measured by GVA per job. Table 4 below shows the estimated average productivity of the Ports industry across the years 2010 to 2019, and compared against the average productivity level of the Maritime Sector and the UK as a whole. The Ports industry as a whole is more productive than the broader Maritime Sector and significantly higher than the UK average.

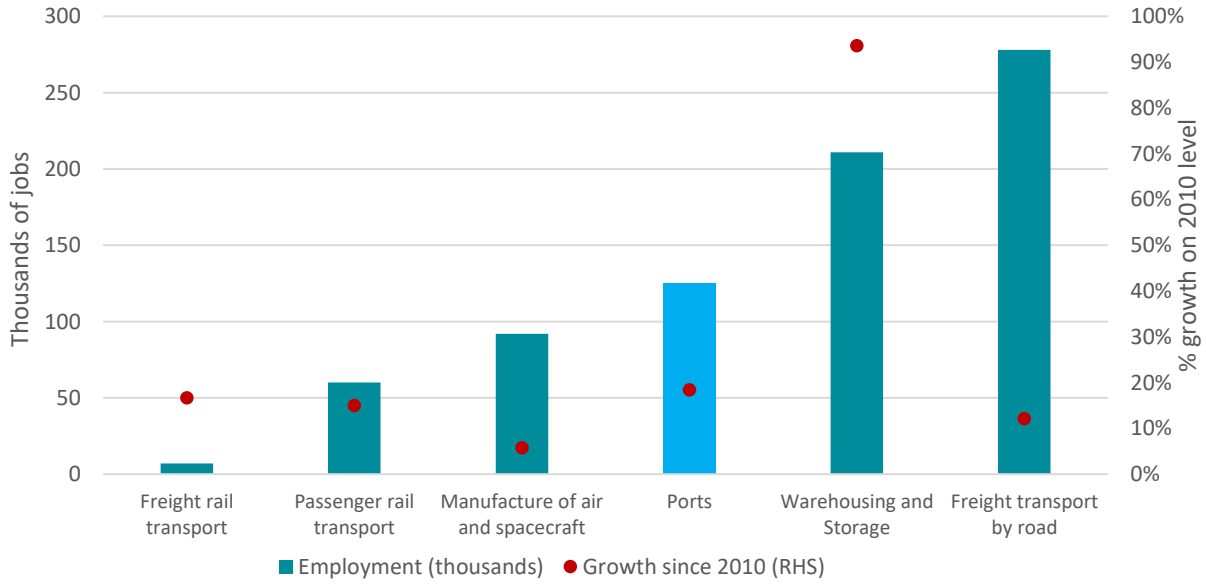
Table 4: Average productivity (GVA per job) in the Ports industry in comparison to the Maritime Sector and UK economy

| GVA per employee | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| UK economy | 46,953 | 47,857 | 48,973 | 50,158 | 51,356 | 52,546 | 53,779 | 55,066 | 56,088 | 56,670 |
| Maritime Sector | 69,858 | 68,874 | 78,836 | 70,499 | 75,385 | 74,332 | 77,548 | 78,999 | 72,760 | 82,329 |
| Ports industry | 66,855 | 69,621 | 81,890 | 67,538 | 73,112 | 75,152 | 80,607 | 81,951 | 74,841 | 85,805 |

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

Figure 6 below compares the direct contribution that the Ports industry made through UK employment in 2019 against comparable industries and activities. Employment in the Ports industry exceeded aggregate employment in the manufacture of air and spacecraft; passenger rail transport and freight rail transport.

Figure 6: The estimated employment of the Ports industry against comparable industries in 2019 and growth relative to 2010

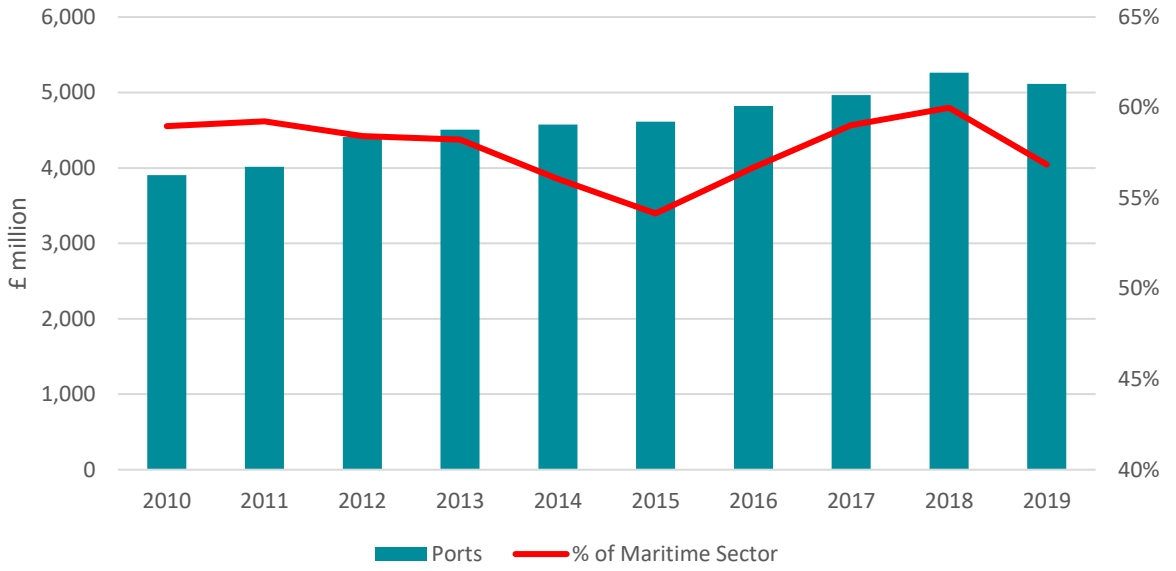



*Source: FAME, UKCoS, ONS, Cebr analysis*

## 3.4 The direct impact through the compensation of employees

This section considers the compensation of employees which is directly supported by the Ports industry. Figure 7 below depicts the direct impact of the Ports industry to employee compensation for each of the years 2010 to 2019; both in absolute terms and as a percentage of the total Maritime Sector contribution.

Figure 7. The direct contribution of the Ports industry to the compensation of employees, and the share of the total contribution from the UK Maritime Sector, 2010 to 2019




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

It is estimated that direct employee compensation of the Ports industry in 2019 was £5.1 billion. This constitutes approximately 57% of the total Maritime Sector total in the same year. In absolute terms, the direct impact of employee compensation increased each year until 2018, followed by a slight decrease in 2019. In terms of the average employee compensation, the Ports industry compares favourably to the UK Maritime Sector and the UK average as shown in Table 5. In 2019, the average compensation per employee stood at £40,595, compared to £39,532 for the Maritime Sector as a whole and £28,927 for the UK average. It is important to note, however, that there is no readily available public data on UK average compensation of employees like there is for GVA per worker. Therefore, the average compensation per employee for the UK as a whole was calculated using figures from the ABS on total employment costs.[11]

11 The ABS defines total employment costs as "all gross wages and salaries, overtime payments, bonuses, commissions, payments in kind, benefits in kind, holiday pay, employer's national insurance contributions, payments into pension funds by employers and redundancy payments less any amounts reimbursed for this purpose from government sources. No deduction is made for income tax or employee's national insurance

Table 5: Average employee compensation in the Ports industry in comparison to the Maritime Sector and UK economy

| COE per employee | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| UK economy | 23,161 | 23,638 | 24,007 | 24,589 | 25,224 | 25,473 | 25,777 | 26,618 | 27,070 | 28,927 |
| Maritime Sector | 34,463 | 33,934 | 37,158 | 37,072 | 38,723 | 39,704 | 39,197 | 38,040 | 37,452 | 39,532 |
| Ports industry | 36,853 | 36,579 | 40,564 | 39,897 | 39,486 | 39,464 | 39,706 | 39,593 | 40,500 | 40,595 |

*Source: FAME, UKCoS, ONS, ABS, Cebr analysis*

## 3.5 The direct Exchequer contribution

In order to capture the incidence of taxation through the direct activities (rather than indirect and induced), Cebr has measured the direct contribution through the revenues raised from the tax heads listed below. It has been assumed that the Ports industry has not generated Value-Added Tax (VAT) revenues for the UK Exchequer, with zero-rating applying to shipping services and shipbuilding.[12]

- Income Tax;
- National Insurance Contributions (NICs) – from both Employer and Employee contributions;
- Corporation Tax;
- National Non-Domestic Rates (Business Rates)

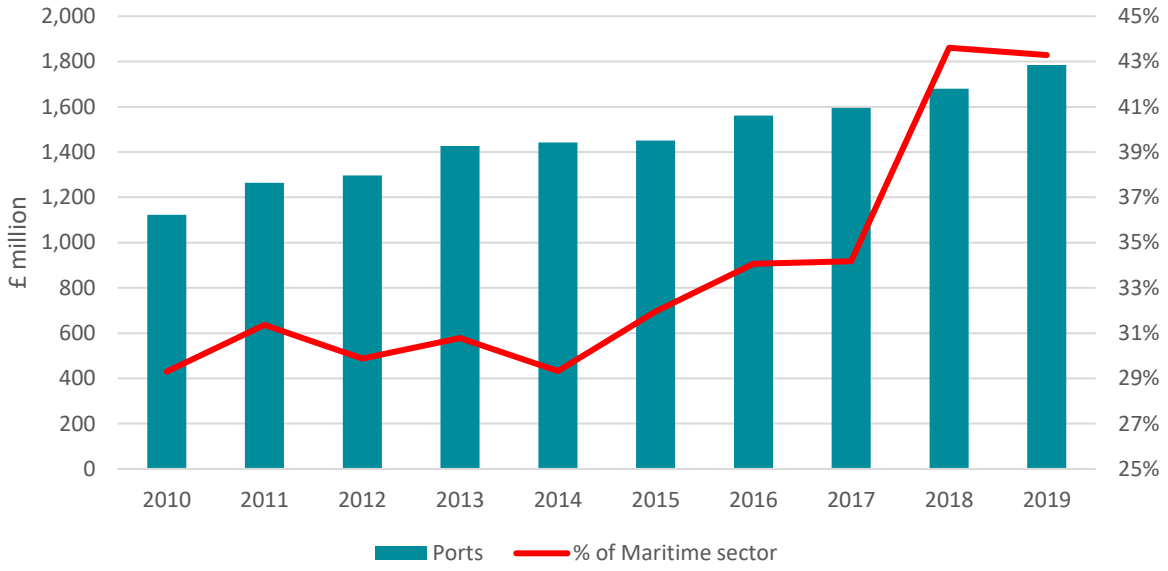
For the personal taxes listed above, Income Tax and NICs revenues have been calculated by applying tax rates to the estimated wages and salaries paid to employees operating in the Ports industry; rates and thresholds have been sourced from HMRC for the years 2010 to 2019. Wages and salaries for employees have been sourced from the Annual Survey for Hours and Earnings (ASHE). 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 Maritime Sector GVA, drawing upon the ONS Annual Business Survey (ABS).

contributions etc. Payment to working proprietors, travelling expenses, lodgings allowances, etc are excluded." Therefore, making it a suitable equivalent to compensation of employees.

