VOLUME 17

THE IRISH MARITIME TRANSPORT ECONOMIST

Irish Maritime
Development Office

The Irish Maritime Development Office

The Irish Maritime Development Office (IMDO) is Ireland's national dedicated development, promotional and marketing agency for the shipping and shipping services sector.

The IMDO is an Irish government agency that provides support to national and international maritime businesses in Ireland. It is the aim of the IMDO to be the focal point for maritime business in Ireland. The IMDO provides the government and industry with a range of information and reporting across the sector and works with international businesses to help them set-up or expand in Ireland. The IMDO is also Ireland's designated Shortsea Shipping Agency and provides independent advice and guidance on EU funding initiatives.

The IMDO was establishing by the Fisheries (Amendment) Act 1999, as part of the Marine Institute, under an amendment to the Marine Institute Act 1991 in December 1999. The IMDO commenced operations in July 2000. After a subsequent amendment to the Harbours (Amendment) Act 2009 its legislative mandate includes the following functions:

1. To promote and assist the development of Irish shipping and Irish shipping services and seafarer training.
2. To liaise, with, support and market the shipping and shipping services sector.
3. To advise the Minister for Transport on the development and co-ordination of policy in the shipping and shipping services sector so as to protect and create employment.
4. To carry out policy as may be specific by the Minister for Transport relating to the shipping and shipping services sector and seafarer training.
5. To advise the Minister for Transport on the development and co-ordination of policy and to carry out policy, as may be specified by that Minister, relating to ports and the ports services sector;
6. And additional functions relating to the shipping and shipping services sector conferred on the Institute under section 4(4) of this Act.

Shipping services is defined as; sea routes, ship management, technical management, commercial management, crew management, ship finance and mortgages, marine insurance, maritime legal services, shipbroking and ship chartering.

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Ministerial Foreword

I am very pleased to provide the foreword for this, the 17th edition of the Irish Maritime Transport Economist (IMTE), and to acknowledge the vital role played by the maritime industry in facilitating Irish economic activity. Ports and shipping services provide indispensable connectivity to international markets, both within the Single Market and elsewhere in the world, and are an invaluable part of the supply chain that enables the Irish economy to grow. I wish to commend all stakeholders in the Irish maritime industry for the progress achieved in 2019, and also for the contribution that the industry has made to Ireland's economic recovery over the last decade.

Our economy relies heavily on maritime transport, with over 90% of all our traded goods and 10% of passengers being transported by sea. The total volume of commercial traffic moving through Irish ports declined by 3% in 2019, as measured by the IMDO's iShip Index. This is the first annual decline recorded by the iShip Index since 2009. The decline was driven to a large extent by corrections in the market for agricultural commodities, after a national fodder crisis in 2018. After adjusting for this anomaly, the Irish maritime sector continued to outperform average growth rates for the latter half of the decade, and remains at a level above that recorded before the 2008 global economic downturn. Our ports are also important gateways for tourism and in 2019, more than 2.5 million passengers passed through our ports.

Throughout 2019, my Department officials and the IMDO worked closely with industry to address market challenges and to prepare for Brexit. This engagement intensified in 2020 as we worked to deal with the unprecedented issues arising from the Covid-19 pandemic. Notwithstanding the considerable challenges arising from Brexit throughout 2019, and Covid-19 in 2020, the Irish maritime industry responded admirably and continued to provide the services on which our economy is so reliant. This consultative and collaborative approach, which is key to overcoming the challenges the maritime industry faces, will be maintained.

I would like to express my gratitude to stakeholders throughout the industry for the manner in which they rose to the task and ensured the continued operation of critical supply chains to ensure the movement of essential food, medical supplies and consumer goods in and out of the country throughout this period as well as the repatriation of citizens and transportation of essential workers. By doing so, the industry has provided uninterrupted connectivity to key markets which remain vital to the functioning of Ireland's economy.

The IMTE 2019 continues to add to the valuable time series of industry information created over the previous editions. I would like to thank the staff of the IMDO who provide essential analysis and reporting which expands our knowledge of the maritime industry, information which is particularly vital in understanding the effects of disruptors such as Brexit and Covid-19. Their assistance in dealing with the impacts of the pandemic is also greatly valued and appreciated.

The whole of society has experienced considerable difficulties and many challenges lie ahead, not only with the finalising of Brexit, but also with the Covid-19 pandemic that has created unprecedented disruption across the Irish economy and wider Irish society. My Department will work tirelessly with stakeholders to navigate our way through industry challenges so we can to continue to serve Irish importers, exporters and the Irish tourism industry. I have confidence that the maritime industry can once again adapt to these new challenges and that by working together we can emerge stronger.

Ní neart go cur le chéile.

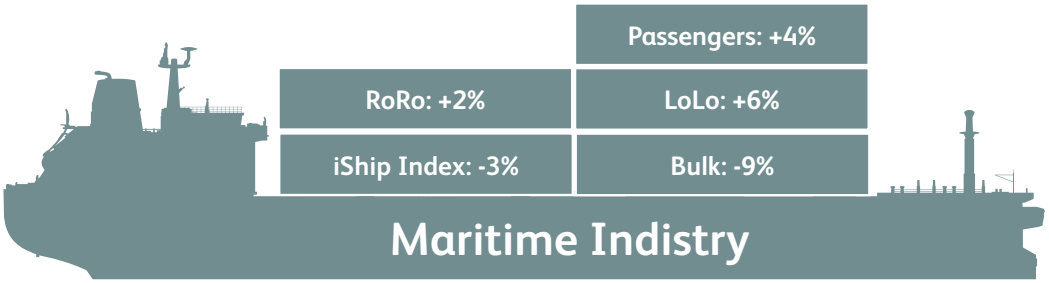
Hildegarde Naughton T.D
Minister of State for International and Road Transport and Logistics

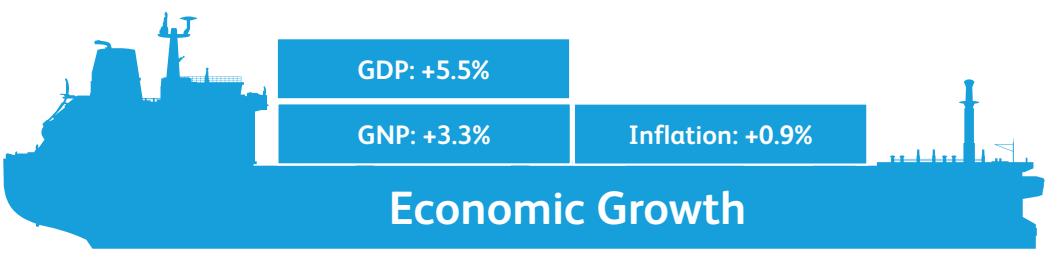
Introduction

Welcome to the 17th edition of the Irish Maritime Transport Economist. Volume 17 presents a new layout to the IMTE that provides a detailed analysis of the key drivers of Irish maritime trade. This was possible due to the comprehensive time series built up for almost two decades in previous editions of the Irish Maritime Transport Economist. I would like to thank the many industry stakeholders for their contributions to this information and for their continued support of this valuable publication.

2019 recorded another year of significant growth for many sectors and a year of reorganisation and restructuring for others. Overall, volumes through Irish ports declined by 3% in 2019, as measured by the IMDO's iShip index. This is the first annual decline in the iShip index since 2009. However, almost all of the declines in 2019 were isolated to dry bulk markets. A national fodder crisis in 2018 created a surge in the importation of some agricultural commodities. As a result, imports for this sector fell by close to 1.5 million tonnes in 2019. In addition, the move away from coal burning at the ESB Moneypoint power station drove a decline in coal imports of approximately 1 million tonnes. Elsewhere in the bulk market however, break bulk recorded its largest iShip index score since 2008. A strong performance in the break bulk sector is reflective of a strengthening construction sector, with new dwelling completions up by 18% in 2019. In all, despite restructurings within bulk markets, the iShip index in 2019 outperformed its average for the previous 5 years and had fully recovered to pre-2008 levels by the end of the year.

2019 Key Statistics:





Notable successes in 2019 also include the continued strengthening of the Irish unitised trade sector, which includes Roll-on / Roll-off (RoRo) and Lift-on / Lift-off (LoLo) traffic. 2020 will be an important year for this sector, as the trade negotiations surrounding Britain's departure from the European Union are finalized. RoRo freight traffic grew once again in 2019, the 7th consecutive year of expansion wherein freight movements averaged 5% growth per year during that period. RoRo volumes are now one third higher than they were a decade ago, marking a period in which this sector has facilitated the Irish economic recovery from the recession that commenced in 2008. In 2019, growth in RoRo traffic was driven almost entirely by increased freight volumes on direct routes to the European continent, which grew by 9%. In addition, the LoLo sector, which is comprised mainly of direct continental services, surpassed 1 million TEUs for the first time since 2008 and has averaged 7% annual growth since 2014. These developments in the unitized trade sector reduce our reliance on the UK landbridge as a means of access to European markets. It also highlights the resilience and adaptability of the sector in the face of uncertainties such as Brexit, and underlines our reliance on these modes of transport for international trade.

The success of the Irish maritime industry is intertwined with economic growth, as both are underpinned by the fundamentals of demand for merchandise goods and consumption. As a small, open economy, international maritime trade is at the foundation of Irish economic progress. The Irish economy has experienced a strong recovery in demand since 2008, particularly in the last five years, with GDP growth outpacing all of Ireland's closest trading partners over that period. 2019 was another year of robust economic growth, with GDP up by 5.5% and the value of Irish merchandise exports reaching a record high of over €150bn. All of this means that the Irish economy, and Irish maritime industry, ends this decade in a significantly stronger position than it started, capable of facing future challenges. I would therefore like to commend the stakeholders in the Irish maritime industry for this considerable achievement.

Turning our attention to those next set of challenges, the speed and depth of disruption created by the COVID-19 pandemic has the ability to eclipse any negative shock previously experienced by the Irish economy. At the time of this publication, the maritime passenger market has experienced dramatic decline, and demand in the unitised trade sector has been severely damaged. The team at the IMDO will work tirelessly to monitor and report on the scale of disruption, and will continue to facilitate stakeholders with the most up to date information and analysis. I am confident that the visible expertise and industry experience in our ports and shipping companies will allow this important sector to overcome this challenge and thrive once again.

The IMTE is a collaborative effort and I would like to thank all our partners in the industry who kindly gave up their time and expertise to assist in compiling this report. I would like to acknowledge the support of colleagues throughout the Department of Transport, Tourism and Sport, who have spared no effort in addressing shared challenges. Finally, I would also like to thank all my colleagues at the IMDO for their energy and professionalism in the past year, in particular, our economic analysts Daniel Fallen Bailey and Darragh Treacy, who brought this volume of the IMTE to fruition.

Liam Lacey.

Liam Lacey
Director
Irish Maritime Development Office

Section 1. **The Irish Shipping Market in 2019**

Introduction

Section 1 of this report is divided into 7 subsections. Section 1.1 details the performance of the Irish bulk market, which comprises three cargo modes: liquid bulk, dry bulk and break bulk. Sections 1.2 and 1.3 deal with the unitised trade sector of the Irish shipping industry, which includes the Roll-on / Roll-off (RoRo) and Lift-on / Lift-off (LoLo) cargo modes. The unitised sector is largely made up of perishable food & retail items further along the value chain. Sections 1.4 and 1.5 describe the performance of the Irish maritime passenger and cruise markets. Section 1.6 illustrates the performance of the iShip index in 2019, which is a quarterly weighted indicator that outlines trends within Ireland's shipping industry. Lastly, section 1.7 details trends within the broader blue economy and blue careers in 2019. Throughout Section 1, the performance of the Irish shipping industry over the past decade is considered.

1.1 Combined Bulk Market

In section 1.1, the performance of Irish bulk shipping markets is provided. Bulk port traffic refers to three market segments of port and shipping activity, Liquid, Dry, and Break Bulk.

Liquid bulk is a commodity that ranges from petrol for cars to crude oil or liquefied natural gas. Due to their physical characteristics, these are stored in large tank spaces, known as the holds, of a tanker vessel. Dry bulk commodities include animal feed, iron ore, coal, fertilizer, cement and alumina. This market segment can be particularly affected by adverse or mild weather conditions during the course of a year. Its characteristics are defined by large, unpackaged quantities and it usually involves raw materials. Break bulk traffic involves loose, non-containerised cargo stowed directly into a ship's hold. Commodities such as timber, steel products, machinery and general project cargo make up the majority of break bulk cargo. The main drivers of this segment's volumes are construction activities.

As outlined in Table 1 below, the total volume of bulk traffic through ports in the Republic of Ireland decreased by 8% to 28.8 million tonnes in 2019. Bulk volumes in Northern Irish ports also declined by 6% in 2019 to just over 12 million tonnes. On an all-island basis, bulk throughput decreased by 7% to 40.8 million tonnes in 2019 compared with 44.1 million in 2018. Excluding oil trans-shipments at Bantry Bay, all-island bulk traffic decreased by 8% (3.5 million tonnes) to 40.1 million tonnes in 2019[1].

[1] Due to trans-shipment activity in Bantry Bay, excluding this port's traffic provides a more accurate picture of the liquid bulk tonnage destined to remain in Ireland each year. Bantry Bay remains a key component of the National Oil Reserves Agency, a stand-alone state body under the aegis of the Department of Communications, Climate Action and Environment.

Table 1: Total Bulk Traffic 2019

	2018		2019		Year-on-Year Change	
	Tonnes	% Share	Tonnes	% Share	%	Tonnes
Bantry Bay	548,020	1.75%	728,422	3%	33%	180,402
Cork	7,616,673	24%	6,681,635	23%	-12%	-935,038
Drogheda	1,456,148	5%	1,530,442	5%	5%	74,294
Dublin	7,020,022	22%	6,499,210	23%	-7%	-520,812
Dundalk	112,442	0.4%	79,346	0.3%	-29%	-33,096
Galway	578,773	2%	545,918	2%	-6%	-32,855
Greenore	905,833	3%	1,026,787	4%	13%	120,954
New Ross	388,647	1%	358,728	1%	-8%	-29,919
Rosslare-Europort	19,202	0.1%	35,082	0.1%	83%	15,880
Shannon Foynes	10,719,731	34%	9,635,191	33%	-10%	-1,084,540
Waterford	1,701,579	5%	1,535,721	5%	-10%	-165,858
Wicklow	188,071	1%	172,508	1%	-8%	-15,563
Youghal	77,997	0.25%	10,570	0.04%	-86%	-67,427
Total Ireland	**31,333,137**	**100%**	**28,839,560**	**100%**	**-8%**	**-2,493,576**
Belfast	9,861,875	77%	9,299,971	77%	-6%	-561,904
Foyle	1,943,886	15%	1,884,776	16%	-3%	-59,110
Larne	45,346	0.4%	64,442	1%	42%	19,096
Warrenpoint	934,518	7%	758,057	6%	-19%	-176,461
Total Northern Ireland	**12,785,625**	**100%**	**12,007,246**	**100%**	**-6%**	**-778,379**
All-Island	**44,118,761**	**100%**	**40,846,806**	**100%**	**-7%**	**-3,271,955**
All-Island Excl. Bantry Bay	**43,570,741**	**99%**	**40,118,384**	**98%**	**-8%**	**-3,452,357**

Source: *IMDO*

As evident in Table 1, bulk throughput in Ireland declined by approximately 2.5 million tonnes. This was driven entirely by declines at Ireland's Tier 1 ports: Dublin, Cork and Shannon Foynes. Bulk cargo at Shannon Foynes fell by 1.1 million tonnes, a 10% decrease on 2018. Similarly, bulk volumes at the Port of Cork fell by 12% in 2019, or 935,000 tonnes. Bulk traffic in Dublin and Waterford fell by approximately 500,000 tonnes (7%) and 165,000 (10%) respectively.

Four Irish ports - Rosslare, Drogheda, Bantry Bay and Greenore - reported increases which slightly offset larger reductions elsewhere. Notably, bulk volumes through Greenore surpassed 1 million tonnes for the first time in 2019, adding another 120,000 tonnes (13%) in bulk volume. Greenore has seen continued growth in this area over the past decade, doubling its bulk volumes between 2009 and 2019.

Bulk traffic throughout all other Irish ports in Table 1 varied, but declined by approximately 90,000 tonnes when combined.

Across Northern Irish ports, bulk throughput in Belfast fell by 6% (550,000 tonnes), leaving total bulk volume for the year at 9.3 million tonnes. This decline accounted for 72% of the overall reduction in bulk across Northern Ireland. Bulk volumes at Warrenpoint declined by 19%, equivalent to 176,000 tonnes. The declines in both in Belfast and Warrenpoint make up 95% of the overall bulk decline in Northern Ireland. Larne recorded the greatest relative increase in throughput of all the Northern Irish Ports in 2019, up by 20,000 tonnes or 42% compared to 2018.

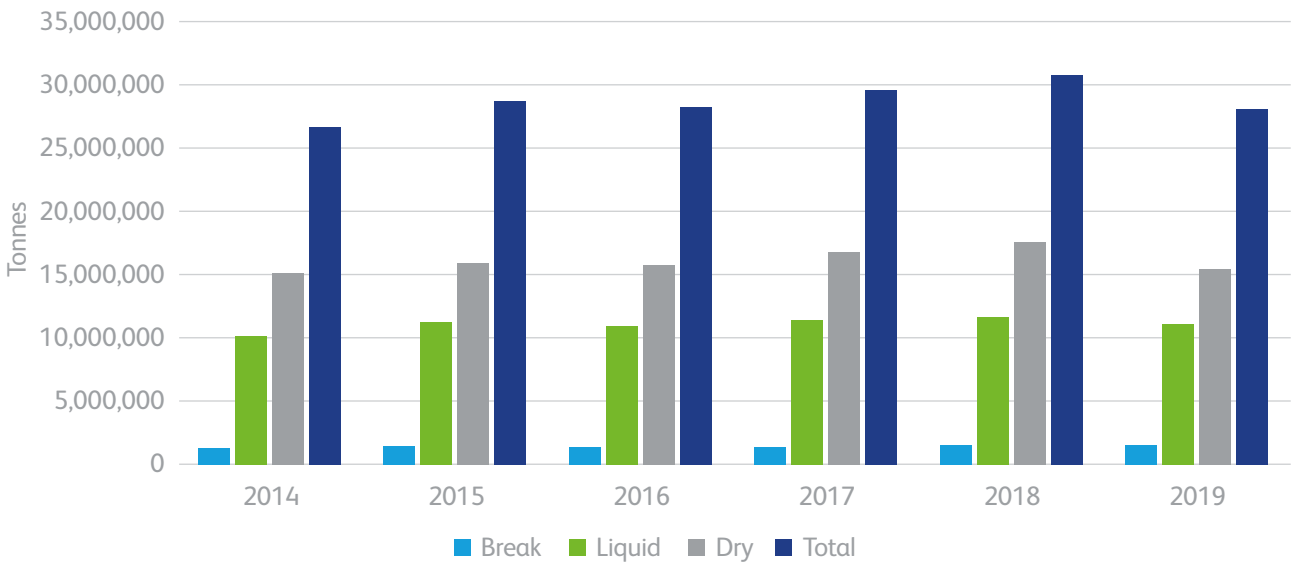
Throughout the year, the largest bulk reductions in both Ireland and Northern Ireland came in Q2, with bulk volumes declining by 13% and 10% respectively. Combined, this meant an overall decrease of 12% in total bulk volumes for the Island of Ireland in Q2. For the remaining quarters of 2019, Irish bulk volume fell by 1.3% in Q1, 10% in Q3 and 7% in Q4. In Northern Ireland, volumes declined by 7% in Q1, 3% in Q3 and 4% in Q4 compared to the same periods in 2018.

The IMDO consults with industry contacts at Irish and Northern Irish ports throughout the year in order to obtain a greater understanding of fluctuations in volumes. Evident in the analysis here, bulk throughput declines were recorded in almost all ports across the island of Ireland. These declines can largely be explained by several factors which will be expanded upon throughout the report.

The most significant contributor to volume declines in 2019 was a period of inventory stockpiling which was evident throughout 2018 and which negatively impacted upon 2019 bulk orders. Stockpiling in 2018 was driven in part by a national fodder crisis caused by a period of inclement summer weather which necessitated the importation of large volumes of agricultural commodities. Compounding commodity stockpiling in 2018 was a period of heightened 'Brexit uncertainty' as Britain's proposed exit date from the European Union approached in early 2019. The additional inventory stocks built up throughout 2018 meant that 2019 would see a market correction which explains much of the decline in volumes throughout the year. In addition to larger inventory stocks in 2019, the realignment of operations away from coal at the ESB's Moneypoint facility in Co. Clare made a significant contribution to bulk declines in 2019.

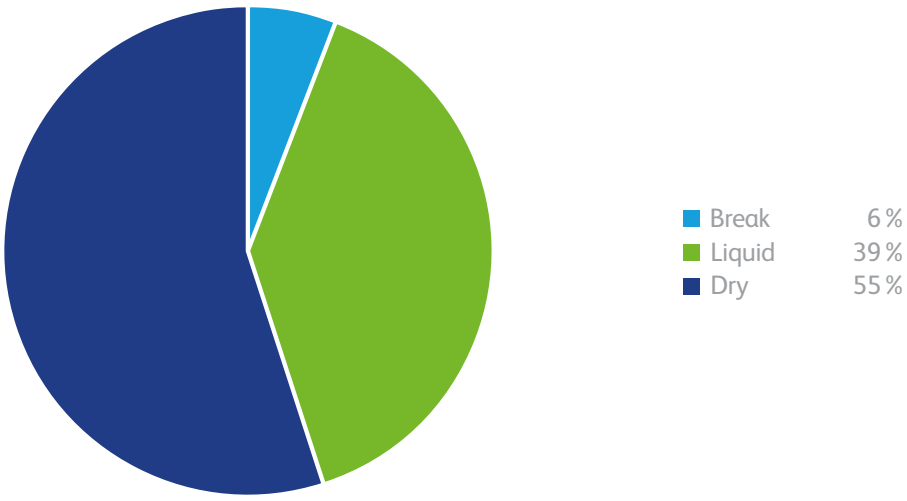
The performance of the individual bulk categories of liquid bulk, dry bulk and break bulk are assessed in more detail in the following sections. Figures 1, 2 and 3 illustrate the relative size of each market segment in Ireland and Northern Ireland. Break bulk continues to account for the smallest share of bulk traffic in Ireland and Northern Ireland, with a 6% share in both jurisdictions. Dry bulk has the largest share in both Ireland and Northern Ireland, with 55% and 70% shares respectively. Liquid bulk accounts for 39% of Ireland's bulk traffic and 24% of bulk traffic in Northern Ireland.

Figure 1: Ireland Liquid Bulk, Dry Bulk and Break Bulk Volumes 2014 - 2019



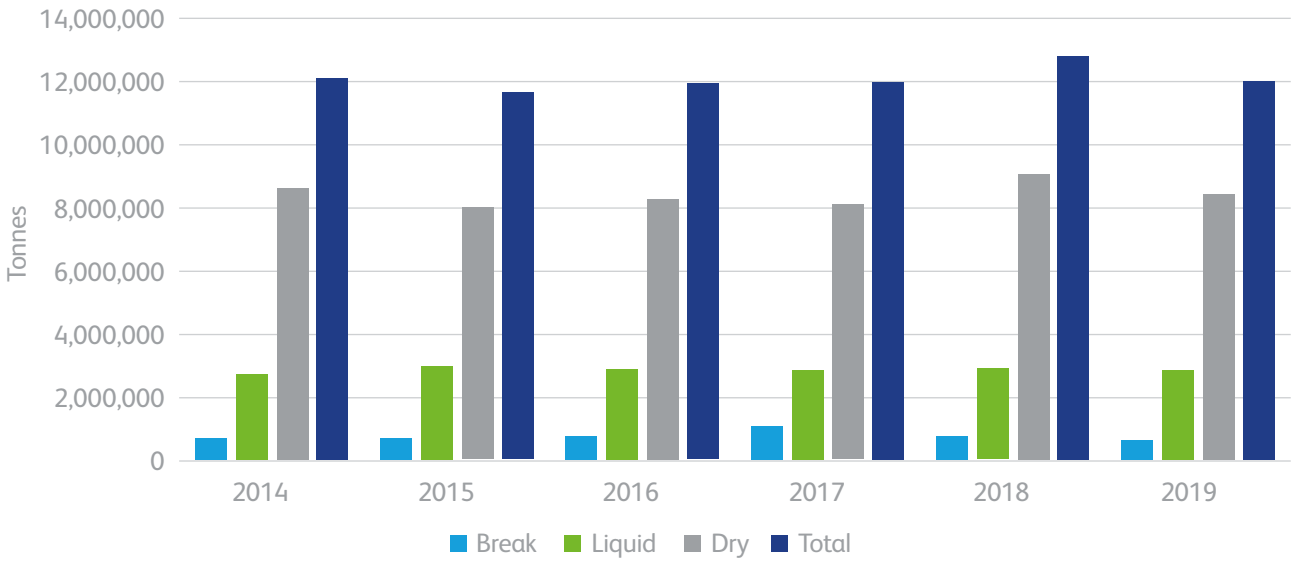
Source: *IMDO*

Figure 2: Ireland Bulk Market Shares 2019



Source: *IMDO*

Figure 3: Northern Ireland Liquid Bulk, Dry Bulk and Break Bulk Volumes 2014 - 2019



Source: *IMDO*

1.1A. Dry Bulk Market

Dry bulk traffic through Irish Ports decreased by 12% in 2019 to 15.4 million tonnes. Reflecting the analysis in Section 1.1, the overall drop in dry bulk volume was driven by declines at Ireland's Tier 1 ports; Cork, Dublin and Shannon Foynes. Combined, dry bulk throughput at these ports fell by 2 million tonnes. Across Northern Irish Ports, total Dry Bulk volumes fell by 7% to 8.4 million tonnes in 2019. The port of Larne noted a significant increase in 2019, while the remaining three ports; Belfast, Warrenpoint and Foyle, all recorded declines. On an all-island basis, dry bulk throughput fell by 11% in 2019, representing a decrease of just under 3 million tonnes compared to 2018.

Table 2: Dry Bulk Traffic 2019

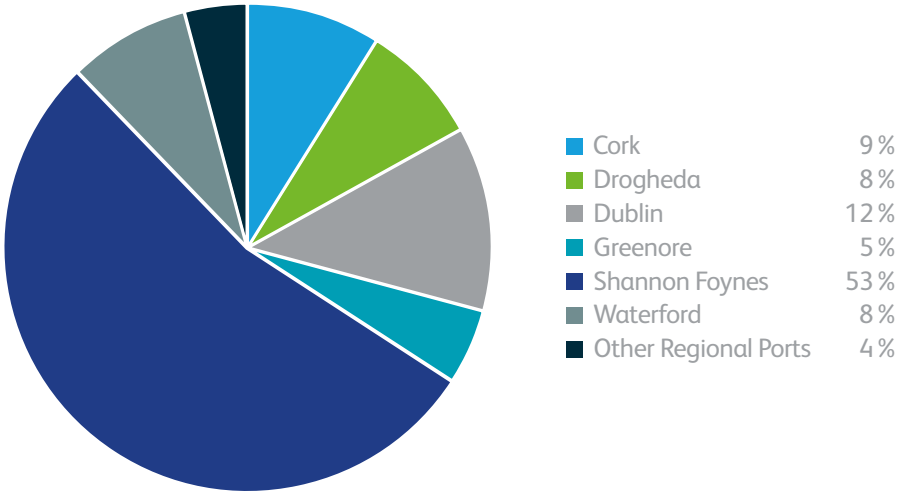
	2018		2019		Year-on-Year Change	
	Tonnes	% Share	Tonnes	% Share	%	Tonnes
Cork	1,880,040	11%	1,388,826	9%	-26%	-491,214
Drogheda	1,212,656	7%	1,236,587	8%	2%	23,931
Dublin	2,374,678	13%	1,819,969	12%	-23%	-554,709
Dundalk	37,320	0.2%	45,499	0.3%	22%	8,180
Galway	163,619	1%	169,427	1%	4%	5,809
Greenore	737,780	4%	827,432	5%	12%	89,651
New Ross	388,647	2%	358,728	2%	-8%	-29,919
Shannon Foynes	9,227,807	52%	8,209,640	53%	-11%	-1,018,168
Waterford	1,551,308	9%	1,306,014	8%	-12%	-245,294
Wicklow	16,764	0.1%	22,154	0.14%	32%	5,390
Waterford	1,701,579	5%	1,535,721	5%	-10%	-165,858
Total Ireland	**17,590,619**	**100%**	**15,384,275**	**100%**	**-12%**	**-2,206,344**
Belfast	7,047,324	78%	6,697,949	79%	-5%	-349,375
Foyle	1,344,728	15%	1,229,828	15%	-9%	-114,900
Larne	19,266	0.2%	58,078	1%	201%	38,812
Warrenpoint	654,621	7%	453,759	5%	-31%	-200,862
Total Northern Ireland	**9,065,939**	**100%**	**8,439,614**	**100%**	**-7%**	**-626,325**
All Island	**26,656,558**		**23,823,889**		**-11%**	**-2,832,669**

Source: *IMDO*

As for the flow of trade, imports accounted for 75% (11.6 million tonnes) of total dry bulk volumes in Ireland this year, reflecting Ireland's large tonnage trade imbalance with the rest of the world. Compared to 2018, Irish dry bulk imports fell by 14% (2 million tonnes).

When combined, dry bulk traffic through Cork, Dublin, Shannon Foynes and Waterford fell by approximately 2.3 million tonnes, with an average decline of 18% across all four ports. Reductions were steepest in Dublin and Cork, with both ports experiencing a 2% decline in dry bulk market share as a result (See Figure 4).

Figure 4: Ireland Dry Bulk Market Shares 2019



Source: *IMDO*

A large proportion of the dry bulk traffic declines in 2019 are attributable to the national fodder crisis which occurred in Ireland in 2017 and 2018. Supported by the Irish government, the crisis led to a surge in animal feed imports in order to subsidise Irish farmers and correct shortages. This distorted usual import trends for that year. As a result, volumes of animal feed in 2019 fell by roughly 1.4 million tonnes, a 20% decline compared to 2018.

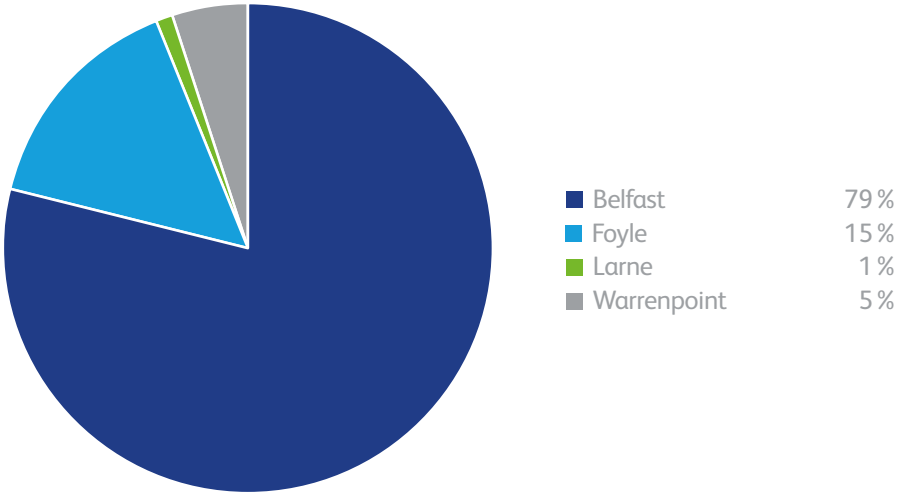
Elsewhere, the movement away from burning coal at the ESB Moneypoint power station in Co. Clare resulted in coal imports for the facility falling by 93%, or approximately 1 million tonnes, compared to 2018. The impact of this realignment was felt at Shannon Foynes Port Company, which recorded an average decline in dry bulk traffic of 10% in each quarter of 2019. Overall, dry bulk volumes through the port were 1 million tonnes (11%) less than in 2018.

The 8% decline in combined bulk traffic in 2019 through Irish ports, representing an approximate decline of 2.5 million tonnes, was therefore driven by the dry bulk market.

In Northern Ireland, imports made up 62% of the 8.4 million tonnes of dry bulk traffic recorded in 2019. Overall, dry bulk traffic in Northern Ireland fell by 7%, or 600,000 tonnes. Belfast accounted for 55% of this reduction, Warrenpoint for 32% and Foyle for 18%. Larne was the only port in Northern Ireland to record an increase in dry bulk traffic, offsetting some of the declines elsewhere.

Northern Irish ports account for 35% of all-island bulk traffic, while Irish ports account for 65%. However, of the 10% decline in dry bulk volume on the island of Ireland in 2019, Irish ports contributed 77% to that reduction, as opposed to Northern Irish ports contributing 23% (2.2 million tonnes Vs 600,000 tonnes). Figure 5 shows the market share held by each port in Northern Ireland for 2019.

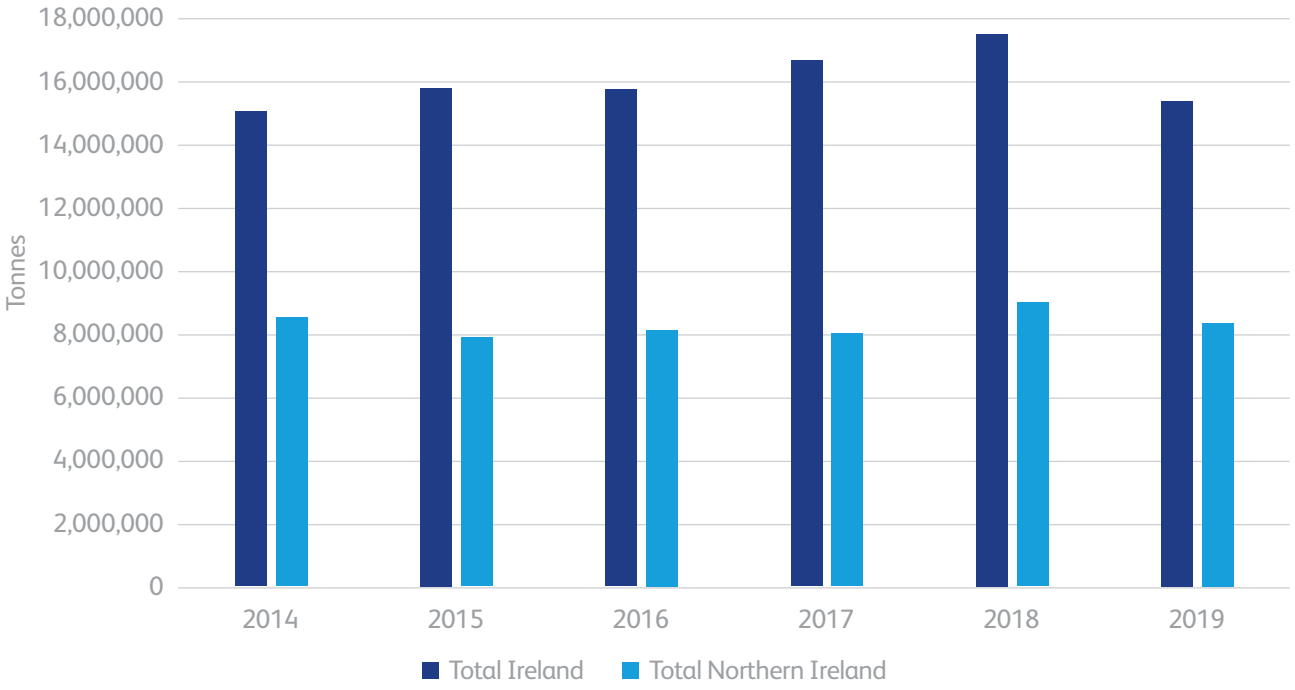
Figure 5: Northern Ireland Dry Bulk Market Shares 2019



Source: *IMDO*

Figure 6 below shows the annual dry bulk throughput in Ireland and Northern Ireland over the last 5 years:

Figure 6: Ireland & Northern Ireland Dry Bulk Traffic 2014 - 2019



Source: *IMDO*

1.1B. Liquid Bulk Market

Liquid bulk traffic in Ireland declined by 3% in 2019, or 400,000 tonnes. This relatively small decline was reflected in Northern Irish ports where tonnage remained almost unchanged, recording a 1% decline on 2018 (See Table 3). Dublin was the only port[2] to record an increase in liquid bulk traffic in 2019 but still remained largely unchanged, with volumes increasing by 1%.

Table 3: Liquid Bulk Traffic 2019

	2018		2019		Year-on-Year Change	
	Tonnes	% Share	Tonnes	% Share	%	Tonnes
Bantry Bay	548,020	4%	728,422	6%	33%	180,402
Cork	5,399,449	44%	4,940,346	42%	-9%	-459,103
Drogheda	35,677	0.3%	34,696	0.3%	-3%	-981
Dublin	4,621,640	38%	4,662,140	39%	1%	40,500
Galway	403,830	3%	368,350	3%	-9%	-35,480
Shannon Foynes	1,192,944	10%	1,072,064	9%	-10%	-120,880
Total Ireland	**12,201,559**	**100%**	**11,806,018**	**100%**	**-3%**	**-395,542**
Total Ireland Excl. Bantry Bay	**11,653,539**	**96%**	**11,077,596**	**94%**	**-5%**	**-575,944**
Belfast	2,362,747	81%	2,284,307	79%	-3%	-78,440
Foyle	542,101	19%	594,033	21%	10%	51,933
Larne	3,883	0.1%	4,301	0.1%	11%	418
Warrenpoint	10,719	0.4%	9,005	0.3%	-16%	-1,714
Total Northern Ireland	**2,919,450**	**100%**	**2,891,646**	**100%**	**-1%**	**-27,803**
All-Island	**15,121,009**	**100%**	**14,697,664**	**100%**	**-3%**	**-423,345**
All-Island Excl. Bantry Bay	**14,572,989**	**96%**	**13,969,242**	**95%**	**-4%**	**-603,747**

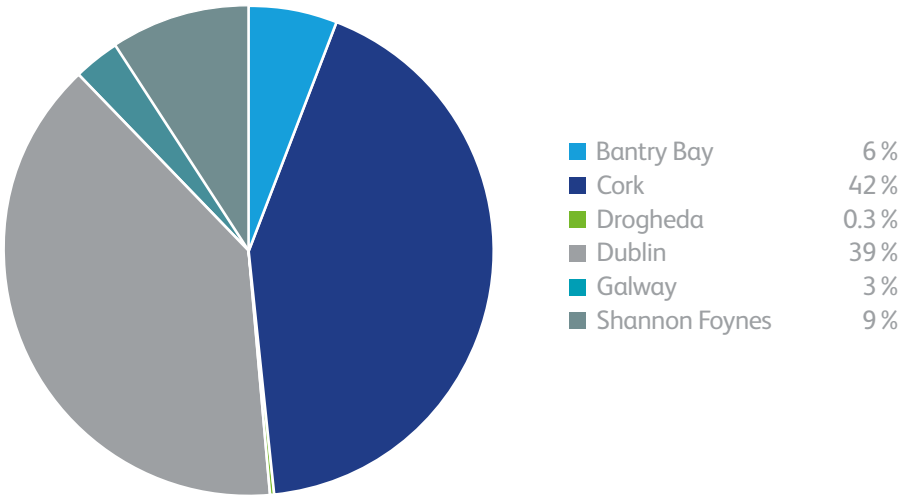
Source: *IMDO*

[2] Excluding Bantry Bay

Due to trans-shipment activity in Bantry Bay, removing this port's traffic provides a more accurate picture of the liquid bulk tonnage destined to remain in Ireland each year[3]. Once these trans-shipments are excluded, liquid bulk traffic through Irish ports fell by 5%, equivalent to 575,000 tonnes. 80% of this difference was due to declines registered at the Port of Cork, where liquid bulk dropped by 460,000 tonnes, or 9%. Despite this, Cork accounted for the largest share of liquid bulk volume in Ireland, with 42% (see figure 7). The ports of Dublin and Shannon Foynes had shares of 40% and 9% respectively in 2019. This means that Ireland's Tier 1 ports account for 90% of Irish trade in liquid fuels. On an all-island basis, liquid bulk fell by 4% in 2019.

Reflecting analysis set out in Section 1.1A, the Irish economy's large tonnage trade imbalance with the rest of the world is evident in this market segment, as 84% (9.3 million tonnes) of the liquid bulk market is represented by imports.

