



The economic contribution of the Maritime Sector in Northern Ireland

A Cebr report for Maritime UK
and Invest Northern Ireland

May 2022

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Headline findings

- The Centre for Economics and Business Research (Cebr) has been commissioned by Maritime UK and Invest Northern Ireland to quantify the economic contribution of the Maritime Sector in Northern Ireland. This report forms one of ten reports assessing the contribution of the Maritime Sector as a whole, at industry-level, in Scotland, Northern Ireland, the Liverpool City Region and the Solent LEP region.
- **In this context, the Maritime Sector has been defined as consisting of the Ports, Shipping, Marine Engineering & Scientific (MES), Leisure Marine and Maritime Business Services (MBS) industries.** Each of these entities comprises a multitude of different activities, data for which has been aligned against the national accounts' framework.
- The Maritime Sector in Northern Ireland makes an important macroeconomic contribution to the Northern Ireland and UK economies through business turnover, Gross Value Added (GVA), employment and through the compensation of employees (COE). **It is estimated that the Northern Irish Maritime Sector directly supported £2.2 billion through business turnover, £400 million in GVA, 5,300 jobs, and £195 million through COE in 2019.**



- **The Shipping industry is the largest constituent industry within the Northern Irish Maritime Sector in terms of economic activity,** directly contributing £1.7 billion in turnover, £279 million in GVA, and directly supporting approximately 3,000 jobs in 2019.
- **It is estimated that the Maritime Sector in Northern Ireland contributed £75 million to the UK Exchequer in 2019, spread across VAT, Corporation Tax, Income Tax, National Insurance Contributions (NICs) and Business Rates.**
- Compared to other regions in the UK, the sector's turnover in Northern Ireland in 2019 (£2.2 billion) was larger than in Wales (£546m), the East Midlands (£634m), West Midlands (£708m), North East (£712m) and Yorkshire & the Humber (£1.1bn). However, it was well below that of Scotland (£9.4bn), the South East (£12.7bn), and London (£15.1bn) – the regions with the three largest Maritime Sectors in the UK.
- When compared to other industries within Northern Ireland, in 2019 the sector ranked higher than Architectural and engineering activities (£668m), Warehousing and support activities for transportation (£1,240m) and the Manufacture of machinery and equipment (£1,660m). However, it lags behind the Civil engineering industry (£2,503m).

- After quantifying the wider economic impacts through the industry supply chains and induced effects on expenditures, **it is estimated that the Maritime Sector in Northern Ireland helped to support a total of £950 million of GVA in 2019.** This implies that, for every £1 in GVA directly contributed by the Northern Irish Maritime Sector in 2019, a further £1.38 in GVA is supported across the wider Northern Ireland economy.
- These wider economic impacts associated with the Northern Irish Maritime Sector also extend to business turnover, employment, and the compensation of employees. **It is estimated that the Maritime Sector in Northern Ireland helped to support a total of approximately £3.9 billion through business turnover, 34,176 jobs and £513 million through the compensation of employees in 2019.**



- **The productivity of workers in the Northern Irish Maritime Sector substantially exceeds productivity across the UK as a whole:** for example in 2019 the productivity of the Maritime Sector in Northern Ireland was estimated to be £75,634, as compared with £56,670 across the UK in general.
- Our forecast shows the Maritime Sector in Northern Ireland steadily growing over the period 2021-2025, after the massive contraction in 2020 as a result of the pandemic. **The Northern Ireland-based Maritime Sector output is set to grow at a Compounded Annual Growth rate (CAGR) of 5.7% over the considered period. This translates into cumulative growth of 12.6% in real terms. As measured by GVA, output in the Northern Irish Maritime Sector is expected to have reached pre-pandemic levels in 2021.**

1. Introduction

Cebr is pleased to present this report to Maritime UK and Invest Northern Ireland on the economic impact of the Maritime Sector on the Northern Ireland and wider UK economy. For the purposes of this study, the Maritime Sector is broadly defined as comprising of the individual Shipping, Ports, Marine Engineering & Scientific (MES), Leisure Marine and Maritime Business Services (MBS) industries; each of these industries comprises numerous and diverse activities which are reflected in the study.

This report forms one of ten reports on the economic contribution of the Maritime Sector. The other reports focus on the economic contribution of each of the five industries at UK level, the contribution of the sector in Scotland, the Liverpool City Region, the Solent LEP, and the contribution of the Maritime Sector at UK-level. It is therefore important to consider this report as part of the wider framework set out in the ten reports, which set out the impact of the Maritime Sector both at a national and regional level.

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

Maritime UK previously commissioned Cebr in 2017 and in 2019 to produce the project focused on measuring the impact of the Maritime Sector to the UK and its regional economies. However, this is the first time that Cebr is producing a standalone report for Northern Ireland.

1.1 About Maritime UK

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

1.2 About Invest Northern Ireland

Invest Northern Ireland (Invest NI) are the regional business development agency. Its key role is to grow the local economy by helping new and existing businesses to compete internationally, and by attracting new investment to Northern Ireland. Invest NI are part of the Department for the Economy and provide strong government support for business by effectively delivering the Government’s economic development strategies.¹

¹ <https://www.investni.com/about-us>

1.3 Purpose of this report

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

As such, Cebr has focused on the following key economic indicators: business turnover; employment; Gross Value Added (GVA); the compensation of employees; the Exchequer contribution (through tax revenues raised); and exports of goods and services.

It should be noted that given the data lags associated with many of the official national statistics used within this study, it is not possible for our analysis to capture the full extent to which the sector was directly affected by the COVID-19 pandemic in 2020/21. As such, because of the timeframe examined in this report, this research offers a picture of the value of the Maritime Sector right before the pandemic occurred. Further to this, our research does consider the impacts of the pandemic in our Forward Look section, where we provide a forecast for the Maritime Sector in Northern Ireland.

1.4 Overview of the study and methodology

Objectives of the study

This report provides a thorough and comprehensive examination of the role of the Maritime Sector in Northern Ireland. It presents a range of analyses demonstrating different aspects of the value contributed by the overall sector, including direct contributions to GDP and employment, indirect and induced multiplier impacts and the Northern Irish Maritime Sector's contribution to the Exchequer through tax revenues raised.

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

- GVA² contributions to the Northern Ireland economy generated by the Maritime Sector, directly and through indirect and induced multiplier impacts.

² GVA, or gross value added, is a measure of the value of production in the national accounts. Conceptually it can be considered the value of what is produced, less the value of intermediate goods and services used to produce it. GVA is distributed in three directions – to employees, to shareholders and to government. It is often used as the proxy for the contribution of a sector or industry to GDP: strictly this relationship is $GVA + Taxes\ on\ products - Subsidies\ on\ products = GDP$.

- Jobs supported by the sector, including direct, indirect and induced jobs through multiplier impacts.
- The value of the turnover of the Maritime Sector and, again, the turnover supported in Northern Ireland through multiplier impacts.
- The value of employee compensation³ generated by the Maritime Sector, representing the total remuneration of employees operating in the sector.
- The contribution of the Maritime Sector through revenues raised for the Exchequer.
- The value of goods and services exported by the industries comprising the Maritime Sector.

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

- How the economic indicators vary over the period 2010-2019.
- How the economic indicators vary across the different industries of the Maritime Sector.
- How the economic indicators for the Maritime Sector vary across the different UK nations and regions.
- How the indicators for the Maritime Sector compare with other important sectors of Northern Ireland's economy.

Mapping the UK Maritime Sector in the UK

The first stage of the study 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.⁴ 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, this involves taking each of the five 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 Accounts framework. However, some Maritime Sector activities do not map neatly onto the SIC framework; this has required

³ Compensation of employees (COE) or employee compensation, is the total remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter. This consists of wages paid to employees; employers' actual social contributions (excluding apprentices); employers' imputed social contributions (excluding apprentices); and employers' social contributions for apprentices.

⁴ 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.

Cebr to draw upon government or industry sources to quantify the contributions made through these activities, or in the case of Maritime Business Services, employ a bottom-up analysis.

Data Sources

After completing the 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 a Northern Ireland-level using a combination of publicly available data sources, industry sources and local estimates. The methodology for this is discussed in 2.2 of this report.

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 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 GVA. 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 for each company in FAME.

To capture the contribution of those Maritime Sector activities which do not map neatly across the SIC framework, and in order to disaggregate the economic contribution of the sector in Northern Ireland, 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), and the UK Chamber of Shipping. A full list of identified Maritime Sector activities and sources is set out in Section 2 of the report.

Quantifying the aggregate economic impacts

After collation and interrogation, the resulting direct economic impacts have then been embedded within Cebr's regional economic impacts models of the UK economy, that we use to assess the kinds of impacts that can be associated with an entity such as the Northern Irish 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 and jobs supported directly by the economic activities of the Maritime Sector in Northern Ireland.
- **Indirect impact:** this is the value and jobs supported in industries that supply inputs to the Maritime Sector.
- **Induced impact:** this is the value and jobs supported in the wider economy when the direct and indirect employees of the Maritime Sector in Northern Ireland spend their wages and salaries on final goods and services.

These three impacts are then combined to convey the aggregate impact associated with each Maritime industry in terms of business turnover, GVA, employment and the compensation of

employees. Cebr has broadly taken a ‘top-down’ approach to estimate the direct impacts of the five Maritime industries within Northern Ireland. 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) and the Annual Business Survey (ABS) – as well as private data sources such as Bureau van Dijk’s Financial Accounts Made Easy (FAME) database – in order to attribute the contribution from the Maritime Sector in Northern Ireland.

For each of the five Maritime industries, the direct impacts are then combined with the regional economic multipliers provided by Cebr’s suite of regional input-output models for Northern Ireland, in order to then generate indirect, induced and subsequently aggregate impacts.

Changes from 2019 Cebr study

The main change to the methodology compared to the one used in the 2019 Cebr study is that we have developed an more robust approach for the quantification of the economic impacts for the Maritime Business Services industry. Due to the difficulty in mapping and quantifying this particular industry, for our 2017 study we relied in large part on the 2016 PwC report,⁵ at the time the only study that had been published on the industry. For the second iteration of our study, in 2019, we relied on a survey we carried out and discussions with industry representatives as well as our own expertise on the topic to develop a more advanced methodology. This involved a targeted approach whereby we could build up a picture of the industry and its associated activities on a bottom-up basis for a significant part of the industry, but still utilised PwC’s 2016 report to drive some of the assumptions. For this new study we developed our bottom-up methodology even further such that it is even more robust and reflects the size and value of the industry more precisely. This methodology is outlined in 2.2 of this report.

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

1.5 Structure of the report

The remainder of the report is structured as follows:

⁵ PwC (2016), ‘Catching the Wave: UK maritime professional services competitiveness study.’

- **The Maritime Sector in** sets out how the Maritime Sector has been defined and identified within Northern Ireland for the purposes of this study.
- **The direct economic impact of the Maritime Sector in** outlines the direct economic impacts of the Maritime Sector within Northern Ireland. We consider the direct impacts through turnover, GVA, employment, the compensation of employees, and contribution to the UK Exchequer through tax revenues contributed by the sector.
- **The aggregate economic impact of the Maritime Sector in** considers the multiplier impacts of the Maritime Sector in Northern Ireland through the activities it stimulates in the local supply chain and in the wider economy when employees directly and indirectly employed by Northern Irish Maritime Sector spend their wages and salaries in the local and wider economy.
- **Maritime Sector in Northern Ireland: A Forward Look** provides a forward look at the Maritime Sector in Northern Ireland to 2025.
- Error! Reference source not found. presents the supplementary results of the aggregate economic impact analysis based on our updated input-output methodology.

2. The Maritime Sector in Northern Ireland

Here we set out how the Maritime Sector has been defined for the purposes of the study. On a holistic level, the wider sector can be disaggregated into the Shipping, Ports, Leisure Marine, Marine Engineering & Scientific (MES), and Maritime Business Services (MBS) industries, which in themselves are formed of numerous individual and distinct activities.

2.1 The definition of the Maritime Sector and its constituent industries

Building up on the experience gained through previous studies for Maritime UK, Cebr has subsequently undertaken a mapping exercise based on the previous study to identify how each of these five industries align with the national accounts. For most industry activities, a corresponding Standard Industrial Classification (SIC) code exists which enables the identification and quantification of the direct economic impacts using publicly available data sources. A minority of activities do not map neatly against the SIC framework, necessitating the use of industry or local-level data for quantification purposes.

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

- **Shipping industry**
 - International passenger transport (cruise and ferry);
 - Domestic and inland waterway passenger transport;
 - International freight transport (bulk, container, gas and tanker);
 - Domestic & inland waterway freight transport;
 - Other shipping activity.
- **Ports industry**
 - Warehousing and storage;
 - Port activities and management;
 - Stevedores, cargo and passenger handling;
 - Border agency, HMRC and public sector employees operating in ports.
- **Leisure Marine industry**
 - Recreational marine activities, marine finance and legal activities and general marine services;
 - Boatbuilding (marine leisure vessels);
- **Marine Engineering & Scientific (MES) industry**
 - Shipbuilding and repair;
 - Marine renewable energy;
 - Marine support activities for offshore oil and gas, engineering and mining;

- Marine science and academic activities, including government vessels and technical consulting;
- **Maritime Business Services industry**
 - Shipbroking services;
 - Maritime Insurance services;
 - Maritime Financial services;
 - Maritime Legal services;
 - Ship Surveying and Classification activities;
 - Maritime Education (including Maritime university courses and cadetships);
 - Maritime Consultancy; and
 - Maritime Accountancy.

