VOLUME 21

THE IRISH MARITIME TRANSPORT ECONOMIST

Foras na Mara
Marine Institute

Irish Maritime
Development Office

The Irish Maritime Development Office

As part of the Marine Institute, the Irish Maritime Development Office (IMDO) is Ireland's national dedicated development, promotional and marketing office for the maritime sector in Ireland with a particular focus on the ports, shipping and shipping services sector.

The IMDO provides the government and industry with a range of information and reporting across the sector and works with national and international businesses to help them set up, expand and respond to new and emerging business opportunities 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 established 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 to protect and create employment.

4. To carry out policy as may be specified 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, and;

6. Any 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 pleased to provide the foreword for this, the 21st edition of the Irish Maritime Transport Economist, which reports on the performance of Ireland's maritime industry for 2023.

This publication, produced by the Irish Maritime Development Office (IMDO), is the most comprehensive annual review of the Irish shipping market in Ireland, and its data and insights are essential to understanding trends in Irish international trade. The maritime sector is the lifeblood of Irish trade, responsible for transporting 90% of Ireland's imports and exports. As an island on the periphery of mainland Europe, an efficient, well connected and modern port sector is indispensable to the domestic economy. The work of the IMDO provides a reliable evidence base upon which policy responses in this area can be built.

In 2023, one of the most significant drivers of port volumes was inflation. The increase in prices recorded in Ireland in the past two years stands in stark contrast to the last decade. Inflation was 8% in 2022 and 6% in 2023, as measured by the CSO's Consumer Price Index. This is compared to an average of 1% annual inflation between 2012 and 2021. These changes, prompted by global events including the Russian invasion of Ukraine and the aftermath of the COVID-19 pandemic, were broadly mirrored among our main trading partners. This presented immense challenges to importers and exporters in our economy, and as this report shows, Irish port volumes declined by 8% in 2023, as measured by the IMDO's iShip index.

Although prices remained persistently high in 2023, unitised traffic at Republic of Ireland ports exhibited remarkable resilience, particularly when compared to larger European container ports. In ports such as Barcelona, Hamburg, Bremerhaven, Antwerp and Rotterdam, declines of at least 7% were recorded for container traffic in 2023, compared to 5% at Irish ports. The avoidance of steeper declines at our container ports has been underpinned by robust domestic demand in the Irish economy, where personal consumer expenditure rose by 3.1% in 2023, despite the inflationary pressures and subdued GDP growth of 0.7% across the Euro Area.

Looking ahead, 2024 has already presented challenges for Irish traders, as new rounds of Brexit changes have come into effect. In August 2023, the British Government published its Border Target Operating Model (BTOM), which set out a phased introduction of controls on European Union (EU) imports to Great Britain. On 31 January 2024, the first stage of this process was implemented with the introduction of health certifications and pre-notification requirements on imports of agri-food products. On 30 April 2024, phase two introduced documentary and risk-based identity and physical checks on a list of agri-food products, to be carried out at Border Control Posts at British ports. However, phase two controls will not apply to Irish goods entering Great Britain via west coast ports. The start date for these checks is yet to be confirmed. The phase two controls are required for all goods making use of the UK Landbridge however, as this route includes travel across the Channel straits.

My Department and the IMDO will monitor the impacts of these changes on the Irish maritime industry closely. I have no doubt that together with our importers, exporters and shipping operators, these Brexit challenges can be overcome yet again.

In all, 2023 was a year of resilience, strength and resolve on the part of the Irish shipping market. Steep declines were avoided in the unitised sector, and as this report shows, much of the changes in the bulk market are attributable to a small number of commodities. I would like to commend all those in the industry for their work in providing another year of uninterrupted access to international markets and facilitating growth in domestic demand.

The review of the National Ports Policy will continue in 2024, following the commencement of the first phase of a public consultation in October 2023. In addition to being vital hubs for trade, our ports will play a central role in the transition towards renewable energy, facilitating the deployment and maintenance of offshore renewable energy. I look forward to engaging with stakeholders and the public on these issues and working together to understand the necessary infrastructure required for this sector to continue to thrive.

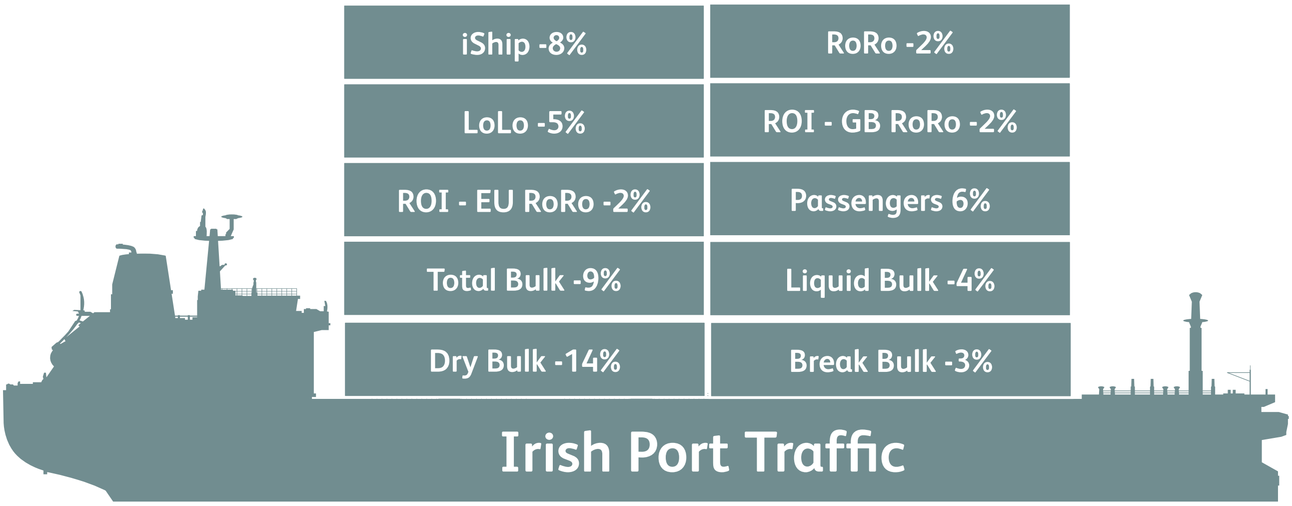
I applaud the industry for its performance in 2023, and I thank the IMDO who supported this effort. I am pleased to commend this publication to all industry stakeholders and to anyone who has an interest in maritime affairs.

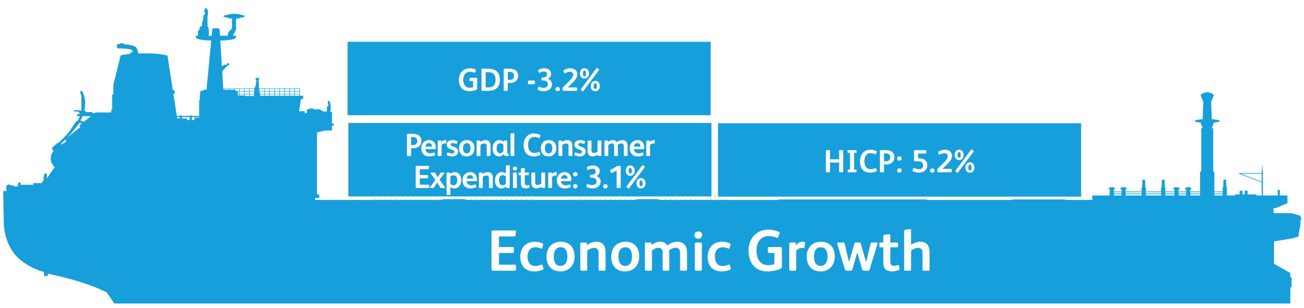
James Lawless T.D

Minister of State for Transport

Introduction

2023 Key Statistics (Vs 2022):





Welcome to the 21st edition of the Irish Maritime Transport Economist, in which we report on Irish trade and port throughput in 2023.

The Irish shipping market faced a series of global challenges in 2023. Prices rose sharply across large economies, suppressing consumption at home and abroad. In addition, the global energy transition continued to alter the makeup of raw materials arriving at Irish ports. As a result, both container and bulk traffic through Irish ports declined this year, and the IMDO's iShip index - a weighted indicator of port volumes - fell by 8%, its steepest drop since 2009. But Irish ports remain resilient, and were once again essential in facilitating robust Irish domestic demand in what was a year of challenging economic conditions. The issues facing the Irish shipping market in 2023 can be understood under the themes of inflation and energy transition.

Following a sharp rise in 2022, global inflation rates remained stubbornly high in 2023. The global rate of inflation in 2023 was 7%, while in the Euro Area inflation ran at 6%. On both measures, this was the sharpest jump in price level in well over a decade, particularly for the Euro Area.

High inflation has suppressed demand for manufactured, or consumer goods such as those carried in containerised form, and this is evident in global seaborne trade volumes. World seaborne container trade grew by just 0.3% in 2023, which, excluding the impact of COVID-19, is the slowest rate of growth since the financial crisis of 2008. In the ports of Rotterdam and Antwerp, Europe's two largest container ports, container throughput fell by 1m TEU's in each port. When combined, this represents a decline of 7% compared to 2022, and the lowest throughput level since 2018. These trends are reflected in volumes through Irish ports. LoLo traffic through Republic of Ireland ports declined by 5% this year, while RoRo traffic fell by 2%. When converted, the volume of container traffic through Irish ports fell by approximately 3% in 2023.

In order to tackle these inflation rates, Central Banks in major economies swiftly raised interest rates which hindered economic growth. In 2023, the Central Bank of Ireland highlighted that the impact of higher rates had become pronounced, influencing credit demand and weighing on consumption both in Ireland and in its major trading partners. Consequently, economic growth in the world's largest economies has been sluggish. Global growth in GDP in 2023 was 3% according to the IMF. In the Euro Area however, it was 0.7%, and in the UK, just 0.1% GDP growth is expected for 2023.

Driven by these challenges, RoRo and LoLo volumes at Irish ports underperformed in 2023 relative to their long term trend, and underlying growth in both sectors is currently flat. That is not surprising, given the difficult economic environment within which Irish importers and exporters have traded in recent years, a period which includes COVID-19, Brexit, the Russian invasion of Ukraine and steep increases in energy prices. When these challenges are considered, the theme of unitised traffic at Irish ports becomes one of resilience. Both RoRo and LoLo traffic at Irish ports in 2023 is at almost exactly the level it was in 2019. In addition, Irish traders are connected to a greater number of mainland European ports than ever before, as post-Brexit capacity has become more diverse. Given the challenges faced in the intervening years, that is a remarkable performance and testament to the durability and adaptability of the Irish ports network.

The decline in total Irish port tonnage in 2023 was also heavily influenced by dry bulk products, and this is emblematic of the fact that as the Irish economy transitions away from fossil fuels, the composition of raw materials arriving at our ports will be reshaped. Dry bulk volumes, which are comprised of loose, non-containerised products for industrial or agricultural purposes, fell by 14% to its lowest total since 2010. The decline was driven in large part by two commodities: coal and fertiliser.

Fertiliser imports on the island of Ireland have declined significantly in recent years, and this became more pronounced in 2023. Imports of all fertiliser products to Ireland's main dry bulk ports fell by 20% this year. Within this sector, the Irish Government's Climate Action Plan (CAP) has targeted a reduction in chemical nitrogen fertiliser sales to below 300,000 tonnes of per year by 2030. By late 2023, figures released by the Department of Agriculture, Food and Marine (DAFM) showed that this CAP target for nitrogen fertiliser had been met in 2023, with roughly 280,000 tonnes of chemical nitrogen nutrient sold in the state.

Imports of coal to the ESB's Moneypoint power station fell sharply in 2023. Imports of coal through the Shannon Estuary have fluctuated in recent years. Between 2018 and 2020, coal was essentially removed from the fuel mix of grid electricity. In 2021 and 2022 however, imports of coal rose to around 1m tonnes in each year. In 2021, this was driven by a decline in wind generation for electricity, and in 2022, the rise was underpinned by the energy crisis brought about by the Russian invasion of Ukraine which led to stockpiling of energy resources across Europe. In 2023, coal imports fell back significantly, and are now 64% below the 2021 total.

Although coal imports can be expected in varying quantities through Irish ports over the short term in order to fulfil the role of 'generator of last resort', over the long run, the removal of coal will mean Irish bulk tonnage may continue to decline. As illustrated by the Sustainable Energy Authority of Ireland (SEAI), 50% of Ireland's electricity generation comes from pipelined natural gas, with a further 37% from wind energy. However, the removal of fossil fuel materials at Irish ports is likely to be replaced by other products geared towards energy generation, such as wind turbines and infrastructure related to battery technology, and this will be captured in cargo modes other than dry bulk. Irish port infrastructure will need to adapt to these changes in Irish energy generation in the coming years.

In the area of alternative energy infrastructure and emissions reduction, the IMDO are heavily involved in several EU initiatives seeking to make progress in this area. These initiatives include: Motorways of the Sea International Fast & Secure Trade Lanes, Atlantic Smart Ports Blue Accelerator Network (ASPBAN), European flagship Action for Cold-Ironing in Ports (EALING) and Green Shipping Corridors. In addition, influential economic research has taken place with The University of Galway in relation to the economic implications of the FuelEU maritime regulations.

The IMTE is a collaborative effort that relies on the support and confidence of industry stakeholders. Our work would not be possible without the participation of ports, shipping operators, industry bodies and colleagues throughout the Department of Transport. I would like to express my gratitude to all who have contributed to this edition of the IMTE and in particular to our economic analyst Daniel Fallen Bailey, who brought the publication to fruition.

In conclusion, may I take this opportunity to wish all those involved in the maritime transport sector success in the vitally important work they do. May I also thank all those who continue to support this publication through their readership and by providing the information on which the IMTE database is constructed. Maritime transport is the lifeblood of Irish trade, responsible for 90% of all goods transported internationally. The sector underpins growth, efficiency and competitiveness in our economy and 2023 was another year of uninterrupted access to international markets through our ports and shipping services.

Liam Lacey.

Liam Lacey
Director
Irish Maritime Development Office

Section 1. **The Irish Shipping Market in 2023**

Section 1 of this report is divided into 6 sections. Section 1.1 details the performance of the all-island bulk market, which comprises three cargo modes: liquid bulk, dry bulk and break bulk. Sections 1.2 and 1.3 deal with the unitised freight 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 and retail items further along the value chain. Sections 1.4 considers the unitised market together and discusses the factors driving its growth. In Section 1.5, the performance of the tourist passenger market is described. Section 1.6 illustrates the performance of the iShip index in 2023, which is a quarterly weighted indicator that outlines trends within the Republic of Ireland's (ROI) shipping industry.

1.1 Bulk Market

Bulk Port traffic refers to three market segments of port and shipping activity: Liquid bulk, dry bulk and break bulk. Liquid bulk ranges from fuel for domestic transport and aviation, to crude oil or liquefied natural gas. Dry bulk refers to raw materials for industrial or agricultural purposes, such as fertiliser, animal feeds and iron ores. Lastly, break bulk is made up of non-containerised project and construction materials such as timber, steel and machinery.

Tables 1 and 2 below provide a summary of bulk tonnage through ports on the island of Ireland in 2023. Overall, bulk traffic handled at ports in the Republic of Ireland (ROI) declined by 9%, equivalent to approximately 2.6m tonnes, while bulk traffic in Northern Ireland fell by 5%, or approximately 0.5m tonnes.

Table 1: Bulk Traffic 2023, Republic of Ireland Ports

ROI Ports	2022	2023	Annual Growth	
	Tonnes	Tonnes	%	Tonnes
Dry Bulk	15,732,334	13,583,262	-14%	-2,149,071
Liquid Bulk	1,447,132	1,396,531	-3%	-50,601
Break Bulk	11,208,814	10,783,028	-4%	-425,786
Total Bulk	**28,388,279**	**25,762,821**	**-9%**	**-2,625,458**

Source: *IMDO*

Table 2: Bulk Traffic 2023, Northern Ireland Ports

NI Ports	2022	2023	Annual Growth	
	Tonnes	Tonnes	%	Tonnes
Dry Bulk	7,902,536	7,264,612	-8%	-637,924
Liquid Bulk	732,519	768,122	5%	35,602
Break Bulk	2,593,076	2,650,920	2%	57,844
Total Bulk	**11,228,132**	**10,683,653**	**-5%**	**-544,479**

Source: *IMDO*

1.1A Dry Bulk Market

Introduction

Dry bulk traffic represents approximately 30% of all ROI port tonnage and 75% of all dry bulk traffic is imported. Dublin Port, Shannon Foynes and the Port of Cork consistently represent three quarters of all ROI dry bulk traffic, with Shannon Foynes holding an average share of 53% over the last five years. These three ports are categorised in Ireland's National Ports Policy as Tier 1 ports, meaning they are responsible for between 15% and 20% of all tonnage through Irish ports, and they have the potential to lead the development of port capacity in the future[1]. The ports of Drogheda, Greenore and Waterford account for a further 22% of dry bulk traffic on average. Overall, more than 95% of all ROI dry bulk traffic is handled by six ports.

In 2023, the volume of dry bulk traffic at ROI ports fell sharply, by 14%, or approximately 2.1m tonnes. At 13.6m tonnes, this is the lowest annual total since 2010, and the sharpest annual decline since 2009, when the onset of the financial crash suppressed domestic demand. Between 2019 and 2022, the annual average total for dry bulk tonnage was 15.8m tonnes. 2023 tonnage volumes are 14% below this average. Declines were recorded at eight of the nine ROI dry bulk ports, with only Drogheda posting an increase. The steepest decline came at Shannon Foynes, where dry bulk volumes fell by 1.5m tonnes.

In Northern Ireland, dry bulk tonnage fell by 8%, or approximately 0.6m tonnes. At 7.2m tonnes, this is the lowest dry bulk total in more than a decade for NI ports. Tonnage fell at three of the four dry bulk ports in Northern Ireland, with only Warrenpoint recording an increase. Between 2019 and 2022, the annual average total for dry bulk tonnage in NI ports was 8.2m tonnes. 2023 tonnage volumes are 12% below this average.

Table 3 provides an overview of annual dry bulk tonnage (imports and exports) across Irish and Northern Irish ports in 2022 and 2023.

In the following commentary, it will be highlighted that a decline in imports of three commodities; fertiliser, bauxite and coal, has driven the overall decline in dry bulk traffic at ROI ports in 2023. The scale of decline in each commodity, and the main causes behind it will be outlined. In all, the fall in these commodities accounted for three quarters of the overall decline in dry bulk traffic in 2023.