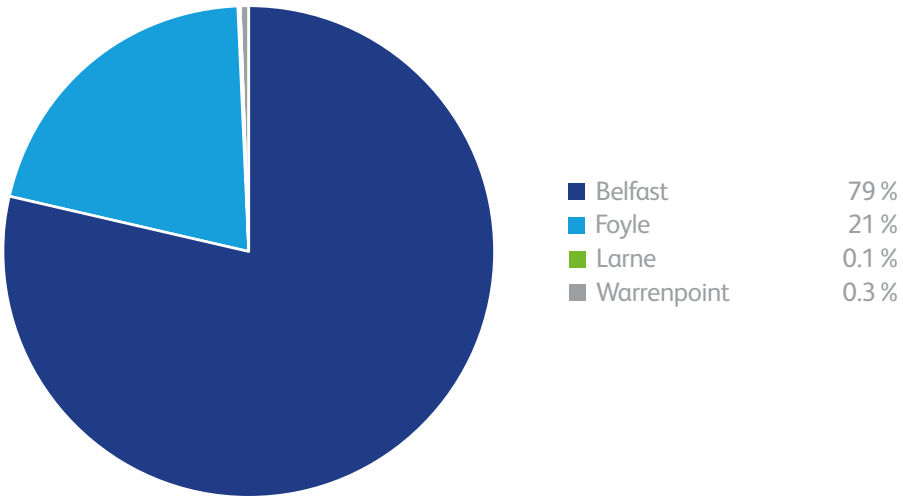
Figure 7: Ireland Liquid Bulk Market Shares 2019



Source: *IMDO*

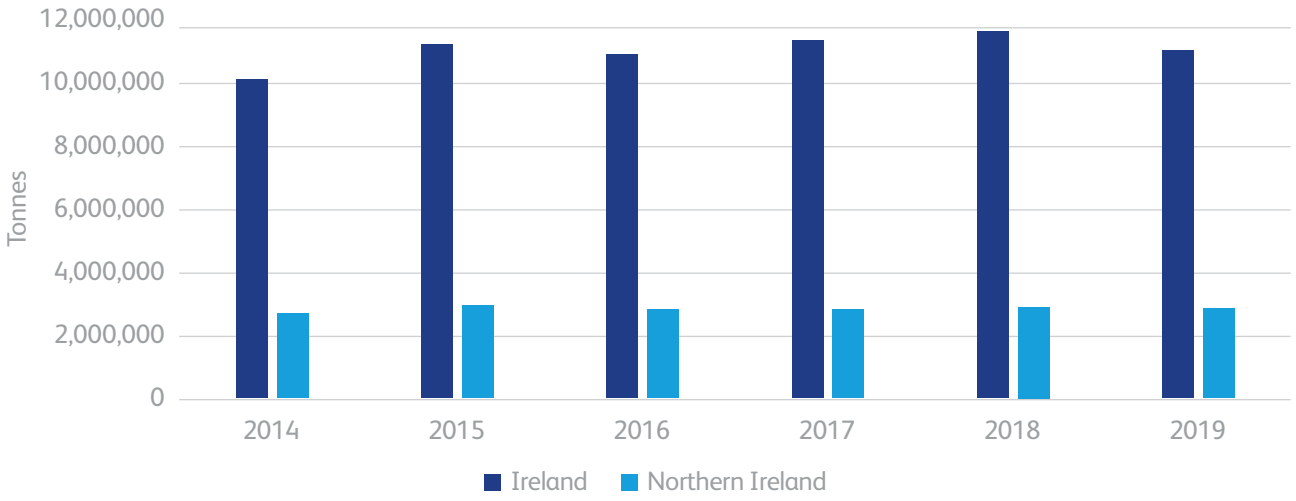
[3] Bantry Bay remains a key component of the National Oil Reserves Agency, a stand-alone state body under the aegis of the Department of Communications, Climate Action and Environment

Figure 8: Northern Ireland Liquid Bulk Market Shares 2019



Source: *IMDO*

Figure 9: Ireland & Northern Ireland Liquid Bulk Traffic 2014 – 2019



Source: *IMDO*

1.1C Break Bulk Market

Break bulk traffic through Irish ports increased by 4% to reach 1.6 million tonnes in 2019 (See Table 4). Notable successes this year include the Port of Cork, which has recorded significant growth in break bulk traffic in recent years. Volumes rose again in 2019, up by 5%.

Table 4: Break Bulk Traffic 2019

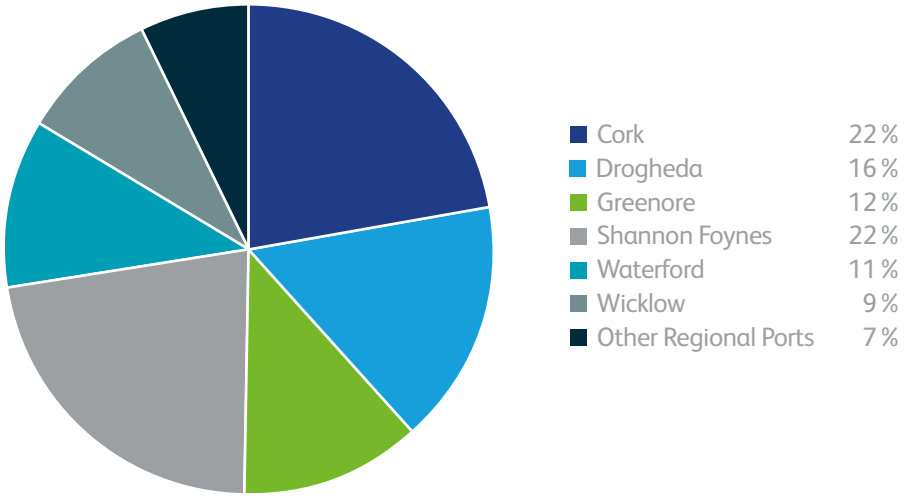
	2018		2019		Year-on-Year Change	
	Tonnes	% Share	Tonnes	% Share	%	Tonnes
Cork	337,184	22%	352,463	22%	5%	15,279
Drogheda	207,815	13%	259,159	16%	25%	51,344
Dublin	23,704	2%	17,102	1%	-28%	-6,602
Dundalk	75,123	5%	33,847	2%	-55%	-41,276
Galway	11,324	1%	8,141	1%	-28%	-3,183
Greenore	168,053	11%	199,355	12%	19%	31,303
Rosslare-Europort	19,202	1%	35,082	2%	83%	15,880
Shannon Foynes	298,980	19%	353,488	22%	18%	54,508
Waterford	150,270	10%	175,707	11%	17%	25,437
Wicklow	171,307	11%	150,354	9%	-12%	-20,953
Youghal	77,997	5%	10,570	1%	-86%	-67,427
Total Ireland	**1,540,959**	**100%**	**1,595,268**	**100%**	**4%**	**54,309**
Belfast	451,804	56%	317,715	47%	-30%	-134,089
Foyle	57,057	7%	60,915	9%	7%	3,858
Larne	22,197	3%	2,063	0.3%	-91%	-20,134
Warrenpoint	269,178	34%	295,293	44%	10%	26,115
Total Northern Ireland	**800,236**	**100%**	**675,986**	**100%**	**-16%**	**-124,250**
All-Island	**2,341,195**		**2,271,253**		**-3%**	**-69,941**

Source: *IMDO*

Break Bulk traffic consists of multi-purpose cargo, much of which involves construction & agricultural material. As construction activity continued to increase in Ireland in 2019, this positively impacted break bulk volumes at Irish ports. New dwelling completions grew by 18% compared to 2018, averaging 5,000 new dwellings per quarter[4] (CSO, 2020). In addition, the CSO's Production in Building and Construction Volume Index, an appropriate metric for the Irish break bulk sector, grew by 9.6% in 2019.[5] This measure has also averaged 11% growth since 2013, a positive indicator for break volumes.

Break bulk volumes through Northern Irish ports continued to decline however, down 16% in 2019 to 675,000 tonnes. This follows a 27% decrease in the same category in the previous year. Northern Ireland break volumes are predominantly through Belfast and Warrenpoint, which have shares of 47% and 44% respectively. Traffic through Belfast fell by 30%, or 130,000 tonnes, while volumes at Warrenpoint declined by 10%. As a result of these reductions through Northern Irish ports, all-island break bulk fell by 3% in 2019.

Figure 10: Ireland Break Bulk Market Shares 2019

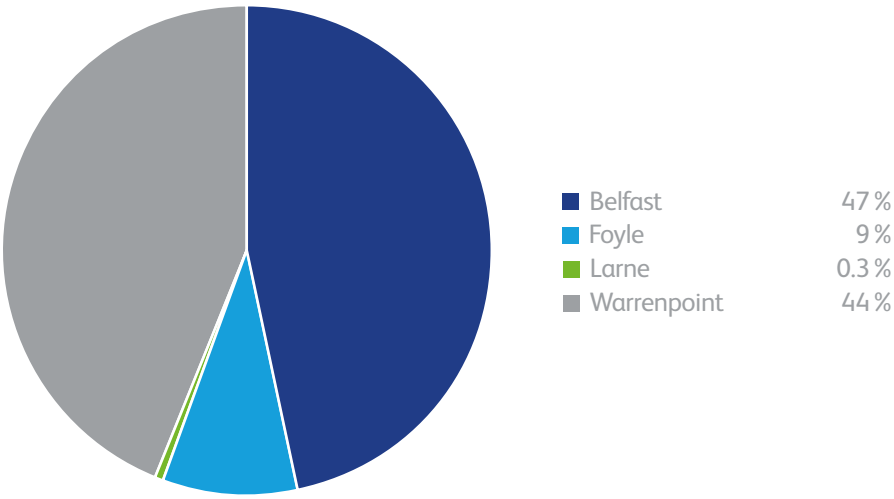


Source: *IMDO*

Figure 10 illustrates the market shares for break bulk volumes in Ireland. Cork, Shannon-Foynes and Drogheda remained the three most dominant handlers of break bulk in Ireland, accounting for 60%, or roughly 1 million tonnes of break traffic in 2019. Drogheda recorded a strong year for break bulk traffic, increasing throughput by over 50,000 tonnes (25%). As a result, Drogheda's Irish market share rose by 3%. Overall, the three largest break bulk ports in Ireland (Drogheda, Cork and Shannon Foynes) averaged 16% growth in 2019.

[4] CSO statistical release, 11 February 2020: New Dwelling Completions
[5] CSO statistical release, 06 March 2020: Production in Building and Construction Index

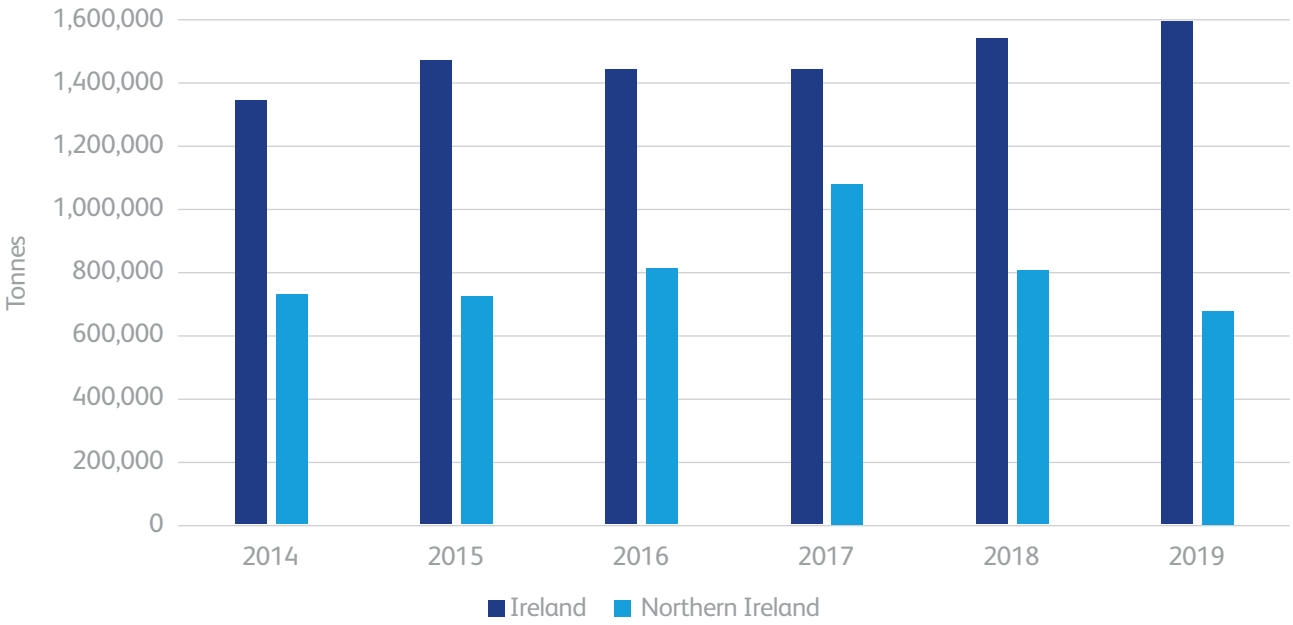
Figure 11: Northern Ireland Break Bulk Market Shares 2019



Source: *IMDO*

Figure 11 above provides the share of the break bulk market held by each port in Northern Ireland. Although Belfast Harbour remains the largest handler of break bulk traffic in Northern Ireland, a reduction of 135,000 tonnes caused its market share to fall from 56% to 47%.

Figure 12: Ireland & Northern Ireland Break Bulk Traffic 2014 – 2019



Source: *IMDO*

1.2 RoRo Market

Growth in 2019

RoRo traffic in Ireland rose by 2% in 2019 to just under 1.2 million RoRo units. This is the slowest rate of annual growth in the Irish market since 2011. However, annual RoRo traffic remains above 1 million units per year, a level first reached in 2015. RoRo traffic in Ireland is now approximately one third higher[6] than pre-2008 levels, marking a decade of strong growth in which this sector facilitated the Irish economic recovery.

The largest relative growth in 2019 occurred in the Port of Cork. 2,000 additional RoRo units passed through Cork this year, representing growth of 56% over 2018. In Dublin Port, which accounts for almost 90% of the Irish market, RoRo traffic grew by 27,000 units, equivalent to 3% growth. Rosslare was the only Irish port to record negative growth, declining by 5% in 2019, or approximately 6,500 units (See Table 5).

In Northern Ireland, RoRo traffic remained largely unchanged from 2018, rising by 0.2%. Like the Irish market, this is also the slowest rate of growth recorded since 2011. Belfast and Warrenpoint grew by 1% and 2% respectively, adding approximately 10,000 RoRo units when combined. Larne was the only port to record negative growth, declining by 4%, or 7,700 units.

Table 5 provides the total volume of RoRo freight units through ports in both Ireland and Northern Ireland in 2018 and 2019. Table 6 provides the same measurements, broken down by Accompanied and Unaccompanied traffic. Accompanied RoRo freight involves a commercial haulier moving goods to a port of departure by lorry, boarding the vessel to the destination port and then continuing with the goods to their final destination. Unaccompanied RoRo freight involves a haulier moving goods to a ferry port and leaving the goods for the ferry operator to transport to the destination port, where they are collected by a separate haulier and transported to their final destination.

Table 5: Ireland & Northern Ireland RoRo Freight Units 2018 - 2019

	2018	2019	Year-on-Year Change		
	RoRo Units	RoRo Units	%	RoRo Units	2019 Share
Cork	3,561	5,569	56%	2,008	0.5%
Dublin	1,031,897	1,059,103	3%	27,206	89%
Rosslare	128,414	122,095	-5%	-6,319	10%
Total Ireland	**1,163,872**	**1,186,767**	**2%**	**22,895**	**100%**
Belfast	548,035	555,410	1%	7,375	65%
Larne	200,394	192,678	-4%	-7,716	23%
Warrenpoint	101,472	103,852	2%	2,380	12%
Total Northern Ireland	**849,901**	**851,940**	**0.2%**	**2,039**	**42%**
Total All Island	**2,013,773**	**2,038,707**	**1%**	**24,934**	**100%**

Source: *IMDO*

[6] As per the IMDO's iShip RoRo index. See Section 1.6

Table 6: Ireland & Northern Ireland RoRo Freight Units 2018 - 2019: Accompanied & Unaccompanied Traffic

	Accompanied			Unaccompanied		
	2018	2019	% Change	2018	2019	% Change
Cork	2,844	3,861	36%	717	1,708	138%
Dublin	355,359	357,497	1%	676,538	701,606	4%
Rosslare	65,704	63,351	-4%	62,710	58,744	-6%
Total Ireland	**423,907**	**424,709**	**0.2%**	**739,965**	**762,058**	**3%**
Belfast	183,922	190,472	4%	364,113	364,938	0.2%
Larne	130,092	121,222	-7%	70,302	71,456	2%
Warrenpoint	7,870	7,916	1%	93,602	95,936	2%
Total Northern Ireland	**321,884**	**319,610**	**-1%**	**528,017**	**532,330**	**1%**
All-Island	**745,791**	**744,319**	**-0.2%**	**1,267,982**	**1,294,388**	**2%**

Source: *IMDO*

The growth in Irish RoRo traffic in 2019 was driven almost entirely by direct routes from Ireland to continental Europe (See Table 7). Ireland – EU RoRo traffic grew by 9% in 2019, adding approximately 4,000 units each quarter. Q1 2019 was the strongest quarter for all routes however, as a period of inventory stockpiling took place in anticipation of Britain's departure from the EU at the end of March. Total Q1 RoRo traffic rose by 9% compared to the same period in 2018. RoRo traffic growth after this point was relatively flat, with only Ireland – EU routes recording consistent growth throughout the year.

Table 7: Ireland & Northern Ireland RoRo Freight Units 2018 - 2019: Regional Destination

	2018	2019	Year-on-Year Change	
	RoRo Units	RoRo Units	%	RoRo Units
Ireland - UK	976,326	982,290	1%	5,964
Ireland - EU	187,546	204,477	9%	16,931
Northern Ireland - UK	849,901	851,940	0.2%	2,039
Ireland	1,163,872	1,185,767	2%	22,895
Northern Ireland	849,901	851,940	0.2%	2,039
All-Island	**2,013,773**	**2,038,707**	**1%**	**24,934**

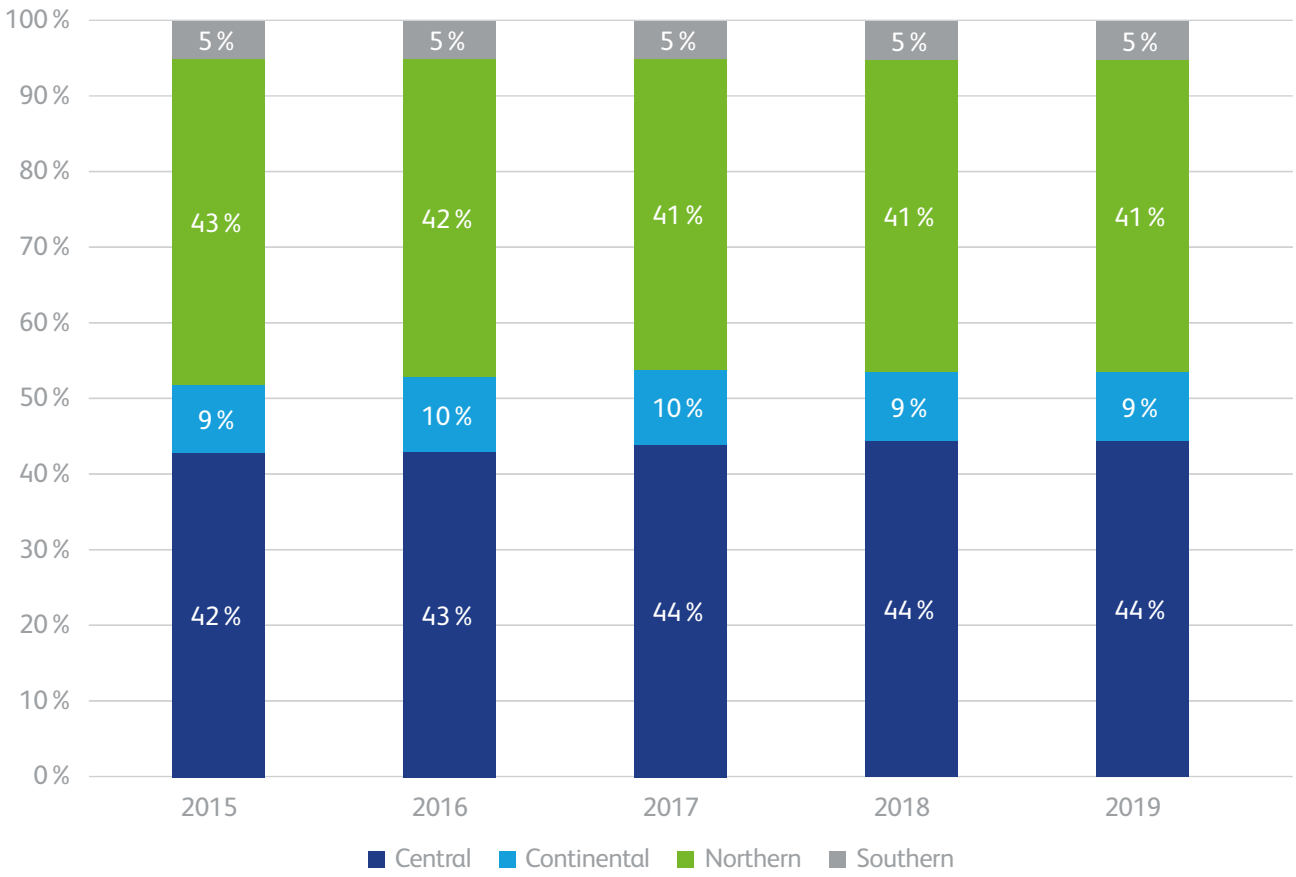
Source: *IMDO*

Market Shares

Figure 13 provides the market shares of each RoRo shipping corridor for the last five years. The central corridor includes RoRo freight and passenger routes from Dublin to the UK. Specifically, it involves routes from Dublin to Holyhead, Liverpool & Heysham. The southern corridor includes routes from Rosslare Europort to Fishguard & Pembroke in southern Wales. The continental corridor is comprised of RoRo freight and passenger routes from Dublin, Rosslare & Cork to continental EU ports in countries such as France, Spain, Belgium and The Netherlands. Finally, the northern corridor involves RoRo freight and passenger routes from Northern Irish ports (Belfast, Larne & Warrenpoint) to UK ports.

Despite the growth of direct continental routes in 2019, the market shares for each RoRo corridor remained largely unchanged this year (See Figure 13). Routes to Great Britain continue to make up 90 % of all Irish RoRo traffic from the island of Ireland.

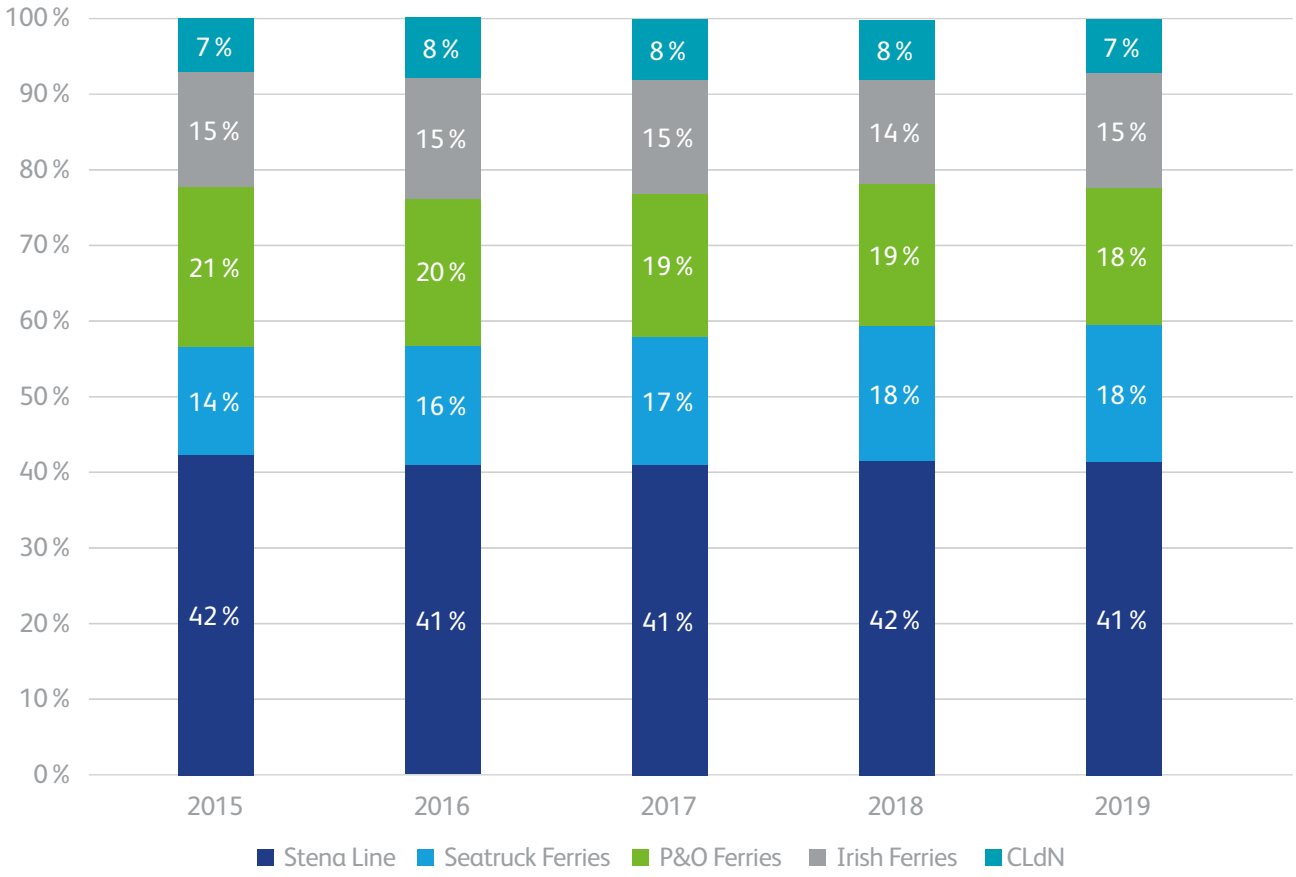
Figure 13: RoRo Shipping Corridors: Market Shares 2015 - 2019



Source: *IMDO*

Similar to the above, the market shares for each shipping operator also remained largely unchanged in 2019. Figure 14 illustrates the market shares for each of the five main shipping operators in the all-island market since 2015. During that time, Seatruck have recorded the largest relative increase in market share, rising from 14 % to 18 % of the all-island market.

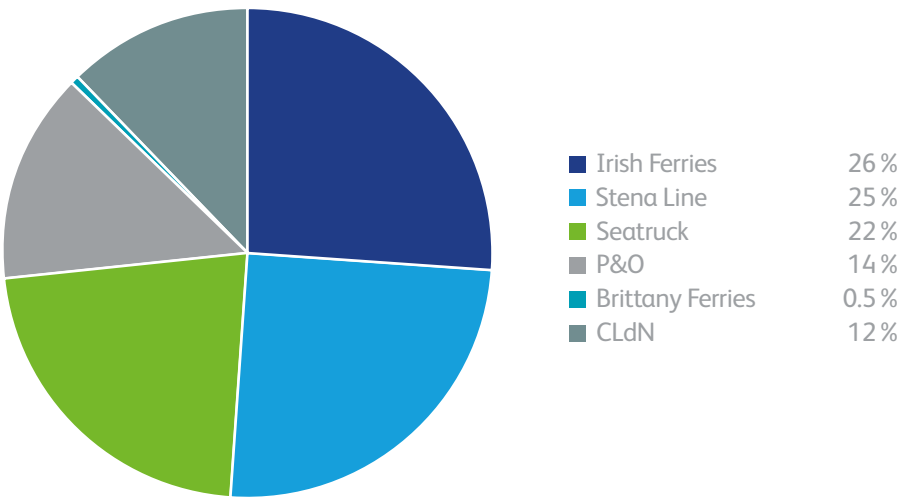
Figure 14: RoRo Shipping Operators: Market Shares 2015 - 2019



Source: *IMDO*

Figure 15 illustrates the market shares for the six main shipping operators in the Irish market only. In this market, Irish Ferries, Stena Line and Seatruck accounted for approximately three quarters of RoRo traffic this year.

Figure 15: RoRo Shipping Operators: Irish Market Shares 2019



Source: *IMDO*

A Decade of Recovery

Unitised trade, which includes both the RoRo and LoLo shipping sectors, is largely comprised of finished goods that are further along the value chain than the raw materials carried in the three bulk sectors. Demand for RoRo services is therefore derived from the aggregate demand for merchandise trade goods in both the Irish economy and the economies of Ireland's largest trading partners[7].

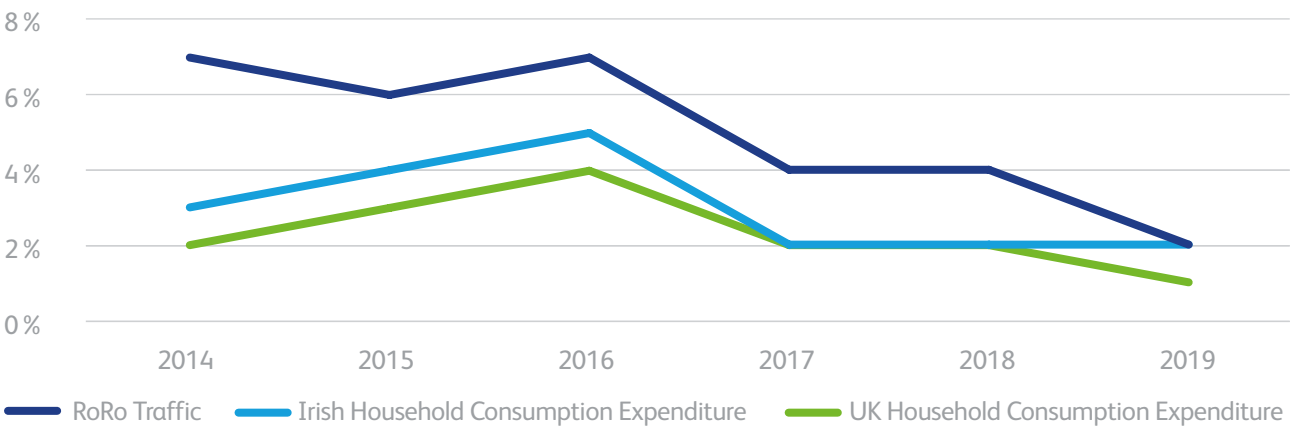
This is evident when the growth of the Irish RoRo market in the years since the 2008 global economic downturn is considered. Growth in the Irish RoRo market occurred alongside the recovery of Irish economic demand from that period of recession after 2008. Between 2009 and 2013, Irish RoRo traffic averaged 1% growth per year. From 2014 – 2019, it averaged 5% annual growth. This follows the pattern of Ireland's return to robust economic growth that occurred in the latter half of the decade.

However, the pace of that recovery has begun to slow over the last three years. Annual growth in RoRo traffic between 2014 and 2016 had averaged 6%. Between 2017 and 2019, that growth slowed to an average of 3%. A similar pattern was exhibited in Northern Irish RoRo traffic. In the first half of the decade (2009 – 2013), annual RoRo traffic averaged a 2% decline. From 2014 – 2019, annual traffic averaged 2.2% growth, with the highest growth rates occurring between 2014 and 2016.

These lower levels of RoRo traffic growth were driven in part by slowing economic growth across Europe, including some of Ireland's main international trading partners. For example, real GDP in Germany, Belgium and France was lower in 2019 than the previous four years. In the UK, real GDP has averaged approximately 1.5% annual growth since 2016.

Figure 16 places the annual growth rate of Irish RoRo traffic alongside the annual growth rate of household consumption in Ireland and the UK. The expenditure of households on personal consumption provides an effective insight into the determinants of Irish RoRo trade, as it is comprised of items such as food, clothing, medical products etc. In addition, the UK is one of Ireland's main trading partners, and as such, its domestic consumption is a significant driver of Irish RoRo trade. In can be seen in Figure 16 that Irish RoRo traffic and household consumption in the UK and Ireland exhibit similar trends.

Figure 16: Ireland & UK Household Consumption Vs Irish RoRo Freight Volume: Growth Rates 2014 - 2019



Source: *IMDO & Eurostat*

[7] The relationship between the Irish RoRo freight market and economic growth is expanded upon in detail in Sections 2 and 3.

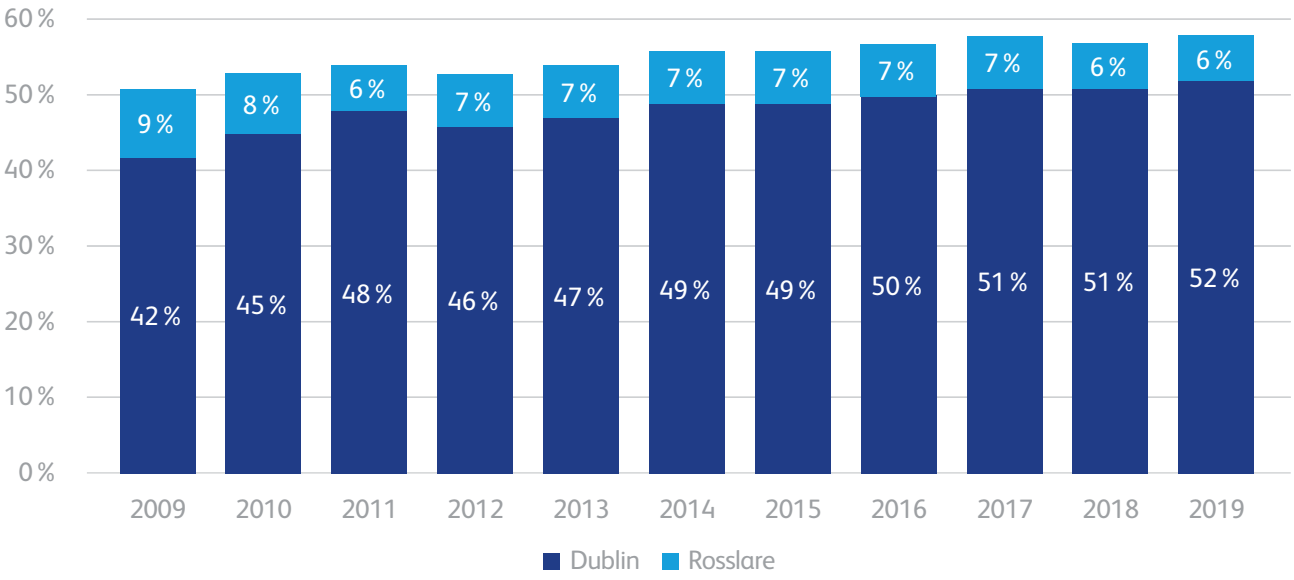
Market Concentration

Over the course of the Irish economic recovery in the latter half of the decade, Irish RoRo volumes have become more concentrated in larger ports. A similar trend occurred in Belfast Harbour, the largest port in Northern Ireland. The changes in all-island port shares of RoRo traffic is illustrated in Figures 17 to 19.

Between 2009 and 2019, Dublin Port grew its share of all-island RoRo traffic from 42% to 52%[8]. Belfast's share of all-island traffic also grew from 20% to 27%. This 17% increase across both ports came at the expense of regional ports such as the Port of Larne and Rosslare Europort. Larne recorded the steepest decline in market share. In 2009, Larne was the largest RoRo port in Northern Ireland, with 24% of all-island traffic. By 2019, that had fallen to 9%. Rosslare Europort's market share fell from 9% in 2009 to 6% in 2019. As a result of these changes, Ireland's share of all-island traffic rose by 7% over the decade (see Figure 19), driven entirely by growth in Dublin Port.

These changes reflect a broader trend in Irish ports since the 2008 economic downturn. Since that point, growth across all sectors of the Irish shipping industry has been largely concentrated among Ireland's Tier 1 ports; Dublin Port, The Port of Cork and Shannon Foynes Port Company. Within Ireland, Dublin's share of Irish RoRo traffic grew from 80% to 89% between 2009 and 2019. During the same period, Rosslare's share of Irish RoRo traffic fell from 18% to 10%.

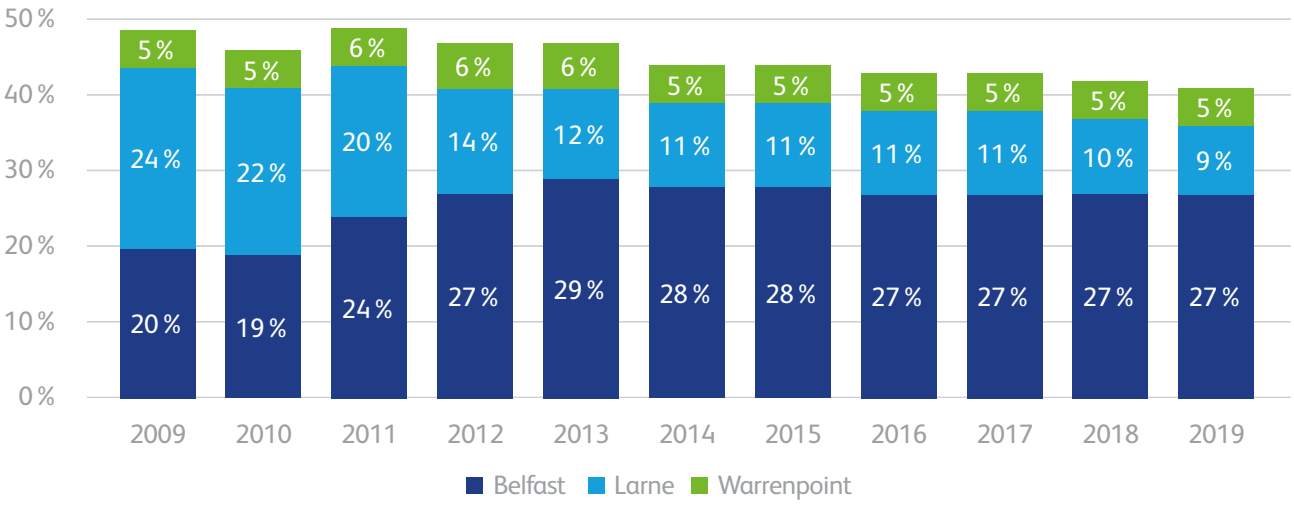
Figure 17: All-Island RoRo Traffic Market Shares: Dublin Port & Rosslare Europort 2009 - 2019



Source: *IMDO*

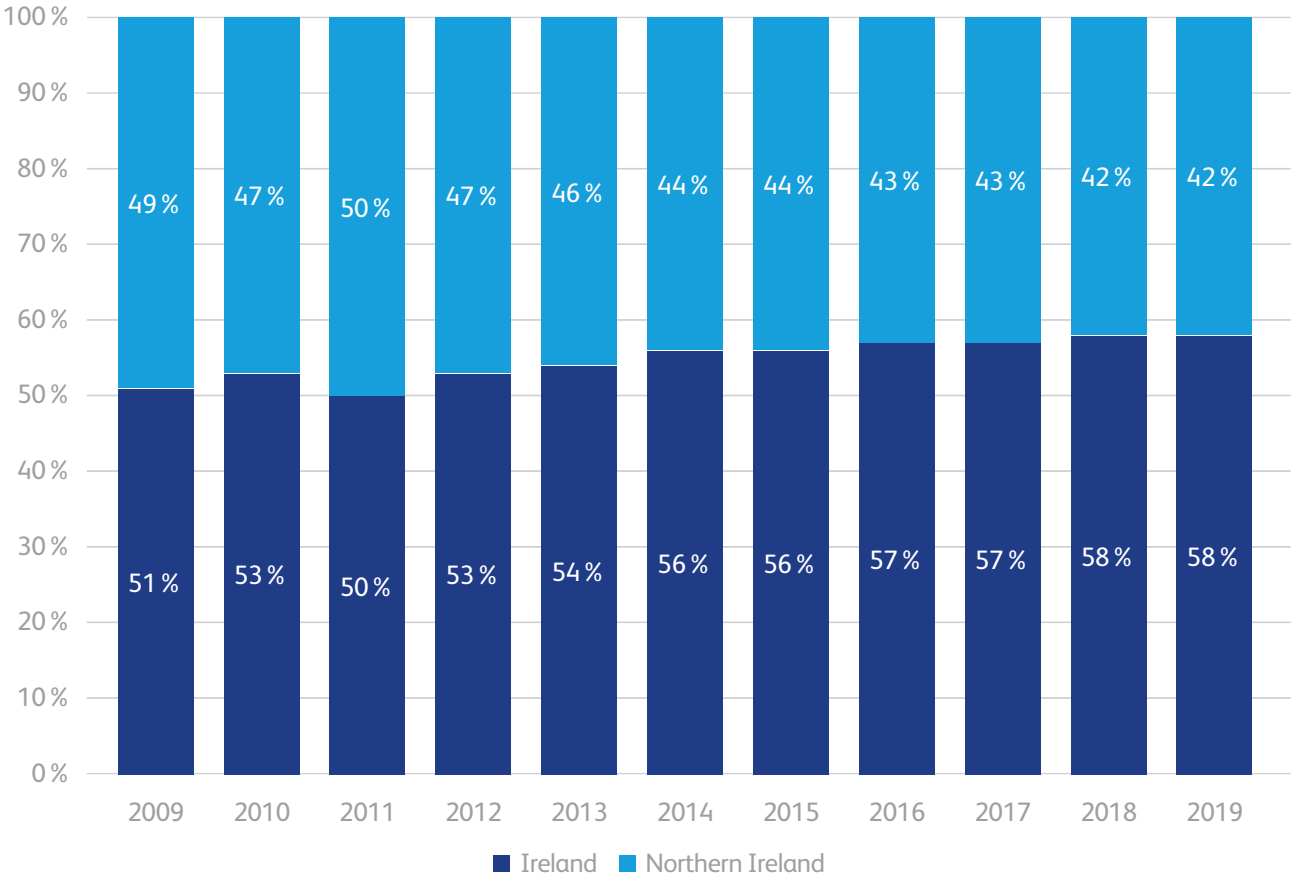
[8] The Port of Cork also increased its market share from 0% to 0.5%.