2.2 Mapping the Maritime Sector against the National Accounts framework

This subsection lays out how the direct economic contribution of the industries and activities listed above have been mapped against the national accounts framework. For activities which do not map neatly against this framework – i.e. when SIC codes cannot be used to accurately reflect or capture a particular Maritime Sector-related activity – we outline the industry-level sources to separately quantify the economic contribution.

The shipping and ports industries

Table 1 and Table 2 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 1: Mapping of Maritime Sector activities: ports activities

GROUPING	ACTIVITY	MAPPING	SOURCE(S) USED
PORTS	Warehousing and Storage	Identified through SIC code 52101, "Operation of Warehousing and Storage Facilities for Water Transport activities". Activities are then mapped to council wards containing major and minor UK ports.	FAME, BRES, ABS
	Port Authority Management, Port Security and Marshals, Port Marine and Vessel Management Services, Marine Pilots, Port Harbour Support Vessels, and Engineering and Maintenance	Identified through SIC code 52220, "Service activities incidental to water transportation". Activities are then mapped to council wards containing major and minor UK ports.	FAME, BRES, ABS
	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, ABS
	Border Agency, Home Office and HMRC staff operating in Ports	Identified as public sector employees operating in UK ports.	Institute for Government, Port Freight Statistics, Cebr analysis

Source: Maritime UK, Cebr analysis

Table 2: Mapping of Maritime Sector activities: shipping activities

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, ABS
	Transport of Passengers on Inland Waterways	Identified through SIC code 50300, "Inland Passenger Water Transport".	FAME, BRES, ABS
	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, ABS
	Transport of Freight on Inland Waterways	Identified through SIC code 50400, "Inland Freight Water Transport".	FAME, BRES, ABS
	Other shipping activity not captured through SIC codes 50100 – 50400 in the FAME database	Identified and quantified through UKCoS statistics for shipping-related employment	UKCoS Manpower Survey, FAME, 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. The key data used for the regional apportionment of the national-level data is taken from ONS Business Register of Employment Survey (BRES). However, this contains no data for Northern Ireland as this is carried out by the Northern Ireland Statistics and Research Agency (NISRA). Given that the equivalent data for Northern

Ireland is not as granular as that for the rest of the UK, Cebr has drawn upon regional data from the ONS Annual Business Survey (ABS) to estimate the Northern Ireland-level data.

The leisure marine and marine engineering and scientific industries

The MES industry has a relatively strong presence in Northern Ireland. There is a well-established ship fit-out sector engaged in the manufacture of value-added products and services. Examples of companies that offer services across the sector include MJM, Mivan, CCL Services, The Deluxe Group, Madde, Aecor, McCue and Ulster Carpets.⁶ The Northern Irish marine fit-out sector has successfully implemented major projects around the world over the examined period, such as a £50m refurb at the Harland & Wolff shipyard in Belfast for the Azamara Pursuit in 2018.⁷

Other notable areas include the use of advanced composites in the shipbuilding sector in Northern Ireland, which has been implemented in collaboration with research done on composites by Ulster University and leading aerospace companies in the region. The Belfast Maritime Consortium are currently undertaking R&D to use advanced composites in the construction of zero-emission ferries.

Moreover, Northern Ireland has also established extensive supply chains with expertise in the industry. According to Invest NI, there are over 120 engineering companies with specialist expertise in machining and fabrication, composites, electrical as well as a cluster of companies with expertise in logistics. Furthermore, Northern Ireland has a supply chain of over 80 businesses connected to offshore/marine which have strong capabilities in fabrication, service, maintenance, logistics and associated laydown facilities for the development and production of low emission ferries and offshore wind workboats. However, Invest NI notes there are high level skills shortages associated with these opportunities.

Another area of the Northern Irish MES industry which has undergone change and growth recently is Marine Scientific & Technical, once again due to public and private sector partnerships. For example, research from the Centre for Secure Information Technology (CSIT) at Queen's University Belfast (QUB) is being used by Artemis Technologies to detect and avoid semi-submerged obstacles that could damage the delicate hydrofoils of their electric battery powered vessels. Likewise, QUB has developed autonomous vessel capability with Rolls Royce and successfully demonstrated autonomous path planning through crowded shipping lanes using COLREGs-compliant collision detection and avoidance. Other companies also involved in the tech sector which complement Northern Ireland's digital maritime offering include Angoka, Kx Systems, 7Technologies and SaltDNA.⁸

⁶ This list of companies was provided by Invest NI.

⁷ BBC News. (2018). 'Belfast shipyard welcomes cruise ship for £50m refurb'

⁸ These insights have also been provided by Invest NI.

Table 3 and Table 4 below shows how activities for the Leisure Marine and Marine Engineering & Scientific industries have been identified, and the data sources used to capture and quantify the associated economic activity.

Table 3: Mapping of Maritime Sector activities: marine engineering and scientific industries

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S)
Marine Engineering & Scientific Industry	Shipbuilding and Repair	Identified in the National Accounts framework through SIC code 3011 ("Building of ships and floating structures") and 3315 ("Repair and maintenance of ships and boats")	ABS, BRES, FAME, Cebr Analysis
	Marine Renewable Energy	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, LCREE, Cebr Analysis
	Marine Support activities for Offshore Oil and Gas, Engineering and Mining	Identified in the National Accounts framework through SIC code 0910, "Support activities for petroleum and natural gas extraction".	FAME, Cebr Analysis
	Marine Scientific & Technical	Marine Scientific and Technical 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. 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

Table 4: Mapping of Maritime Sector activities: Leisure Marine industry

INDUSTRY	ACTIVITY	MAPPING	SOURCE(S)
Leisure Marine	Boatbuilding (marine leisure vessels)	Leisure boatbuilding has been identified through SIC code 3012 ("Building of pleasure and sporting boats") as well as through the British Marine "Key Performance Indicators for the Leisure, Superyacht and Small Commercial Marine Industry".	ABS, BRES, British Marine, Cebr Analysis
	Other Leisure Marine activities	Other 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, stripping out firms involved in non-Leisure Marine activities.	British Marine, Cebr Analysis

Source: Maritime UK, Cebr analysis

The Marine Engineering & Scientific industry encompasses activities such as Marine Renewable Energy and marine scientific activities. The Leisure Marine industry is defined narrowly as encompassing activities ranging from leisure boat manufacturing to Leisure Marine services.

A key source of information used by Cebr to capture Leisure Marine activities is the Key Performance Indicators (KPI) analysis produced by British Marine. The KPI analysis is produced each year, drawing upon information supplied to British Marine by its membership,

such as company turnover and statistics declarations. KPI analysis covering the years 2010 to 2019 (inclusive), which includes data at a regional level, has therefore been used as a major source of information for capturing and quantifying leisure boatbuilding as well as business and customer marine activities.

The Maritime Business Services industry

The methodology of the Maritime Business Services industry is unique compared to the other reports of this study into the Maritime Sector. The MBS industry is a fairly abstract concept comprising of, for the purpose of this study, eight sub-industries which are not exclusively maritime related and hence do not map neatly onto SIC codes.

For this analysis Cebr has drawn on a variety of data sources to produce a bottom-up analysis for each of the sub-industries. Most sub-industries have been computed through a combination of bottom-up analysis using company and financial accounts, FAME, ONS and insights from representatives of the industry. However, in the case of Maritime Finance and Maritime Accountancy, data is limited and as such for these sub-industries, we rely on PwC's 2016 study 'The UK's Global Maritime Professional Services: Contribution and Trends', augmenting it with trends in the broader industry to generate estimates for the entire period, 2010 to 2019.

For a more detailed description of the individual methodologies, please see 'The economic contribution of the UK Maritime Business Services industry' report.

2.3 Quantifying the direct economic impacts of the sector in Northern Ireland

In this final subsection we set out the approach taken to disaggregate the direct economic impacts at regional level for each Maritime industry. For the majority of Maritime Sector activities, the approach taken to disaggregate the direct economic impacts of sector has involved combining the direct economic impacts at UK-level with publicly available statistics which can be disaggregated at regional level. However, this approach is not always possible, as a result of the difficulties in mapping some activities against the national accounts framework. In these instances, industry-level information has been used to estimate the Northern Ireland proportion of economic activity.

Ports

The major source for the apportionment of national-level employment data to each of the regions in the UK was the Business Register and Employment Survey (BRES).⁹ However, as mentioned earlier in this section, BRES contains no data for Northern Ireland. Therefore, employment in Northern Ireland has been estimated using a combination of BRES and Annual Business Survey (ABS) data, with the latter providing the proportion of employment in

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

Northern Ireland across the broader industrial sector categories. The Northern Ireland proportion has then been applied to the UK-level estimates for ports employment, with the other key macroeconomic indicators (GVA, Business Turnover and Compensation of Employees) estimated using the implied ratios to employment at UK-level. Table 5 below shows the proportion of employment in the UK Ports industry which applies to Northern Ireland, as estimated using the approach described above.

Table 5: The breakdown of UK employment in ports as implied by BRES and ABS, 2010 to 2019

Ports Employment	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
England	83.5%	82.0%	83.9%	81.9%	83.0%	84.5%	84.8%	84.9%	84.4%	84.2%
Scotland	9.4%	9.7%	9.8%	11.8%	9.6%	9.3%	10.3%	10.7%	10.5%	11.0%
Wales	5.3%	6.4%	4.7%	4.6%	5.9%	4.5%	3.2%	2.9%	3.4%	3.0%
Northern Ireland	1.7%	1.9%	1.7%	1.7%	1.5%	1.7%	1.7%	1.5%	1.8%	1.9%
East of England	16.4%	15.4%	16.7%	14.4%	14.9%	13.7%	15.3%	16.3%	19.3%	18.0%
East Midlands	2.2%	2.1%	1.7%	1.9%	1.7%	1.5%	1.1%	1.4%	1.5%	1.5%
London	6.9%	6.5%	9.0%	5.5%	7.1%	6.4%	5.7%	4.7%	4.8%	8.6%
North East	10.6%	10.1%	11.8%	16.5%	16.7%	11.9%	10.4%	7.0%	6.7%	5.7%
North West	5.1%	5.5%	6.8%	8.2%	6.6%	7.1%	8.8%	5.1%	5.7%	6.1%
South East	14.8%	14.6%	15.6%	13.1%	17.0%	20.8%	20.3%	25.1%	26.5%	26.9%
South West	4.9%	4.2%	6.2%	7.5%	6.1%	7.0%	5.2%	4.5%	5.5%	6.2%
West Midlands	1.2%	0.8%	1.1%	1.2%	1.5%	1.8%	2.1%	1.0%	1.3%	1.5%
Yorkshire & the Humber	21.4%	22.9%	15.0%	13.5%	11.5%	14.3%	16.0%	19.7%	13.0%	9.7%

Source: BRES, ABS, Cebr analysis

In Northern Ireland there is currently land available with deep water access for development at the following sites:

- Belfast Harbour
- Kilroot Energy Park
- Londonderry Port
- Warrenpoint Harbour
- Port of Larne
- Kilkeel Harbour
- Harland and Wolff

According to insights shared by Invest NI, Belfast Harbour is at the forefront of the marine and offshore energy sectors, having developed a 52-acre offshore wind logistics terminal and associated specialised deep water port infrastructure that includes additional extensive waterfront sites suitable for the development of quayside facilities for “tier 1 manufacturers or supply chain businesses.”

Moreover, Harland and Wolf Belfast has two of the largest dry docks in Europe and ownership of the largest undercover drydock, specialising in vessels shorter than 120m. The 81-acre Belfast shipyard allows Harland and Wolf to be agile and responsive and capable of large-scale contracts.

Shipping

In order to disaggregate the economic activity of the Shipping industry, it is firstly necessary to identify the proportion of employment in the Shipping industry across each UK region.

The major source of employment was BRES as accessed through NOMIS. Employment data associated with each SIC code for the Shipping industry were gathered and an implied regional breakdown estimated after interpolating for some missing information. Just like for Ports, Shipping employment in Northern Ireland has been estimated using a combination of BRES and ABS data.

