



# The economic role and contributions of the maritime sector in the Solent LEP area

A report for the Solent LEP and Maritime UK

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**London, February 2018**

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## Executive summary

This is the summary of a report by the Centre for Economics and Business Research (Cebr) that documents the results of an assessment of the economic importance of the Solent maritime sector to the UK economy as a whole and to the Solent LEP economy specifically.

### An international gateway for the whole of the UK

**The ability to trade internationally is vital for an island nation like the UK.** Exporting enables specialisation and the economies of scale and scope required to deliver the productivity improvements that guarantee economic growth. Similarly, importing enables access to inputs from a wider variety of locations, increasing the likelihood of competitive sourcing from markets that hold a comparative advantage relative to UK producers of the same products. Imports provide a competitive discipline for UK producers, which delivers the benefits of competition to consumers and business customers alike. Thus, **international trade is intricately linked with improvements in living standards.**

Located within the Solent LEP area are the major ports of Southampton and Portsmouth. The infrastructure and location of **the Port of Southampton in particular is ideal for international trade, especially with developed and emerging markets** given its proximity to the English shipping lanes. As such, Southampton is rated as the second most important port in terms of the combined value of exports and imports moving through them. Portsmouth is small in comparison, but its role in facilitating UK trade is not insignificant and **the Solent ports, taken in combination, account for more of the UK's international trade than Felixstowe - the largest single port on this measure.**

A deeper exploration of the trade facilitation role of the Solent maritime sector (incl. the two major ports) reveals the following key findings:

- **Goods for export and import to the value of at least £77.5 billion are moved through the Solent ports** of Southampton and Portsmouth, **which exceeds the comparable estimate of £74.5 billion for Felixstowe**, the largest single trading seaport in the UK.
- Of the total moved through the Solent ports, **£42.8 billion are exports and 85% of these are moved through Southampton to the UK's non-EU trading partners.** On this measure, Southampton is the UK's most important seaport.
- As such, the **Solent maritime sector plays a crucial role in the realisation** by the manufacturers and distributors of the export goods that it brings to market **of at least £20 billion in GVA contributions to UK GDP.** This is a 2014 estimate and is likely to have increased since but **equates to a significant 1.1% share of UK GDP** in that year.

Given the importance of the Solent maritime sector and in particular the Port of Southampton in facilitating trade with the UK's non-EU trading partners, **the Brexit vote presents a significant opportunity for the Solent maritime sector to play a leading role in forging sea-based links with the new emerging markets that the UK hopes to forge new trading alliances with after it leaves the EU.**

**The international gateway role of the Solent maritime sector** is not confined to trade in goods. It also **facilitates another important UK export – inbound tourism.** The sectors that are **geared towards tourism** – travel, accommodation, foodservice, arts and culture etc. – **rely on the maritime sector to bring seaborne tourists to the UK who, in turn, stimulate demand for their services.**

A quantification of the magnitude of the resulting economic contributions was beyond the scope of this report. However, **given that the Port of Southampton is the UK's leading port for cruises and facilitated two million cruise passenger movements in 2017,** it is undoubtedly the case that **the Solent maritime sector, as with trade, plays a crucial role in the realisation by the Solent LEP area and wider UK tourism industries of significant further GVA contributions to GDP.**

The principal Solent ports also provide a vital domestic gateway function for the people and business population of the Isle of Wight, which is largely dependent on tourists visiting via mainland Britain.

### The Solent maritime sector's own economic 'footprint'

**Cebr has also produced estimates of the economic impact or 'footprint' of the Solent maritime sector itself.** The maritime sector is disaggregated into four separate industries: (i) shipping; (ii) ports; (iii) marine; and (iv) maritime business services. But an assessment of the maritime sector in the Solent LEP area cannot ignore the importance of the Portsmouth Naval Base (PNB) as a source of contributions to and impacts on the Solent economy. For that reason, estimates of the economic value of the activities taking place at PNB are included within our assessment.

**The assessment reveals the following key findings** in terms of the total economic impact or 'footprint' of the Solent maritime sector (incl. PNB):

- **A GVA contribution to GDP of at least £5.5 billion in 2015**, which equates to a:
  - **19.3% share of the Solent LEP economy;**
  - 2.2% share of the economy of the South East of England; and
  - 0.3% share the entire UK economy.
- **Employment for upwards of 120,000 people**, equating to a **19.8% share of all jobs in the Solent LEP economy.**
- **Wages, salaries and other employee remuneration of at least £2.2 billion.**
- **A direct exchequer contribution of at least £459 million** in 2015, equivalent to a share of 7.2% of the contribution made by the UK maritime sector as a whole.
- **Exports of maritime goods and services valued at £680 million** in 2015, equivalent to a 5.4% share of all UK maritime exports.

For reasons outlined in the report, **some of these impacts could represent underestimates.** As such, they may not reflect the true magnitude of the economic role of the maritime sector as a source of jobs and GVA contributions to the Solent LEP economy. The GVA, employment, employee remuneration and exchequer contributions are all subject to this important caveat.

Cebr would suggest that **the only way to plug the apparent gaps in the currently available data is a new data gathering exercise, involving a combination of primary and deeper secondary data gathering and a collaborative approach led by the Solent LEP.** Only then will it be possible to confirm whether these estimates are in fact implausibly low. Unfortunately, this was beyond the scope of the current assessment.

Nonetheless, **Cebr is confident** in asserting **that the total economic impact or 'footprint' of the Solent maritime sector is at least as large as that reflected in the estimates presented here** and in the main body of the report.

# 1 Introduction

This is a report by the Centre for Economics and Business Research (Cebr) on a study that assessed the economic role of and contributions made by the maritime sector in the Solent LEP area. The “maritime sector” is defined as comprising the shipping industry, ports and each of the marine and maritime business services industries. To capture the importance of defence and shipbuilding activities within the Solent LEP area, the assessment was extended to include estimates of the economic contributions that have been attributed to the Portsmouth Naval Base.

This report forms one of eight reports focusing on the economic contribution of the UK maritime sector, with the other reports focusing on the economic contributions of each of the four constituent industries at the UK level and the economic contribution of the sector as a whole in Scotland and Wales. This report is, therefore, part of a wider analytical framework that underpins the entire set of reports on the economic roles and contributions of the maritime sector at both a national and regional level.

Our examination spans the period from 2010 to 2015 (inclusive), with the latter being the latest year for which full data are available, and endeavours to capture the full economic ‘footprint’ of the maritime sector and Portsmouth Naval Base within the Solent LEP region. As such, our report is not confined to direct ongoing contributions to GDP and employment through operations and activity in the Solent LEP region, but also provides assessments of the associated indirect and induced multiplier impacts. The report also considers the role of the Solent maritime sector as an international gateway for trade and the fact that most of the trade passing through the Solent ports is with non-EU countries.

## 1.1 About the Solent LEP

Local Enterprise Partnerships (LEP) are partnerships between local authorities and businesses, set up by the former Department for Business, Innovation and Skills (BIS, now the Department for Business, Energy and Industrial Strategy, BEIS) in 2011. LEPs decide what the priorities should be for investment in roads, buildings and facilities in the area; they can take advantage of tax incentives and simplified local planning regulations. The Solent LEP is one of the 37 LEPs currently in operation across the English regions.

The Solent LEP is “a partnership organisation between the business community, the Further Education and Higher Education sector, three unitary authorities, eight district councils and one county council, all of whom are actively working together to secure a more prosperous and sustainable future for the Solent area”.<sup>1</sup> The purpose is to combine the voices of key stakeholders within the specified region of the Solent to create an environment in which businesses can prosper and fulfil their economic potential.

## 1.2 About Maritime UK

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

## 1.3 Purpose of this report

This report provides an in-depth assessment of the economic contribution that the maritime sector makes to the economy of the Solent LEP region. The Solent is a key region for the UK maritime sector, hosting the two major ports of Southampton and Portsmouth, with additional economic activity located around the Isle of Wight, the M27 corridor and the Solent waterway. Furthermore, the geography of the UK as an island nation means that the Solent is a natural ‘gateway’ to the world, and as such naturally lends itself to a thriving maritime sector.

<sup>1</sup> <https://solentlep.org.uk/>

## 1.4 Overview of the study and methodology

### Purpose of the study

This report provides a thorough and comprehensive examination of the role of the maritime sector in the Solent LEP region. To get the full picture of the importance of the Solent-based maritime sector, the report first analyses the role of the Solent LEP region as an international gateway for UK trade with the world, and then subsequently provides an analysis of the economic contribution of the maritime sector to the Solent region. These two aims are summarised as follows:

- **Role of the Solent LEP as an international gateway**

Section 3 of the report analyses the important role that the Solent LEP performs as an international gateway for UK trade with the rest of the world. It examines the magnitude of this role – in both volume and trade terms – through a detailed examination of HMRC’s overseas trade statistics.

It is clear that the Solent maritime sector provides a vital link in the integrated chain of globalised supply and demand. For example, industries such as motor manufacturing are composed of businesses across the UK that are, in summary, dependent on the ports in the Solent LEP and its maritime sector to get their final goods to the market, but also to get their essential inputs from abroad.

- **Economic impact of the maritime sector in the Solent LEP**

Having established the important role that the Solent LEP plays as an international gateway for UK trade, the remainder of the report - Sections 4, 4 and 6 - presents a range of analyses demonstrating the different aspects of the value contributed by the Solent-based maritime sector, including direct contributions to GDP and employment, indirect and induced multiplier impacts and the Solent-based Maritime sector’s contribution to the UK Exchequer through tax revenues raised.

An important task has been to develop an in-depth understanding of the maritime sector both in the UK and in the Solent region. To produce a robust study, it is necessary to interrogate the available data to ensure that it captures the full range of activities that should be included in establishing the total economic ‘footprint’ of the maritime sector in the Solent. Following the collation of the necessary data capturing these activities, the values of key economic indicators were established to demonstrate the impact of the Maritime sector in the Solent LEP region. The key indicators include:

- GVA<sup>2</sup> contributions to Solent LEP economy and UK GDP generated by the maritime sector and Portsmouth Naval Base, directly and through indirect and induced multiplier impacts.
- Jobs supported by the maritime sector and Portsmouth Naval Base, including direct, indirect and induced jobs through local and national multiplier impacts.
- The value of employee compensation generated by the maritime sector and Portsmouth Naval Base in the Solent, representing the total remuneration of employees.
- The Exchequer contribution of the Solent-based Maritime sector and Portsmouth Naval Base through tax revenues raised.

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

- The direct contribution made through the exports of goods and services.

### Mapping the UK Maritime sector

The first stage of the study has involved mapping the activities of the maritime sector against the national accounts framework, in order to establish clarity on the precise definition of the maritime sector as it maps against the Standard Industrial Classification (SIC) framework.<sup>3</sup> For most activities, particularly those of the shipping industry, economic activity can be captured through a particular 3, 4 or 5-digit SIC code.

In essence therefore, this involves taking each of the four maritime industries and their constituent activities, and mapping these to the most relevant Standard Industrial Classification (SIC) code in order to identify the activity's economic data. For example, "Transport of Passengers and International Sea Faring", identified as an activity of the shipping industry, can be identified through SIC code 50100 within the national accounting framework. However, some maritime sector activities do not map neatly onto the SIC framework; this has required Cebr to draw upon government or industry sources to quantify the contributions made through these activities.

### Data Sources

After completing the data mapping of maritime sector activities, data for the macroeconomic indicators listed above have been obtained and collated by firstly interrogating the indicators gathered at UK level for the maritime sector, and disaggregating this at Solent-level using a combination of publicly-available data sources, industry sources and local estimates.

For those Maritime sector activities which are in alignment with the SIC framework and are available on a disaggregated basis, the main source of information used in this study is Bureau van Dijk's Financial Accounts Made Easy (*FAME*) database. *FAME* provides detailed information on all registered 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 maritime sector to the UK economy in terms of turnover, employee numbers and estimated GVA contributions to GDP. We also evaluate the breakdown of these business contributions by SIC industrial sector, using the primary and secondary five-digit UK SIC (2007) codes associated with each company in *FAME*.

To capture the contribution of those maritime sector activities that do not map neatly across the SIC framework, and in order to disaggregate the economic contribution of the sector at the Solent LEP area level, a variety of other sources have been used. For the former, the study draws upon insight from sector bodies included (but not limited to) British Marine, the Society of Maritime Industries (SMI), BEIS and the UK Chamber of Shipping. A full list of identified maritime sector activities and sources is set out in Section 3 of this report.

In order to separately quantify the role of the Portsmouth Naval Base in the Solent LEP region, we draw upon analysis from the University of Portsmouth which quantified the economic contribution of the base in 2011.<sup>4</sup> We have combined this analysis with industry and regional trends in the Solent LEP economy to generate estimates for the years following 2011.

<sup>3</sup> The United Kingdom Standard Industrial Classification of Economic Activities (SIC) is used to classify business establishments and other standard units by the type of economic activity in which they are engaged.

<sup>4</sup> University of Portsmouth, Centre for Economic Analysis and Policy (June 2012). "Socio-Economic Impact Assessment of Portsmouth Naval Base"



## Quantifying wider economic impacts

After collation and interrogation, Solent-level data have been embedded within Cebr's regional economic impact models of the UK economy. These input-output models are used to assess the kinds of impacts that can be associated with an entity such as the Solent-based maritime sector.

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 maritime sector in the Solent LEP area.
- Indirect impact: this is the value generated and jobs supported in industries that supply inputs to the Solent-based maritime sector.
- Induced impact: this is the value generated and jobs supported in the wider economy when the direct and indirect employees of the Solent-based maritime sector spend their wages and salaries on the final goods and services required by households.

These are combined to convey the total impact associated with each maritime industry, with Portsmouth Naval Base and with the sector as a whole in terms of GVA, employment and the compensation of employees.

Cebr has taken a 'top-down' approach to estimate the direct impacts of the four maritime industries within the Solent LEP area. In effect, this involves taking the UK direct impacts of each defined maritime industry and applying relevant ratios from publicly-available data sources such as the UK Business Register and Employment Survey (BRES) – as well as private data sources such as Bureau Van Dijk's *Financial Accounts Made Easy* (FAME) database – in order to attribute the contributions emanating from the Solent LEP region.

For each of the four industries and for Portsmouth Naval Base, the direct impacts are combined with the regional economic multipliers provided by Cebr's regional input-output model for the Solent LEP area, in order to generate estimates of their total impact – including direct, indirect and induced impacts.