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

Figure 8 below shows the direct contribution of the Ports industry to the UK Exchequer in the years 2010 to 2019. The total Exchequer contribution is estimated to have been £1.8 billion in 2019.

Figure 8. The direct contribution of the Ports industry to the UK Exchequer, and this as a share of the Maritime Sector's total contribution to the UK Exchequer, 2010 to 2019, £ million

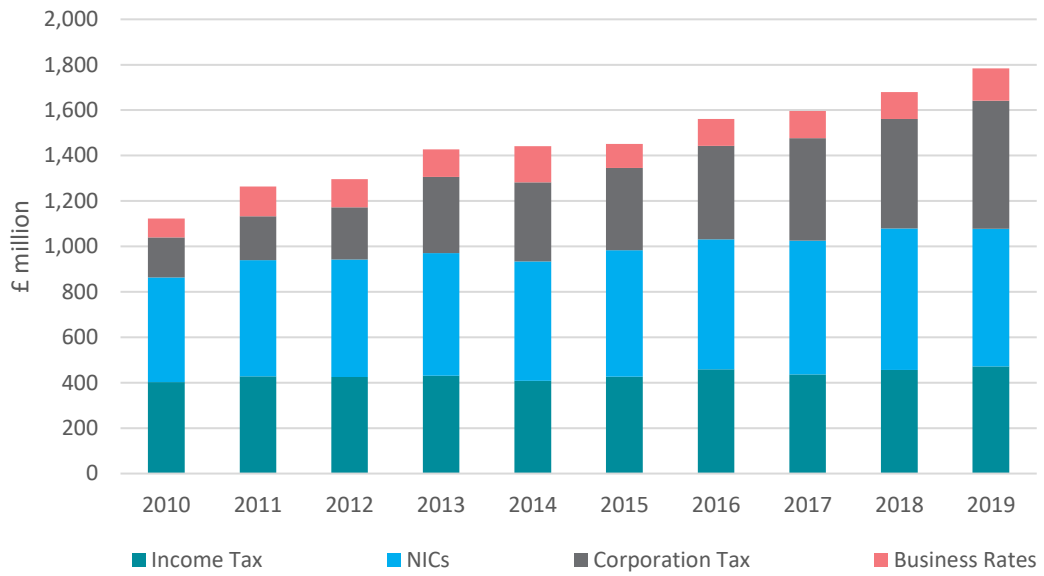



*Source: FAME, UKCoS, ONS, Cebr analysis*

The Ports industry makes a significant and growing contribution to the UK Maritime Sector's overall Exchequer payments, rising from 29% in 2010 to 43% in 2019.

Figure 9 below disaggregates the direct contribution by tax head across the years 2010 to 2019. Until 2016, there is a clear ordering: NICs and Income Tax contribute the largest share (in that order), followed by Corporation Tax and then Business Rates. From 2017 onwards Corporation Tax overtook Income Tax as the second largest contributor, with the exact shares in 2019 as follow: 34% for NICs; 32% for Corporation Tax; 26% for Income Tax; and 8% for Business Rates.

Figure 9. The direct contribution of the Ports industry to the UK Exchequer by tax head, 2010 to 2019, £ million.

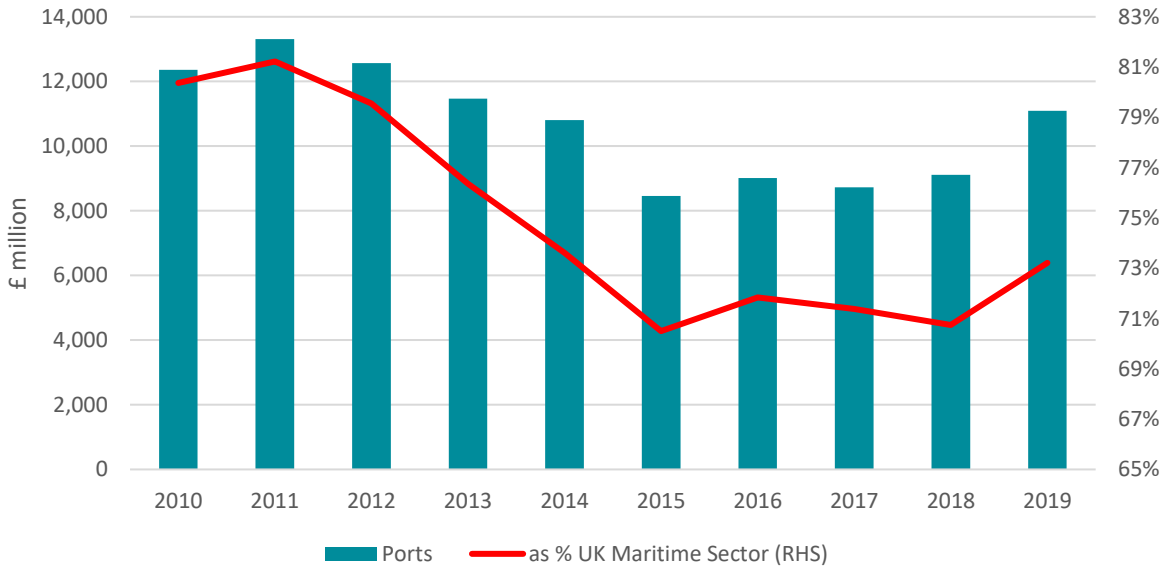



*Source: ONS, FAME, Cebr analysis*

## 3.6 The direct contribution through the exports of goods and services

Figure 10 below shows the estimated value of exports between 2010 and 2019, both in absolute terms and as a percentage of the total Maritime Sector contribution.

Figure 10. Exports of goods and services from the Ports industry, 2010 to 2019, £ million

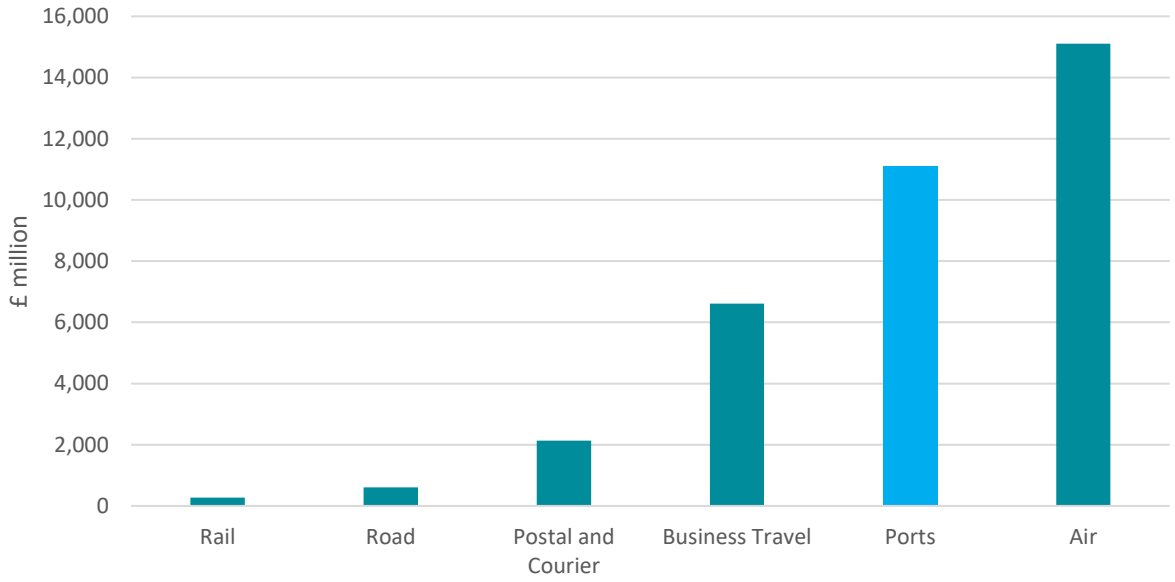



*Source: UKCoS, ONS, Cebr analysis*

A total value of approximately £8.7 billion in goods and services was exported by the Ports industry in 2019, equating to 58% of total Maritime Sector exports that year.

Figure 11 compares exports from the Ports industry against those from other transportation activities. We observe that the value of exports of services from the Ports industry was significantly in excess of that of road, rail and postal and courier activities as well as business travel, although below that of the air transport industry in 2019.

Figure 11: Exports of services from the Ports industry against comparable transportation activities, 2019, £ million




*Source: ONS, Cebr analysis*

# 4. The aggregate economic impact of the Ports industry in the UK

This section sets out the aggregate economic impacts of the Ports 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. Note that the methodology used to generate these multipliers is consistent to that employed in our 2019 study.

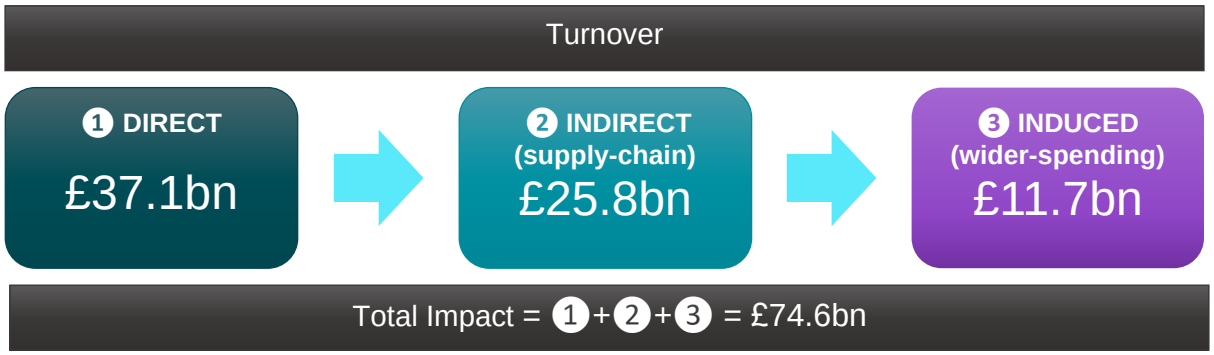
Within this report, we also present estimates for the aggregate impact of the ports industry, incorporating methodological refinements made to the modelling framework which have been developed since 2019. These figures based on Cebr's updated methodology can be found in the annex.