[1] National Ports Policy, 2013

Table 3: All-Island Dry Bulk Traffic, 2022 - 2023

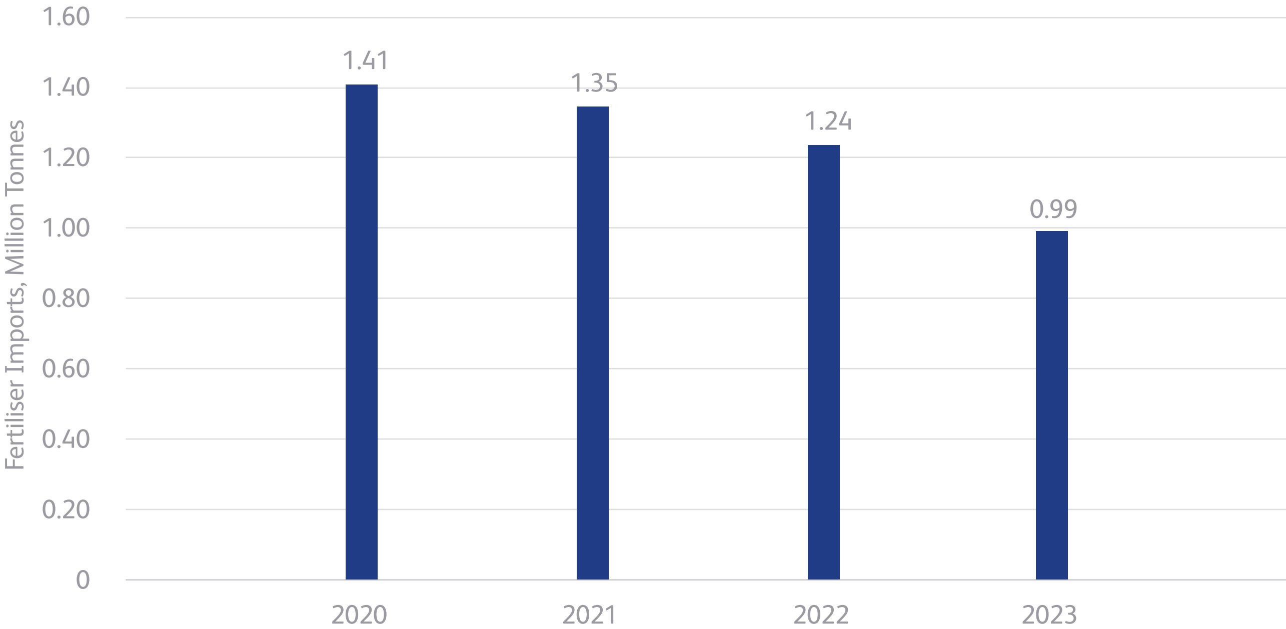
	All-Island 2022		All-Island 2023		Annual Growth	
	Tonnes	% Share	Tonnes	% Share	%	Tonnes
Cork	1,430,900	6%	1,267,757	6%	-11%	-163,143
Drogheda	732,933	3%	777,643	4%	6%	44,710
Dublin	2,075,514	9%	2,022,084	10%	-3%	-53,430
Dundalk	58,004	0%	46,456	0%	-20%	-11,548
Galway	197,716	1%	185,716	1%	-6%	-12,000
Greenore	1,184,047	5%	1,001,718	5%	-15%	-182,329
New Ross	173,451	1%	91,341	0%	-47%	-82,110
Shannon Foynes	8,372,882	35%	6,847,344	33%	-18%	-1,525,538
Waterford	1,506,887	6%	1,343,203	6%	-11%	-163,684
Total ROI	**15,732,334**	**67%**	**13,583,262**	**65%**	**-14%**	**-2,149,071**
Belfast	6,425,376	27%	5,924,842	28%	-8%	-500,534
Foyle	1,106,202	5%	933,151	4%	-16%	-173,051
Larne	21,999	0%	20,109	0%	-9%	-1,890
Warrenpoint	348,959	1%	386,510	2%	11%	37,551
Total NI	**7,902,536**	**33%**	**7,264,612**	**35%**	**-8%**	**-637,924**
Total All-Island	**23,634,870**		**20,847,874**		**-12%**	**-2,786,996**

Source: *IMDO*

Fertiliser

The volume of fertiliser imports on the island of Ireland has declined significantly in recent years, and this became more pronounced in 2023. In Figure 1, the volume of fertiliser imported through the six[2] main dry bulk ports in the Republic of Ireland are illustrated. Imports of fertiliser products at the listed ports fell by 250,000 tonnes in 2023, equivalent to a 20% reduction. As evident in Figure 1, imports of fertiliser have been declining since 2021, but a steep drop in 2023 was enough to significantly impact overall dry bulk volumes.

Figure 1: Fertiliser Imports at Dublin, Cork, Shannon Foynes, Waterford, Greenore & Drogheda



Source: *IMDO*

There are two main factors driving this decline in fertiliser imports; environmental regulations and price.

Firstly, the Irish Government's Climate Action Plan (CAP) has targeted a reduction in fertiliser sales to below 300,000 tonnes of chemical nitrogen nutrient per year by 2030[3]. Since 2000, fertiliser sales in Ireland have averaged 350,000 tonnes of nitrogen products per year[4]. By late 2023, figures released by the Department of Agriculture, Food and Marine (DAFM) showed that this CAP target for fertiliser had been met in 2023, with just 280,569 tonnes of Chemical nitrogen nutrient sold in the state[5]. This milestone was acknowledged by the Irish Farmers Association (IFA);

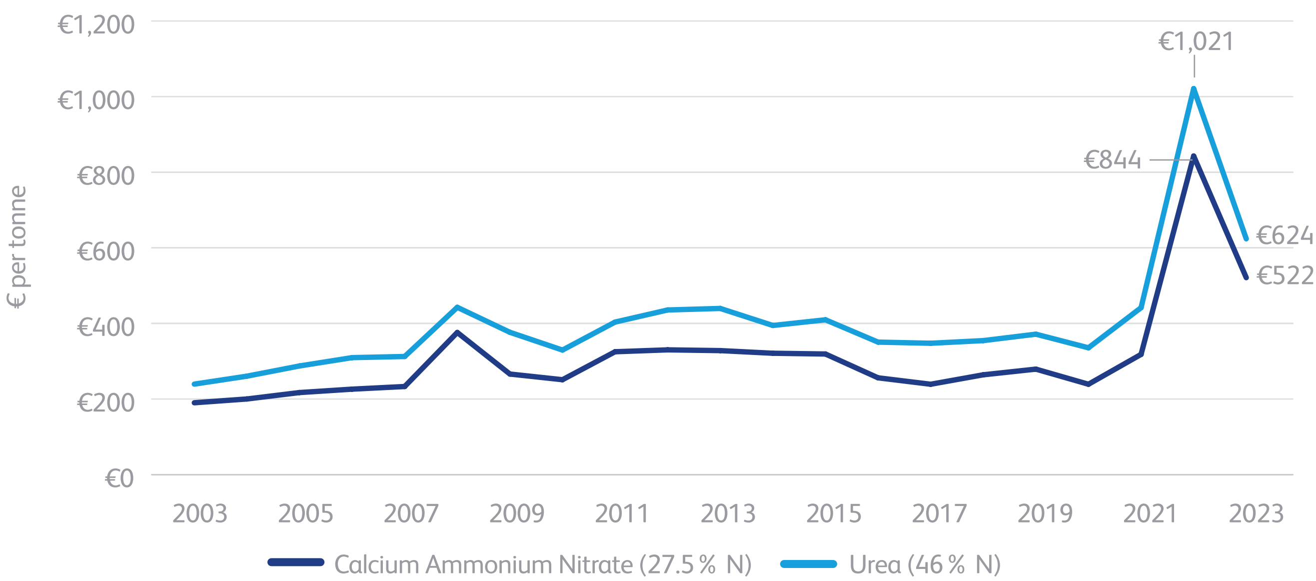
"Use of nitrogen fertiliser is down 30% since 2021 and is now at just over 280,000 tonnes, which is below the target set for the sector for 2030. It's a phenomenal achievement to get beyond the target seven years ahead of time"

IFA President Tim Cullinan, 23rd Nov 2023 [6]

[2] Dublin Port, Port of Cork, Shannon Foynes, Drogheda Port, Waterford and Greenore represent more than 95% of all dry bulk traffic in the Republic of Ireland.
[3] Climate Action Plan 2024, Pg 39
[4] CSO, Fertiliser Sales
[5] Irish farmers achieve key 2030 nitrogen fertiliser reduction target – Teagasc, 12th December 2023
[6] Farmers Surpass Climate Target on Fertiliser Seven Years Ahead of Schedule

However, the impact of price should not be discounted when understanding the reduction in fertiliser sales in 2023. Beginning in 2021, the international price of chemical fertilisers began to surge. This came as a consequence of the Russian invasion of Ukraine. Following the outbreak of conflict, sanctions were placed on both Russia and Belarus by the European Union (EU). Both countries are large exporters of fertilisers, particularly Belarus. Belarusian exports of fertiliser fell significantly, and this disrupted global trade patterns of such products, driving prices upward. In Figure 2 below, the price per tonne of nitrogen-based fertilisers in Ireland is provided. Although prices declined by approximately 40% in 2023, they remain significantly elevated compared to recent years, and this has had a suppressive effect on import demand in the agricultural industry.

Figure 2: Fertiliser Price Ireland, (€/tonne)



Source: *CSO*

Bauxite and Alumina

Shannon Foynes Port Company, a Tier 1 port, is Ireland's largest dry bulk port by a significant margin. In 2023, the port represented 50% of all ROI dry bulk tonnage. Between 2013 and 2023, the ports annual share has averaged 56%.

Imports of bauxite, a sedimentary rock that is the world's main source of aluminium, make up about half of all dry bulk tonnage at the port. Bauxite is imported to Shannon Foynes for use by Aughinish Alumina, Europe's largest alumina refinery. The company, located in the Shannon estuary, refines bauxite into alumina which is then shipped abroad for use in a myriad of global products in transportation, construction, packaging, and the production of electricity. Aughinish Alumina is indirectly owned by Rusal International, a Russian company whose shareholders have faced Western sanctions in the wake of the Russian invasion of Ukraine. This, coupled with the rapid rise in energy costs that began in 2022, has led to a significant increase in uncertainty for the company[7], the impact of which is evident in the volumes of bauxite and alumina through Shannon Foynes.

In 2023, Imports of bauxite into Shannon Foynes fell by 20%, equivalent to a decline of 850,000 tonnes. In turn, exports of alumina from the port fell by 13%, equivalent to a drop of 190,000 tonnes. The decline in these two commodities through Shannon Foynes accounts for half of the overall decline in Irish dry bulk traffic in 2023. The impact of this shift also shows up in Irish trade statistics for the year. Bauxite is primarily supplied from Guinea, a major supplier of the raw material to world markets. Irish imports from Guinea fell by 34% in 2023, or one million tonnes.

[7] Limerick's Russia-owned Aughinish Alumina makes €153m loss – Irish Independent, Nov 2023

Coal

The volume of coal imported to the ESB's moneypoint power station fell sharply in 2023, following on from a large decrease in 2022. In 2022, coal imports to the power station fell by 27%, or 350,000 tonnes. In 2023, volumes have fallen by a further 51%, equivalent to 480,000 fewer tonnes of coal imports this year.

Imports of coal through the Shannon Estuary have fluctuated in recent years. Between 2018 and 2020, coal was essentially removed from the fuel mix of grid electricity, as noted by the Sustainable Energy Authority of Ireland (SEAI)[8]. In 2021 and 2022 however, imports of coal rose sharply, with around one million tonnes imported in each year. In 2021, this was driven by a decline in wind generation for electricity, and in 2022, the rise was underpinned by the energy crisis brought about by the Russian invasion of Ukraine which led to stockpiling of energy resources across Europe. Concerns of disruption to natural gas supplies have created heightened energy insecurity across Europe since the outbreak of this conflict, and this has informed a decision by the ESB to keep the Moneypoint power station operational until 2029, four years after it was due to be decommissioned. The ESB have noted the following about operations at Moneypoint going forward;

"As an out-of-market generator of last resort, Moneypoint will not be active in the wholesale electricity market but will be available to operate, at the instruction of EirGrid, as a backup to the system in the event of a shortage of generation capacity"

ESB, August 2023 [9]

As illustrated by the SEAI, 50% of Ireland's electricity generation comes from natural gas, with a further 37% from wind energy.[10] The uncertainty that has surrounded natural gas supplied in Europe in recent years, coupled with the intermittency of wind energy production, means coal imports can be expected in varying quantities through Irish ports over the short term in order to fulfil the role of 'generator of last resort.'

[8] Energy in Ireland 2023 report – SEAI
[9] Moneypoint Power Station – ESB
[10] Energy in Ireland 2023 report – SEAI, Figure 11.6, pg. 146

1.1B Liquid Bulk Market

In 2023, the volume of liquid bulk at Republic of Ireland (ROI) ports fell by 4%, from approximately 11.2m tonnes, to 10.8m tonnes. The largest declines came at Cork and Shannon Foynes, where liquid bulk traffic declined by 392,000 tonnes across both ports and accounted for over 90% of the total decline in 2023.

Ireland's core (Tier 1) ports make up almost all of the liquid bulk market. Dublin Port and the Port of Cork represented 88% of all liquid bulk traffic in 2023, while Shannon Foynes held a 10% share. Galway represented 2% of liquid bulk in 2023, while Drogheda held a less than 1% share. This spread of shares of ROI liquid bulk traffic has been consistent for most of the last decade.

In Northern Ireland ports, liquid bulk traffic rose by 2% from 2.6m tonnes, to 2.65m tonnes. For most of the last decade, Belfast handled approximately 78% of liquid bulk traffic in Northern Ireland, with Foyle accounting for approximately 22%. In 2022 and 2023 however, this trend changed. Foyle's share increased to 27% in 2022 and 30% in 2023. Foyle's total volume of 803,000 tonnes in 2023 is its highest annual total recorded by the IMDO.

Table 4 below provides a summary of liquid bulk traffic handled at ports on the island of Ireland in 2022 and 2023.

Table 4: All-Island Liquid Bulk Traffic, 2022 – 2023

	All-Island 2022		All-Island 2023		Annual Growth	
	Tonnes	% Share	Tonnes	% Share	Tonnes	%
Cork	5,042,842	45%	4,771,334	44%	-271,508	-5%
Drogheda	28,654	0%	26,777	0%	-1,877	-7%
Dublin	4,715,276	42%	4,708,266	44%	-7,011	0%
Galway	269,060	2%	244,661	2%	-24,399	-9%
Shannon Foynes	1,152,982	10%	1,031,991	10%	-120,991	-10%
Total ROI	**11,208,814**	**81%**	**10,783,028**	**80%**	**-425,786**	**-4%**
Belfast	1,841,192	13%	1,809,086	13%	-32,106	-2%
Foyle	707,383	5%	803,039	6%	95,656	14%
Larne	5,891	0%	4,292	0%	-1,599	-27%
Warrenpoint	38,610	0%	34,503	0%	-4,107	-11%
Total NI	**2,593,076**	**19%**	**2,650,920**	**20%**	**57,844**	**2%**
Total All-Island	**13,801,890**		**13,433,948**		**-367,942**	**-3%**

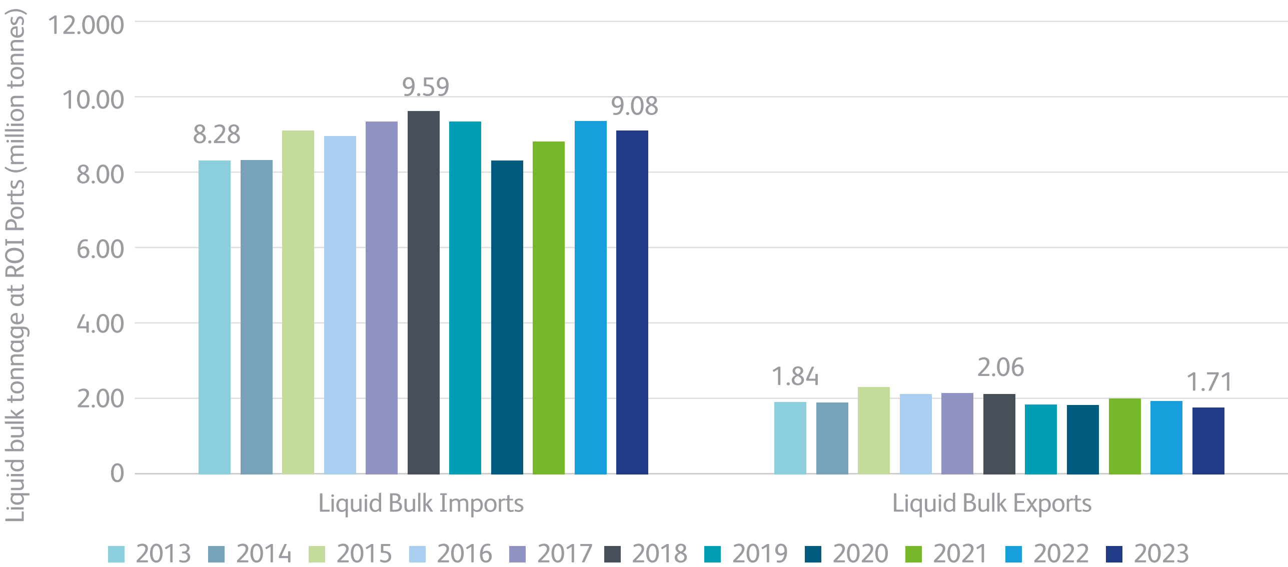
Source: *IMDO*

The following commentary will first illustrate the breakdown between liquid bulk imports and exports. Following this, an analysis is provided into the continued dependency of the Irish economy on liquid bulk imports, and what drives this demand.

Imports and Exports

Over the past five years, imports have represented an average of 82% of all liquid bulk traffic through Irish ports, while liquid bulk exports have held a share of 18%, on average. In Figure 3 below, the annual volume of liquid bulk imports and exports through ROI ports is provided.

Figure 3: Liquid Bulk Import/Export Volume, ROI Ports, 2013 - 2023, Million Tonnes



Source: *IMDO*

Exports

Of the liquid bulk traffic exported, over 95% of this traffic leaves from the Port of Cork, originating from the Whitegate oil refinery where crude oil is processed into products such as petroleum, diesel, and kerosene. The majority of oil refined at Whitegate is exported directly, and therefore the volumes produced are not driven by domestic demand conditions, but rather the operational capabilities of the refinery in a given year.

In 2023, liquid bulk exports from the Port of Cork fell by 8%, or 145,000 tonnes. This is the lowest level of liquid bulk traffic exported from Cork in more than a decade, and this compounded the overall decrease in liquid bulk traffic for the year. In Cork, 35% of its liquid bulk traffic was exported in 2023.

Imports

As shown in Figure 3, the volume of liquid bulk imports has fluctuated in recent years. In 2020 and 2021, volumes were significantly suppressed by the effects of the COVID-19 pandemic. In 2020, liquid bulk declined sharply, by 11%, or over 1m tonnes. Restrictions on domestic and international travel led to a significant decline in the demand for domestic and aviation transport fuels, both of which have a large impact on liquid bulk volume. The suppressive effect of COVID-19 restrictions continued in the first three months of 2021, as much of the Irish economy remained shut. Volumes gradually recovered over the next 6 months as the Irish economy reopened, and by Q4 2021, were back at 2019 levels. Throughout 2022, liquid bulk traffic resembled both 2018 and 2019, averaging approximately 2.8m tonnes per quarter. In 2023, the volume of liquid bulk imports fell by 3%, or 250,000 tonnes, to a level similar to that of 2015.

Liquid Bulk: Import Dependency

The 9 million tonnes of liquid bulk traffic imported through Irish ports continues to be of great importance to the Irish economy and Irish society, as Ireland is heavily reliant on imports for energy consumption. As highlighted in the latest Energy in Ireland Report produced by the Sustainable Energy Authority of Ireland (SEAI), 82% of Ireland's primary energy requirements in 2022 were imported, compared to an average of 58% across EU member states[11].