Figure 18: All-Island RoRo Traffic Market Shares: Northern Irish Ports 2009 - 2019



Source: *IMDO*

Figure 19: All-Island RoRo Traffic Market Shares: Ireland and Northern Ireland 2009 - 2019

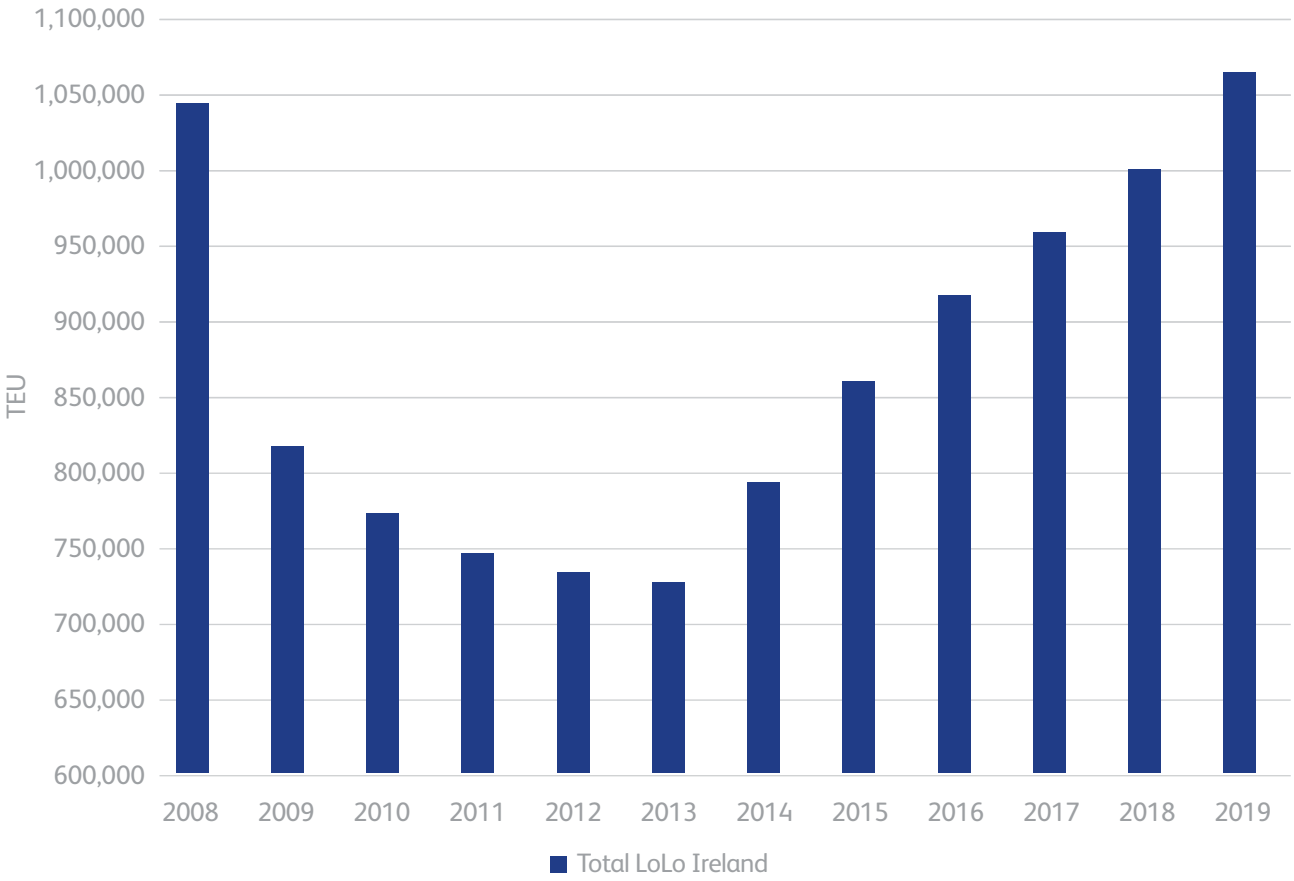


Source: *IMDO*

1.3 LoLo Market

A significant milestone was reached in 2019 as the total number of TEU's through Irish ports, both laden and unladen, surpassed 1 million for the first time since 2008. Over the course of the decade the Irish LoLo market followed a V-shaped trend, with conflicting fortunes between the first and second halves. From 2009–2013, annual growth in TEU's averaged a 7% decline, with a median decline of 3%. The opposite trend has existed since that point, with annual growth in TEU's from 2014 - 2019 averaging 7%, with a median growth rate of 6% (See Figure 20). 2019 became the first year therefore, that total throughput has reached the annual levels recorded before the slowdown which began in 2008.

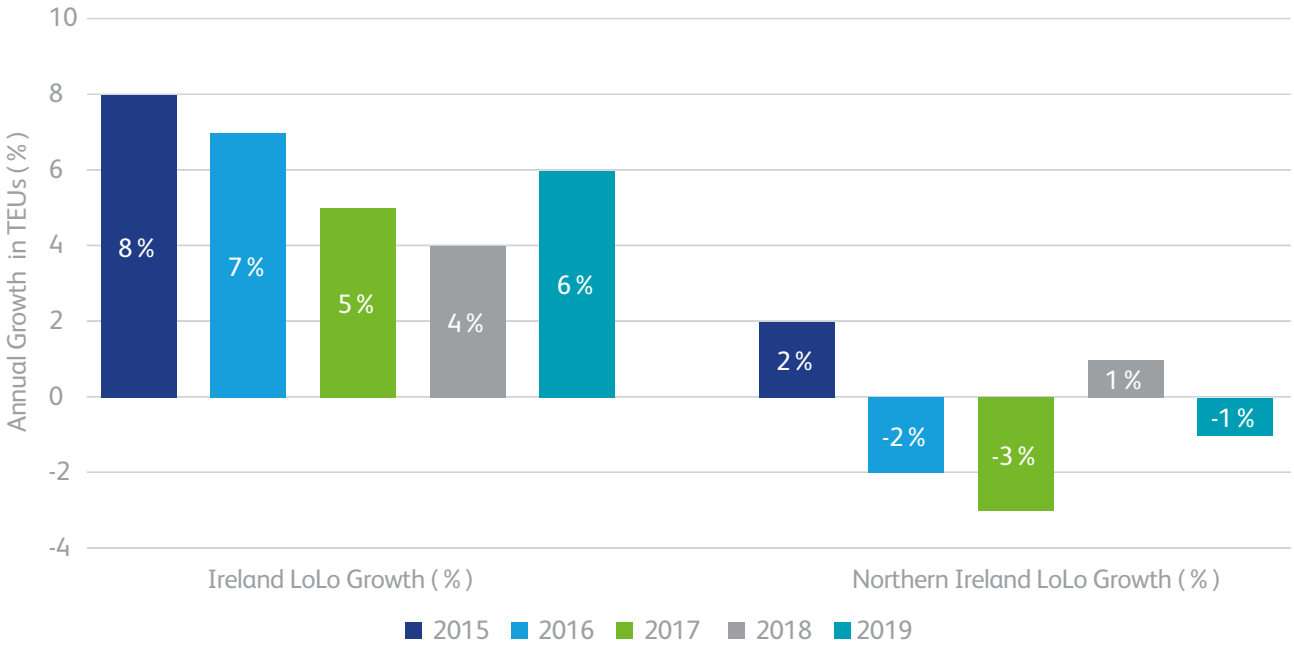
Figure 20: Annual LoLo Volume, Laden & Unladen: Ireland 2009 - 2019 (TEUs)



Source: *IMDO*

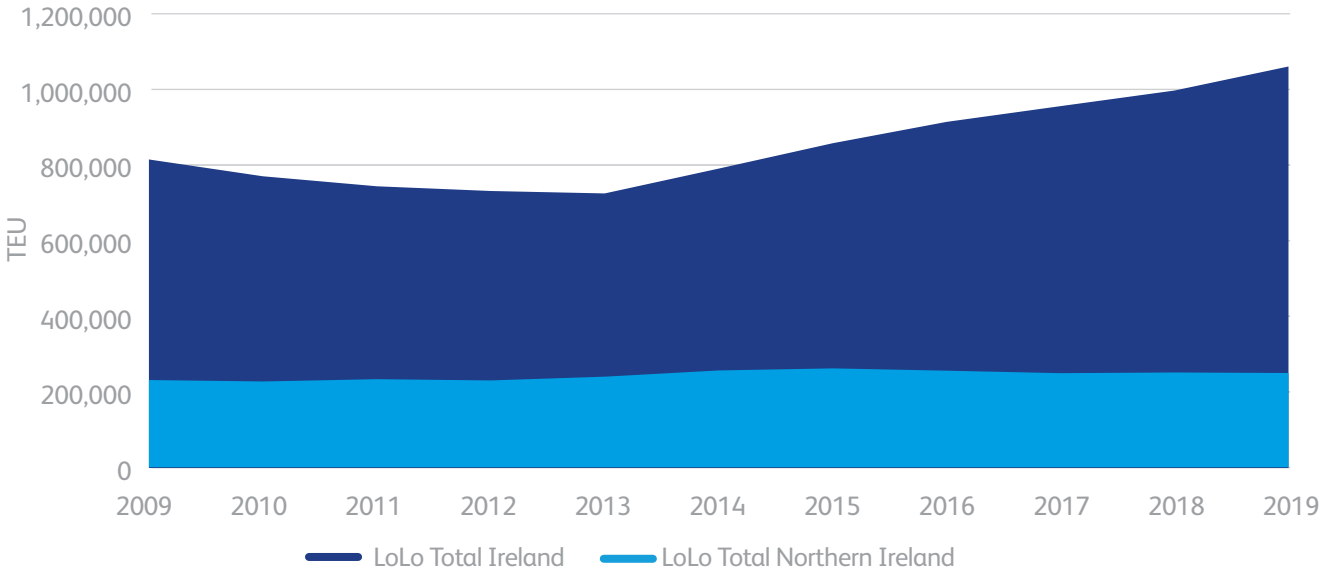
Similar patterns over the course of the last decade were not experienced in Northern Ireland however. Median growth in annual TEU's through ports in Northern Ireland was just 0.1% between 2010 and 2019. Specifically, performance in the first and second halves of the decade were similarly subdued. Growth between 2010 and 2014 averaged 2% per year, and from 2015–2019 averaged -1% per year. LoLo traffic ranged between approximately 230,000 and 260,000 TEU's between 2009 and 2019. At 249,000 TEU's, 2019's total LoLo throughput in Northern Ireland was almost exactly at the mid point of this range. Figures 21 and 22 illustrate the contrasting fortunes between LoLo traffic in Irish and Northern Irish ports in recent years.

Figure 21: Ireland & Northern Ireland LoLo Growth 2015 - 2019



Source: *IMDO*

Figure 22: Annual LoLo TEUs: Ireland & Northern Ireland 2009 - 2019



Source: *IMDO & Eurostat*

Since 2009, Dublin Port has increased its share of the all-island LoLo market by 7%, from 52% to 59%. The Port of Cork has also increased its share from 14% to 18%. During the same period, Northern Irish ports' share of all-island LoLo traffic has fallen by 3%, from 22% to 19%. Since the economic downturn of 2008, Irish Tier 1 ports[9] have experienced greater concentrations of maritime trade. This can explain some, though not all, of the subdued LoLo growth in Northern Irish ports in recent years.

Britain's departure from the EU however, has the potential to disrupt patterns of maritime trade on the island of Ireland. The LoLo market almost exclusively represents direct services from Ireland to continental Europe. Brexit has created a period of heightened uncertainty surrounding trading conditions across the UK Landbridge, the fastest route to continental European markets for Irish traders. Concerns of delays and backlogs due to additional customs requirements has meant that greater emphasis may have been placed on direct continental shipping services from Ireland in recent years. As a result, the IMDO has monitored this sector of the Irish shipping market closely. At present, the drivers of strong growth within this sector cannot be separated from buoyant national consumer demand. In other words, such growth cannot be attributed solely to a change in Irish trade patterns towards direct services to continental Europe. As an example, the proposed date for Britain's departure for the EU was March 29th 2019, at the end of Q1. Due to uncertainty regarding future trading conditions, a period of inventory stockpiling was evident across many Irish industries. This was reflected in the Irish RoRo market for Q1, as outlined in Section 1.2. In Q1 2019, the Irish LoLo market grew by 8%, just 2% higher than the average for the previous four years (see Figure 23). This reflects the difficulty in disentangling Irish LoLo market strength from changing supply chain patterns brought about by Brexit preparations.

Figure 23: Irish LoLo Volumes in Q1: 2015 - 2019 (TEUs)

LoLo TEU's in Q1	Q1 2015	Q1 2016	Q1 2017	Q1 2018	Q1 2019
Total Ireland - Laden & Unladen	205,057	222,592	225,025	239,393	258,318
Annual Percentage Change	8%	9%	1%	6%	8%

Source: *IMDO*

LoLo in 2019: Laden & Unladen

As presented in Table 8, total LoLo traffic through Irish ports grew by 6% in 2019. This was predominantly driven by an additional 48,000 TEU's through Dublin Port, which handles approximately three quarters of Irish LoLo trade. Robust growth was also recorded in the ports of Cork and Waterford.

In Northern Ireland, total LoLo traffic declined by 1% despite Belfast Harbour adding approximately 6,000 TEU's in 2019, equivalent to 3% growth. Belfast currently represents 93% of all Northern Ireland LoLo traffic. Warrenpoint accounts for the remaining 7% share, and LoLo traffic through Warrenpoint declined by one third in 2019, equivalent to 7,200 TEU's. On an all-island basis, LoLo traffic grew by 5%.

[9] Ireland's Tier 1 ports comprise: Dublin Port, The Port of Cork and Shannon Foynes Port Company.

Table 8: Laden & Unladen LoLo Port Traffic: 2018 - 2019 (TEUs)

	2018		2019		Year-on-Year Change	
	TEU's	% Share	TEU's	% Share	%	TEU's
Cork	229,762	23%	240,186	23%	5%	10,424
Dublin	726,212	73%	774,056	73%	7%	47,844
Waterford	43,943	4%	49,348	5%	12%	5,405
Total Ireland	**999,916**	**100%**	**1,063,589**	**100%**	**6%**	**63,673**
Belfast	224,166	90%	231,407	93%	3%	5,888
Warrenpoint	25,848	10%	17,200	7%	-33%	-7,299
Total Northern Ireland	**250,014**	**100%**	**248,607**	**100%**	**-1%**	**-1,411**
Total All-Island	**1,249,930**		**1,312,196**		**5%**	**62,266**

Source: *IMDO*

Laden

Just over 800,000 laden TEU's passed through Irish ports in 2019, an increase of 6% compared to 2018. This represents the sixth consecutive year of growth in laden TEU's at Irish ports. In Northern Ireland, Laden TEU's remained largely unchanged, declining by 1%. On an all-island basis, total laden traffic rose by 5% to just under 1 million TEU's (See Table 9).

Figures 24 and 25 illustrate the annual growth in laden imports and exports in Ireland and Northern Ireland, respectively. The trends evident in these figures reflect the above analysis that Irish LoLo traffic has recorded strong annual growth in recent years, whereas Northern Ireland's total LoLo growth has remained relatively flat.

In 2019, laden exports accounted for 45% of total laden trade in both Ireland and Northern Ireland, reflecting the tonnage trade imbalance that both regions have with global trading partners. In Ireland, laden exports rose by 8% in 2019. This included an 8% increase in Dublin, 7% in Cork and 15% in Waterford. In Northern Ireland, laden exports declined by 3% overall. Irish laden imports rose by 5% in 2019, which is consistent with growth recorded over the past five years. Northern Irish laden imports grew by 1%.

Unladen

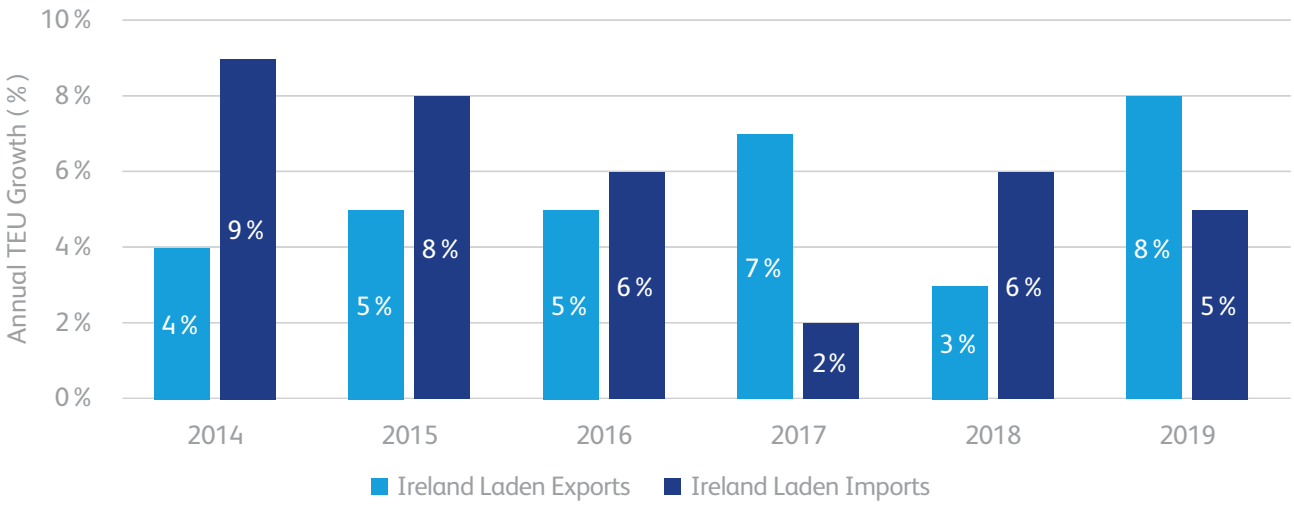
Unladen LoLo traffic increased by 8% in Ireland and 6% in Northern Ireland (see Table 10). On an all-island basis, the expansion was 8%, equivalent to 22,000 TEU's. Waterford and Warrenpoint recorded the greatest relative increases, with a rise of 27% and 34% respectively.

Table 9: Laden LoLo Port Traffic: 2018 - 2019 (TEUs)

	2018		2019		Year-on-Year Change	
	TEU's	% Share	TEU's	% Share	%	TEU's
Cork	177,801	19%	186,918	19%	5%	9,117
Dublin	555,263	58%	589,133	59%	6%	33,871
Waterford	30,798	3%	32,619	3%	6%	1,821
Total Ireland	**763,862**	**100%**	**808,670**	**100%**	**6%**	**44,808**
Belfast	167,910	18%	173,798	17%	4%	5,888
Warrenpoint	18,285	2%	10,986	1%	-40%	-7,299
Total Northern Ireland	**186,195**	**100%**	**184,784**	**100%**	**-1%**	**-1,411**
Total All-Island	**950,057**		**993,453**		**5%**	**43,397**

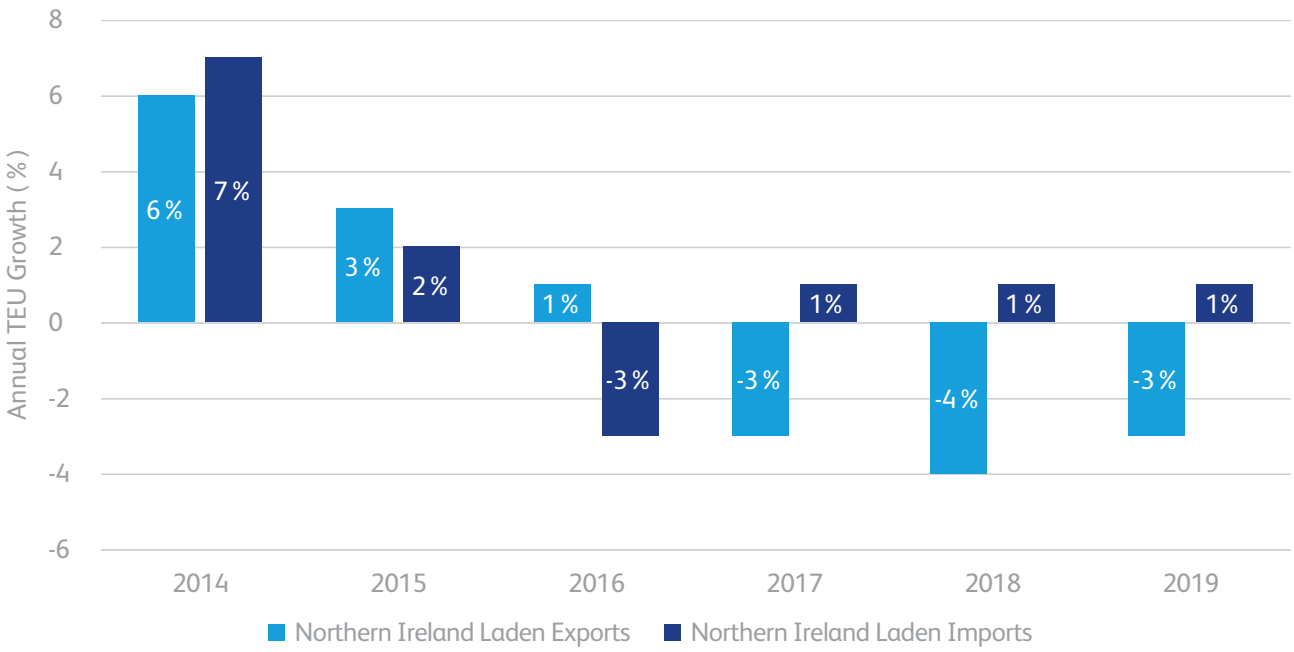
Source: *IMDO*

Figure 24: Laden Imports & Exports: Annual TEU Growth (%) Ireland 2014 - 2019



Source: *IMDO*

Figure 25: Laden Imports & Exports: Annual TEU Growth (%) Northern Ireland 2014 - 2019



Source: *IMDO*

Table 10: Unladen Port Traffic: 2018 - 2019 (TEUs)

	2018	2019	Year-on-Year Change		
Port	TEU's	TEU's	%	TEU's	2019 Share
Cork	51,960	53,268	3%	1,308	21%
Dublin	170,949	184,923	8%	13,974	73%
Waterford	13,145	16,729	27%	3,584	7%
Total Ireland	**236,054**	**254,919**	**8%**	**18,865**	**100%**
Belfast	56,256	57,610	2%	1,354	85%
Warrenpoint	7,563	10,133	34%	2,570	15%
Total Northern Ireland	**63,819**	**67,742**	**6%**	**3,923**	**100%**
Total All Island	**299,873**	**322,661**	**8%**	**22,788**	**100%**

Source: *IMDO*

1.4 Passenger Market

4.25 million tourist passengers transited through ports on the island of Ireland in 2019. This represents a 2% decline compared to 2018, equivalent to 92,000 fewer passengers. Approximately 2.5 million passengers passed through Dublin Port, Rosslare Europort and The Port of Cork, a 5% decline compared 2018, or 130,000 fewer passengers.

In Dublin Port, passenger volumes increased by 6% in 2019, or 100,000 passengers. The Port of Cork's passenger numbers remained largely unchanged from 2018, rising by 1%, or 1,270 passengers. However, Cork's passenger numbers rose by approximately 35% in 2018 with the addition of a new continental service to Bilbao. Between 2008 and 2017, the Port of Cork averaged approximately 90,000 passengers per year. This has risen to roughly 112,000 since 2018. Passenger throughput in Rosslare Europort declined in 2019 by 29%, driven largely by the discontinuation of two services to Northern France. Rosslare Europort represented 14% of the all-island passenger market in 2019, having held a 19% share on average between 2009 and 2018.

In Northern Ireland, approximately 1.8 million passengers passed through the ports of Belfast and Larne. This represents a 2% increase over 2018, equivalent to an additional 39,000 passengers. Belfast drove all of this growth, with volumes through the port rising by 5%, adding 74,000 passengers. This was offset by a 9% decline in volumes through the Port of Larne, which recorded roughly 35,000 fewer passengers.

A summary of the performance of each port is provided in Table 11.

Table 11: All-Island Passenger Market 2019

Port	2019 Passenger Volume	2019 Annual Growth (%)	2019 All-island Share (%)	Average Volume 2009 - 2019	Average Share (%) 2009 - 2019
Dublin	1,778,698	6%	42%	1,632,521	37%
Rosslare	581,613	-29%	14%	854,024	19%
Cork	113,346	1%	3%	95,142	2%
Befast	1,417,586	5%	33%	1,244,827	28%
Larne	357,174	-9%	8%	532,335	12%

Source: *IMDO*

Passenger Travel through the Decade

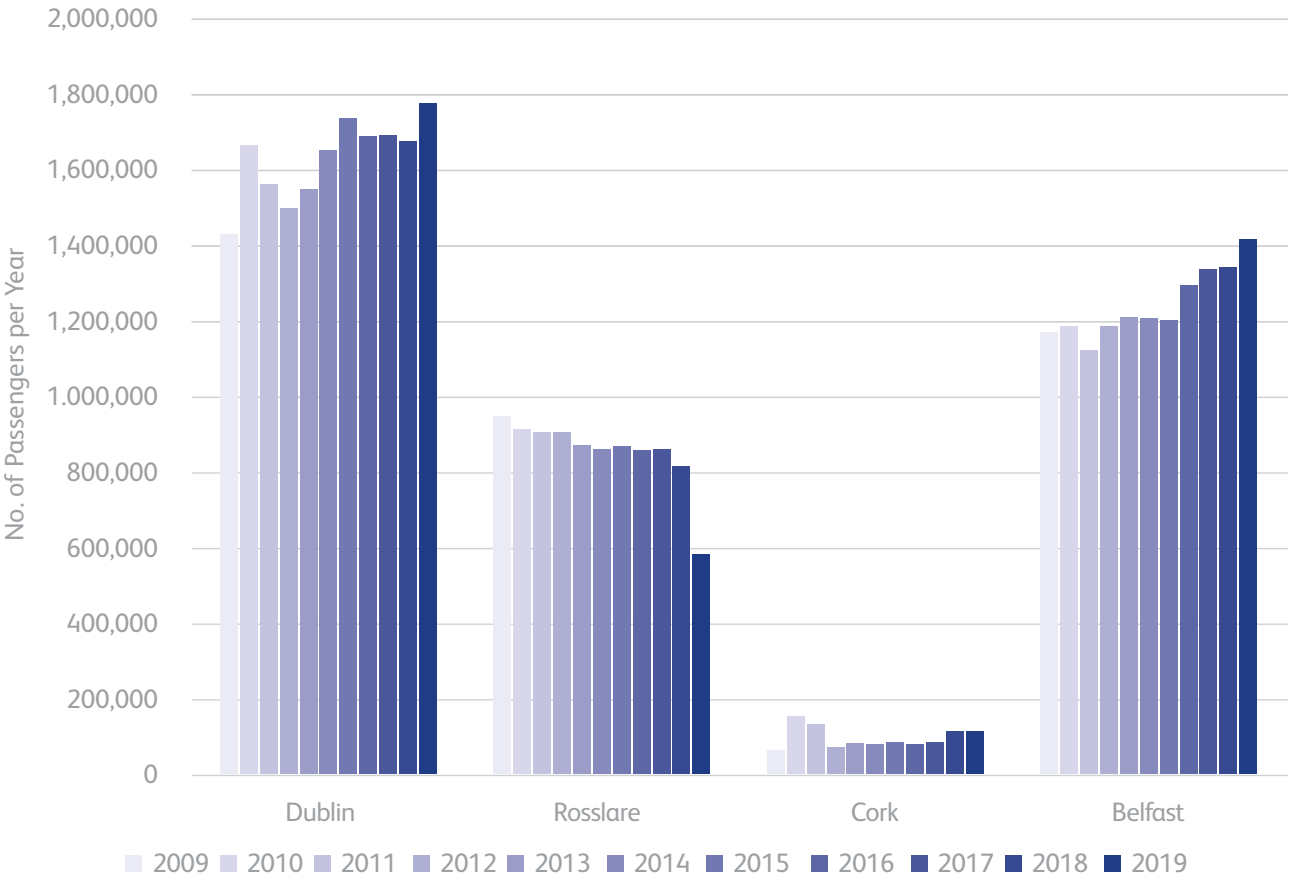
Figure 26 illustrates the volume of passengers transiting through the ports of Dublin, Rosslare Europort, Cork and Belfast between 2009 and 2019.

As is evident in Figure 26, over the course of the decade, Dublin Port was the largest passenger port on the island of Ireland with an average of roughly 1.6m passengers per year. In 2019, Dublin Port recorded its highest passenger throughput of the decade, with a total of approximately 1.8m passengers. This 2019 total is 10% above the ports average volume for the previous 10 years, and brings Dublin Port's share of all-island passenger traffic to 42%, an increase over the 36% share held on average between 2009 and 2018. Lastly, Dublin Port carried almost 350,000 extra passengers in 2019 compared to 2009 and has averaged an annual growth rate of 4% during that time.

Annual passenger throughput in Rosslare Europort has recorded a downward trajectory since 2009. The discontinuation of continental services to Northern France in 2019 drove the ports steepest annual decline of the decade (-29%). At approximately 582,000 tourist passengers, 2019 passenger volumes in Rosslare Europort were 34% below the annual average of 880,000 recorded over the previous 10 years. Excluding the steep decline in 2019, passenger volumes averaged a 2% decline on average between 2009 and 2018.

Passenger volumes through the Port of Cork exhibited slightly greater variation over the course of the decade compared to the other listed ports. In all, the port handled 84% more passengers in 2019 than in 2009, and during that time, averaged just under 100,000 passengers per year.

Figure 26: Annual Passenger Volume by Port: 2009 – 2019



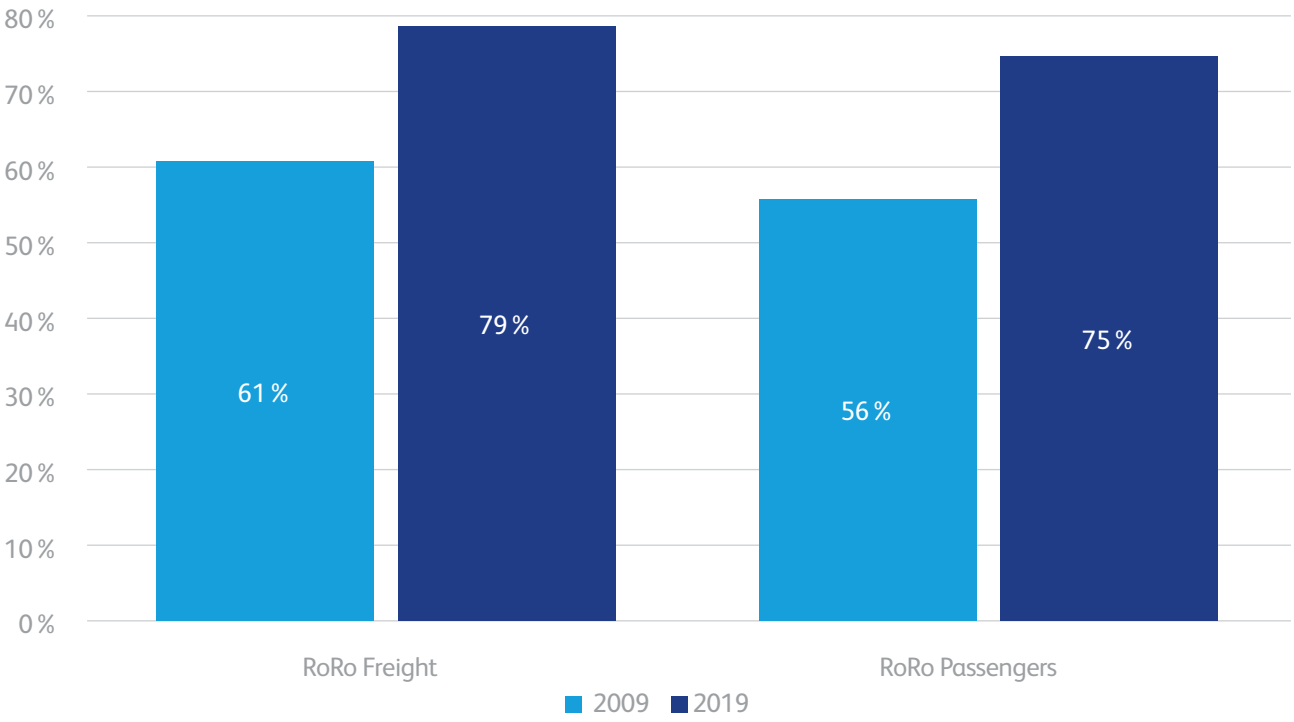
Source: *IMDO*

In Belfast Harbour, 5% passenger growth in 2019 was the fastest rate of growth for the port in three years, and brought total volumes to just over 1.4m passengers, its highest of the decade. Belfast recorded consistent growth over the past 10 years, averaging 2% per year between 2009 and 2019. Based on annual statistics for 2019, Belfast's share of all-island passenger traffic stood at 33%, an increase over the 27% average share it held between 2009 and 2018. In total, 245,000 more passengers transited through Belfast Harbour in 2019 compared to 2009.

Market Concentration

As is evident from the above analysis, the two largest passenger ports on the island of Ireland, Dublin Port and Belfast Harbour, have recorded consistent growth in volumes over the past decade. This has coincided with declines in the regional ports of Rosslare Europort and the Port of Larne during the same period. A similar trend of market concentration around larger ports occurred in the market for RoRo freight. Between 2009 and 2019, Dublin Port and Belfast increased their shares of all-island RoRo freight traffic by 10% and 7% respectively. In the market for tourist passengers, Dublin Port's share rose by 11% and Belfast's share rose by 8% during the same period. Combined, the two ports represented 80% of the RoRo freight market and 75% of the passenger market in 2019, up from 61% and 56% respectively in 2009. This increased market concentration is illustrated in Figure 27.

Figure 27: Dublin Port & Belfast Harbour Combined All-Island Market Shares: 2009 Vs 2019



Source: *IMDO*

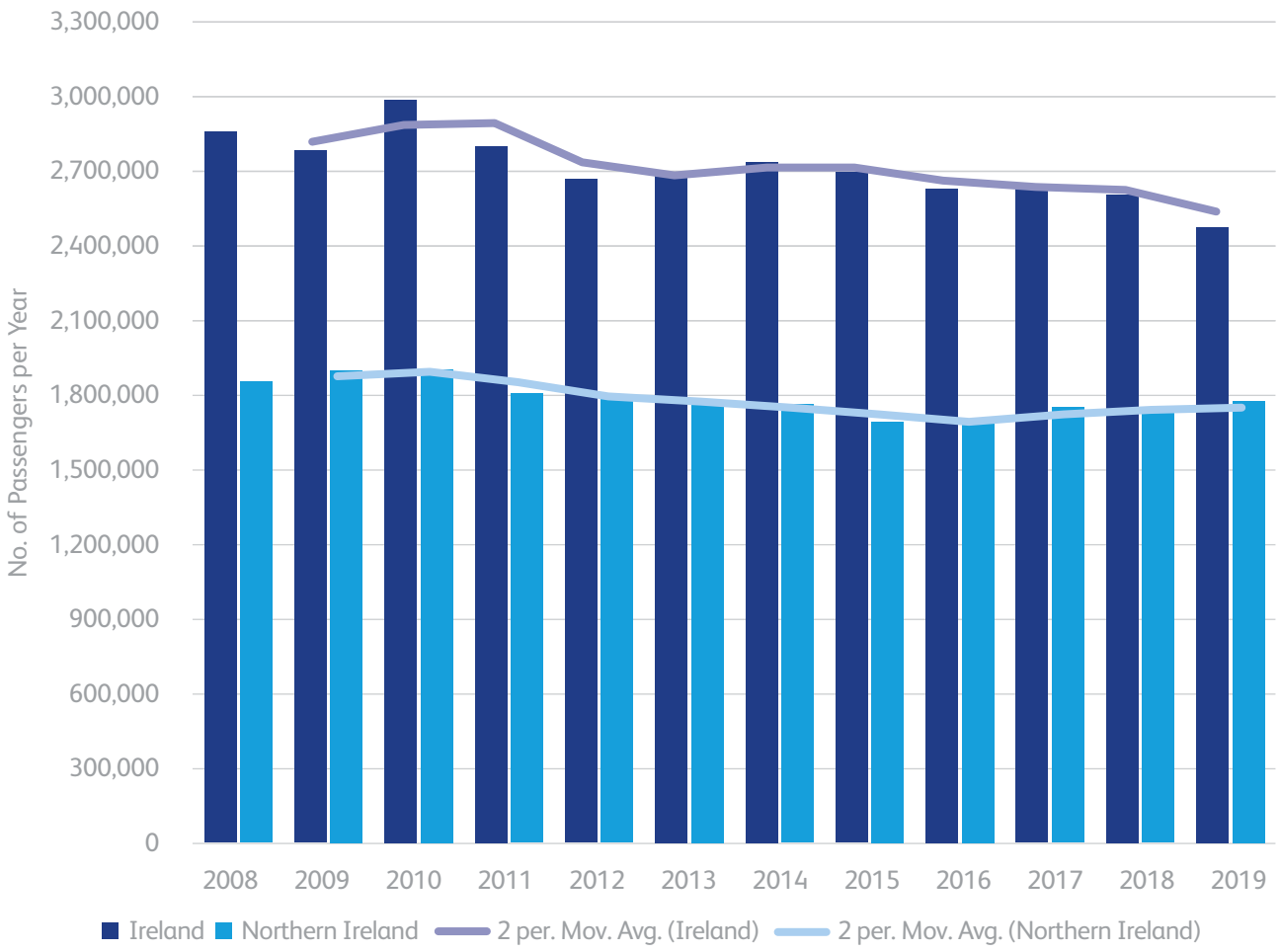
Ireland & Northern Ireland Passenger Volumes: 2009 - 2019

Passenger volumes on the island of Ireland averaged 4.5m per year between 2009 and 2019. In Irish ports, volumes averaged 2.7m per year while Northern Irish ports averaged 1.8m per year. In Ireland, passenger numbers ranged between 2.5m and 3m over the decade. In Northern Ireland, numbers ranged between 1.7m and 1.9m. All-island passenger shares were split 60%-40% in favor of Irish ports throughout that time.

Throughout this period, passenger numbers through Irish ports trended slowly downwards while Northern Irish volumes which remained relatively constant. In terms of growth, the average growth rate for Irish passenger volumes for the ten-year period was -1% per year, compared to 0% on average for Northern Ireland. In 2019, passenger throughput in Ireland was 9% below its average for the previous 10 years, while Northern Irish throughput was almost exactly on average.

Passenger volumes in Ireland and Northern Ireland, alongside a 2 period moving average, are presented in Figure 28.

Figure 28: Annual Passenger Volume: Ireland & Northern Ireland 2009 – 2019



Source: *IMDO*

Passenger Travel by Shipping Corridor[10]

Table 12 details the performance of the all-island passenger market when broken down into shipping corridors. As is evident from Table 12, over 90% of passengers travel between the island of Ireland and mainland UK.

When the Northern route is excluded, the share of Ireland to UK passenger travel is 85%. Staying with the Irish market, the Central, Continental and Southern corridors, all of which operate through Irish ports, each recorded volume declines in 2019. The steepest of these was the Southern corridor, which fell by 39,000 passengers, equivalent to a 7% decline. In total, 130,000 fewer passengers travelled on Irish corridors in 2019. This represents a 5% drop over 2018 and the largest annual decline since 2012. The Southern corridor made an outsized contribution to this fall, contributing 30% to the decline despite representing approximately 23% of the Irish market over the last decade.