## 4.1 The aggregate economic impacts through turnover

Figure 12 below illustrates the turnover multipliers for the Ports industry within the UK. The Ports industry directly contributed £37.1 billion in turnover in 2019, where £25.8 billion worth of turnover is stimulated in the supply chains and £11.7 billion worth of turnover in the wider economy when direct and indirect employees spend their earnings. Once the indirect and induced economic channels are taken into consideration the Ports industry is seen to support £74.6 billion in turnover.

**Alternatively, this can be interpreted as for every £1 of turnover initially generated by the Ports industry, the UK economy as a whole experiences a stimulus in turnover of £2.01.**

Figure 12: Turnover multiplier impacts of the UK Ports industry in 2019




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table 6 below presents in each year the direct contribution to turnover from the Ports industry, alongside our estimate of the composite turnover multiplier that applies to the entire industry, together with some indicative estimates for the aggregate impact.[13]

Table 6: Direct and total turnover impact of the Ports industry, 2010 to 2019, £ million

| | Direct Impact | Composite Turnover multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 20,155 | 2.01 | 41,093 |
| 2011 | 21,725 | | 44,450 |
| 2012 | 22,382 | | 45,584 |
| 2013 | 23,362 | | 47,638 |
| 2014 | 24,632 | | 50,256 |
| 2015 | 25,607 | | 52,164 |
| 2016 | 29,162 | | 59,204 |
| 2017 | 31,411 | | 63,730 |
| 2018 | 34,060 | | 68,815 |
| 2019 | 37,112 | | 74,592 |

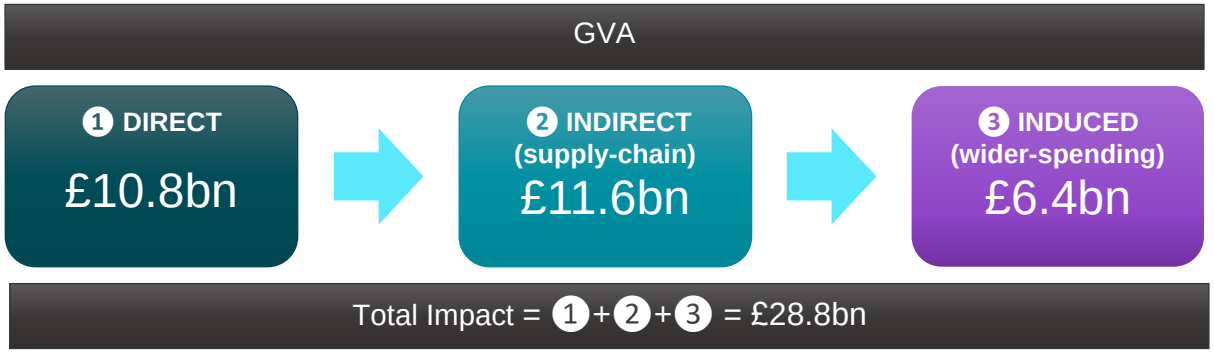
*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

## 4.2 The aggregate economic impacts through GVA

Figure 13 below illustrates the GVA multipliers for the Ports industry within the UK, disaggregated by industry activity. The Ports industry directly contributed £10.8 billion towards UK GDP in 2019; once the indirect and induced economic channels are taken into consideration the Ports industry contributed £28.8 billion.

**Therefore, after combining each industry activity, for every £1 of GVA generated by the Ports industry, a further £1.67 of GVA is supported across the UK economy.**

Figure 13: GVA multiplier impacts of Ports industry in 2019




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

13 Note that we are applying our multipliers as calculated using our latest input-output model, to the figures for the whole decade. So we are in effect assuming the multipliers calculated based on the 2019 direct impacts also apply back to 2010.

Table 7 below presents the direct contribution to GVA alongside our estimate of the composite GVA multiplier that applies to the entire industry, an estimated 2.67 in 2019. The aggregate GVA impact from the Ports industry increased from £18.7 billion in 2010 to £28.8 billion in 2019. Note that just like for Table 6, the aggregate impacts timeseries is an indicative estimate.

Table 7: Direct and aggregate GVA impact of the Ports industry, 2010 to 2019, £ million

| | Direct Impact | Composite GVA multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 7,073 | 2.67 | 18,721 |
| 2011 | 7,630 | | 20,302 |
| 2012 | 8,126 | | 21,605 |
| 2013 | 7,622 | | 20,343 |
| 2014 | 8,459 | | 22,593 |
| 2015 | 8,773 | | 23,469 |
| 2016 | 9,771 | | 26,103 |
| 2017 | 10,264 | | 27,436 |
| 2018 | 9,593 | | 25,641 |
| 2019 | 10,776 | | 28,791 |

*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

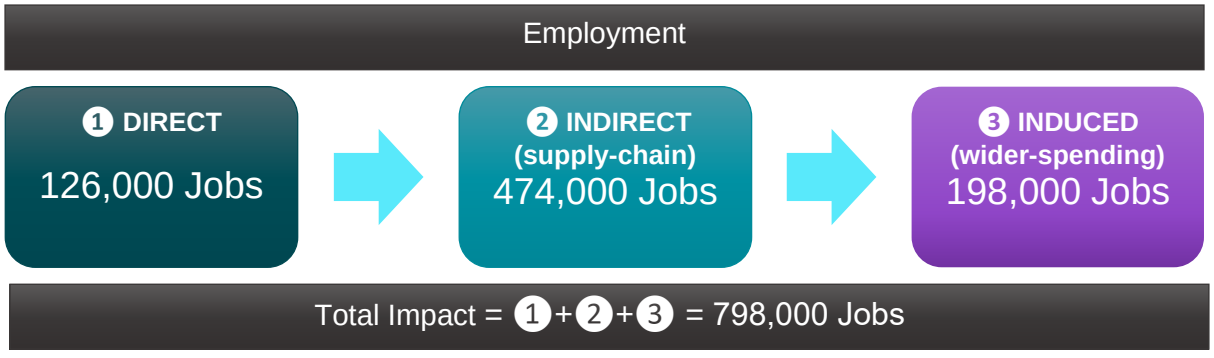
## 4.3 The aggregate economic impacts through employment

Figure 14

Figure 14 below illustrates the employment multipliers for the Ports industry within the UK. The number of jobs directly supported by the Ports industry in 2019 was 126,000 whilst 672,000 jobs were supported once the indirect and induced impacts of the industry are taken into account. The aggregate employment impact of the Ports industry on the UK economy was 798,000 jobs in 2019.

**On an individual level, this can be interpreted as for every job created by the Ports industry, a further 5.35 jobs are supported within the UK economy in total.**

Figure 14: Employment multiplier impacts of the Ports industry in 2019




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table 8 shows the direct and aggregate employment impacts of the Ports industry between 2010 and 2019. In line with an increasing direct contribution to UK employment between 2010 and 2019, the aggregate employment impact has also increased, from 424,800 jobs in 2010 to 797,600 jobs in 2019. The composite multiplier for the industry has remained the same

across the years at 6.35. Note that just like for Table 6 and Table 7, the aggregate impacts timeseries is an indicative estimate.

Table 8: Direct and aggregate employment impact of the Ports industry, 2010 to 2019

| | Direct Impact | Composite Employment multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 105,793 | 6.35 | 424,843 |
| 2011 | 109,595 | | 693,993 |
| 2012 | 108,553 | | 702,995 |
| 2013 | 112,854 | | 723,008 |
| 2014 | 115,704 | | 734,964 |
| 2015 | 116,734 | | 747,279 |
| 2016 | 121,222 | | 767,676 |
| 2017 | 125,249 | | 800,668 |
| 2018 | 128,173 | | 808,680 |
| 2019 | 125,590 | | 797,586 |

*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

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

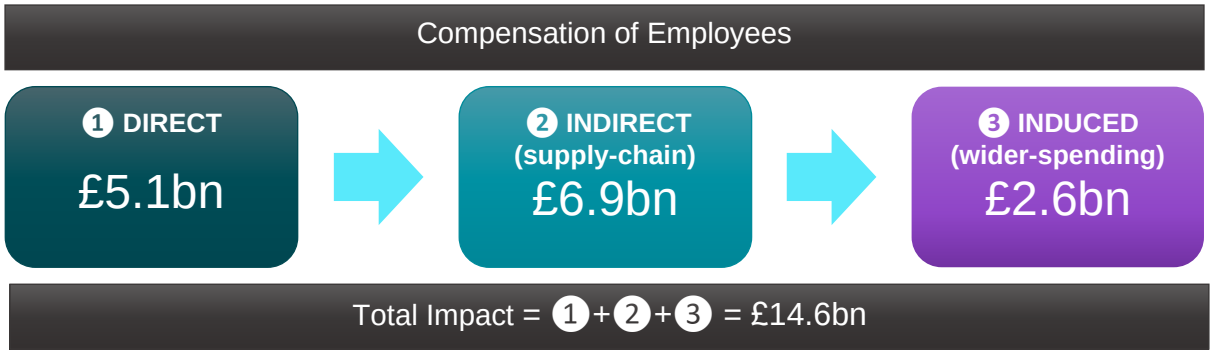
In this final subsection we consider the aggregate economic impact of the Ports industry through the compensation of employees.

Figure 15 below illustrates the direct, indirect and induced compensation of employee impacts associated with the industry.

The direct impact of the compensation of employees from the Ports industry was £5.1 billion in 2019, whereas £6.9 billion of employee compensation is stimulated in the supply chains and £2.6 billion in the wider economy when direct and indirect employees spend their earnings. The total impact of the compensation of employees was £14.6 billion.

**Alternatively, this can be interpreted as follows, for the Ports industry as a whole, for every £1 directly paid in the compensation of employees in 2019, a total of £2.87 in employee compensation was supported in the UK economy.**

Figure 15: Aggregate contribution of the Ports industry through the compensation of employees




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table 9 presents the direct contribution to COE alongside our estimate of the composite compensation of employees (COE) multiplier that applies to the Ports industry, an estimated 2.87 in 2019. The composite multiplier for the Ports industry has remained relatively constant since 2010.

However, due to growth in the Ports industry, the aggregate impact through the compensation of employees has risen from £11.3 billion in 2010 to approximately £14.6 billion in 2019. Note that just like for the previous tables, the aggregate impacts timeseries below is an indicative estimate.