Table 6: The breakdown of UK employment in shipping as implied by BRES and ABS, 2010 to 2019

Shipping Employment	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
England	77.0%	73.7%	75.5%	75.9%	76.6%	77.3%	75.1%	78.7%	77.3%	80.2%
Scotland	11.8%	13.3%	13.9%	13.3%	15.2%	12.7%	13.6%	13.9%	15.2%	14.0%
Wales	6.3%	7.3%	5.4%	6.4%	4.5%	5.5%	5.6%	2.4%	2.5%	0.9%
Northern Ireland	4.9%	5.7%	5.1%	4.4%	3.6%	4.5%	5.7%	5.0%	5.0%	4.9%
East of England	6.8%	7.9%	5.3%	6.5%	7.0%	4.7%	8.7%	5.8%	7.1%	4.3%
East Midlands	1.6%	0.4%	0.3%	1.2%	5.2%	0.5%	0.9%	1.0%	0.4%	0.4%
London	22.1%	24.8%	21.5%	19.6%	23.1%	32.4%	19.6%	20.3%	18.9%	25.1%
North East	0.9%	1.0%	0.7%	0.7%	1.2%	1.7%	0.5%	0.5%	0.9%	0.9%
North West	7.3%	7.7%	6.3%	7.6%	7.7%	7.2%	8.4%	8.2%	8.9%	10.3%
South East	25.4%	24.0%	26.4%	29.0%	26.0%	21.1%	28.3%	32.9%	31.6%	32.2%
South West	5.7%	4.1%	9.1%	7.3%	3.6%	5.9%	5.3%	8.2%	4.6%	3.5%
West Midlands	3.2%	0.7%	0.4%	0.9%	2.1%	0.6%	1.4%	0.7%	2.5%	1.8%
Yorkshire & the Humber	4.0%	3.1%	5.5%	3.1%	0.8%	3.3%	2.0%	1.3%	2.4%	1.7%

Source: BRES, ABS, Cebr analysis

Leisure Marine and marine engineering and scientific industries

A key source informing the regional disaggregation of the economic activity of the Leisure Marine and marine engineering and scientific industries is the British Marine Key Performance Indicators, providing the share of Leisure Marine industry revenue, employment, exports and business numbers across each UK region between 2010 and 2019. GVA for the Leisure Marine industry in each region has then been estimated using GVA-to-employment ratios.

Following the approach taken for the shipping and ports industries (see above), a combination of data sourced from BRES and ABS have been used to estimate the proportion of employment in Shipbuilding and Marine Offshore Oil and Gas support activities across each

UK region. These are set out in **Error! Not a valid bookmark self-reference.** and **Error! Reference source not found.** respectively below.

Table 7: The breakdown of UK employment in Shipbuilding activities as implied by BRES and ABS, 2010 to 2019

Shipbuilding Employment	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
England	71.2%	71.6%	75.8%	71.4%	69.4%	72.5%	73.2%	71.8%	72.5%	75.2%
Scotland	23.7%	23.4%	20.8%	24.2%	26.3%	22.0%	21.2%	22.9%	22.1%	19.6%
Wales	2.6%	2.2%	1.3%	1.6%	1.5%	2.3%	2.1%	1.7%	1.8%	1.6%
Northern Ireland	2.5%	2.7%	2.2%	2.8%	2.8%	3.3%	3.6%	3.5%	3.7%	3.6%
East of England	4.2%	2.4%	3.3%	4.1%	2.0%	2.6%	3.5%	3.1%	1.6%	2.3%
East Midlands	0.5%	0.6%	0.7%	0.8%	0.9%	0.5%	0.5%	0.7%	0.6%	0.4%
London	0.3%	0.1%	0.6%	0.2%	0.4%	0.2%	0.9%	0.2%	0.1%	1.0%
North East	4.7%	3.4%	2.1%	1.9%	1.7%	1.8%	1.7%	2.4%	1.5%	0.9%
North West	22.0%	20.8%	18.0%	21.8%	23.5%	29.5%	25.7%	26.7%	26.8%	30.1%
South East	11.2%	17.0%	30.5%	15.1%	12.8%	11.9%	14.1%	12.3%	15.2%	15.3%
South West	25.3%	23.8%	19.3%	25.7%	25.4%	24.2%	25.3%	25.4%	25.5%	23.4%
West Midlands	0.8%	0.5%	0.4%	0.3%	0.3%	0.3%	0.4%	0.2%	0.4%	0.4%
Yorkshire & the Humber	2.3%	3.1%	0.8%	1.5%	2.5%	1.5%	1.2%	0.9%	0.9%	1.2%

Source: BRES, ABS, Cebr analysis

Table 8: The breakdown of UK employment in Marine Offshore Oil and Gas activities as implied by BRES and ABS, 2010 to 2019

Oil & Gas Employment	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
England	8.1%	12.0%	16.2%	13.7%	11.1%	7.4%	10.1%	6.2%	8.7%	9.8%
Scotland	91.4%	87.5%	83.4%	85.8%	88.5%	91.9%	89.1%	93.5%	90.8%	89.3%
Wales	0.5%	0.5%	0.4%	0.5%	0.4%	0.7%	0.8%	0.3%	0.6%	0.9%
Northern Ireland	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
East of England	1.9%	2.2%	2.6%	2.1%	1.6%	2.0%	1.8%	1.2%	1.0%	1.3%
East Midlands	1.4%	1.5%	1.8%	1.2%	1.0%	1.5%	0.8%	0.8%	0.9%	1.0%
London	1.0%	1.5%	2.6%	1.4%	0.7%	1.0%	1.8%	1.7%	2.3%	2.1%
North East	1.4%	1.7%	0.7%	0.2%	0.2%	0.1%	0.1%	0.1%	0.3%	0.3%
North West	0.5%	0.2%	0.1%	0.0%	0.3%	0.2%	0.2%	0.3%	1.7%	2.1%
South East	0.4%	2.4%	5.5%	6.0%	3.6%	0.5%	0.5%	0.7%	0.6%	1.5%
South West	0.5%	1.0%	1.8%	0.8%	0.8%	0.7%	0.5%	0.6%	0.6%	0.6%
West Midlands	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%
Yorkshire & the Humber	1.0%	1.5%	1.1%	1.9%	2.8%	1.3%	4.2%	0.8%	1.4%	0.7%

Source: BRES, ABS, Cebr analysis

For the Marine renewable energy activities, the proportion of employment in Northern Ireland has been partly based on the BIS report released in 2015, "The Size and Performance of the

UK Low Carbon Economy”¹⁰ as well as more recent work by the ONS on the Low Carbon and Renewable Energy Economy (LCREE).¹¹

Maritime Business Services Industry

When conducting our bottom-up analysis of the MBS Sector, we found that between 75% and 85% of MBS activities were located in the London region. Therefore, we have distributed regional activity for each indicator based on these findings, for example, London was found to account for 84% of MBS GVA and thus the remaining 26% was allocated based on the economic activity of the Ports industry in each region.¹² For further information on the regional disaggregation of Ports industry activities, please refer to Cebr’s separate report on the economic activity of the UK Ports industry.

Other adjustments for regional economic activity

Other adjustments have been made to the regional disaggregation of the key macroeconomic indicators which represent the direct economic impacts of the Maritime Sector in Northern Ireland, in order to reflect differences in wider economic performance between Northern Ireland and the other UK regions. These are as follows:

- To account for regional differences in productivity (GVA per employee), GVA in Northern Ireland has been adjusted using the ONS GVA per employee by region statistics.¹³
- To account for regional differences in wages and salaries, estimated wages and salaries paid to employees in the Maritime Business Services industry have been adjusted using differentials taken from ASHE.¹⁴
- To account for regional variation in the ratio of compensation of employees to GVA in different sectors, the compensation of employees for the industry have been adjusted

10 BIS, 2015. “The size and performance of the UK Carbon Economy, Report for 2010 to 2013.”

11 ONS, 2021. “Low carbon and renewable energy economy, UK: 2019.”

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

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

14 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.

using regional differentials implied by the closest industry, as sourced from the Annual Business Survey.

The next sections in this report set out the direct and wider economic impacts of the Maritime Sector in Northern Ireland, broken down by Maritime industry.

3. The direct economic impact of the Maritime Sector in Northern Ireland

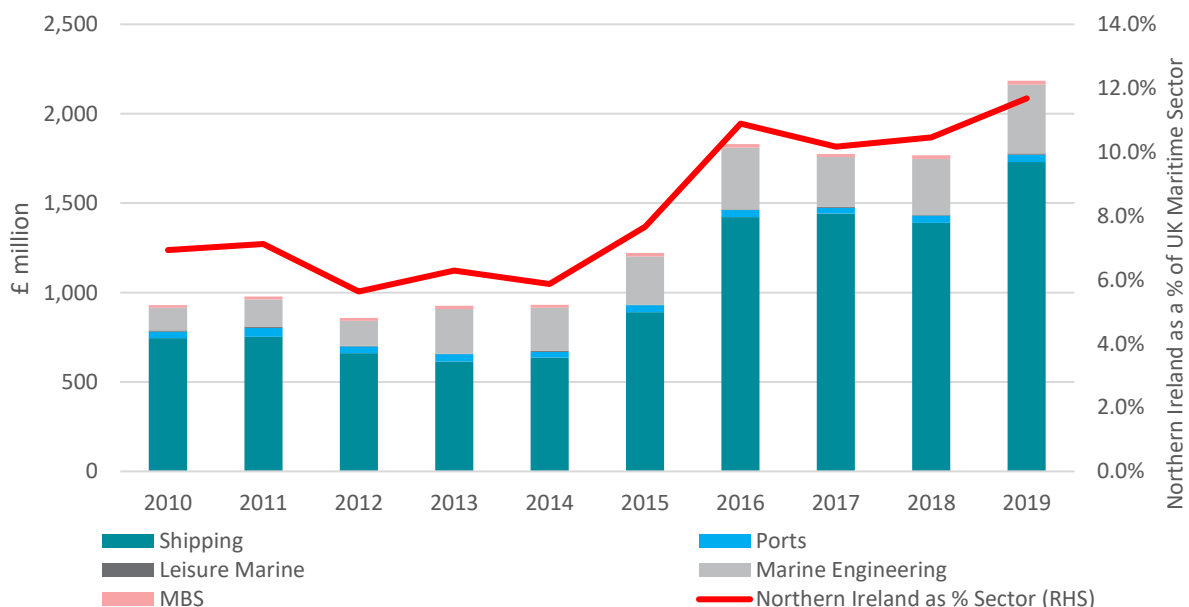
In this section we set out estimates for the direct contribution of the Maritime Sector in Northern Ireland across the following key macroeconomic indicators: business turnover, GVA, employment, the compensation of employees, the Exchequer contribution through tax revenues raised, and exports of goods and services. After quantifying the direct contributions made through the first four of these activities, the aggregate contribution that the Northern Ireland-based Maritime Sector makes to the Northern Ireland and UK economies is then examined in Section 4.

The direct economic impacts of the Maritime Sector in Northern Ireland are separated based on those contributed by each Maritime industry (Shipping, Ports, Leisure Marine, Marine Engineering & Scientific, and Maritime Business Services).

3.1 The direct impact through turnover

This subsection considers the total amount of turnover directly supported by the Maritime Sector in Northern Ireland through turnover generated by businesses. Figure 1 below shows the breakdown of business turnover generated by the Maritime Sector and its constituent industries in Northern Ireland between 2010 and 2019; and this turnover as a percentage of the UK Maritime Sector as a whole.

Figure 1. The estimated turnover of the Maritime Sector in Northern Ireland, and the share of the Maritime Sector's aggregate turnover, 2010 to 2019, £ million



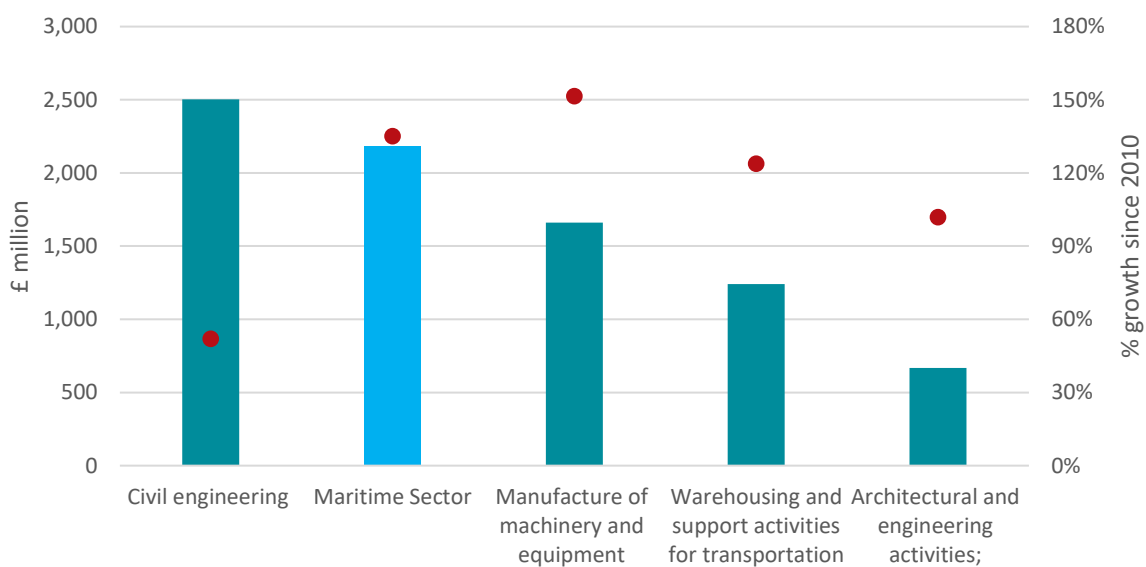
Source: FAME, ONS, Cebr analysis

In 2019, the direct turnover contribution of the Maritime Sector in Northern Ireland reached £2.2 billion. The contribution of Northern Ireland to the overall UK Maritime Sector's turnover doubled from 5.6% in 2012 to almost 12% in 2019, principally driven by the Shipping industry, its largest constituent, which saw a 162% increase in turnover over the period. Marine

engineering, the second largest industry within Northern Ireland's Maritime Sector, is the fastest growing one in terms of turnover, with an average annual growth rate of 13%, compared to just under 10% for the Shipping industry.