## 1.5 Structure of the report

The remainder of the report is structured as follows:

- Section 2 provides an overview of both the Solent LEP region, recent macroeconomic trends in the region and the Maritime sector as defined for the purposes of this study.
- Section 3 provides a detailed analysis of the vital role that the Solent-based maritime sector plays as an international gateway for UK trade with the rest of the world. Indeed, the analysis in the section illustrates that the Solent-based maritime sector provides an important link in the integrated chain of globalised supply and demand.
- Section 4 sets out how the maritime sector in the Solent and Portsmouth Naval Base have been defined and identified for the purposes of analysing the economic contributions emanating from their activities within the Solent LEP area.
- Section 4 outlines the direct economic impacts of the Solent-based maritime sector and Portsmouth Naval Base. We consider the direct impacts through GVA, employment, the compensation of employees, and contribution to the UK Exchequer through tax revenues contributed by the sector.

- Section 6 considers the multiplier impacts associated with the activities of the Solent's maritime sector and Portsmouth Naval Base through the activities it stimulates in the local supply chain and in the wider economy when direct and indirect employees of the Solent-based sector spend their earnings on the final goods and services required by households.

## 2 The geography and economy of the Solent LEP area

This section identifies the geographical coverage of this report - in other words, the boundaries of the Solent LEP - and uses macroeconomic indicators and trends to describe the structure and recent performance of its economy.

### 2.1 Geographical location of the Solent LEP region

This report is focused upon the economic impact of the maritime sector within the Solent LEP area. Comprising 11 government districts (including part, though not all, of East Hampshire –the remainder of this sub-region is located in the neighbouring M3 LEP), the region has a people population exceeding 1.3 million and a business population of over 50,000.<sup>5</sup> The geography of the Solent region, disaggregated by local authority, is shown in Figure 1 below.

Figure 1: The constituent geographic regions of the Solent LEP region



Source: Solent LEP

### 2.2 Recent performance of the Solent LEP economy

Before undertaking a comparison of the Solent-based maritime sector against the wider UK sector, we firstly compare the economy of the Solent LEP region with that of the wider South East region and of the UK as a whole. With the Solent LEP region boasting a significant maritime presence, the constituent breakdown of economic activity by industrial sector is markedly different in the Solent.

The Office for National Statistics (ONS) produces statistics for GVA and employment for each LEP region, which Cebr has drawn upon to capture macroeconomic trends in the Solent LEP region. However, it is

<sup>5</sup> <https://solentlep.org.uk/the-solent/map>

important to note that while the ONS publishes statistics on the level of GVA contributed by each LEP, a number of sub-regional locations are excluded (and instead assigned to the neighbouring Enterprise M3 LEP). These omitted sub-regions are found in (but do not represent the entirety of) the local authorities of East Hampshire, New Forest, Test Valley and Winchester, and to ignore these would understate the economic contribution made by the Solent LEP area.

To avoid this issue, the economic activity taking place in council wards that sit within the Solent LEP area – but are not recorded as such by ONS – have been added to the existing ONS estimates of GVA and employment in the Solent LEP area. Table 1 shows the total level of employment and GVA in the Solent LEP area, and shows these as a proportion of the South East and the UK as a whole.

Table 1: Employment and GVA in the Solent (after accounting for relevant activity in omitted council wards)

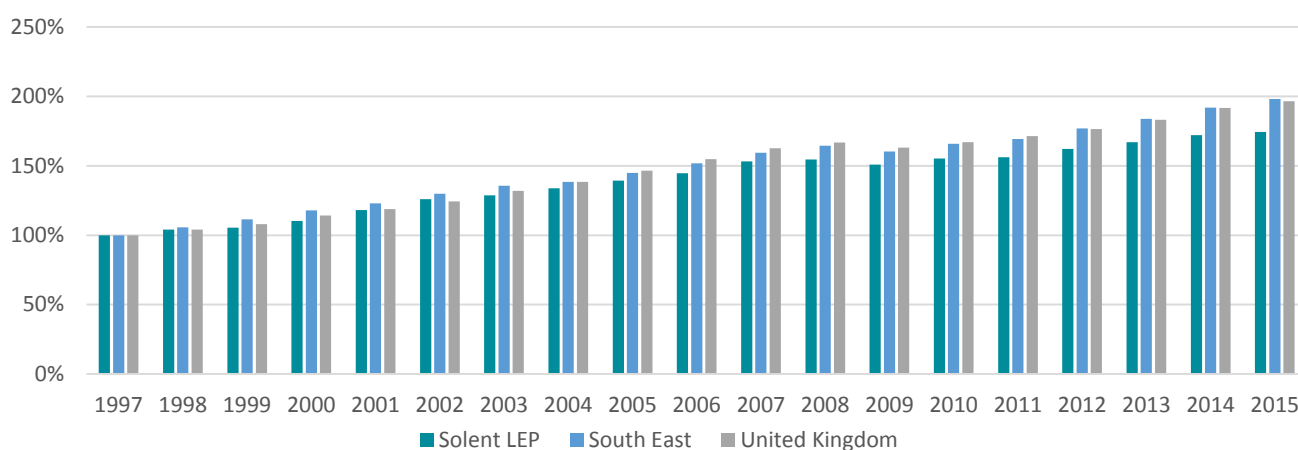
Year	Solent LEP		as share of South East		as share of United Kingdom	
	Employment	GVA	Employment	GVA	Employment	GVA
	Thousands	£ millions	%	%	%	%
2010	582.6	25,138	14.8%	12.1%	2.0%	1.8%
2011	578.4	25,473	14.8%	12.0%	2.0%	1.8%
2012	584.9	26,612	14.9%	12.0%	2.0%	1.8%
2013	593.9	27,380	14.9%	11.8%	2.0%	1.8%
2014	596.0	28,100	14.7%	11.6%	1.9%	1.7%
2015	606.9	28,538	14.6%	11.5%	1.9%	1.7%

Source: ONS (NOMIS and Workforce Jobs), Cebr analysis

Employment in the Solent LEP region has grown year-on-year following a modest drop in 2011. However, the proportion of employment in the South East contributed by the Solent has remained broadly stable between 2010 and 2015, on average around 14.8% of all employment in the South East of England. The contribution from the Solent in terms of GVA has also increased during this period, growing to just under £28.5 billion in 2015, while the share of the entire South East economy has, on this basis, also remained broadly stable over the period considered.

Figure 2 below shows growth in Solent LEP area GVA in nominal terms since 1997, and compared to the GVA growth performance of the wider South East region and the United Kingdom. In 2015, the GVA of the Solent LEP region was 74% higher in nominal terms than in 1997. Given the relatively low inflation environment that prevailed during that period, the Solent LEP economy has clearly demonstrated strong and consistent growth, especially since the decline in 2009 during the depths of the global recession.

Figure 2: GVA in the Solent LEP area, South East and United Kingdom expressed at 1997 levels, 1997 to 2015 (1997 = 100%)



Source: ONS, Cebr analysis

Stronger nominal growth characterises the wider South East region over the same period (98%), but the economy of the South East of England is diverse with large concentrations of the fastest growing industries and – like London’s economy – usually grows faster than the UK as a whole. The strong but steady growth that characterises the Solent LEP economy can, in other words, be expected to reflect the structure of the economy.

## 2.3 Structure of the Solent LEP economy

Table 2 sheds some light on this with a breakdown of employment across each of the broad sectors of the Solent LEP economy in 2015. A higher share of employment is concentrated amongst the combined wholesale, retail, transport, accommodation and food sectors than in the South East or in the UK as a whole. Likewise with manufacturing and the public sector. For example, the proportion of employment in the public sector is 2.6 percentage points higher than in the UK as a whole. Several maritime sector activities that are identified later in this section are found within these broader industry categories, which is itself initial evidence of the importance of the Solent as part of the overall UK maritime sector.

Table 2: Breakdown of employment in 2015 by industrial sector: Solent LEP area, South East and the UK

Sector	Solent LEP	South East	United Kingdom
Agriculture, forestry and fishing	0.1%	1.3%	1.2%
Mining; Energy and Water	0.9%	1.1%	1.2%
Manufacturing	<b>8.4%</b>	<b>6.1%</b>	<b>7.7%</b>
Construction	4.8%	4.8%	6.4%
Wholesale and retail; transportation; accommodation and food	<b>29.8%</b>	<b>28.5%</b>	<b>26.3%</b>
Information and communication	4.9%	6.1%	4.0%
Financial and insurance activities	2.9%	2.9%	3.2%
Real estate activities	1.5%	1.8%	1.7%
Professional, scientific and technical, Administrative	14.6%	16.8%	17.2%
Public Administration and Defence, Education and Health	<b>28.1%</b>	<b>25.8%</b>	<b>25.5%</b>
Arts, entertainment and recreation, household and other services	4.0%	4.8%	5.7%

Note: Sector U has been excluded. Source: ONS NOMIS and Workforce Jobs, Cebr analysis

Table 3 below shows the same industrial sector breakdown for GVA in 2015.

Table 3: Breakdown of GVA in 2015 by industrial sector: Solent LEP area, South East and the UK

Sector	Solent LEP	South East	United Kingdom
Agriculture, forestry and fishing	0.2%	0.5%	0.7%
Mining; Energy and Water	2.3%	2.7%	3.5%
Manufacturing	<b>11.6%</b>	<b>7.8%</b>	<b>9.8%</b>
Construction	6.5%	6.3%	6.1%
Wholesale and retail; transportation; accommodation and food	<b>20.1%</b>	<b>19.9%</b>	<b>18.6%</b>
Information and communication	6.5%	10.0%	6.5%
Financial and insurance activities	4.1%	4.6%	7.2%
Real estate activities	<b>11.5%</b>	<b>13.8%</b>	<b>13.0%</b>
Professional, scientific and technical, Administrative	10.7%	12.7%	12.3%
Public Administration and Defence, Education and Health	<b>22.9%</b>	<b>17.2%</b>	<b>18.4%</b>
Arts, entertainment and recreation, household and other services	3.6%	4.5%	3.9%

*Note: Sector U has been excluded. Source: ONS, Cebr analysis*

In contrast to the employment breakdown shown in Table 2 above, the share of GVA from manufacturing in the Solent is equal to the national average, while the proportion of GVA from the combined wholesale, retail etc. sector is slightly lower.

## 3 The international gateway role of the Solent maritime sector

An important lens through which to understand the importance of the maritime sector in the Solent is the role it plays as an international gateway for UK trade with the rest of the world and for UK tourism.

### 3.1 An island nation: the importance of trade and the enabling role of maritime

International trade drives economic growth and better living standards. The ability to export enables specialisation and increases the potential for businesses to exploit economies of scale by opening up new markets. Exporting is, thus, associated with significant productivity benefits. Economies of scale imply falling unit costs and increasing levels of output being generated for each £1 of input. They increase the overall supply potential of the economy.

But, without the ability to import the capital equipment required to deliver investment programmes across all sectors of the economy and the raw materials and sub-components needed by UK manufacturers from a variety of locations around the world according to where they are produced most efficiently, industry would grind to a halt, not least through a lack of competitiveness. Global sourcing, by further reducing the unit costs of production and enabling UK firms to take advantage of foreign know-how, helps UK businesses maintain and improve competitiveness on global markets.

Importing is also of significant benefit to UK consumers, not only as a result of the competitiveness of domestic businesses as a result of global sourcing of inputs, but also more directly from the competition that imports deliver to the market. This can mean lower prices for the same or superior quality and greater choice. Domestic firms must respond and improve efficiency to remain competitive vis-à-vis foreign suppliers.

The maritime sector, and the sea transportation it enables, are ultimately a means to an end rather than an end in themselves. Before the explosion in commercial aviation, maritime was about the only means of connecting UK people and goods with the rest of the world. But people and goods travel beyond the UK for a range of different reasons and it is from these activities that the demand for maritime and aviation services is ultimately derived. For example, people travel to holiday, to meet friends and relatives, or to attend a conference or meeting in a business capacity. Goods are sent to and from the UK either as final goods or as inputs to final goods, which are then exported or sold on the domestic market.

Moving people who want to travel beyond the UK in their own car – typically for family holidaymakers – remains an important aspect of the maritime services sector but, in overall terms, it has declined in popularity, especially since the low-cost carrier revolution in aviation. Today, one of the maritime sector's principal functions is to provide an international gateway for the movement of goods between the UK and the rest of the world. The choice between sea and air transport boils down to the relative levels of the value per tonne of goods being moved and the cost per tonne of transporting those goods to or from the UK. Because it is cheaper, sea transport tends to attract goods with relatively low value-to-weight ratios and that are less time-critical.

But not all high-tech manufacturing industries produce high value-to-weight goods like pharmaceuticals or computer chips. Machinery and transport equipment is a key UK export sector and was worth between £98 and £126 billion in export value terms to the UK economy in 2014, equating to between 18% and 23% of all UK exports (of both goods and services). The importance of maritime to this high-tech, high-value manufacturing sector is unlikely to be anywhere more clearly reflected than in the statistics on the volume and value share of total UK trade with non-EU countries in these goods that is being handled by the Solent ports.

Given the commonality in the statistics between the top 20 exports from and the top 20 imports to the UK, there seems little doubt that the Solent maritime sector provides a vital link in the integrated chain of globalised supply and demand for the goods of key UK export sectors, such as machinery and transport equipment. In other words, industries like motor manufacturing consist of businesses up and down the UK that are dependent on the Solent ports and maritime sector to get their finished goods to market and to get their essential inputs from abroad.