Table 12: All-Island Passenger Market 2019: By Shipping Corridor

Corridor	2019 Passenger Volume	2019 Annual Growth (%)	2019 All-island Share (%)	Average Volume 2009 - 2019	Average Share (%) 2009 - 2019
Central	1,580,518	-5%	37%	1,726,228	39%
Continental	380,207	-4%	9%	346,781	8%
Northern	1,774,760	2%	42%	1,777,162	40%
Southern	512,932	-7%	12%	627,262	14%

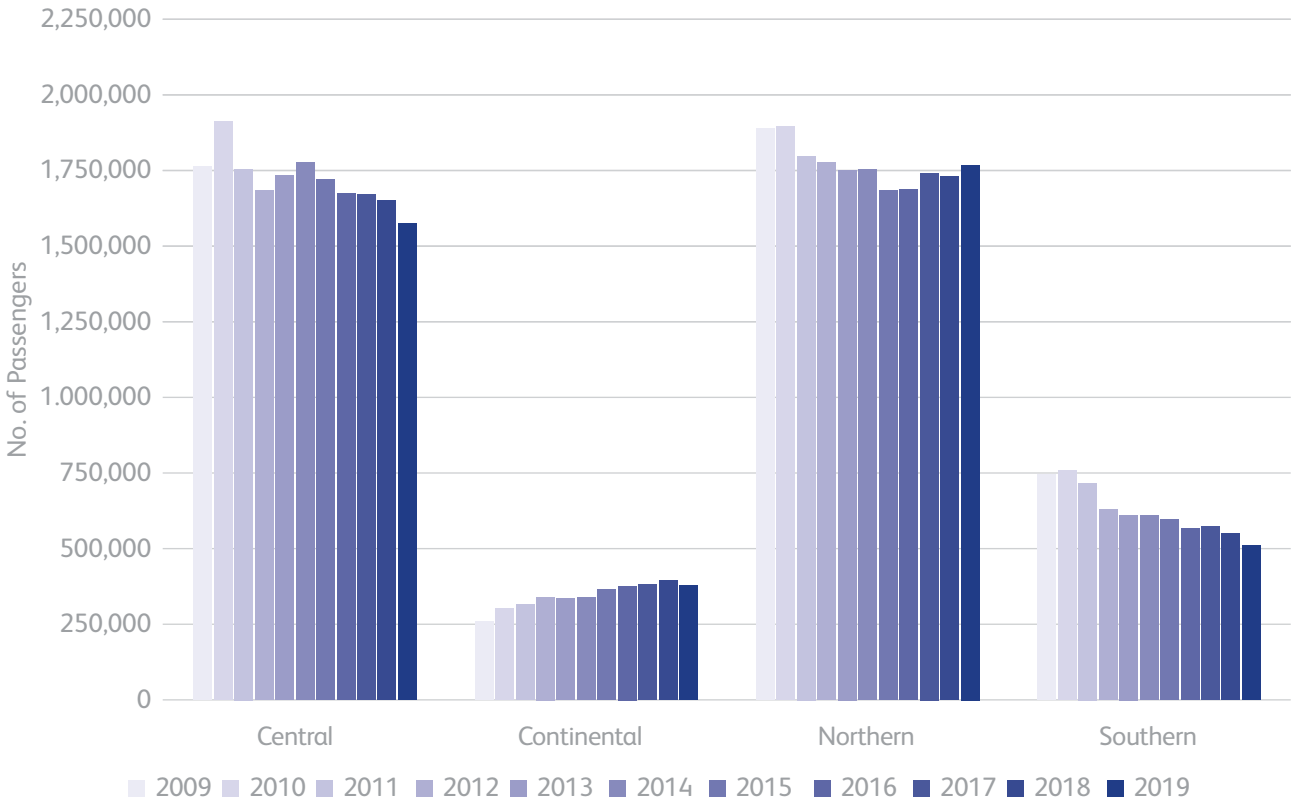
Source: *IMDO*

Returning to the all-island market, the market shares of each corridor remained relatively consistent since 2009. The largest changes have come on the southern corridor, which in 2019, represented 12% of the all-island market having held a 16% share from 2009 – 2011. The continental corridor has also held a market share of 9% from 2015 to 2019, up from 6% in 2009.

Figure 29 provides a graphical representation of the performance of each corridor between 2009 and 2019.

[10] Shipping Corridors:
Central: Dublin – UK.
Southern: Rosslare Europort – UK
Contintral: Ireland – Continental EU
Northern: Northern Ireland – Mainland UK

Figure 29: Annual Passenger Volume by Corridor: 2009 – 2019

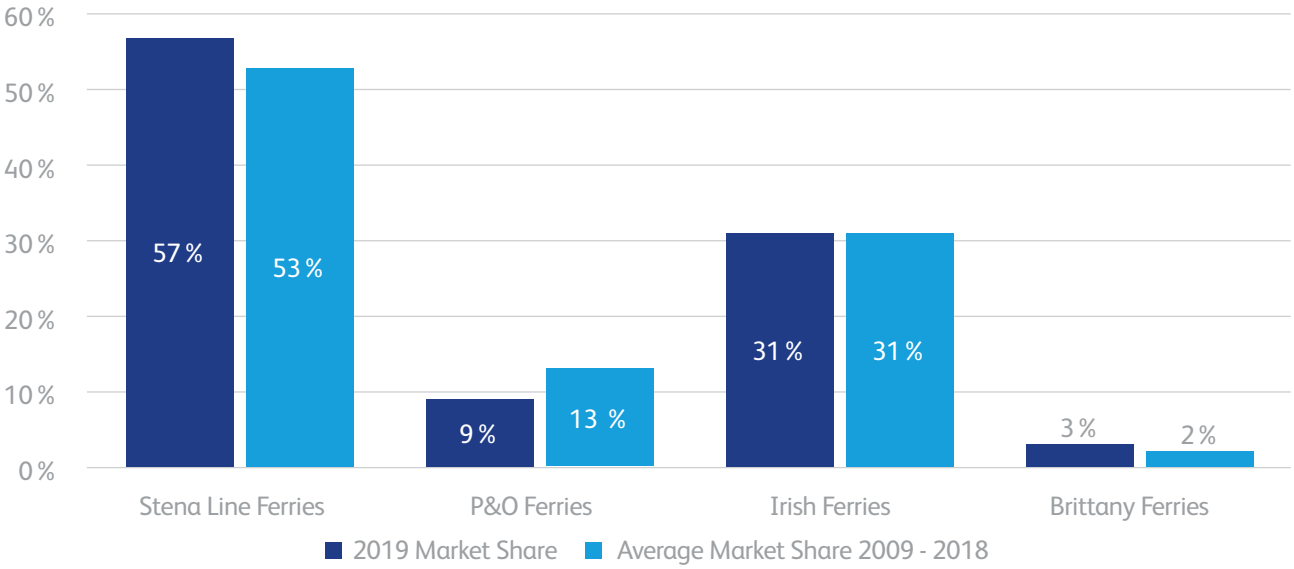


Source: *IMDO*

Shipping Operators

As for the operators who service these all-island passenger routes, Figure 30 illustrates the market share of each in 2019 compared to their average market share between 2009 and 2018. As can be seen, both Stena Line Ferries and Brittany Ferries have increased market share over the course of the decade.

Figure 30: Ferry Operator Market Share: All-Island Tourist Passenger Market



Source: *IMDO*

1.5 Cruise Sector

A total of 315 cruise vessels called to Irish ports in 2019, 16 more than in 2018, representing a 5% increase this year (see Table 13). 155 cruise vessels called to ports in Northern Ireland, 34 more than in 2018, representing a 28% increase.

In all, 470 cruise vessels called to the island of Ireland in 2019 carrying just over 700,000 passengers. A total of 430,000 passengers arrived in Ireland across 8 ports. Dublin and Cork are the two dominant cruise ports in Ireland. Together, they accounted for 82% of cruise ship calls and 92% of cruise ship passengers (see Tables 13 and 14). All other cruise ports in Ireland had 57 cruise calls in total and roughly 35,000 cruise passengers. Overall, 40,000 extra cruise passengers arrived in Ireland compared to 2018, representing an 11% increase.

In Northern Ireland, approximately 270,000 cruise visitors arrived on 155 vessel calls in 2019. This represents a 44% rise in cruise passengers compared to 2018. Belfast and Foyle ports were the only two Northern Irish ports to receive cruise calls in 2019. Belfast accounted for almost all cruise calls and passengers in 2019, with 94% of calls and 98% of passengers. As a result, Belfast's growth also drove the increase in Northern Irish cruise traffic this year. The large growth in cruise passengers through Belfast meant that it again became the largest cruise port on the island for 2019, overtaking Dublin Port. Belfast had fewer cruise arrivals than Dublin in 2019, but received roughly 350 extra cruise passengers per call.

On an all-island basis, cruise traffic is dominated by 3 ports: Dublin, Belfast and Cork. Visitors to these ports accounted for 94% of all cruise visitors to the island, with 660,000 passengers combined. Belfast had the largest share with 38%, while Dublin had a 33% share and Cork, 24%.

Other notable trends in 2019 include Cork's reaching of 100 cruise calls for the first time. In addition, significant passenger growth was recorded at Dun Laoghaire, Foyle and Waterford.

Table 13: Annual Cruise Ship Calls 2012 - 2019

	2012	2013	2014	2015	2016	2017	2018	2019
Dublin	87	100	86	93	109	127	150	158
Cork	57	62	52	57	57	62	93	100
Waterford	13	19	16	15	14	12	18	17
Bantry	3	3	3	3	3	4	9	11
Galway	6	6	6	5	4	5	8	10
Shannon	4	4	-	2	-	2	3	2
Dun Laoghaire	2	7	4	7	6	6	3	6
Killybegs	12	6	10	9	13	12	15	11
Total Ireland	**184**	**207**	**177**	**191**	**206**	**230**	**299**	**315**
Belfast	45	57	64	59	83	94	115	145
Foyle	0	0	3	6	4	9	6	10
Warrenpoint	10	10	1	0	3	2	0	0
Total Northern Ireland	**55**	**67**	**68**	**65**	**90**	**105**	**121**	**155**
Total All-Island	**239**	**274**	**245**	**256**	**296**	**335**	**420**	**470**

Source: *IMDO*

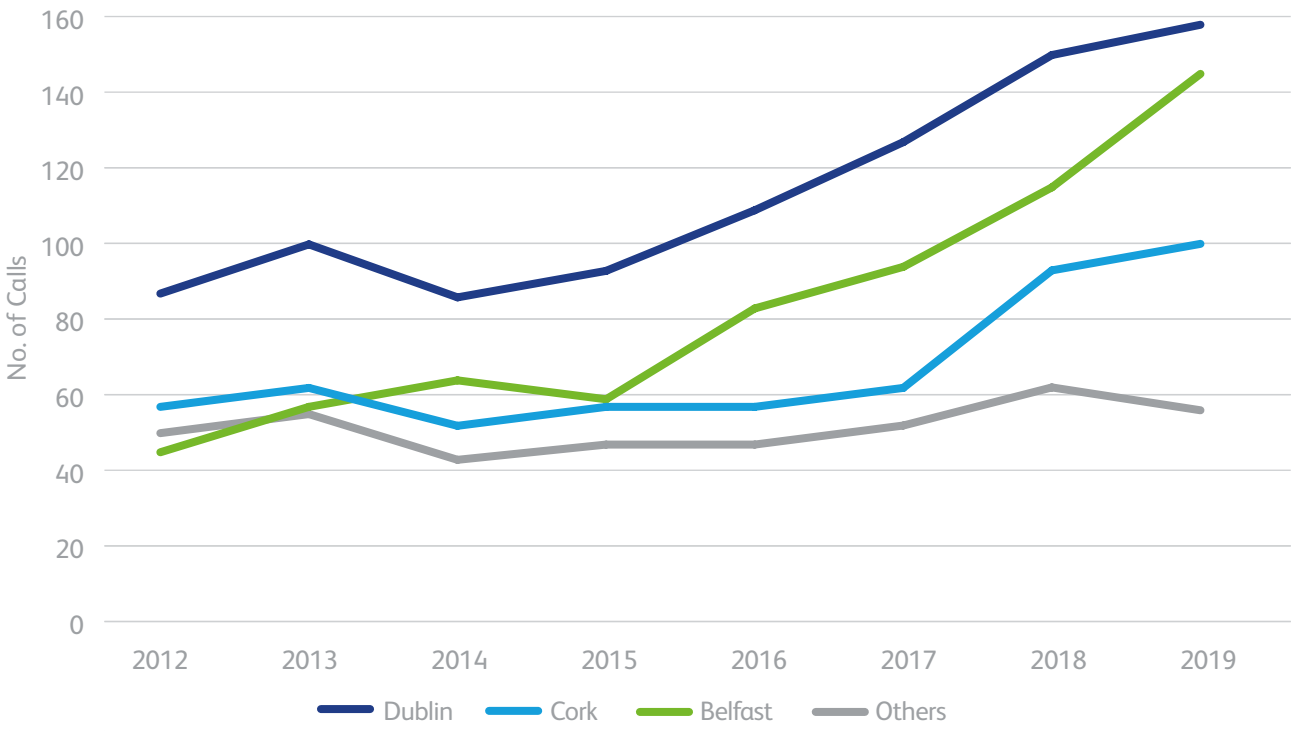
Table 14: Annual Cruise Ship Passengers 2012 – 2019

	2012	2013	2014	2015	2016	2017	2018	2019
Dublin	86,771	103,633	97,316	101,400	109,884	146,429	196,899	229,032
Cork	59,839	85,495	83,201	102,217	89,686	99,263	157,867	168,989
Killybegs	4,360	3,016	4,976	5,975	6,226	7,209	13,070	8,208
Waterford	8,210	7,583	10,197	11,641	7,498	4,710	8,728	11,097
Galway	2,422	2,094	2,860	2,326	1,567	4,063	5,828	5,420
Bantry	1,385	1,167	2,399	106	174	1,551	5,472	5,429
Shannon	2,640	1,536	-	1,421	-	207	1,333	880
Dún Laoghaire	106	10,438	952	12,830	6,268	1,764	632	3,355
Total Ireland	**165,733**	**214,962**	**201,901**	**237,916**	**221,303**	**265,196**	**389,829**	**432,410**
Belfast	52,705	62,628	111,676	111,238	134,592	153,801	183,290	263,143
Foyle	-	-	1,687	3,102	2,602	3,358	2,878	5,587
Warrenpoint	3,090	3,090	407	-	567	281	-	-
Total Northern Ireland	**55,795**	**65,718**	**113,770**	**114,340**	**137,761**	**157,440**	**186,168**	**268,730**
Total All-Island	**221,528**	**280,680**	**315,671**	**352,256**	**359,064**	**422,636**	**575,997**	**701,140**

Source: *IMDO*

Figure 31 illustrates the growth in cruise vessel calls on the island of Ireland since 2012. Dublin, Cork and Belfast have recorded consistent growth throughout this period.

Figure 31: Annual Cruise Ship Calls 2012 – 2019



Source: *IMDO*

1.6 iShip Index

Since 2007 the IMDO has produced the iShip Index, a quarterly weighted indicator that outlines trends within Ireland's[11] shipping industry, and as a result, the wider economy. The index accounts for five separate market segments, representing the main maritime traffic sectors moving through ports in Ireland. Unitised trade includes Lift-on/Lift-off (LoLo) and Roll-on/Roll-of (RoRo), while Bulk traffic includes Break Bulk, Dry Bulk and Liquid Bulk. All three of the bulk segments are measured in tonnes. In order to establish a common denominator, the LoLo and RoRo volumes are expressed in tonnage terms within the index, whereby 1 Twenty-Foot Equivalent Unit (TEU) = 10 tonnes, and 1 RoRo Freight Unit = 14 tonnes. The base period is Quarter 1 2007 at which point, all indices were set at 1,000.

In 2019, the iShip Index recorded a decline of 3% in Irish shipping activity. The index averaged 1,003 throughout 2019 and ended Q4 on 1,013 (See Figure 32). From 2014 - 2018, the iShip averaged 959 each year. 2019 outperformed this average by 5%. Despite this, 2019 experienced the first annual iShip decline since 2009. After 2% growth recorded in Q1, Q2 – Q4 of this year declined by an average of 5% per quarter. This is also the first three quarter consecutive decline since Q2 - Q4 of 2009.

However, as outlined in sections 1.1 and 1.1A, much of 2019's decline in tonnage throughput can be explained by a period of market correction due to inventory stockpiling throughout 2018 and early 2019. This was driven by a combination of heightened Brexit uncertainty as well as a national fodder crisis. In addition, Q1 2019 saw disproportionately large RoRo volumes as Great Britain's proposed Brexit date approached at the end of March.

[11] The iShip index does not include ports in Northern Ireland.

Roll-on/Roll-of (RoRo)

The RoRo iShip index grew by 2% in 2019. As highlighted above, this increase was driven by disproportionately high growth in Q1 caused by inventory stockpiling in the weeks leading up to March 29th, the original date set for Britain's EU departure. The RoRo iShip grew by 9% in Q1 compared to the same period in 2018. This was the largest quarterly expansion since Q2 2016. Following this, Q2 – Q4 averaged 0% growth in 2019.

Between 2013 and 2016, RoRo throughput experienced considerable growth of 6% per year on average. Since then, growth has slowed but has maintained a robust annual growth rate of 3% between 2017 and 2019.

Lift-on/Lift-off (LoLo)

Of all the maritime trade markets included in the iShip index, the LoLo market has recorded the strongest growth rates in recent years. The LoLo iShip index has averaged 5% growth every quarter since Q1 2014, making Q4 2019 the 24th consecutive quarter of expansion in this market. In 2019, the LoLo iShip index grew by 6%. Reflecting trends in the RoRo markets, Q1 recorded strong growth of 7% compared to Q1 the previous year. This was followed however by 10% growth in Q3.

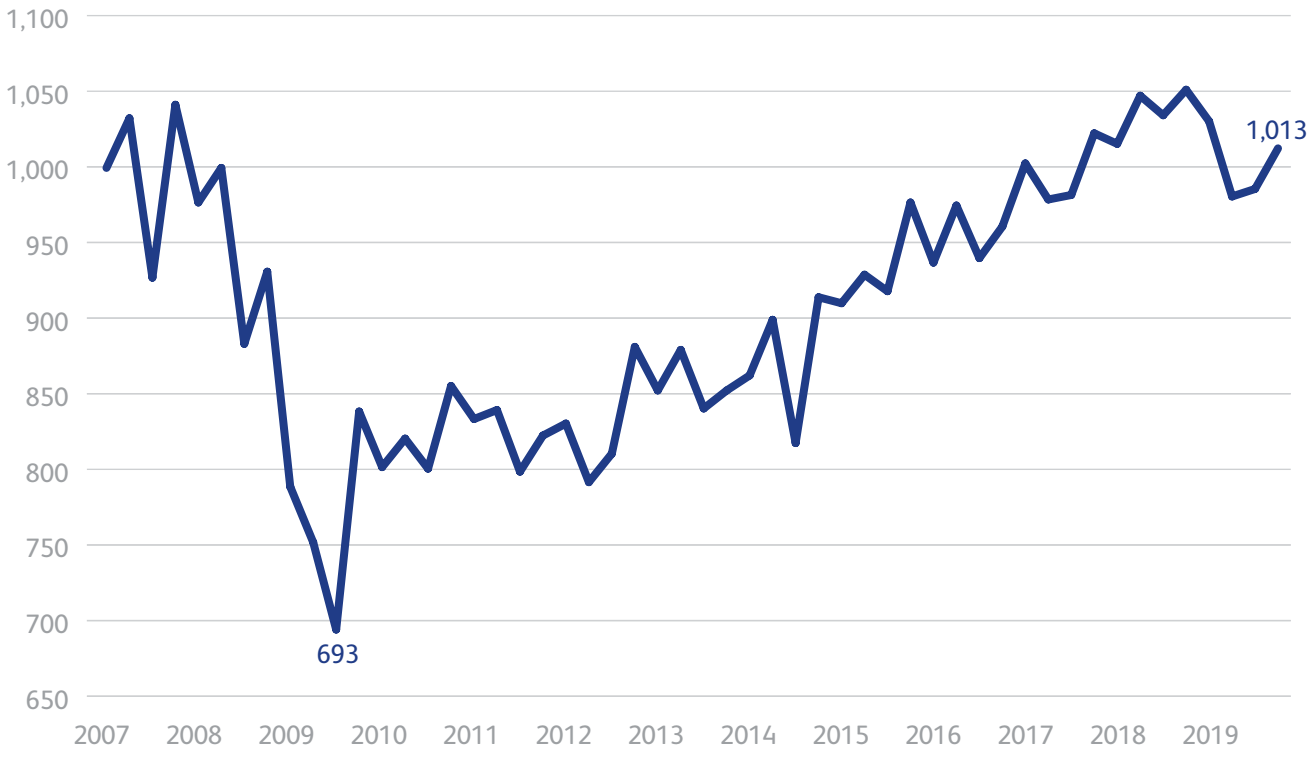
As highlighted in Section 1.3, the LoLo market almost exclusively represents direct services from Ireland to continental Europe. Brexit has created uncertainty surrounding the UK Landbridge – the fastest route to continental European markets. Concerns of additional customs requirements means greater emphasis may have been placed on direct continental shipping services from Ireland. As a result, the IMDO continues to monitor this sector closely.

Bulk Markets

Because of significant tonnage volumes recorded in Irish bulk markets, the decline in 2019's dry bulk market became the main driver of the 3% overall decline in the iShip index. The dry bulk index declined by 12% in 2019, while the liquid bulk index fell by 5%. These were offset somewhat by an 8% rise in the break bulk index. Reflecting trends in unitised (RoRo & LoLo) trade, the majority of break bulk growth came in Q1 2019. Despite this growth, tonnage volumes are considerably lower in this sector compared to dry and liquid bulk. As a result, the iShip index for the combined bulk markets fell by 9% in 2019.

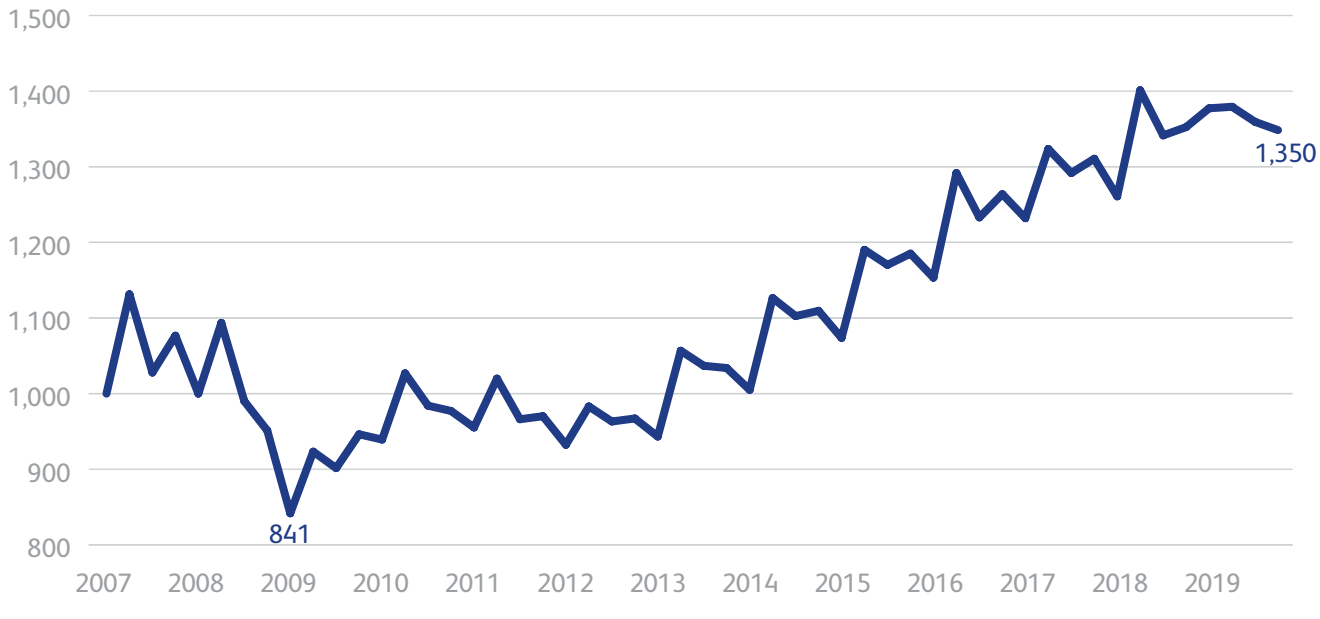
iShip Graphs:

Figure 32: Total iShip Index



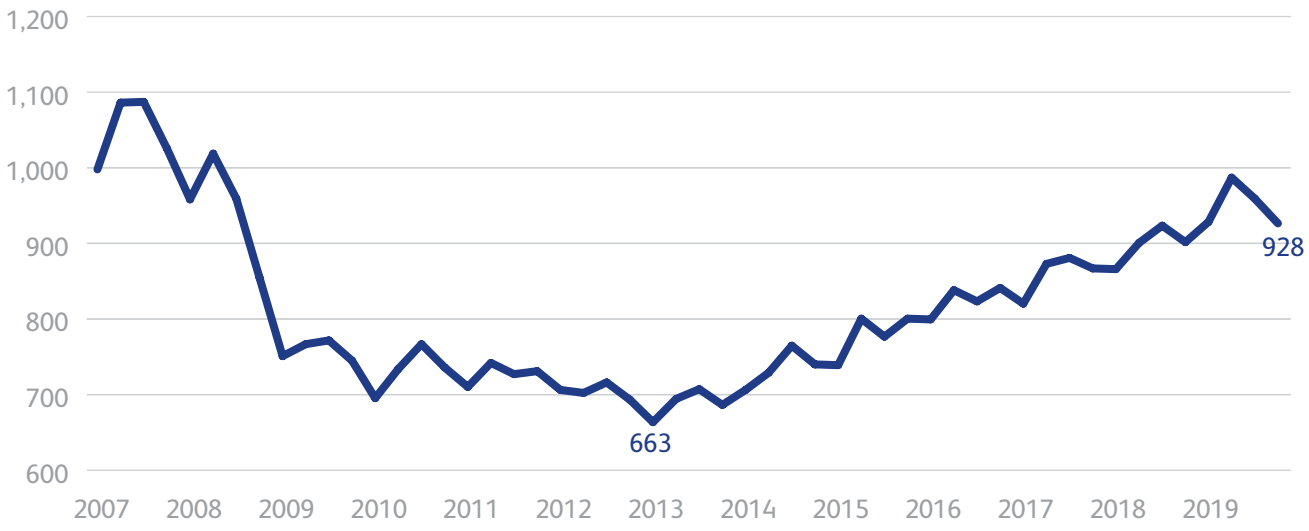
Source: *IMDO*

Figure 33: RoRo Index



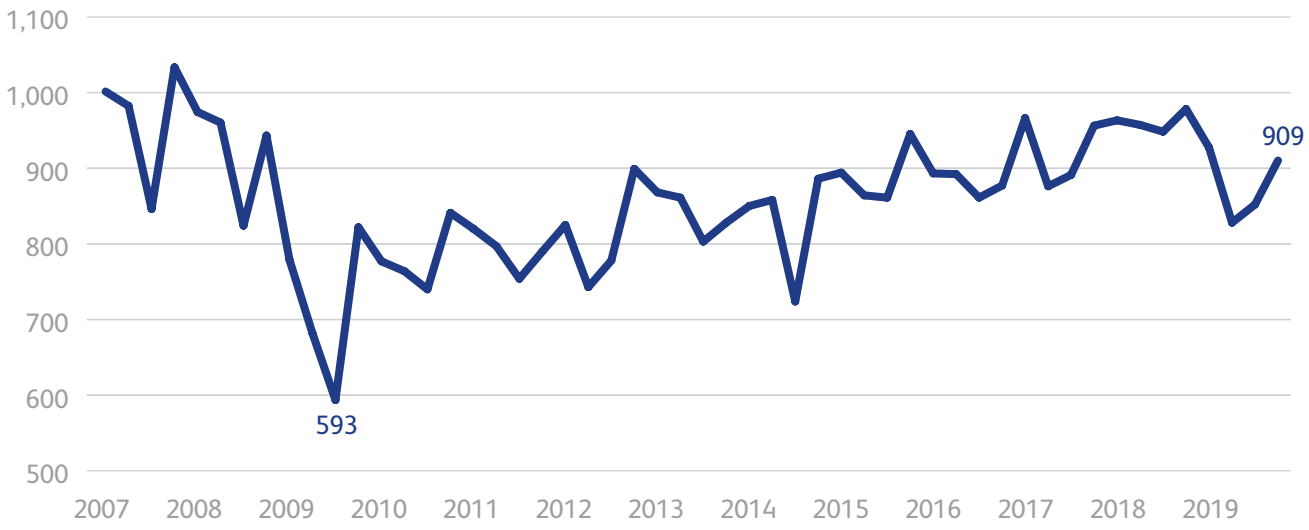
Source: *IMDO*

Figure 34: LoLo Index



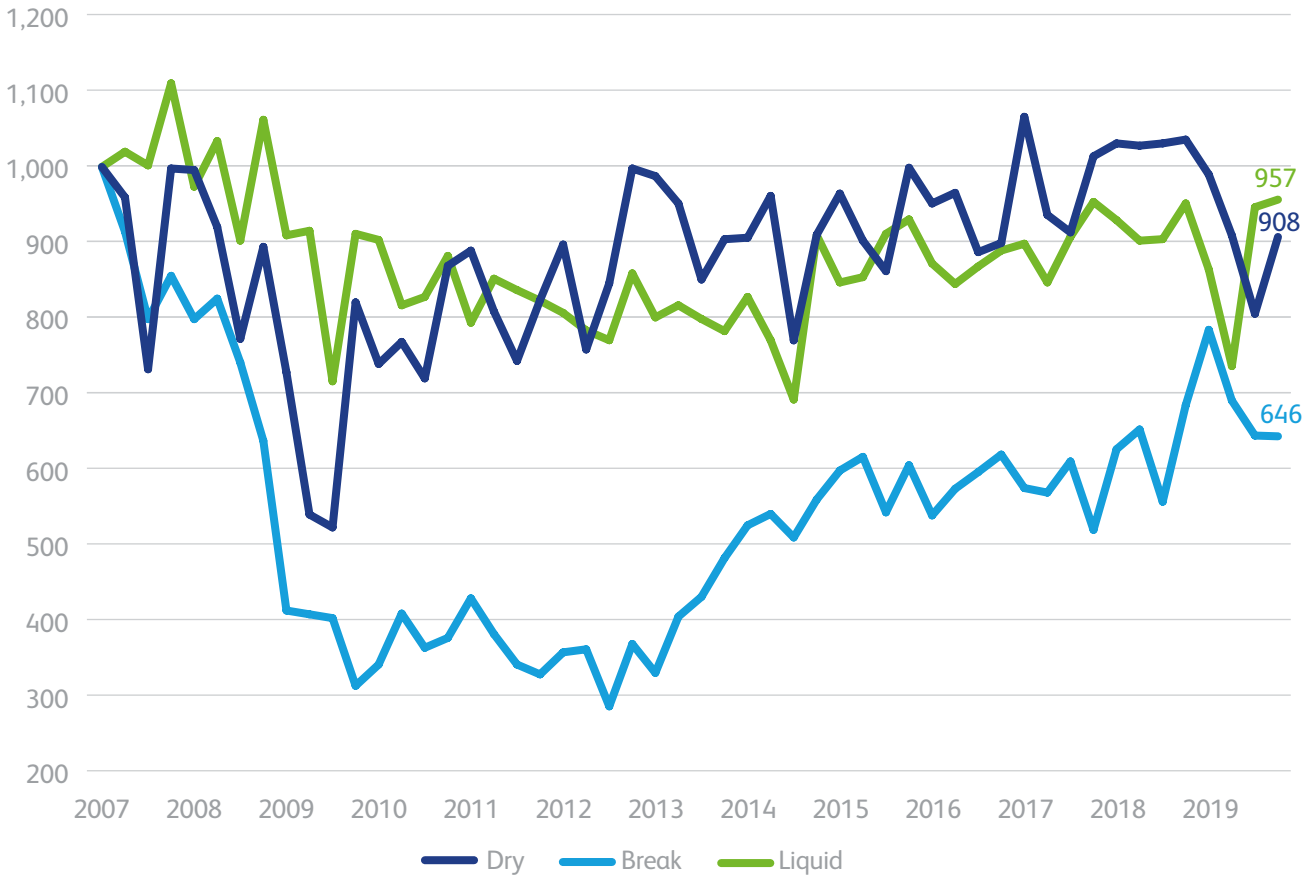
Source: *IMDO*

Figure 35: Combined Bulk Index



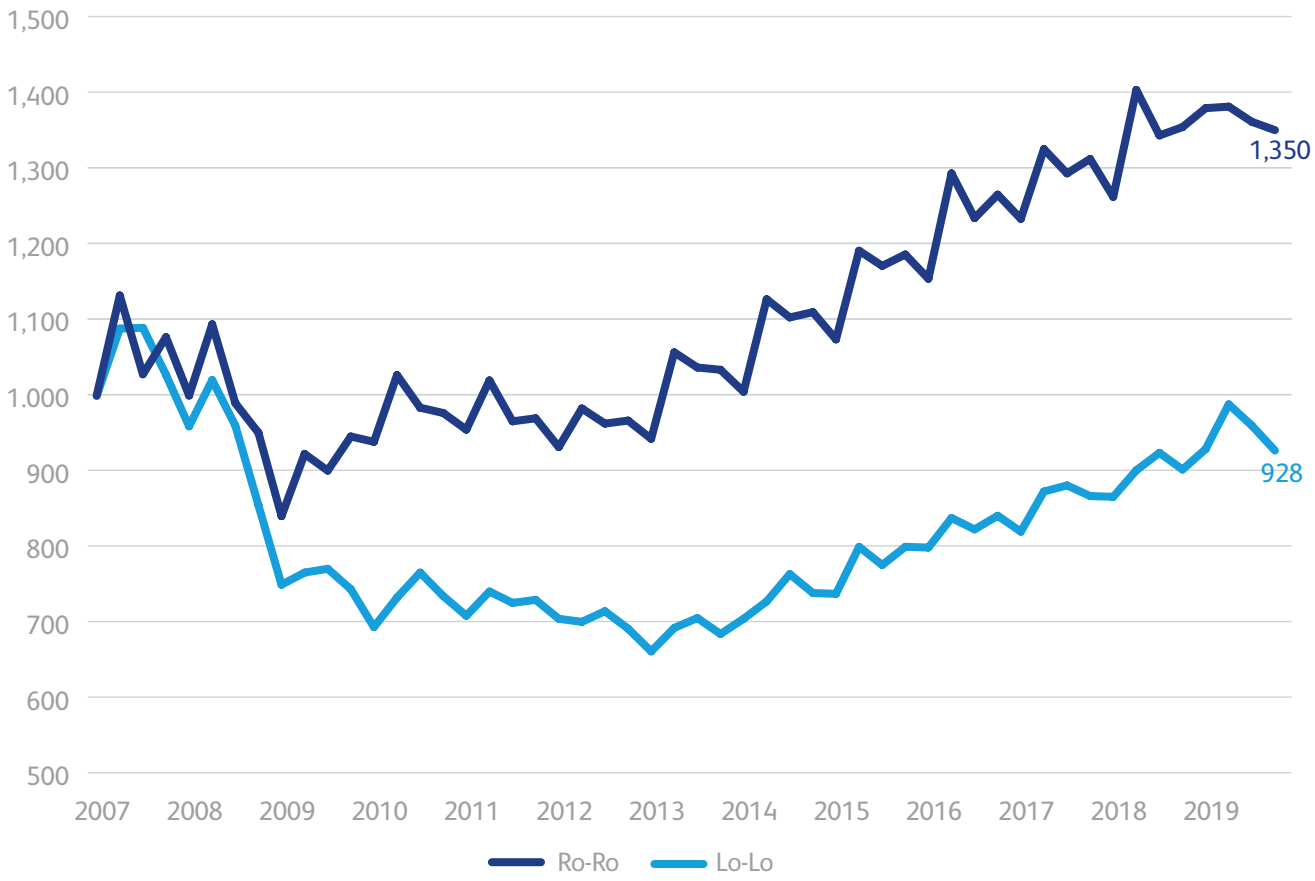
Source: *IMDO*

Figure 36: Bulk Categories - Dry, Liquid & Break



Source: *IMDO*

Figure 37: Unitised Trade Index



Source: *IMDO*

1.7 Blue Economy and Careers

The marine and maritime trade sectors play an important role in the Irish economy. From a supply chain perspective, over 95% of goods transported on and off the island of Ireland are carried by sea. According to a report entitled 'Ireland's Ocean Economy'[12] by the Socio-Economic Marine Research Unit (SEMRU), Ireland's ocean economy recorded an annual turnover of €6.2 billion in 2018.

In terms of Gross Value Added (GVA), €2.2 billion was generated from direct ocean activities, equivalent to 1.1% of Irish GDP in 2018 (SEMRU, 2019). The indirect GVA contribution by ocean related activities amounted to €1.96 billion. Combining both direct and indirect sources of GVA, Ireland's ocean activities created €4.19 billion, or 2% of Ireland's GDP for 2018 (SEMRU, 2019). This represented a 13% increase in turnover and 11% rise in GVA when compared to 2016 statistics, highlighting the growing importance of the marine and maritime sectors in Ireland.

From an employment perspective, the top three performing industries within Ireland's ocean economy are shipping and maritime transport, tourism and leisure in marine and coastal areas, and seafood processing. Approximately 34,000 people were estimated to be employed on a full time basis within the marine and maritime sectors, an increase of 13% compared to estimates made in 2016. The demand for highly skilled workers in the industry continues to increase as Ireland's population continue to grow and the emergence of new digital solutions such as Blockchain and IoT create new opportunities for monitoring and measuring activities across sectors.

[12] Tsakiridis, Andreas & Aymelek, Murat & Norton, Daniel & Burger, Ryan & O'Leary, Jenny & Corless, Rebecca & Hynes, Stephen. (2019). Ireland's Ocean Economy 2019.

National Marine College of Ireland

The National Marine College of Ireland (NMCI) provides students with the opportunity to develop highly sought after technical skills and knowledge that is essential to satisfy the needs of the marine and maritime industries. NMCI is the first third level college in Ireland to be built under the Government's Public-Private Partnership scheme. The public partners are Cork Institute of Technology (CIT) and the Irish Naval Service (INS). The private partner is Focus Education.

NMCI offers hands-on Naval technical courses in areas such as engineering, communications and operations training for cadets and officers. Degree courses are also offered to students, which include:

- B.Sc in Nautical Science
- B.Eng in Marine Engineering
- B.Eng in Marine Electrotechnology

Table 15 below shows the annual number of graduates from each of the degree courses run by NMCI. On average, 100 students have graduated from the college each year since 2015.

Table 15: NMCI Graduates by Course 2015 - 2019

Programme	2015	2016	2017	2018	2019
B.Sc Nautical Science Level 7	22	29	27	31	25
B.Sc (Hons) Nautical Science Level 8	12	25	29	22	14
B.Eng Marine Engineering Level 7	29	14	23	19	21
Second Engineers	18	16	12	16	10
Chief Engineers	8	4	10	10	5
B. Eng Marine Electrotechnology Level 7	13	15	7	6	6
Total	**102**	**103**	**108**	**104**	**81**

Source: *National Maritime College of Ireland*

Section 2: **Irish Merchandise Imports - Market Outlook**

Introduction

There are three subsections provided in this passage of the report. The first of these, Section 2.1, provides a review of Irish merchandise trade imports in 2019. This details the tonnage volume and value of Irish imports, broken down by Standard International Trade Classification (SITC) groupings. Section 2.2 describes the makeup of Ireland's main import trading partners, again in terms of both tonnage volume and value. Lastly, Section 2.3 illustrates the key drivers of Irish merchandise imports, focusing on domestic demand, prices and Irish population levels.

2.1. Merchandise Trade Review of Irish Imports

2.1 A) Tonnage

As can be seen in Table 16 below, tonnage imports to Ireland declined by 3% in 2019 following a 9% rise in 2018. Despite the 2019 decline being the largest since 2011, imported tonnage was 42.3 million tonnes, which is almost 10 million higher than a decade ago.