To place the Northern Irish Maritime Sector's direct contribution through turnover in context, Figure 2 below compares the direct turnover of the Maritime Sector in 2019 with other Northern Ireland industries. It also compares the growth rates of these industries over the period 2010-19. Turnover data for the other industries has been sourced from the Annual Business Survey (ABS). Amongst these industries, in terms of turnover, the Northern Irish Maritime Sector was the second largest sector after Civil engineering as well as the second fastest growing one after the Manufacture of machinery and equipment.

Figure 2: The direct contribution through turnover of the Maritime Sector in Northern Ireland against comparable sectors in 2019



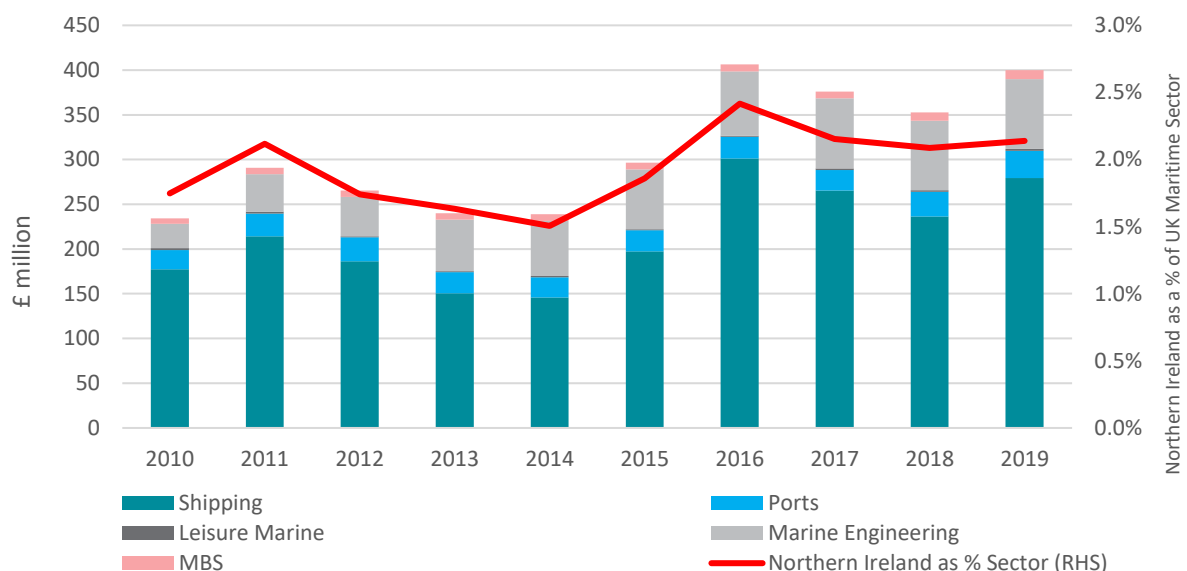
Source: ONS, FAME, Cebr analysis

3.2 The direct impact through GVA

Following turnover, this subsection illustrates the contributions in terms of the GVA from the Maritime Sector to Northern Irish and UK GDP.

Figure 3 below shows the direct GVA contribution of the Maritime Sector in Northern Ireland, both in levels and as a percentage of the UK Maritime Sector, for 2010 to 2019. These direct contributions are disaggregated by industry.

Figure 3: The direct contribution of the Maritime Sector in Northern Ireland through GVA, and the Northern Ireland's share of the Maritime Sector's total direct contribution through GVA, 2010 to 2019



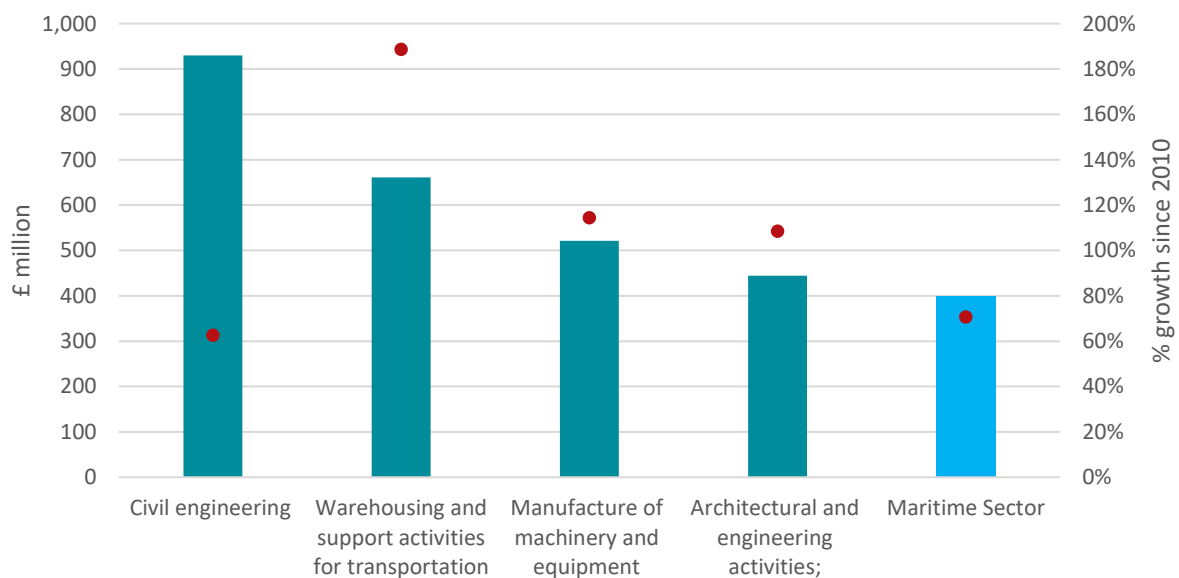
Source: ONS, FAME, Cebr analysis

In 2019 the direct GVA contribution of the Maritime Sector in Northern Ireland was £400 million: this represented 2.1% of the UK Maritime Sector's contribution as a whole. Contrary to the case of turnover, Northern Ireland's relative contribution to the overall UK Maritime Sector GVA has not seen significant growth over the period under review. This is due to more modest growth in GVA from its largest constituent industry i.e. shipping, which over the 2010-2019 period grew by only 58% (compared to a 132% growth in turnover). On the other hand, marine engineering, the sector's second largest industry, grew significantly by 187% over the same period.

To put the Northern Irish Maritime Sector's direct contribution through GVA in context, Figure 4 below compares the direct GVA impact of the Maritime Sector in 2019 with that of other industries. GVA data for the comparable industries has been sourced from the Annual Business Survey (ABS). The Maritime Sector in Northern Ireland was the smallest industry in

terms of GVA compared to the other industries below, with a growth rate of 71% over 2010 to 2019.

Figure 4: The estimated GVA of the Maritime Sector in Northern Ireland against comparable Northern Ireland industries in 2019

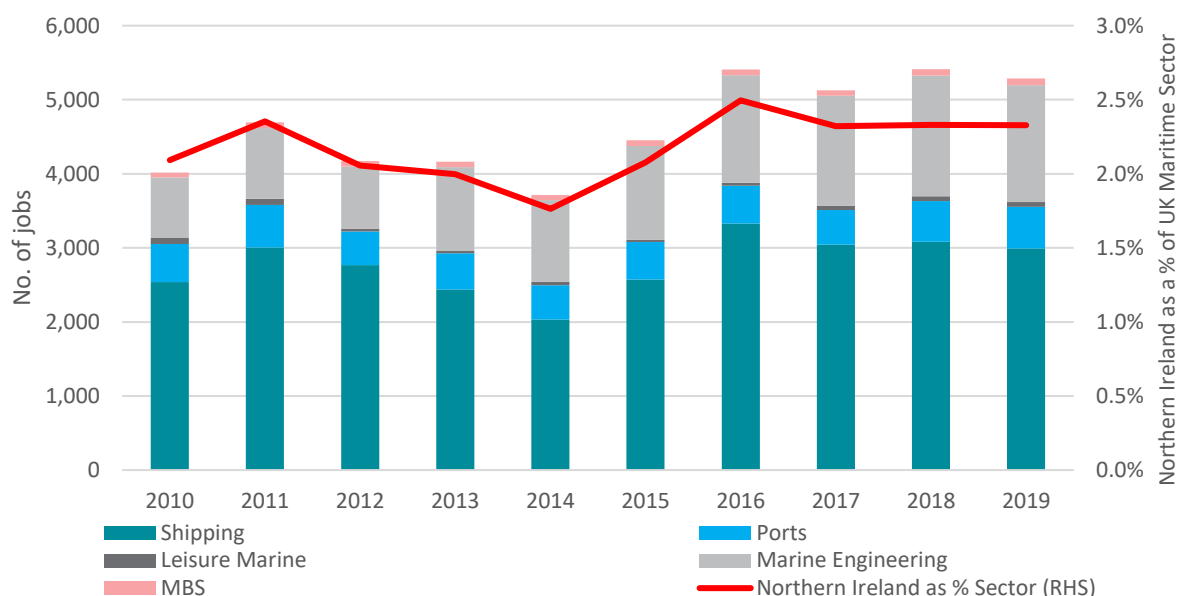


Source: ONS, FAME, Cebr analysis

3.3 The direct impact through employment

This subsection outlines the direct employment impact from the Maritime Sector in Northern Ireland. Figure 5 below shows the direct employment impact of the Maritime Sector in Northern Ireland, both in levels and as a percentage of the UK Maritime Sector, for years 2010 to 2019. The direct impacts are disaggregated by industry.

Figure 5: The direct contribution of the Maritime Sector in Northern Ireland through employment, and Northern Ireland's share of the Maritime Sector's total direct contribution through employment, 2010 to 2019



Source: ONS, FAME, Cebr analysis

In 2019 the direct employment contribution of the Maritime Sector in Northern Ireland was 5,287 jobs. Across all industries, the share of UK Maritime Sector employment directly contributed in Northern Ireland is estimated to be 2.3% in 2019. Once again, the largest contributions came from shipping (2,993 jobs in 2019) and marine engineering (1,576 jobs in 2019). While the Shipping industry contributed almost 78% of the Northern Irish Maritime Sector's turnover, it contributed just 57% of its employment. In comparison, marine engineering contributed 30% of the direct employment compared to only contributing 17% to direct turnover in 2019.

Through combining the direct economic impacts of the Northern Irish Maritime Sector through GVA and employment, we can determine the levels of productivity across each industry within the Northern Irish Maritime Sector.

Table 9 below shows the levels of productivity across each industry within the Northern Irish Maritime Sector, as well as productivity across Northern Ireland as a whole, for the years 2010 to 2019.

Table 9: Productivity (GVA per employee) in the Northern Irish Maritime Sector and constituent industries, 2010 to 2019

GVA per employee	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
UK Maritime Sector	69,858	68,874	75,074	70,499	75,385	74,332	77,548	78,999	72,760	82,329
NI Maritime Sector	58,348	61,964	63,632	57,647	64,372	66,605	75,081	73,303	65,157	75,634
Shipping	69,803	71,292	67,377	61,694	71,777	76,713	90,415	87,207	76,683	93,359
Ports	42,046	43,956	58,906	48,368	48,639	46,979	47,788	48,830	49,782	53,888
Leisure Marine	25,358	25,288	27,476	29,480	29,947	29,771	29,067	29,230	30,546	32,428

Marine Engineering	33,609	44,113	52,417	50,982	55,847	53,082	49,476	52,686	47,683	49,625
Maritime Business Services	91,952	93,083	97,541	99,465	110,979	94,879	96,813	104,541	107,252	107,059

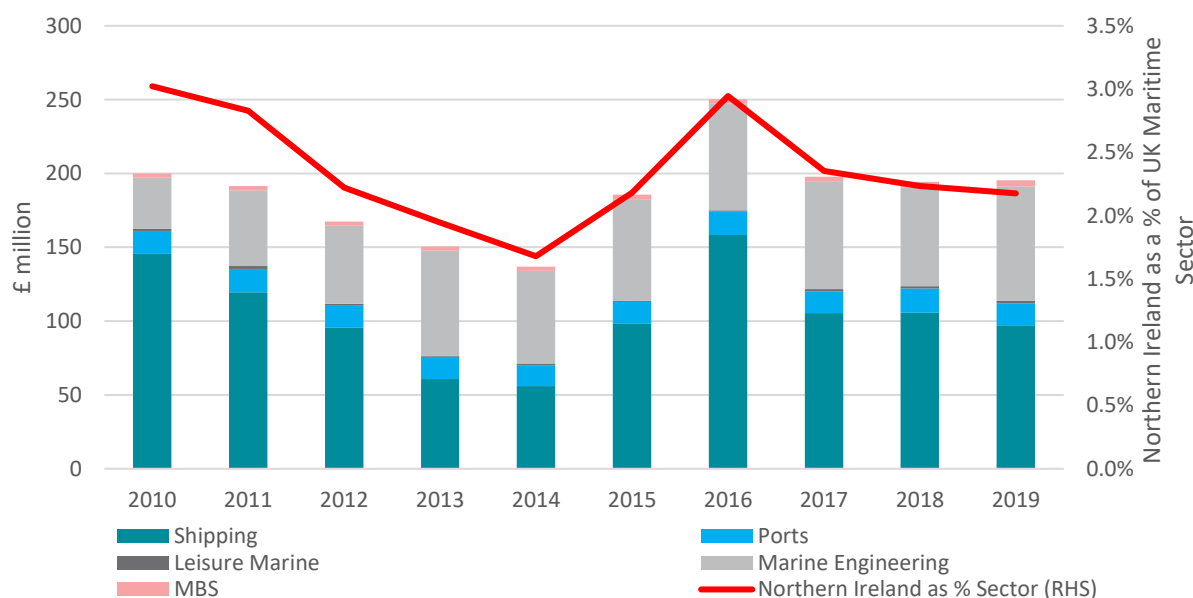
Source: ONS, Cebr analysis

Whilst productivity in the Northern Irish Maritime Sector (£75,634 per employee in 2019) is outperformed by the UK Maritime Sector, this compares quite favourably to the average GVA of £61,500 per employee across the UK in general. High productivity levels concentrated in Marine Business Services and Shipping helped boost the overall productivity of the Northern Irish Maritime Sector.