It is important to understand what the 9 million tonnes of liquid bulk imports at Irish ports are directed towards in the Irish economy. Liquid bulk traffic is generally comprised of finished, oil-based products that range from petroleum and diesel for cars, jet fuel for aviation, and home heating oil. There are three fundamental areas where most liquid bulk imports are used; home heating, electricity generation, and transport.

Transport is by far the most common use for oil-based imports in Ireland. As reported by the SEAI, it took approximately 58 terawatt-hours (TWh) of energy to power the Irish transport sector in 2022[12]. Diesel fuel was used for 61% of this demand, gasoline/petrol was used for 14%, and jet kerosene was used for a further 20%[13]. In all, 95% of Ireland's transport energy demand is powered by oil-based products, the majority of which are imported through the ports listed above. In addition to this, oil is used to power 42% of Ireland's heating demand for the year, and 5% of its electricity generation.

[11] Energy in Ireland – 2023 Report, SEAI, pg. 8
[12] Energy in Ireland – 2023 Report, SEAI, Table 6.5
[13] Energy in Ireland – 2023 Report, SEAI, Figure 6.8

1.1C Break Bulk Market

Break bulk cargo refers to loose, non-containerised cargo stowed directly into a ship's hold. It is not in raw material form, such as coal, oil, or grain. In addition, it is also not capable, or is too large, to be containerised. Break bulk cargo commonly includes commodities such as timber, steel, or machinery. Essentially, break bulk is cargo that is transported in individual units or packages, rather than being shipped in bulk, such as in a container or on a bulk carrier. The individual units may be of different shapes, sizes, and weights, and are typically loaded/unloaded individually at ports. As a result, increases in break bulk traffic typically indicate a rise in infrastructural activity, such as the building of houses, roads, offices or other construction and manufacturing projects. Trends in the break bulk sector of Irish ports can therefore be an effective bell weather for trends in the domestic manufacturing and construction sector.

In 2023, the volume of break bulk traffic through ports in the Republic of Ireland (ROI) fell by 3%, equivalent to a decline of 50,601 tonnes. At Northern Ireland (NI) ports, break bulk traffic grew by 5%, adding 35,602 tonnes.

Five ports handle roughly 70% of all break bulk traffic on the island of Ireland: Cork (12%), Drogheda (11%), Shannon Foynes (14%), Belfast (13%) and Warrenpoint (18%). Break bulk traffic through Cork recorded a steep decline of 13%, or 39,857 tonnes. As a result, its share of the all-island market fell from 14% to 12%. In Warrenpoint, break bulk traffic rose by 5%, or 31,743 tonnes, and drove this year's growth in NI ports.

Table 5 below presents the total break bulk tonnage handled by each port in Ireland and Northern Ireland in 2022 and 2023, alongside each ports all-island market share.

Table 5: All-Island Break Bulk Traffic, 2022 - 2023

	All-Island 2022		All-Island 2023		Annual Growth	
	Tonnes	% Share	Tonnes	% Share	%	Diff
Cork	295,429	14%	255,572	12%	-13%	-39,857
Drogheda	239,333	11%	243,160	11%	2%	3,827
Dublin	64,192	3%	45,028	2%	-30%	-19,164
Dundalk	15,847	1%	18,476	1%	17%	2,629
Galway	7,703	0%	22,527	1%	192%	14,824
Greenore	187,243	9%	170,135	8%	-9%	-17,108
Shannon Foynes	315,131	14%	307,258	14%	-2%	-7,873
Waterford	167,508	8%	183,691	8%	10%	16,183
Wicklow	152,466	7%	150,684	7%	-1%	-1,782
Youghal	2,280	0%	0	0%	-100%	-2,280
Total ROI	**1,447,132**	**66%**	**1,396,531**	**65%**	**-3%**	**-50,601**
Belfast	296,884	14%	291,963	13%	-2%	-4,921
Foyle	75,654	3%	84,435	4%	12%	8,781
Warrenpoint	359,981	17%	391,724	18%	9%	31,743
Total NI	**732,519**	**34%**	**768,122**	**35%**	**5%**	**35,602**
Total All-Island	**2,179,651**		**2,164,653**		**-1%**	**-14,999**

Source: *IMDO*

For ROI ports, this is the second consecutive year of decline in this sector, following a sharp 12% drop recorded in 2022. Between 2010 and 2019, the volume of break bulk traffic at Irish ports rose steadily, reflecting the recovery in the Irish economy more broadly. Volumes rose from 0.87m tonnes in 2010, to a peak of 1.6m tonnes in 2019. The COVID-19 pandemic interrupted this growth, with volumes sliding back to 1.43m tonnes in 2020, before rebounding strongly to a record high of 1.64m tonnes in 2021. At 1.4m tonnes, 2023 is the lowest annual total of break bulk traffic since 2014. The average annual volume of break bulk cargo between 2018 and 2022 was 1.53m tonnes. The volumes in 2023 are 9% below that level.

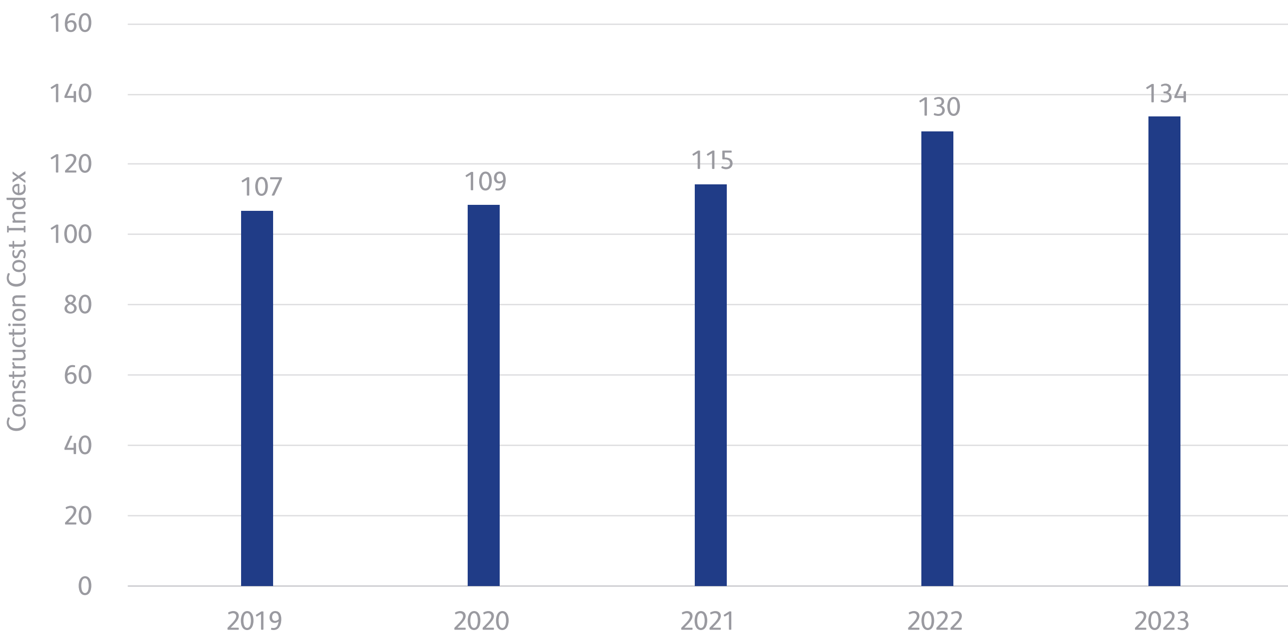
For NI ports, break bulk volumes have fluctuated in recent years, with no clear momentum in either direction. The annual average volume between 2018 and 2022 was approximately 740,000 tonnes. At 768,122 tonnes, the volumes in 2023 are 4% above this level.

Construction Costs

In volume 20 of this report, it was highlighted that a rise in the price of construction materials across the EU was negatively affecting the volume of production in Ireland and therefore on break bulk traffic at Irish ports. In 2023, this remains the case, as the price of construction materials remain elevated and the volume of construction in Ireland has slowed again.

There are three metrics that are reflective of this trend. Firstly, Figure 4 shows Eurostat's Construction Cost Index for new residential buildings. This cost index rose again in 2023, albeit at a slower pace. The price of construction materials in 2023 remains significantly above pre-pandemic levels.

Figure 4: Construction costs, new residential buildings, Euro Area, 2019 - 2023 (2015 = 100)



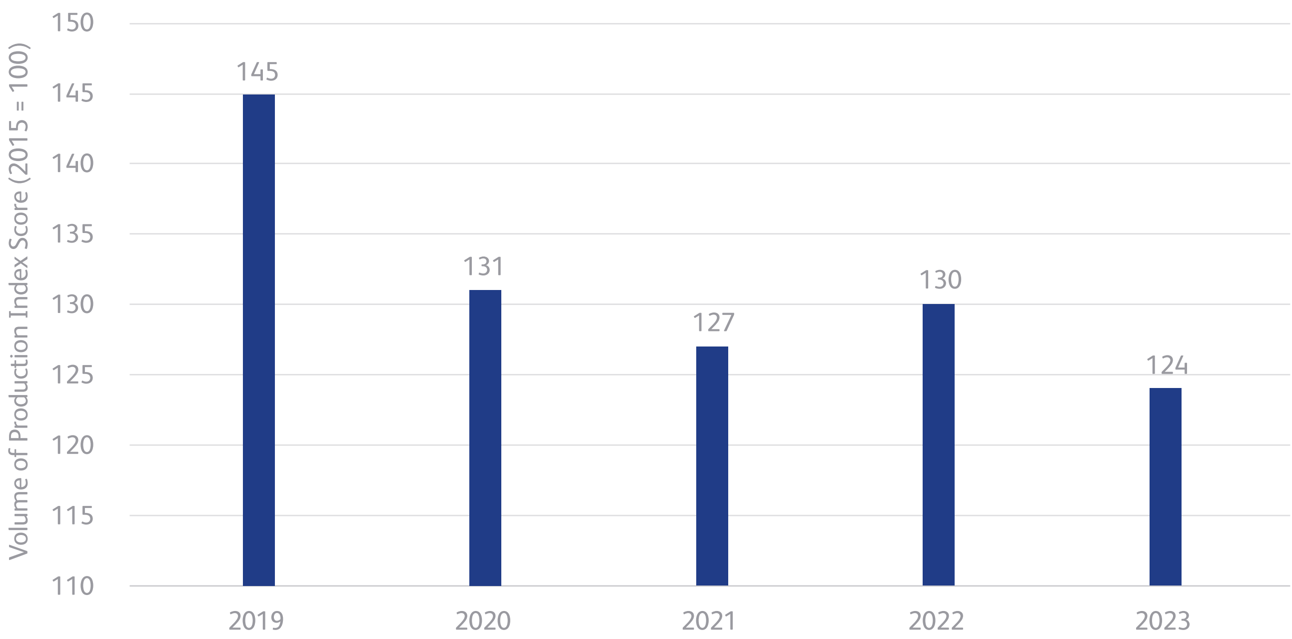
Source: *Eurostat*

Secondly, Figure 5 shows the CSO's index for the volume of production in building and construction in Ireland between 2019 and 2023. As evident in Figure 5, the index declined by 5% in 2023, and is 14% below 2019, or pre-pandemic levels. This result is partly explained by the Central Bank of Ireland (CBI) in its first quarterly bulletin of 2024. The CBI notes that activity in the manufacturing sector in Ireland is stable, but there is weakness in the construction sector that is driven by a reduction in non-residential or commercial building, as the number of employees working from home has dampened investment in office space[14]. This has offset growth in residential buildings, or new dwelling completions, which has grown strongly in the past five years in Ireland and grew by a further 10% in 2023[15].

[14] Central Bank of Ireland, Quarterly Bulletin, QB1 – March 2024, pg. 20 Figure 12

[15] NDA01 - New Dwelling Completions, CSO

Figure 5: CSO Production in Building and Construction Index, 2019 – 2023



Source: *CSO*

Lastly, the impact of higher costs in the manufacturing and construction sector drove a shift towards exports in the break bulk sector of Irish ports in 2023. In both ROI and NI ports, imports of break bulk traffic declined, while exports increased, as producers took advantage of higher prices.

In 2023, break bulk exports at ROI ports rose by 3,166 tonnes, while imports declined by 7%, or 53,767 tonnes. Imports made up 53% of all break bulk throughput at ROI ports in 2023. Over the past ten years, the average share held by imports has been 54%. The decline in traffic in 2023 in ports was therefore entirely driven by break bulk imports.

In NI ports, the 5% growth in break bulk traffic shown in Table 5 was entirely export-led. Break bulk exports grew by 47% in NI ports to 219,871 tonnes, the highest total recorded by the IMDO. The share of NI break bulk held by exports was therefore 29%, compared to an average of 19% since 2013. Break bulk imports through NI ports declined by 6%, or 34,549 tonnes.

The trend is evident at port level when individual break bulk products are considered. In Drogheda port, exports of construction materials rose more than 100,000 tonnes, while in Cork, exports of timber rose by more than 10,000 tonnes. For the island of Ireland, break bulk exports rose by 9%, or 73,317 tonnes, while all-island break-bulk imports fell by 6%, or 88,316 tonnes. As outlined above, this outcome is in part explained by higher construction costs and slower demand for domestic building, particularly in the non-residential sector.

1.2 RoRo

Introduction

In ROI ports, approximately 30% of all freight traffic is RoRo traffic, meaning 3 out of every 10 tonnes handled at Irish ports each year are carried on a RoRo vessel. This market is therefore central to the Irish shipping sector and by extension, Irish trade.

RoRo traffic takes up a large share of Irish port traffic because RoRo ferries are well equipped to operate on shorter, more direct routes, especially for shorter crossings such as those on the Irish sea where multiple trips can be made in one day. In contrast, LoLo (container) ships may follow longer routes that include multiple ports of call, which can result in longer transit times, and often larger volumes of freight per trip.

There are three RoRo ports in the Republic of Ireland, and three in Northern Ireland. Dublin, Cork, and Rosslare Europort make up the RoRo ports in the Republic of Ireland (ROI), while Belfast, Larne and Warrenpoint make up the RoRo ports in Northern Ireland (NI).

There are several key points that should be highlighted if the performance of the Irish RoRo market in 2023 is to be clearly understood. This section is divided into five parts, with each focusing on an important aspect of the RoRo market.

Part (i) describes the overall performance of RoRo traffic on the island of Ireland. The focus is on comparison to recent years, the performance of individual ports, and any changes to market shares. Parts (ii), (iii) and (iv) perform the same analysis, focusing on ROI – GB routes, ROI – EU routes and NI – GB routes, respectively. Part (v) provides an update on the breakdown between accompanied and unaccompanied RoRo traffic, an important measurement for ports.

Table 6 presents the volume of traffic handled at each RoRo port on the island of Ireland between 2021 and 2023.

Table 6: All-Island RoRo Units, Accompanied and Unaccompanied, 2021 – 2023

Port	2021	2022	2023	Annual Growth	Annual Growth
	RoRo Units	RoRo Units	RoRo Units	(%)	RoRo Units
Cork	6,917	9,240	6,792	-26%	-2,448
Dublin	961,384	1,002,832	963,367	-4%	-39,465
Rosslare	183,075	188,023	204,693	9%	16,670
Total ROI	**1,151,376**	**1,200,095**	**1,174,852**	**-2%**	**-25,243**
Belfast	609,155	610,624	615,528	1%	4,904
Larne	207,804	159,492	166,160	4%	6,668
Warrenpoint	112,073	109,114	107,623	-1%	-1,491
Total NI	**929,032**	**879,230**	**889,311**	**1%**	**10,081**
Total All-Island	**2,080,408**	**2,079,325**	**2,064,163**	**-1%**	**-15,162**

Source: *IMDO*

(i) RoRo Volumes in 2023

In 2023, RoRo traffic at ROI ports fell by 2% to 1.17m units, equivalent to a decline of 25,243 units. This follows a record year in 2022, when volumes at Dublin, Cork and Rosslare reached 1.2m units for the first time, surpassing the previous peak of 1.19m units reached in 2019.

This is only the second annual decline recorded in the ROI RoRo market since 2013, with the other annual decline coming in 2021, driven by COVID-19 and pre-Brexit stockpiling effects.

The annual volume of Irish RoRo traffic has been stable since 2019, with some volatility occurring during the initial wave of COVID-19 and the lead up the end of the Brexit transition period in late 2020 and early 2021. Between 2018 and 2022, RoRo traffic averaged 1.17m units per year. Volumes in 2023 are right at this level, meaning overall performance for the sector this year was firm.

Proportionately, the Port of Cork recorded the steepest decline in RoRo traffic this year. Volumes through the port declined by 26%, or 2,448 RoRo units. This represented 10% of the overall decline in ROI traffic this year, despite the port holding a less than 1% market share. Conversely, in Rosslare Europort, volumes rose by 9%, or 16,670 units. At 204,693 units, this is a record volume of RoRo traffic for Rosslare Europort, surpassing 200,000 units for the first time. It also continues the positive post-Brexit momentum at the port, where demand has grown sharply for direct RoRo services to mainland European ports.

The contrast between Rosslare and Cork is explained largely due to a change in route offerings from shipping operators. As mentioned throughout IMDO quarterly reporting, the increase in RoRo traffic at Rosslare in 2023 was driven in part by an announcement in late 2022 that a Cork-Zeebrugge service operated by Grimaldi would move from Cork to Rosslare. Finnlines, a Finnish shipping company that is part of the Grimaldi Group, now operates the service from Rosslare. In February 2023, Finnlines announced that a second vessel would be added to this route. 2023 marks the first full year of the service in operation at Rosslare, and its inclusion has further strengthened the volume of direct RoRo traffic to mainland European ports.

In Dublin, RoRo traffic fell by 4%, or 39,465 units. This offsets the growth recorded at Dublin in 2022, when volumes rose on an annual basis by 41,448 units. As a result, RoRo volumes through Dublin are similar to those recorded in 2021.

In the three years prior to the end of the Brexit transition period (2018 – 2020), RoRo traffic at Dublin port averaged 1.05m tonnes per year. Over the following three years (2021 – 2023), average annual RoRo traffic has fallen to 0.98m units per year. Post-Brexit volumes through Dublin are therefore 7% below those recorded in the years leading up to it. As a result, Dublin's share of the Irish RoRo market is now 82%, compared to 87% held on average between 2012 and 2022.

This change has partly been driven by a shift in demand away from RoRo routes to ports in Great Britain and towards services that are direct to mainland European ports, such as those in the Lift-on/Lift-off market, and direct routes from Rosslare Europort. However, the impact of high inflation and lower domestic demand also explains much of this decline starting in 2021.

In the following sections, an analysis of RoRo traffic broken down by route is provided, followed by an assessment of the LoLo market, and the factors driving declines in the unitised sector (RoRo and LoLo) in 2023.

(ii) ROI – GB RoRo

Table 7 details the volume of RoRo units carried on ROI – GB services between 2021 and 2023. ROI – GB represents ferry routes between Dublin Port and Rosslare-Europort, and mainland Great Britain ports including Holyhead, Liverpool, Heysham, Pembroke and Fishguard.