Table 16: Irish Tonnage Imports 2009 - 2019

Year	Imports	
	Tonnes (millions)	% Change over previous year
2009	32.8	-14%
2010	35.2	7%
2011	34.2	-3%
2012	34.0	0%
2013	36.6	8%
2014	36.4	-1%
2015	39.1	7%
2016	38.7	-1%
2017	40.3	4%
2018	43.8	9%
2019	42.3	-3%

Source: *CSO*

Table 17 below provides further analysis of Irish imports in 2019, with products organised using Standard International Trade Classification (SITC) groupings. The top three categories – Mineral Fuels, Crude Materials and Food & Live Animals – make up roughly three quarters (73%) of all imported tonnage.

Table 17: Irish Imports by SITC Grouping 2019

Product Grouping	Imports (Tonnes)	% Share of Total
Mineral Fuels & Lubricants	13,194,887	31%
Food and live animals	9,276,314	22%
Crude materials	8,310,513	20%
Manufactured goods	4,186,474	10%
Chemicals and related products	3,888,718	9.2%
Machinery & transport equipment	1,164,391	2.8%
Misc. manufactured articles	1,098,596	2.6%
Beverages and tobacco	882,564	2.1%
Animal and vegetable oils	322,640	0.8%
All Other Commodities	4,804	0.01%
Total	**42,329,899**	**100%**

Source: *CSO*

The effects of the 2018 national fodder shortage continued to impact on imported tonnage in 2019. A national fodder shortage which was driven by inclement weather experienced in the summer of 2017, and that worsened in the winter of 2018, forcing Irish farmers to supplement animal feed through imported stocks. In an effort to alleviate such shortages, the Irish Government implemented a Fodder Import Support measure in the Spring of 2018, aimed at reducing the cost of imported fodder from outside the island of Ireland. As a result, approximately 1 million tonnes of additional animal feed was imported in 2018 compared to 2017, representing a 33% annual increase. Consequently, the market for animal feed underwent a correction in 2019, with 1 million tonnes less being imported, representing a 24% decrease over 2018. From the IMDO's analysis, Ireland's Tier 1, or Core Ports, which are; The Port of Cork, Dublin Port and Shannon Foynes Port Company, are the entry points for the majority of Animal Feed. Tier 2 ports and Ports of Regional Significance accommodate the rest.

A similar market correction occurred in the market for cereals, which rose by 36% (0.8m tonnes) in 2018 and declined by 13% (0.4m tonnes) in 2019. The majority of this commodity is also facilitated through Ireland's Core Ports, predominantly Dublin Port and Shannon Foynes.

Combined, the decrease of 1.5 million tonnes in both animal feed and cereals, both sub-groupings of Food & Live Animals, drove the overall decline in imported tonnage to the island of Ireland in 2019. The IMDO will monitor the effects for the Irish import market of recent inclement weather, which led to the flooding of the Shannon area in February 2020.

Of the other two top categories, Crude Materials and Mineral Fuels, the former was largely unchanged (+1%) while the latter declined by 4%. Driving the reduction in mineral fuels was a decline in the 'coal, coke and briquettes' commodity sub-group. Approximately 0.45 million tonnes was imported in 2019, a 74% decline on 2018 which recorded 1.7 million tonnes of imports and 1.4 million tonnes in 2017. This was due to a significant reduction and realignment of operations at ESB's Moneypoint power station in West Clare – the tonnage for which is serviced by Shannon Foynes Port Company. The ESB signalled carbon price pressure and an increasingly competitive energy market as reasons behind the decision. This is consistent with the Sustainable Energy Authority of Ireland (SEAI) annual report, 'Energy in Ireland 2019', which states that there was a 44% reduction in the use of coal for Irish electricity production in 2019.

2.1 B) Value

2019 saw the first annual decline in Irish import value since 2013. The value of Irish imports had been rising by 11% - or €7.2bn per year – on average each year between 2014 and 2018. Despite a 3% decline in 2019 however, the value of all Irish imports is now 85% higher than it was a decade ago, reaching €89bn in 2019 compared to €48bn in 2009 (see Table 18 below).

Table 18: Irish Imports by Value (€) 2009 - 2019

	€bn	% Change over previous year
2009	48.2	-19%
2010	48.7	1%
2011	53.0	9%
2012	56.2	6%
2013	55.8	-1%
2014	62.2	11%
2015	70.1	13%
2016	74.2	6%
2017	83.0	12%
2018	92.0	11%
2019	89.2	-3%

Source: *CSO*

Table 19, using the same SITC commodity groupings as Table 17, shows that the top four categories make up approximately 82% of the entire value of Irish imports in 2019.

Table 19: Irish Import Value by SITC Grouping 2019

Product Grouping	Imports (value €m)	% Share of Total
Chemicals and related products	16,987	19%
Machinery & transport equipment	39,212	44%
Misc. manufactured articles	9,454	11%
Food and live animals	7,877	8.8%
Manufactured goods	5,995	6.7%
Beverages and tobacco	965	1.1%
Crude materials	1,006	1.1%
All Other Commodities	1,967	2.2%
Mineral Fuels & Lubricants	5,465	6.1%
Animal and vegetable oils	260	0.3%
Total	**89,188**	**100%**

Source: *CSO*

After a 14% increase in 2018, which represented €2.4bn of additional value, imports of Chemicals and Related Products recorded a decline in 2019 of almost the same amount, falling by €2.8bn or 15% in value. All of that decline was driven by €4.2bn less imports of Medical and Pharmaceutical Products, a sub-group of that commodity. This was offset only by a €1.3bn increase in the imports of organic chemicals.

In 2018, there were concerns about the need for large scale medicinal and retail stockpiling due to the oncoming departure of the United Kingdom from the European Union in 2019, and the trading difficulties that may have arisen had no withdrawal agreement been reached. Such stockpiling in 2018 may have explained the 2019 declines in the value of imports of the top two commodities in Ireland, Chemicals & related products and Machinery & transport equipment, which represent almost two thirds of the value of Irish imports. However, both categories have recorded significant growth over the course of the decade. Both have averaged above 10% annual growth between 2010 and 2018, with machinery & transport equipment rising by €2.4bn on average between that period, and chemical and related products €1.4bn on average. From 2014 to 2018 in particular, the former averaged a €4.1bn rise in value and the latter €1.8bn. As such, the decline in the value of Machinery and Transport equipment of €0.6bn and €2.8bn in Chemicals and related products is a significant development not necessarily explained by industry stockpiling in 2018.

Noteworthy also is the fact that between 2010 and 2019, the volume of Irish imports rose by 3% per year on average, whereas the value of Irish imports averaged 6% annual growth. Overall, Ireland spent roughly €40bn more on imports in 2019 than in 2009, but received only 10 million more tonnes of physical merchandise. The value per ton of Irish imports has therefore risen steadily over the course of the decade, indicating that Irish imports, destined either for personal consumption or as inputs for production, has trended towards higher value products as the economy has expanded since the financial downturn of 2008.

2.2 Ireland's Merchandise Trading Partners

2.2. A) Tonnage

As shown in Table 20, Great Britain is Ireland's largest import trading partner. Approximately 34% of all imported tonnage in 2019 originated in Great Britain. This represented 52% of all imported tonnage from Ireland's European trading partners. 14.5 million tonnes were imported from Great Britain in 2019, a 5% rise over 2018. That rise was predominantly driven by a 31% increase in the volume of Natural Gas imported from Great Britain, equivalent to 1.1 million tonnes of additional volume according to the CSO.

At 4.6 million tonnes, Natural Gas represented one third of all imported tonnage from Great Britain this year. A noteworthy point of context is that, as outlined by Gas Networks Ireland (GNI), natural gas in Ireland is supplied predominantly from three sources. Two of these sources are indigenous; Corrib and Inch, which represented 42% and 5% respectively of overall supply in 2016 (GNI, 2016). The rest is supplied through the use of a pipeline interconnection point at Moffat, Scotland. The vast majority therefore, of Irish imports of natural gas from Great Britain does not require use of the country's port facilities.

With regard to the significant rise (31%) in 2019 of Irish imports of natural gas from Great Britain, this occurred alongside a 1.25 million tonne decline in the import of coal in 2018 - which, as outlined above, represented a 74% fall. This is consistent with the SEAI's analysis of the trends in Ireland's energy use in recent years. In terms of its contribution to Ireland's final energy use, natural gas was the fastest growing fuel in 2018 at 7%. It has also increased its contribution to total energy use from 11% in 2005 to 16% in 2018 (SEAI, 2019). Conversely, the contribution of coal to total energy has averaged a 3% decline each year since 2005. Consequently, the 2019 changes in natural gas and coal imports reflect a pattern of reorganisation in Irish fuel towards increased contribution from natural gas. The impact of this is that Irish volume imports from Great Britain will increase as the interconnection point at Moffat is increasingly called upon. It is noteworthy that this increased reliance will not, unlike imports of coal, require the use of Irish port facilities.

In the broader context of Irish energy imports from Great Britain, both gas and petroleum products made up 52% of all imported tonnage from Great Britain in 2019 – 7.5 million of a total of 14.5 million tonnes imported according to the CSO. As in 2018, oil and natural gas contributed approximately three quarters (73%) to all Irish energy use, Ireland continues to rely heavily on Great British energy imports (SEAI, 2019).

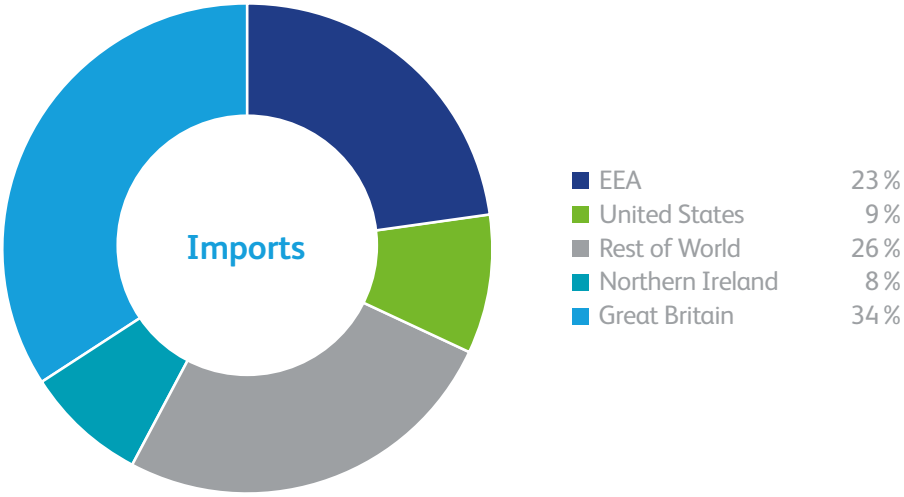
Table 20: Ireland's European Trading Partners (Imports) 2019

Country	€m	Tonnes	% Share of Total Tonnage
Netherlands	3,097	1,783,370	6.4%
France	11,986	1,153,791	4.2%
Germany	7,532	1,446,155	5.2%
Spain	1,410	1,479,890	5.3%
Belgium	1,654	902,940	3.3%
Sweden	711	464,729	1.7%
Italy	1,431	320,491	1.2%
Portugal	283	238,821	0.9%
Poland	825	273,630	1.0%
Denmark	503	105,307	0.4%
Austria	325	93,355	0.3%
Rest of EEA	2,241	1,590,551	5.7%
Great Britain	18,746	14,537,067	52%
Northern Ireland	1,562	3,362,303	12%
Switzerland	2,158	18,346	0.1%
Total	**54,466**	**27,770,745**	**100%**

Source: *CSO*

Staying within Europe, one fifth of all European imported tonnage is supplied by the group made up of France, Spain, the Netherlands and Germany, with an average of 1.5 million tonnes being imported from each country in 2019. 35% of European imports came from countries within the European Economic Area (EEA) - equivalent to 23% of overall Irish imports (see Figure 38). On the island of Ireland, 12% of all imported tonnage came from Northern Ireland. 34% of this total was within the crude fertiliser category, with another 36% coming from Food & Live Animals. Both make up 70% of all imports from Northern Ireland.

Figure 38: Share of Irish Imports by Origin Country/Region: 2019



Source: *CSO*

As shown in Table 21 below, approximately one quarter (26%) of all non-European trade originated in the USA, which amounts to 3.7 million tonnes. Among Ireland's global trading partners, Russia is the next largest, with 1.1 million tonnes, or 8% of all non-European imported tonnage. Petroleum and fertilisers make up three quarters of all imported tonnes from Russia.

Table 21: Ireland's Global Trading Partners 2019

Country	Imports		
	€m	Tonnes	% Share of Total Tonnage
United States	13,820	3,705,463	26%
Russia	401	1,103,743	8%
China	5,116	578,812	4%
India	636	224,053	1.5%
Turkey	665	358,821	2.5%
Colombia	32	151,021	1.0%
South Africa	123	63,374	0.4%
United Arab Emirates	73	78,432	0.5%
Japan	1,172	49,569	0.3%
Vietnam	236	63,736	0.4%
Indonesia	133	60,382	0.4%
Australia	102	61,685	0.4%
Egypt	53	53,487	0.4%
Romania	108	64,705	0.4%
Other	12,000	7,900,865	54%
Total	**34,669**	**14,518,149**	**100%**

Source: *CSO*

2.2 B) Value

In 2019, the three largest import partners in value terms were Great Britain, France and Germany. Respectively, these countries accounted for 34%, 22% and 14% of imported value from Europe. Great Britain and Northern Ireland accounted for 37% of the total value of Irish imports from Europe.

Outside of Europe, the majority (55%) of trade is with the USA and China. When European partners are included, these two represent roughly 20% of all import value. Imports from the USA were 19% lower in value terms then they were in 2018 – €13.8bn in 2019 versus €17bn in 2018. A majority (51%) of products imported from the USA fall under the Machinery & Transport Equipment and Chemicals and Related Products categories. The former category drove the fall in imported value from the USA in 2019, with €4.2bn less product arriving under this category than in 2018.

2.3 Key Drivers of Irish Merchandise Imports

Introduction

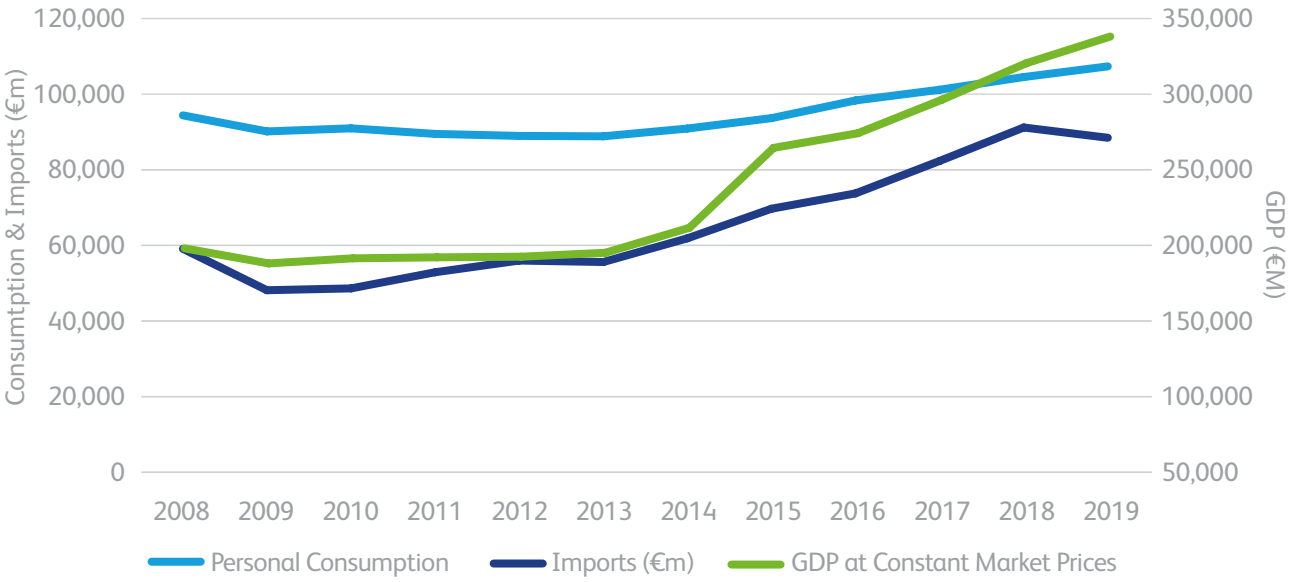
In order to understand current Irish merchandise imports volumes more fully, this section will expand on the key determinants of this component of the Irish economy. This will provide further economic context for the volumes received through Irish ports in 2019. Although the factors underpinning fluctuations in Irish merchandise imports are many and multi-faceted, the report focuses on three significant variables; Domestic demand, prices faced by Irish industry and consumers, and Irish population numbers.

2.3 A) Domestic Demand

Economies expand by way of increased aggregate demand for goods and services. Where the domestic economy cannot satisfy a given demand level, imports are required. It follows then, that Ireland, a small open economy, will demand a greater level of imports as its economy grows. Economic growth can be measured using several methods, the most popular being Gross Domestic Product (GDP). However, in the Irish economy, components of GDP such as the transfer of Intellectual Property Products (IPP) can render the data less relevant for the Irish shipping market. This was particularly evident in 2019, when the CSO noted in their Quarterly National Account analysis that a 35% rise in Irish imports in 2019 was driven "to a considerable extent" by IPP.

Given the considerable detail within both GDP measurements, the expenditure of households on personal consumption can act as a more targeted insight into the determinants of Irish merchandise imports. As personal consumption includes household expenditure on everyday items such as food, clothing, heating fuel, medical products and transport equipment, it is more relevant for the Irish port and shipping industries. However, despite the improved accuracy and relevance of private household consumption, Figure 39 below indicates that both GDP and Consumption still show a closely correlated relationship with Irish merchandise imports.

Figure 39: Relationship between Personal consumption, GDP and Import Value



Source: *CSO*

As evident in Figure 39, both consumption and GDP have risen steadily over the past decade, reflecting Ireland's economic expansion throughout the period. Gross National Product (GNP), which excludes net factor income earned abroad[13], grew by 3.3% to €258bn in 2019 compared to 2018, while Irish Gross Domestic Product (GDP) grew by 5.5% to €339bn[14]. As for the components of GDP, industry manufacturing, which represents approximately a 30% share of total GDP, grew by 3%. Construction grew by 5.8% to €8bn. According to the Central Bank of Ireland (CBI), although Irish GDP growth was more subdued in 2019 than the 8% growth in both 2017 and 2018, Ireland's economy remains resilient in the face of heightened uncertainty, particularly surrounding Britain's departure from the European Union. Ireland's GDP growth continues to far outstrip its closest trading partners, including France, Great Britain, Germany and the Netherlands.[15]

As for personal consumption on goods and services, this measure has grown steadily over the decade, averaging 3% annual growth since 2014. Personal consumption accounts for roughly 38% of overall domestic demand. Domestic demand[16] grew by 3% in 2019 and has averaged 4% annual growth since 2014.

Other important indicators affecting Irish domestic consumption reflected the upward trend in economic growth. Employment growth averaged 2.7% in the first three quarters of 2019 (CBI), while the unemployment rate reached 4.7%, its lowest of the decade. However, some consumer related indicators that may have a negative impact on consumption levels have also increased. The CBI in 2020 has highlighted the trend of improving Irish household finances. Irish households are continuing to deleverage, with debt to disposable income at its lowest level since 2004 (CBI). This ratio currently stands at 117% compared to 143% in 2016. In keeping with that trend, the number of Irish households in mortgage arrears in 2019 is also 35% lower than in 2016. In addition to these patterns, Irish consumer sentiment –as measured by KBC bank – was sharply lower (-16%) in January 2020 than the same month in 2019, and is below its average for the past five years. Growth in Irish savings also continued, and is now increasing beyond the levels elsewhere in the euro area. Overall, despite patterns

[13] Net factor income from abroad represents the difference between what Irish citizens and companies earn abroad, and what foreign workers and companies earn in Ireland and repatriate. In many countries, these two figures offset one another, leaving little difference between GDP and GNP. In Ireland, net factor income from abroad amounted to €81bn, or 24% of total GDP.

[14] GDP at constant market prices, chain linked annually and referenced to year 2017 (CSO, 2019).

[15] When measured at current market prices (i.e. no adjustment for inflation) Ireland's GDP growth was 7.2% in 2019, compared to Great Britain (4.1%), Germany (2.7%), France (2.8%) and the Netherlands (4.7%).

[16] Modified domestic demand, Annex 4A (CSO).

of increased savings and the paying down of debts, combined with reduced consumer confidence, the Irish economy has shown its robustness in continuing to increase its personal consumption, a positive sign for the merchandise import sector. However, such trends are reflective of growing uncertainty among Irish consumers about continued growth into the future.

2.3 B) Prices

When considering key determinants of a given level of imports, the prices faced by industry and consumers can have a substantial impact. Two measurements, inflation and exchange rates, are significant variables impacting Irish import levels, as both determine the relative affordability of foreign goods.

Inflation

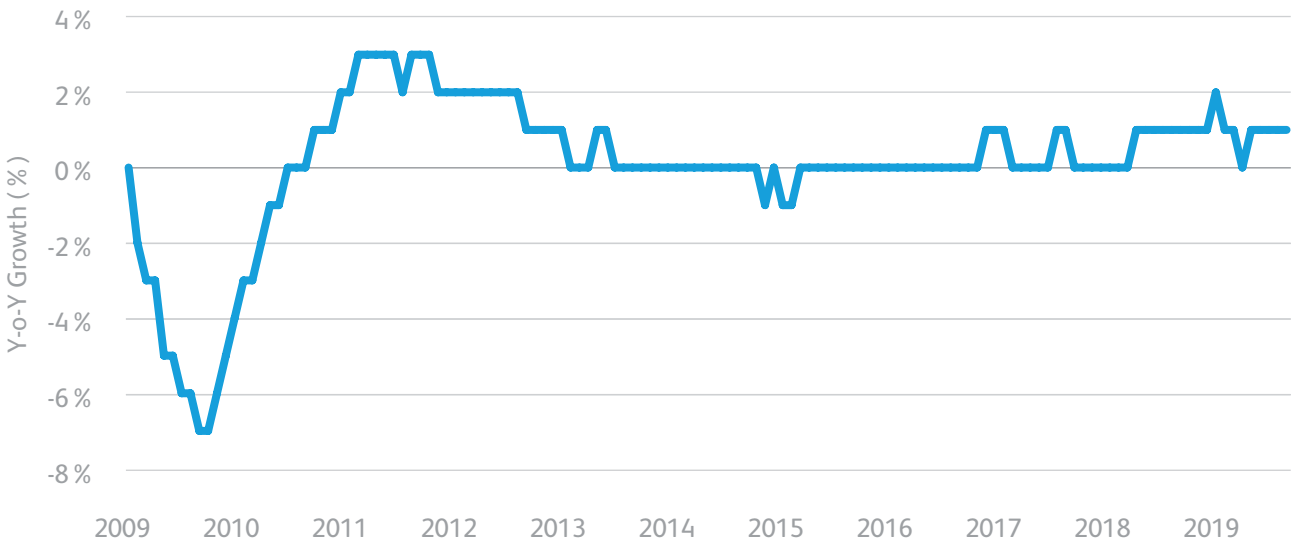
Increases in Irish consumer price inflation, if not accompanied by a similar increase in wage growth, can reduce the level of disposable income for Irish households, negatively impacting upon their level of demand for imported goods. Domestic price inflation can also reduce the competitiveness of Irish goods relative to comparable goods denominated in the same currency i.e. across the euro area. Imports will rise if substitution effects take hold and Irish consumers consider goods across the euro area more affordable than domestic alternatives.

The Consumer Price Index (CPI) is Ireland's official measure of inflation, analysing the overall change in the prices of typical goods and services that people buy over time. The Harmonised Index of Consumer Prices (HICP) is also an effective measurement of inflation. It shares the same methodology and classification system as the CPI, but differs in terms of purpose and product coverage. The HICP does not include coverage of motor or home insurance, or local taxes such as motor tax and local property tax. Its overall purpose is to compare inflation across EU Member States and as such, the CPI is a more granular measure of price inflation in Ireland.

Price inflation has remained subdued in Ireland for the latter half of the decade. The European Central Bank has a clearly established goal of Price Stability, which it defines as year-on-year increase in the HICP for the euro area of close to, but below 2%. In 2019, the HICP recorded a 0.9%[17] increase in prices compared to 2018, while Ireland's CPI also rose by 0.9%[18] (see Figure 40). This is the largest year-on-year increase in the CPI in the last five years, with annual inflation averaging 0.3% since 2014. Q2 2019 was the fastest growing period for inflation, with prices 1.3% higher than the same period in 2018. Driving the 0.9% increase in the CPI in 2019 was the Housing, Water, Electricity & Fuel category, which rose by 4%. Alcohol & Tobacco, and Restaurants & Hotels also contributed with a 3% rise each, with the overall total offset mainly by a 5% drop in the price of communications.

[17] Base Period: 2015 = 100
[18] Base Period: December 2016 = 100.

Figure 40: Consumer Price Index 2009 – 2019 (Base Period: Dec 2016 = 100)



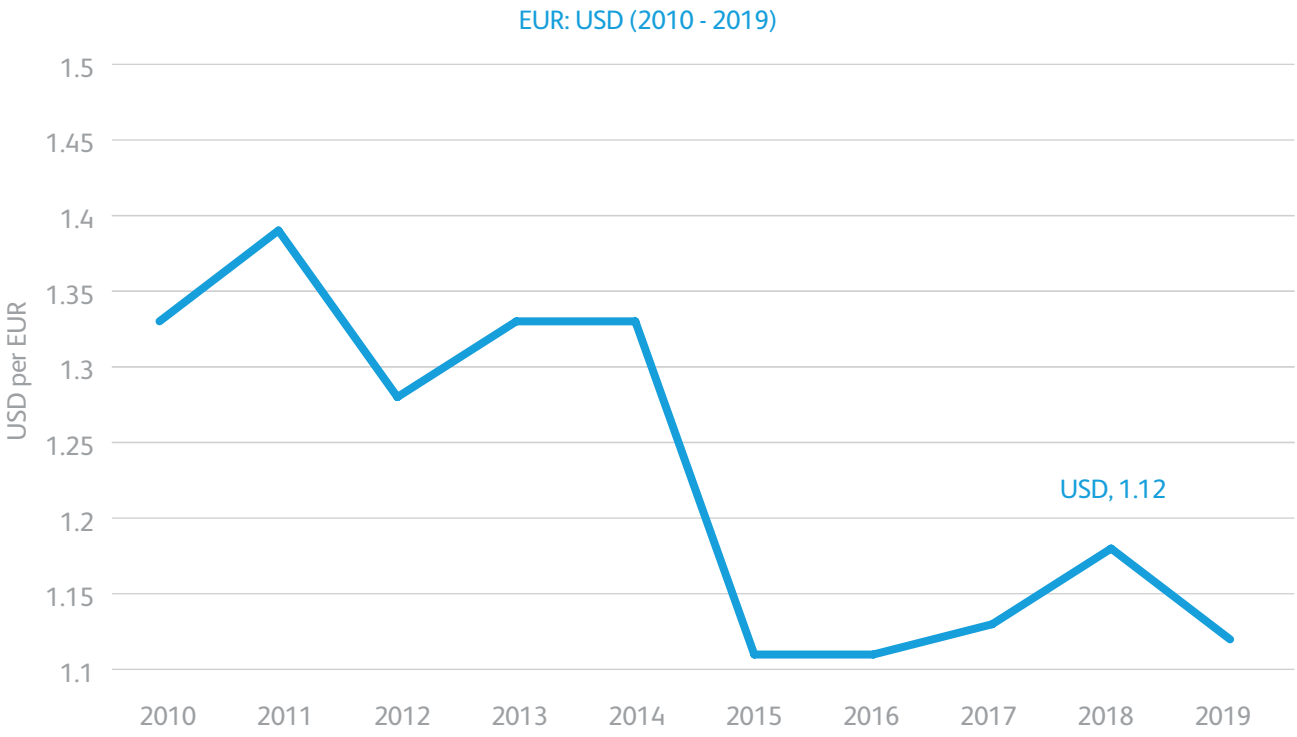
Source: *CSO*

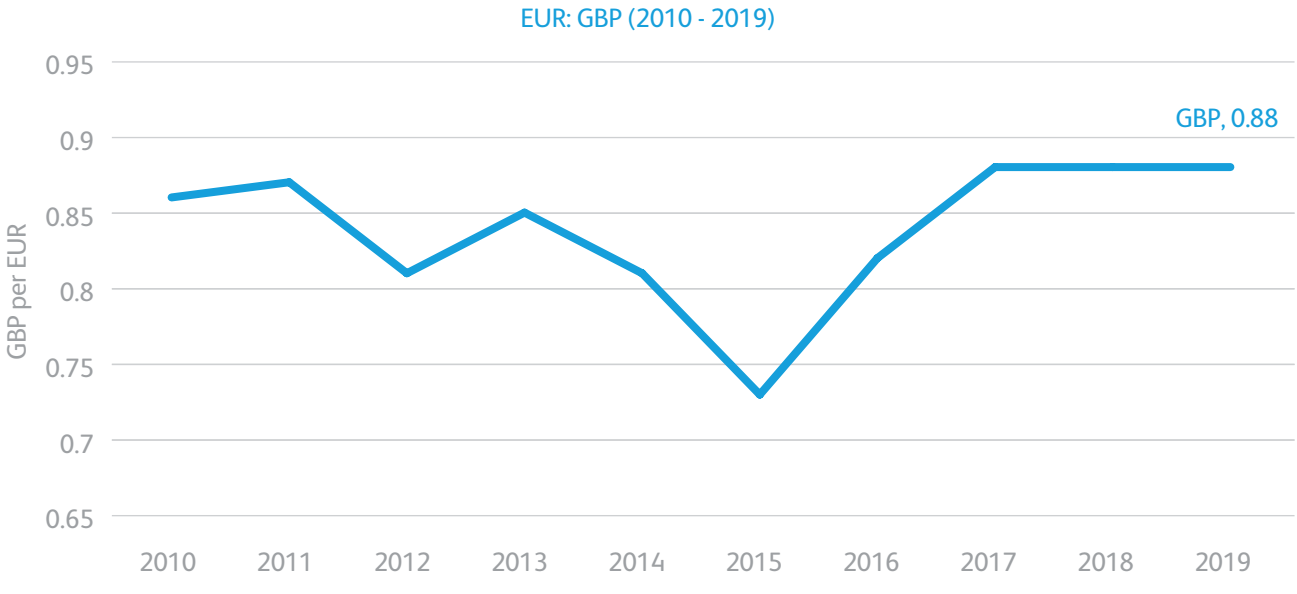
Exchange Rates

Exchange rates also impact the relative affordability of imported goods. An appreciation in the value of the Euro relative to another currency means its purchasing power increases in that market, making imports from that market relatively cheaper. Conversely, a depreciation makes imported goods relatively more expensive. As outlined in the analysis above, Great Britain and the United States represent a sizeable share of Irish import trade. Consequently, the Irish economy is particularly exposed to fluctuations in the pound sterling and the US dollar (USD).

Based on annual averages over the course of the last decade, the USD has gradually strengthened against the Euro (see Figure 41). One Euro received a high of $1.39 in 2011, and a low of $1.11 in 2016. The annual average in 2019 was $1.12. As for the pound (GBP), it gradually strengthened against the Euro in the first half of the decade, while weakening significantly after 2016, the year of the UK's referendum to leave the European Union. In 2019, the pound fell to its weakest level against the Euro, reaching 0.92p in August. This was reached ahead of Britain's expected departure from the EU on October 31st. Driving the depreciation were fears that no withdrawal agreement would be reached between the EU and UK Government prior to that date. The pound averaged 0.90p in the three months leading up to October as a result. The pound's value has stabilised since then however. It averaged 0.85p in December 2019, a level not reached since April 2017.

Figure 41: Exchange Rates: EUR – USD/EUR – GBP, 2010 - 2019



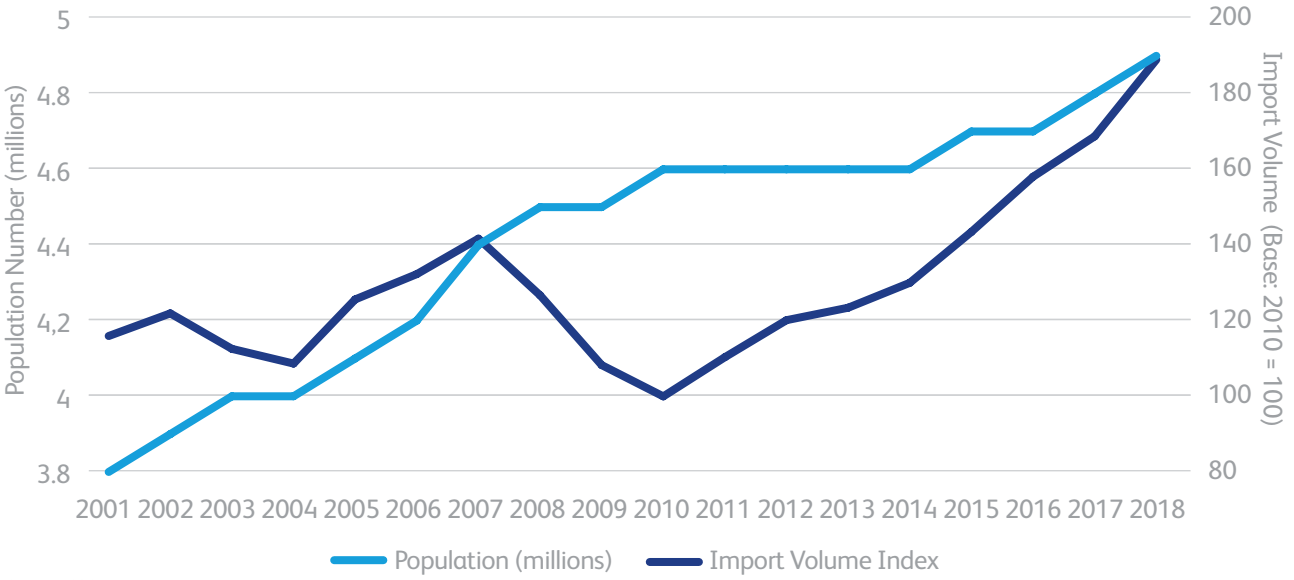


Source: *CSO*

2.3 C) Population

It is reasonable to assume that as the Irish population grows, so too does the demand for the import of goods and services which cannot be supplied domestically. This is evident in Figure 42 below, where it can be seen that the variation in Irish Import volumes roughly reflects the variation in Irish population. Over the past ten years, the annual growth rate in the Irish population has fluctuated significantly. From 2010 – 2014, the average annual rate of population growth was 0.5%. From 2015 – 2019, that figure more than doubled, with the population expanding at 1.2% per year on average, which equates to roughly 55,000 more people each year. During the first half of decade, Ireland also experienced a net migration outflow of 22,000 people per year on average. During the latter half, that trend was reversed, as the country experienced net inward migration of the same amount on average. This level of positive net migration is still less than half that experienced in the years preceding the financial crash of 2008, during which Ireland averaged positive net migration of 51,000 people per year between 2001 – 2008.

Figure 42: Irish Population & Import Volumes

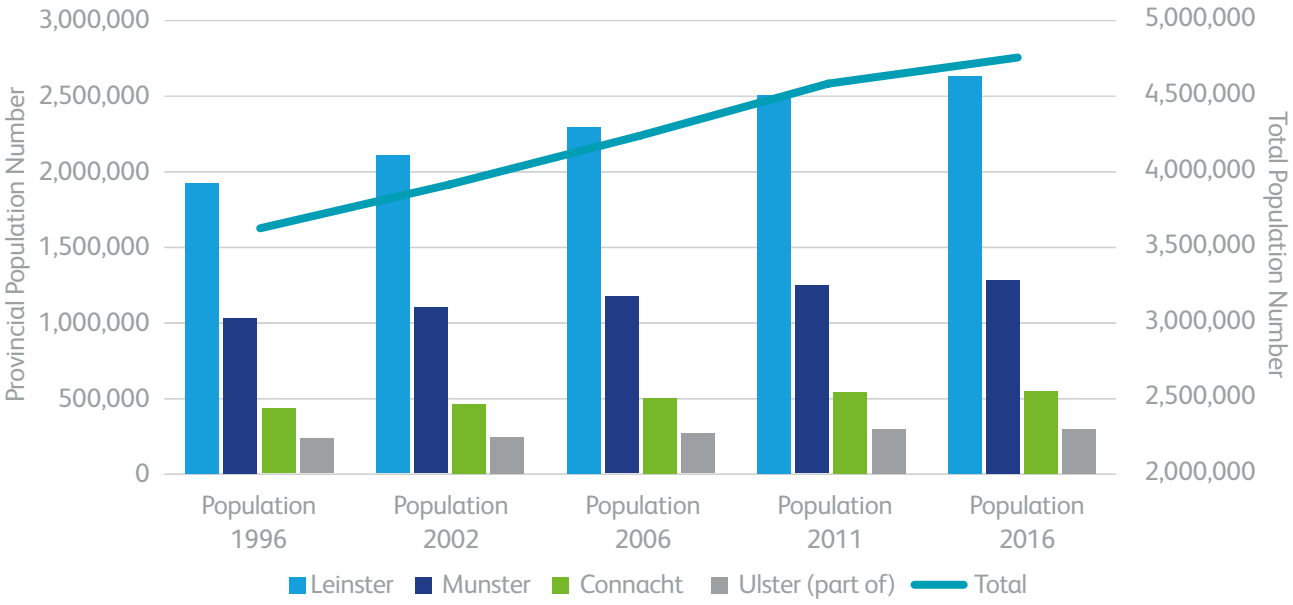


Source: *CSO*

With regard to the regional dispersion in Irish population, it can be seen from Figure 43 that, according to the census conducted in 2016, the province of Leinster accounted for 55% of a total population of 4.7 million. This is more than double the share of Munster at 27%. Despite the variations in Irish population throughout the last two decades, the population shares of each province have remained consistent throughout; Leinster 55%, Munster 27%, Connacht 12% and Ulster 6%. The effects of the net migration outflow experienced between 2010 – 2014 are reflected in the rate of total population growth. In the 2002, 2006 and 2011 census, the Irish population grew at a rate of 8% in each. In the 2016 census, that rate had slowed to 3.8%.

It is clear from Figure 43 however, that the population of Ireland is weighted heavily towards the east of the country. This is reflected in the volumes of cargo serviced through Irish ports. Ports in Leinster made up one third of all Irish bulk trade in 2019, three quarters of LoLo trade (Dublin; 73%) and 99% of RoRo trade (10% Rosslare; 89% Dublin). Geographic factors drive the dominance of east coast ports, but a dense hinterland in Leinster bolsters this concentration. That is particularly evident in the concentration of unitised trade (RoRo & LoLo) which includes non-seasonal, perishable goods (e.g. agri-food) which are easily consumed.

Figure 43: Republic of Ireland Population: Census Data 1996 – 2016



Source: *CSO*

Conclusion

Section 2 has provided a review of Irish merchandise imports, an analysis of Ireland's largest import trading partners and an investigation into the key factors determining Irish import volumes. Throughout the section, the performance of Irish imports over the course of the last decade was also considered. Notable points to emerge from this section include: the impact of the 2018 national fodder shortage on Irish import volumes in 2019; the shift in the nature of Irish energy imports towards natural gas; and the robust growth of Irish domestic demand and population, particularly in the latter half of the decade.

Section 3 - **Irish Exports: Market Outlook**

Introduction

Section 3.1 provides a review of Irish merchandise trade exports in 2019 and details the tonnage volume and value of Irish exports in relation to their Standard International Trade Classification (SITC) groupings. Section 3.2 describes the composition of Ireland's main export trading partners in terms of both tonnage volume and value. Section 3.3 investigates the key factors that determine Irish merchandise exports, focusing on external demand and price.

3.1. Merchandise Trade Review of Irish Exports

3.1 A) Tonnage

As is evident in Table 22 below, the volume of Irish merchandise exports rose by 1% in 2019 compared to 2018. This is the fourth consecutive year in which the volume of exports reached approximately 18.5 million tonnes. Export volumes steadily increased over the course of the last ten years, beginning in 2009 with 12.4 million tonnes and ending the decade at 18.5 million.