3.4 The direct impact through the compensation of employees

This subsection considers the compensation of employees (COE) which is directly supported by the Maritime Sector in Northern Ireland. Figure 6 below shows the direct employee compensation impact of the Maritime Sector in Northern Ireland, both in absolute terms and as a percentage of the UK Maritime Sector, for years 2010 to 2019. The direct employee compensation impacts are disaggregated by industry.

Figure 6: The direct contribution of the Maritime industries in Northern Ireland to the compensation of employees, and the combined industries' share of the total contribution from the UK Maritime Sector, 2010 to 2019



Source: ONS, FAME, Cebr analysis

In 2019 the direct COE impact of the Maritime Sector in Northern Ireland was £195 million: this represented 2.2% of the UK Maritime Sector contribution as a whole. Nearly half of all compensation paid to employees in the Northern Irish Maritime Sector was paid to employees in the Shipping industry while just under 40% was paid to employees in the Marine Engineering industry. Total COE fluctuated mildly to peak at £250 million in 2016, driven by 60% increase in employee compensation in the Shipping industry.

3.5 The direct Exchequer contribution in Northern Ireland

In this subsection we examine the contribution of the Maritime Sector in Northern Ireland to the UK Exchequer, through tax revenues raised from Maritime-related activities. In order to capture the incidence of taxation on the direct activities of the sector, Cebr has measured the contribution through revenues raised from the tax heads listed below:¹⁵

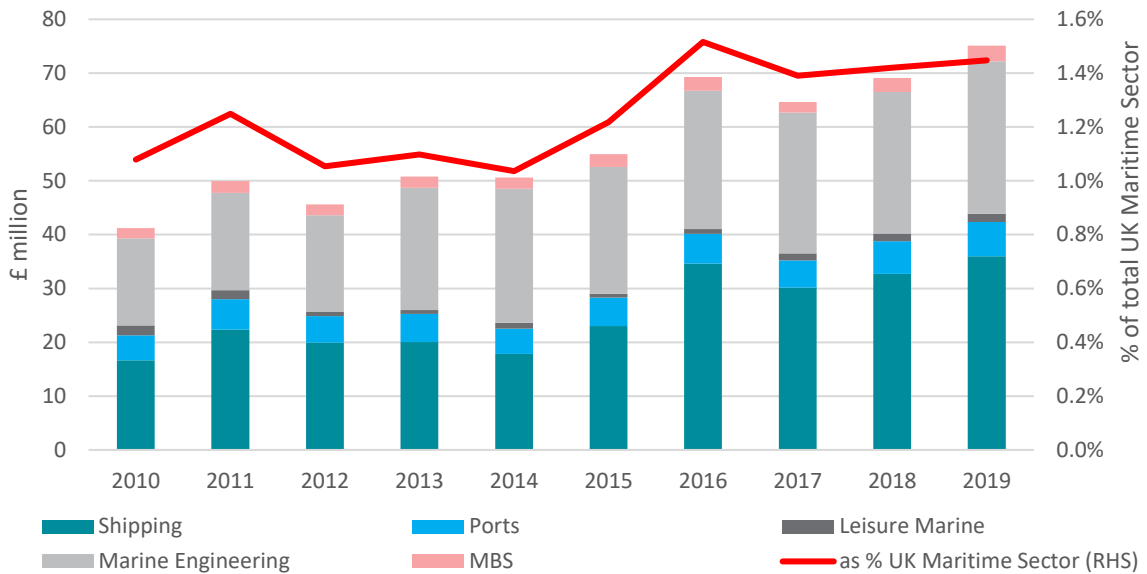
- Income Tax;
- National Insurance Contributions (NICs) – from both Employer and Employee contributions;
- Value-Added Tax (VAT) as paid by businesses operating in the Maritime Sector;
- Corporation Tax;
- National Non-Domestic Rates (Business Rates).

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 Northern Irish Maritime Sector; rates and thresholds have been sourced from HMRC for the years 2010 to 2019. Wages and salaries for employees have been sourced from the Annual Survey for Hours and Earnings (ASHE) and adjusted for wage differentials in Northern Ireland. 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. Business Rates have been estimated using the average level of Business Rates paid as a proportion of Maritime Sector GVA, taken from the ONS Annual Business Survey.

Figure 7 below shows the direct contribution of the Northern Irish Maritime Sector to the UK Exchequer, both in levels and as a percentage of the UK Maritime Sector as a whole, for years 2010 to 2019. The direct exchequer impacts are disaggregated by industry contribution.

Figure 7: The direct UK Exchequer contribution of the Maritime industries in Northern Ireland, 2010 to 2019

¹⁵ Tonnage Tax revenue has not been apportioned regionally, as it makes up such a minor percentage of total Maritime Sector tax revenue (0.075% in 2019).

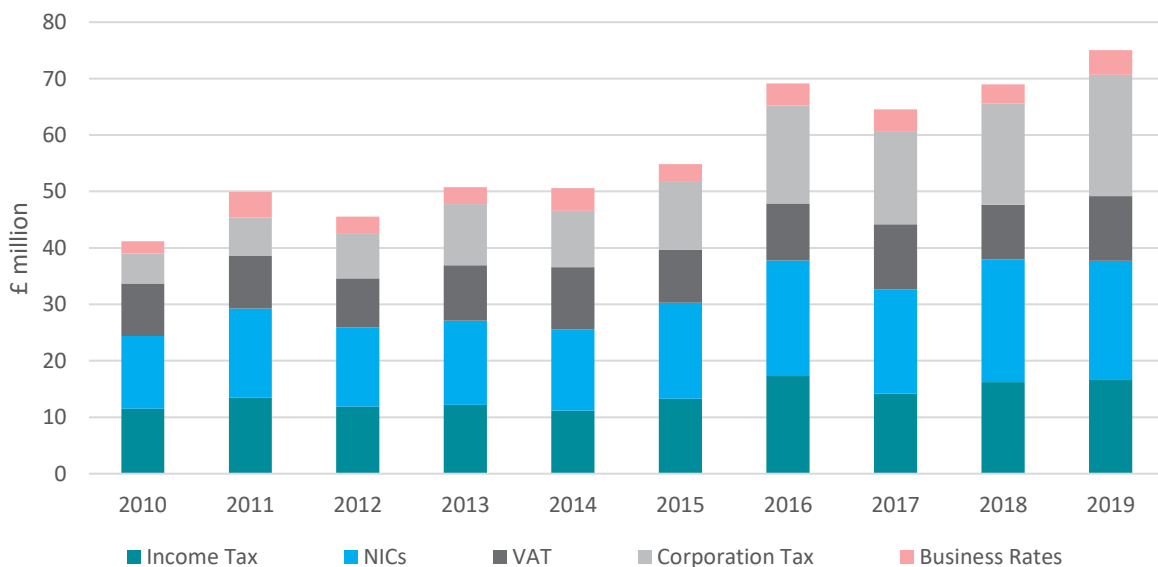


Source: ONS, FAME, Cebr analysis

In 2019 the direct Exchequer impact of the Maritime Sector in Northern Ireland was £75 million: this represented 1.4% of the UK Maritime Sector contribution as a whole. Disaggregating the direct impact by constituent industry, we can see that in 2019 the Shipping industry contributed 48% of the direct Exchequer revenues for the Northern Irish Maritime Sector, followed by the Marine Engineering industry which contributed 38% to the Exchequer.

Figure 8 below disaggregates the direct Exchequer contribution of the Northern Irish Maritime Sector by tax head across the years 2010 to 2019. In 2019, Corporation tax and NICs were the highest contributors to the direct Exchequer impact of the Northern Irish Maritime Sector, contributing £21 million each.

Figure 8: The direct contribution of the Maritime Sector in Northern Ireland to the UK Exchequer by tax head, 2010 to 2019

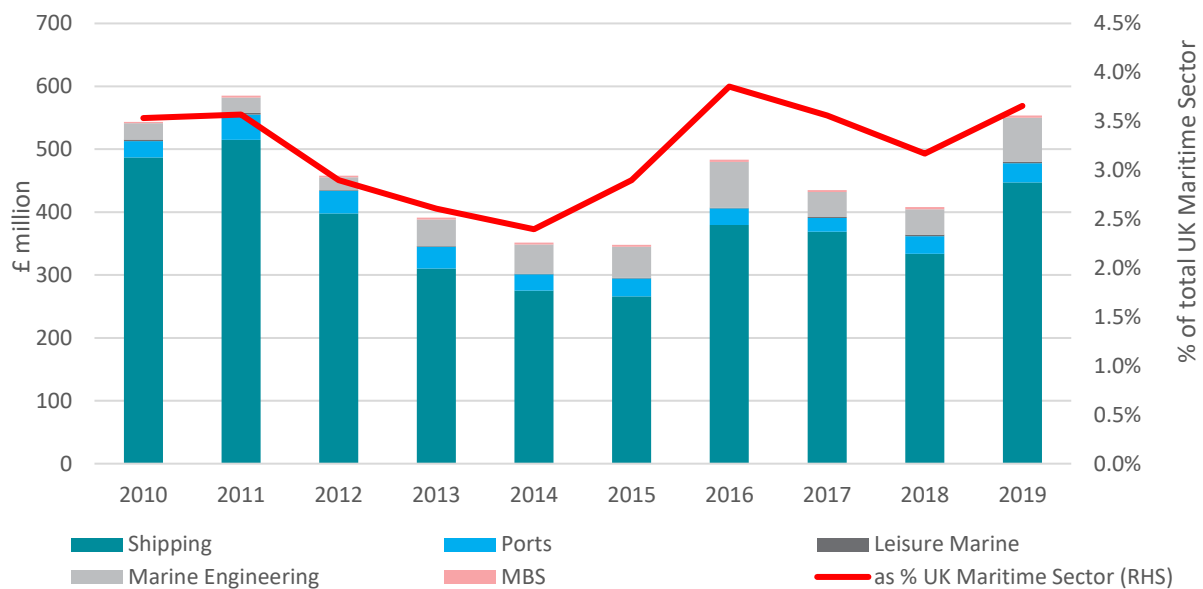


Source: ONS, FAME, Cebr analysis

3.6 The direct contribution through exports

This subsection discusses the direct contribution of the Northern Irish Maritime Sector to UK economic activity through the exports of goods and services. Figure 9 below shows the direct contribution of exports to the Northern Irish Maritime Sector, both in absolute terms and as a percentage of the UK's Maritime Sector's exports, for 2010 to 2019. The direct impacts are disaggregated by industry contribution.

Figure 9: The direct contribution of the Northern Ireland Maritime through exports of goods and services, 2019, £ million



Source: ONS, FAME, Cebr analysis

The direct impact of exports from the Northern Irish Maritime Sector in 2019 was approximately £554 million: this represented approximately 3.7% of the UK Maritime Sector's exports as a whole. Disaggregating the direct impact of exports by industry within the Northern Irish Maritime Sector, we can see that the Shipping industry consistently made the largest contribution, accounting for more than 80% of the sector's exports in 2019 with exports of £447 million.

4. The aggregate economic impact of the Maritime Sector in Northern Ireland

This final section sets out the wider economic impacts of the Maritime Sector in Northern Ireland, taking into account the indirect (or supply chain) and induced (employee spending) impacts that arise from the activities of firms operating within the sector.

The macroeconomic indicators for which the wider economic impacts have been calculated are as follows: turnover; GVA; employment; and the compensation of employees. Multipliers have been generated from Cebr's regional economic impact model. Note that the methodology used to generate these multipliers is consistent to that employed in our 2019 study.