Table 7: ROI – GB RoRo Units, Accompanied & Unaccompanied, 2021– 2023

Route	2021	2022	2023	Growth Vs 2022	Diff Vs 2022
Dublin - GB	703,603	741,117	724,925	-2%	-16,192
Rosslare - GB	64,069	61,858	60,668	-2%	-1,190
ROI - GB	767,672	802,975	785,593	-2%	-17,382

Source: *IMDO*

In 2023, the volume of RoRo traffic on routes between ports in Ireland and Great Britain fell by 2%, equivalent to a decline of 17,382 units. This is just the second time in the last ten years that ROI – GB volumes have fallen below 800,000 units per year, with the other coming in 2021, when volumes were heavily impacted by COVID-19 and pre-Brexit stockpiling effects.

Despite the small decline in GB traffic in 2023, the broader post-Brexit trends in this market remain consistent: ROI – GB volumes are approximately 20% below their 2019 peak of 1m units, and they now represent two thirds of all ROI RoRo traffic, compared to an average of 85% between 2010 and 2020. This new market share has been held for three consecutive years. This shift away from ROI - GB traffic, driven by a reduction in the use of the UK Landbridge[16], has been steady, with little deviation, since the first quarter of the post-Brexit era in 2021. As a result, there has been no significant movement towards pre-Brexit patterns, and this remains the case in 2023.

At port level, the decline in ROI – GB traffic was in line with market shares between Dublin port and Rosslare Europort. In Dublin, GB RoRo traffic fell by 16,192 units, which represents 93% of the total decline, in line with the market share held by the port. In Rosslare, GB RoRo traffic fell by 1,190 units, representing 7% of the total decline in ROI – GB RoRo in 2023. Again, this is in line with the market share held by Rosslare. As a result, market shares remain unchanged in 2023 compared to 2022.

The stabilization in the market share of Rosslare–GB traffic is noteworthy because it ends over ten years of gradual decline in the port's share of GB traffic. Since 2011, the share of ROI – GB RoRo traffic held by Rosslare has declined slowly, by an average of 0.4% per year, from approximately 13% in 2011, to approximately 8% in 2023. In 2021 and 2022, this decline accelerated, as its market share fell by 1.5% and 0.6% respectively in those years. The outcome in 2023 may indicate that Rosslare – GB traffic has hit a lower bound. The IMDO will continue to monitor these trends closely.

In Dublin Port, there were significant changes to the ROI – GB route offerings in 2023. In August, it was announced that P&O Ferries would withdraw its RoRo ferry service between Dublin and Liverpool at the end of the year, after negotiations with Liverpool port owner Peel Ports broke down. The route was frequently serviced by two vessels, the Norbank and the Norbay, with 24 sailings per week. The service began to be wound down in the final months of 2023 and this accelerated the decline in Dublin – GB volumes outlined in Table 7.

In December 2023, Dublin Port announced that Stena Line would add a RoRo service between Dublin and Birkenhead (Liverpool) that would begin in February 2024. This was the outcome of a selection process that began when Dublin Port issued calls for proposals in September 2023. The service will begin with one vessel operating 12 sailings per week. Stena Line

[16] For more information on the causes behind the post-Brexit changes in ROI – GB RoRo traffic, please see Vol 20 of the IMTE

have indicated that this may be expanded in future, depending on demand requirements[17]. As of March 2024, the service operates as a freight only service, with the Bore Song vessel due to operate the route from April. This vessel is primarily suited for unaccompanied RoRo freight.

The withdrawal of P&O initially left just one operator, Seatruck Ferries, on the Dublin – Liverpool route[18]. In 2022, Luxembourg-based CLdN group acquired Seatruck Ferries. Since then, efforts have been underway to merge different areas of their operations and systems. In early 2024, the Seatruck Ferries website has been replaced by the CLdN website and Seatruck branding will gradually be removed from vessels.

CLdN and Stena Line will now both operate these routes from Terminal 5 in Dublin Port, as per the announcement by Dublin Port in December 2023.[17] The swift arrival of another operator to fill the gap in the ROI – GB RoRo market left by P&O Ferries is indicative of the staying power of maritime connections between Ireland and Great Britain, despite the decline in this traffic since the end of the Brexit transition period. As highlighted above, ROI – GB RoRo traffic has declined by one fifth since 2021, driven by a reduction in the use of the UK Landbridge, coupled with a surge in demand for direct ROI-EU routes to mainland European ports in both the RoRo and LoLo markets. Despite this, there has been only minor, changes to the offerings made by shipping operators on GB routes, which is reflective of the longevity, consistency, and importance of GB ports to Irish trade.

(iii) ROI – EU RoRo

Table 8 details the volume of RoRo units carried on ROI – EU services between 2021 and 2023. ROI – EU represents ferry routes between Dublin, Cork, and Rosslare – Europort, and nine mainland European ports[19].

Table 8: ROI – EU RoRo Units, Accompanied & Unaccompanied, 2021– 2023

Route	2021	2022	2023	Growth Vs 2022	Diff Vs 2022
Cork - EU	6,917	9,240	6,792	-26%	-2,448
Dublin - EU	257,781	261,715	238,442	-9%	-23,273
Rosslare - EU	119,006	126,165	144,025	14%	17,860
ROI - EU	**383,704**	**397,120**	**389,259**	**-2%**	**-7,861**

Source: *IMDO*

In 2023, the volume of RoRo traffic on ROI – EU routes fell by 2%, equivalent to a decline of 7,681 RoRo units. This is the first decline in ROI – EU traffic since 2018, and the first of the post-Brexit era. In 2021, following the end of the Brexit transition period, ROI – EU traffic doubled, from 187,817 units in 2019, to an average of 390,000 units in 2021 and 2022. In 2023, the sector has held onto these post-Brexit gains, with volumes in between those of 2021 and 2022.

Despite the small decline in EU traffic in 2023, like the ROI – GB market detailed above, the broader post-Brexit trends remain consistent: ROI – EU volumes are double their 2019 levels, and they now represent one third of all ROI RoRo traffic, compared to an average of 15% between 2010 and 2020. This new market share has been held for three consecutive years. This surge towards ROI - EU traffic was driven by the same factors that drove the fall in ROI – GB traffic, predominantly a shift away from the UK Landbridge as a means of accessing EU markets[20]. This increase in direct RoRo traffic has been steady, with little deviation, since the first quarter of the post-Brexit era in 2021.

[17] Dublin Port Company Confirms Stena Line & Seatruck Ferries for Terminal 5
[18] Seatruck Ferries also operate a RoRo service between Dublin and Heysham.
[19] The nine mainland European ports are: Bilbao, Cherbourg, Dunkirk, Le Harve, Leixoes, Roscoff, Rotterdam, Santander, Zeebrugge
[20] The relocation of some large retail warehouses from central UK to mainland Europe was another significant factor behind the shift towards ROI – EU routes. For more information, see Vol 20 of the IMTE, Section 1.2

At port level, 2023 results were mixed. In Dublin Port, RoRo traffic to EU ports fell by 9%, or 23,273 units. It is Dublin's first decline in direct traffic of the post-Brexit era, and its first overall since 2018. Despite this decline, at 238,442 units, Dublin's EU traffic remains 48% above its 2019, or pre-Brexit / pre-COVID level. The decline in 2023 is more reflective of the economic challenges of inflation and sluggish growth that will be discussed in Section 1.4.

In Rosslare Europort, EU traffic continued to increase in 2023, posting another sharp increase of 14%, or 17,860 units, when compared to 2022. At 144,025, this is the third consecutive record volume for EU traffic at the port. Remarkably, Rosslare-EU traffic in 2023 is now seven times that of 2019. EU cargo now dominates the port, representing 70% of all RoRo throughput, compared to an average of 21% between 2010 and 2020.

As highlighted in part (i), the increase in RoRo traffic at Rosslare in 2023 was driven in part by an announcement in late 2022 that a Cork-Zeebrugge service operated by Grimaldi would move from Cork to Rosslare. Finnlines, a Finnish shipping company that is part of the Grimaldi Group, now operates the service from Rosslare. 2023 marks the first full year of the service in operation at Rosslare, and its inclusion has further strengthened the volume of direct, Rosslare – EU RoRo traffic. Driven in large part by this route shift, Cork's RoRo traffic, all of which is direct to EU ports, fell by one quarter, equivalent to 2,448 units.

Rosslare's share of ROI – EU traffic grew to 37%, its highest share recorded by the IMDO. Dublin's share of ROI – EU traffic fell from 66% to 61%, while Cork's share fell from 2.3% to 1.7%.

(iv) NI - GB RoRo

Table 9 details the volume of RoRo units carried on NI – GB services between 2021 and 2023. NI – GB represents ferry routes between Belfast, Larne and Warrenpoint, and mainland Great Britain ports including Liverpool, Heysham and Cairnryan.

Table 9: NI – GB RoRo Units, Accompanied & Unaccompanied, 2021– 2023

Port	2021	2022	2023	Growth Vs 2022	Growth Vs 2023
Belfast	609,155	610,624	615,528	1%	4,904
Larne	207,804	159,492	166,160	4%	6,668
Warrenpoint	112,073	109,114	107,623	-1%	-1,491
NI - GB	**929,032**	**879,230**	**889,311**	**1%**	**10,081**

Source: *IMDO*

In 2023, the volume of RoRo traffic on NI – GB routes grew by 1%, or 10,081 units. Some growth was expected in 2023, as Northern Irish RoRo traffic was impacted in 2022 by a disruption to P&O's service from Larne to Cairnryan.[21] Services were cancelled or disrupted for roughly 3 weeks beginning in late March 2022. As a result, Larne's RoRo volumes during that period fell by 60%. Some of this traffic found alternatives at Belfast and Warrenpoint, as well as P&O's Dublin to Liverpool service. As a result, Larne's RoRo traffic fell by 23% in 2022, equivalent to 48,312 fewer units, its lowest annual volume recorded by the IMDO. In 2023, RoRo traffic at Larne grew by 4%, adding 6,668 units. This offset some of the declines recorded in 2022, but volumes remain well below the 200,000 annual units that were recorded on average between 2017 and 2021. As a result of this decline, Larne's share of NI – GB RoRo traffic stands at 19% in 2023, compared to an average of 25% over the previous ten years.

[21] Disruption to P&O services

Belfast captured the RoRo traffic lost by Larne. In 2023, Belfast represented 69% of the NI – GB RoRo market, its highest share recorded by the IMDO. This is compared to an average of 63% held between 2012 and 2022. In 2023, Belfast recorded 1% growth in RoRo traffic, adding 4,904 units.

Excluding 2020, when the initial wave of COVID-19 suppressed volumes, Belfast's RoRo traffic has increased every year since 2010. A step-change came in 2021 however, when Belfast RoRo grew sharply, by 67,805 units, following the end of the Brexit transition period. This was driven by a reduction in the use of the 'Irish Landbridge', whereby Northern Irish hauliers make use of the frequent ROI – GB services, particularly from Dublin Port, as a means of accessing southern UK markets. The reduction in this trend was motivated by the desire to avoid not only heightened uncertainty around delays and disruption, but also additional administrative costs arising from new post-Brexit trading arrangements between the EU and the UK[22].

In 2022 and 2023, this trend of ROI – GB traffic transferring to NI ports reversed, and ROI – GB routes, particularly Dublin port, regained much of the traffic lost in 2021. The increase in Belfast RoRo in 2022 and 2023 therefore, has come more at the expense of RoRo traffic through Larne, than from Dublin.

Belfast's annual RoRo traffic surpassed 600,000 units for the first time in 2021 and has stayed above that benchmark for three consecutive years. In all, Belfast's post-Brexit RoRo volumes are 10% higher than pre-Brexit. Similarly, RoRo traffic through Warrenpoint is also stronger post-Brexit, with volumes on average 6% higher than pre-Brexit levels. Warrenpoint has held a 12% share of NI – GB RoRo traffic for eight consecutive years.

(v) RoRo Traffic by Mode

This section provides an update on the share of RoRo freight held by the accompanied and unaccompanied cargo modes. In recent reporting by the IMDO, it has been highlighted that the share of unaccompanied RoRo traffic in the Republic of Ireland has been increasing, and that this trend has been a persistent feature of the RoRo market since at least 2016.

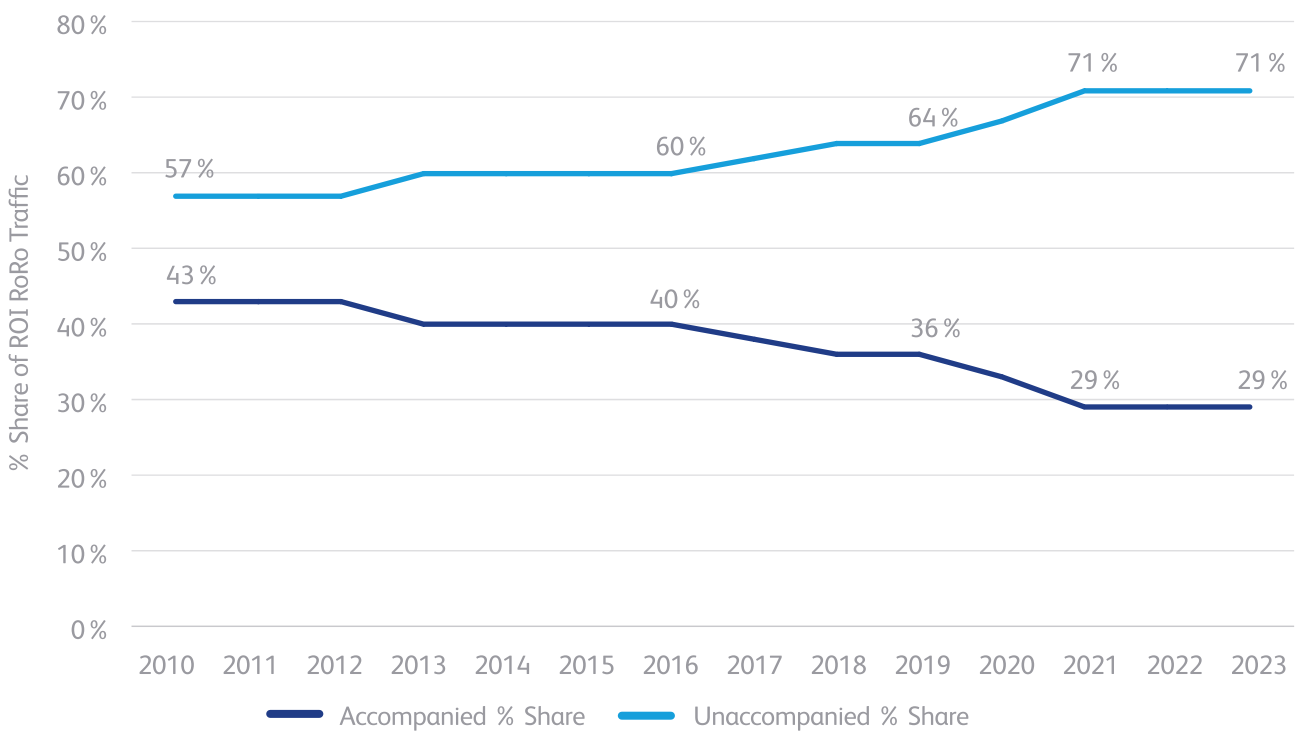
RoRo traffic can be either accompanied, or unaccompanied. Unaccompanied RoRo traffic refers to the transfer of RoRo units without a driver, and thus without a driver's cab, accompanying the container on the vessel. Instead, the RoRo unit, or container, is dropped to the port of departure by a driver. From there, it is loaded onto the vessel by port staff, and is unaccompanied on the voyage. It is collected at the destination port by a local haulier.

Unaccompanied RoRo traffic demands less physical capacity while on a vessel, as there is no driver's cab. However, it demands greater physical capacity at port terminals, compared to accompanied traffic. This is because RoRo units are stored in slots at port terminals while they await loading onto a vessel, or collection by a local haulier. Consequently, increases in unaccompanied traffic have knock-on effects for the long-term capacity calculations for Ireland's RoRo ports. Ports seek to minimize the amount of dwell time a container spends on the terminal before it is either collected by a haulier or loaded onto a RoRo vessel. Irish ports generally compare compare well to other European ports in maintaining low and efficient dwell times. Not true in the case of Rosslare.

The gap between accompanied and unaccompanied RoRo traffic is illustrated in Figure 6 below, which shows the percentage share held by each mode between 2010 and 2023. Overall, the share of unaccompanied RoRo has risen from 60% in 2016, to 71% in 2021. Since that point, the growth in unaccompanied as a share of total RoRo traffic has stabilised. For nine consecutive quarters between Q2 2021 and Q2 2023, the share of RoRo traffic held by the unaccompanied mode has been 71%. In both Q3 and Q4 2023 however, it rose slightly to 72%, the highest share recorded by the IMDO.

[22] For more information on the causes behind the post-Brexit changes in NI – GB RoRo traffic, please see Vol 20 of the IMTE

Figure 6: RoRo Traffic Shares by Mode, Accompanied Vs Unaccompanied, 2010 – 2023



Source: *IMDO*

The increase in ROI – EU RoRo traffic has been the most significant driver of unaccompanied RoRo traffic between 2021 and 2023. The rise in direct EU traffic will naturally be followed by a rise in unaccompanied volume. Traffic on ROI – EU routes make disproportionate use of the unaccompanied mode due to, among other things, the significantly longer journey times on direct routes.

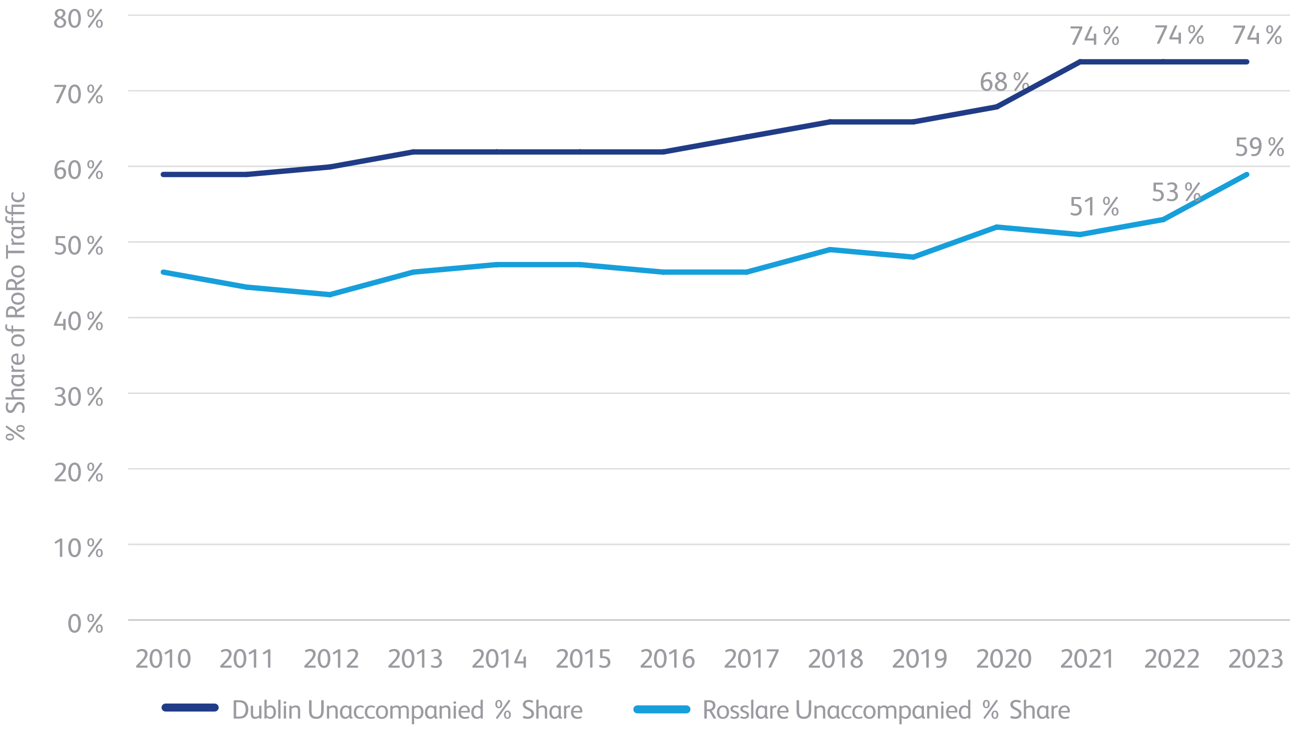
Stakeholders involved in the haulage industry continue to highlight the problem of driver shortages. In 2023, the International Road Transport Union noted that the driver shortage in Europe eased slightly, as inflation and sluggish growth led to fewer goods traded. However, the group illustrate that 7 % of driver positions remain unfilled in Europe in 2023, and that the problem will intensify if the volume of goods traded increases in 2024[23].