### 3.2 The shares of UK trade facilitated by the Solent Maritime sector

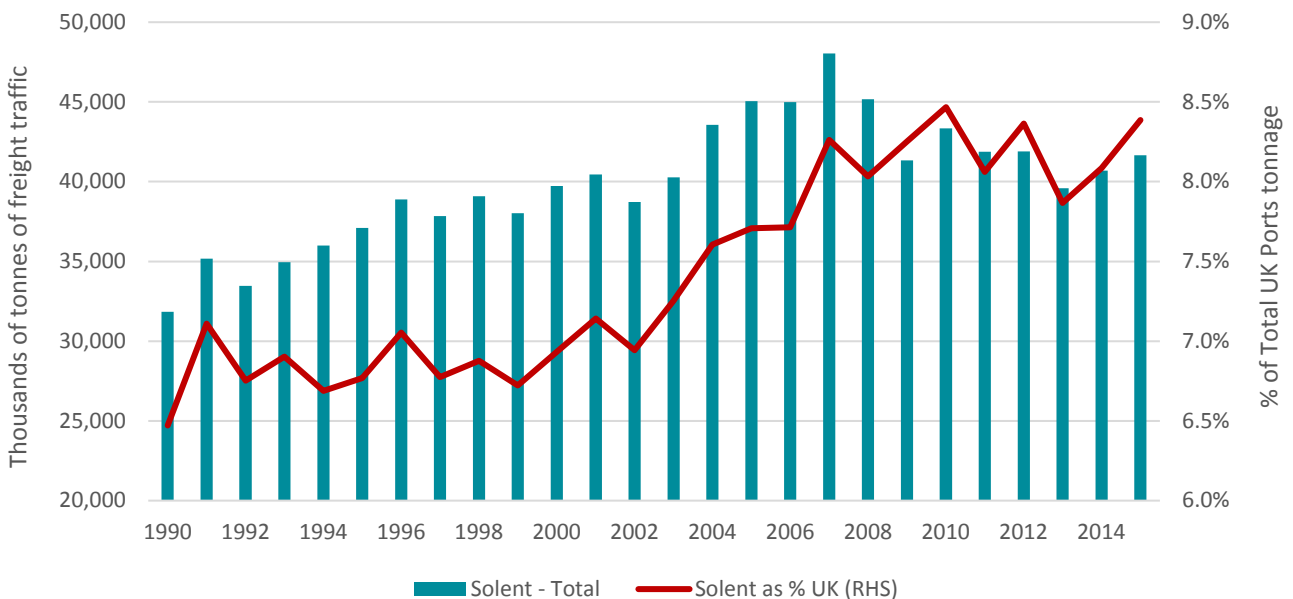
The Solent LEP region contains the major ports of Southampton and Portsmouth, as well the port of Cowes on the Isle of Wight. The infrastructure and location of the Port of Southampton (which is owned by Associated British Ports) is ideal for trade, with substantial rail infrastructure links from the port to key manufacturing locations across the UK. Deep water access allows vessels of up to 15.5m to access the port. The proximity of the English shipping lanes is ideal for accommodating trade, especially with further flung markets than the EU. Southampton also boasts the UK’s second largest container terminal which, it is argued by the Port itself as the most efficient in Europe.<sup>6</sup> While Portsmouth International Port – owned by Portsmouth City Council – is less prominent in trade terms, it is located close to the M275 thus affording strategic access to the entire UK road network.

The data presented in the remainder of this section suggest a significant preponderance towards the facilitation of trade with the UK’s non-EU trading partners. As such, the Brexit vote presents a significant opportunity for the Solent maritime sector to play a leading role in forging sea-based links with the new emerging markets that the UK hopes to forge new trading alliances with after it leaves the EU.

#### Solent shares of UK trade volumes

The Solent makes a disproportionately large contribution to the level of freight traffic handled in the UK, both in an inwards and outwards direction. Figure 3 below shows trends in the total amounts of freight traffic handled by ports in the Solent between 1990 and 2015, and expressed as a share of the UK total. This information is taken from the Department for Transport’s Port Freight Statistics.

Figure 3: Total freight traffic in ports in the Solent LEP region, and as a share of the UK total



Source: Department for Transport, Cebr analysis

<sup>6</sup>See Port of Southampton (2016) "Port Master Plan 2016 – 2035 Consultation Draft".



A 2016 report by MDS Transmodal ranks the Port of Southampton as the third largest seaport in the UK in terms of freight tonnages handled in 2014 (32.2 million tonnes), surpassed only by Grimsby & Immingham (ranked top with 53.4 million tonnes) and London (ranked second with 35.0 million tonnes).<sup>7</sup> Portsmouth was estimated to have handled 2.9 million tonnes of exports and imports in 2014, a rank of 23<sup>rd</sup> out of 52 UK ports.

More recent trends suggest that the Solent has become increasingly important as a hub for UK port freight traffic. Handling 41.7 million tonnes in 2015, the Solent share of UK freight traffic remains at historically high levels, reaching 8.4% in 2015 (slightly lower than the 2010 peak of 8.5%).

### **Solent share of UK trade in value terms**

The same MDS Transmodal report ranks the Port of Southampton as the second largest seaport in the UK in terms of the value of trade handled in 2014, with £71.4 billion worth of goods being exported or imported through the port. Southampton was ranked second only to Felixstowe, which was estimated to have handled £74.5 million worth of goods for export and import, Portsmouth was estimated to have handled international trade valued at £6.2 billion in 2014, a rank of 16<sup>th</sup>.

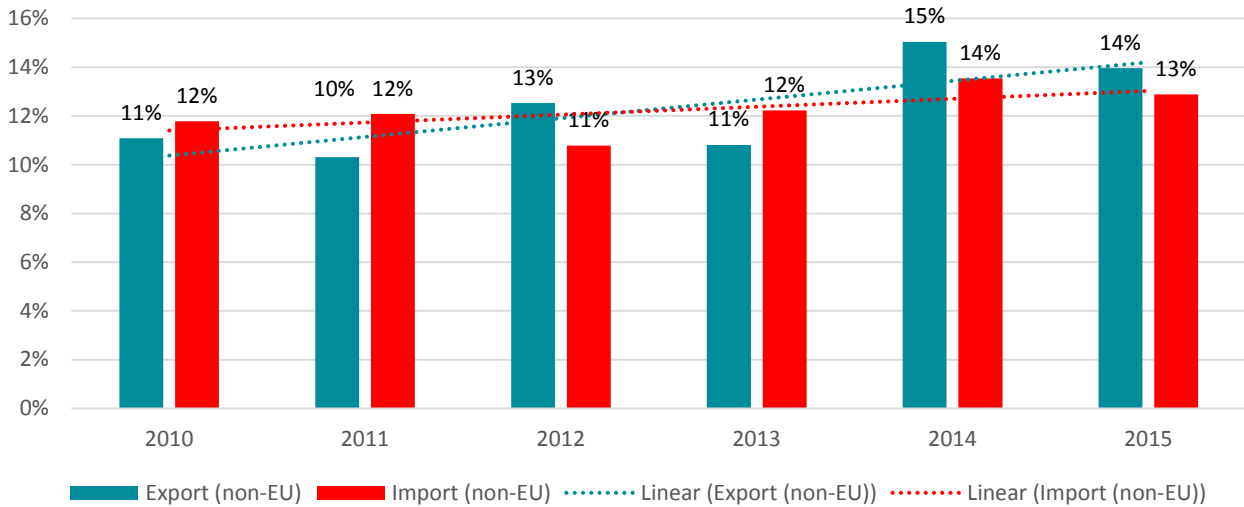
The Port of Southampton is, however, the top ranked seaport in the UK in terms of the value of UK exports to non-EU countries, handling an estimated £36.2 billion worth of UK manufactured goods destined for far flung markets in the Americas, Asia and beyond. Southampton is less important as a facilitator of trade with the EU and was ranked in 11<sup>th</sup> place by MDS Transmodal on this measure, with an estimated £3.9 billion worth of UK exports passing through Southampton in 2014.

Given the importance of Southampton as a gateway for trade with the UK's non-EU trading partners, it is useful to explore HMRC's Overseas Trade Statistics to gain further insights. Figure 3 illustrates the Solent LEP region share of total UK trade with non-EU countries by value, for the six year period 2010 to 2015. In 2015 the Solent LEP region share of total UK export value was 14%, whilst the share of imports by value was 13%. These shares provide a gauge of the role of the Solent maritime sector that recognises the role of airports also as important international gateways.

As illustrated by the dashed lines with positive gradients, these values are higher than their 2010 counterparts of 11% and 12%, respectively. While the Solent shares were higher in 2014, the overall trend is upwards meaning that the Solent maritime sector has grown in importance in terms of the share of the value of trade being facilitated.

<sup>7</sup> See MDS Transmodal (2016), "The value of goods passing through UK ports", Final Report, July.

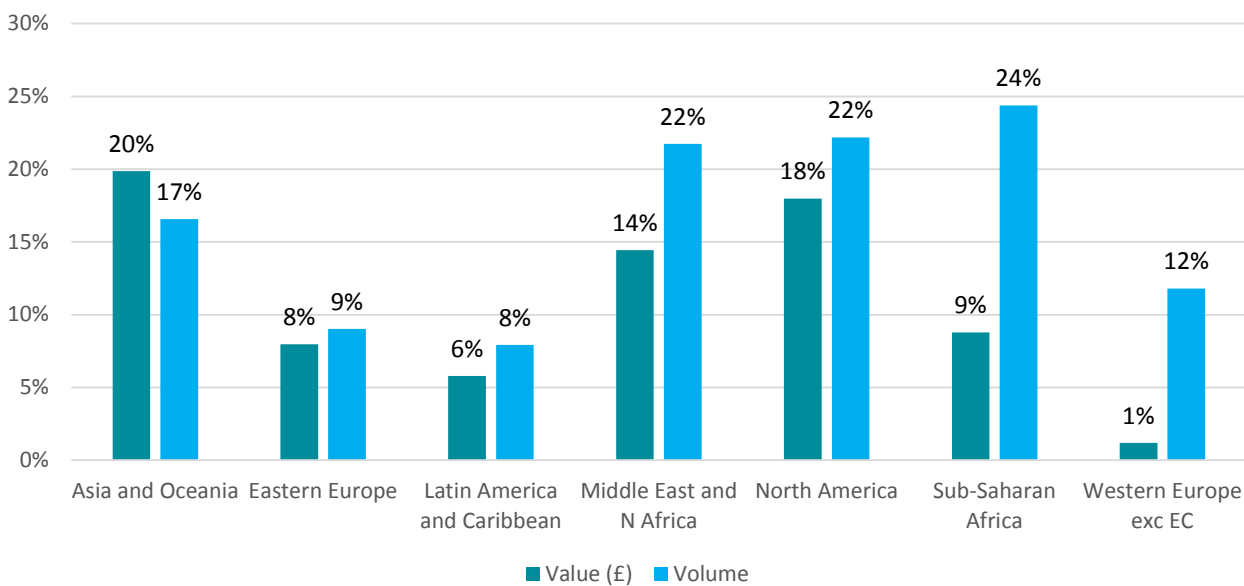
Figure 3: Solent LEP region shares of total UK trade with non-EU countries, exports and imports by VALUE, %, 2010-2015



Source: HMRC Overseas Trade Statistics, Cebr analysis

Figure 4 provides a detailed breakdown of how the Solent LEP area share of UK exports to non-EU countries was split across continents in 2015, by both value and volume. The continental regions that account most for volume of trade are Sub-Saharan Africa (24%); North America (22%); the Middle East and North Africa (22%); and Asia and Oceania (20%). With the exception of Sub-Saharan Africa, these listed regions are also the most prominent in terms of export value: with North America accounting for 18%, Asia and Oceania 17% and the Middle East and North Africa 14%. The fact that trade by volume is high with Sub-Saharan Africa, but the share of value is low (9%), indicates that whilst the goods being traded are of high volume/number, they are of low value. The same can be said of Western Europe excl. EC.

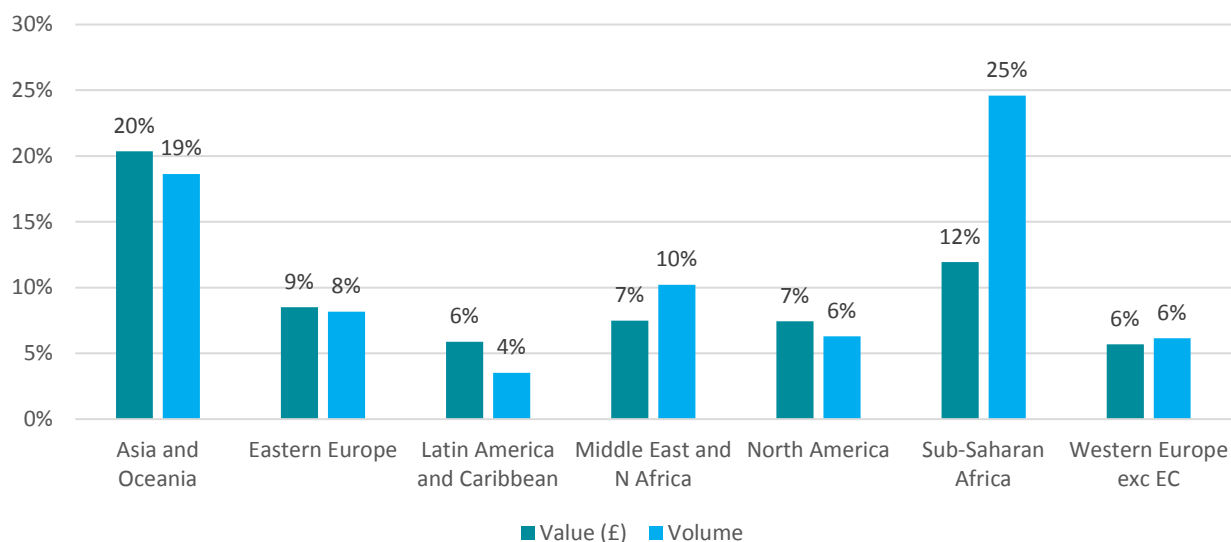
Figure 4: Solent LEP area shares of non-EU exports by continent, value and volume, 2015



Source: HMRC Overseas Trade Statistics, Cebr analysis

Figure 5 focuses on imports: it provides a detailed breakdown of how the Solent LEP area share of total UK imports with non-EU countries is split across continents in 2015, by both value and volume.

Figure 5: Solent LEP area shares of non-EU imports by continent, value and volume, 2015



Source: HMRC Overseas Trade Statistics, Cebr analysis

The continental regions that account for the largest share of imports by volume are Sub-Saharan Africa (25%) and Asia and Oceania (19%). In terms of the share of imports by *value*, Asia and Oceania is by far the largest contributor, with 20%, whilst Sub-Saharan Africa is the next highest contributor – albeit with a significantly smaller share of 12%. Analogous to our discussion of exports, the disparity between the share of import trade by volume and value for Sub-Saharan Africa is striking: it indicates that whilst a large volume of goods are imported from the continent, they are largely of low value.

We now proceed to discuss the exporting sectors that are most dependent on the Solent Maritime sector, as reflected in the goods that are internationally-traded through the Solent ports and facilitated by the Solent maritime sector.

### 3.3 The key imports facilitated by the Solent maritime sector

The HMRC Overseas Trade Statistics are also broken down according to the type of product being imported or exported, which are identified based on the SITC system – Standard International Trade Classification.

This subsection concerns the imports of goods that are facilitated by the Solent maritime sector. We commence with a broad overview of the import product categories that are moving through the Solent with the help of its maritime sector. As noted in subsection 3.1, imports can be expected to include final goods for consumption and investment and intermediate products that provide vital inputs for UK manufacturers, including those heavily engaged in exporting.