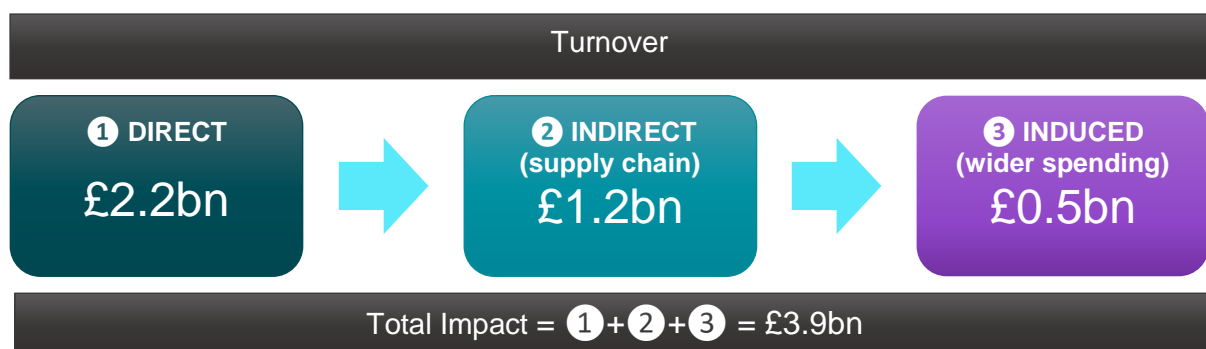
Within this report, we also present estimates for the aggregate impact of the Maritime Sector, incorporating methodological refinements made to the modelling framework which have been developed since 2019. These figures based on Cebr's updated methodology can be found in the Annex.

4.1 The wider economic impacts through turnover

This subsection sets out the aggregate economic impact of the Maritime Sector in Northern Ireland through business turnover. Figure 10 below illustrates the turnover multipliers for the Maritime Sector in Northern Ireland. The Northern Irish Maritime Sector directly contributed £2.2 billion in turnover in 2019, while £1.2 billion worth of turnover was stimulated in supply chains and £0.5 billion worth of turnover supported in the wider economy, when direct and indirect employees spend their earnings. Once the direct, indirect and induced economic channels are taken into consideration the Northern Irish Maritime Sector contributed £3.9 billion to the wider UK economy.

Alternatively, this can be interpreted as for every £1 of turnover initially generated by the Maritime Sector in Northern Ireland in 2019, a further £0.77 of turnover was supported in the wider Northern Irish economy.

Figure 10: Domestic output multiplier impacts of the Maritime Sector in Northern Ireland, 2019, £ million



Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below shows the estimated direct and aggregate turnover impacts from the individual Maritime industries when taken in isolation. As expected, the Shipping industry contributed the highest direct as well as aggregate impacts to turnover

in 2019, accounting for 75% of aggregate impact through turnover in the Northern Irish Maritime Sector.

Table 10: Turnover impact by each Maritime industry in Northern Ireland in 2019, £ million

Turnover in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	2,184	1,184	491	3,860
Shipping	1,730	875	296	2,901
Ports	41	30	18	90
Leisure Marine	6	3	2	12
Marine Engineering	385	260	168	814
Maritime Business Services	21	15	6	42

Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below shows the estimated direct and total domestic output impacts of the Maritime Sector in Northern Ireland across the years 2010 to 2019. As illustrated, both the direct and aggregate impacts are significantly higher in 2019 compared to 2010. The composite turnover multiplier stood at 1.77.

Table 11: Direct and Aggregate turnover impact of the Maritime Sector in Northern Ireland, 2010 to 2019, £ million

Year	Direct Impact	Composite Turnover multiplier	Aggregate impact
2010	929	1.77`	1,637
2011	979		1,740
2012	858		1,525
2013	925		1,687
2014	931		1,689
2015	1,221		2,191
2016	1,831		3,247
2017	1,774		3,120
2018	1,767		3,128
2019	2,184		3,860

Source: ONS, FAME, Cebr analysis

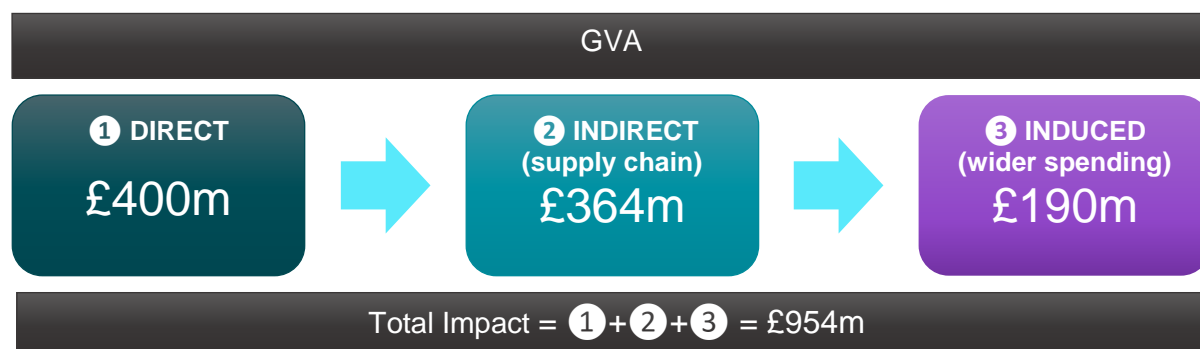
4.2 The wider economic impacts through GVA

This subsection sets out the aggregate economic impact of the Maritime Sector in Northern Ireland through GVA.

Figure 11 below illustrates the GVA multipliers for the Maritime Sector in Northern Ireland. The Northern Irish Maritime Sector directly contributed £400 million to GVA in 2019, where £364 million worth of GVA is stimulated in supply chains and £190 million worth of GVA in the wider economy when direct and indirect employees spend their earnings. Once the direct, indirect and induced economic channels are taken into consideration the Northern Irish Maritime Sector contributed £954 million to the wider UK economy.

For every £1 of turnover initially contributed by the Maritime Sector in Northern Ireland in 2019, a further £1.38 was supported in the wider Northern Irish and UK economies.

Figure 11: GVA multiplier impacts of the Maritime Sector in Northern Ireland, 2019



Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below shows the estimated aggregate GVA impacts from the individual Maritime industries. Similar to turnover, the Shipping industry contributed the majority of the direct impacts for the Northern Irish Maritime Sector in 2019. At £279 million, the Shipping industry represented 70% of the direct GVA contributions. Following the Shipping industry, the marine engineering and the Ports industry directly contributed £78 million and £30 million respectively to GVA in 2019. The highest aggregate impact can be identified within the Shipping industry at £671 million.

Table 12: GVA impacts by each Maritime industry in Northern Ireland in 2019

GVA in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	400	364	190	954
Shipping	279	273	119	671
Ports	30	23	17	70
Leisure Marine	2	1	1	4
Marine Engineering	78	59	49	186
Maritime Business Services	10	9	4	23

Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below shows the estimated direct and total economic impacts of the Maritime Sector in Northern Ireland across the years 2010 and 2019. The composite GVA multiplier stood at 2.38.

Table 13: Direct and Aggregate GVA impact of the Maritime Sector in Northern Ireland, 2010 to 2019, £ million

Year	Direct Impact	Composite GVA multiplier	Aggregate impact
2010	234	2.38	559
2011	291		694
2012	265		632
2013	240		572
2014	239		569
2015	297		707

2016	406		970
2017	376		897
2018	353		841
2019	400		954

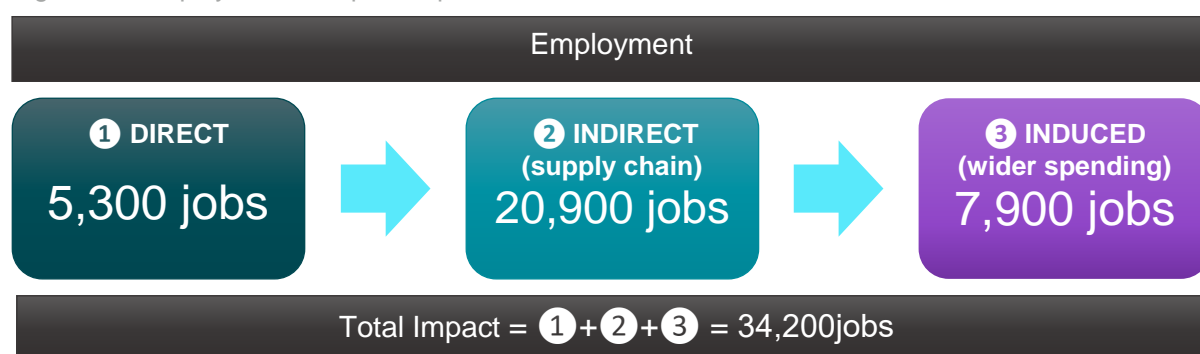
Source: ONS, FAME, Cebr analysis

4.3 The wider economic impacts through employment

This subsection sets out the wider economic impact that the Maritime Sector in Northern Ireland makes through employment. Figure 12 below illustrates the employment multipliers for the Maritime Sector in Northern Ireland. The number of jobs directly contributed by the Northern Irish Maritime Sector was 5,287 in 2019 while the indirect and induced impacts accounted for 20,913 jobs and 7,875 jobs respectively. Thus, the aggregate employment impact supported by the Northern Ireland Maritime industry was 34,176 jobs in 2019.

Alternatively, for every 1 job initially created by the Maritime Sector in Northern Ireland in 2019, an additional 5.46 jobs were supported in the wider Northern Irish economy.

Figure 12: Employment multiplier impacts of the Maritime Sector in Northern Ireland, 2019



Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below shows the estimated employment impacts from the Northern Irish Maritime industries taken in isolation. The Shipping industry accounts for the largest direct impact of employment in 2019, contributing 2,993 jobs to the Northern Irish Maritime Sector. This is followed by the Marine Engineering industry contributing 1,576 jobs to the sector. Combined these two industries contribute 86% of the direct employment to the Maritime Sector in Northern Ireland in 2019. The biggest aggregate impact can be attributed to shipping, where the aggregate impact represents almost 86% of the total aggregate impact of the total sector. The large aggregate impact of the Shipping industry can be explained by the large multipliers associated with the Shipping industry.

Table 14: Employment impact by each Maritime industry in Northern Ireland in 2019, thousands of jobs

Employment in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	5,287	20,913	7,975	34,176
Shipping	2,993	19,212	7,001	29,206
Ports	561	300	156	1,017
Leisure Marine	64	20	16	101
Marine Engineering	1,576	1,136	717	3,429
Maritime Business Services	93	245	85	422

Source: ONS, FAME, Cebr analysis

Error! Reference source not found. shows how the total employment impact of the Maritime Sector in Northern Ireland is estimated to have evolved since 2010. Aggregate employment fell to its lowest level in 2014 at 23,500 jobs, before picking up and peaking in 2016 at around 37,000 jobs, then plateauing to 34,200 jobs in 2019.

Table 15: Direct and Aggregate employment impact of the Maritime Sector in Northern Ireland, 2010 to 2019, thousands of jobs

Year	Direct Impact	Composite Employment multiplier	Aggregate impact
2010	4,017	6.46	27,913
2011	4,695		32,931
2012	4,170		30,040
2013	4,165		27,546
2014	3,713		23,454
2015	4,453		29,177
2016	5,410		37,008
2017	5,128		34,210
2018	5,413		35,113
2019	5,287		34,176

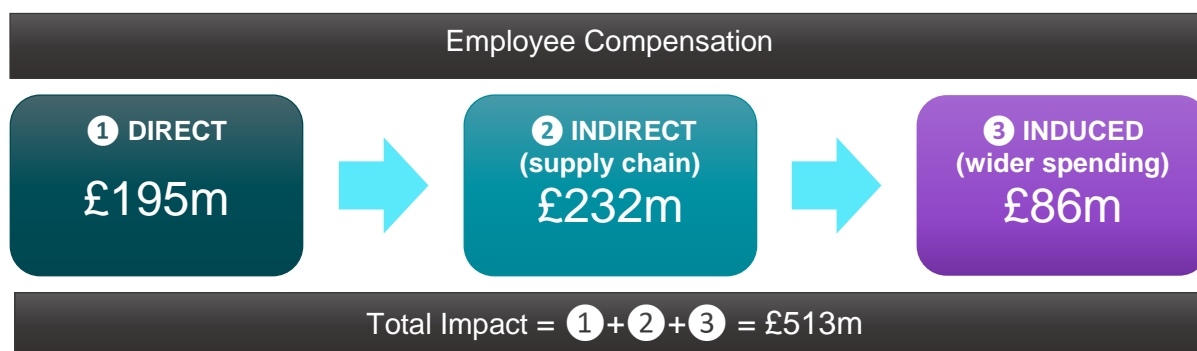
Source: ONS, FAME, Cebr analysis

4.4 The wider economic impacts through compensation of employees

This subsection sets out the wider economic impact that the Maritime Sector in Northern Ireland makes through the compensation of employees. Figure 13 below illustrates the employee compensation multipliers for the Maritime Sector in Northern Ireland. The direct impact of the compensation of employees from the Northern Irish Maritime Sector was £195 million in 2019, where £232 million of employee compensation is stimulated in the supply chains and £86 million in the wider economy when direct and indirect employees spend their earnings. The total impact of compensation of employees was £513 million.

For every £1 initially generated by the sector in Northern Ireland in 2019, a further £1.63 in employee compensation was supported in the wider Northern Irish economy.