In terms of the impact of this trend on individual ports, the rise of unaccompanied RoRo traffic is higher at Dublin Port compared to Rosslare Europort. In Figure 7, the percentage share of RoRo traffic held by the unaccompanied mode is presented between 2010 and 2022 for each port.

The share of unaccompanied RoRo traffic at Dublin has been stable at 74 % for three years. However, the share held at Rosslare Europort jumped from 53 % to 59 % in 2023. This was driven in large part by the addition of the Finnlines route between Rosslare and Zeebrugge, as highlighted in part (iii). This service carries freight mainly using the unaccompanied mode. As noted above, direct EU freight now represents 70 % of all RoRo throughput at Rosslare, compared to an average of 21 % between 2010 and 2020. With this has come an increase in unaccompanied traffic as a share of total RoRo traffic.

[23] Global driver shortages: 2023 year in review

Figure 7: Share of RoRo Traffic Held by Unaccompanied Mode, Dublin Port & Rosslare Europort 2010 - 2023



Source: *IMDO*

1.3 LoLo

Introduction

Containerships are vessels that specialise in the transportation of standardised shipping containers, which are usually either twenty or forty feet in size. These shipping containers are lifted on and off the vessel in a fast and efficient manner by specialised cranes. The term Lift-on Lift-off, or LoLo, is derived from this process. The cargo in these containers is generally made up of finished goods or intermediate goods, as opposed to raw materials often transported in bulk using bulk carriers. Retail items such as clothing, electronics, or furniture are typical products that would be transferred using this cargo mode.

In the Republic of Ireland, LoLo traffic, i.e. containers loaded or unloaded from containership vessels, make up 20% of all port tonnage. This market is essential for Irish importers and exporters who require access to large global shipping hubs in mainland Europe. The majority of LoLo traffic in Ireland is to large maritime hubs including Rotterdam, Antwerp, Le Havre and Amsterdam.

There are three ports in the Republic of Ireland that handle LoLo traffic; Dublin, Cork, and Waterford. There are two LoLo ports in Northern Ireland; Belfast and Warrenpoint.

The following section is divided into two parts. In part (i), an overview of the performance of LoLo traffic on the island of Ireland in 2023 is provided. Part (ii) discusses the post-Brexit trends in LoLo traffic that are still evident in 2023.

(i) LoLo Container Volumes in 2023

Table 10 details the volume of LoLo (container) traffic handled by ports on the island of Ireland between 2021 and 2023.

Table 10: All-Island LoLo TEUs, Laden & Unladen, 2021 – 2023

Port	2021	2022	2023	Annual Growth	Annual Growth
	TEUs	TEUs	TEUs	(%)	TEUs
Cork	281,815	282,781	263,918	-7%	-18,863
Dublin	842,897	823,399	795,997	-3%	-27,403
Waterford	49,739	50,223	36,976	-26%	-13,247
Total ROI	**1,174,450**	**1,156,403**	**1,096,891**	**-5%**	**-59,512**
Belfast	238,287	226,538	216,363	-4%	-10,175
Warrenpoint	19,839	6,315	0	-100%	-6,315
Total NI	**258,126**	**232,853**	**216,363**	**-7%**	**-16,490**
Total All-Island	**1,432,576**	**1,389,256**	**1,313,254**	**-5%**	**-76,002**

Source: *IMDO*

In 2023, the volume of LoLo traffic at Republic of Ireland ports fell by 5%, equivalent to a decline of 59,512 TEU's. At 1.1m TEU's this is the lowest annual total of the post-Brexit era but remains higher than those volumes pre-Brexit, when throughput amounted to 1.06m TEU's in both 2019 and 2020. This is the second consecutive decline in annual LoLo volumes, following a 2% decline in 2022. This is the first time the sector has recorded two consecutive annual declines since 2012 and 2013.

At port level, all three LoLo ports in the Republic of Ireland recorded declines in 2023. The steepest was at Waterford, where volumes fell by 26%, or 13,247 TEU's. This represented approximately one fifth of the overall LoLo decline in 2023, despite Waterford holding a less than 5% share in recent years. In Cork, volumes declined by 7%, or 18,863 TEU's. This represented a third of the overall decline in ROI LoLo in 2023, despite Cork holding 24% market share for the last four years. Resulting from the disproportionately steep declines at both ports, the market share held by each fell slightly. Overall, Dublin port fared best, with volumes declining by just 3%, or 27,403 TEU's. This amounted to less than half of the overall decline for 2023, and as a result, Dublin's LoLo market share ticked up slightly to 73%.

In Northern Ireland, LoLo traffic fell by 7%, or 16,490 TEU's. At 216,363 TEU's, this is the lowest annual volume of LoLo traffic through Northern Ireland ports recorded by the IMDO and follows a 10% decline in traffic recorded in 2022. This annual total is also 17% below the peak total of 260,828 TEU's which was set in 2016.

In Warrenpoint, no LoLo traffic was recorded in 2023. LoLo throughput at the port began to decline in early 2022 and has recorded five consecutive quarters of no LoLo throughput between Q4 2022 and Q4 2023. Belfast therefore accounts for 100% of the Northern Irish LoLo market in 2023. LoLo throughput in Belfast fell by 4%, or 10,175 TEU's compared to 2022.

(ii) Holding on to Post-Brexit Gains

It is important to highlight that although LoLo traffic in ROI ports declined in 2023, this sector is holding on to the gains made in the post-Brexit era. Like ROI – EU RoRo traffic, LoLo traffic recorded a surge in volumes beginning in 2021. This was driven by several factors, the most dominant of which the reduction in the use of the UK Landbridge to access mainland European markets, the relocation of some large retail warehouses from central UK to mainland Europe, and pandemic related restrictions throughout 2021 on the domestic service economy which drove a rise in demand for manufactured goods, most of which is transported in the LoLo and RoRo sectors. When these factors were combined, they led to an increase in demand from Irish importers and exporters for direct services to mainland European ports.

In 2021 and 2022, the average quarterly throughput of LoLo traffic at ROI ports was close to 291,000 TEUs, compared to 265,000 TEUs in 2019 and 2020. In 2023, this quarterly average has fallen back to 274,000 TEU's per quarter, and therefore remains 3% above pre-Brexit averages. This is despite the significant economic headwinds caused by inflation, rising interest rates, and slow economic growth in Europe. The factors driving declines in unitised (RoRo and LoLo) traffic at ROI ports is discussed in the following section.

1.4 Unitised Traffic

Understanding the Market

Unitised freight traffic refers to the combined cargo modes of RoRo and LoLo port traffic. Essentially, it refers to imports and exports at Irish ports that are in containerised form. These goods are most often finished, manufactured goods, intermediate goods, or consumer goods destined for a retail setting. They include everyday products such as food, clothing, electronics, and furniture. The volume of throughput of this traffic is heavily influenced by domestic consumption patterns in both Ireland and in the economies of Ireland's largest trading partners such as the UK, USA, and EU. They are also heavily influenced by the general price level, i.e. the rate of inflation. In all, this market is more reactive to changes in economic conditions than liquid and dry bulk traffic, which tend to be driven by more inelastic factors such as the demand for fuel, population, or the global supply of raw materials.

As their titles suggest, the Roll-on/Roll-off and Lift-on/Lift-off markets have different infrastructural requirements at ports and have distinct selling points to Irish importers and exporters. The RoRo freight mode is often chosen for transporting wheeled cargo such as cars, buses, and heavy construction equipment, particularly on short-sea routes where road infrastructure connects ports to final destinations. But RoRo operations also boast rapid loading and unloading capabilities, making them suitable for time-sensitive container cargo and frequent sailings. In the Irish context, RoRo is often used for trade in fresh food items with Great Britain. In contrast, the LoLo cargo mode is preferred for carrying standardised containerised cargo, offering a versatile solution for various goods including dry goods, perishables, non-perishables, and manufactured items. LoLo vessels excel on long-haul routes between major ports worldwide, where efficiency in loading and unloading containers is crucial for timely delivery. Additionally, LoLo's capability for intermodal transportation, facilitating easy transfer between different modes of transport (ship, rail, truck), makes it a preferred choice for integrated supply chains. In the Irish context, this is essential for accessing markets such as the USA and China, with which Ireland has few direct routes.

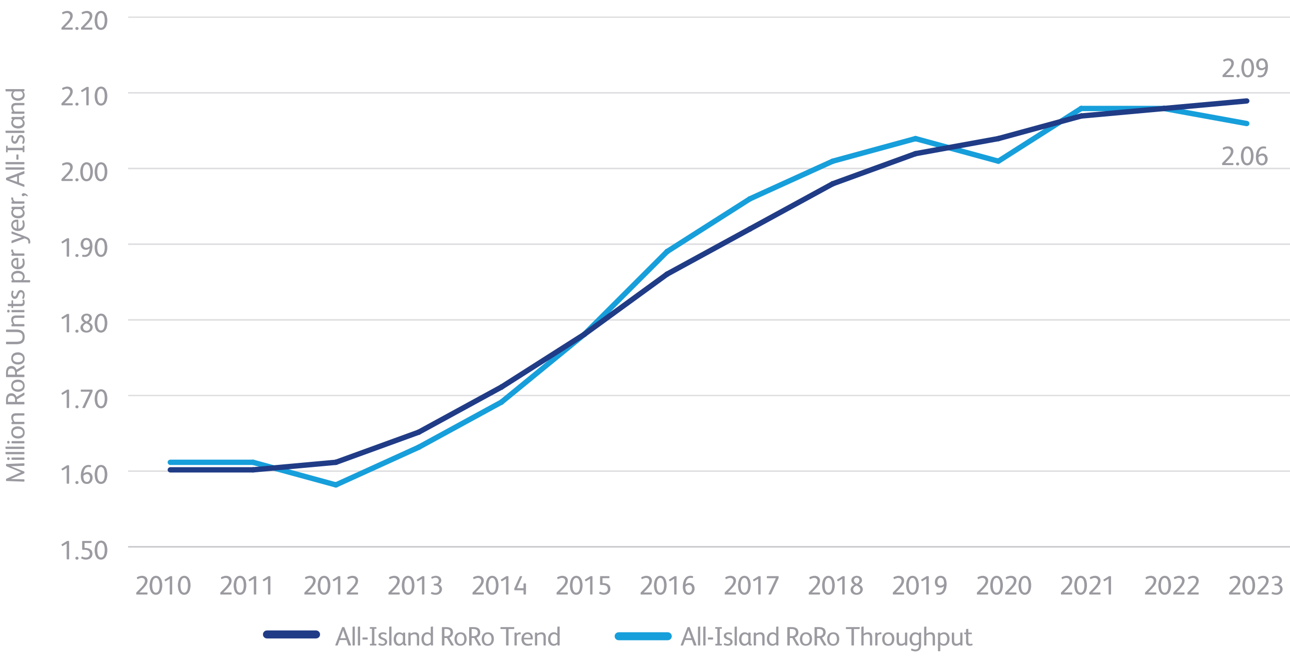
Although both modes have core competencies and competitive advantages in different areas, their cargos often fall under related categories i.e. manufactured goods further along the supply chain. As a result, the performance of the two cargo modes is driven by similar economic indicators, such as consumer expenditure and inflation. Both cargo modes are also effective substitutes for one another, and operators in each market compete for similar business. This characteristic came into sharp focus following the end of the Brexit transition period when a decline in RoRo traffic on GB routes coincided with an increase in LoLo traffic directly to continental ports.

Decelerating Growth

In sections 1.2 and 1.3, it was shown that RoRo traffic at ROI ports declined by 2%, while LoLo traffic fell by 5%. When Northern Irish ports are included, RoRo traffic on the island of Ireland declined by 1%, and LoLo traffic by 5%. The predominant driver of these declines in unitised traffic in 2023 was the difficult global economic conditions Irish importers and exporters have faced over the last two years. As a result, growth in unitised traffic is flat, with little or no momentum in either direction. This section will illustrate how unitised traffic growth has decelerated when compared to recent years.

The IMDO has built up an effective and detailed time series of unitised traffic covering almost two decades and uses this to analyse the long-term growth paths of Irish port traffic. The Hodrick–Prescott (HP) filter was used to decompose RoRo and LoLo throughput into its trend component. The trend component represents the long-term, smooth movement of the data, capturing the underlying growth or decline in the series over time. The HP filter decomposes each series by minimising fluctuations in the underlying time series. In Figure 8, all-island RoRo throughput is placed alongside its trend component.

Figure 8: All-Island RoRo Port Throughput and Trend Component

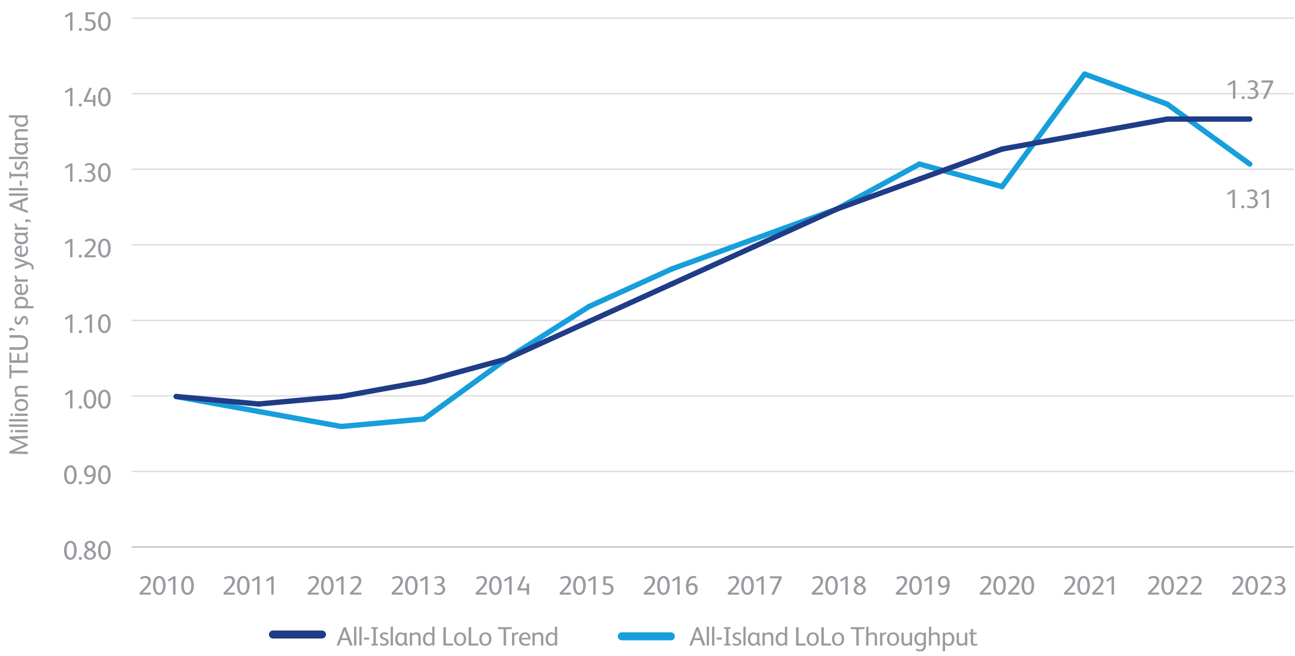


Source: *IMDO NOTE: This trend series was derived using the HP filter.*

For all-island RoRo throughput, the trend points to a total of 1.19m units per year at ROI ports, and at NI ports, a total of 0.9m units per year. This gives an expected total of 2.09m RoRo units for the island of Ireland each year. As illustrated in Figure 8, the underlying trend at both ROI and NI ports had been steadily rising for much of the last decade, particularly between 2010 and 2015, That momentum, however, has slowly diminished, and is currently flat. Although volumes were still increasing between 2015 and 2020, the pace of growth was steadily declining. Between 2020 and 2023, despite large fluctuations due to COVID-19 and Brexit, and reorganisations in route shares driven by a reduction in the use of the UK Landbridge, the underlying growth in RoRo traffic on the island of Ireland has been flat.

A similar pattern is also being recorded in the Irish LoLo market. In Figure 9 below, all-island LoLo throughput is placed alongside its trend component.

Figure 9: All-Island LoLo Port Throughput and Trend Component



Source: *IMDO NOTE: This trend series was derived using the HP filter*

For LoLo traffic, the trend component points to a total of 1.15m units per year at ROI ports, and at NI ports, a total of 0.22m units per year. This gives an expected total of 1.37m TEU's for the island of Ireland each year. Like RoRo traffic, there was significant upward momentum in Irish LoLo traffic between 2010 and 2015, driven by the recovery of the Irish economy from the 2008 financial crash. Between 2015 and 2020, momentum remained positive, but growth was slowing. Unlike the RoRo market, the Irish LoLo market has held on to some growth post-Brexit due to the increased demand for direct unitised services to mainland Europe, as the majority of LoLo routes are direct to EU ports. However, underlying growth remains sluggish, and in Northern Ireland, the long-term path of LoLo traffic has been negative for approximately 5 years.

Economic Headwinds

Overall, unitised traffic on the island of Ireland recorded a below trend performance in 2023. That is not surprising, given the difficult economic environment within which Irish importers and exporters have traded in recent years. When these challenges are considered, the theme of unitised traffic at ports on the island of Ireland becomes one of resilience.

There are two main factors that have suppressed volumes of unitised traffic at ports on the island of Ireland; inflation and sluggish global growth.

Firstly, global inflation rates average 9% in 2022 and 7% in 2023, according to the latest edition of the IMF's World Economic Outlook.[24] In the Euro Area, inflation ran at 8% in 2022 and 6% in 2023. On both measures, this was the sharpest jump in price level in well over a decade, particularly for the Euro Area. An increase in the general price level suppresses demand for manufactured, or consumer goods such as those carried in containerised form. In order to tackle these inflation rates, Central Banks in major economies have quickly raised interest rates. In the Central Bank of Ireland's latest quarterly bulletin[25], it is highlighted that the impact of higher rates has become more pronounced. According to the report, there are indications that high retail interest rates are now influencing credit demand, which in turn is weighing on demand conditions both in Ireland and in its major trading partners.