At the SITC 1-digit level, Table 4 illustrates that the Solent maritime sector moves a 20.4% share of all miscellaneous manufactured articles that are imported to the UK from non-EU countries. This includes goods like:

- Pre-fabricated buildings
- Furniture
- Travel goods
- Clothing and footwear
- Professional and scientific instruments and apparatus

- Photographic and optical goods, including clocks and watches.

Table 4: Imports from non-EU countries by SITC 1-digit product category

SITC 1-digit product categories	£ millions	% share of UK totals
8 - Miscellaneous manufactured articles	8,554	20.4%
7 - Machinery & transport equipment	7,264	11.8%
3 - Mineral fuels, lubricants & related materials	3,285	12.8%
6 - Manufactured goods classified chiefly by material	2,640	14.0%
0 - Food & live animals	1,196	12.2%
5 - Chemicals & related products, nes	1,177	8.6%
2 - Crude materials, inedible, except fuels	436	10.0%
1 - Beverages & tobacco	185	13.1%
4 - Animal & vegetable oils, fats & waxes	8	2.4%
9 - Commodities/transactions not class'd elsewhere in SITC	3	0.0%
<b>TOTAL</b>	<b>24,748</b>	<b>14.0%</b>

Source: HMRC Overseas Trade Statistics, Cebr analysis

Many of these goods can be expected to be dominated by goods in final form to support consumption or investment programmes. As such, the maritime sector in the Solent plays an important role in facilitating competition for domestic manufacturers of the same kinds of product.

In value terms, the next highest category is machinery and transport equipment, of which imports to the value of £7.3 billion were moved through the Solent in 2015. This is likely to include final goods and, thus, again a source of competition for UK manufacturers. However, it is also likely to include parts and components that are built into machinery and transport equipment being manufactured in the UK, either for export or for the domestic market.

We note that the £24.8 billion total for 2015 is broadly comparable with the MDS Transmodal estimate of £24.3 billion for 2014 (based on combining a £23.9 billion estimate for Southampton with a £0.4 billion estimate for Portsmouth).

At the SITC 2-digit level, the picture alters somewhat. Table 5 suggests that, by value, 18% of the UK's imports of petroleum and related products and materials from non-EU countries are moved through the Solent ports, amounting to £3.3 billion. This is followed by almost £3 billion in apparel and clothing imports (or 22% of the total from non-EU countries).

The machinery and transport equipment categories are much less prominent in the Solent in terms of imports. Indeed, the £1.9 billion of imports from non-EU countries in the road vehicles category pales in comparison to the export numbers. We suspect that parts and components, required by UK manufacturers to produce motor vehicles for the domestic market or for export, accounts for a relatively sizable share of this. Nonetheless, the Solent is responsible for moving a sizeable share of the UK's total imports of products in this category.

The Solent maritime sector is also responsible for facilitating notable shares of imports in other consumer goods categories, including footwear (34%), travel goods and handbags (31%) and furniture and bedding (30%).

Table 5: Imports to non-EU countries by SITC 2-digit product category

SITC 2-digit categories	£ millions	% share of UK totals
33 - Petroleum, petroleum products & related materials	3,282	18%
84 - Articles of apparel & clothing accessories	2,995	22%
89 - Miscellaneous manufactured articles n.e.s.	2,325	17%
77 - Ele machinery, app & appliances & ele pt thereof n.e.s.	1,908	18%
78 - Road vehicles (including air cushion vehicles)	1,874	24%
85 - Footwear	990	34%
74 - General industrial machinery & eqp. & machine pt.n.e.s.	980	19%
82 - Furniture & parts thereof; bedding, mattresses etc	928	30%
69 - Manufactures of metal n.e.s.	847	20%
76 - Telecomms & sound recording & reproducing app. & eqp.	653	7%
65 - Textile yarn, fabrics, made up articles etc	581	21%
05 - Vegetables & fruit	550	16%
71 - Power generating machinery & equipment	537	5%
72 - Machinery specialized for particular industries	483	21%
79 - Other transport equipment	422	5%
87 - Professional, scientific & controlling ins & app n.e.s.	414	10%
83 - Travel goods, handbags & similar containers	367	31%
55 - Essential oils & perfume materials; toilet preps etc	336	23%
66 - Non-metallic mineral manufactures n.e.s.	336	11%
75 - Office machines & adp machines	298	5%

Source: HMRC Overseas Trade Statistics, Cebr analysis

Note that, in contrast to Table 4, there are no total rows in either Table 5 above or Table 6 below. This is because these tables provide a more granular snapshot of some of the information contained in Table 4 but not the whole picture, and so will not sum to the same total value.

Table 6 displays results as the SITC 3-digit level; the picture largely mirrors that in Table 5 above. In value terms, petroleum oils and oils obtained from bituminous minerals are dominant at £2.6 billion imports from non-EU countries passing through the Solent, a 22% share of the UK total. Also prominent are consumer goods like baby carriages, toys, games and sporting goods, as well as articles of apparel and textile fabrics.

It can also be seen from Table 6 that the Solent handles 55% of UK imports from non-EU countries in motor vehicles for the transport of goods and other special purposes and 27% of the UK's imports of parts and accessories of motor vehicles. This confirms the role of the maritime sector in the Solent LEP area in facilitating the supply chain needs of UK manufacturers of machinery and transport equipment, as well as providing the route to market for their exports.

However, it is clear that the maritime sector in the Solent provides a vital cog in the wheel of most, if not all, of the full range of manufacturing sectors in the UK, from food and clothing, to motor cars and goods vehicles to aircraft, spacecraft and satellites. This role comes in various guises from ensuring the movement of vital imported inputs to UK manufacturers from abroad, of valuable exports to our trading partners or in moving imported final goods that provide a competitive discipline for UK manufacturers looking to maintain global market share.

Table 6: Imports to non-EU countries by SITC 3-digit product category

SITC 3-digit categories	£ millions	% share of UK totals
333 - Petroleum oils and oils obtained from bituminous minerals, crude	2,633	22%
894 - Baby carriages, toys, games and sporting goods	1,098	31%
845 - Articles of apparel, textile fabrics	1,062	23%
334 - Oils obtained from petroleum or bituminous mnl	643	10%
842 - Women's & girls' garments of tex fab, not knt or crd	643	22%
778 - Electrical machinery and apparatus, nes	627	24%
782 - Motor vehicles for the transport of goods and special purposes motor vehicles	607	55%
784 - Parts and accessories of motor vehicles	594	27%
775 - Household type, electrical and non-electrical equipment	542	24%
841 - Men's or boys' garments of tex fab, not knt or crd	511	24%
893 - Articles, nes, of plastics	479	25%
764 - Telecommunications equipment and parts, accessories	438	6%
057 - Fruit and nuts (not including oil nuts), fresh or dried	419	18%
658 - Made-up articles, wholly or chiefly of textile materials	369	27%
844 - Women's or girls' garments of tex fab, knitted or crd	341	20%
781 - Motor cars & other m/vehicles for transport of persons	331	9%
699 - Manufactures of base metal, nes	318	18%
792 - Aircraft; spacecraft (incl satellites) & spacecraft launch vehicles; parts	301	4%
892 - Printed matter	280	24%
553 - Perfumery, cosmetics or toilet preparations (excluding soaps)	259	24%

Source: HMRC Overseas Trade Statistics, Cebr analysis

### 3.4 The key exports facilitated by the Solent maritime sector

This section provides a similar analysis of the exports of goods that are facilitated by the Solent maritime sector. Table 7 presents results for the SITC 1-digit product categories, based on HMRC's Overseas Trade Statistics. For each, the table provides a minimum valuation of export trade that is facilitated by the Solent-based maritime sector, as well as indicative Solent percentage shares of the value of total UK exports of the relevant product category. As illustrated, products that fall under "machinery & transport equipment" account for at least £15.7 billion of exports through the Solent region: this represents a share of at least 25.3% of the total value of UK exports of this product category.

Products that fall under "crude materials, inedible, except fuels" are also particularly dependent on the Solent maritime sector, with at least 24.9% of UK exports of this product depending passing through the Solent ports. The value of this export trade is significantly lower than that of "machinery & transport equipment", however, at £0.8 billion. Other sectors that are particularly dependent on the Solent region for exports to non-EU countries – by share of UK totals – include those whose products fall under "food and live animals" (18%) and "mineral fuels, lubricants & related materials" (15.8%).

Table 7: Exports to non-EU countries by SITC 1-digit product category

SITC 1-digit product categories	£ millions	% share of UK totals
7 - Machinery & transport equipment	15,794	25.3%
5 - Chemicals & related products, nes	2,599	9.8%
6 - Manufactured goods classified chiefly by material	1,614	12.5%
8 - Miscellaneous manufactured articles	1,254	5.4%
3 - Mineral fuels, lubricants & related materials	906	15.8%
2 - Crude materials, inedible, except fuels	808	24.9%
0 - Food & live animals	605	18.0%
1 - Beverages & tobacco	230	5.7%
9 - Commodities/transactions not class'd elsewhere in SITC	83	0.3%
4 - Animal & vegetable oils, fats & waxes	9	13.9%
<b>TOTAL</b>	<b>23,903</b>	<b>14.0%</b>

Source: HMRC Overseas Trade Statistics, Cebr analysis

It is vital to note that there is a significant discrepancy between the HMRC-based estimate of £23.9 billion for both Solent ports in 2015 and the MDS Transmodal estimate of £36.2 billion for Southampton alone (£40.1 billion including Portsmouth) in 2014. The latter estimate is based on a valuation of the freight volumes recorded by the Department for Transport. These DfT data are consistent with the Maritime Statistics Directive and, as such, are seen as a more accurate measure of trade activity at ports.

HMRC has, in any case, informed Cebr that port-level OTS data can be incomplete because the specific recording of a port as the place of loading or unloading is no longer required as part of customs declarations. For a range of other reasons, the substitute information – place of clearance – is also problematic in terms of accurately reflecting trade activity at individual ports. As such, Cebr is of the view that the MDS Transmodal estimates are more likely to provide a better reflection of the true extent of the value of trade being facilitated by the Solent maritime sector.

Despite these issues of incompleteness, as the only available source, it is still useful to use the HMRC OTS data to provide additional granularity on the types of exports passing through the Solent ports. Table 8 shows the top 20 exports to non-EU countries at the SITC 2-digit level. This suggests that, within machinery and transport equipment, road vehicles are the dominant category, with 61% of UK exports to non-EU countries moved by the maritime sector in the Solent in 2015. Other important categories in terms of the Solent share include specialist industrial machinery (32%) and plastics in primary form (30%).

Table 8: Exports to non-EU countries by SITC 2-digit product category

SITC 2-digit product categories	£ millions	% share of UK totals
78 - Road vehicles (including air cushion vehicles)	10,937	61%
72 - Machinery specialized for particular industries	1,361	32%
74 - General industrial machinery & eqp. & machine pt.n.e.s.	1,277	18%
33 - Petroleum, petroleum products & related materials	847	15%
71 - Power generating machinery & equipment	797	5%
77 - Ele machinery, app & appliances & ele pt thereof n.e.s.	595	10%
89 - Miscellaneous manufactured articles n.e.s.	545	4%
79 - Other transport equipment	545	8%
28 - Metalliferous ores & metal scrap	528	26%
55 - Essential oils & perfume materials; toilet preps etc	482	27%
54 - Medicinal & pharmaceutical products	475	3%
51 - Organic chemicals	439	8%
69 - Manufactures of metal n.e.s.	370	15%
59 - Chemical materials & products n.e.s.	353	16%
68 - Non-ferrous metals	347	8%
57 - Plastics in primary forms	313	30%
87 - Professional, scientific & controlling ins & app n.e.s.	299	5%
67 - Iron & steel	241	11%
82 - Furniture & parts thereof; bedding, mattresses etc	221	23%
58 - Plastics in non-primary forms	213	24%

Source: HMRC Overseas Trade Statistics, Cebr analysis

Table 9 drills further down to the SITC 3-digit level, which magnifies even further the important role played by the maritime sector in the Solent for manufacturers throughout the UK. For instance, of the £10.9 billion exports of road vehicles, just shy of £9.95 billion relates to motor cars and motor vehicles for the movement of people and the Solent is recorded as facilitating at least 65% of UK exports of these products to non-EU countries. This is no surprise given that the Port of Southampton boasts 10 automotive shipping lines providing over 110 services a month to over 50 ports worldwide.<sup>8</sup>

The value of exports moved by the Solent maritime sector is not as significant for other goods, but the percentage shares of UK totals to non-EU countries are even higher in some cases. For instance, 78% of UK exports of tractors to non-EU countries and 69% of exports of motor vehicles for the transport of goods and other special purposes are sent via the Solent ports and handled by its maritime sector. The shares are also high for mechanical handling equipment (41%), ships and boats (40%) and civil engineering and contractors' plant and equipment (37%).

The results presented here are clearly illustrative of the vital international gateway role played by the Solent and its maritime sector. In the key UK manufacturing industry of machinery and transport equipment, it is clear that the associated manufacturing industries have a significant dependence on the services offered by the maritime sector in the Solent LEP area. But it is also clear that a wide range of other manufacturing industries up and down the country are dependent on the maritime sector in the Solent LEP area to get their finished goods to market.

<sup>8</sup>See Port of Southampton (2016) "Port Master Plan 2016 – 2035 Consultation Draft".



Table 9: Exports to non-EU countries by SITC 3-digit product category

SITC 3-digit categories	£ millions	% share of UK totals
781 - Motor cars & other m/vehicles for transport of persons	9,950	65%
334 - Oils obtained from petroleum or bituminous mnl	836	28%
782 - Motor vehicles for the transport of goods & for special purposes	616	69%
723 - Civil engineering and contractors' plant and equipment	545	37%
744 - Mechanical handling equipment, and parts thereof	416	41%
542 - Medicaments (including veterinary medicaments)	406	4%
728 - Other machinery, equipment & parts for particular industries	340	20%
722 - Tractors	323	78%
553 - Perfumery, cosmetics or toilet preparations (excluding soaps)	304	31%
288 - Non-ferrous base metal waste and scrap	286	33%
784 - Parts and accessories of the motor vehicles	283	19%
792 - Aircraft; spacecraft (incl satellites) & spacecraft launch vehicles; parts	274	5%
793 - Ships, boats (including hovercraft) and floating structures	255	40%
743 - Pumps, compressors, fans; ventilating/recycling hoods; centrifuges, filtering app	236	18%
598 - Miscellaneous chemical products	199	15%
896 - Works of art, collectors' pieces and antiques	178	3%
582 - Plates, sheets, film, foil and strip, of plastics	172	28%
699 - Manufactures of base metal	164	14%
874 - Measuring, checking, analysing and controlling instruments and apparatus	163	4%
747 - Taps, cocks, valves & similar appliances for pipes, boiler shells, tanks, vats	163	10%

Source: HMRC Overseas Trade Statistics, Cebr analysis

### 3.5 Key role in realisation of substantial export-based GVA contributions to GDP

The economic importance of the trade facilitation role of the Solent maritime sector is magnified when one considers the GVA contributions to UK GDP that are made in producing these exports. The Solent maritime sector plays a crucial role in the realisation of these contributions – once the Solent maritime sector transports UK export goods to their destination markets, exporters realise the value of the sale and, thus, the GVA generated as a result of that sale.