Figure 13: Employee compensation multiplier impacts of the Maritime Sector in Northern Ireland, 2019



Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below disaggregates the direct, indirect, induced and therefore total impacts on the compensation of employees by the Maritime Sector in Northern Ireland. Once again, shipping contributes the most to direct impacts through compensation of employees with £97 million in 2019, equivalent to half of the sector's total. The next largest industry contribution comes from the marine engineering at £78 million. The largest aggregate impact contribution is credited to the Shipping industry which contributed £319 million in 2019, equivalent to 62% of the total aggregate impacts from the Sector.

Table 16: Impact through the compensation of employees by each Maritime industry in Northern Ireland in 2019, £ million

Compensation of Employees in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	195	232	86	513
Shipping	97	170	52	319
Ports	15	9	5	29
Leisure Marine	2	1	1	3
Marine Engineering	78	47	26	151
Maritime Business Services	4	6	2	12

Source: ONS, FAME, Cebr analysis

Error! Reference source not found. below illustrates the total impact through the compensation of employees in each year since 2010. Direct and aggregate impacts have remained broadly stable over the years except in 2016 where they reached £250 million and £702 million respectively.

Table 17: Direct and Aggregate impact through the compensation of employees of the Maritime Sector in Northern Ireland, 2010 to 2019, £ million

Year	Direct Impact	Composite Employee Compensation multiplier	Aggregate impact
2010	200	2.63	586
2011	191		535
2012	168		456
2013	151		377
2014	137		344
2015	186		496
2016	250		702
2017	198		529
2018	194		523
2019	195		513

Source: ONS, FAME, Cebr analysis

5. Maritime Sector in Northern Ireland: A Forward Look

In this final section of the report we present projections of the Maritime Sector in Northern Ireland for the period 2020-2025. The section starts off by describing the conceptual approach that we have developed to produce projections of the direct economic impacts after 2019 and then present our forecasts of Northern Ireland-based Maritime turnover and GVA over the period 2021-2025.

The Northern Ireland-based Maritime Sector Forecast (2021-2025)

Modelling approach

We investigate the relationship between the maritime economy in Northern Ireland and a number of economic variables through an econometric approach. Our findings show that the maritime economy is primarily linked to overall Northern Ireland GVA. After having established the Northern Ireland-based Maritime economy's elasticities to Northern Ireland total GVA, we project these historical relationships forward to produce a forecast of Northern Ireland-based Maritime turnover and GVA. The output of this model constitutes our baseline forecast.

Forecast models rely on macroeconomic variables, such as GDP, which are generally more suitable for long term horizon while the focus of our analysis is in the short-medium term (5 years). For this reason, we build on the baseline forecast, introducing more sector-specific assumptions which are used to flex the relation to the drivers previously identified. This approach also enables us to address deterministic expectations about the sector.

To identify the sector-specific assumptions, we drew on our knowledge of the sector composition and on UK-wide maritime trends and themes. Assumptions are assigned a specific weight reflecting its relevance to the Northern Ireland-based Maritime Sector and a set of adjustment factors have been produced.

Applying the adjustments to the baseline forecast, we obtain our central forecast of the Northern Ireland-based Maritime Sector turnover and GVA over the period 2021-2025. It is also important to note also that our historical analysis of the Northern Irish Maritime Sector ends in 2019. In order to link the historic figures to the forecast, we produced a "now-cast" for the first year (2020) for which we know the actual value of the drivers (such as regional GVA) but not of Northern Ireland-based Maritime Turnover and GVA and a forecast for the following period.

Modelling Assumptions

Northern Ireland GVA

Cebr's Forecasting and Thought Leadership team produces regular forecasts of key economic indicators for the UK national, regional and local economies, which directly inform our analysis. We therefore rely on our own projections of the Northern Irish economy.

Cebr expects Northern Ireland's GVA to grow at a Compounded Annual Growth rate (CAGR) of 8.1% over 2021-2025 in nominal terms. However, this strong growth is undermined by the

significant contraction in 2020-2021, which means that by the end of this forecasted period Northern Ireland's GVA is not expected to have recovered to pre-pandemic levels. Despite the so far successful vaccine rollouts across most of the developed world, and the weakened link between vaccination rates and economic disruption as a result of the Omicron variant – which was previously thought to risk global supply chains being halted due to the low vaccination rates in much of the developing world – there is still a certain level of uncertainty which characterises the forecast.

Seaborne trade

Northern Ireland plays a major role for UK trade, by facilitating about one third of total Irish trade with the UK. In 2019, over 40% of the Northern Irish Maritime Sector direct turnover can be attributable to transportation of international freight. Seaborne trade represents the main opportunity for the UK Maritime Sector over the near future. We consider both worldwide and UK-specific trade projections within our modelling framework, which naturally includes the effects of the pandemic on global maritime trade.

The Covid-19 pandemic has disrupted global maritime transport. However, it has in large part performed better than expected and the full extent of this impact has been less damaging than for other sectors of the global economy. Following the economic downturn suffered during 2020, UNCTAD projects shipping volumes increased by 4.3% in 2021, to exceed their 2019 levels.¹⁶ After this initial recovery, worldwide trends indicate a period of moderate growth in trade. Per UNCTAD projections, over the 2022-2026 period, total maritime trade is expected to have a compound annual growth rate (CAGR) of 2.4% – which is below the 2.9% observed over the previous two decades.

The IMF expects global sea trade to grow along with GDP,¹⁷ which aligns with the rest of the literature; according to the OECD, a 1% increase in GDP is expected to correspond to a 1.1% growth in seaborne trade.¹⁸

Sea passengers

The Maritime Sector also plays a key role in tourism and leisure, and this is something that has been particularly affected by Covid. In 2019 over 2.1 million cruise passengers passed through UK ports, but this figure is estimated to have decreased to 107,000 (a decrease of 95%) in 2020. However, this massive downturn was not felt as strongly in the more general sea transportation of passengers. In 2019, over 18.4 million international ferry passengers and almost 42 million domestic sea passengers travelled on UK short sea routes. In 2020 it is estimated that these decreased by 63% and 51%, respectively (to 6.9 and 20.6 million passengers).

¹⁶ United Nations Conference on Trade and Development. (2021). ['Review of Marine Transport 2021'](#).

¹⁷ IMF (2021). ['World Economic Outlook: Managing Divergent Recoveries'](#).

¹⁸ OECD. (2018). ['Growth prospects, challenges and uncertainties for selected ocean industries'](#).

High investment

The Maritime 2050 strategy document outlines a large number of recent or planned investments in infrastructure, technology and education as well as ambitious environmental targets. We expect the UK Maritime Sector to experience major improvements over the longer term thanks to greater level of efficiency and productivity, however higher short-term costs might weigh on growth trends.

Beyond the broader UK-wide events which would impact the Northern Irish Maritime Sector, there are developments more specific to Northern Ireland which will influence the trajectory of the sector over the forecasted period and beyond. The Belfast Maritime Consortium which aims to develop advanced a high-speed zero-emission passenger ferry. To this end, for example, there is the case of Artemis Technologies, which opened its new manufacturing facility in January 2022. However, as noted within the section describing the methodology and sources, data for the Offshore Marine Renewables is only available at a high-level and limited to the BIS and ONS releases. As such, the growth in value that this sub-industry will bring to Northern Ireland is not perfectly captured and its impact will likely be understated.

The 2021-2025 forecast

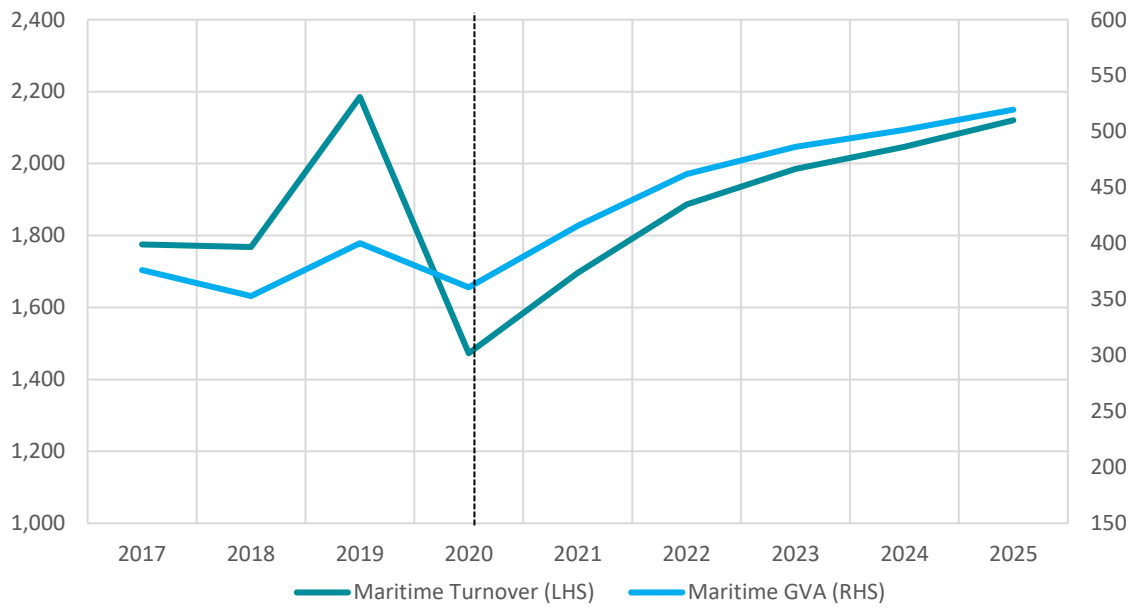
Error! Not a valid bookmark self-reference. shows the Northern Ireland-based Maritime Sector experiencing a modest initial rate of growth given the rebound over 2020, followed by a lower but steady growth over the five-year horizon. Using macroeconomic indicators,¹⁹ such as Northern Ireland GVA, we were able to produce a nowcast for the NI-based Maritime Sector in 2020. Cebr estimates that the industry suffered a contraction in the range of 32% in 2020 as a result of the pandemic, as measured by turnover. However, when considering GVA, the contraction in 2020 is in the range of 10%.

Our forecast indicates that turnover and GVA are set to grow at a Compounded Annual Growth rate (CAGR) of 5.7% over the considered period. This translates into cumulative nominal growth of 25% for 2021-2025. As measured by GVA, output in the Northern Irish Maritime Sector is expected to have reached pre-pandemic levels in 2021.

In line with the rest of the analysis, turnover and GVA have been projected in nominal terms. When the forecast is considered alongside projected inflation, real cumulative growth over the 2021-2025 period is 12.6%.

¹⁹ These are published with more frequency than most of the other data sources used within our study, which for the most part operate on a two-year data lag.

Figure 14: Northern Irish Maritime Sector turnover and GVA trends and projections, £ million, 2017 to 2025



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

Annex: Supplementary results of aggregate economic impact analysis

This section sets out the Maritime Sector's aggregate economic impact, calculated utilising an updated methodology. The difference with the figures presented in Section 4 relates to the multipliers and the underlying input-output modelling.

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

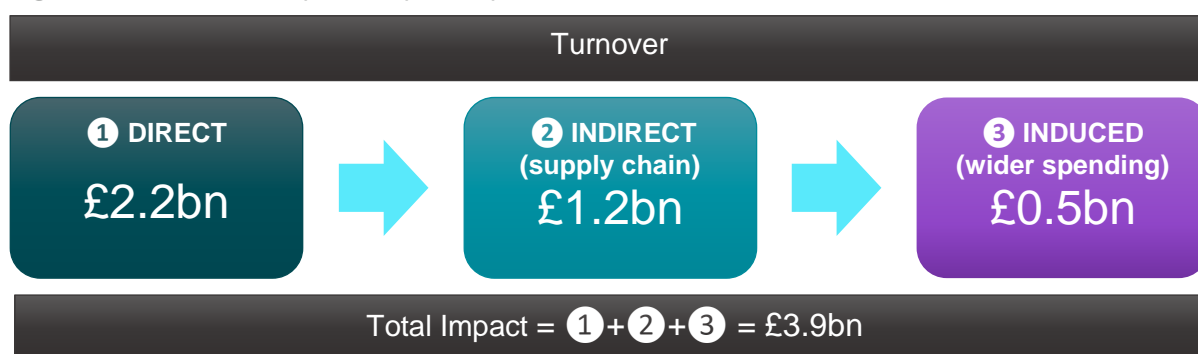
While the new methodology makes these bespoke adjustments to the Shipping industry specifically such that its operational structure – as indicated by the findings of our direct impact analysis – is a better representation of the actual industry, Cebr understands the benefits of having comparable figures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

The wider economic impacts through turnover

This subsection sets out the aggregate economic impact of the Maritime Sector in Northern Ireland through business turnover. Figure A.1 below illustrates the turnover multipliers for the Maritime Sector in Northern Ireland. The Northern Irish Maritime Sector directly contributed £2.2 billion in turnover in 2019, while £1.2 billion worth of turnover was stimulated in supply chains and £0.5 billion worth of turnover supported in the wider economy, when direct and indirect employees spend their earnings. Once the direct, indirect and induced economic channels are taken into consideration the Northern Irish Maritime Sector contributed £3.9 billion to the wider UK economy.