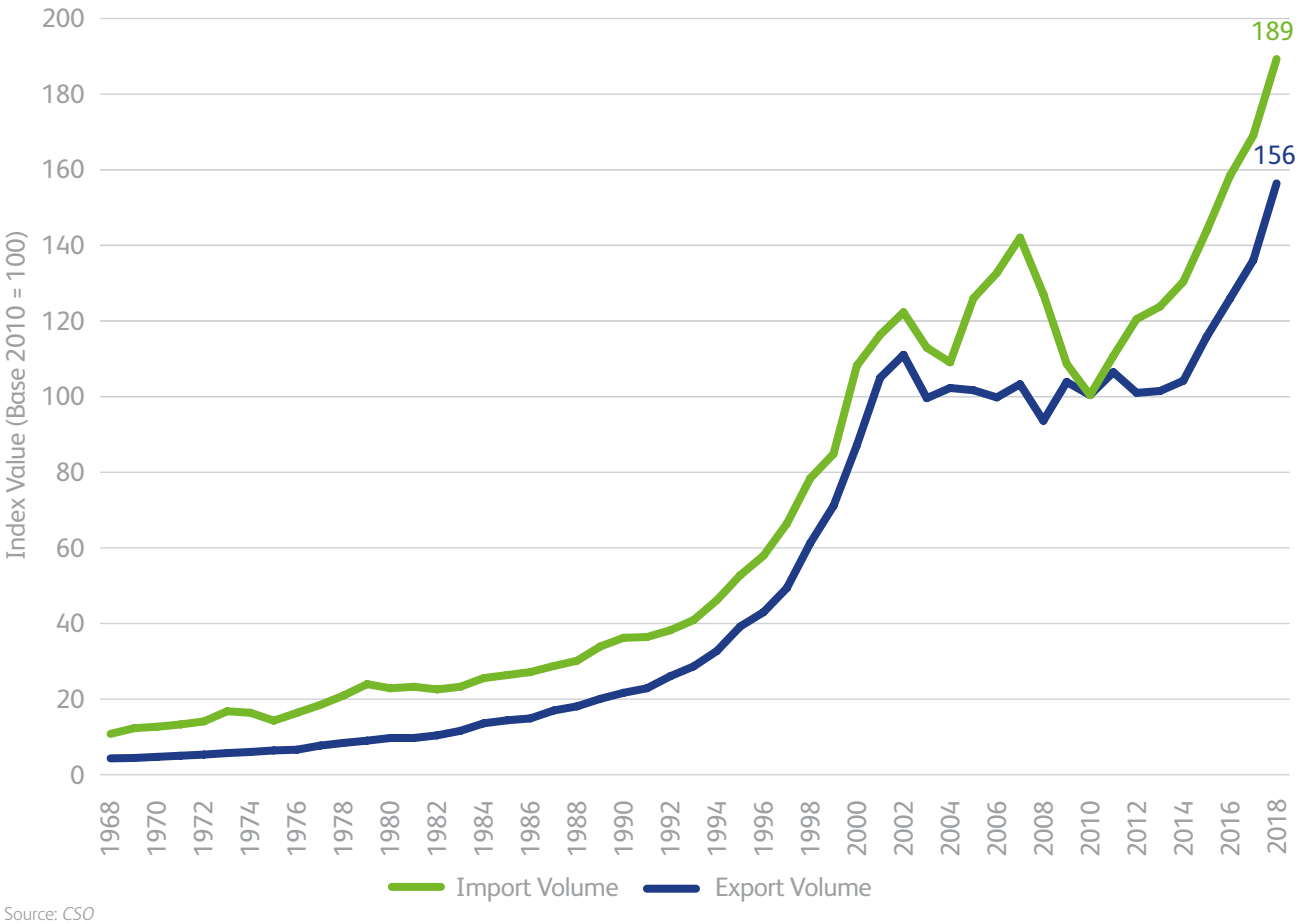
Figure 44 depicts a volume based index for Irish merchandise trade (CSO, 2020). As can be seen, Ireland has consistently experienced a merchandise trade deficit (in tonnage terms), for the last fifty years. This is not unusual for a small, open economy driven by high value exports. The only period in which this trend almost reversed was in the years following the economic downturn that began with the global financial crisis of 2008. This negative external shock to the Irish economy reduced demand for imports and halted the growth of exports. Over the course of the last decade, the merchandise tonnage deficit has been relatively consistent, averaging 21 million tonnes per year, with import growth marginally outpacing export growth.

Table 22: Irish Tonnage Exports & Trade Surplus 2009 - 2019

Year	Exports		
	Irish Exports Tonnes (millions)	% Change over previous year %	Trade Surplus (Exports - Imports) Tonnes (millions)
2009	12.4	-12%	-20.4
2010	13.9	12%	-21.3
2011	15.0	8%	-19.1
2012	15.7	5%	-18.3
2013	15.7	0%	-20.9
2014	16.7	7%	-19.7
2015	18.6	11%	-20.5
2016	18.8	1%	-19.9
2017	18.5	-2%	-21.9
2018	18.3	-1%	-25.7
2019	18.5	1%	-23.9

Source: *CSO*

Figure 44: Irish External Trade Volume Index (2010 = 100)



Source: *CSO*

Table 23 provides more detailed analysis of Irish exports in 2019, with products organised using Standard International Trade Classification (SITC) categories. Three categories; Food and Live Animals, Crude Materials, and Manufactured Goods made up 70% of exported tonnage from Ireland. Over 4 million tonnes of each category were exported in 2019.

The relative consistency in overall tonnage exports in 2019 is largely reflected among the top commodity groupings, with Crude Materials and Manufactured Goods registering 0% and -1% annual changes respectively. Approximately 60% of all crude materials exports are 'Metalliferous Ores & Scrap Metal', which alone, makes up 15% of all exported tonnage. Exports of this commodity fell by 3% in 2019 but have remained comfortably above 2.5 million tonnes since 2017. Among manufactured goods, Wood Manufactures and Non-metallic Mineral Manufactures made up over 90% of tonnage exports among this grouping[19] in 2019. The two major export groupings in Ireland – Crude Materials and Manufactured Goods - largely fall within the dry bulk export and break bulk export cargo modes for shipping. It is noteworthy that the exit points for these goods is predominantly through Ireland's core ports; the Port of Cork, Dublin Port and Shannon Foynes Port Company. These ports account for three quarters of the dry bulk export market and two thirds of the Break Bulk Export market. Specifically, Shannon Foynes accounted for 59% of all dry bulk exports in 2019.

Food & Live Animals, which accounts for roughly one quarter of Irish exported tonnage, recorded a 4% annual increase in 2019 to just over 4.5 million tonnes. This rise was driven primarily by increased exports of Dairy Products & Eggs, which rose by 15% - equivalent to 136,000 additional tonnes - building on the 8% growth in exports of these goods in 2018. Dairy

[19] SITC Code: 66: Non-metallic mineral manufactures. SITC Code 63: Cork & wood manufacturers (excl. furniture)

Products & Eggs make up approximately one quarter of the entire SITC grouping of Food & Live Animals, and exports of such goods stood at over 1 million tonnes in 2019. The rise in the exports of dairy tonnage was offset by a 4% decline in the export of Meat & Meat Preparations - equivalent to 42,000 tonnes. However, this commodity's market share of overall export tonnage remained consistent with that of previous years, at 6%. Reflecting the analysis of Crude Materials and Manufactured Goods, the exit points for Food & Live Animals is predominantly through Ireland's core ports as opposed to Tier Two ports or ports of regional significance. Two thirds of this category is serviced through Tier One ports in Ireland.

Table 23: Irish Tonnage Exports by SITC Grouping: 2019

Product Grouping	Exports (Tonnes)	% Share of Total
Food And Live Animals	4,500,129	24%
Crude Materials	4,434,624	24%
Manufactured Goods	4,011,004	22%
Mineral Fuels & Lubricants	2,323,648	13%
Chemicals And Related Products	1,248,611	6.8%
Beverages And Tobacco	967,645	5.2%
Machinery & Transport Equipment	505,063	2.7%
Misc. Manufactured Articles	341,540	1.9%
Animal And Vegetable Oils	113,563	0.6%
All Other Commodities	11,129	0.1%
Total	**18,456,955**	**100%**

Source: *CSO*

3.1 B) Value

In 2019, the total value of Irish merchandise exports reached a record high of €152.6bn (See Table 24). This represented an 8.5% increase over 2018, worth €11.9bn. Merchandise exports are now worth €24bn more than a decade ago and have averaged 5% growth since 2009. Table 25 provides more detailed analysis of Irish exports in 2019, with products organised using Standard International Trade Classification (SITC) categories. Across all the variations in SITC categories, there was a median increase of 3% and an average increase of 2% in 2019. Among the main drivers of the overall increase was a rise in Electrical Machinery and Appliances worth €3bn (+57%) and a rise in Office Machinery and Data Processors worth €0.8bn (+20%).

As mentioned above, Ireland usually experiences a merchandise trade deficit in tonnage terms. In terms of value however, the opposite is true. As depicted in Figure 45, Ireland has experienced a significant trade surplus each year over the last three decades. In 2019 the value of Ireland's merchandise trade surplus was €63bn, a record high. This amounted to one quarter of the value of Ireland's combined merchandise trade, and 19% of Irish GDP in 2019.

Table 24: Irish Exports & Irish Trade Surplus by Value: 2009 - 2019

	Total Exports	% Change over Previous Year	Trade Surplus (Exports Minus Imports)
	€bn	%	€bn
2009	87.6	-1%	39.4
2010	90.9	4%	42.2
2011	93.2	2%	40.2
2012	93.5	0%	37.3
2013	89.2	-5%	33.4
2014	92.6	4%	30.5
2015	112.4	21%	42.3
2016	119.3	6%	45.1
2017	122.8	3%	39.8
2018	140.6	15%	48.7
2019	152.6	8.5%	63.4

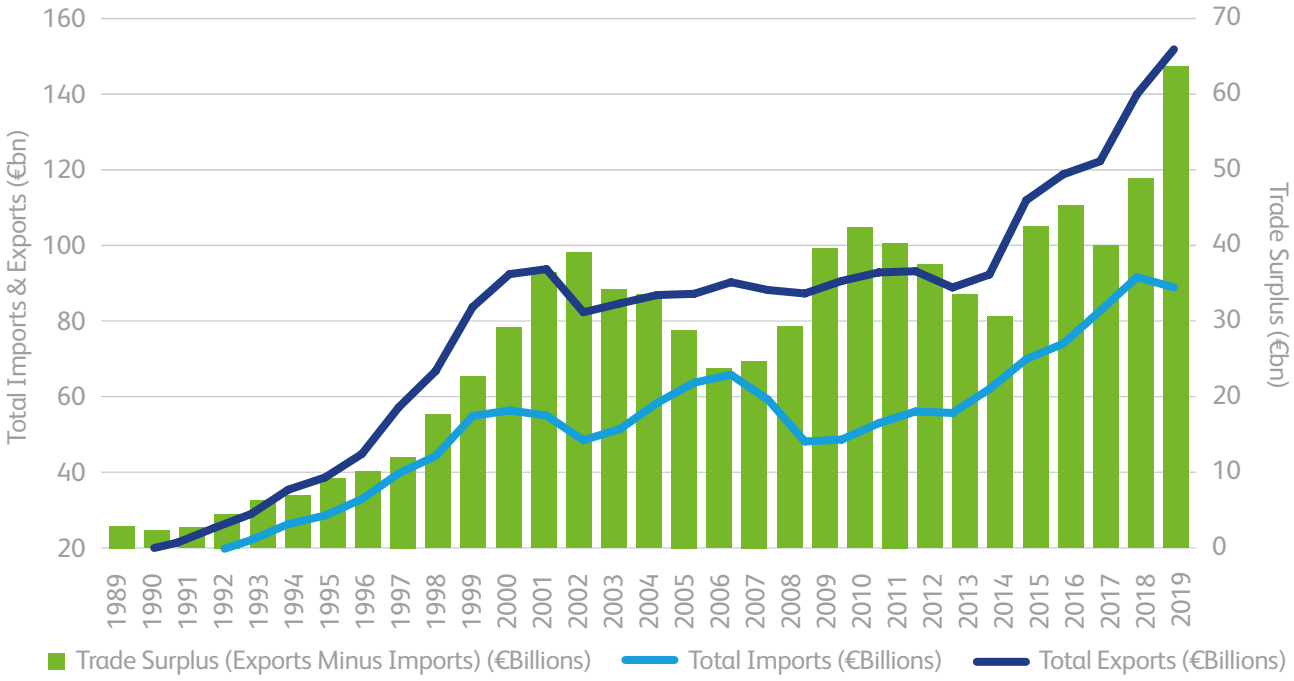
Source: *CSO*

Table 25: Irish Export Value by SITC Grouping 2019

Product Grouping	Exports (value €m)	% Share of Total
Chemicals And Related Products	93,103	61%
Machinery & Transport Equipment	23,701	16%
Misc. Manufactured Articles	16,325	11%
Food And Live Animals	11,724	7.7%
Manufactured Goods	2,362	1.5%
Beverages And Tobacco	1,713	1.1%
Crude Materials	1,673	1.1%
All Other Commodities	1,018	0.7%
Mineral Fuels & Lubricants	886	0.6%
Animal And Vegetable Oils	68	0.04%
Total	**152,572**	**100%**

Source: *CSO*

Figure 45: Irish Merchandise Trade (1989 – 2019)



Source: *CSO*

The increase in merchandise export value is significantly influenced however, by the outsized contribution made by the Chemicals & Related products grouping, which accounted for 61% of total export value this year. Within this grouping are the sub-commodities of; Medical & Pharmaceutical products, and Organic Chemicals. The former accounted for one third of all export value in 2019, while the latter accounted for one fifth. This amounted to €50bn and €30bn in value respectively. Medical & Pharmaceutical Products grew by 7% annually compared to 2018 while Organic Chemicals grew by 13%. Both increases added approximately €3.5bn each to total export value. In 2018, total merchandise export value grew significantly, by 15%, equivalent to €18bn of additional value when compared to 2017. That increase was entirely driven by an expansion in these two sectors, with Medical & Pharmaceutical Products growing by 30% and Organic Chemicals by 34%. This added €10.7bn and €6.7bn in value respectively.

Figure 46 depicts the concentration of Irish merchandise exports towards the two aforementioned commodities. As evident in the graph, the share of total export value accounted for by these commodities was more than half in 2019. At 52%, this represents a 7% increase in its contribution since 2017. In the first quarterly bulletin of 2020, the CBI noted the risks of this growing concentration over recent years;

"The concentration of export growth in a small number of products represents a risk to the outlook as a shock to one or two firms or products could result in a significant downturn in Irish exports."

- Central Bank of Ireland, 2020

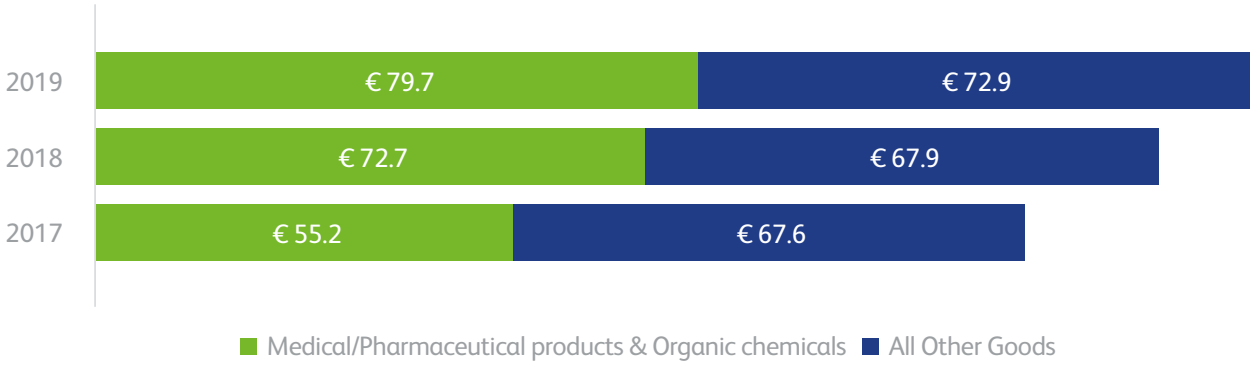
The CBI also employs disaggregated trade data to calculate a Herfindahl-Hirschman index (HHI), which measures market concentration.[20] It was found that the level of concentration within the Irish merchandise export market comes second only to Cyprus and thus is higher than the majority of other European countries. The CBI also goes into further detail regarding the specific SITC categories driving the surge in this grouping since 2017. It was found that one category, Antisera and Other Blood Fractions accounted for 40% of the growth in Chemicals & Related Products, with exports of this product averaging

[20] To calculate the HHI, the market share of each firm competing in a given market is squared. The resulting numbers are then summed. The larger the amount of relatively equal sized firms there are in a market, the more the index approaches zero. The index rises as a smaller number of large firms occupy bigger shares of the market.

€2.5bn per month throughout 2019 (CBI, 2020). Roughly half of this was exported to the US with another significant share exported to Belgium.

There are two important points to note for the Irish shipping industry regarding the heightened concentration within this sector. First, Medical & Pharmaceutical products and Organic Chemicals accounted for 1% of total tonnage exports in 2018 and 2% in 2019. This equates to approximately 225,000 tonnes and 300,000 tonnes respectively. In addition, as Lawless & Morgenroth (2017)[21] point out, it is reasonably likely that the medical and pharmaceutical industry makes disproportionate use of the air freight sector in Ireland, given the medical sensitivity of the products as well as their high-value and low weight ratios. Second, as acknowledged by the CBI (2020), Irish merchandise exports have been resilient in recent years despite increasingly subdued global demand. If the contribution of this sector is removed however, Irish export growth is significantly more restrained. This is evident from the fact that exported tonnage has averaged 0% growth since 2016, flat lining at roughly 18.5 million tonnes per year for the last five years.

Figure 46: Contribution to Total Export Value (€bn)



Source: *CSO*

3.2 Ireland's Merchandise Trading Partners

3.2 A) Tonnage

As outlined in Table 26, two thirds of exported tonnage within the European continent was destined for Great Britain (GB) and Northern Ireland (NI), with each capturing 44% and 22% of this market respectively. The Netherlands, Germany, France, Spain & Belgium account for approximately 23% of exported tonnage to Europe. All other countries in the EEA represent roughly 1-2% each. Of the five continental destinations listed above, The Netherlands has experienced the largest variations over recent years. Exports destined for The Netherlands declined by 5% in 2019 and 11% in 2018. As a result, 200,000 less tonnes were exported to the Netherlands since 2017. Driving this fall was a decline in Metalliferous ores & scrap metal, which fell by 31% in 2019, equivalent to 125,000 tonnes. Conversely, exported tonnage to Spain rose by 32% in 2018 and by 11% in 2019, adding 100,000 additional tonnes since 2017. Driving that growth was the export of industrial raw materials such as ores, scrap metal and petroleum products. Other finished goods such as Meat, Dairy and Beverages also added 10,000 tonnes since 2017, representing a 34% rise across these three products.

Table 27 depicts Ireland's top export trading partners outside of Europe. As evident in the table, 18% of all exported tonnage outside of the European continent is to the United States (US), while the top four countries of the US, China, Russia and India account for just under half (46%) of all tonnage within this market. Exported tonnage to Russia has risen significantly in the last two years, recording annual increases of 20% in 2018 and 40% in 2019. In all, 400,000 tonnes were exported here in

[21] Lawless, M & Morgenroth, E (2017) Ireland's International Trade and Transport Connection, ESRI Working Paper, No. 573.

2019, which is 160,000 tonnes more than two years ago. This expansion was driven exclusively by the export of metalliferous ores and scrap metal, which accounted for 94% of exported tonnage to Russia in 2019, worth roughly €112m.

When considering all Irish exported tonnage regardless of region, Ireland's largest trading partners are Great Britain and Northern Ireland. Great Britain accounted for 36% of all exported tonnage in 2019, while Northern Ireland accounted for 18%. The five countries listed above - Netherlands, Germany, France, Spain & Belgium - accounted for 19% when combined. The United States, Ireland's largest export partner outside of Europe, captured 3% of overall tonnage exports.

When trying to understand specifically what products, or categories of products, are exported from Ireland to these top trading partners each year, goods can be characterised in two ways. First, there are those goods that predominantly, but not exclusively, make use of bulk shipping services i.e. liquid, dry and break bulk cargo modes. This 'bulk' category is largely made up of industrial, non-perishable raw materials. Second, there are those goods that predominantly, but not exclusively, make use of unitised shipping services i.e. RoRo and LoLo cargo modes. This 'unitised' category is largely made up of perishable food items further along the value chain, some of which may require just-in-time logistical strategies from its producers.

Among the top exports that could reasonably fall within the 'bulk' category are; Crude Materials, Mineral Fuels and Manufactured Goods[22]. Combined, these three groupings made up 58% of all exported tonnage in 2019 (See Table 23).

Taking Crude Materials and Mineral Fuels together, roughly 6.7 million tonnes were exported in 2019. 40% of this was exported to Great Britain and Northern Ireland - 30% to GB and 10% to NI. 11% was exported to France and 7% to the Netherlands. In Crude Materials, growth is driven by exports of Metalliferous Ores & Scrap Metal. Among Mineral Fuels, the main drivers are Petroleum Products and Coal. 2.3 million tonnes of Petroleum Products & Coal was exported in 2019, 40% of which went to Great Britain. Overall, Crude Materials and Mineral Fuels made up 37% of all exported tonnage this year.

As for Manufactured Goods, 4 million tonnes were exported in 2019, accounting for 22% of all exported tonnage. However, this grouping is significantly concentrated around one product and largely one destination. Growth is almost exclusively driven by Non-Metallic Mineral Manufactures. 2.8 million tonnes, or 70% of all Manufactured Goods, are represented by this commodity. Secondly, of the 4 million tonnes exported, 2.5 million tonnes (64%) was exported to Great Britain and Northern Ireland – 40% to GB and 24% to NI.

Among the top exports of Irish tonnage that could reasonably fall within the 'unitised' category are Beverages, and Food & Live Animals[23]. When combined, 5.5 million tonnes were exported in 2019, or 30% of overall tonnage. Driving the 5.5 million tonnes was 1.9 million (35%) tonnes exported to Great Britain and 1 million tonnes (18%) exported to Northern Ireland. Other destinations include 0.37 million tonnes (7%) to the Netherlands and 0.26 million tonnes (5%) to France. Combined, the two groupings exported 5% more tonnes in 2019 compared to 2018. Driving that growth was a 15% increase in the export of Dairy Products & Eggs, led by a 50% and 52% increase in the amount exported to The Netherlands and China respectively – accounting for an additional 50,000 tonnes. Beverages exports also expanded by 11% in 2019 to just under 1 million tonnes, led by increases to Great Britain & France worth another 50,000 tonnes.

[22] Specifically, these are the following SITC Groupings; *2: Crude materials, inedible, except fuels. 3: Mineral fuels, lubricants and related products and 6: Manufactured goods classified chiefly by material.*

[23] Specifically, these are the following SITC Groupings; 0: Food and Live Animals, 1: Beverages and Tobacco.

Table 26: Ireland's European Trading Partners (Exports) 2019

	Exports		
EEA Countries	€m	Tonnes	% Share of Total European Tonnage
Netherlands	8,704	1,125,647	7.5%
France	5,416	1,140,805	7.6%
Germany	13,574	438,375	2.9%
Spain	2,352	327,830	2.2%
Belgium	15,686	453,631	3.0%
Sweden	1,000	333,919	2.2%
Italy	3,863	253,267	1.7%
Portugal	427	140,927	0.9%
Poland	1,178	100,430	0.7%
Denmark	662	97,878	0.7%
Austria	415	30,164	0.2%
Rest of EEA	3,423	654,962	4.3%
Non-EEA Countries			
Great Britain	13,524	6,665,726	44%
Northern Ireland	2,182	3,279,503	22%
Switzerland	5,529	14,772	0.1%
Total	**77,936**	**15,057,836**	**100%**

Source: *CSO*

Table 27: Ireland's Global Trading Partners (Exports) 2019

	Exports		
Country	€m	Tonnes	% Share of Total Tonnage Outside Europe
United States	46,938	619,435	18%
Russia	612	400,760	12%
China	8,229	279,056	8%
India	480	272,360	8%
Turkey	652	90,100	2.7%
Colombia	162	4,312	0.1%
South Africa	413	84,805	2.5%
United Arab Emirates	430	41,597	1.2%
Japan	2,824	68,734	2.0%
Vietnam	122	47,097	1.4%
Indonesia	86	45,022	1.3%
Australia	776	42,265	1.2%
Egypt	236	41,675	1.2%
Romania	381	24,348	0.7%
Other	12,296	1,337,553	39.4%
Total	**74,637**	**3,399,118**	**100%**

Source: *CSO*

3.2 B) Value:

Tables 28 and 29 provide analysis of Ireland's largest export partners in terms of value, with shares presented as a percentage of total value in Europe and outside of Europe respectively. As evident in Table 28, Belgium, Germany and the Netherlands are Ireland's largest trading partners within the EEA, accounting for just under half (49%) of total European export value in 2019. France, Italy and Spain represent 15% when combined, while outside the EEA, Great Britain and Switzerland account for approximately one quarter. Outside of Europe, the US represents close to two thirds of export value, while China and Japan together represented 15% this year.

When considering total Irish export value rather than regional value, Ireland's largest export partner is The United States, which represented 31% of total export value in 2019, worth €47bn. The next three largest trading partners have roughly the same percentage of Irish export value of 9-10%. They are; Belgium, Great Britain and Germany. Exports to Germany experienced a 29% rise in 2019, adding roughly €3bn in value. Of the ten largest trading partners for Ireland in 2019, five are within the European Union and five are outside. The five non-European partners include China, Switzerland, Japan, Great Britain and as mentioned, The United States.

As described in detail earlier in this section, Irish export value is dominated by a small number of commodities – namely; Medical & Pharmaceutical products, and Organic Chemicals – which fall within the Chemicals & Related Products grouping. Specifically, the value of the two commodities amounts to €80bn, or 52% of total export value. 40% (€32bn) of this €80bn came from the United States, while 18% (€14bn) came from Belgium. Noteworthy in 2019 was the additional value of

Organic Chemical exports to Germany, which rose by 379% in 2019, from €1.1bn in 2018 to €5.5bn in 2019. Among the exports to Great Britain, 22% were from the two aforementioned chemical products, while 31% of a total of €13.5bn came from Food & Live Animals and Beverages.

Table 28: Ireland's European Trading Partners (Exports) 2019

	Exports		
EEA Countries	€m	Tonnes	% Share of Total European Value
Belgium	15,686	453,631	20.1%
Germany	13,574	438,375	17.4%
Netherlands	8,704	1,125,647	11.2%
France	5,416	1,140,805	6.9%
Italy	3,863	253,267	5.0%
Rest of EEA	3,423	654,962	4.4%
Spain	2,352	327,830	3.0%
Poland	1,178	100,430	1.5%
Sweden	1,000	333,919	1.3%
Denmark	662	97,878	0.8%
Portugal	427	140,927	0.5%
Austria	415	30,164	0.5%
Non-EEA Countries			
Great Britain	13,524	6,665,726	17.4%
Switzerland	5,529	14,772	7.1%
Northern Ireland	2,182	3,279,503	2.8%
Total	**77,936**	**15,057,836**	**100%**

Source: *CSO*

Table 29: Ireland's Global Trading Partners (Exports) 2019

Ireland's Global Trading Partners 2019 Exports			
Country	€m	Tonnes	% Share of Total European Value
United States	46,938	619,435	62.9%
China	8,229	279,056	11.0%
Japan	2,824	68,734	3.8%
Australia	776	42,265	1.0%
Turkey	652	90,100	0.9%
Russia	612	400,760	0.8%
India	480	272,360	0.6%
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Romania	381	24,348	0.5%
Egypt	236	41,675	0.3%
Colombia	162	4,312	0.2%
Vietnam	122	47,097	0.2%
Indonesia	86	45,022	0.1%
Other	12,296	1,337,553	16.5%
Total	**74,637**	**3,399,118**	**100%**

Source: *CSO*

3.3 Key Drivers of Irish Merchandise Exports

Introduction

This section will follow the analysis undertaken in Section 2 and investigate the key factors determining current volumes of Irish merchandise exports. This will provide further economic context for the volumes of goods which exited through Irish ports in 2019. It must be noted that Irish exports are represented in the recipient country as imports within their national accounts. The report focuses on Ireland's closest trading partners, investigating trends in those economies that have impacted upon Irish merchandise export levels. Two significant variables are investigated; aggregate demand of foreign partners and price.

3.3A Foreign Demand

External Economic Growth

As mentioned in Section 2.3A, economies grow as the aggregate demand for goods and services increases. Where this demand cannot be met by the domestic economy, imports are required. Through exports, the Irish economy satisfies this surplus demand in foreign economies. Consequently, aggregate demand within those economies drives demand for Irish exports. Given that Ireland's economy is relatively small, its ability to satisfy all foreign surplus demand is clearly limited. As a result, the Irish economy, like many others, targets large, wealthy economies with high value goods.

As highlighted in Section 2.3A, the most common measure for aggregate demand is Gross Domestic Product (GDP). However, the expenditure of households on personal consumption can encapsulate in more granular detail, the

consumption of the high value goods which the Irish economy competes to provide.[24] As a result, trends in both measures are analysed.

In 2019, real GDP in the economies of Ireland's three largest EU export partners in value terms; Belgium, Germany and The Netherlands, grew by 1.4%, 0.6% and 1.7% respectively (See Figure 47). For all three economies, this is the lowest rate of annual expansion since 2015, with Germany posting the steepest drop of 0.9% compared to 2018. Trade analysts polled by Reuters noted that, although this is the tenth consecutive year of expansion for the German economy, global tariff disputes, heightened trade uncertainty and slowing global demand resulted in subdued growth in 2019.

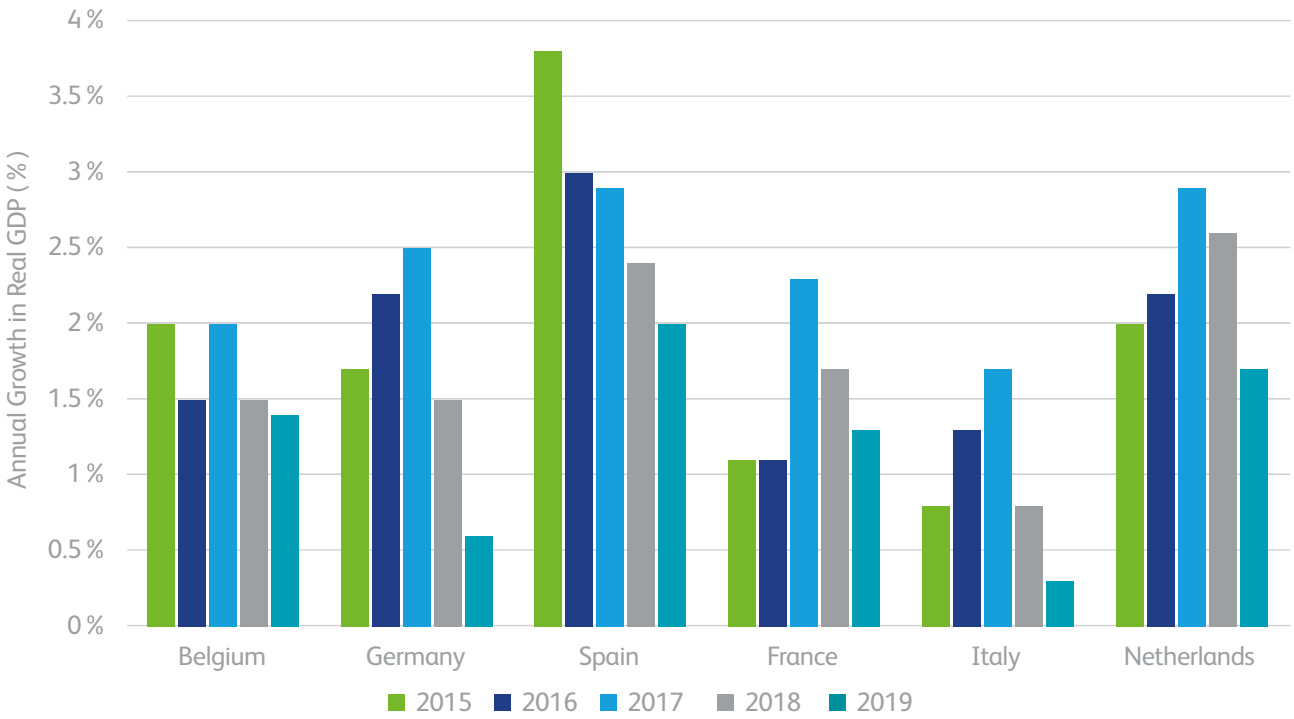
Figure 48 shows the real GDP of a selection of economies and groups of economies outside of the European continent. These include Ireland's largest trading partners outside the EU in value terms; The US, China and Japan. From 2015 to 2019, these economies grew by an average of 2.4%, 6.6% and 1.1% respectively each year. Overall, the real GDP of major economies across the world trended downwards in 2019. This pattern emerged in the latter half of the decade. In Figures 47 - 49, real GDP in 2019 was lower than the average recorded for the previous four years for all countries and groups of countries shown. Irish real GDP exhibited higher growth over the same period (See Figure 49), but its continued success depends heavily on that of its trading partners.

Regarding private household consumption, the trend across Europe was that of continued expansion, but at a subdued rate.

Figure 50 shows the annual consumption per capita in nominal terms across some of Europe's wealthiest economies. Among them are Ireland's largest trading partners, including Germany, Belgium, France and the Netherlands. It is evident that Irish merchandise exports are concentrated towards Europe's largest and wealthiest consumers. Figure 51 provides the rate of nominal household consumption growth across these EU trading partners. Since 2014, each country experienced a stable growth rate of approx. 2% per year on average.

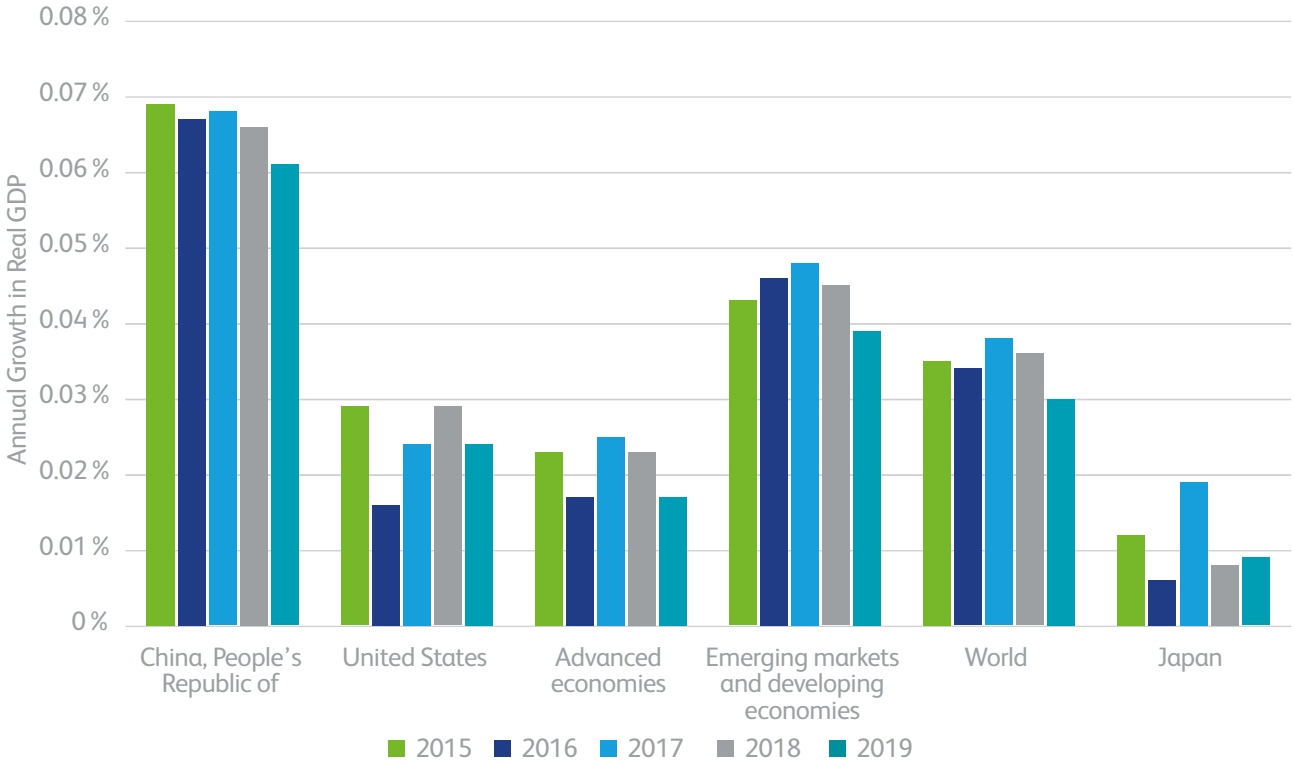
[24] Personal, household consumption is a helpful measure as it includes expenditure on everyday items such as food, clothing, heating fuel, medical products and transport equipment. Eurostat's methodology outlines how it consists of everyday items "that are used for the direct satisfaction of individual needs or wants." As a result, it is more directly relevant for Irish exporters as well as the Irish port and shipping industries who are on the frontline of transporting such goods on behalf of the Irish economy.