As noted in the previous subsection, the best available estimates of the value of UK exports passing through the Solent ports are those produced by MDS Transmodal.

Table 10: MDS Transmodal estimates of value of UK exports moving through the ports of Southampton and Portsmouth in 2014

£ millions	Southampton	Portsmouth	TOTALS
Exports to EU	3,944	2,485	<b>6,429</b>
Exports to non-EU	36,175	241	<b>36,416</b>
TOTALS	<b>40,120</b>	<b>2,725</b>	<b>42,845</b>

Source: MDS Transmodal (2016)

We have used these data in conjunction with the 1 and 2 digit SITC product categories from Table 7 and Table 8 and linked the resulting estimates to the relevant Standard Industrial Classification (SIC), which is the basis for the national, sector and industry accounts produced by the Office for National Statistics. Using the industry and sector accounts, it was possible to derive a GVA contribution to GDP accruing through the production of the export goods moving through the Solent ports.

On this basis, the maritime sector in the Solent LEP area can be said to play a key role in the realisation by UK export manufacturers and distributors of the exported goods moving through its ports of an estimated £20 billion in GVA contributions to GDP. This is a 2014 estimate and so, is likely to have increased in the intervening years. Nonetheless, it represents a 1.1% share of UK GDP in that year.

### 3.6 Gateway for international tourism and island lifelines

This subsection provides a discussion of the additional gateway functions that the Solent region and its maritime sector performs: through both international tourism and as an island lifeline.

#### A gateway for international tourism

It is important to recognise that inbound tourism is a UK export: in the same way that producers of goods exports rely on the Solent maritime sector to get their goods to international markets, the tourism-orientated sectors – including travel, accommodation, arts and culture and so forth – rely on the maritime sector to bring tourists to the UK who, in turn, stimulate demand for their services.

With the low-cost carrier revolution in aviation and the emergence of rail services to continental Europe via the Channel Tunnel, travel by sea has declined in popularity. But the mode remains important for luxury cruising and when people want to travel to or from the UK with their own cars. Figure 6 and Figure 7 below serve to illustrate the importance of the Solent maritime sector in facilitating inbound tourism and, in turn, its importance in facilitating the aforementioned industries that are geared to tourism.

Figure 6 shows the number of international passenger movements at Portsmouth and Southampton Ports (left axis), as well as the total level of international passenger movements across all UK ports (right axis), over the period 2006 to 2016. The figure illustrates that the level within the Solent region is highest for Portsmouth across all considered years; though it has declined by 11% over the period. Contrastingly, the level of international passenger movements at Southampton – and so its importance in facilitating inbound tourism and the industries that depend on it – has increased by 140% over the period 2006 to 2016.

On the right axis, Figure 6 illustrates that the total level of international passenger movements across UK ports largely fell over the period 2006 to 2012, but tended to rise thereafter. Overall, the level of international passenger movements at ports across the UK fell by 6% over the period 2006 to 2015.

Figure 6: International sea passenger movements at each of Portsmouth, Southampton and all UK ports, 2006-2016, '000s



Source: Department for Transport Statistics, Cebr analysis

Figure 7 illustrates both the Solent share of international passenger movements relative to the total level of international passenger movements at UK ports; and the percentage share of total international cruise passengers that can be attributed to Southampton port.

As is clearly illustrated, the Solent share of international passengers at UK Ports has increased markedly over the period 2006 to 2015; from 11% to 15%. Similarly, the Southampton share of international cruise

passengers has grown from 65% to 83%. These trajectories are indicative of the importance of the Solent maritime sector as a gateway for international tourism.

Figure 7: The Solent's share of international passenger movements and Southampton's share of the cruise market



Source: Department for Transport Statistics, Cebr analysis

The Port of Southampton is the UK's leading Port for cruises and, in 2015, accommodated 450 cruise vessels carrying over 1.5 million cruise passengers. This has since increased to 2 million cruise passenger movements in 2017. Southampton is also home to the world's leading cruise operator, Carnival, and 83% of UK cruises are based at the port, as illustrated in Figure 7.

### A domestic gateway for the Isle of Wight

The Isle of Wight has a population of 140,000. It specialises in tourism, and any tourists are likely to travel from or through mainland Britain and in turn through the Solent to travel to the Isle of Wight. In addition to tourism there is also the essential movement of goods to the Isle of Wight from mainland Britain, and vice versa. Seen in this light, the Isle of Wight's relationship with the UK may well be a microcosm of the importance of the relationships that the Solent maritime sector facilitate between the UK and the rest of the world.

## 4 Establishing the economic ‘footprint’ of the Solent maritime sector

Here we set out how the maritime sector has been defined for the purposes of establishing its economic ‘footprint’ in the Solent LEP area, the estimates for which are outlined in Sections 5 and 6 below. The wider sector can be disaggregated into four separate industries, representing each of shipping, ports, marine and maritime business services. But an assessment of the maritime sector in the Solent LEP area specifically cannot ignore the importance of the Portsmouth Naval Base (PNB) as a source of economic contribution for the Solent LEP economy. For that reason, estimates of the economic value of the activities taking place at PNB are included within our assessment.

### 4.1 The definition of the maritime sector and its constituent industries

For the purposes of the broader study, Maritime UK provided a list of activities which fall under the auspices of the maritime sector. Cebr has undertaken a mapping exercise, using the Maritime UK list to identify how each of the four maritime industries align 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.

The maritime sector in the Solent has been identified as consisting of the following industry activities:

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

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

The economic activities being undertaken at Portsmouth Naval Base and considered within our assessment include:

- Shipbuilding, marine engineering and naval defence industries;
- Naval defence activities (MOD and Civilian);
- Other activities (including heritage and cultural services) and ship services.

## 4.2 Mapping maritime sector activities against the SIC framework

Here we set out how the direct economic contributions of the industries and activities listed in the previous subsection have been mapped against the SIC framework. As already noted, in cases in which there is a neat mapping to the SIC framework, the data required to measure economic contributions can be drawn directly from the ONS national and sector accounts. For activities which do not map neatly against this framework – in other words, when SIC codes cannot be used to accurately reflect or capture a particular maritime-related activity – we outline the industry-level sources to separately quantify the economic contribution.

It is not necessarily the case that the maritime industries and activities defined here is exhaustive and further work may be required to capture the full extent of activities that can be classified as falling within the maritime sector. This is likely to require continued collaboration between bodies like Maritime UK, the Solent LEP and the ONS.

### The Shipping and Ports industries

Table 11 below shows how activities for the shipping and ports industries have been identified, and the data sources used to capture and quantify the associated economic activity.

*Table 11: Mapping of Maritime sector activities: Shipping and Ports industries*

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S) USED
SHIPPING	Transport of Passengers International / Sea Faring	Identified through SIC code 50100, "Sea and Coastal Passenger Water Transport".	FAME, BRES
	Transport of Passengers on Inland Waterways	Identified through SIC code 50300, "Inland Passenger Water Transport".	FAME, BRES
	Transport of Freight International/ Sea Faring	Identified through SIC codes 50200 and 77342, "Sea and coastal freight water transport", and "Renting and Leasing of Freight Water Transport Equipment".	FAME, BRES
	Transport of Freight on Inland Waterways	Identified through SIC code 50400, "Inland Freight Water Transport".	FAME, BRES
	Other Shipping activity not captured through SIC codes 50100 - 50400	Identified through Chamber of Shipping statistics for shipping-related employment	CoS Manpower Survey
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, Security and Marshals, Marine and Vessel Management Services, Marine Pilots, Harbour Support, 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

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S) USED
	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. Activities are then mapped to council wards containing major and minor UK ports.	Institute for Government, Port Freight Statistics, Cebr analysis

Source: Maritime UK, Cebr analysis

For the majority of shipping and ports industry activities, business demography data taken from the FAME database has been used to generate UK-level estimates for the direct economic impacts of each activity. Data taken from the ONS Business Register of Employment Survey (BRES) has then been used to disaggregate national level data at both regional and Solent-level. In the case of activities for the ports industry, only activity taking place in council wards within the Solent LEP area that contain a major or minor UK port has been captured, on the assumption that warehousing and storage and other activities taking place in these locations relate to the associated port.

### The marine and maritime business services industries

Table 12 below shows how activities for the marine industry have been identified, and the data sources used to capture and quantify the associated economic activity.

Table 12: Mapping of Maritime sector activities: Marine industry

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S) USED
MARINE	Boatbuilding (marine leisure vessels)	Identified through SIC codes 3012 ("Building of pleasure and sporting boats") as well as the British Marine "Key Performance Indicators for the Leisure, Superyacht and Small Commercial Marine Industry"	British Marine, Cebr analysis
	Marine renewable energy offshore installation, servicing, operation, maintenance and decommissioning	Marine renewable energy activities do not map neatly across the SIC framework. Cebr have therefore drawn upon the BIS report, "The size and performance of the UK-low carbon economy" BIS report (2013) to derive employment, turnover and GVA estimates.	BIS, Cebr analysis
	Marine support activities for offshore oil and gas, engineering and mining	Identified through SIC code 91, "Support activities for petroleum and natural gas extraction".	FAME, Cebr analysis
	Recreational marine activities, marine finance and legal activities and general customer and business marine services	Leisure marine activities do not map neatly across the SIC framework, as they are typically bundled together with others within the leisure industries; this precludes the effective use of FAME to gather economic impact data. Cebr have therefore drawn upon the British Marine "Key Performance Indicators for the Leisure, Superyacht and Small Commercial Marine Industry" to derive employment, turnover and GVA estimates.	British Marine, Cebr analysis
	Marine science and academic activities, including government vessels and technical consulting	Marine scientific activities do not map neatly across the SIC framework, as they are typically bundled together with other activities within the Manufacturing and "Other Scientific and Professional" sectors; this precludes the effective use of FAME to gather economic impact data. Cebr have therefore drawn upon the Society of Maritime Industries (SMI) "Annual Review of UK Marine Scientific Industries reports to gather data.	SMI, Cebr analysis

Source: Maritime UK, Cebr analysis

The marine industry is defined as encompassing a wide range of activities, ranging from leisure boat manufacturing to renewable energy generation and marine scientific activities. It is important to note that manufacturing and repair of ships is assigned separately to Portsmouth Naval Base (see below).

A key source of information used by Cebr to capture marine leisure activities is the Key Performance Indicators (KPI) analysis produced by British Marine. This is produced each year, drawing upon information supplied to British Marine by its membership, such as company turnover and statistics declarations. The KPI analysis covering the years 2010 to 2015 (inclusive) has provided an important source of information for capturing and quantifying leisure boatbuilding as well as business and customer marine activities.

Table 13 below shows how activities in the maritime business services industry have been identified, and the data sources used to capture and quantify the associated economic activity.

Table 13: Mapping of Maritime sector activities: Maritime Business Services industry

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S) USED
MARITIME BUSINESS SERVICES	Shipbroking	Shipbroking cannot be separately identified from within SIC code 52290 "Other transportation support activities"; the same issue is encountered when attempting to separately identify the Maritime-related share of the wider Financial, Insurance, Legal, Education, Consultancy and Accountancy services.  Cebr therefore have drawn upon "The UK's Global Maritime Professional Services: Contribution and Trends" (2016) report to capture UK-level data for these activities.	PwC, Cebr analysis
	Maritime insurance, finance and legal services		
	Maritime Education (including university courses and cadet training)		
	Maritime consultancy and accountancy		
	Ship surveying and classification	Cebr have identified employment in shipping classification societies by contacting UK-based members of the International Association of Classification Societies (IACS)	IACS, FAME

Source: Maritime UK, Cebr analysis

### Portsmouth Naval Base

The starting point for incorporating Portsmouth Naval Base within our assessment has been provided by a 2012 report by the University of Portsmouth, entitled *Socio-Economic Impact Assessment of Portsmouth Naval Base*. This report identifies the direct and indirect contribution in terms of GVA and employment to the Solent LEP region in 2011, with employment distributed across the following identified activities:

- Portsmouth Naval Base armed service and civilian staff;
- Shipbuilding;
- Maritime services;
- Ships' crew;
- BAE Systems Subcontract staff and Other permanent contract staff;
- Heritage (those employed running and maintaining attractions).

The University of Portsmouth study estimated that Portsmouth Naval Base directly contributed £959 million in GVA and 11,900 jobs to the Solent LEP economy in 2011, with a wider contribution of £1,682 million in GVA and just under 19,800 jobs including multiplier impacts. Cebr has projected these forward using two key data sources:

- MOD Quarterly Location Statistics for MOD service and civilian staff, 2010 and 2012-2015;<sup>10</sup>
- BRES for non-MOD staff, 2010 and 2012-2015.

<sup>10</sup> <https://www.gov.uk/government/collections/location-of-all-uk-regular-service-and-civilian-personnel-quarterly-statistics-index>



## 5 The direct impact of the Solent maritime sector and Portsmouth Naval Base

This section sets out Cebr's estimates of the direct contribution of the Solent-based maritime sector to four key macroeconomic indicators: GVA, employment, the remuneration of employees, and the Exchequer contribution through tax revenues raised. The contribution that the maritime sector in the Solent makes to the wider UK maritime sector is also considered. Direct economic impacts are separated for each maritime industry - shipping, ports, marine and maritime business services - and for Portsmouth Naval Base (PNB).

### 5.1 An important caveat

There is reason to believe that the direct contributions and impacts provided in this section are underestimated. As such, they may not reflect the true magnitude of the economic role of the maritime sector as a direct source of jobs and GVA contributions to GDP.

There is no evidential basis to increase the estimates from those produced by Cebr (and presented below) using all of the data sources that are currently available. We do accept, however, that the Solent LEP's view that the estimates are implausibly low based on what it observes 'on the ground' does need to be explored. Cebr would suggest that a primary data gathering exercise may well provide the only solution, given its view that all currently available data sources have been exhausted. This is, unfortunately, beyond the scope of the current study.