Table 9: Direct and aggregate impacts through the compensation of employees from the Ports industry, 2010 to 2019, £ million

| | Direct Impact | Composite Employee Compensation multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 3,899 | 2.87 | 11,267 |
| 2011 | 4,009 | | 11,512 |
| 2012 | 4,403 | | 12,532 |
| 2013 | 4,503 | | 12,814 |
| 2014 | 4,569 | | 13,009 |
| 2015 | 4,607 | | 13,192 |
| 2016 | 4,813 | | 13,858 |
| 2017 | 4,959 | | 14,196 |
| 2018 | 5,191 | | 14,862 |
| 2019 | 5,098 | | 14,623 |

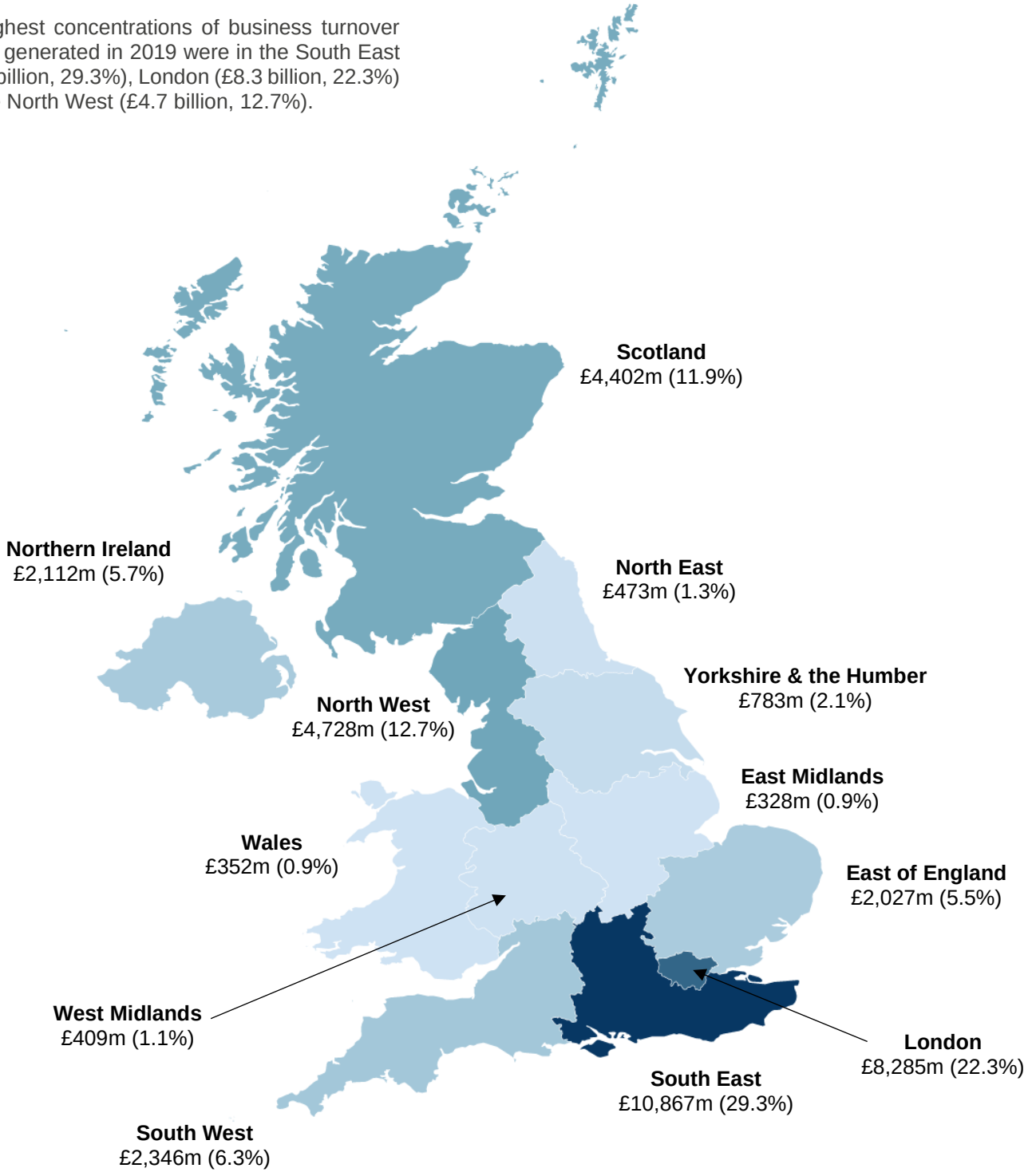
*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

# 5. The regional economic impact of the Ports industry

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

Figure 16: Regional breakdown of turnover directly contributed by the Ports industry, £ million, 2019

The highest concentrations of business turnover directly generated in 2019 were in the South East (£10.9 billion, 29.3%), London (£8.3 billion, 22.3%) and the North West (£4.7 billion, 12.7%).

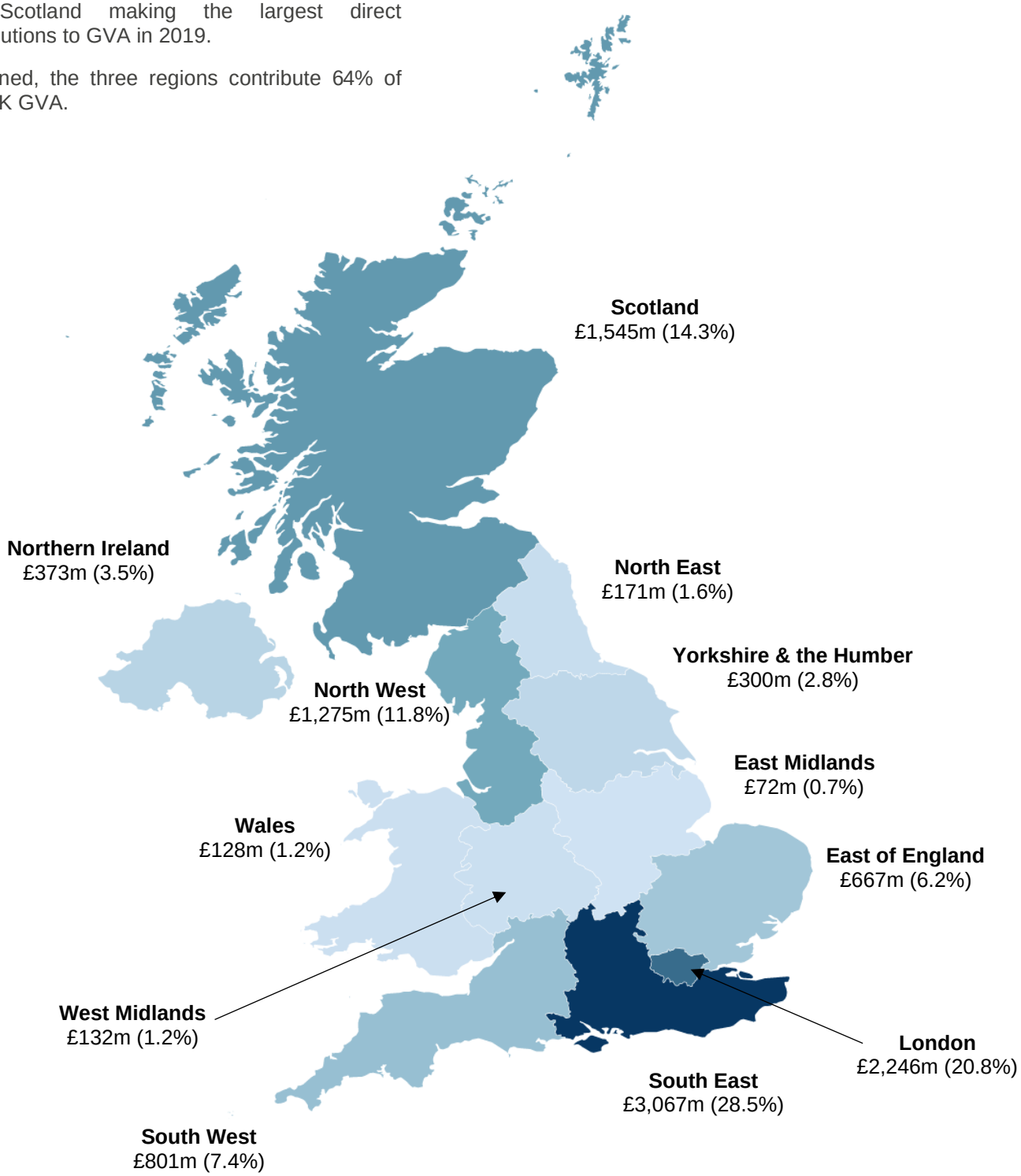



*Source: FAME, UKCoS, ONS, Cebr analysis*

Figure 17: Regional breakdown of GVA directly contributed by the Ports industry, £ million, 2019

An inspection of the regional breakdown of GVA yields similar results, with the South East, London and Scotland making the largest direct contributions to GVA in 2019.

Combined, the three regions contribute 64% of total UK GVA.