Alternatively, this can be interpreted as for every £1 of turnover initially generated by the Maritime Sector in Northern Ireland in 2019, a further £0.79 of turnover was supported in the wider Northern Irish economy.

Figure A.1: Domestic output multiplier impacts of the Maritime Sector in Northern Ireland, 2019, £ million



Source: ONS, FAME, Cebr analysis

Table A.1 below shows the estimated direct and aggregate turnover impacts from the individual Maritime industries when taken in isolation. As expected, the Shipping industry contributed the highest direct as well as aggregate impacts to turnover in 2019, accounting for 75% of aggregate impact through turnover in the Northern Irish Maritime Sector.

Table A.1: Turnover impact by each Maritime industry in Northern Ireland in 2019, £ million

Turnover in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	2,184	1,216	499	3,900
Shipping	1,730	906	301	2,938
Ports	41	31	19	92
Leisure Marine	6	4	2	12
Marine Engineering	385	260	169	815
Maritime Business Services	21	14	8	43

Source: ONS, FAME, Cebr analysis

Table A.2 below shows the estimated direct and total domestic output impacts of the Maritime Sector in Northern Ireland across the years 2010 to 2019. As illustrated, both the direct and aggregate impacts are significantly higher in 2019 compared to 2010. The composite turnover multiplier stood at 1.79.

Table A.2: Direct and Aggregate turnover impact of the Maritime Sector in Northern Ireland, 2010 to 2019, £ million

Year	Direct Impact	Composite Turnover multiplier	Aggregate impact
2010	929	1.79	1,655
2011	979		1,759
2012	858		1,542
2013	925		1,703
2014	931		1,705
2015	1,221		2,213
2016	1,831		3,281
2017	1,774		3,153
2018	1,767		3,161
2019	2,184		3,900

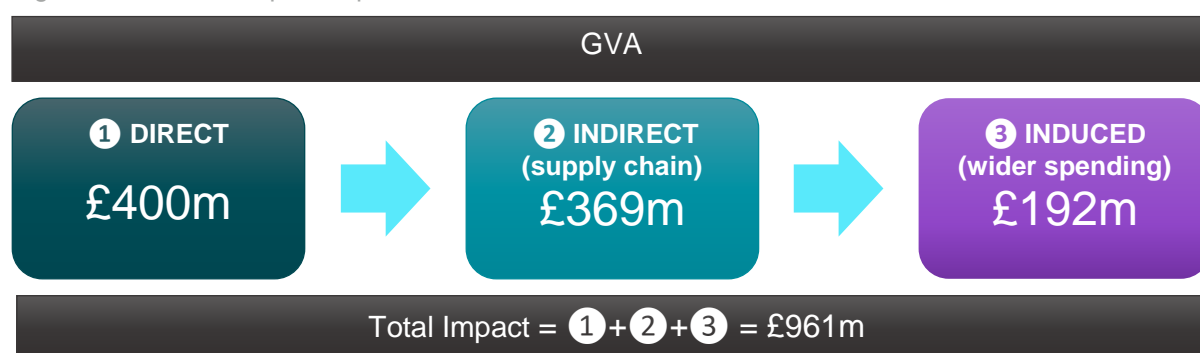
Source: ONS, FAME, Cebr analysis

The wider economic impacts through GVA

This subsection sets out the aggregate economic impact of the Maritime Sector in Northern Ireland through GVA. Figure A.2 below illustrates the GVA multipliers for the Maritime Sector in Northern Ireland. The Northern Irish Maritime Sector directly contributed £400 million to GVA in 2019, where £369 million worth of GVA is stimulated in supply chains and £192 million worth of GVA in the wider economy when direct and indirect employees spend their earnings. Once the direct, indirect and induced economic channels are taken into consideration the Northern Irish Maritime Sector contributed £961 million to the wider UK economy.

For every £1 of turnover initially contributed by the Maritime Sector in Northern Ireland in 2019, a further £1.40 was supported in the wider Northern Irish and UK economies.

Figure A.2: GVA multiplier impacts of the Maritime Sector in Northern Ireland, 2019



Source: ONS, FAME, Cebr analysis

Table A.3 below shows the estimated aggregate GVA impacts from the individual Maritime industries. Similar to turnover, the Shipping industry contributed the majority of the direct impacts for the Northern Irish Maritime Sector in 2019. At £279 million, the Shipping industry represented 70% of the direct GVA contributions. Following the Shipping industry, the marine engineering and the Ports industry directly contributed £78 million and £30 million respectively to GVA in 2019. The highest aggregate impact can be identified within the Shipping industry at £679 million.

Table A.3: GVA impacts by each Maritime industry in Northern Ireland in 2019

GVA in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	400	369	192	961
Shipping	279	279	121	679
Ports	30	23	17	71
Leisure Marine	2	1	1	4
Marine Engineering	78	59	49	186
Maritime Business Services	10	7	4	21

Source: ONS, FAME, Cebr analysis

Table A.4 below shows the estimated direct and total economic impacts of the Maritime Sector in Northern Ireland across the years 2010 and 2019. The composite GVA multiplier stood at 2.40.

Table A.4: Direct and Aggregate GVA impact of the Maritime Sector in Northern Ireland, 2010 to 2019, £ million

Year	Direct Impact	Composite GVA multiplier	Aggregate impact
2010	234	2.40	563
2011	291		699
2012	265		637
2013	240		575
2014	239		572
2015	297		712
2016	406		978
2017	376		904
2018	353		847
2019	400		961

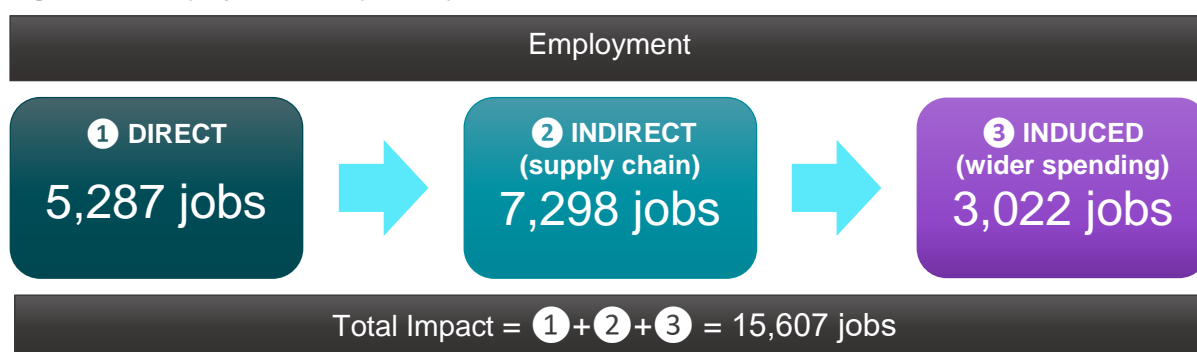
Source: ONS, FAME, Cebr analysis

The wider economic impacts through employment

This subsection sets out the wider economic impact that the Maritime Sector in Northern Ireland makes through employment. Figure A.3 below illustrates the employment multipliers for the Maritime Sector in Northern Ireland. The number of jobs directly contributed by the Northern Irish Maritime Sector was 5,287 in 2019 while the indirect and induced impacts accounted for 7,298 jobs and 3,022 jobs respectively. Thus, the aggregate employment impact supported by the Northern Ireland Maritime industry was 15,607 jobs in 2019.

Alternatively, for every 1 job initially created by the Maritime Sector in Northern Ireland in 2019, an additional 1.95 jobs were supported in the wider Northern Irish economy.

Figure A.3: Employment multiplier impacts of the Maritime Sector in Northern Ireland, 2019



Source: ONS, FAME, Cebr analysis

Table A.5 below shows the estimated employment impacts from the Northern Irish Maritime industries taken in isolation. The Shipping industry accounts for the largest direct impact of employment in 2019, contributing with 2,993 jobs to the Northern Irish Maritime Sector. This is followed by the Marine Engineering industry contributing 1,576 jobs to the sector. Combined these two industries contribute 86% of the direct employment to the Maritime Sector in Northern Ireland in 2019. The biggest aggregate impact can be attributed to shipping, where the aggregate impact represents almost 70% of the total aggregate impact of the total sector. The large aggregate impact of the Shipping industry can be explained by the large multipliers associated with the Shipping industry.

Table A.5: Employment impact by each Maritime industry in Northern Ireland in 2019, thousands of jobs

Employment in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	5,287	7,298	3,022	15,607
Shipping	2,993	5,702	2,060	10,754
Ports	561	306	159	1,026
Leisure Marine	64	20	5	90
Marine Engineering	1,576	1,135	720	3,431
Maritime Business Services	93	135	78	306

Source: ONS, FAME, Cebr analysis

Table A.6 shows how the total employment impact of the Maritime Sector in Northern Ireland is estimated to have evolved since 2010. Aggregate employment fell to its lowest level in 2014 at 10,841 jobs, before picking up to reach around 15,600 jobs in 2019.

Table A.6: Direct and Aggregate employment impact of the Maritime Sector in Northern Ireland, 2010 to 2019, thousands of jobs

Year	Direct Impact	Composite Employment multiplier	Aggregate impact
2010	4,017	2.95	12,167
2011	4,695		14,298
2012	4,170		12,892
2013	4,165		12,410
2014	3,713		10,841
2015	4,453		13,223
2016	5,410		16,376
2017	5,128		15,349
2018	5,413		16,005
2019	5,287		15,607

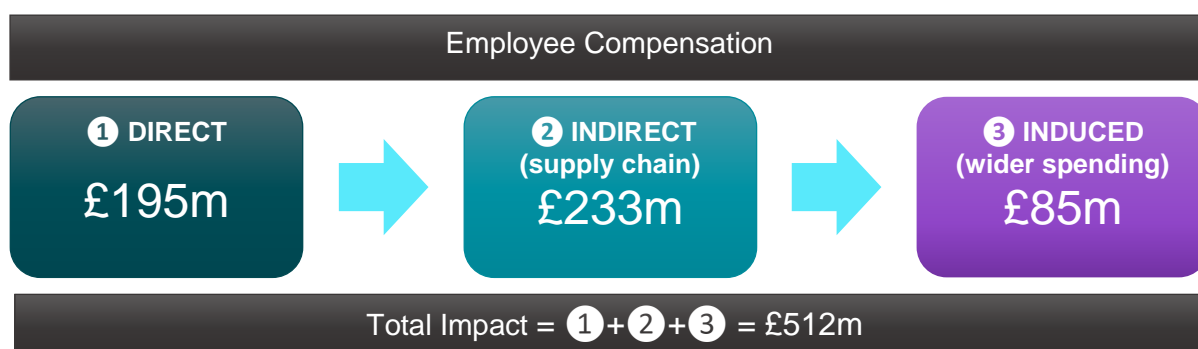
Source: ONS, FAME, Cebr analysis

The wider economic impacts through compensation of employees

This subsection sets out the wider economic impact that the Maritime Sector in Northern Ireland makes through the compensation of employees. Figure A.4 below illustrates the employee compensation multipliers for the Maritime Sector in Northern Ireland. The direct impact of the compensation of employees from the Northern Irish Maritime Sector was £195 million in 2019, where £233 million of employee compensation is stimulated in the supply chains and £85 million in the wider economy when direct and indirect employees spend their earnings. The total impact of compensation of employees was £512 million.

For every £1 initially generated by the sector in Northern Ireland in 2019, a further £1.62 in employee compensation was supported in the wider Northern Irish economy.

Figure A.4: Employee compensation multiplier impacts of the Maritime Sector in Northern Ireland, 2019



Source: ONS, FAME, Cebr analysis

Table A.7 below disaggregates the direct, indirect, induced and therefore total impacts on the compensation of employees by the Maritime Sector in Northern Ireland. Once again, shipping contributes the most to direct impacts through compensation of employees with £97 million in 2019, equivalent to half of the sector's total. The next largest industry contribution comes from the marine engineering at £78 million. The largest aggregate impact contribution is credited to the Shipping industry which contributed £321 million in 2019, equivalent to 63% of the total aggregate impacts from the Sector.

Table A.7: Impact through the compensation of employees by each Maritime industry in Northern Ireland in 2019, £ million

Compensation of Employees in 2019	Direct Impact	Indirect Impact	Induced Impact	Aggregate Impact
TOTAL	195	233	85	512
Shipping	97	172	52	321
Ports	15	9	5	29
Leisure Marine	2	1	0	3
Marine Engineering	78	47	26	151
Maritime Business Services	4	3	2	9

Source: ONS, FAME, Cebr analysis

Table A.8 below illustrates the total impact through the compensation of employees in each year since 2010. Direct and aggregate impacts have remained broadly stable over the years except in 2016 where they reached £250 million and £702 million respectively.

Table A.8: Direct and Aggregate impact through the compensation of employees of the Maritime Sector in Northern Ireland, 2010 to 2019, £ million

Year	Direct Impact	Composite Employee Compensation multiplier	Aggregate impact
2010	200	2.62	587
2011	191		535
2012	168		456
2013	151		376
2014	137		343
2015	186		496
2016	250		702
2017	198		529
2018	194		522
2019	195		512

Source: ONS, FAME, Cebr analysis