If the direct impacts in this section are underestimated, the same will be the case for the total impacts presented in Section 6 below. The total impact estimates include indirect and induced multiplier effects and, as a result of the mechanics of the calculations, underestimated direct impacts will result in underestimated multiplier impacts. As such, the most Cebr is able to say at present is that the economic 'footprint' of the maritime sector in the Solent is at least as large as suggested by the estimates presented in this report. If the gaps in the data can be plugged, it would be no surprise to see a step-change in the estimates in the future.

### 5.2 Direct GVA contributions to GDP

Cebr's estimates of the direct GVA contributions to GDP made by the Solent maritime sector are illustrated in Figure 8. This is disaggregated for each of the four maritime industries and for Portsmouth Naval Base in the years 2010 to 2015.

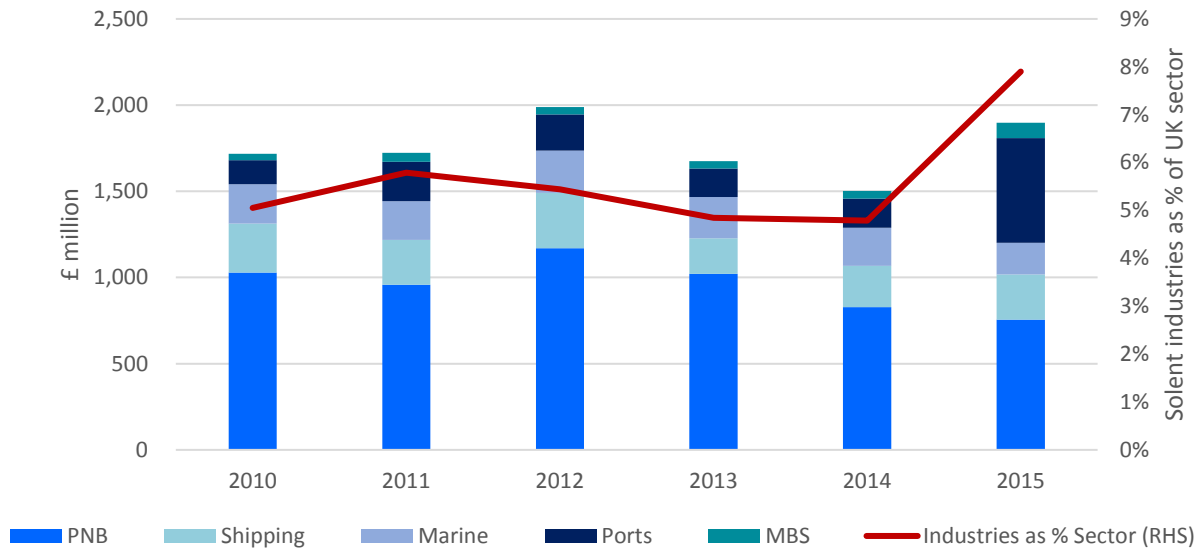
It is estimated that the Solent-based maritime sector and Portsmouth Naval Base directly contributed just under £1.9 billion in GVA contributions to GDP in 2015. Having fallen in previous years, the direct GVA impact increased from 2014 to 2015, with the 2015 level almost reaching the £2 billion estimate for 2012.

Aside from Portsmouth Naval Base, which made a significant but decreasing impact in each year, the shipping and marine industries contributed the largest share of GVA in almost all of the years considered, on average around 15% and 13%, respectively. Around £190 million of GVA was directly contributed by the Solent-based marine industry in 2015, representing 10% of the total, with 32% from the ports industry and 14% from the shipping industry. While the estimates suggest that maritime business services make a minor contribution to the Solent LEP economy (£90 million in GVA or 4.7% of the sector total), it is this industry that is likely to have been the most severely underestimated as a result of the limitations of the currently available data.

Combining the shipping, ports, marine and maritime business services industries, it is estimated that the direct GVA impact of the Solent-based maritime sector represented 7.9% of the direct GVA impact of the entire UK maritime sector in 2015. Driven by strong GVA and employment growth observed in the Solent-based ports industry in 2015, the Solent's contribution to UK sector GVA rose from 4.8% in 2014. It is

necessary to note again, however, that the underestimation of direct impacts means these percentage shares will also be understated.

Figure 8: The direct contribution of the Solent-based Maritime industries and Portsmouth Naval Base to GVA, and the Solent share of the total direct Maritime sector contribution to UK GVA, 2010 to 2015

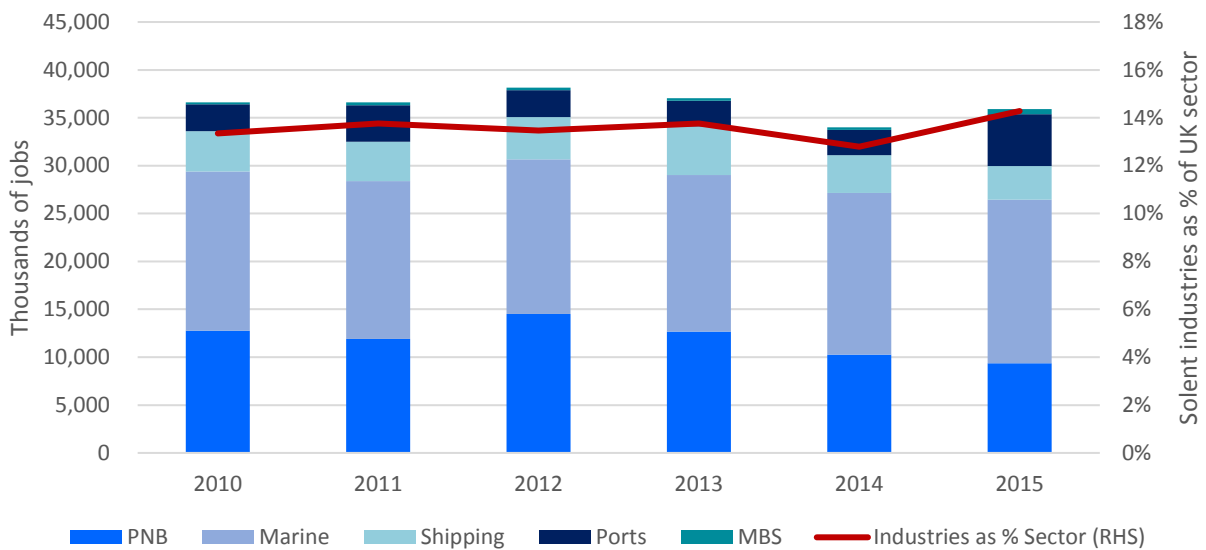


Source: ONS, FAME, Cebr analysis

### 5.3 Direct employment impact

The estimated direct employment impacts of the Solent maritime sector and Portsmouth Naval Base are illustrated in Figure 9 below.

Figure 9: The direct contribution of the Solent-based Maritime industries and Portsmouth Naval Base to employment, and the share of the total direct industry contribution to UK employment, 2010 to 2015



Source: ONS, FAME, Cebr analysis

It is estimated that the Solent maritime sector and Portsmouth Naval Base directly employed 35,895 people in 2015, a decrease from 36,625 people in 2010, but an increase from 33,996 people in 2014. However, these and the more granular estimates provided below are subject to the same caveat outlined in subsection 5.1 and are thus likely to be underestimates.

The largest contributions to the direct employment impact in 2015 came from the marine industry (17,000 jobs) and Portsmouth Naval Base (around 9,400 jobs). The former is the result of the relatively high level of leisure marine activity in the Solent LEP region, with a number of yachting and other leisure marine companies representing a significant proportion of the business demography in the area. British Marine currently estimate that the Solent provides 18% of total UK jobs in the UK marine industry<sup>11</sup>, a disproportionately high share but perhaps unsurprising given the Solent's regional importance. The overall level of employment directly supported by the marine industry in the Solent LEP region increased by 2.6% during the period 2010 to 2015.

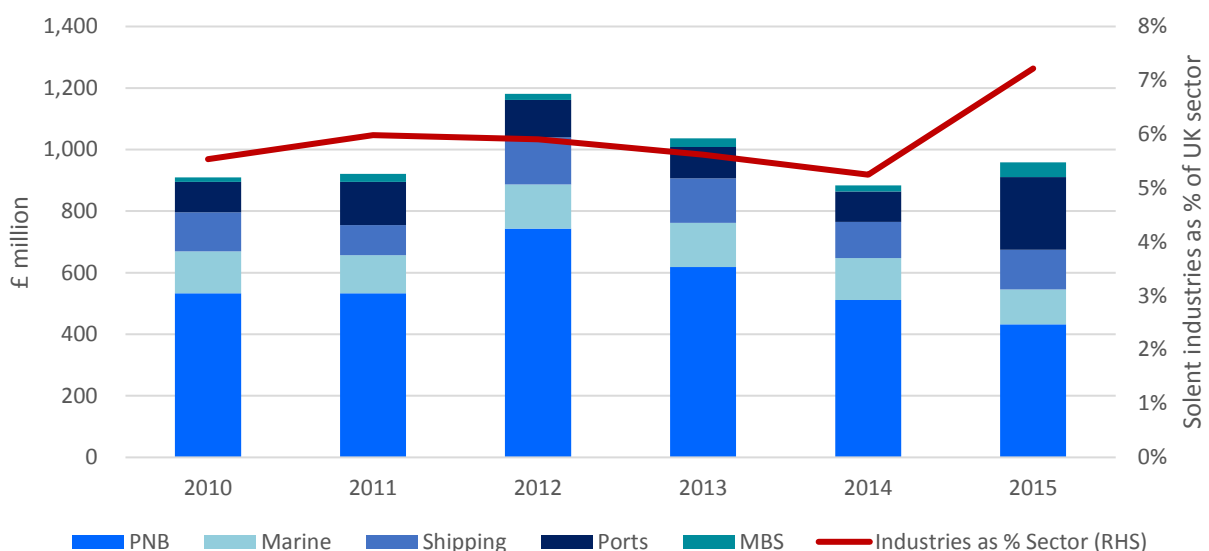
There is estimated to have been a decline in employment at Portsmouth Naval Base of around 35% since 2012 (from 14,512 jobs to 9,376 jobs). The decline in employment directly supported by Portsmouth Naval Base can be attributed to the steady reductions in shipbuilding activity since 2012, as identified through BRES statistics.

In line with the broadly stable level of direct employment contributed by the Solent-based maritime sector, the share of the total UK maritime sector employment was around 13.5% on average over the period considered. In 2015 this share was 14.3%. There was a notable increase in the direct level of employment supported by the ports industry in the Solent in 2015, driven by a recorded increase in the numbers of employees undertaking stevedore, cargo and passenger handling activities in 2015.

#### 5.4 The direct impact through the compensation of employees

The most important element of the GVA generated by the maritime or any sector consists of the remuneration of the employees generating the output of the sector. Figure 10 below shows the total estimated remuneration of direct employees of the Solent maritime sector in the years 2010 to 2015, disaggregated by each Solent-based maritime industry and Portsmouth Naval Base.

Figure 10: The direct contribution of the Solent-based Maritime industries and Portsmouth Naval Base to the compensation of employees, and the combined industries' share of the total contribution from the UK Maritime sector, 2010 to 2015



Source: ONS, FAME, Cebr analysis

The Solent-based maritime sector and Portsmouth Naval Base directly contributed £959 million in employee remuneration in 2015. The 2015 level was 8.6% higher than in 2014, and comparable with that in 2010 (£910 million). As illustrated, direct employee remuneration appears to have peaked in 2012, at

<sup>11</sup> British Marine Key Performance Indicators, 2017

almost £1.2 billion. Again, however, if the direct GVA and employment impacts are underestimated, these total and the more granular estimates of Solent maritime sector employee remuneration are also likely to be subject to the same caveat outlined in subsection 5.1 and are thus likely to be underestimates.

Nonetheless, the estimates suggest that the share of this direct impact arising from the Solent-based maritime industries rose from 41% (£376 million) in 2010 to 55% (£527 million) in 2015. In contrast, the direct contribution of Portsmouth Naval Base declined from £534 million in 2010 to £432 million in 2015. Note that, despite this decline, even in 2015 Portsmouth Naval Base still made a substantial contribution (45%) to the overall direct impact.

The ports industry contributed 24.7% of the direct impact in 2015, an increase from 10.8% in 2010. Indeed, the compensation of employees within the Solent's ports industry grew by 140% over this period. Next, the shipping and marine industries contributed 13.4% and 11.9% of the sector's overall contribution within the Solent, respectively. Finally, Solent's maritime business services contributed 5.0% to the direct impact in 2015, an increase from 1.7% in 2010.

Overall, the Solent-based Maritime sector (excluding Portsmouth Naval Base) is estimated to have contributed 7.2% of the compensation of employees directly supported by the UK Maritime sector in 2015; as with GVA, this proportion has increased, rising from around 5.5% in 2010.

## 5.5 The direct Exchequer contribution

Here we examine the contribution of the Solent-based maritime sector and Portsmouth Naval Base to the UK Exchequer, through tax revenues raised through their activities. In order to capture the incidence of taxation on the direct activities, (rather than indirect), Cebr has measured the direct contribution through exchequer revenues raised from the categories of taxation listed below:

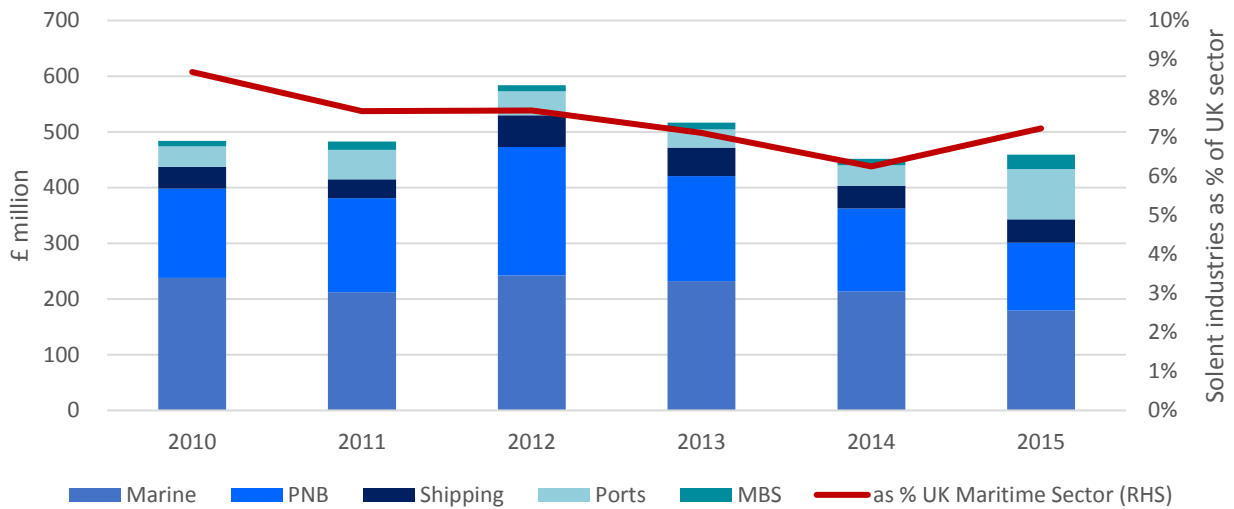
- Income Tax;
- National Insurance Contributions (NICs) – from both Employer and Employee contributions;
- Value-Added Tax (VAT) as paid by businesses operating in the Maritime sector;
- Corporation Tax;
- National Non-Domestic Rates (Business Rates).