Figure 47: GDP Growth Among Some of Ireland's Largest Trading Partners



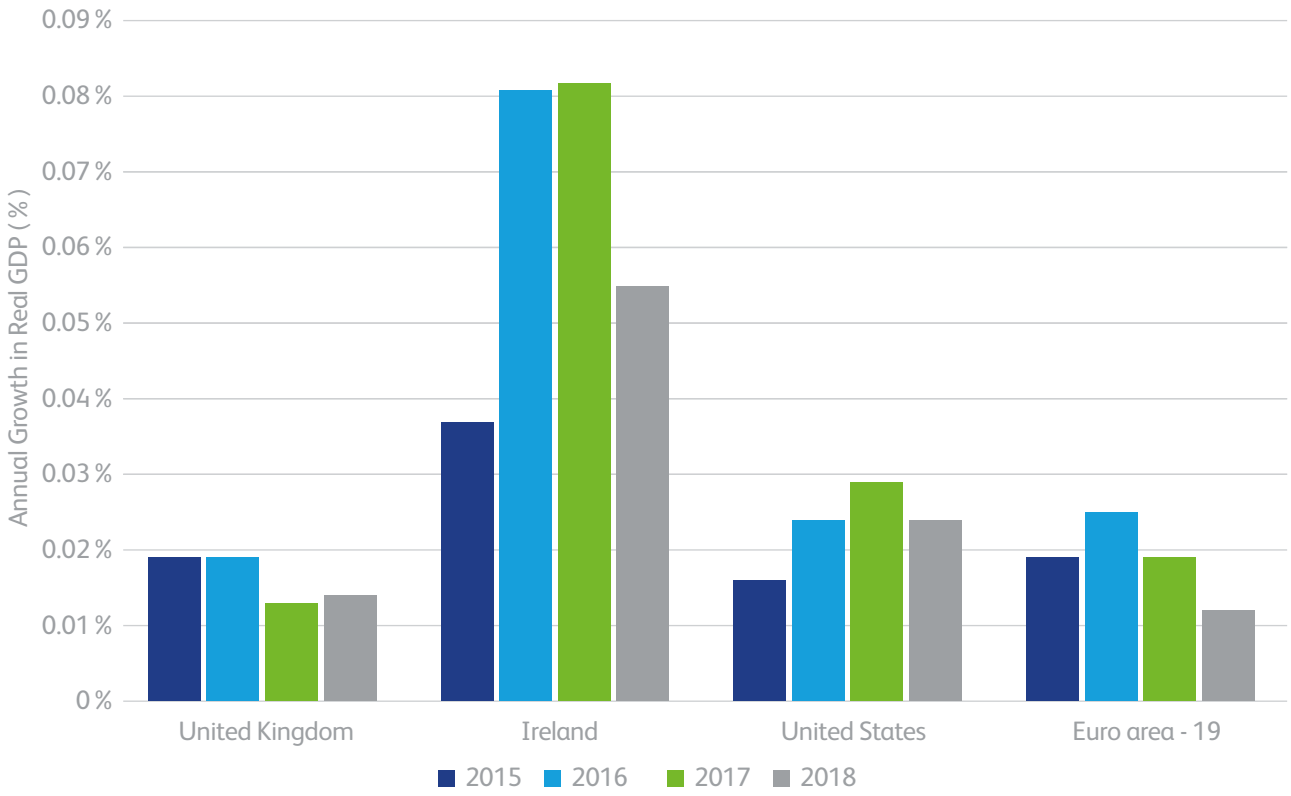
Source: *Eurostat*

Figure 48: GDP Growth Among a Selection of Global Economies



Source: *IMF*

Figure 49: GDP Growth Among Ireland's Largest Exporting Countries/Regions



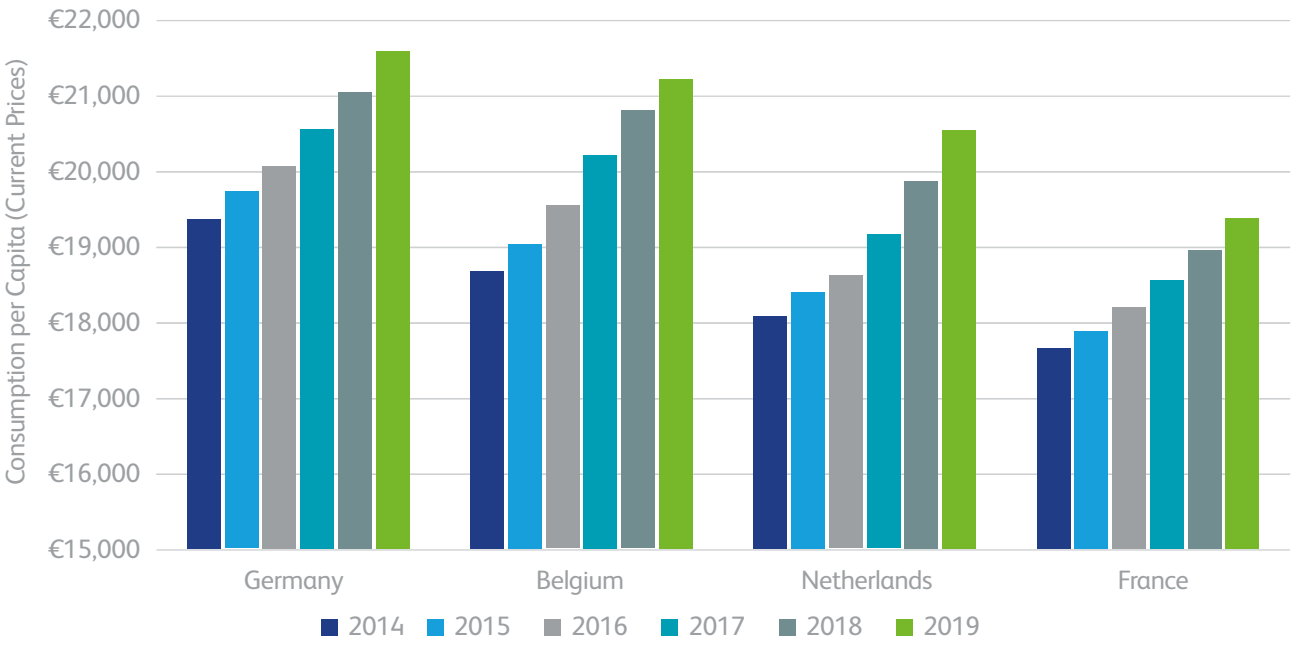
Source: *Eurostat & IMF*

Figure 50: Annual Consumption per Capita 2019

Country	Annual Consumption per Capita 2019
United Kingdom	€24,149
Austria	€23,230
Finland	€22,878
Germany	€21,609
Ireland	€21,539
Belgium	€21,230
Netherlands	€20,555
France	€19,381
Italy	€17,817
Spain	€15,278
Portugal	€13,260
Greece	€11,882

Source: *Adapted by IMDO from Eurostat*

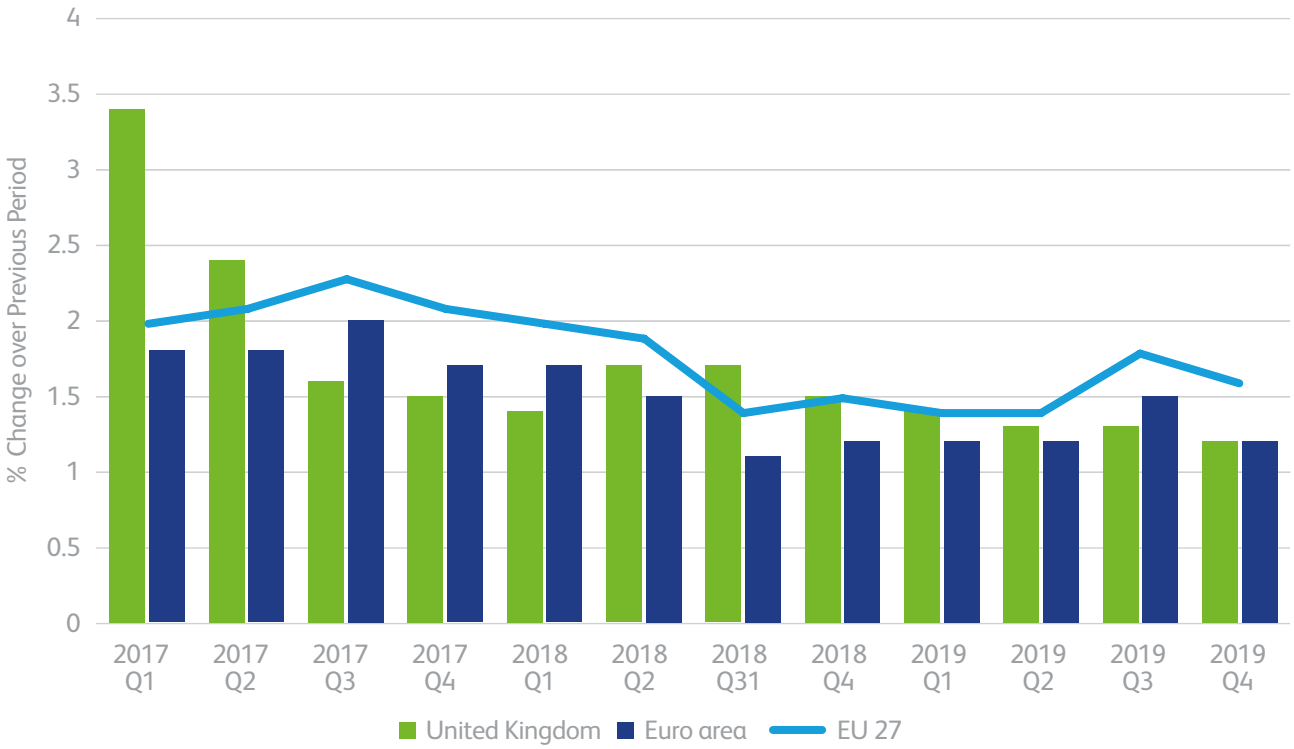
Figure 51: Annual Consumption per Capita at Current Prices (€)



Source: *Adapted by IMDO from Eurostat*

When adjusted for inflation however, consumption growth across Europe has been more subdued. This is evident in Figure 52, which shows the rate of real, inflation-adjusted consumption growth across the Eurozone, UK and EU 27. By adjusting for inflation, Figure 52 isolates the growth in the volume of consumption for each country, a more relevant indicator for Irish merchandise exporters and the Irish ports network. Since 2017, real household consumption has averaged a quarterly growth rate of 1.5% across the Eurozone, 1.7% in the UK and 1.8% across the EU 27.

Figure 52: Real Household Consumption 2017 - 2019



Source: *Eurostat*

Irish Exports and External Demand

It is important to understand the responsiveness of Irish merchandise exports to changes in external demand. The CBI examined this relationship in the Q3 bulletin of 2018. Empirical estimates calculated by the Irish Economic Analysis Division suggested that, as well as being a key determinant of Irish exports; *"the impact of changes in external demand on Irish exports are almost double the corresponding effect of changes in relative prices"* (CBI, Q3 2018). Consequently, the relationship between Irish exports and external demand represents a risk to the medium-term outlook of Irish trade.

Using ECB data on external demand alongside Irish national account data, the CBI estimated Irish export demand elasticities. A long-run elasticity figure of 1.74 was calculated, implying that a 1% increase in external demand should lead to a 1.74% increase in Irish exports.[25] As long-run elasticities are generally close to 1, this result implies that Irish exports exhibit a high degree of responsiveness to external demand (CBI, Q3 2018).

However, as noted by the CBI in the first bulletin of 2020, Irish exports expanded significantly over the first three quarters of 2019. This is despite trade-weighted world demand for Irish exports growing comparatively slowly over the same period. As a result, Irish exports outperformed their elasticity to world demand in 2019. According to the CBI, this divergence of export growth from external demand conditions can be explained by the composition of Irish exports (CBI, Q1 2020). Specifically, the report refers to the concentration of Irish exports around medical and pharmaceutical products as a key driver of the divergence. This point is outlined in detail in section 3.1B of this report.

[25] The CBI employs CSO data to measure goods exports. The report determines that merchandise exports are a reliable measure of goods exports and use it to construct forecasts of export growth.

3.3B Prices

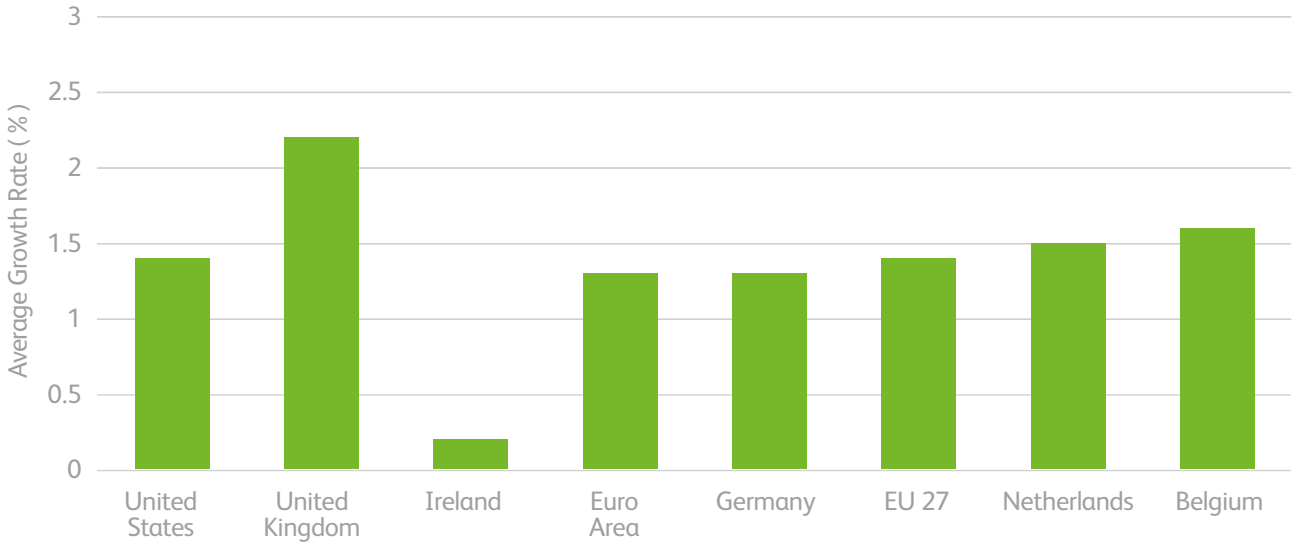
In addition to external demand, the relative price of traded goods is a key determinant of Irish exports. Anything that affects the relative price of Irish goods compared to that of foreign goods will impact upon the competiveness of Irish exports. In this way, the relationship between domestic (Irish) prices and foreign prices should be examined. Inflation and exchange rate fluctuations are two main drivers of relative price changes.

Inflation

The harmonised index of consumer prices (HICP) is designed to facilitate international comparisons of consumer price inflation. An increase in Ireland's HICP relative to its trading partners renders Irish exports less competitive in those markets. Likewise, a fall in Irish prices leads to an increase in export competitiveness.

Inflation across the European Union has been low for the last decade. Belgium, the Netherlands and Germany averaged 1.6%, 1.5% and 1.3% annual growth respectively since 2009. Overall, Euro Area HICP averaged 1.3% growth per year over the same period. Irish HICP however, has grown at a significantly slower pace, averaging 0.2% annual growth, one of the lowest within the Eurozone. Outside of the EU, inflation grew at a slightly faster pace. US inflation averaged 1.4% annual growth over the last decade, while UK prices averaged 2.2%. Figure 53 below depicts HICP growth across these economies for the past decade.

Figure 53: Average Annual HICP Growth 2009 - 2019



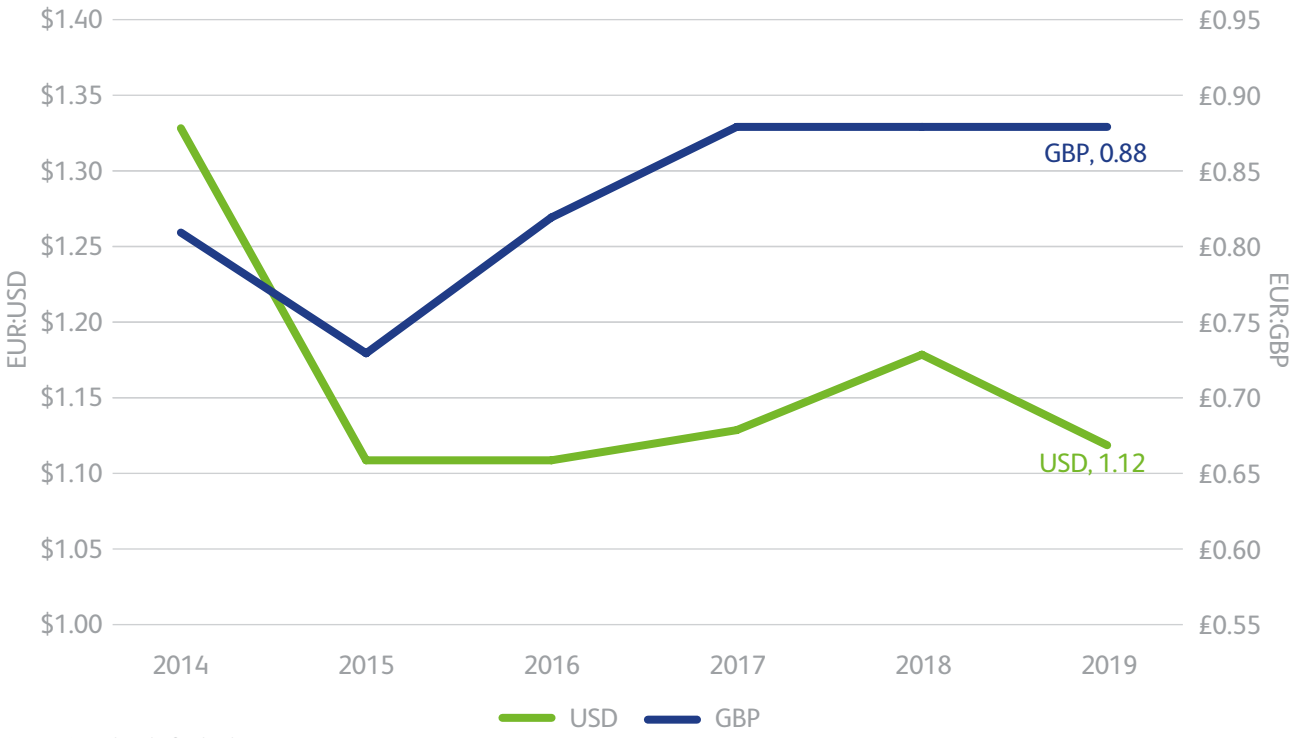
Source: *Eurostat*

Exchange Rates

The euro, pound sterling (GBP) and US dollar (USD) are the three main invoicing currencies of Irish trade. As the pound and dollar depreciate against the euro, Irish exports denominated in euro become relatively more expensive and thus, less competitive, in those markets. The opposite is true if these currencies appreciate against the euro.

Following the analysis carried out in Section 2.3B, the overarching trend of these currencies has been an appreciating dollar and a depreciating pound (See Figure 54). In particular, the value of the pound has fallen significantly since the Brexit referendum in mid-2016. Between 2017 and 2019, the pound has averaged 0.88p, a 21% depreciation on its ten-year peak of 0.73p in 2015. As mentioned, the USD has experienced the opposite trend over the decade. In 2009, the USD exchange rate stood at $1.39. In 2019, that rate rose to $1.12, a 20% appreciation over the course of the decade.

Figure 54: Exchange Rates EUR – USD/EUR – GBP, 2014 - 2019



Source: *Central Bank of Ireland*

Irish Inflation and Exchange Rate Changes

Domestic consumer prices in Ireland - as measured by the HICP - are key factors affecting Irish export competitiveness, the input costs of firms, as well as Irish disposable income levels. The pound sterling and US dollar exchange rates are among the main drivers of fluctuations in Irish inflation. This relationship is illustrated in Figure 55. As Figure 55 shows, depreciations (positive values) in both currencies are associated with Irish price declines. Likewise, appreciations (negative values) are linked with Irish prices rises.[26]

Reddan & Rice (2017)[27] examine this relationship and explain how changes in these exchange rates pass through to Irish prices. It is found that the pound sterling has a disproportionately high impact on general Irish consumer price levels and that this can explain why the Irish HICP has been so much lower than its EU counterparts in recent years. In addition, the US dollar exchange rate has outsized influence on Irish import prices compared to EU partners.

[26] In Figure 55, negative values for the pound and dollar exchange rates represent appreciations in the value of those currencies (i.e. depreciations in the value of the euro). Positive values represent depreciations.
[27] Reddan, P and Rice, J (2017) Exchange Rate Pass-Through to Domestic Prices. Economic Letter Series, Central Bank of Ireland.

The difference in the intensity of exchange rate pass through between these two currencies can be explained by the type of goods traded and the dominant invoicing currency employed.

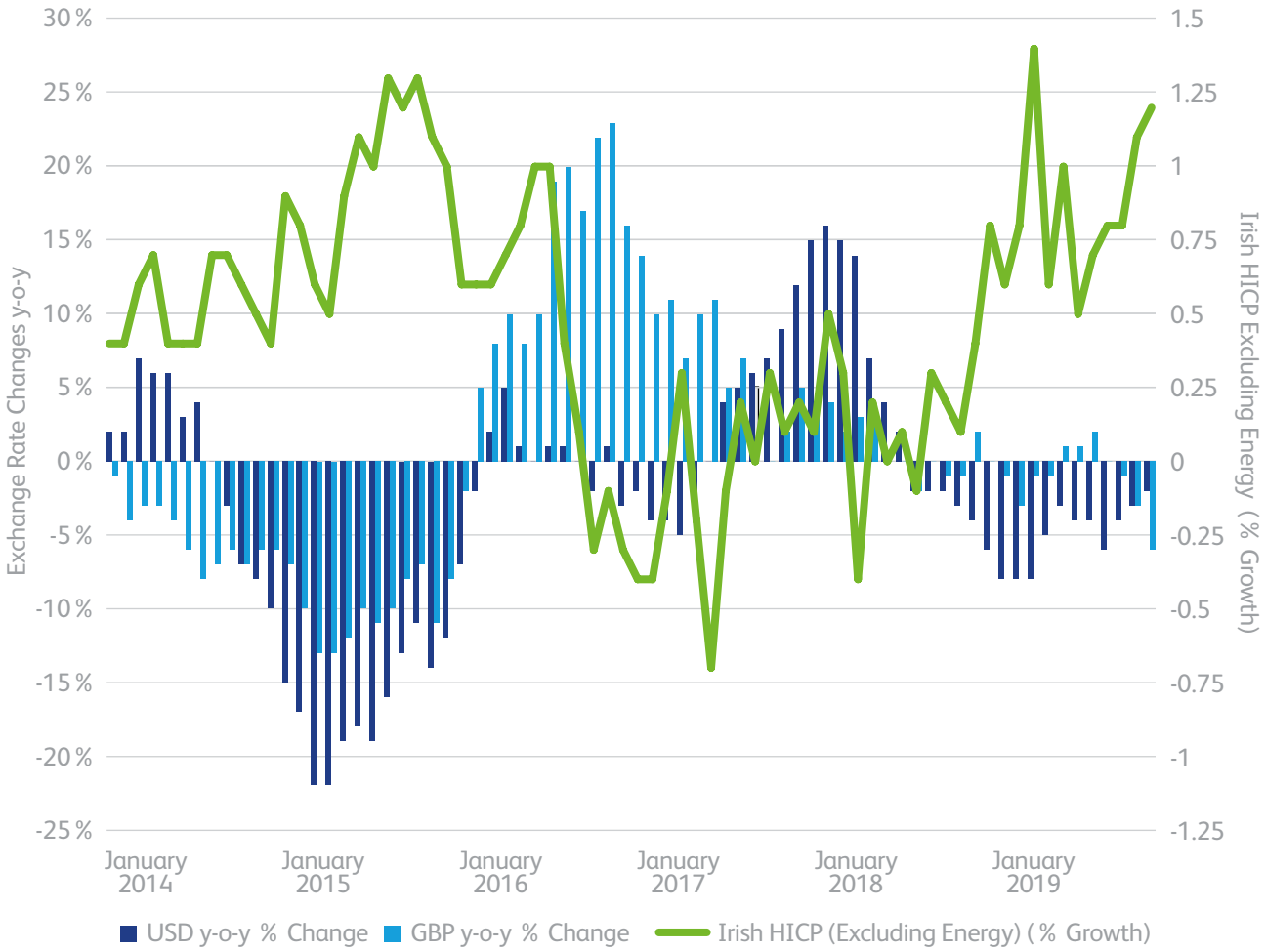
Firstly, goods imported from the UK are more likely to be wholesale and consumer goods such as food, beverages and manufacturing items. Such goods are likely to be bought and sold in Ireland by Irish consumers, therefore making a significant contribution to domestic goods inflation (Reddan & Rice, 2017). In 2019, approximately half of all non-energy imports from Great Britain fell within the categories of Food & Beverages and Machinery & Transport Equipment. Conversely, imports from the US are less likely to make their way to Irish consumers. Medical & pharmaceutical products[28], which made up one third of all US imports in 2019, are likely to be exported back out of Ireland after passing through the production process (Reddan & Rice, 2017). Likewise, transport equipment such as aircraft made up 18% of US imports in 2019, and will also not be sold to Irish consumers. Consequently, these imports have a negligible impact on Irish inflation.[29]

Secondly, the more firms who export to Ireland and invoice in US dollar or pound sterling, the more Irish import prices are exposed to fluctuations in those currencies. As highlighted by Reddan & Rice (2017); *"approximately 71 per cent of imported non-petroleum related goods from outside the EU are priced in US dollars - the largest share of any other EU country"* (p.3). As a result, the USD exchange rate is an important determinant of Irish import prices. The pound has a less pronounced impact on Irish import prices however. This is explained by the fact that Ireland has a disproportionate amount of UK-based retail firms operating in the Irish market compared to the rest of the EU, and these firms increasingly tend to price in euro (Fitzgerald et al, 2000; McArdle, 2000). [30] [31]

Overall, this analysis illustrates that changes in the value of the pound make a disproportionately high contribution to Irish consumer price inflation, and that Irish import prices are heavily exposed to the USD exchange rate. With recent trends in these currencies in mind, it highlights the fact that the significant depreciation in the pound sterling since 2016 has suppressed Irish prices. This is likely due to Irish firms attempting to maintain cost competitiveness with UK exporters, who as mentioned, have a large presence in the Irish market. In addition, a strengthening dollar will likely have increased input costs for many exporting firms, particularly those in the medical and pharmaceutical sectors.

[28] SITC Category 54
[29] SITC Category 79
[30] FitzGerald, J, Duffy, D and Smyth, D (2000): Managing an Economy Under EMU: The Case of Ireland, Papers WP127, Economic and Social Research Institute (ESRI).
[31] McArdle, P. (2000), "Living With the Euro: A preliminary View", Irish Banking Review, Spring

Figure 55: Irish Inflation & Exchange Rate Changes 2014 - 2019



Source: *Central Bank of Ireland & Eurostat*

Conclusion

Section 3 has provided a review of Irish merchandise exports, a breakdown of Ireland's largest export trading partners in terms of tonnage volume and value, and an investigation into the key determinants of Irish export levels focused on external demand and prices. Noteworthy points in this section include: the consistent levels of Irish export volumes of approximately 18.5 million tonnes annually for the last four years; the value of Irish merchandise exports reaching a record high of €152.6bn this year, a €12bn increase over 2018; The growing concentration of Irish merchandise exports around Chemicals & Related products; and the subdued economic growth in recent years of Ireland's main export trading partners.

Section 4 **- Global Shipping Market Review**

Introduction:

Section 4 details the performance of key markets within the international shipping industry. As these global shipping markets are driven by economic fundamentals such as the demand for goods, raw materials and the price of energy, trends within these markets are reflective of those in global economy. Sections 4.1 to 4.3 analyses the market for tanker vessels, the dry bulk market and the containership charter market[32], focusing on time charter rates and capacity. Section 4.4 assesses the market for oil and bunker fuels. Section 4.5 provides an update on an IMDO report on the feasibility of alternative fuel infrastructure at Irish ports, which was published in 2019.

4.1 Tanker Market

Time charter rates[33] (TCR) increased in 2019 for all of the vessel categories displayed in Table 30. Product Tankers rose by 12% on average throughout the year to $14,682. By the same measure, Aframax increased by 48% to $22,104, and Suezmax by 53% to $26,692. VLCC saw the largest increase in guide prices, up by 58% to $36,388 on average across 2019. This followed a 24% fall for VLCC's between 2017 and 2018.

Table 30: One-Year Time Charter Rates ($/day): 2019

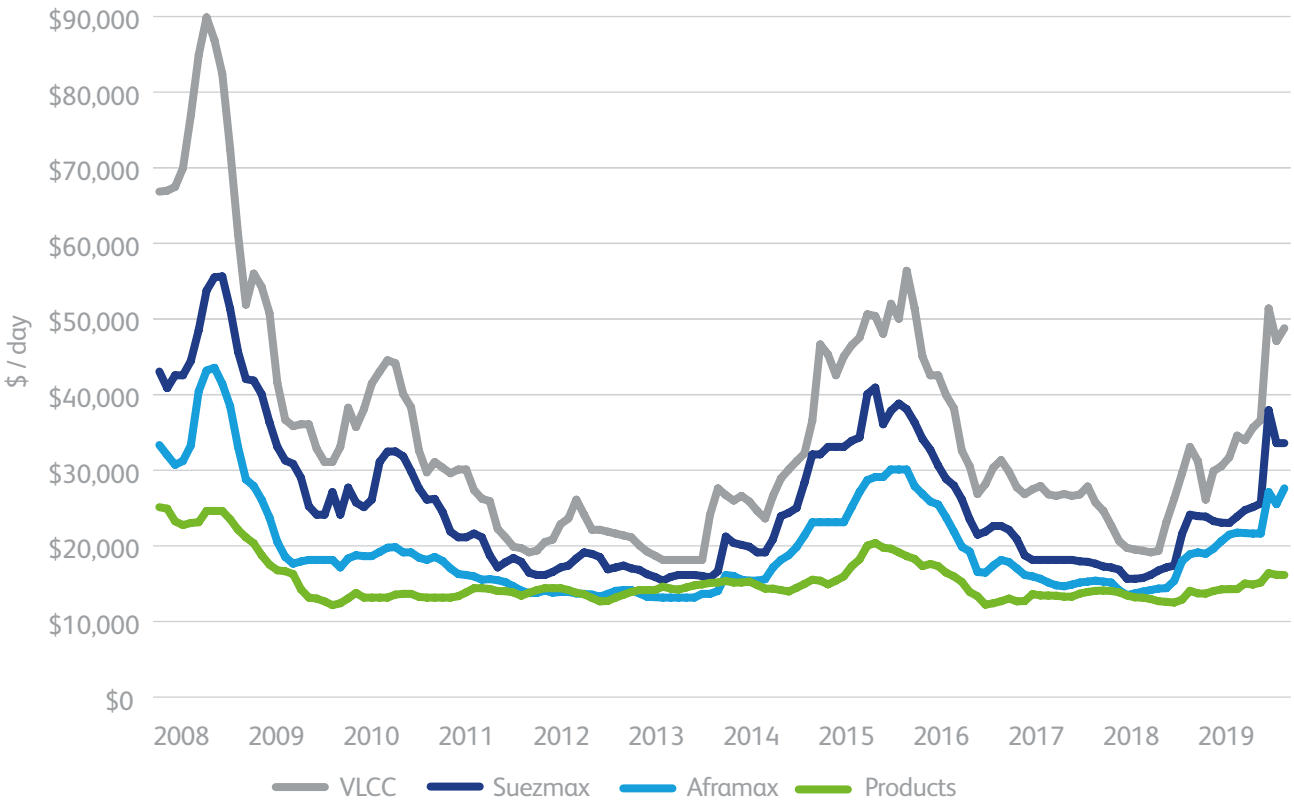
	Product[34]	Aframax[35]	Suezmax[36]	VLCC[37]
Date	$/day	$/day	$/day	$/day
Jan	13,563	19,000	23,813	31,125
Feb	13,531	18,813	23,750	26,000
Mar	13,875	19,500	23,150	29,800
Apr	14,094	20,500	22,938	30,438
May	14,125	21,350	22,900	31,625
Jun	14,125	21,625	23,750	34,500
Jul	14,875	21,563	24,625	33,875
Aug	14,725	21,500	25,000	35,550
Sep	15,000	21,500	25,500	36,563
Oct	16,250	27,000	37,875	51,375
Nov	16,025	25,400	33,500	47,050
Dec	16,000	27,500	33,500	48,750

Source: *Clarksons Shipping Intelligence*

Aframax, Suezmax and VLCC rates were higher in every month throughout 2019 compared to 2018 prices. Product tankers however, recorded declines in price in each month of Q1, meaning Q1 2019 recorded little change over Q1 2018. For the remainder of 2019, all four guideline rates were higher than in 2018

[32] For more detail on industry definitions and terminology, see Glossary of Terms.
[33] Time charter rates are set for shipping vessels for a fixed period of time instead of a certain number of voyages. Rate averages allow comparisons between periodic changes in a shipping company's performance.
[34] Product Tankers: Vessels that carry Clean Petroleum Products, including gasoline, jet fuel, naphta and clean condensates.
[35] Aframax: Derives its name from AFRA which stands for Average Freight Rate Assessment, refers to a tanker of between 80,000 – 120,000 deadweight tonnes (DWT)
[36] Suezmax: Oil tanker vessels between 120,000 – 250,000 DWT in size.
[37] VLCC: Very Large Crude Carriers are oil tanker vessels between 150,000 – 320,000 DWT in size.

Figure 56: Tanker One-Year Time Charter Rates: 2008 – 2019



Source: *Clarksons Shipping Intelligence*

The fundamentals in the market for seaborne crude[38] and product[39] trade are intrinsically linked to global oil prices. The interaction between global oil demand and supply throughout 2019 is expanded upon in detail in Section 4.4. In all, this analysis shows that the average annual price of Brent crude declined by 10% in 2019 to $64 per barrel. Despite supply disruptions in 2019, declining oil prices were driven by a combination of increases in US oil production as well as subdued global demand. In early 2020, the outlook for oil demand is expected to weaken further as the impact of the COVID-19 virus begins to take hold in the Far East.

As recorded by Clarkson's Shipping Intelligence Network (Clarkson's SIN)[40], Product Tanker demand across all vessels sizes grew by just 0.2% in 2019. However, in early 2020, the outlook for product tanker demand is positive. This outlook is driven in part by the IMO 2020 sulphur cap, which came into force on 1st January 2020. As a result, prices for compliant fuels at major ports increased notably. This new regulation is expected to boost demand for gasoil / diesel trade this year (Clarkson's SIN, 2020). In addition, improved oil refinery traffic due to extended maintenance undergone in 2019 is due to impact upon the market favourably, as is continued growth in US oil exports. As a result of these forecasted trends, global product demand is expected to increase by 5.4% in 2020.

Overall, total tanker demand across all sectors was unchanged in 2019, but is forecast to rise by 4% in 2020 and 3% in 2021 (Clarkson's SIN). Conversely, tanker fleet growth is expected to decline after robust growth of 4% across all sectors in 2019 (Clarkson's SIN). In all, the trend within the tanker market is for strengthening demand and weakening supply, placing upward pressure on prices over the next two years.

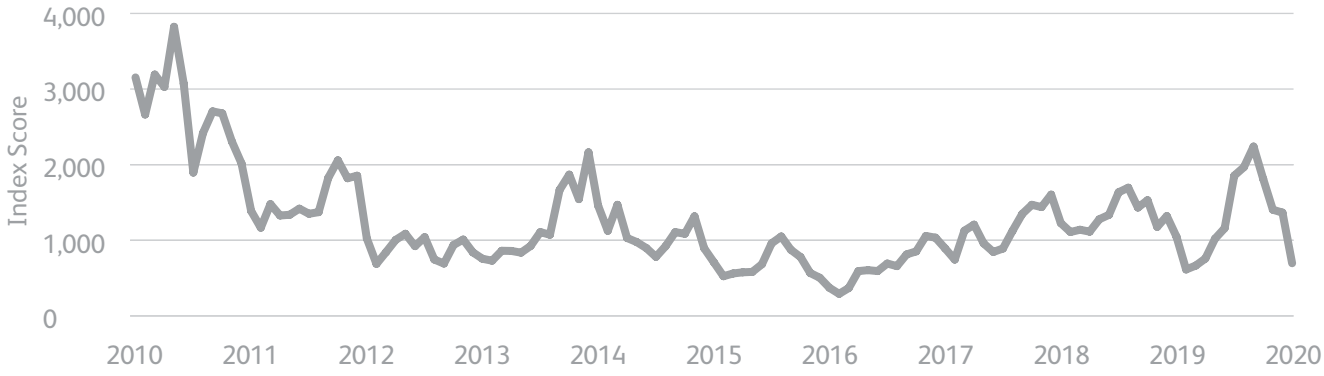
[38] Unrefined petroleum that has yet to be converted into usable Product, such as diesel/gasoil, kerosene of Heavy Fuel Oil. Crude trade is involved in the transfer of oil from oil wells to refineries in separate countries / locations.
[39] Product trade involves the movement of refined petroleum products, such as diesel, close to the point of sale in consumer markets. Product trade usually involves smaller vessels.
[40] Clarkson's SIN: Oil & Tanker Trade Outlook – Volume 25, No. 1. January 2020.
Clarkson's SIN: Oil & Tanker Trade Outlook – Volume 24, No. 12. December 2019.

4.2 Dry Bulk Market

The London based Baltic Dry Index (BDI) noted a slight decrease of 1% in 2019 compared to 2018, averaging 1,341 over the course of the year.

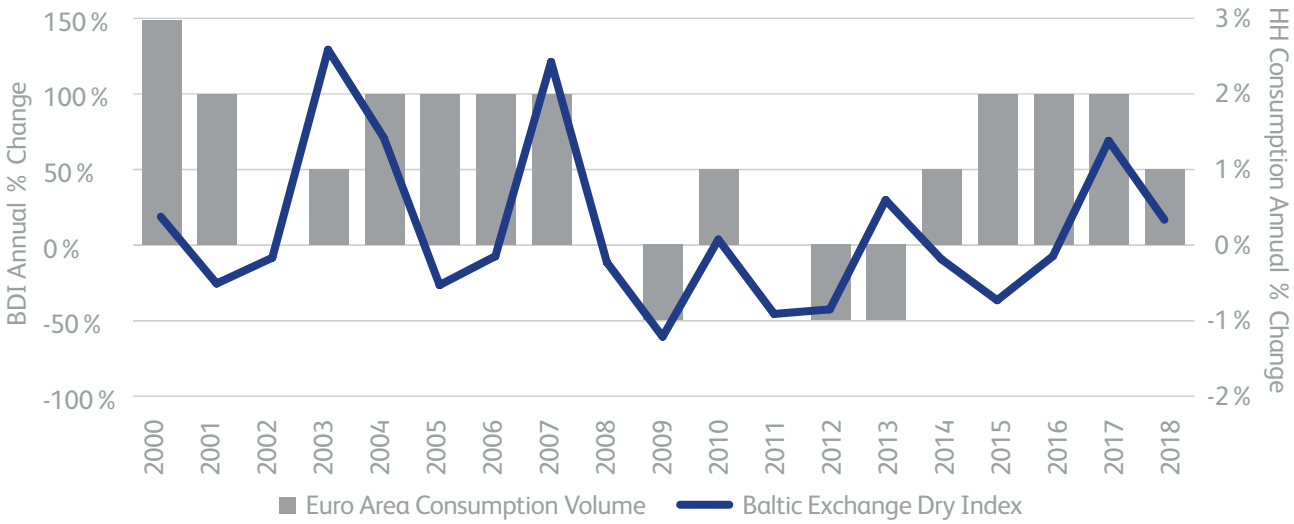
The BDI measures the rates charged for chartering ships that carry essential raw materials such as iron ore, coal, grain, etc. (See Figure 57). This index is a made up of the Capesize, Supermax and Panamax time charter rate (TCR) averages. The BDI contrasts demand for shipping capacity with the supply of dry bulk carriers. On the supply side, fleet size is relatively inelastic, meaning small changes to fleet size can have outsized impacts on rates. Conversely, the demand for raw materials is an effective indicator of economic activity. This is evident in Figure 58, which illustrates the correlation between the BDI and household consumption across the Euro Area over the last two decades.

Figure 57: Baltic Dry Index 2010 – 2020



Source: *Clarksons Shipping Intelligence*

Figure 58: Baltic Dry Index & Euro Area Household Consumption Volume



Source: *Clarkson's Shipping Intelligence & Eurostat*[41]

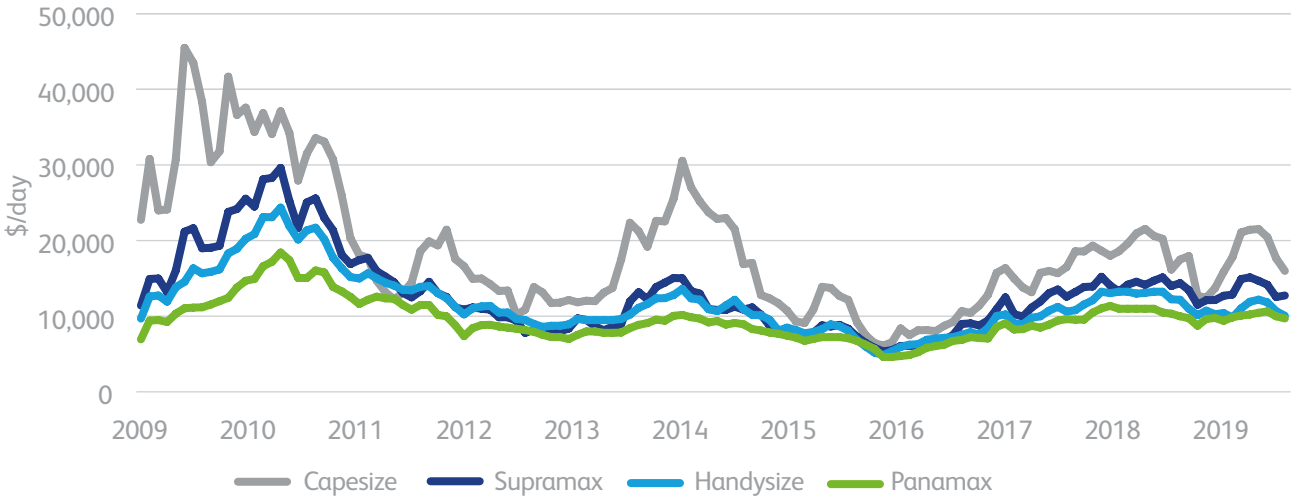
[41] Euro Area Consumption: Final consumption expenditure of households by consumption purpose. Chain linked volumes, index 2015=100 (COICOP 3 digit)

2019 was a year of mixed fortunes for global seaborne dry bulk trade. Total trade grew by 1.1% in 2019, the slowest rate of growth since 2015[42] (Clarkson's SIN). A decline of 2% in iron ore trade was driven by disruptions in Brazilian output, while subdued growth in grain of 1% also contributed to the slowdown. Total dry bulk tonnage for 2019, stood at 5.3bn tonnes.

In early 2020, moderate dry bulk trade growth[43] of 2.5% is forecast for this year, although risks remain. These include the ongoing trade war between the US and China. [44]China plays a central role in dry bulk trade, accounting for nearly half of global maritime trade growth in the past decade. In this context, the outlook for dry bulk trade is heavily impacted by developments in China's economy. The outbreak of Covid-19 in China in early 2020 has increased the risk of a significant negative shock to demand, as the likelihood for continued Chinese economic growth is severely diminished.

Figure 59 below illustrates the dry bulk charter rates across the four main vessel categories over the last decade. Across all categories, average rates fell by 10% in 2019 compared to 2018. This decline consisted of a decrease of 9% for Capesize, -15% for Supramax, -8% for Handysize and -7% for Panamax. These reductions are a significant contrast to year on year differences between 2017 and 2018 which saw an average increase of 27% across all four divisions.