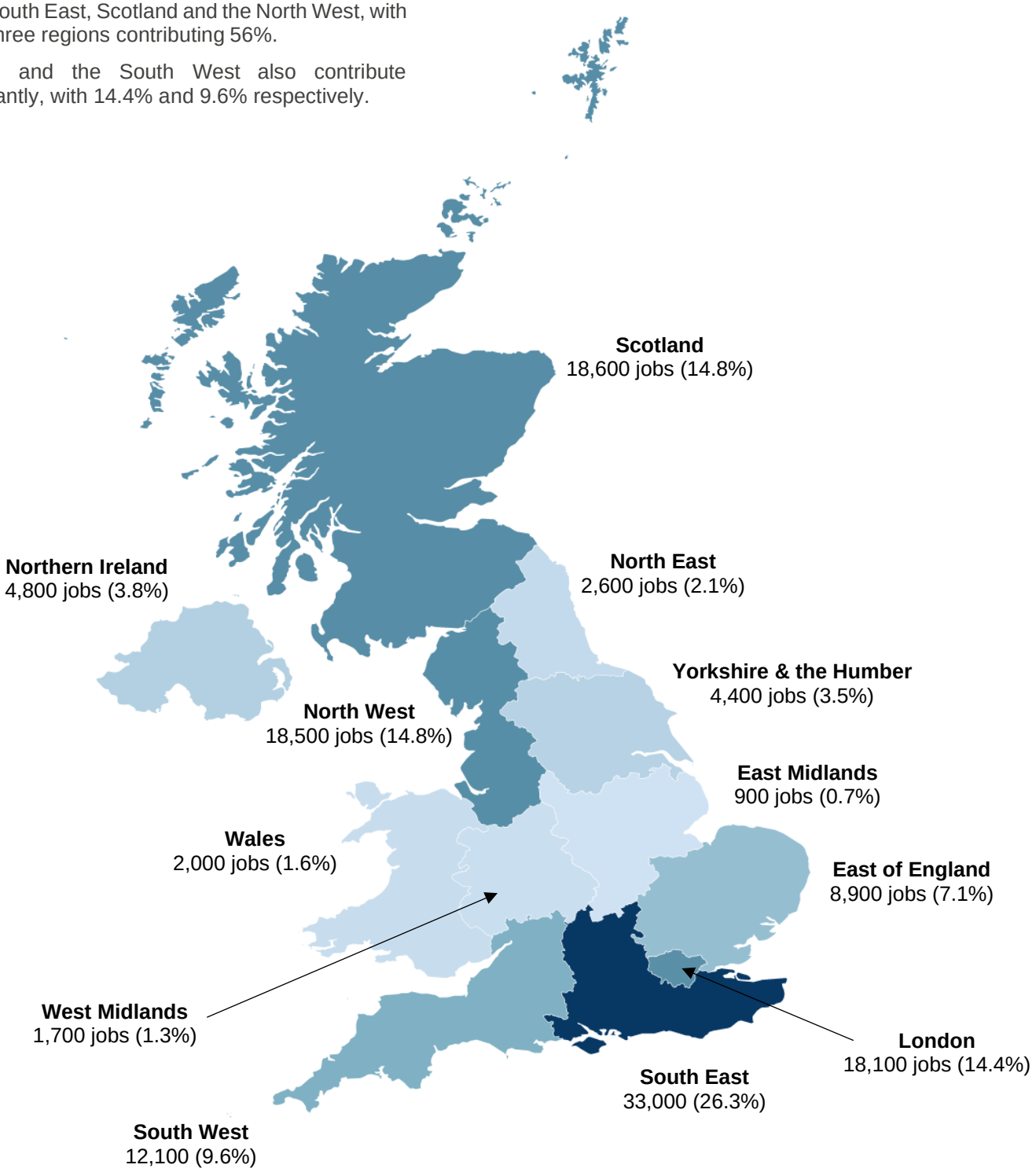



*Source: FAME, UKCoS, ONS, Cebr analysis*

Figure 18: Regional breakdown of employment directly contributed by the Ports industry, 2019

The majority of direct employment is concentrated in the South East, Scotland and the North West, with these three regions contributing 56%.

London and the South West also contribute significantly, with 14.4% and 9.6% respectively.

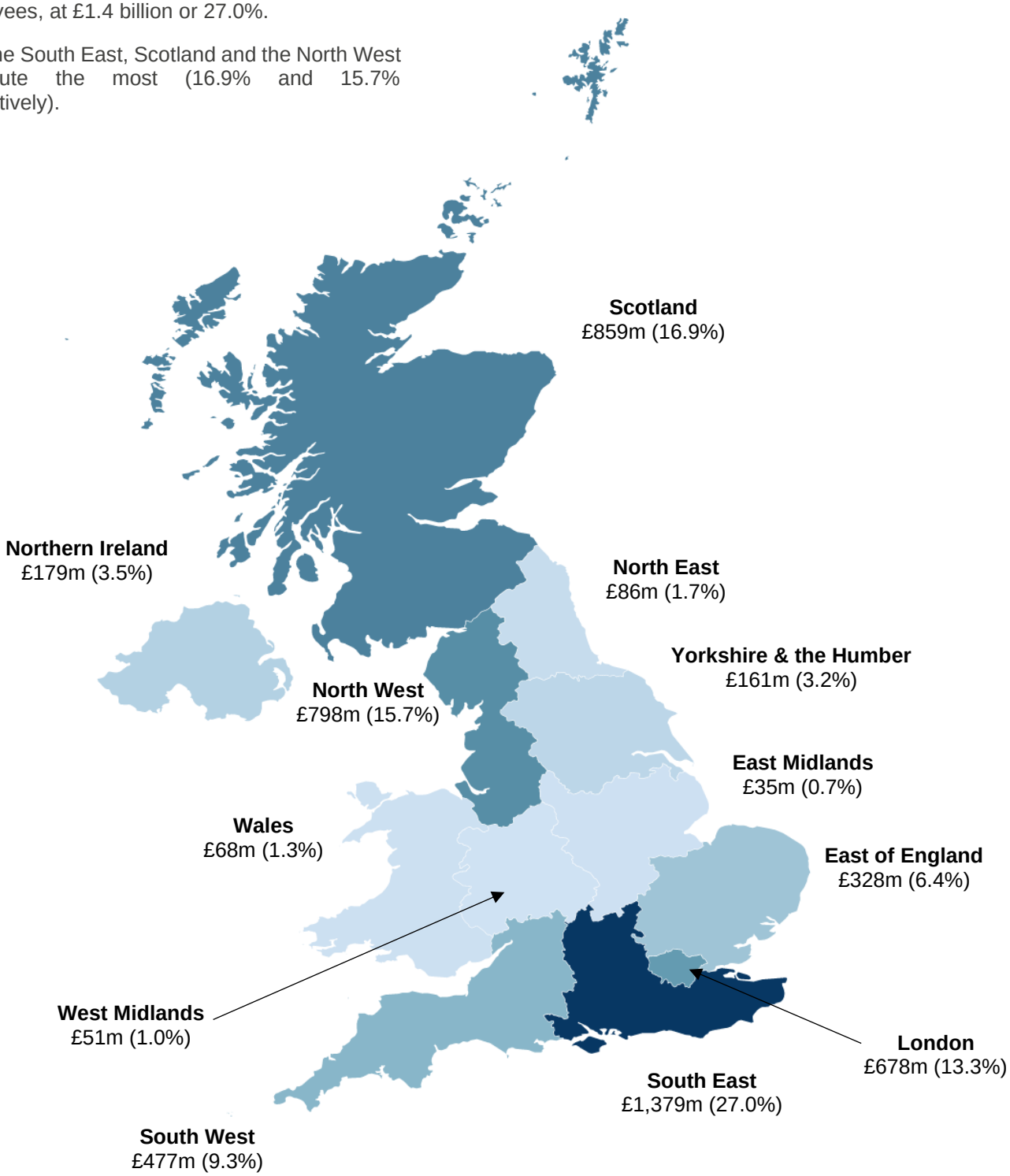



*Source: FAME, UKCoS, ONS, Cebr analysis*

Figure 19: Regional breakdown of the COE directly contributed by the Ports industry, £ million, 2019

Just like with other metrics, the South East contributes the largest share of compensation of employees, at £1.4 billion or 27.0%.

After the South East, Scotland and the North West contribute the most (16.9% and 15.7% respectively).




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

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

This final subsection examines the aggregate economic impact of the Ports industry across each region for the four macroeconomic indicators covered in the previous subsection. To estimate the aggregate economic impact of the industry at a 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 Ports industry were separately identified and isolated.

It is important to note that the economic impact multipliers as estimated for each region are necessarily lower than the equivalent multiplier for the Ports 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. Note that the methodology used to generate these multipliers is consistent to that employed in our 2019 study.

Within this report, we also present estimates for the aggregate impact of the ports industry, incorporating methodological refinements made to the modelling framework which have been developed since 2019. These figures based on Cebr's updated methodology can be found in the annex.

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

Table 10 shows the breakdown of direct and aggregate economic impacts for business turnover and GVA in 2019, alongside the composite industry multiplier for each region. The region with the largest aggregate impacts through turnover and GVA was the South East, with an aggregate impact of £21.1 billion for turnover and £8.1 billion for GVA, followed by London. For GVA and turnover, the highest multiplier impacts are associated with the Scotland, North West, Northern Ireland, the South West and the East Midlands.

Table 10: Regional breakdown of the aggregate economic impact through turnover and GVA contributed by the Ports industry in 2019, £ million

| | Turnover | | | GVA | | |
|---|---|---|---|---|---|---|
| Region | Direct Impact | Industry Multiplier | Aggregate Impact | Direct Impact | Industry Multiplier | Aggregate Impact |
| Scotland | 4,402 | 2.2 | 9,665 | 1,545 | 2.8 | 4,379 |
| Wales | 352 | 2.0 | 711 | 128 | 2.5 | 317 |
| Northern Ireland | 2,112 | 1.9 | 3,971 | 373 | 2.6 | 953 |
| East of England | 2,027 | 2.0 | 4,015 | 667 | 2.5 | 1,667 |
| East Midlands | 328 | 2.4 | 795 | 72 | 2.5 | 178 |
| London | 8,285 | 1.7 | 14,239 | 2,246 | 2.5 | 5,534 |
| North East | 473 | 2.2 | 1,021 | 171 | 2.4 | 407 |
| North West | 4,728 | 2.1 | 10,038 | 1,275 | 2.9 | 3,682 |
| South East | 10,867 | 1.9 | 21,085 | 3,067 | 2.6 | 8,101 |
| South West | 2,346 | 2.8 | 6,507 | 801 | 3.3 | 2,654 |
| West Midlands | 409 | 1.8 | 724 | 132 | 2.3 | 304 |
| Yorkshire and the Humber | 783 | 2.0 | 1,578 | 300 | 2.4 | 724 |

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

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

Finally, Table 11 below shows the breakdown of direct and aggregate economic impacts for employment and the compensation of employees in 2019, alongside the composite industry multiplier for each region. The region with the largest aggregate impacts through employment and the compensation of employees was the South East, with an aggregate impact of 230,800 and £4.2 billion, respectively.

Table 11: Regional breakdown of the aggregate economic impact through employment and the compensation of employees contributed by the Ports industry in 2019 (employment in thousands of jobs; compensation of employees in £ million)

| | Employment | | | Compensation of Employees | | |
|---|---|---|---|---|---|---|
| Region | Direct Impact | Industry Multiplier | Aggregate Impact | Direct Impact | Industry Multiplier | Aggregate Impact |
| Scotland | 18,584 | 6.2 | 115,535 | 859 | 3.1 | 2,647 |
| Wales | 2,000 | 4.2 | 8,358 | 68 | 2.5 | 168 |
| Northern Ireland | 4,818 | 7.1 | 33,983 | 179 | 2.9 | 524 |
| East of England | 8,866 | 4.4 | 38,935 | 328 | 2.6 | 840 |
| East Midlands | 853 | 4.4 | 3,713 | 35 | 2.6 | 90 |
| London | 18,141 | 8.6 | 156,129 | 678 | 3.1 | 2,095 |
| North East | 2,596 | 3.6 | 9,248 | 86 | 2.3 | 201 |
| North West | 18,526 | 5.2 | 96,275 | 798 | 2.9 | 2,286 |
| South East | 33,005 | 7.0 | 230,837 | 1,379 | 3.1 | 4,227 |
| South West | 12,098 | 4.5 | 54,218 | 477 | 3.0 | 1,412 |
| West Midlands | 1,685 | 6.7 | 11,366 | 51 | 2.6 | 136 |
| Yorkshire and the Humber | 4,419 | 3.8 | 16,903 | 161 | 2.4 | 379 |

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

# 6. The Ports industry: A forward look

In this final section of the report, we present projections of the Ports industry for the period 2021-2025. The section starts off by discussing the conceptual approach that we have developed to produce projections of the direct economic impacts after 2019 and then presents our 2020 nowcast as well as our forecasts of the turnover and GVA over the period 2021-2025.