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 Solent-based maritime sector and Portsmouth Naval Base; rates and thresholds have been sourced from HMRC for the years 2010 to 2015. Wages and salaries for employees have been sourced from the Annual Survey for Hours and Earnings (ASHE)<sup>12</sup> and adjusted for wage differentials in the Solent region. 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 Maritime industry and the Shipbuilding activities taking place at Portsmouth Naval Base. 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).

Figure 11 below shows the direct contribution of the Solent-based Maritime sector and Portsmouth Naval Base to the UK Exchequer in the years 2010 to 2015, and expressed as a share of the total Exchequer contribution from the UK-wide Maritime sector. It is important to note, however, that the likely underestimation of GVA, employment and employee remuneration means that the Exchequer contributions presented here can also be expected to be understated.

<sup>12</sup> The Annual Survey of Hours and Earnings (ASHE) provides data on the levels, distribution and make-up of earnings and hours worked for UK employees by sex and full-time or part-time status in all industries and occupations.

Figure 11: The direct UK Exchequer contribution of the Solent-based Maritime industries and Portsmouth Naval Base, 2010 to 2015



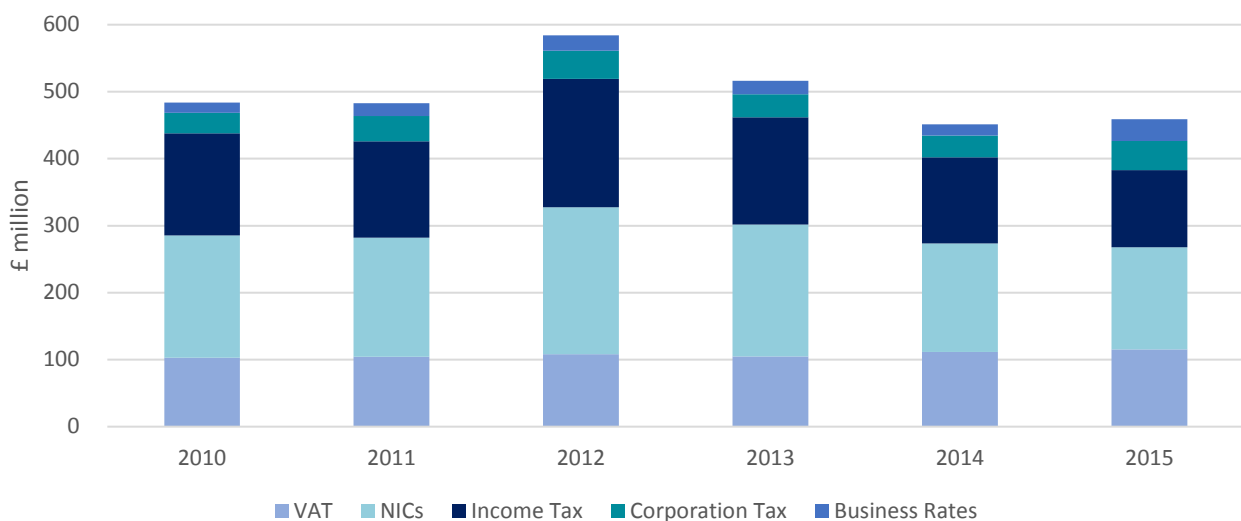
Source: ONS, FAME, Cebr analysis

The total Exchequer contribution of the Solent-based Maritime sector and Portsmouth Naval Base is estimated to have been £459 million in 2015; and so lower but comparable to the 2010 level of £484 million. The direct exchequer contribution is estimated to have peaked in 2012 at £584 million.

As a consequence of the high proportion of employment it directly supports in the Solent LEP region, and revenues raised from all tax categories, the Marine industry makes a substantial contribution to the Maritime sector’s overall Exchequer contribution. It is estimated that the Solent-based Marine industry raised £179 million for the Exchequer in 2015, with this contribution stable across all years considered – on average 44% of revenues raised from the entire sector and Portsmouth Naval Base.

The Exchequer contribution from the Solent-based Maritime sector (excluding Portsmouth Naval Base) accounted for almost 7.2% of the direct Exchequer contribution from the UK Maritime sector as a whole. Figure 12 below disaggregates the direct contribution by tax category across the years 2010 to 2015.

Figure 12: The direct contribution of the Solent-based Maritime sector and PNB to the UK Exchequer by tax head, 2010 to 2015



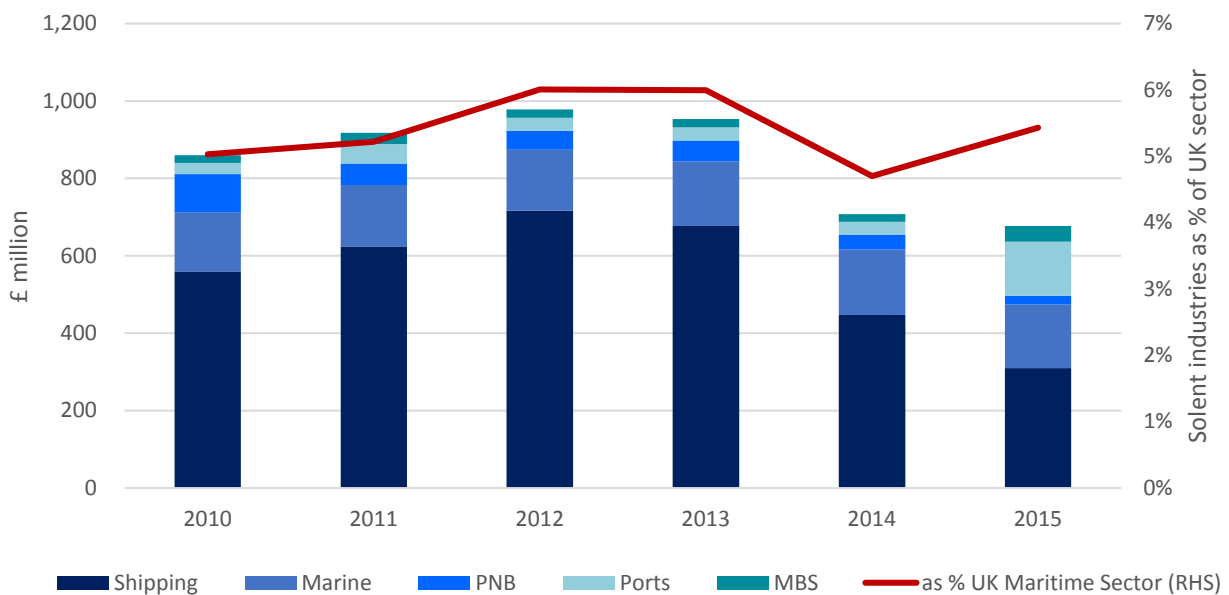
Source: ONS, FAME, Cebr analysis

For each of the years 2010 to 2015, a majority of this direct Exchequer contribution was derived from personal taxes, namely income tax and NICs. However, as the number of employees operating at Portsmouth Naval Base is estimated to have fallen in recent years, the percentage share of tax revenue from these sources fell from 69% (£335 million) in 2010 to 58% (£267 million) in 2015. Contrastingly, the share of exchequer revenue from business taxes, albeit lower, increased from 31% in 2010 (£149 million) to 42% in 2015 (£192 million).

## 5.6 The direct contribution through exports

Finally, the Solent-based maritime sector and Portsmouth Naval Base are also estimated to make a substantive contributions to UK economic activity through the export of maritime goods and services. Figure 13 below shows the total estimated value of exports between 2010 and 2015; a total value of almost £680 million of goods and services were exported in 2015. This represents a decrease of 21% relative to the 2010 level of £860 million.

Figure 13: The direct contribution of the Solent-based Maritime sector and PNB through exports of goods and services



Source: ONS, FAME, Cebr analysis

The exports of the Solent maritime sector (i.e. excluding Portsmouth Naval Base) accounted for 5.4% of the exports from the UK Maritime sector as a whole in 2015. This compares favourably with the 5.0% estimated share in 2010.

## 6 The total impact of the Solent maritime sector and Portsmouth Naval Base

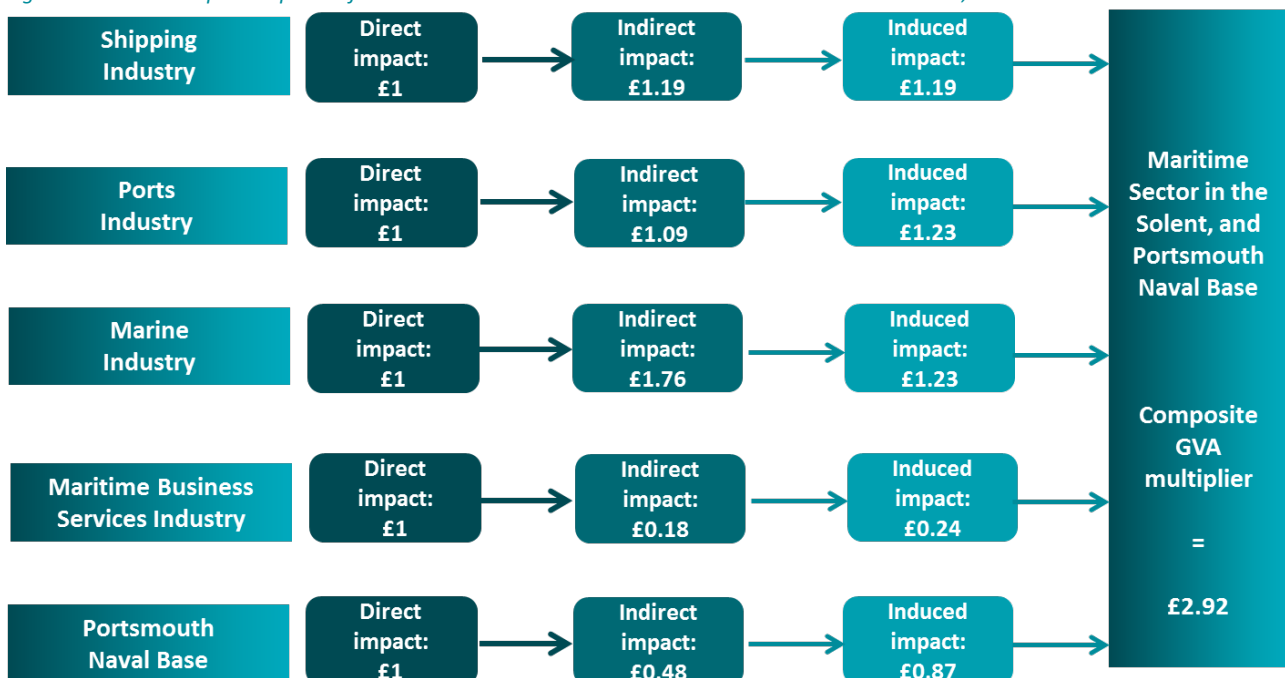
This final section of the report sets out the wider economic impacts of the maritime sector and Portsmouth Naval Base within the Solent LEP region. These are produced by estimating the economic activity and contributions that are generated indirectly in the supply chains supporting the Solent maritime sector and that are induced in the wider economy when direct and indirect employees spend their earnings on the final goods and services required by households.

It is important to note at the outset that, while Cebr stands by its modelled estimates of the multipliers presented in this section, their application to an underestimated set of direct impacts (as per the previous section) can be expected to result in understated estimates of the monetised indirect and induced multiplier impacts that are attributed to the Solent maritime sector. Given the potential underestimation of both the direct and multiplier impacts, the estimated total economic impact or ‘footprint’ of the sector are also likely to be understated. To the extent that this is the case, these impacts can be said to be at least as substantial as presented here, but there would likely be a step-change in the future if the apparent gaps in the available data can be plugged. (To avoid repetition, we refrain from making further comment on this issue in the remainder of this section.)

### 6.1 Total GVA impact or ‘footprint’ of the Solent maritime sector

Figure 14 below illustrates the GVA multipliers for the Solent maritime sector, disaggregated by industry and for the Portsmouth Naval Base. These estimates have been generated from Cebr’s regional economic impact model for the Solent LEP region.

Figure 14: GVA multiplier impacts of the Solent-based Maritime sector and Portsmouth Naval Base, 2015



Source: ONS, FAME, Cebr analysis

The interpretation is that, for example, for every £1 of direct GVA generated by the Solent-based Shipping industry, £1.19 worth of GVA is stimulated in the supply chains and £1.19 worth of GVA in the wider economy generated through induced employee spending impacts. The composite GVA multiplier for the

industries and Portsmouth Naval Base combined suggests that, **for every £1 of GVA contributed by these entities in 2015, a further £1.92 is supported the Solent LEP economy, producing a total impact of £2.92.**

Table 14 shows the estimated aggregate GVA impacts from the Solent-based maritime industries and Portsmouth Naval Base, taken in isolation. Collectively, the four Solent-based Maritime industries and Portsmouth Naval Base directly contributed just under £1.9 billion in GVA contributions to GDP in 2015. Combining this with the composite multiplier produces a total impact or 'footprint' of at least £5.5 billion in GVA contributions to GDP. **This equates to a 19.3% share of the entire Solent LEP economy**, as estimated in Table 1 at the start of this report.

Of this overall total, the largest total GVA impact came from the Ports industry, at £2billion. This is followed by Portsmouth Naval base, with a total GVA impact of approximately £1.8 billion.

Table 14: GVA impacts in 2015 disaggregated by industry and Portsmouth Naval Base, £ million

GVA in 2015	Direct Impact (£m)	Indirect Impact (£m)	Induced Impact (£m)	Total Impact (£m)
<b>TOTAL</b>	<b>1,898</b>	<b>1,676</b>	<b>1,963</b>	<b>5,538</b>
Shipping	261	311	311	883
Ports	607	659	746	2,012
Marine	185	325	227	737
Maritime Business Services	90	16	21	127
Portsmouth Naval Base	755	366	658	1,779

Source: ONS, FAME, Cebr analysis

Table 15 below shows the estimated direct and total economic impacts of the Solent-based Maritime sector and Portsmouth Naval Base across the years 2010 and 2015. With the relative direct contributions from each industry and the base fluctuating slightly from year-to-year, the composite GVA multiplier (reflecting the overall ratio of direct to total impacts) has increased since 2010.