Figure 59: Dry Bulk One-Year Charter Rates 2009 – 2019



Source: *Clarksons Shipping Intelligence*

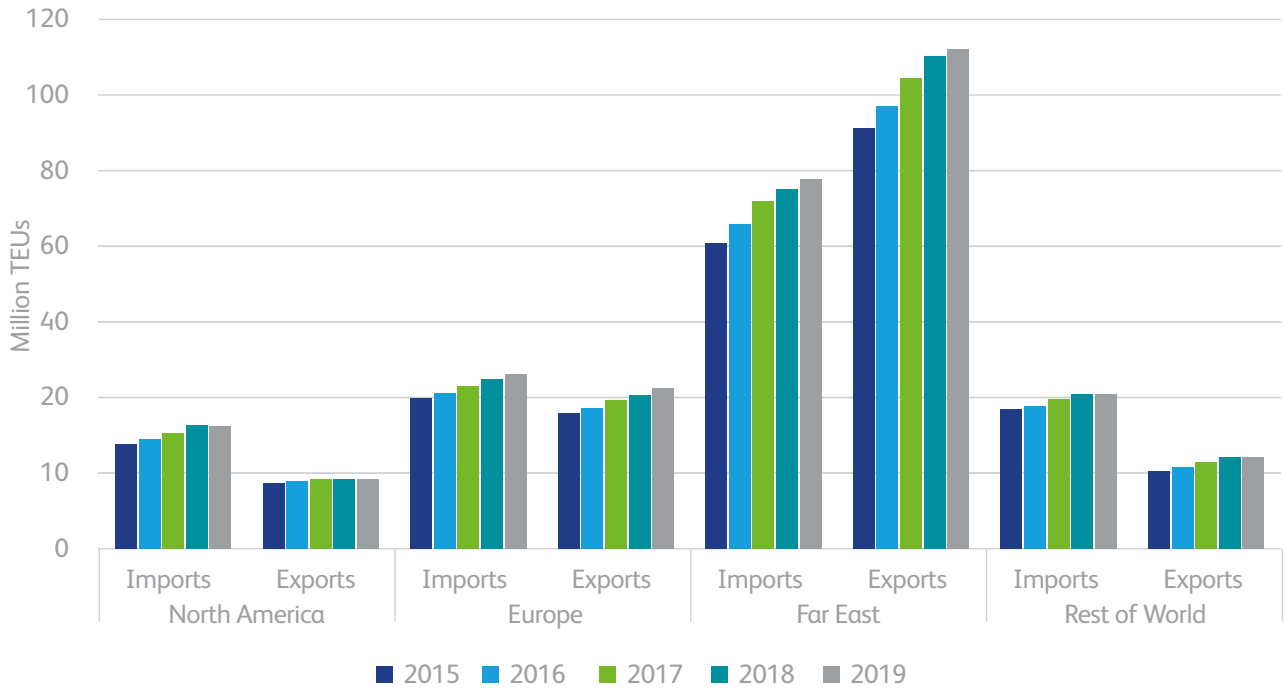
[42] Clarkson's SIN: Dry Bulk Trade Outlook: Volume 25, No. 12, Dec 2019
[43] Measured in tonne-miles
[44] Clarkson's SIN: Dry Bulk Trade Outlook: Volume 26, No. 1, Jan 2020

4.3 Containership Charter Market

Against a backdrop of subdued global economic growth and US-China trade tensions, global seaborne container trade in TEUs grew by 1.8% in 2019, the slowest pace of growth since 2009, and a fall from 4.3% annual growth recorded in 2018.[45] [46]

Disruptions to Trans-Pacific trade drove much of the slowdown in global container trade. US-China trade tensions led to an 11% decline in US box imports from China compared to 2018. Eastbound mainlane trade, which covers US imports from the Far East, declined in 2019 by 2.4% despite averaging 5.6% annual growth between 2015 and 2018 (Clarkson's SIN). Similarly, westbound mainlane trade, covering Far East imports from the US, declined by 1.6% in 2019 and by 6% in 2018. Trade on these routes is expected to decline again in 2020, despite the initiation of 'Phase 1' of the US-China trade deal taking hold.

Figure 60: Global Container Imports and Exports 2015 - 2019



Source: *Clarksons Shipping Intelligence*

Westbound trade from the Far East to Europe increased again however, as European imports from China continue to grow. TEU's on this route equated to 16.6m, representing growth of 2.5%. This is reflected in the fact that spot box rates on the Shanghai-North Europe route reached a three-year high in the first few weeks of 2020. Further growth is forecast to slow in 2020 however, as weaker economic growth is expected across Europe, including in the UK and Germany.

Overall in 2019, volumes grew robustly in the first half of the year and trended downwards in the latter half. The fundamentals of the market currently predict future growth but at a slower pace. The drivers of this downturn in 2019 included US-China tensions and slowing global economic demand.

[45] Clarkson's SIN: Container Intelligence Monthly, Vol 22, No.1, January 2020.
[46] Clarkson's SIN: Container Intelligence Monthly, Vol 21, No.12, December 2019.

In early 2020 however, the COVID-19 global pandemic, which heavily impacted far eastern trade in the early part of the year, represents the most significant risk to global trade in decades. Specifically, Clarkson's SIN estimate that container throughput in China could potentially fall by up to 30% in February. As containerised trade largely involves intermediate and finished products ready for immediate consumption, the full impact of the pandemic on container trade will depend on the duration of restrictions placed throughout the world.

As a result of slowing demand for container trade in 2019, time charter rates also declined (See Table 31). For 'Feeders', the 6-12 month rate for a 2,750 TEU vessel had dropped to $9,750 per day by February 2020, having reached $10,600 in January.

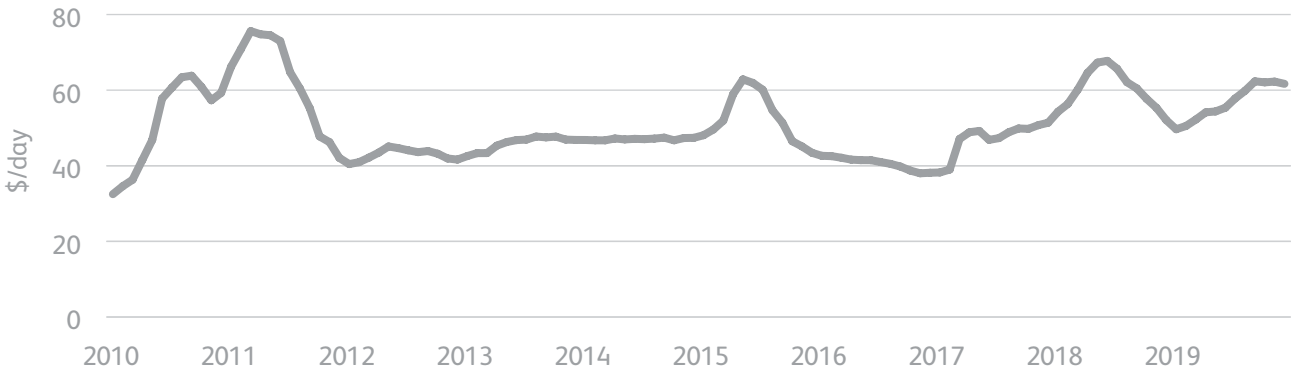
Table 31: One-Year Time Charter Rates ($/day) 2019

2019	Feeder 350 TEU	Feedermax 725 TEU	Handysize 1000 TEU	Handymax 1700 TEU
Jan	3,800	4,813	6,000	7,000
Feb	3,800	4,888	6,063	6,963
Mar	3,800	4,910	6,140	7,250
Apr	3,800	5,000	6,188	7,938
May	3,800	5,080	6,100	8,210
Jun	3,806	5,188	6,150	8,313
Jul	3,844	5,238	6,206	8,675
Aug	3,850	5,150	6,200	8,910
Sep	3,850	5,175	6,238	8,800
Oct	3,850	5,138	6,163	8,650
Nov	3,850	5,100	6,200	8,530
Dec	3,850	5,100	6,250	8,350

Source: *Clarksons Shipping Intelligence*

The average daily charter rates declined across three of the four main containership categories in 2019. The 700 TEU 'Feedermax' recorded a 9% decline to $5,065 per day on average. The 1000 TEU 'Handysize' vessel had the greatest relative rate decrease compared to 2018, down by 18% to $6,158 per day in 2019. The largest of the four, the 1,700 TEU 'Handymax' also declined significantly, by 16% to approximately $8000 per day. These declines in charter rates were reflected in Clarkson's Containership Timecharter Rate Index (See Figure 61). In 2019 the Index averaged a score of 57, equivalent to a decline of 6% compared to the average in 2018.

Figure 61: Containership Timecharter Rate Index (1993 = 100)

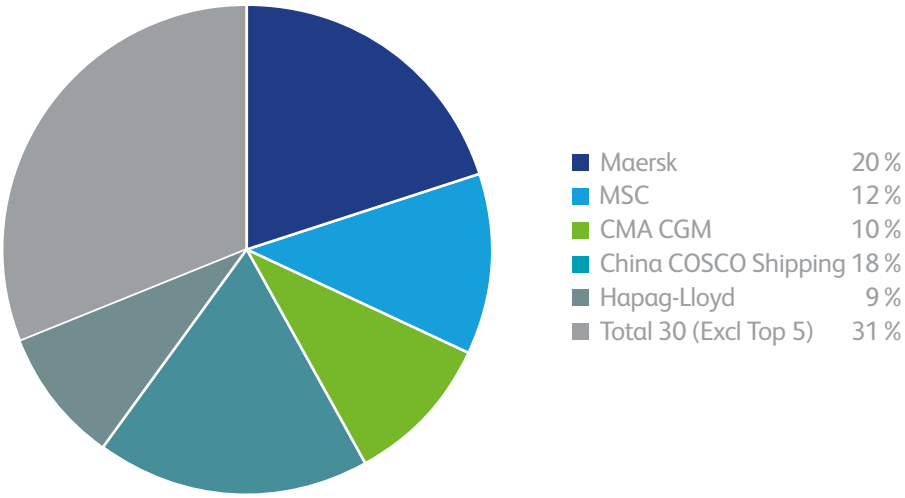


Source: *Clarksons Shipping Intelligence*

As for container operators in 2019, the top five as outlined in Figure 62 held 69% of the total market for TEU's in 2019, representing no change over 2018. Maersk remained the number one operator, with 20% market share, equivalent to 2.4 million TEU's in 2019. The Danish company also increased their fleet by 3 vessels for a total of 329, representing 16% of the total containership fleet.

Mediterranean Shipping Company (MSC), CMA-CGM, China COSCO Shipping and Hapag-Lloyd made up approximately half of the overall market in 2019. The largest among them was China COSCO Shipping with an 18% share. In terms of fleet size, Maersk is also the largest operator, with 16% of the total containership fleet. The top five companies listed above also make up 51% of the global fleet.

Figure 62: Top Containership Operators by TEU's, 2019

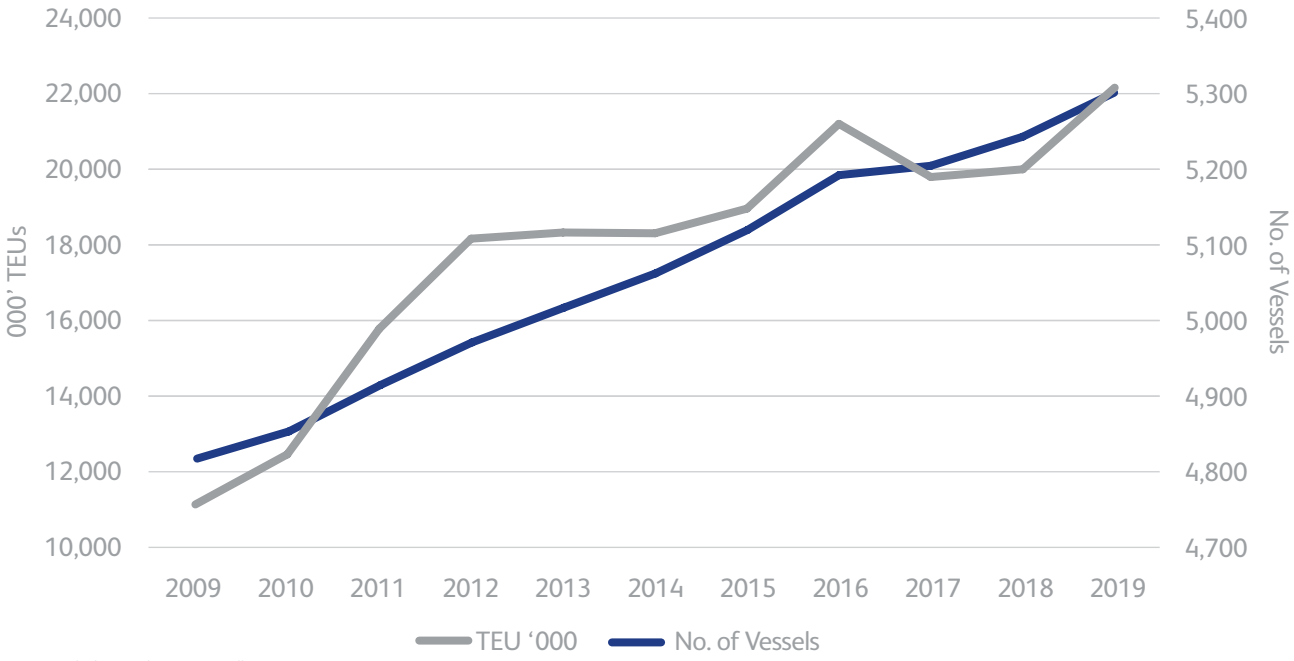


Source: *Clarksons Shipping Intelligence*

Industry Capacity

According to research from Clarkson's SIN, the onset of COVID-19 is expected to result in delays to the shipbuilding orderbooks. As a result, forecasts for industry capacity growth were reduced to 2.7 % since the start of 2020. Given the extent of negative demand shock arising from the global pandemic however, it is unlikely that this will be offset by limiting supply side factors. Such factors include scrubber retrofit time, which takes ships out of operation for a period of time in order to fit scrubber technology, an addition that aids compliance with IMO emissions regulation. This is projected to absorb 2.8 % of capacity on average in 2020.

Figure 63: Annual Number of Vessels & Container Capacity 2009 – 2019



Source: *Clarksons Shipping Intelligence*

4.4 Oil and Bunker Market

Oil & Bunker Prices 2019

As shown in Table 32, the average price of Brent crude oil fell to $64 per barrel in 2019, a 10% decline when compared to the average price throughout 2018. The average price of WTI crude oil also recorded a decline, falling by 11% to $57 per barrel.

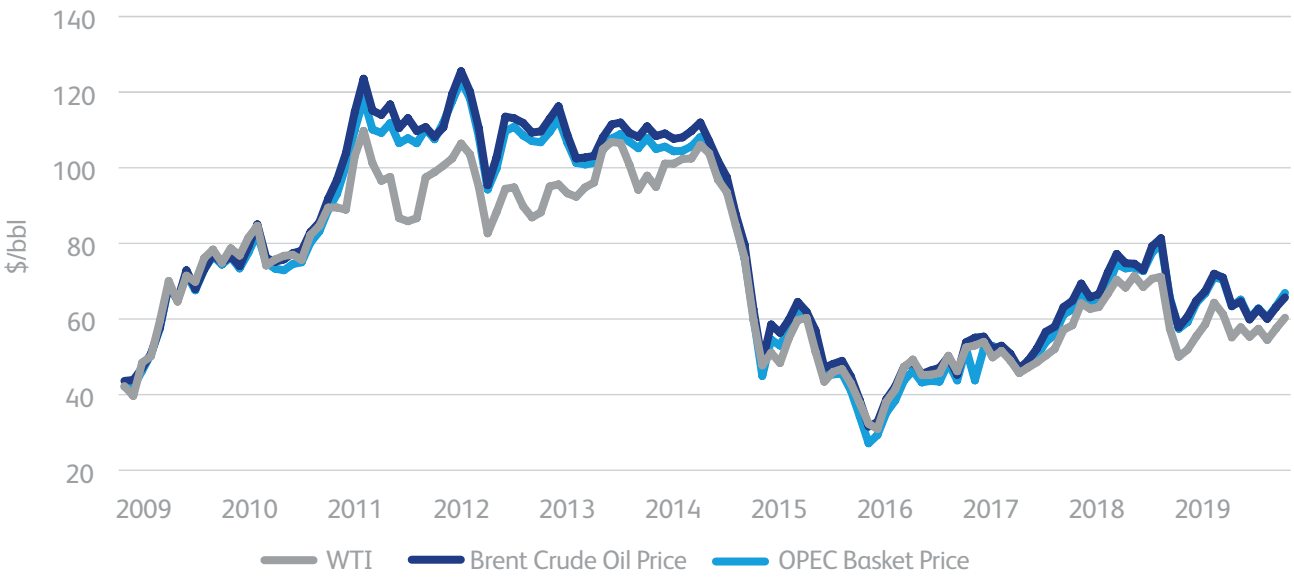
The range of variation in both oil prices throughout 2019 was narrower than recent years. Brent crude oil reached its lowest daily price of the year in early January at $55 per barrel. Brent's highest price was recorded in mid-April when it reached $75 per barrel. This range of $20 was the narrowest since 2003 (EIA, 2019) (See Figure 64). Elsewhere, WTI crude oil prices ranged from a $47 per barrel to a high of $66.

Table 32: Crude Oil Prices ($/bl) and Bunker Prices ($/Tonne): 2009 – 2019

	Oil Prices ($/bl)			Bunker Prices ($/Tonne)		
	Brent	WTI	OPEC Basket	Rotterdam	Los Angeles	Singapore
2009	61.7	62	61.1	353.8	375.1	371.9
2010	79.6	79.5	77.5	450.2	468.8	464.1
2011	111.3	94.9	107.5	617.9	655.9	646.9
2012	111.6	94.1	109.5	639.6	681.4	664.1
2013	108.6	98	105.9	594.8	631.4	615.9
2014	99	93.2	96.3	532.1	568.3	559.7
2015	53	48.7	49.5	264.1	288	291.6
2016	45.1	43.6	40.8	213.1	234	232.8
2017	54.7	50.8	52.4	305.2	338	328.7
2018	71.3	64.9	69.8	399.9	434.7	432.2
2019	64.3	57.1	64	349.1	429.8	403.1

Source: *Clarksons Shipping Intelligence*

Figure 64: Crude Oil Prices 2009 - 2019



Source: *Clarksons Shipping Intelligence*

Bunker Prices

The 2019 price trends of crude oil were reflected in Bunker fuel prices. The annual average price for Intermediate Fuel Oil (IFO) benchmark 380 centi-Stoke (cSt) Rotterdam fell by 13 % to $349 per tonne compared to an average of $400 per tonne in 2018. The Los Angeles bunker price decreased slightly, by 1 % to $430 per tonne. The average Singapore bunker price also declined, by 7 % to $403 in 2019.

Figure 65: 380cst Bunker Price 2009 – 2019

Source: *Clarksons Shipping Intelligence*

The IMO 2020 sulphur cap began in January 2020, which places stricter conditions on emissions of sulphur from fuel oil used on board ships;

"From 1 January 2020, the limit for sulphur in fuel oil used on board ships operating outside designated emission control areas is reduced to 0.50% m/m (mass by mass). This will significantly reduce the amount of sulphur oxides emanating from ships and should have major health and environmental benefits for the world..."

IMO, 2020[47]

In anticipation of this regulation changes occurred in fuel oil markets in 2019. Firstly, scrubber-fitted vessels became more widespread this year. Scrubbers allow vessels to continue to use conventional oil based fuels, as the scrubber systems capture and store harmful emissions that can be disposed of at suitable locations. In addition to greater scrubber retro-fitting, Clarkson's[48] also note that very-low sulphur fuel oil (VLSFO) accounted for 40% of bunker sales in Singapore in November, an increase from 15% in October. Consequently, the share of high-sulphur fuel oil (HSFO) declined from 72% to 52%.

Oil Production 2019

There were three significant oil supply shocks in 2019. First, an attack on Saudi Arabian key energy installation in mid-September disrupted supply lines. Second, US sanctions on OPEC[49] members Iran and Venezuela limited crude oil exports from those countries. Lastly, OPEC announcements throughout 2019 declared that oil production would be cut. Despite these negative shocks, oil prices in 2019 did not experience any significant and sustained increases, as peak prices for the year were reached in mid-April. Any spikes in prices were short-lived, such as after the Saudi Arabian facility attacks, when prices returned to pre-attack levels by the end of the month.

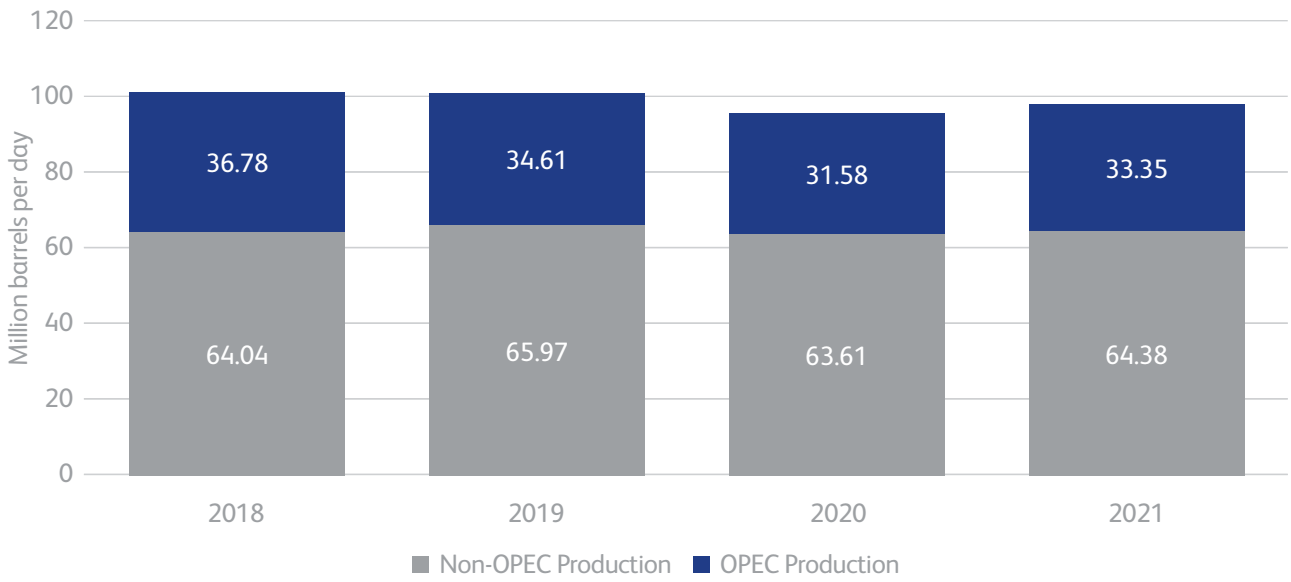
[47] IMO, 2020: Available at: http://www.imo.org/en/MediaCentre/HotTopics/Pages/Sulphur-2020.aspx
[48] Clarkson's SIN: Oil and Tanker Trades Outlook, Volume 24, No. 12, December 2019
[49] OPEC: Organization of Petroleum Exporting Countries

The absence of any acceleration in 2019 prices can be explained by increases in US oil production as well as subdued global demand (US Energy Information Administration [EIA], 2020)[50].

Continued high rates of US oil production kept downward pressure on prices throughout the year. This is despite production declines from major OPEC producers including Saudi Arabia, Venezuela and Iran. The EIA expects 2019 to be a record year for US oil production, with crude oil production reaching 12.3 million barrels per day. This would make the US the largest crude oil producer in the world (EIA, 2019). In addition, the US became a net exporter of petroleum products for the first time on record (EIA, 2019). As a result, on December 7th 2019, OPEC and other nations decided to further deepen production cuts which began in December 2018. Figure 66 illustrates the role played by non-OPEC oil producers, which includes the US.

With large US inventories, sluggish global demand and the beginnings of the COVID-19 pandemic in China, 2020 began with the EIA and others forecasting further declines in oil prices throughout the year as production continues to outstrip demand. Table 33 shows analysis and forecasts of oil production out to 2021, developed by the EIA.

Figure 66: Global Petroleum & Other Liquid Production 2019



Source: *US Energy Information Administration*

[50] US Energy Information Administration: 'Crude oil prices were generally lower in 2019 than in 2018'. Available at: https://www.eia.gov

Table 33: Global Petroleum & Other Liquids, Supply and Consumption

Global Petroleum and Other Liquids				
	2018	2019	2020	2021
Supply & Consumption	(million barrels per day)			
Non-OPEC Production	64.04	65.97	63.61	64.38
OPEC Production	36.78	34.61	31.58	33.35
OPEC Crude Oil Portion	31.44	29.27	26.57	28.44
Total World Production	100.81	100.58	95.19	97.73
OECD Commercial Inventory (end-of-year)	2,863	2,888	3,237	3,017
Total OPEC surplus crude oil production capacity	1.56	2.52	4.68	3.73
OECD Consumption	47.63	47.36	42.27	45.37
Non-OECD Consumption	52.33	53.38	50.32	54.15
Total World Consumption	99.97	100.74	92.59	99.53

Source: *US Energy Information Administration*

4.5 Alternative Fuel Infrastructure in Ireland

In 2019, the Irish Maritime Development Office published a feasibility study on the development of alternative fuels infrastructure (AFI) in Irish ports. As transportation across the European Union is almost entirely dependent on fossil fuels, and to help reduce this dependency and the associated harmful environmental effects, the EU Commission established an alternative fuels strategy. As a result, EU Directive 2014/94/EU was published in November 2014.

In the maritime sector, the directive obliged Member States to install shore-side electricity (SSE) for seagoing ships in the ports of the TEN-T Core Network[51]. In addition, Member States must ensure that an appropriate number of liquefied natural gas (LNG) refuelling points are put in place at maritime ports. These objectives are to be met by 31 December 2025, unless there is an absence of demand or the relevant costs are disproportionate to the benefits.

Motivated by the EU directive, the report conducted a feasibility study of Shore Side Electricity (SSE) and assessed market demand for LNG fuelling facilities in major Irish ports. To achieve this, the report examined the factors that determine locational or sectoral concentrations in the deployment of AFI, and discussed the applicability of these factors to the Irish context.

The report found that successful AFI deployment has been achieved where geographic, economic, technological and regulatory factors align. These conditions are present in large trading ports such as Rotterdam, Antwerp, Los Angeles, and Vancouver, as well as geographic clusters in Scandinavia that include the ports of Oslo and Gothenburg. Each location has developed effective installations of both shore side power technology and LNG fuelling facilities.

From an economic standpoint, the ports listed benefit from favourable economic environments, within which the per unit cost of electricity and/or natural gas falls below European averages. Many of these advantages however, are derived from natural resources of natural gas or hydroelectricity available to these and other ports with successful AFI installations. Such abundant natural resources allow countries greater flexibility in terms of price and installation when considering LNG and SSE infrastructure at ports.

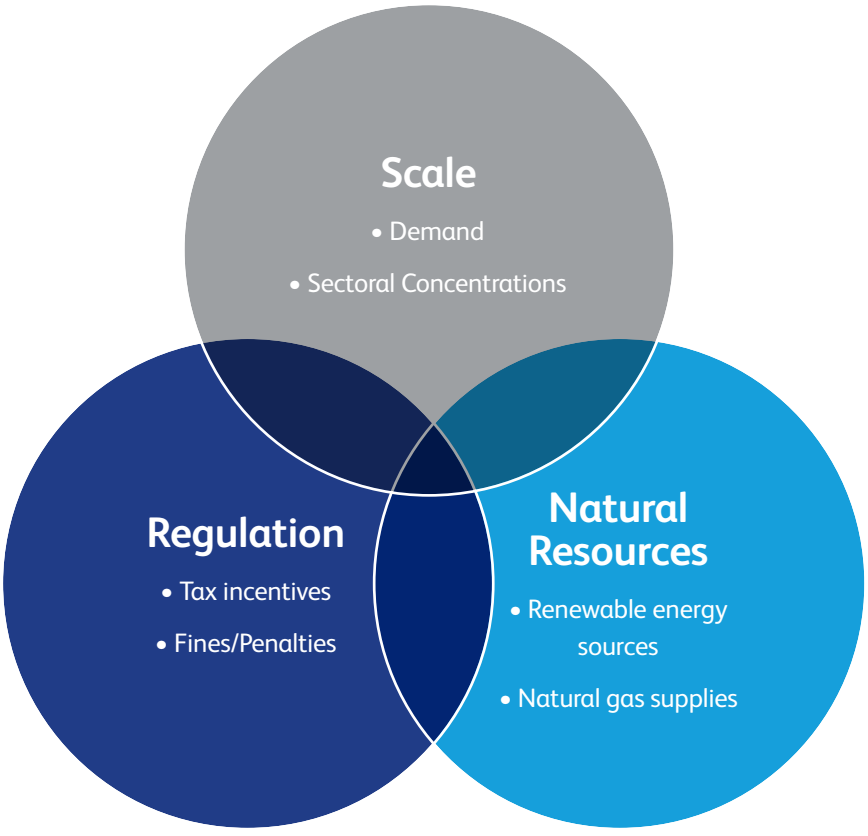
[51] Trans-European Transport Network (TEN-T): This is an EU policy that aims to build an effective, EU-wide transport network of roads, railways, airports and waterways.

Favourable economic and geographic environments are necessary but not sufficient to stimulate the successful development of AFI. A regulatory environment that demands and/or incentivises AFI is commonplace in ports that have successful developments. The most significant regulatory stimulus came from the IMO – in the form of the International Convention for the Prevention of Pollution from Ships (MARPOL) – labelled Annex VI (IMO, 2014; DNV GL, 2019). Coming into force in 2005, it targeted reductions in nitrogen (NOX) and sulphur (SOX) oxides and created Emission Control Areas (ECA's) wherein ships must adhere to stricter emission standards. All of the ports listed above, as well as any significant cluster of ports with AFI installations, lie within these ECA's. Ireland currently lies outside of these areas.

Outside of favourable economic and geographic conditions and a stringent regulatory environment, scale of operations was found to be a common influence in the successful deployment of AFI. Large scale operations allow ports to generate predictable, forecastable demand, which is a prerequisite for any form of large capital investment. Both provide ports with the opportunity not only to become champions of alternative fuels, but market leaders in their provision. This potential to create market change improves the likelihood of capital investment in AFI.

A summary of the aforementioned drivers is illustrated below in Figure 67. With these in mind, the report considered the demand for, and feasibility of, AFI in Irish ports. The report found that many of the characteristics evident at current AFI locations are not present at Irish ports. Ireland does not gain from geographic conditions favourable to local natural gas production or to renewable energy production on the scale outlined in previous examples. Therefore, Ireland's price competitiveness is relatively low in the market for alternative and renewable energy. In addition, Ireland currently falls outside the Emission Control Areas, wherein the most stringent regulatory standards are applied. Lastly, the scale of operations in Irish ports and the number of ships calling to them does not generate sufficient demand to justify the capital investment that AFI requires. As a result, forecasted demand for alternative fuelling facilities or SSE in Irish ports is low.

Figure 67: Drivers of Demand for Alternative Fuel Infrastructure



Regarding the global shipping fleet, ambitious targets aimed at improving the environment and addressing climate change are in place for the maritime transport sector. However, 99% of the world's shipping fleet - comprising circa 95,000 vessels (Clarksons SIN, 2019) – currently use oil based fuel. Less than 1% of the global fleet are either battery powered or LNG fuelled (See Table 34 below).

Overall, the IMDO's AFI report made several recommendations. Among them, were that stakeholders in Ireland's maritime transport sector should seek opportunities to get involved in wider European projects related to alternative fuels in order to gain experience and insights into this emerging area. This will be supported by the IMDO and other state agencies. Additionally, in the absence of marked changes in environmental regulation or significant incentives, particularly at an international level through organisations or institutions such as IMO or the EU, which have the effect of making such investments commercially viable, the targets for the development of AFI in Irish ports by 2025 should be set at zero.

Table 34: Global Fleet Propulsion by Vessel Type 2019

		Conventional Oil Based Fuel		Scrubber Technology Fitted		Battery Powered Technology Installed		LNG & LNG Ready	
Ship Type	Total Fleet	Total in Operation	% Share of Total Fleet	Total in Operation	% Share of Total Fleet	Total in Operation	% Share of Total Fleet	Total in Operation	% Share of Total Fleet
Bulk Vessels	11,820	10,475	88.6%	1,287	10.9%	2	0.0%	56	0.5%
Container Vessels	5,326	4,429	83.2%	803	15.1%	2	0.0%	92	1.7%
Tanker Vessels	15,340	14,153	92.3%	1,052	6.9%	11	0.1%	124	0.8%
Cruise & Passenger Vessels	8,326	7,684	92.3%	312	3.7%	203	2.4%	127	1.5%
Roll-on/Roll-off & PCC	1,626	1,367	84.1%	232	14.3%	-	0.0%	27	1.7%
Gas tankers	2,039	1,920	94.2%	102	5.0%	-	0.0%	17	0.8%
General cargo ships	18,141	18,037	99.4%	87	0.5%	2	0.0%	15	0.1%
Other activities (Excl fishing)	6,028	5,947	98.7%	4	0.1%	57	0.9%	20	0.3%
Offshore	9,079	8,988	99.0%	-	0.0%	54	0.6%	37	0.4%
Tugs	19,746	19,716	99.8%	-	0.0%	13	0.1%	17	0.1%
Total	**97,471**	**92,715**	**95.1%**	**3,879**	**56.4%**	**344**	**0.4%**	**532**	**0.5%**

Source: *Clarksons Shipping Intelligence*

Having reviewed market and regulatory conditions since the publication of the IMDO report on The Development of Alternative Fuel Infrastructure in Irish Ports[52], we are satisfied that the conditions that underpin the recommendations in the report have not changed materially and do not warrant any change to the advice previously offered, at this time. The IMDO will continue to monitor these conditions closely.

Conclusion

Section 4 has assessed the 2019 performance of key markets in the global shipping industry, including the tanker market, dry bulk market and containership charter market. It has also investigated trends in the price and production of oil and bunker fuel, and has provided an update on the feasibility of alternative fuel infrastructure at Irish ports. Noteworthy points from Section 4 include a decline in the price of oil driven by record US oil production, as well as subdued containership growth driven by US-China trade tensions. Notable also is the severe disruption that the COVID-19 pandemic will create among forecasts of future performances in global shipping markets. The impact will likely be felt across many sectors of the industry, as the pandemic has disrupted the global demand for goods, raw materials and fuel.

[52] The IMDO's report on the The Development of Alternative Fuel Infrastructure in Irish Ports can be found here.

Glossary of Terms:

Aframax: derives its name from AFRA (Average Freight Rate Assessment), which refers to a tanker of between 80,000 – 120,000 DWT.

Balance of Payments: is a statistical statement that systematically summarises, for a specific time period, the economic transactions of an economy with the rest of the world.

bpd: barrels per day

Capesize: are dry bulk vessels that average at 156,000 DWT, they cannot transit the Suez Canal.

cSt: Centistoke is a measurement of fuel viscosity.

DWT: Deadweight tonnage, measurement of ships weight carrying capability.

EU27: refers to the number of Member States in the EU without the UK.

EU28: refers to the number of Member States in the EU including the UK.

Eurozone: refers to the nineteen members of the EU's single currency.

Gross Domestic Product (GDP): measures the total output of the economy in a period i.e. the value of work done by employees, companies and self-employed persons.

Gross National Product (GNP): The work done by employees in Ireland generates incomes but not all of the incomes earned in the economy remain the property of residents. The total income remaining with Irish residents is the GNP and it differs from GDP by the net amount of incomes sent to or received from abroad.

HSFO: High Sulphur Fuel Oil – fuel containing up to the 3.5 % sulphur content limit.

IFO: Intermediate Fuel Oil, oil with a maximum viscosity of 380 centistokes (<3.5 % sulphur), see cSt.

Merchandise Trade: Goods which add or subtract from the stock of material resources of a country by entering (imports) or leaving (exports) its economic territory.

OPEC: The Organization of the Petroleum Exporting Countries is an intergovernmental organisation of 14 nations, founded in 1960 in Baghdad by the first five members, and headquartered since 1965 in Vienna, Austria.

Panamax: are dry bulk cargo vessels that travel through the Panama Canal, with a size of up to 52,500 DWT.

Product tankers: are used to transport petroleum based chemicals.

Suezmax: Oil tanker vessels between 120,000 – 250,000 DWT in size.

TEU: Twenty Foot Equivalent Unit – used to measure containership and container capacity.

TCR: time charter rates are set for shipping vessels for a fixed period of time instead of a certain number of voyages. Rate averages allow comparisons between periodic changes in a shipping company's performance.

VLCC: Very Large Crude Carrier is an oil tanker between 150,000 – 320,000 DWT in size.

VLSFO: Very Low Sulphur Fuel Oil containing a maximum of 0.5 % sulphur.

Supramax: are dry bulk cargo vessels of between 50,000 – 60,000 DWT.

Traffic Modalities

Bulk Port Traffic: Refers to three market segments of port and shipping activity, Liquid, Dry, and Break Bulk which are explained below.

Break Port Traffic: Involves loose, non-containerised cargo stowed directly into a ship's hold. Commodities such as timber, steel products, machinery and general project cargo make up the majority of break bulk cargo. The main drivers in this segment's volumes are construction activities and the delivery of project cargo.

Dry Bulk: Commodities in this segment include animal feed, iron ore, coal, fertilizer, cement, bauxite and alumina. This market segment can be particularly affected by adverse or mild weather conditions during the course of a year.

Liquid Bulk: Is a commodity that ranges from petrol for cars to crude oil or liquefied natural gas. Due to their physical characteristics, these are not boxed, bagged or hand stowed, but are instead stored in large tank spaces, known as the holds, of a tanker.

LoLo (Lift-on Lift-off): LoLo involves a specific ship that engages in the transportation of freight, that is loaded and unloaded with the use of different cranes or other lifting devices at a port. To describe the capacity of containership or container terminals, twenty-foot equivalent unit (TEU) is used to measure such parameters.

The twenty-foot equivalent unit (often TEU or teu) is an inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals.

RoRo (Roll-on Roll-off): RoRo involves vessels designed to carry wheeled cargo, such as cars, trucks, semi-trailer trucks, trailers, etc., that can be driven on and off the ship on their own wheels, or using a platform vehicle, such as a self-propelled modular transporter.

Sources of Data:

This report contains the results of quarterly and annual analysis of activity from Irish and Northern Irish ports, and the activity of shipping lines operating from those ports. The data collected is compiled from returns made by those Harbour Authorities, State Companies, County Councils and RoRo shipping lines on routes to and from the island of Ireland, as outlined below:

Irish Port Companies:

Drogheda Port Company
Dublin Port Company, including Dundalk Port Company
Dún Laoghaire Rathdown County Council[53]
Galway Port Company
Greenore Port Company
New Ross Port Company
Port of Cork, including Bantry Bay Port Company
Port of Waterford Company
Port of Youghal Company
Rosslare-Europort
Shannon Foynes Port Company
Wicklow County Council[54]

Northern Irish Port Companies:

Belfast Harbour Commissioners
Foyle Port
Port of Larne
Warrenpoint Harbour Authority

Roll on/Roll-off Shipping Operators:

Brittany Ferries
CLdN Cobelfret
Irish Ferries
P&O Ferries
Seatruck Ferries

Additional Sources of Data:

Bank of England, Central Bank of Ireland, Central Statistics Office, Clarksons' Shipping Intelligence, Economic and Social Research Institute, Eurostat, European Central Bank, European Commission, US Federal Reserve, International Monetary Fund, World Bank, Office for National Statistics, US energy Information Administration.

[53] Dún Laoghaire Harbour Company was dissolved in October 2018 under Statutory Instrument 391/2018. The Harbour was transferred to Dún Laoghaire Rathdown County Council.
[54] Wicklow Port Company was dissolved in August 2016 under Statutory Instrument 462/2016. The Company was transferred to Wicklow County Council.

Technical Note

The IMDO's iShip Index is a weighed indicator comprised of five separate indices, representing the main maritime freight categories moving through ports in Ireland: Break Bulk, Dry Bulk, Liquid Bulk, LoLo and RoRo.

The LoLo Index comprises solely of laden traffic.

The following ports have been included in the iShip Index; Drogheda Port Company, Dublin Port Company, Dundalk Port Company, Galway Port Company, Greenore Port Company, New Ross Port Company, Port of Cork, Port of Waterford Company, Rosslare-Europort, Shannon Foynes Port Company, Wicklow County Council. Bantry Bay Port Company is excluded as its throughput is predominantly of a transhipment nature. Additionally, Dún Laoghaire Rathdown County Council is also excluded as at present, it does not handle any of the five categories that move through Irish ports.

All data is derived from the individual port companies and subject to a one-year revision period.

The case period is Quarter 1 2007, at which all indices equal 1,000.

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