It should be noted that for the purposes of this section, we adhere to the definitional mapping of the Ports industry as set out by Maritime UK, rather than the one used elsewhere in this report.

## The Ports industry Forecast (2021-2025)

### Modelling approach

We investigate the relationship between the Ports industry and a number of economic variables through an econometric approach. Our findings show that the performance of the Ports industry is primarily explained by trends in port freight traffic as well as the general transport and storage sector of the UK economy. Although this relationship is more significant with regards to port freight traffic, it should be noted that this link appears to have weakened over time. Indeed, insights Cebr gained from discussions with industry representatives confirmed that some port operators are consciously trying to weaken the relationship. This is part of a long-term plan to move ports away from a volume-based strategy to one that focuses more on value. Nevertheless, this relationship remains an important link and so for the purposes of this analysis we use port freight as the main explanatory variable. Given that these are long-term strategies, and our forecast models the industry's short to medium-term trajectory, volume remains a relevant driver for growth. By modelling growth in turnover over growth in port freight traffic, we find that a 1% increase in traffic is associated with a 1.67% increase in the industry economic performance, as measured by business turnover. For growth in ports turnover over growth in the UK transport and storage sector, the equivalent associated increase is of 1.68%.

### Modelling Assumptions

#### Growth rate of port freight traffic, transportation and storage

Cebr's Forecasting and Thought Leadership team produces regular forecasts of key economic indicators for the UK national and regional economies which can directly inform our analysis. We therefore rely on our own forecast of the UK transportation and storage sector. After a moderate recovery in 2021-22, Cebr expects growth in the sector to slow down thereafter. This is slightly less optimistic than what is reflected in our view of the GDP trajectory, which is expected to grow at a stronger Compounded Annual Growth rate (CAGR) of 2.4% over 2021-2025 in real terms. A high level of uncertainty characterises the forecast as the global recovery from the pandemic and the potential development of new variants, as well as the ongoing outcome of Brexit negotiations could easily shift the projections.

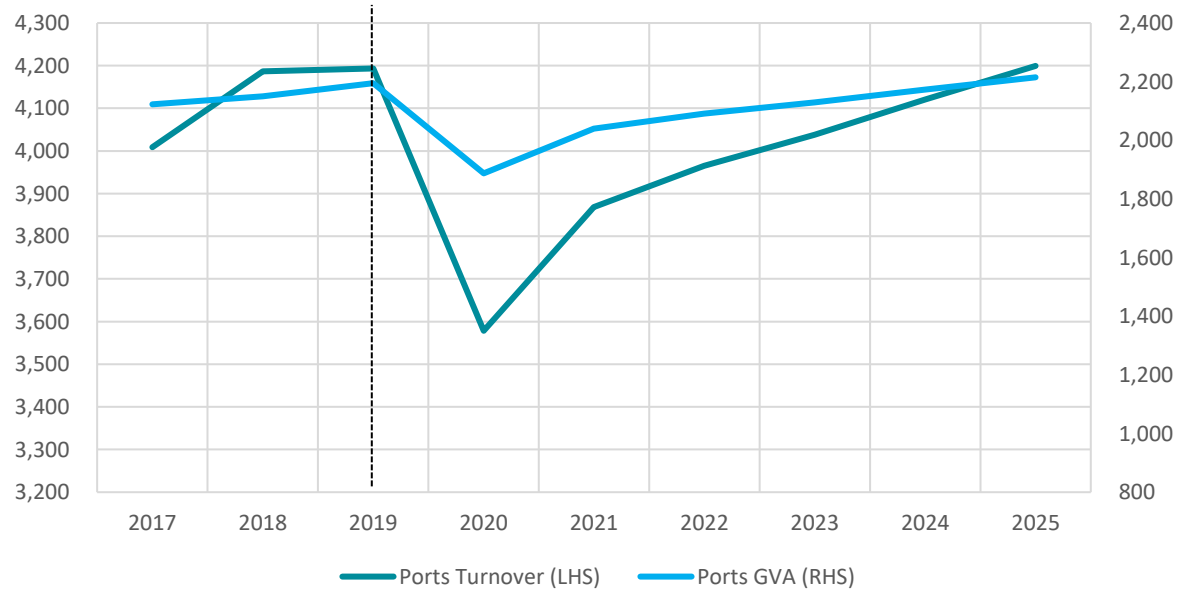
## The 2021-2025 forecast

Figure 20 shows the Ports industry experiencing a slight rebound and then converging towards 2% growth rate over the five-year horizon. Using macroeconomic indicators,[14] such as transportation and storage sectoral GVA, as well as provisional estimates for port freight traffic released by the DfT, we were able to produce a nowcast for the Ports industry in 2020. Cebr estimates that the industry suffered a contraction in the range of 14-15% in 2020 as a result of the pandemic, and that the industry will not reach its 2019 levels until 2024-25.

Our forecast indicates that turnover and GVA are set to grow at a Compounded Annual Growth rate (CAGR) of 2.1% over the considered period. This translates into cumulative nominal growth of 8.6% for 2021-2025, which is lower than the growth experienced over the years preceding the pandemic. When we consider the period from 2019 to 2025, the cumulative growth experienced during this time is projected to be 0.9%, as measured by GVA.

In line with the rest of the analysis, turnover and GVA have been projected in nominal terms. When the 2021-25 forecast is considered alongside the projected inflation environment, real cumulative growth could be negative. We note from contact with industry representatives that port operators are pursuing measures (such as energy price surcharges) to mitigate the impact of inflationary pressures.

Figure 20: Ports industry's turnover and GVA trends and projections, 2017 to 2025, £ million




*Source: British Marine, FAME, ONS, Cebr analysis*

14 These are published with more frequency than most of the other data sources used within our study, which for the most part operate on a two-year data lag.

# Annex A: Full set of direct economic impacts by region

Table A.1: Direct economic impact of the ports industry through turnover, £ million, 2010 to 2019

| TURNOVER | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| **England** | **16,535** | **16,893** | **17,799** | **17,995** | **19,353** | **19,876** | **22,729** | **25,222** | **26,906** | **30,246** |
| **Scotland** | **1,919** | **2,787** | **2,904** | **3,516** | **3,884** | **3,380** | **3,899** | **3,867** | **4,769** | **4,402** |
| **Wales** | **828** | **1,125** | **876** | **986** | **530** | **1,190** | **766** | **617** | **680** | **352** |
| **Northern Ireland** | **873** | **920** | **803** | **865** | **865** | **1,162** | **1,767** | **1,705** | **1,705** | **2,112** |
| East of England | 1,288 | 1,835 | 1,610 | 1,638 | 1,579 | 1,478 | 2,352 | 1,945 | 2,420 | 2,027 |
| East Midlands | 189 | 163 | 138 | 197 | 1,178 | 202 | 311 | 287 | 240 | 328 |
| London | 1,787 | 4,574 | 4,413 | 3,889 | 4,205 | 6,940 | 5,313 | 5,702 | 5,654 | 8,285 |
| North East | 429 | 483 | 444 | 627 | 768 | 654 | 509 | 565 | 572 | 473 |
| North West | 1,414 | 1,994 | 1,900 | 2,215 | 2,400 | 2,337 | 2,885 | 4,645 | 5,749 | 4,728 |
| South East | 4,332 | 4,657 | 6,247 | 5,899 | 6,204 | 4,997 | 7,823 | 8,992 | 8,578 | 10,867 |
| South West | 5,828 | 1,664 | 1,924 | 2,537 | 2,104 | 2,326 | 2,406 | 2,009 | 2,113 | 2,346 |
| West Midlands | 211 | 143 | 92 | 183 | 371 | 165 | 355 | 183 | 627 | 409 |
| Yorkshire and the Humber | 1,056 | 1,381 | 1,032 | 811 | 543 | 778 | 774 | 894 | 953 | 783 |

*Source: UKCoS, British Marine, PwC, FAME, ONS, Cebr analysis*

Table A.2: Direct economic impact of the ports industry through GVA, £ million, 2010 to 2019

| GVA | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| **England** | **5,774** | **5,992** | **6,406** | **5,977** | **6,603** | **6,939** | **7,626** | **8,114** | **7,491** | **8,731** |
| **Scotland** | **811** | **1,017** | **1,171** | **1,138** | **1,355** | **1,227** | **1,399** | **1,579** | **1,546** | **1,545** |
| **Wales** | **271** | **350** | **305** | **290** | **287** | **331** | **364** | **220** | **227** | **128** |
| **Northern Ireland** | **218** | **271** | **244** | **217** | **214** | **275** | **383** | **350** | **329** | **373** |
| East of England | 594 | 602 | 620 | 594 | 628 | 539 | 839 | 726 | 742 | 667 |
| East Midlands | 99 | 59 | 51 | 96 | 244 | 59 | 67 | 78 | 62 | 72 |
| London | 1,639 | 1,700 | 1,398 | 1,232 | 1,573 | 2,112 | 1,655 | 1,542 | 1,158 | 2,246 |
| North East | 202 | 199 | 209 | 243 | 290 | 241 | 175 | 207 | 200 | 171 |
| North West | 582 | 666 | 639 | 788 | 851 | 965 | 1,056 | 1,037 | 1,043 | 1,275 |
| South East | 1,448 | 1,608 | 2,183 | 1,776 | 1,885 | 1,717 | 2,492 | 3,042 | 2,913 | 3,067 |
| South West | 532 | 552 | 795 | 842 | 732 | 857 | 830 | 1,030 | 875 | 801 |
| West Midlands | 141 | 54 | 57 | 61 | 118 | 69 | 120 | 64 | 135 | 132 |
| Yorkshire and the Humber | 534 | 553 | 454 | 346 | 282 | 381 | 391 | 390 | 361 | 300 |