[24] IMF World Economic Outlook, January 2024

[25] Quarterly Bulletin, QB4 – December 2023, Central Bank of Ireland

Secondly, economic growth in the world's largest economies, and Ireland's most important trading partners, has been sluggish. According to the IMF, global growth in GDP in 2023 was 3%. In the Euro Area however, it was just 0.7%, and in the UK, GDP growth is estimated to be just 0.1% in 2023[26]. In China, GDP growth has fallen to around 4%, which is slower than most of the last decade. The impact of slow growth in these economies is evident in global seaborne trade volumes. According to Clarkson's shipping intelligence network, world seaborne container trade grew by just 0.3% in 2023, which, excluding the impact of COVID-19, is the slowest rate of growth since the financial crisis of 2008. Unitised traffic at Irish ports is heavily impacted by demand in these larger economies, as well as global trends in seaborne trade. Lower growth makes it difficult for Irish exporters to sell their goods abroad, while higher prices make it harder to import the same volume of goods each year.

[26] GDP first quarterly estimate, UK: October to December 2023, ONS

1.5 Passengers

Introduction

In the Irish RoRo ferry market, many operators employ a RoPax model, meaning they carry not only freight traffic but passengers and passenger vehicles. In 2020 and 2021, no sector was more affected by COVID-19 restrictions than the market for tourist passengers. Passenger volumes plummeted due to pandemic-related travel restrictions, creating significant risks to the future of this business model. Operators have been aiming for a return to pre-COVID volumes and have shown considerable resilience in recent years. In 2023, the maritime passenger market has all but recovered from the COVID-19 pandemic, with volumes just slightly below 2019 levels.

(i) Passenger Market

Table 11 details the volume of RoRo ferry passengers that travelled through Irish and Northern Irish ports in 2019, 2022 and 2023.

Table 11: RoRo Passenger Numbers, 2019, 2022 and 2023

Port	2019	2022	2023	2023 Vs 2022	2023 Vs 2019
	No.	No.	No.	%	%
Cork	113,346	115,925	118,256	2%	4%
Dublin	1,949,229	1,685,746	1,743,565	3%	-11%
Rosslare-Europort	582,047	552,831	634,130	15%	9%
Total ROI	**2,644,622**	**2,354,502**	**2,495,951**	**6%**	**-6%**
Belfast	1,623,058	1,795,647	1,705,300	-5%	5%
Larne	479,528	368,931	434,706	18%	-9%
Total NI	**2,102,586**	**2,164,578**	**2,140,006**	**-1%**	**2%**
Total All-Island	**4,747,208**	**4,519,080**	**4,635,957**	**3%**	**-2%**

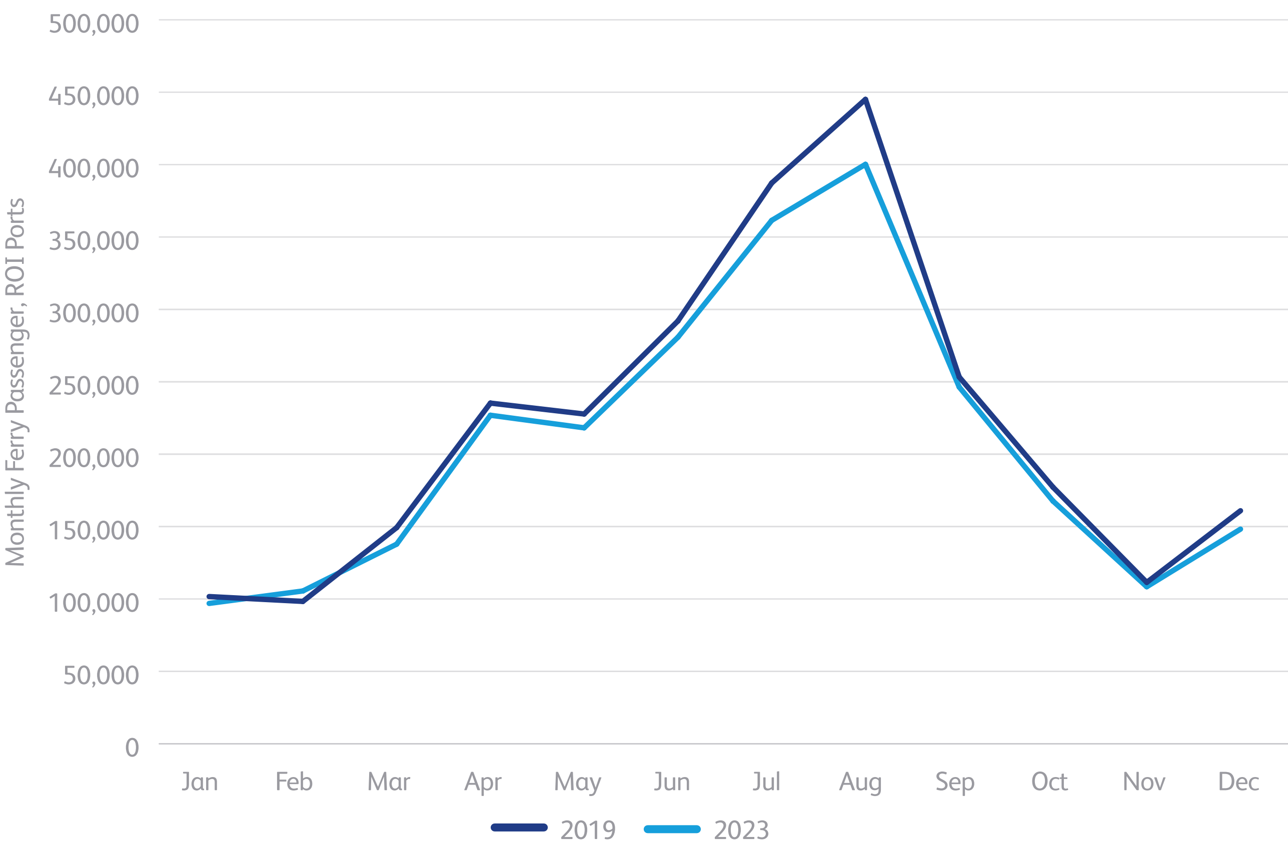
Source: *IMDO*

In 2023, the volume of ferry passengers at ROI ports rose by 6%, equivalent to about 141,000 additional passengers carried. This is also 1.4m passenger more than in 2021, and 1.5m more than in 2020, when restrictions on travel caused numbers to decline precipitously in both years.

However, 2023 volumes remain 6% below 2019, or pre-COVID levels, which is the last year wherein no pandemic-related factors affected passenger numbers. This amounts to 149,000 fewer passengers compared to 2019. Between 2015 and 2019, the average annual number of ferry passengers handled was approximately 2.7m. 2023 volumes remain 10% below this average. The numbers in 2023 are encouraging, however, and mark the closest the sector has come to a full recovery from the difficulties faced in 2020 and 2021.

In Figure 10 below, the monthly trajectory of passenger numbers at ROI ports is presented, comparing 2023 with 2019. As highlighted above, 2019 is an effective pre-pandemic benchmark for the sector. It can be seen that 2023 passenger numbers kept pace with 2019 in the first half of the year, with volumes just 4% below 2019 in those first 6 months. However, 2023 underperformed 2019 during the busy summer period (Jun – Aug).

Figure 10: RoRo Passenger Numbers, ROI Ports, Monthly, 2019 Vs 2023



Source: *IMDO*

Northern Ireland

Table 11 above also shows the volume of passengers that travelled through ports in Northern Ireland. In 2023, ferry passenger numbers at NI ports fell by 1% compared to 2022, but are 2% above 2019, or pre-pandemic levels. 2022 and 2023 have been very positive years for NI passenger traffic, with 2.14m and 2.16m passengers handled, respectively. Between 2015 and 2019, the annual average number of passengers through NI ports was 2.07m units, meaning 2023 volumes are 3% above this level.

As evident in Table 11, passenger volumes at Larne rose strongly, by 18% compared to 2022. Some increase was expected, as Northern Irish RoRo services were impacted in 2022 by a disruption to P&O's RoRo service from Larne to Cairnryan. Sailings were cancelled or disrupted for 3 weeks beginning in late March 2022. As a result, Larne's RoRo freight volumes during that period fell significantly and passenger numbers were also heavily affected. In the second quarter of 2022, Larne's passenger volumes fell by 53%. Many of the passengers affected by this disruption found an alternative in Stena Line's Belfast – Cairnryan service, and this may have contributed to a subsequent decline in Belfast passenger numbers for 2023.

In Figure 11 below, the monthly trajectory of passenger numbers at NI ports is presented, comparing 2023 with both 2022 and 2019. Figure 11 illustrates the consistency in passenger traffic in NI ports between pre- and post-pandemic levels.

Figure 11: RoRo Passenger Numbers, NI Ports, Monthly, Selected Years

Source: *IMDO*

(ii) Passenger Market by Route

At port level, all three ROI ports registered increases in ferry passengers in 2023. At Dublin port, passenger volumes rose by 3%, driven by 50,000 more passengers on Dublin to Holyhead services compared to 2022. When compared to 2019, or pre-pandemic levels however, Dublin remains 11%, or 200,000 passengers, below this benchmark. This has been driven predominantly by passenger declines on Dublin-GB routes, which is reflective of a broader trend in the post-Brexit Irish RoRo market. In Table 12 below, the number of passengers that travelled on each route category in 2019, 2022 and 2023 is provided.

Table 12: RoRo Passenger Numbers by Route Category, 2019, 2022 & 2023

Passenger No.	2019	2022	2023	2023 Vs 2022	2023 Vs 2019
ROI - EU	379,298	397,156	488,956	23%	29%
ROI - GB	2,265,324	1,957,346	2,006,995	3%	-11%
NI - GB	2,102,586	2,164,578	2,140,006	-1%	2%

Source: *IMDO*

Table 12 shows that the number of passengers on ROI – GB routes in 2023 remains 11% lower than in 2019, equivalent to 258,329 fewer passengers. Passengers on both Dublin-GB and Rosslare-GB routes have declined in 2023 compared to 2019. In addition, the withdrawal of P&O's service between Dublin and Liverpool in 2023 means there are currently fewer options for ROI - GB passengers in 2024. Overall, passenger travel on GB routes accounts for 80% of all ROI ferry passengers, compared to 86% in 2019.

There are Brexit-related factors that partly explain this decline, one of which is the Common Travel Area. The Common Travel Area is an arrangement between the Governments of the United Kingdom and Ireland that provides rights to citizens of both countries. Irish and UK citizens have the right to live, travel, work, and study within the Common Travel Area.[27] However, Common Travel Area rights can only be exercised by citizens of Ireland and the UK. People who are not citizens of either country may have encountered visa or immigration requirements when seeking to move between both countries, thus increasing the administrative burden of such travel. The post-Brexit changes to trade and freedom of movement between Ireland and the UK have therefore had a negative effect on both passenger and freight transport between Irish ports and mainland ports in Great Britain.

Conversely, Table 12 also shows a sharp rise in ROI – EU passenger travel, particularly in 2023. Passengers on ROI – EU routes added more than 90,000 passengers compared to 2022 and over 100,000 passengers compared to 2019.

As highlighted in Section 1.2, the sharp increase in capacity on ROI – EU routes provided by shipping operators following the end of the Brexit transition period has facilitated this rise, as more weekly sailings are now available to French and Spanish ports than in 2019. For passengers, the biggest change initially came from Stena Line and Irish Ferries, who increased post-Brexit schedules to the port of Cherbourg to approximately 20 sailings each week between both operators.

In 2023, the momentum behind ROI – EU routes intensified. For example, the Stena Vision sailed from Rosslare to Cherbourg, the largest passenger ship ever to sail on an ROI – EU route[28]. In addition, Brittany Ferries provided sailings to Roscoff in winter (November and December) for the first time.[29] Lastly, DFDS who operate the Rosslare – Dunkirk RoRo service since late 2020, began to trial this route as a passenger service in August 2022. That offering has continued and 2023 marks the first full year of operation. All three factors supported ROI – EU passenger numbers on direct EU routes in 2023.

As noted above, both Dublin-GB and Rosslare-GB passenger numbers have declined when compared to pre-pandemic, or 2019 levels. However, in Rosslare, this decline was offset by a sharp rise in passenger numbers to EU ports in 2022 and 2023. In 2023, the number of passengers on Rosslare-EU routes is more than 2.5 times its 2019 level. This has been underscored by the sharp increase in capacity on such routes, which has also allowed for a surge in freight traffic.

(iii) Passenger Vehicles

Up to now, the term 'passengers' has referred to the volume of people travelling on RoRo ferries. The volume of passenger 'vehicles' is also an important consideration for shipping companies. Although many maritime passengers travel on foot, the majority travel on, or with, a domestic vehicle, such as a car, bus, trailer, caravan, etc. Such vehicles share RoRo capacity with freight traffic i.e. HGV's and unaccompanied containers. Monitoring the level of demand for these vehicles is important for tracking available shipping capacity at Irish ports, which can fluctuate throughout the year.

[27] Common Travel Area
[28] Maiden voyage for new passenger ship serving Rosslare-Cherbourg
[29] Winter ferry service from Cork to France in first for Brittany Ferries

Table 13 details the volume of passenger vehicles - which includes cars, coaches, caravans, and similar tourist vehicles - that travelled through Irish and Northern Irish ports in 2019, 2022 and 2023.

Table 13: RoRo Passenger Vehicles, 2019, 2022 & 2023

Port	2019	2022	2023	2023 Vs 2022	2023 Vs 2019
	No.	No.	No.	%	%
Cork	39,884	39,174	38,016	-3%	-5%
Dublin	449,131	411,813	412,223	0%	-8%
Rosslare-Europort	197,707	218,985	241,055	10%	22%
Total ROI	**686,722**	**669,972**	**691,294**	**3%**	**1%**
Belfast	327,538	462,079	422,920	-8%	29%
Larne	128,518	105,953	128,766	22%	0%
Total NI	**456,056**	**568,032**	**551,686**	**-3%**	**21%**
Total All-Island	**1,142,778**	**1,238,004**	**1,242,980**	**0%**	**9%**

Source: *IMDO*

In 2023, the volume of passenger vehicles on ROI routes rose by 3% compared to 2022. When compared to 2019, or pre-pandemic levels, the volume of passenger vehicles is 1% higher. In Northern Ireland, passenger vehicle traffic fell by 3%. When compared to 2019 however, passenger vehicle traffic has risen strongly, by 21%, equivalent to more than 95,000 additional vehicles.

In Table 14 below, the number of passenger vehicles that travelled on each route category in 2019, 2022 and 2023 is provided.

Table 14: RoRo Passenger Vehicles by Route Category, 2019, 2022 & 2023

Passenger Vehicles	2019	2022	2023	% Ch	Diff
ROI - EU	122,639	139,062	168,009	21%	37%
ROI - GB	564,083	530,910	525,290	-1%	-7%
NI - GB	456,056	568,032	551,686	-3%	21%

Source: *IMDO*

In line with the patterns outlined in part (ii), passenger traffic on EU routes has risen considerably, while traffic on GB routes has fallen. The number of passenger vehicles on EU routes in 2023 is 45,370 higher than in 2019, while the number on GB routes is 38,793 lower.

1.6 iShip Index

Introduction

Since 2007, the IMDO has produced the iShip Index, a quarterly weighted indicator that outlines trends within Ireland's shipping industry, and as a result, the wider economy[30]. The index accounts for five separate market segments, representing the main maritime traffic modes moving through ports in Ireland. Unitised traffic includes Lift-on/Lift-off (LoLo) and Roll-on/ Roll-off (RoRo) traffic, while Bulk traffic includes break bulk, dry bulk, and liquid bulk. All three of the bulk segments are measured in tonnes.[31]

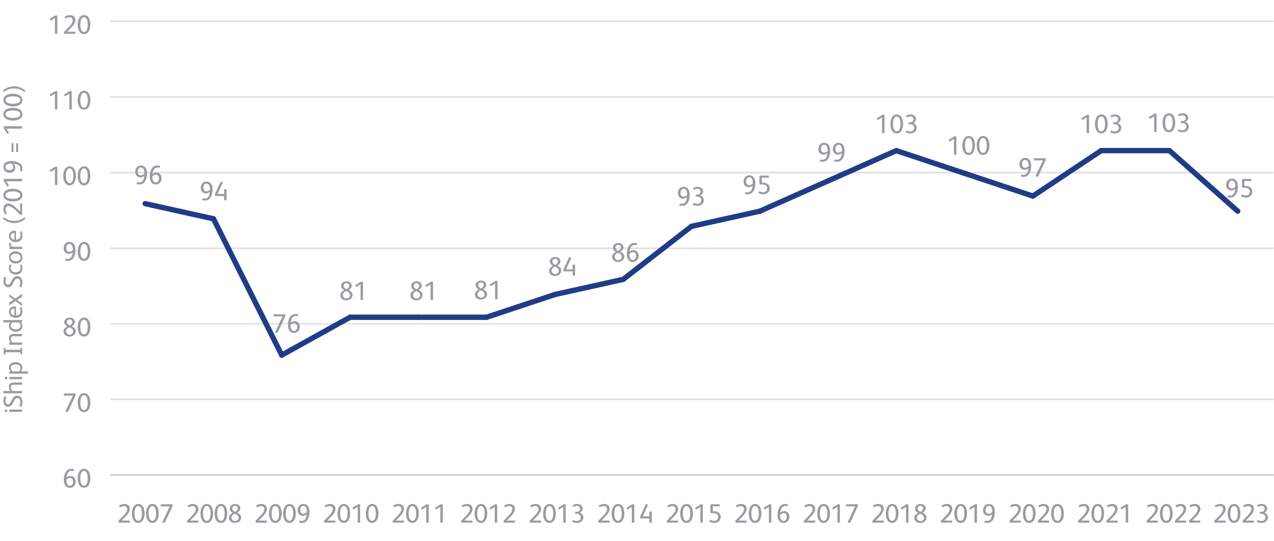
To establish a common denominator, LoLo and RoRo volumes are expressed in tonnage terms within the index, whereby 1 Twenty-Foot Equivalent Unit (TEU) is equal to 10 tonnes, and 1 RoRo Freight Unit is equal to 14 tonnes.

The base period of the iShip index has been updated to 2019. 2019 is an appropriate benchmark for the Irish shipping sector in Ireland as it marks the last year before the effects of the COVID-19 pandemic or Brexit took hold. It was also a record year for both RoRo and LoLo traffic up to that point, and these markets represent half of all port traffic in Ireland, when combined.

(i) iShip Index

Figure 12 illustrates the performance of the iShip index since 2007.