Table 15: Direct and Total GVA impact of the Solent-based Maritime sector and Portsmouth Naval Base, 2010 to 2015, £ million

Year	Direct Impact (£m)	Composite GVA multiplier	Aggregate GVA impacts
2010	1,719	2.84	4,873
2011	1,723	2.54	4,378
2012	1,989	2.87	5,716
2013	1,675	2.84	4,755
2014	1,502	2.85	4,287
2015	1,898	2.92	5,538

Source: ONS, FAME, Cebr analysis

## 6.2 Total employment impacts of the Solent maritime sector

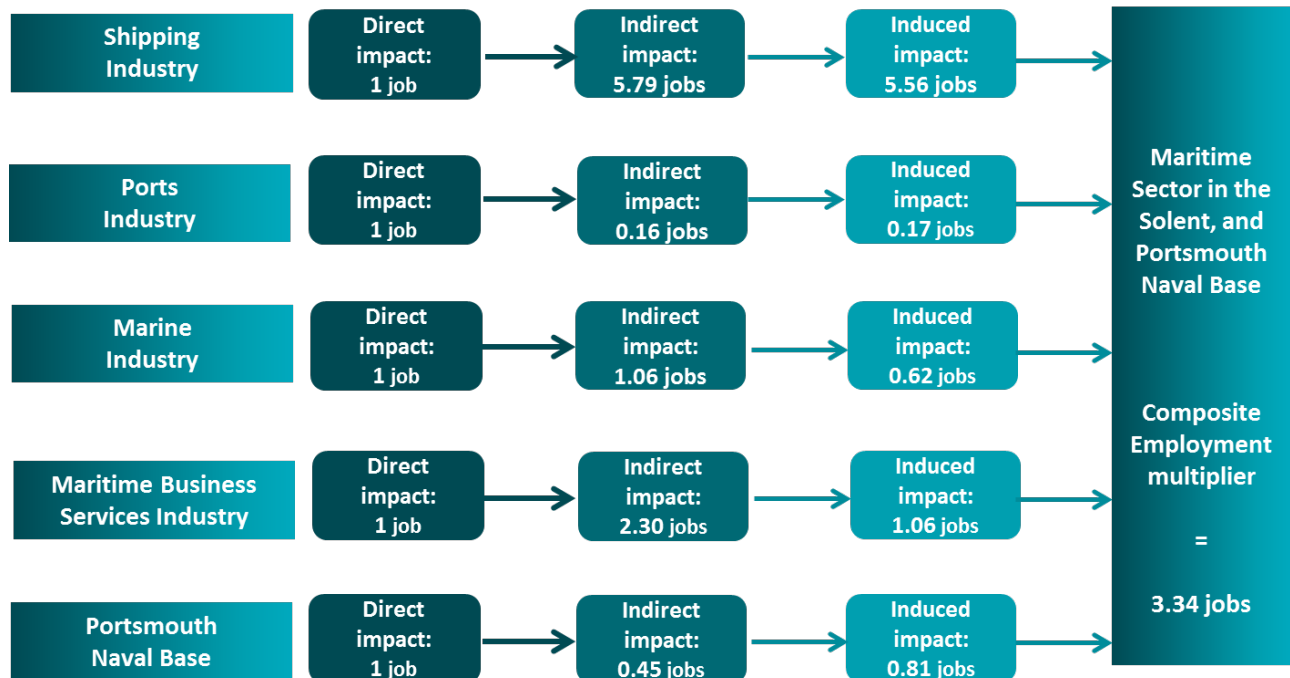
This section considers the wider economic impacts of the Solent maritime sector and Portsmouth Naval Base through employment. As already identified earlier in this report, the maritime sector and Portsmouth Naval Base are already estimated to make a significant direct contribution to employment, with at least 35,900 jobs directly supported in 2015.

Figure 15 below illustrates the direct, indirect and induced employment impacts associated with the Solent-maritime sector, disaggregated by industry, and Portsmouth Naval Base. On this occasion, the interpretation is that, for every 1 job provided directly by the Solent maritime sector and Portsmouth Naval Base, **an additional 2.34 jobs are supported through indirect (supply chain) and induced (employee**



spending) impacts. This produces a total impact of 3.34 jobs in the Solent LEP economy for every direct job in the maritime sector.

Figure 15: Employment multiplier impacts of the Solent-based Maritime sector and Portsmouth Naval Base, 2015



Source: ONS, FAME, Cebr analysis

Table 16 below shows the application of these multipliers, which produces an estimate of at least 120,000 jobs as the total economic impact or 'footprint' of the Solent maritime sector in employment terms. This constitutes a 19.8% share of all employment in the Solent LEP economy.

Table 16: Employment impacts in 2015 disaggregated by industry and Portsmouth Naval Base, thousands of jobs

Employment in 2015	Direct Impact (thousands)	Indirect Impact	Induced Impact	Total Impact (thousands)
<b>TOTAL</b>	<b>35.9</b>	<b>44.7</b>	<b>39.1</b>	<b>119.7</b>
Shipping	3.5	20.3	19.6	43.4
Ports	5.4	0.9	0.9	7.2
Marine	17.1	18.0	10.6	45.7
Maritime Business Services	0.5	1.2	0.5	2.2
Portsmouth Naval Base	9.4	4.3	7.6	21.2

Source: ONS, FAME, Cebr analysis

Table 17 shows the evolution of the direct, composite multiplier and total impact estimates over the period 2010 to 2015.

Table 17: Direct and Total Employment impact of the Solent-based Maritime sector and Portsmouth Naval Base, 2010 to 2015, thousands of jobs

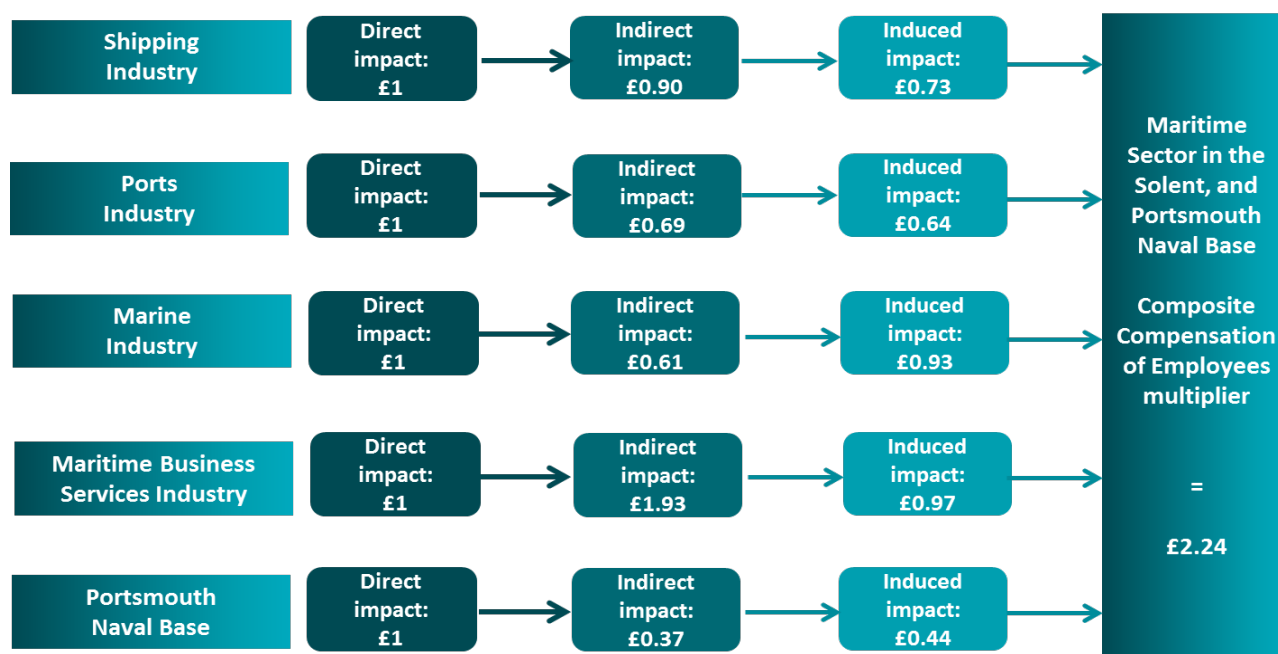
Year	Direct Impact (Thousands)	Composite Employment multiplier	Aggregate employment impacts
2010	36.6	3.58	131.3
2011	36.6	3.33	122.0
2012	38.1	3.59	136.8
2013	37.0	3.80	140.7
2014	34.0	3.58	121.7
2015	35.9	3.34	119.7

Source: ONS, FAME, Cebr analysis

### 6.3 Total employee remuneration impacts of the Solent maritime sector

This final subsection sets out the total employee remuneration impact of the Solent maritime sector and Portsmouth Naval Base. The modelled multiplier estimates are presented in Figure 16, which produce a composite sector multiplier of £2.24. Therefore, **for every £1 of employee remuneration paid directly by the Solent maritime sector in 2015, a total of £2.24 in employee remuneration was supported in the Solent LEP economy as a whole.**

Figure 16: Employee compensation multiplier impacts of the Solent-based Maritime sector and Portsmouth Naval Base, 2015



Source: ONS, FAME, Cebr analysis

Table 18 below presents the results of the application of these multipliers, which produces a total impact estimate of £2.2 billion in employee remuneration terms in 2015.

Table 18: Employee compensation impact in 2015, £ million

Compensation of Employees in 2015	Direct Impact (£m)	Indirect Impact (£m)	Induced Impact (£m)	Total Impact (£m)
<b>TOTAL</b>	<b>959</b>	<b>600</b>	<b>587</b>	<b>2,146</b>
Shipping	128	116	94	338
Ports	237	162	151	549
Marine	114	70	106	290
Maritime Business Services	48	93	47	188
Portsmouth Naval Base	432	159	190	781

Source: ONS, FAME, Cebr analysis

Table 19 shows the trajectory of these estimates over the period 2010 to 2015.

Table 19: Employee compensation impact of the Solent-based Maritime sector and Portsmouth Naval Base, £ million

Year	Direct Impact (£m)	Composite Employee Compensation multiplier	Aggregate employee compensation impacts
2010	910	2.15	1,952
2011	921	2.16	1,993
2012	1,181	2.12	2,500
2013	1,036	2.15	2,233
2014	883	2.14	1,889
2015	959	2.24	2,146

Source: ONS, FAME, Cebr analysis

## 7 Concluding remarks

This report has sought to demonstrate the economic importance of the Solent maritime sector (including Portsmouth Naval Base) to the UK economy as a whole and to the Solent LEP economy specifically.

The importance of the sector to the UK economy is reflected in the importance of an island nation like the UK's to be able to trade internationally, given the important links between international trade, economic growth and improving living standards.

Located within the Solent LEP area are the major ports of Southampton and Portsmouth. The infrastructure and location of the Port of Southampton in particular is ideal for international trade, especially with far-flung developed and emerging markets given its proximity to the English shipping lanes. As such, Southampton is rated as the second most important port in terms of the combined value of exports and imports moving through them. Portsmouth is small in comparison, but its role in facilitating UK trade is not insignificant and the Solent ports, taken in combination, account for more of the UK's international trade than Felixstowe - the largest single port on this measure.

A deeper exploration of the trade facilitation role of the Solent maritime sector (incl. the two major ports) reveals the following key findings:

- Goods for export and import to the value of at least £77.5 billion are moved through the Solent ports of Southampton and Portsmouth, which exceeds the comparable estimate of £74.5 billion for Felixstowe, the largest single trading seaport in the UK.
- Of the total moved through the Solent ports, £42.8 billion are exports and 85% of these are moved through Southampton to the UK's non-EU trading partners. On this measure, Southampton is the UK's most important seaport.
- As such, the Solent maritime sector plays a crucial role in the realisation by the manufacturers and distributors of the export goods that it brings to market of at least £20 billion in GVA contributions to UK GDP. This is a 2014 estimate and is likely to have increased since but equates to a significant 1.1% share of UK GDP in that year.

But the international gateway role of the Solent maritime sector is not confined to trade in goods. It also facilitates inbound tourism, another important UK export and the tourism-oriented sectors rely on the maritime sector to being seaborne tourists to the UK who, in turn, stimulate demand for their services.

A quantification of the magnitude of the resulting economic contributions was beyond the scope of this report. But, given that the Port of Southampton is the UK's leading port for cruises and facilitated two million cruise passenger movements in 2017, it is undoubtedly the case that the Solent maritime sector, as with trade, plays a crucial role in the realisation by the Solent and wider UK tourism industries of significant further GVA contributions to GDP.

Cebr has also produced estimates of the economic impact or 'footprint' of the Solent maritime sector itself, which reveals the following key findings in terms of the total economic impact or 'footprint' of the Solent maritime sector (incl. PNB):

- A GVA contribution to GDP of at least £5.5 billion in 2015, which equates to a 19.3% share of the Solent LEP economy, a 2.2% share of the economy of the South East of England and a 0.3% share the entire UK economy.
- Employment for upwards of 120,000 people, equating to a 19.8% share of all jobs in the Solent LEP economy.
- Wages, salaries and other employee remuneration of at least £2.2 billion.

- A direct exchequer contribution of at least £459 million in 2015, equivalent to a share of 7.2% of the contribution made by the UK maritime sector as a whole.
- Exports of maritime goods and services valued at £680 million in 2015, equivalent to a 5.4% share of all UK maritime exports.

Some of these impacts could represent underestimates and, as such, may not reflect the true magnitude of the economic role of the maritime sector as a source of jobs and GVA contributions to the Solent LEP economy, through the direct and multiplier impacts of its activities. Cebr is of the view that this requires further exploration through a new data gathering exercise, involving a combination of primary and deeper secondary data gathering and a collaborative approach led by the Solent LEP.

That should enable a proper exploration of whether Cebr's estimates are implausibly low. Unfortunately, this was beyond the scope of the current assessment but, to the extent that they are, we would expect to see a step increase in the economic 'footprint' of the Solent maritime sector in future iterations of this assessment.

As already noted, however, Cebr is confident in asserting that the total economic impact or 'footprint' of the Solent maritime sector is at least as large as that reflected in the estimates presented here and in the main body of the report.