*Source: UKCoS, British Marine, PwC, FAME, ONS, Cebr analysis*

Table A.3: Direct economic impact of the ports industry through employment, jobs, 2010 to 2019

| EMPLOYEES | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| **England** | **82,043** | **82,781** | **84,342** | **86,117** | **88,424** | **90,903** | **93,341** | **98,169** | **99,546** | **100,189** |
| **Scotland** | **14,631** | **16,129** | **15,835** | **17,667** | **19,208** | **16,632** | **17,984** | **19,439** | **20,453** | **18,584** |
| **Wales** | **5,476** | **6,394** | **4,567** | **5,334** | **4,735** | **5,126** | **4,876** | **2,944** | **3,239** | **2,000** |
| **Northern Ireland** | **3,643** | **4,291** | **3,809** | **3,737** | **3,337** | **4,073** | **5,022** | **4,697** | **4,935** | **4,818** |
| East of England | 9,476 | 9,478 | 8,346 | 8,919 | 8,973 | 7,471 | 10,850 | 9,579 | 10,920 | 8,866 |
| East Midlands | 1,601 | 1,014 | 844 | 1,465 | 3,682 | 904 | 1,016 | 1,237 | 911 | 853 |
| London | 13,607 | 15,161 | 14,248 | 12,511 | 15,145 | 20,471 | 13,450 | 13,882 | 13,094 | 18,141 |
| North East | 4,774 | 4,495 | 4,199 | 5,711 | 6,219 | 4,977 | 3,946 | 3,272 | 3,187 | 2,596 |
| North West | 10,596 | 11,198 | 10,125 | 12,797 | 13,240 | 15,096 | 15,996 | 15,527 | 16,793 | 18,526 |
| South East | 20,272 | 21,604 | 26,793 | 24,190 | 23,439 | 21,763 | 27,213 | 31,854 | 33,063 | 33,005 |
| South West | 10,498 | 9,657 | 11,839 | 13,552 | 11,415 | 12,772 | 12,904 | 14,889 | 13,634 | 12,098 |
| West Midlands | 2,197 | 761 | 605 | 887 | 1,702 | 949 | 1,575 | 824 | 2,060 | 1,685 |
| Yorkshire and the Humber | 9,021 | 9,412 | 7,342 | 6,085 | 4,610 | 6,500 | 6,391 | 7,105 | 5,885 | 4,419 |

*Source: UKCoS, British Marine, PwC, FAME, ONS, Cebr analysis*

Table A.4: Direct economic impact of the ports industry through the compensation of employees, £ million, 2010 to 2019

| COMPENSATION OF EMLOYEES | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| **England** | **3,046** | **2,965** | **3,435** | **3,418** | **3,425** | **3,503** | **3,567** | **3,882** | **3,932** | **3,992** |
| **Scotland** | **515** | **569** | **664** | **770** | **912** | **767** | **847** | **801** | **976** | **859** |
| **Wales** | **147** | **296** | **150** | **178** | **110** | **165** | **163** | **94** | **104** | **68** |
| **Northern Ireland** | **190** | **179** | **155** | **136** | **121** | **172** | **236** | **182** | **180** | **179** |
| East of England | 321 | 361 | 369 | 371 | 336 | 284 | 445 | 355 | 415 | 328 |
| East Midlands | 41 | 31 | 36 | 57 | 128 | 36 | 31 | 35 | 31 | 35 |
| London | 410 | 552 | 546 | 464 | 484 | 775 | 532 | 589 | 469 | 678 |
| North East | 146 | 140 | 83 | 173 | 197 | 170 | 119 | 137 | 112 | 86 |
| North West | 416 | 409 | 410 | 462 | 517 | 588 | 558 | 619 | 762 | 798 |
| South East | 1,050 | 783 | 1,278 | 1,037 | 970 | 807 | 1,088 | 1,302 | 1,273 | 1,379 |
| South West | 329 | 352 | 440 | 607 | 570 | 608 | 547 | 603 | 587 | 477 |
| West Midlands | 55 | 28 | 24 | 38 | 68 | 37 | 62 | 35 | 79 | 51 |
| Yorkshire and the Humber | 278 | 310 | 247 | 208 | 155 | 198 | 185 | 206 | 202 | 161 |

*Source: UKCoS, British Marine, PwC, FAME, ONS, Cebr analysis*

# Annex B: Supplementary results of aggregate economic impact analysis

This section sets out the Maritime Sector's aggregate economic impact, calculated utilising an updated methodology. The difference with the figures presented in **Error! Reference source not found.** relates to the multipliers and the underlying input-output modelling.

Since our 2019 study, we have adjusted our modelling for the shipping industry specifically. Due to the methodology underpinning the calculation of the direct impact of the shipping industry, the ONS' input-output analytical tables provide data for SIC 50 (Water Transport, which constitutes the shipping industry), which did not align with our own findings on the industry. We have further refined how this is reflected within the input-output models, adjusting our modelling accordingly and we believe it now represents a more robust and precise picture of the aggregate impact of the shipping industry. Given that the modelling for the shipping industry is based on the associated structure of the industry, this has led to a change in the multipliers for the sector and the industry. More specifically, it has led to a decrease in the type I and type II employment multipliers and an increase in the type I and type II compensation of employees multipliers for the shipping industry and, by extension, for the maritime sector.

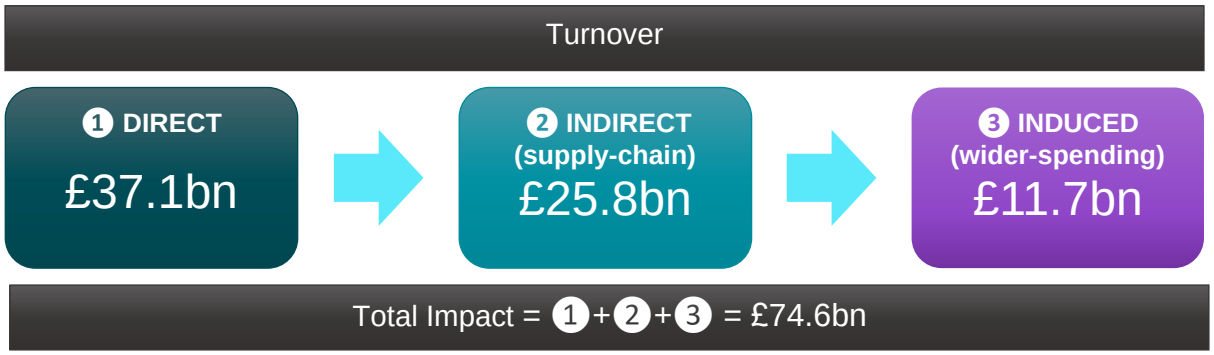
While the new methodology makes these bespoke adjustments to the shipping industry specifically such that its operational structure – as indicated by the findings of our direct impact analysis – is a better representation of the actual industry, Cebr understands the benefits of having comparable figures using a similar methodology across different years and reports. As such, in consultation with Maritime UK, we provide both sets of aggregate impact figures within the report, one using the previous methodology and here the other, utilising the updated methodology.

## The aggregate economic impacts through turnover

Figure A.1 below illustrates the turnover multipliers for the Ports industry within the UK. The Ports industry directly contributed £37.1 billion in turnover in 2019, where £25.8 billion worth of turnover is stimulated in the supply chains and £11.7 billion worth of turnover in the wider economy when direct and indirect employees spend their earnings. Once the indirect and induced economic channels are taken into consideration the Ports industry is seen to support £74.6 billion in turnover.

**Alternatively, this can be interpreted as for every £1 of turnover directly generated by the Ports industry, a further £1.01 of turnover is supported across the UK economy.**

Figure A.1: Turnover multiplier impacts of the UK Ports industry in 2019




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table A.5 below presents in each year the direct contribution to turnover from the Ports industry, alongside our estimate of the composite turnover multiplier that applies to the entire industry, together with some indicative estimates for the aggregate impact.[15]

Table A.5: Direct and total turnover impact of the Ports industry, 2010 to 2019, £ million

| | Direct Impact | Composite Turnover multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 20,155 | 2.01 | 41,093 |
| 2011 | 21,725 | | 44,450 |
| 2012 | 22,382 | | 45,584 |
| 2013 | 23,362 | | 47,638 |
| 2014 | 24,632 | | 50,256 |
| 2015 | 25,607 | | 52,164 |
| 2016 | 29,162 | | 59,204 |
| 2017 | 31,411 | | 63,730 |
| 2018 | 34,060 | | 68,815 |
| 2019 | 37,112 | | 74,592 |

*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

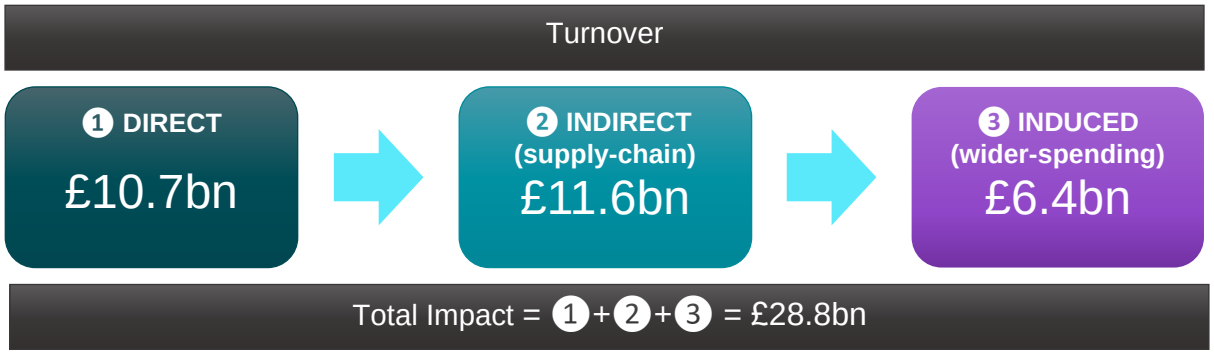
## The aggregate economic impacts through GVA

Figure A.2 below illustrates the GVA multipliers for the Ports industry within the UK, disaggregated by industry activity. The Ports industry directly contributed £10.7 billion towards UK GDP in 2019; once the indirect and induced economic channels are taken into consideration the Ports industry contributed £28.8 billion.

15 Note that we are applying our multipliers as calculated using our latest input-output model, to the figures for the whole decade. So we are in effect assuming the multipliers calculated based on the 2019 direct impacts also apply back to 2010.

**Therefore, after combining each industry activity, for every £1 of GVA directly contributed by the Ports industry, a further £1.67 of GVA is supported across the UK economy.**

Figure A.2: GVA multiplier impacts of Ports industry in 2019




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table A.6 below presents the direct contribution to GVA alongside our estimate of the composite GVA multiplier that applies to the entire industry, an estimated 2.67 in 2019. The aggregate GVA impact from the Ports industry increased from £18.7 billion in 2010 to £28.8 billion in 2019. Note that just like for Table 6, the aggregate impacts timeseries is an indicative estimate.