Figure 12: IMDO iShip Index, 2007 – 2023 (2019 = 100)



Source: *IMDO*

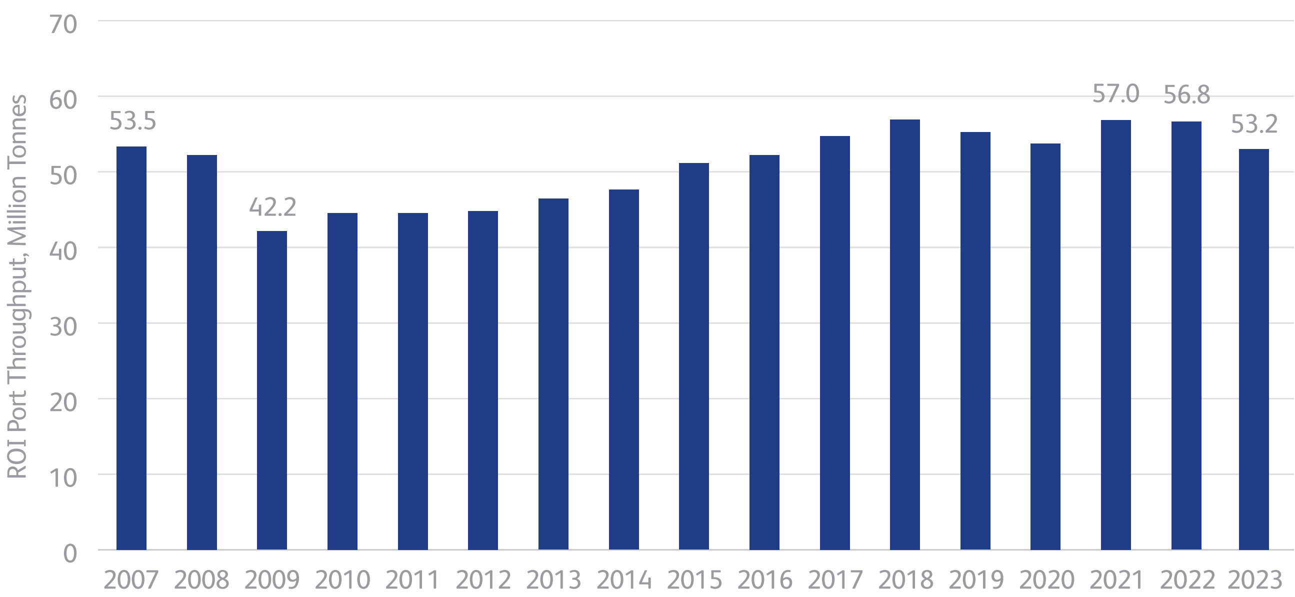
In 2023, the iShip index declined by 8% compared to 2022. This is the steepest annual decline in the iShip index since the years following the financial crisis of 2008.

Figure 13 illustrates the annual volume of port tonnage handled across all five market sectors at Republic of Ireland ports since 2007. The effects of the global financial crash are evident between 2008 and 2009. Irish port tonnage fell by 20% during that period as the Irish economy fell into recession. Over the next decade, port tonnage rose consistently as the Irish economy recovered and both the domestic population and international trade increased. The effects of the COVID-19 pandemic in 2020 are also evident, when the iShip index declined by 3% in that year. Between 2018 and 2022, an average of 56m tonnes were handled at Irish ports each year. The volumes in 2023 are 5% below that level.

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

[31] Lift-on/Lift-off (LoLo) was updated in 2022. LoLo data now includes both laden (full) and unladen (empty) containers. Unladen, or empty, containers are an important component of the LoLo sector because they are an indication of the flow of containers between different regions and countries. Empty containers are often transported to locations where there is a shortage of containers, or where containers are needed for the export of goods.

Figure 13: Tonnage Volume, Republic of Ireland Ports, 2007 – 2023



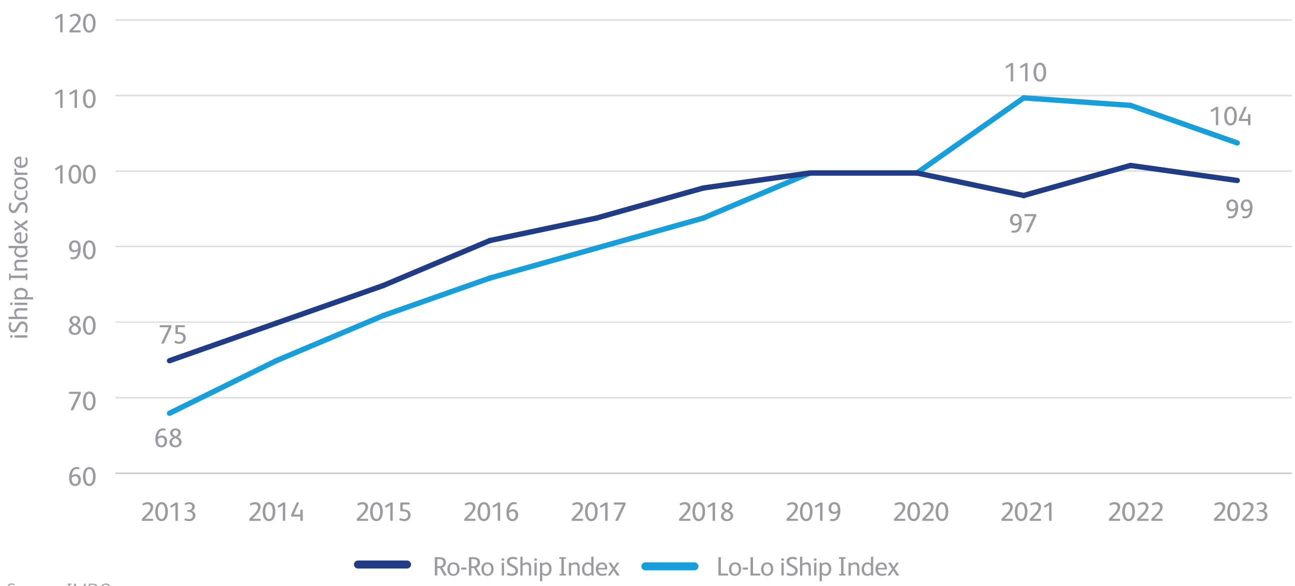
Source: *IMDO*

A decline of more than 2.1m tonnes in dry bulk traffic in 2023 accounted for 60% of the overall drop in Irish port tonnage. The fall in unitised traffic represented a further 27%, while the decrease in liquid bulk traffic contributed 12% to the overall decline. The bulk market therefore accounted for approximately three quarters of the fall in port tonnage in 2023.

(ii) iShip Index – Unitised Markets

Figure 14 provides the iShip index for RoRo and LoLo traffic between 2013 and 2023.

Figure 14: RoRo & LoLo iShip Index, 2013 - 2023 (2019 = 100)



Source: *IMDO*

Figure 14 illustrates that both the LoLo and RoRo market underwent a period of consistent and rapid growth between 2013 and 2019, which represented a recovery from the 2008 global financial crash. This was interrupted by the COVID-19 pandemic in 2020.

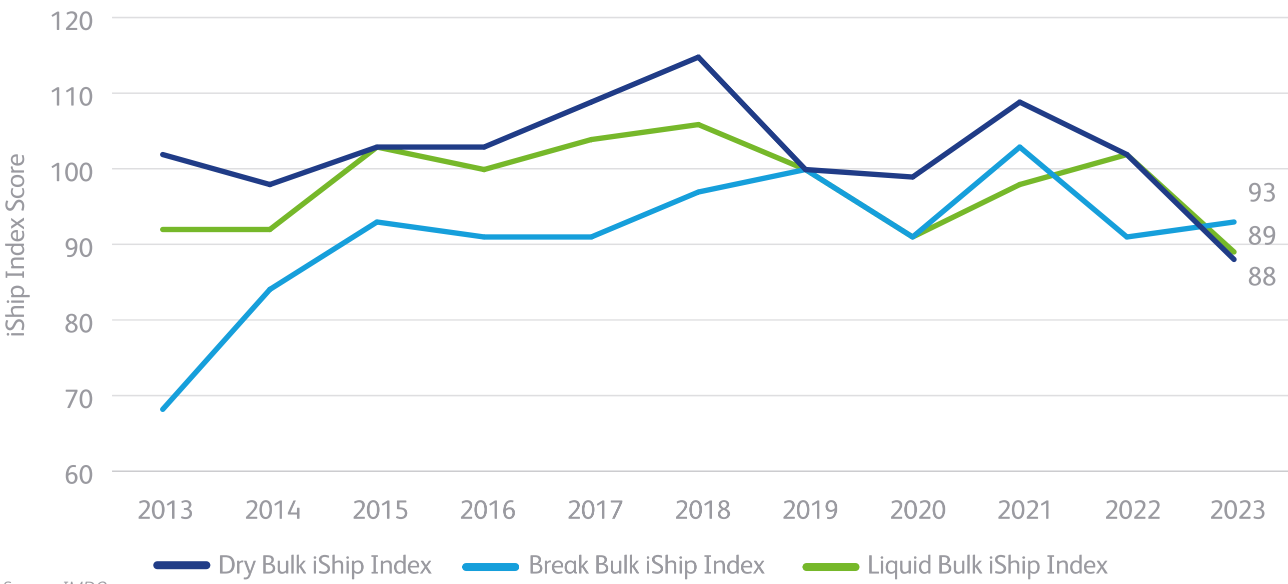
Figure 14 also shows that the LoLo market continues to outperform its 2019, or pre-Brexit levels. LoLo volumes recorded record highs in 2021, driven by a shift in demand towards physical, manufactured goods while pandemic-related restrictions remained in the services sector. As this has since abated, the growth in post-Brexit LoLo traffic has been driven more by the shift towards direct, EU routes to mainland European ports that is explained in Section 1.3. In 2023, LoLo traffic remains 4% above 2019, or pre-Brexit levels.

In all, LoLo traffic makes up 21% of all Irish port tonnage in 2022, while RoRo traffic makes up 31%. Therefore, more than half of all traffic at Irish ports arrives/departs in containerised form and is transported by either a RoRo vessel or a LoLo containership.

(iii) iShip Index – Bulk Markets

Figure 15 provides the iShip index for the three bulk segments of the Irish shipping market; Dry bulk, liquid bulk, and break bulk. Figure 15 shows that in 2023, all three segments of bulk traffic are below 2019 levels. For detailed analysis on the performance of all three markets in 2023, see Section 1.1.

Figure 15: Bulk Market iShip Index, 2013 - 2023 (2019 = 100)

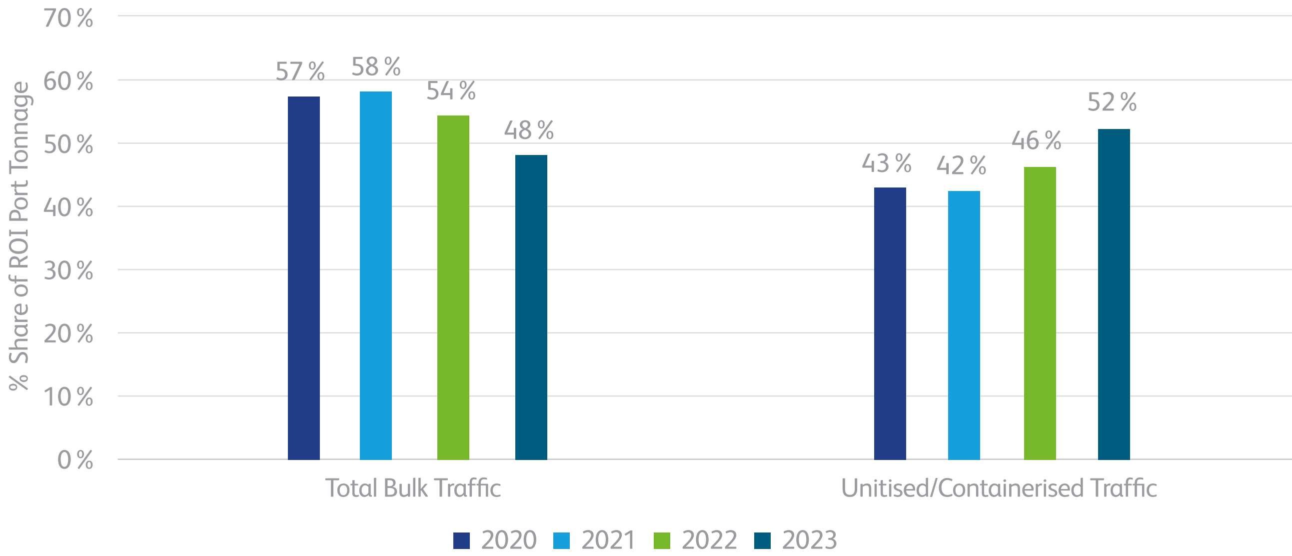


Source: *IMDO*

(iv) iShip Index – Containerisation

In Figure 16, the share of port tonnage held by the combined bulk (dry, liquid, break bulk) sector and the combined unitised sector (RoRo and LoLo) segment is provided, separated by five-year intervals.

Figure 16: Percentage Share of Irish Port Tonnage, Bulk Vs Unitised, Selected Years



Source: *IMDO*

Figure 16 shows that since 2008, Irish port tonnage is becoming gradually more containerised. In 2023, containerised, or unitised traffic represented more than half of all ROI port tonnage for the first time. For 2023, this is explained by sharp declines in bulk traffic, particularly in the dry bulk sector where a decline in heavy products such as fertiliser, bauxite and coal had a large impact on port tonnage.

The trend towards more containerised port traffic, and less bulk traffic, has been evident for some time, however. The most dominant cause behind this shift is the gradual decline in the use of certain bulk products, driven by Ireland's gradual transition away from fossil fuels.

For example, in the dry bulk sector, imports of coal have decreased as its share of final energy use in Ireland has fallen from 3.2 % in 2012, to 1.6 % in 2022[32]. This is reflected in the reduction in operations at the ESB Moneypoint power station in recent years.

Elsewhere in the bulk sector, imports of liquid bulk traffic have been stable, averaging 9m tonnes per year since 2013, with little or no growth throughout. This has occurred alongside significant increases in the areas of the Irish economy where this liquid bulk traffic has been predominantly put to use: private car transport, commercial aviation, and home heating. Between 2013 and 2023, the vehicle population in Ireland has risen by 18 %, from 2.5m vehicles to 2.9m[33]. Over the same period, the number of aviation passengers through Irish airports rose by 34 %, from 29m per year to 39m in 2023[34]. And lastly, the number of home completions was 4,575 in 2013, compared to 32,695 in 2023[35].

[32] Energy in Ireland – 2023 Report, SEAI, pg. 57, Table 5.1
[33] Road Traffic Volume Data, CSO
[34] Passengers handled by main airports, CSO
[35] New Dwelling Completions, CSO

Throughout that time, private car and aviation transport has become more fuel efficient and the number of EV's on Irish roads has increased sharply. In addition, home heating efficiency is greatly improved, and has shifted away from oil and towards natural gas, electricity, and renewables.[36]

In all, the decline in dry bulk products such as coal, and the lack of growth in liquid bulk traffic, has contributed heavily to the reduction in the share of Irish port tonnage held by bulk traffic.

Another cause behind this trend towards containerisation in the Irish port sector is the continued resilience of Irish domestic expenditure, or consumption levels, a key determinant of RoRo and LoLo traffic. Despite the inflationary pressures and sluggish growth in the UK and the EU in the past two years (see Section 1.4), Irish consumer expenditure has remained resilient, rising by 3% in 2023 and expected to rise by a further 3% in 2024 according to the Central Bank of Ireland.[37] As a result, RoRo and LoLo traffic avoided steep declines in the face of these economic headwinds, meaning their share of port tonnage rose as bulk traffic declined.

[36] Energy in Ireland – 2023 Report, SEAI, pg. 67
[37] Central Bank of Ireland, Quarterly Bulletin, QB1 – March 2024, pg.13

Section 2: **Irish Merchandise Trade Review**

In Section 1, an assessment of Irish port volumes was provided, broken down by cargo mode. Employing trade data from the Central Statistics Office (CSO), Section 2 provides context for the volumes at Irish ports, by focusing on what products were traded and with what countries. Sections 2.1 and 2.2 provide an overview of Irish merchandise (goods) imports, illustrating what goods were imported, what the value of those goods were, and from where they originated. Sections 2.3 and 2.4 provide the same analysis for Irish merchandise exports.

2.1 Irish Merchandise Imports

2.1A Tonnage

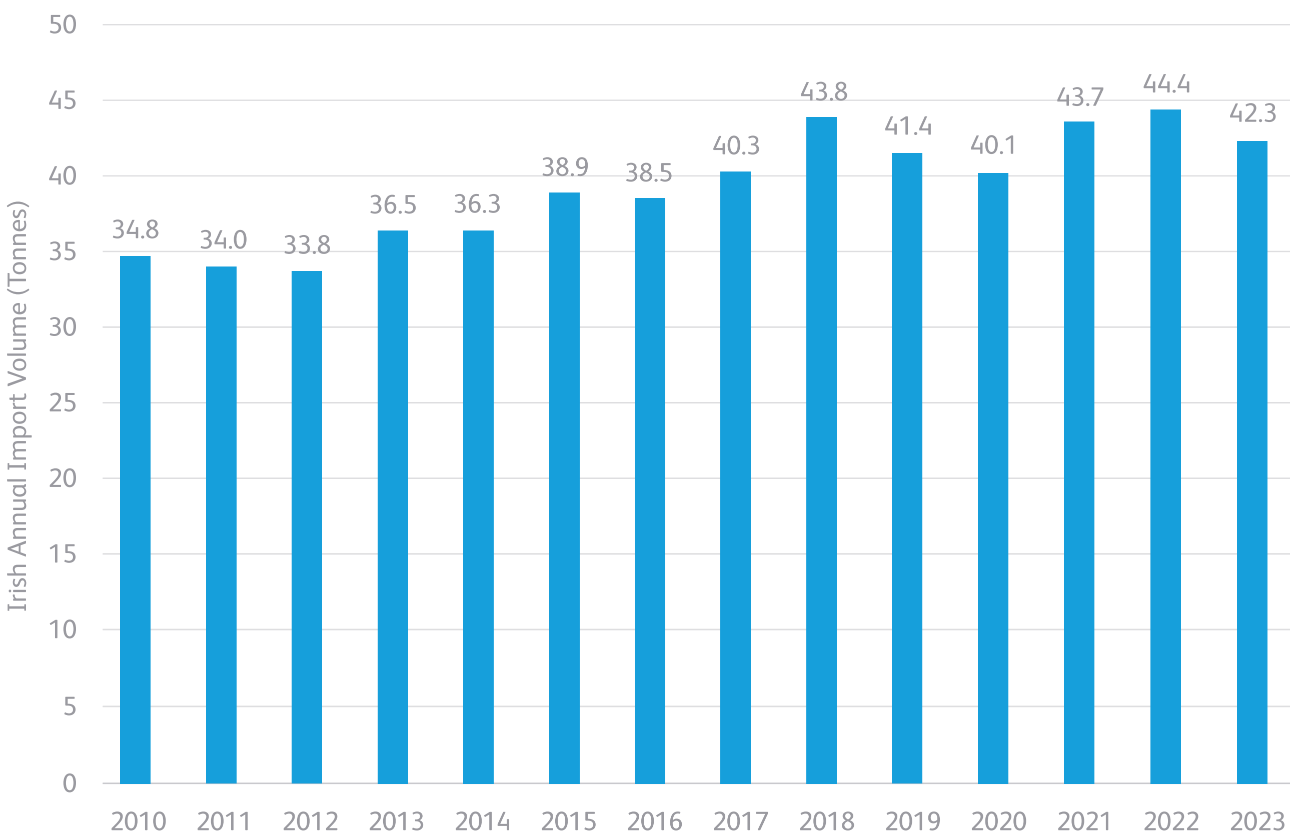
In 2023, 42.3m tonnes of merchandise goods were imported into Ireland based on CSO data. Approximately 90% of this was handled by ROI ports. The rest was imported by land from Northern Ireland, by commercial air freight, or by pipeline as natural gas.