Table A.6: Direct and aggregate GVA impact of the Ports industry, 2010 to 2019, £ million

| | Direct Impact | Composite GVA multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 7,073 | 2.67 | 18,721 |
| 2011 | 7,630 | | 20,302 |
| 2012 | 8,126 | | 21,605 |
| 2013 | 7,622 | | 20,343 |
| 2014 | 8,459 | | 22,593 |
| 2015 | 8,773 | | 23,469 |
| 2016 | 9,771 | | 26,103 |
| 2017 | 10,264 | | 27,436 |
| 2018 | 9,593 | | 25,641 |
| 2019 | 10,776 | | 28,791 |

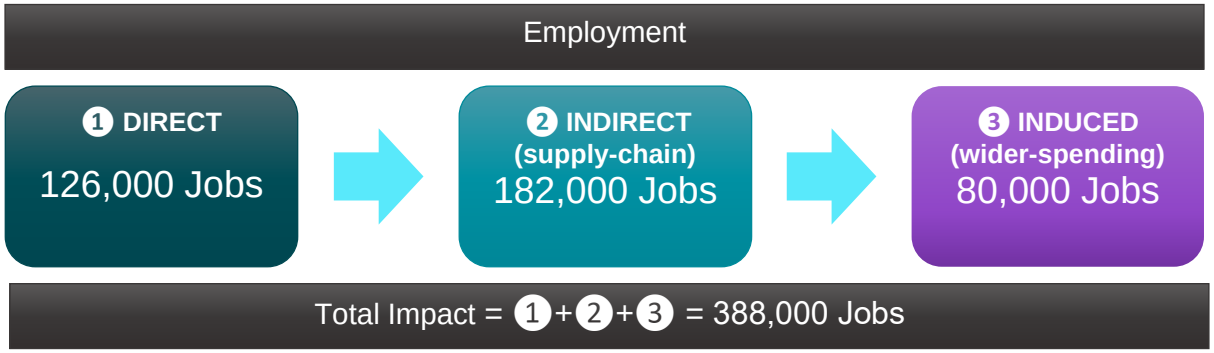
*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

## The aggregate economic impacts through employment

Figure 14 below illustrates the employment multipliers for the Ports industry within the UK. The number of jobs directly supported by the Ports industry in 2019 was 126,000 whilst 262,000 jobs were supported once the indirect and induced impacts of the industry are taken into account. The aggregate employment impact of the Ports industry on the UK economy was 388,000 jobs in 2019.

**On an individual level, this can be interpreted as for every job directly created by the Ports industry, a further 2.09 jobs are supported within the UK economy in total.**

Figure A.3: Employment multiplier impacts of the Ports industry in 2019




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table A.7 shows the direct and aggregate employment impacts of the Ports industry between 2010 and 2019. In line with an increasing direct contribution to UK employment between 2010 and 2019, the aggregate employment impact has also increased, from 323,900 jobs in 2010 to 387,500 jobs in 2019. The composite multiplier for the industry has remained the same across the years at 3.09. Note that just like for Table 6 and

Table 7, the aggregate impacts timeseries is an indicative estimate.

Table A.7: Direct and aggregate employment impact of the Ports industry, 2010 to 2019

| | Direct Impact | Composite Employment multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 105,793 | 3.09 | 323,891 |
| 2011 | 109,595 | | 335,173 |
| 2012 | 108,553 | | 336,126 |
| 2013 | 112,854 | | 347,948 |
| 2014 | 115,704 | | 355,662 |
| 2015 | 116,734 | | 360,284 |
| 2016 | 121,222 | | 372,992 |
| 2017 | 125,249 | | 387,029 |
| 2018 | 128,173 | | 394,385 |
| 2019 | 125,590 | | 387,516 |

*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

## The aggregate economic impacts through the compensation of employees

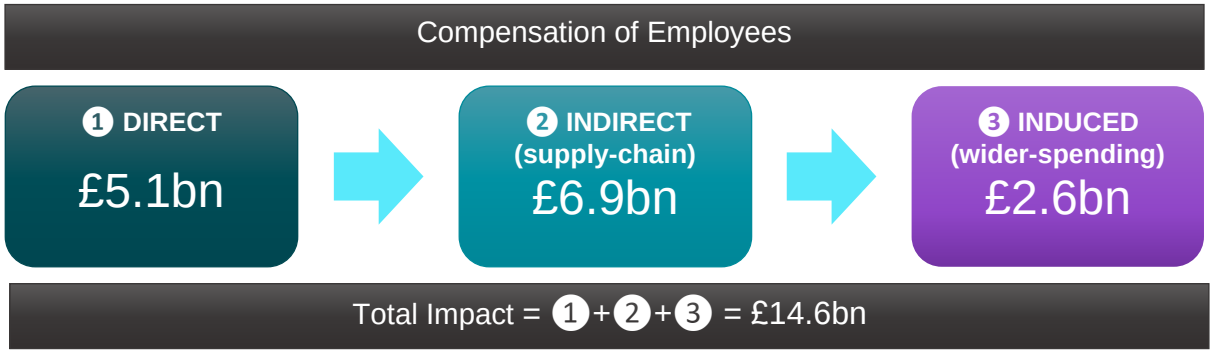
In this final subsection we consider the aggregate economic impact of the Ports industry through the compensation of employees.

Figure 15 below illustrates the direct, indirect and induced compensation of employee impacts associated with the industry.

The direct impact of the compensation of employees from the Ports industry was £5.1 billion in 2019, whereas £6.9 billion of employee compensation is stimulated in the supply chains and £2.6 billion in the wider economy when direct and indirect employees spend their earnings. The total impact of the compensation of employees was £14.6 billion.

**Alternatively, this can be interpreted as follows, for the Ports industry as a whole, for every £1 directly paid in the compensation of employees in 2019, a total of £2.87 in employee compensation was supported in the UK economy.**

Figure A.4: Aggregate contribution of the Ports industry through the compensation of employees




*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

Table A.8 presents the direct contribution to GVA alongside our estimate of the composite compensation of employees (COE) multiplier that applies to the Ports industry, an estimated 2.87 in 2019. The composite multiplier for the Ports industry has remained relatively constant since 2010.

However, due to growth in the Ports industry, the aggregate impact through the compensation of employees has risen from £11.3 billion in 2010 to approximately £14.6 billion in 2019. Note that just like for the previous tables, the aggregate impacts timeseries below is an indicative estimate.

Table A.8: Direct and aggregate impacts through the compensation of employees from the Ports industry, 2010 to 2019, £ million

| | Direct Impact | Composite Employee Compensation multiplier | Aggregate Impact |
|---|---|---|---|
| 2010 | 3,899 | 2.87 | 11,267 |
| 2011 | 4,009 | | 11,512 |
| 2012 | 4,403 | | 12,532 |
| 2013 | 4,503 | | 12,814 |
| 2014 | 4,569 | | 13,009 |
| 2015 | 4,607 | | 13,192 |
| 2016 | 4,813 | | 13,858 |
| 2017 | 4,959 | | 14,196 |
| 2018 | 5,191 | | 14,862 |
| 2019 | 5,098 | | 14,623 |

*Source: British Marine, SMI, FAME, ONS, Cebr analysis*

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

This final subsection examines the aggregate economic impact of the Ports industry across each region for the four macroeconomic indicators covered in the previous subsection. To estimate the aggregate economic impact of the industry at a 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 Ports industry were separately identified and isolated.

It is important to note that the economic impact multipliers as estimated for each region are necessarily lower than the equivalent multiplier for the Ports 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 A.9 shows the breakdown of direct and aggregate economic impacts for business turnover and GVA in 2019, alongside the composite industry multiplier for each region. The region with the largest aggregate impacts through turnover and GVA was the South East, with an aggregate impact of £16.1 billion for turnover and £16.4 billion for GVA, closely followed by London. For GVA and turnover, the highest multiplier impacts are associated with the East Midlands, Yorkshire and the Humber and the South West.

Table A.9: Regional breakdown of the aggregate economic impact through turnover and GVA contributed by the Ports industry in 2019, £ million

| | Turnover | | | GVA | | |
|---|---|---|---|---|---|---|
| Region | Direct Impact | Industry Multiplier | Aggregate Impact | Direct Impact | Industry Multiplier | Aggregate Impact |
| Scotland | 4,402 | 2.1 | 9,263 | 1,545 | 2.0 | 3,082 |
| Wales | 352 | 1.9 | 682 | 128 | 2.7 | 347 |
| Northern Ireland | 2,112 | 1.5 | 3,162 | 373 | 2.2 | 831 |
| East of England | 2,027 | 1.9 | 3,778 | 667 | 2.4 | 1,573 |
| East Midlands | 328 | 2.2 | 733 | 72 | 2.7 | 197 |
| London | 8,285 | 1.9 | 15,454 | 2,246 | 2.9 | 6,406 |
| North East | 473 | 1.9 | 912 | 171 | 2.3 | 389 |
| North West | 4,728 | 1.8 | 8,408 | 1,275 | 2.9 | 3,762 |
| South East | 10,867 | 1.5 | 16,058 | 3,067 | 2.1 | 6,411 |
| South West | 2,346 | 1.8 | 4,207 | 801 | 3.0 | 2,363 |
| West Midlands | 409 | 1.9 | 771 | 132 | 2.7 | 351 |
| Yorkshire and the Humber | 783 | 2.0 | 1,549 | 300 | 2.4 | 730 |

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

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

Finally, Table A.10 below shows the breakdown of direct and aggregate economic impacts for employment and the compensation of employees in 2019, alongside the composite industry multiplier for each region. The region with the largest aggregate impacts through employment

and the compensation of employees was the South East, with an aggregate impact of 72,800 and £2.7 billion, respectively.

Table A.10: Regional breakdown of the aggregate economic impact through employment and the compensation of employees contributed by the Ports industry in 2019 (employment in thousands of jobs; compensation of employees in £ million)

| | Employment | | | Compensation of Employees | | |
|---|---|---|---|---|---|---|
| Region | Direct Impact | Industry Multiplier | Aggregate Impact | Direct Impact | Industry Multiplier | Aggregate Impact |
| Scotland | 18,584 | 2.6 | 49,202 | 854 | 2.1 | 1,801 |
| Wales | 2,000 | 2.5 | 5,063 | 68 | 2.3 | 155 |
| Northern Ireland | 4,818 | 2.3 | 11,110 | 209 | 2.0 | 416 |
| East of England | 8,866 | 2.5 | 21,804 | 326 | 2.3 | 753 |
| East Midlands | 853 | 3.1 | 2,662 | 65 | 2.3 | 151 |
| London | 18,141 | 4.0 | 71,905 | 676 | 3.2 | 2,190 |
| North East | 2,596 | 2.3 | 5,960 | 104 | 1.7 | 180 |
| North West | 18,526 | 2.6 | 48,257 | 771 | 2.3 | 1,783 |
| South East | 33,005 | 2.2 | 72,801 | 1,359 | 2.0 | 2,687 |
| South West | 12,098 | 2.2 | 27,033 | 456 | 1.9 | 875 |
| West Midlands | 1,685 | 3.4 | 5,691 | 51 | 2.7 | 140 |
| Yorkshire and the Humber | 4,419 | 2.4 | 10,618 | 159 | 2.2 | 349 |

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