Irish merchandise imports fell by 5% compared to 2022, equivalent to a decline of 2.1m tonnes. The annual volume of Irish merchandise imports for the past ten years is provided in Figure 17.

2022 was a record year for Irish import volume, as the total reached 44.4m tonnes. This total was 31% above 2012 levels, when import volumes were suppressed as the Irish economy fell into recession following the financial crash of 2008.

The five-year average for Irish import volumes is 42.7m tonnes. The volumes for 2023 are 1% below this level.

Figure 17: Irish Merchandise Import Volumes, 2013 – 2023

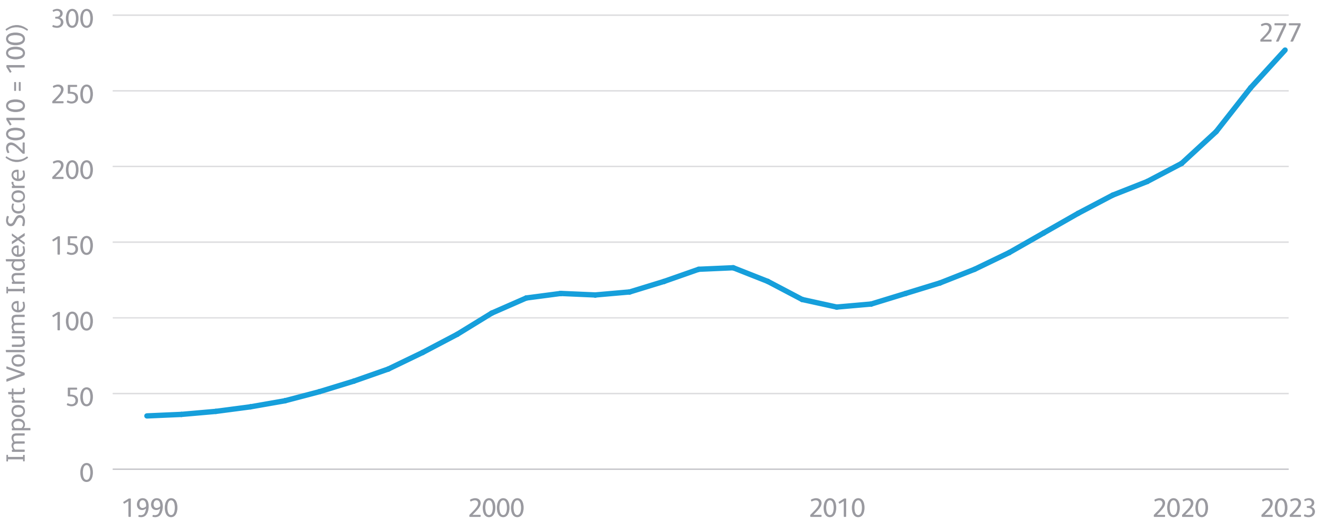


Source: *CSO*

Irish import volumes have risen sharply in recent decades, particularly since the early 1990's. A major interruption to this growth occurred during the financial crash, which caused import volumes to decline between 2008 and 2010. Since 2010 however, import volumes have risen rapidly. Between 2010 and 2023, the average annual growth rate in Irish import volume has been 2 %, equivalent to roughly 500,000 additional tonnes per year.

The CSO provides an annual merchandise import volume index for the Irish economy[38]. The long-term trend in this index shows that Irish import volume continues to maintain an upward trajectory. In Figure 18 below, this upward trend is illustrated for the years between 1990 and 2023.

Figure 18: CSO Merchandise Trade Volume Index, Imports, Long Term Trend (2010 = 100)[39]



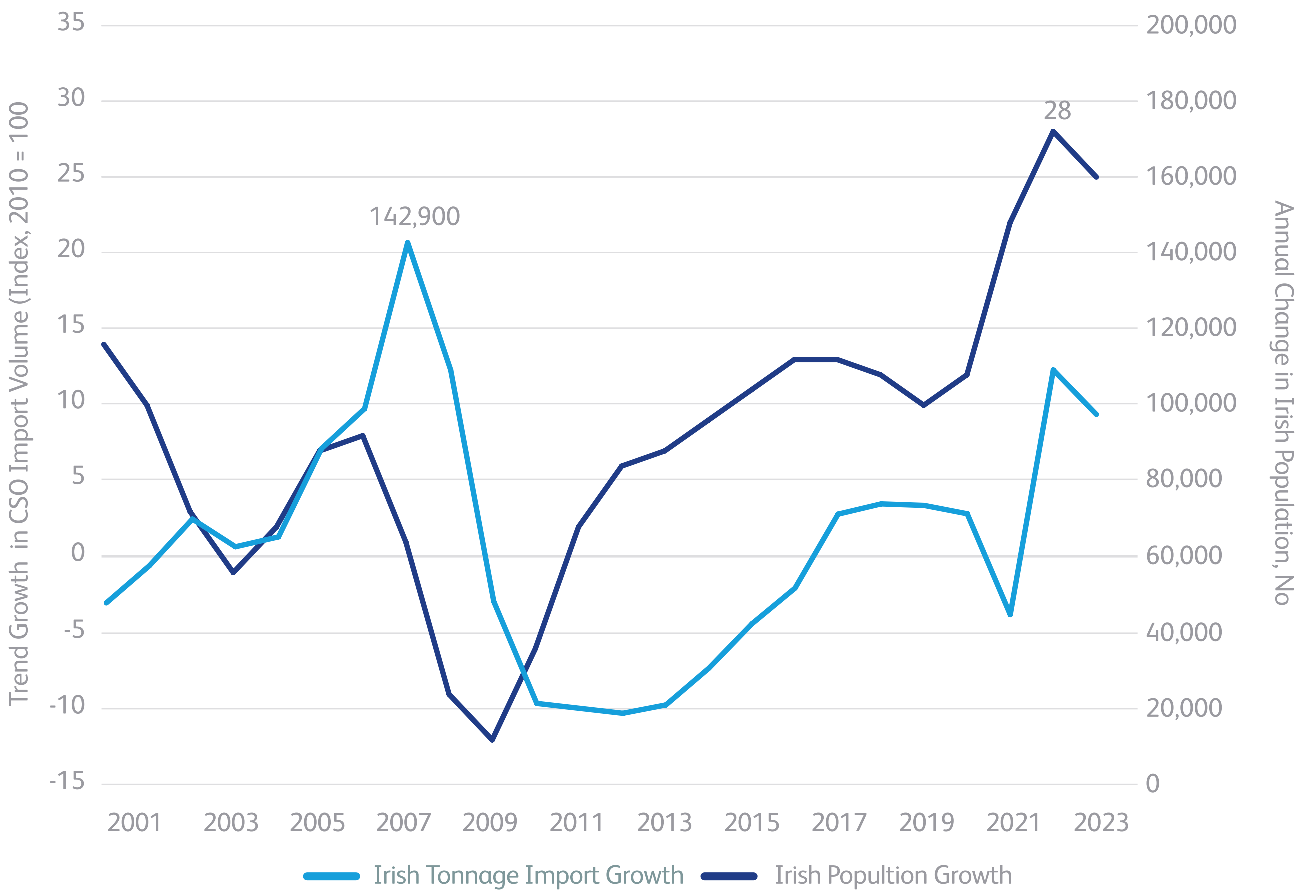
Source: *CSO*

[38] Merchandise Trade Price and Volume Indices, CSO

[39] For the purposed of this graphic, the Hodrick–Prescott (HP) filter was used to isolate the trend component of the CSO Merchandise Import volume index

The upward momentum in Irish import volume is driven by expansions in the size of both the Irish economy and the Irish population. In Figure 19, the growth in the CSO's merchandise import volume index is shown alongside the growth in the Irish population since 2000. Figure 19 shows that changes in Irish import volumes closely reflect changes in Irish population.

Figure 19: Growth in Irish Import Volume Index Vs Growth in Irish Population



Source: *CSO*

Import Tonnage Type of Goods

In tonnage terms, the main categories of goods imported into Ireland are shown in Table 15 below. In Table 15, goods are broken down into Standard International Trade Classification (SITC) divisions, or categories[40].

Table 15: Irish Imported Tonnes by SITC Division

SITC Product Division[41]	2022	2023	Growth	Diff
	Tonnes	Tonnes	(%)	Tonnes
Mineral Fuels, Lubricants, and Related Materials (3)	13,827,664	13,263,708	-4%	-563,955
Food & Live Animals (0)	9,589,838	9,274,351	-3%	-315,488
Crude Materials, Inedible, Except Fuels (2)	8,118,950	7,388,027	-9%	-730,923
Manufactured Goods Classified Chiefly by Material (6)	4,735,779	4,438,650	-6%	-297,129
Chemicals & related products (5)	3,960,593	3,622,668	-9%	-337,925
Machinery & Transport Equipment (7)	1,868,614	1,498,324	-20%	-370,290
Miscellaneous Manufactured Articles (8)	969,999	1,430,177	47%	460,178
Beverages & Tobacco (1)	950,104	1,020,332	7%	70,228
Animal and Vegetable Oils, Fats, and Waxes (4)	360,339	328,745	-9%	-31,594
Commodities and Transactions Not Classified Elsewhere (9)	12,300	9,190	-25%	-3,111
Total Irish Imported Tonnage	**44,394,180**	**42,274,172**	**-5%**	**-2,120,008**

Source: *CSO*

In line with previous years, the top three import categories in terms of tonnage were Mineral Fuels, Crude Materials and Food and Live Animals, which made up over 70% of all imported Irish tonnage in 2023. Manufactured Goods made up a further 10% in 2023, while Chemicals & related products accounted for 9% of Irish import volumes.

As evident from Table 15, eight of the ten listed divisions registered declines in 2023. There were several notable changes within each division that had a significant impact on the overall volumes imported this year.

Specifically, three SITC subdivisions recorded large declines that, when combined, accounted for just under 2 million fewer imported tonnes in 2023. All three subdivisions are raw materials and are predominantly transported in bulk carriers at Irish ports. In this way, CSO trade data reflects that of IMDO port data, in that the decline in imports in 2023 was heavily influenced by a decline in raw materials, particularly those carried using the bulk cargo mode.

Bauxite

Firstly, imports of metalliferous ores & metal scrap[42], a subdivision of the crude materials group, declined by 937,791 tonnes in 2023, equivalent to a 21% fall compared to the volume imported in 2022. This subdivision is predominantly made up of bauxite imported from Guinea.

As highlighted in Section 1.1A, imports of bauxite, a sedimentary rock that is the world's main source of aluminium, fell by 850,000 tonnes at Shannon Foynes. Bauxite is imported to Shannon Foynes for use by Aughinish Alumina, Europe's largest alumina refinery. The company, located in the Shannon Estuary, refines bauxite into alumina which is then shipped

[40] The Standard International Trade Classification (SITC) is a classification system, developed by the UN, used to categorize goods traded internationally. It provides a standardised framework for analysing and comparing international trade statistics. The SITC system organizes goods into various categories based on their characteristics and intended use.
[41] SITC Code in parenthesis
[42] SITC Code: 28

abroad for use in dozens of global products. Aughinish Alumina is indirectly owned by Rusal International, a Russian company whose shareholders have faced Western sanctions in the wake of the Russian invasion of Ukraine. This, coupled with the rapid rise in energy costs that began in 2022, has led to a significant increase in uncertainty for the company, the impact of which is evident in the volumes of metalliferous ores & metal scrap imports in Irish trade.

In the previous ten years, imports of metalliferous ores & metal scrap from Guinea[43] have averaged 3.14m tonnes per year. Volumes were also consistent, ranging between 2.7m and 3.4m tonnes during that time. In 2023 however, imports of this division fell to 1.96m tonnes, a 37 % decline on 2022 volumes. This had a significant impact on the overall decline in Irish import volume in 2023.

Coal

Imports of coal[44] declined by 45 % in 2023, from a total of 1.38m tonnes in 2022, to 0.76m tonnes. This decline amounted to 615,738 fewer tonnes. Like the fall in bauxite imports, this had a significant impact on the total import volume into Ireland this year.

Imports of coal have fluctuated heavily in recent years. Between 2011 and 2018, Ireland imported 2m tonnes of coal per year, on average. In 2019 and 2020, this fell dramatically, to approximately 450,000 tonnes in each year. This was part of a broader plan to cease coal burning at the ESB Moneypoint generation station. In 2021 and 2022 however, imports of coal spiked to 1.6m and 1.4m tonnes, respectively.

The increase in 2021 was necessitated by what the Sustainable Energy Authority of Ireland (SEAI) described as a 'low-wind year,' when wind as a source of electricity generation fell by 15 % compared to 2020[45]. By 2022, electricity generation from wind returned to more typical levels, which explained much of the decline in coal imports in 2022, as less coal was needed for electricity generation. However, in 2022, coal imports still remained significantly above the volumes recorded in 2019 and 2020. The energy crisis brought about by the Russian invasion of Ukraine led to stockpiling of energy resources across Europe. Concerns of disruption natural gas and oil supplies created heightened energy insecurity. This was a crucial factor in coal imports remaining elevated in 2022.

In 2023, concerns of global energy insecurity eased, and electricity generated from wind was firm. As a result, coal imports into Ireland fell considerably. The decline in coal imports is evident in electricity generation for 2023, as electricity generated from coal fell by 52 %[46]. Looking ahead, coal imports are likely to decline further in 2024 following a change of operations at the ESB Moneypoint station which was announced in 2023;

"In response to a security of electricity supply need identified by EirGrid and the Commission for Regulation of Utilities (CRU), in August 2023, ESB and EirGrid signed an agreement to make Moneypoint available as an out-of-market generator of last resort from 2025 to 2029. To meet this period of operation, ESB is planning to convert the station to run on oil for the period of 2025 to 2029. Oil is less carbon intensive than coal and the Moneypoint units can operate solely on oil…In this context, ESB has applied to An Bord Pleanála for permission to allow Moneypoint to transition from a coal (with oil as a secondary fuel) to an oil fired only station"

ESB, 2023[47]

[43] More than 99 % of all imports from Guinea fall under the metalliferous ores & metal scrap division.
[44] SITC Code: 32 (Coal, coke & briquettes)
[45] Electricity generation from wind fell from 10,319 Gwh in 2020, to 8,766 GWh in 2021.
[46] Electricity generation from coal fell from 2,211 GWh in 2022, to 1,071 GWh in 2023.
[47] Moneypoint Power Station, ESB Website

Fertilisers

In 2023, the volume of fertiliser[48] imports into Ireland fell by 24%, to 1.13m tonnes. This is equivalent to a decrease of 355,836 tonnes. This is the third consecutive annual decline in fertiliser imports, following a drop of approximately 143,000 tonnes in 2021 and 152,000 tonnes in 2022.

Section 1.1A detailed how imports of fertiliser through the ports of Dublin, Cork, Shannon Foynes, Waterford, Greenore & Drogheda declined by 20% when combined, and that this has a significant impact on dry bulk traffic at Irish ports in 2023.

Also, in Section 1.1A, it was highlighted that there are two main factors driving this decline in fertiliser imports; environmental and price.

Firstly, the Irish Government's Climate Action Plan (CAP) has targeted a reduction in fertiliser sales to below 300,000 tonnes of chemical nitrogen nutrient per year by 2030. In 2023, figures released by the Department of Agriculture, Food and Marine (DAFM) showed that this CAP target for fertiliser had been met in 2023, with just 280,569 tonnes of chemical nitrogen nutrient sold in the State.

However, the impact of price should not be discounted when understanding the reduction in fertiliser sales in 2023. Beginning in 2021, the international price of chemical fertilisers began to surge. This came as a consequence of the Russian invasion of Ukraine. Following the outbreak of conflict, sanctions were placed on both Russia and Belarus by the EU. Both countries are large exporters of fertilisers. In 2023, fertiliser prices remain significantly elevated compared to recent years, and this has had a suppressive effect on import demand in the agricultural industry in Ireland[49].

The impact of these sanctions is evident in Irish trade with the Russian Federation, as imports of fertilisers have fallen precipitously since the outbreak of conflict. Imports of fertiliser from Russia fell from 378,379 tonnes in 2021, to 239,009 tonnes in 2022, and to just 24,163 tonnes in 2023.

Conclusion

The decline in Irish import volume in 2023 was led by raw materials, particularly those which are carried in the dry bulk shipping sector. As evident in Table 15, eight of the ten listed divisions registered a decline in 2023. However, these declines were steepest in a small number of raw materials with a low value-to-weight ratio.

For manufactured or finished goods that are likely to be carried in the unitised (RoRo and LoLo) sector, these divisions also recorded a decline. As shown in Table 15, Manufactured Goods Classified Chiefly by Material declined by 6%, or approximately 300,000 tonnes. However, this was offset by a rise in Miscellaneous Manufactured Articles, which rose by 460,000 tonnes.

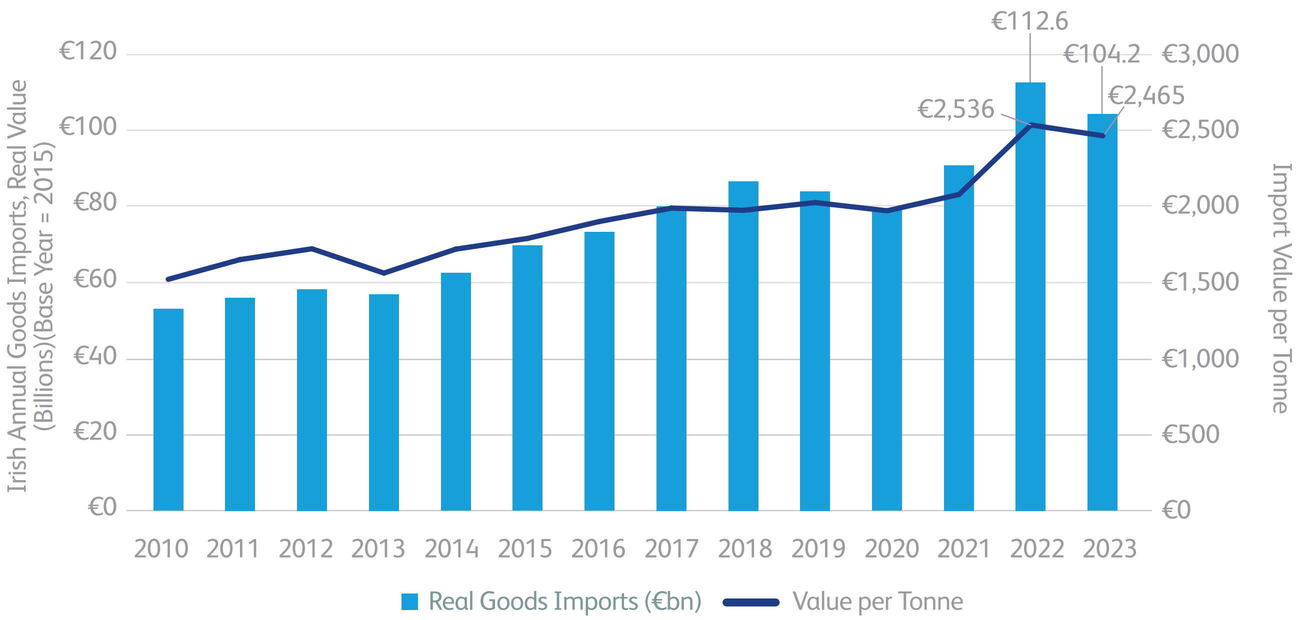
In all, the decline in metalliferous ores, coal and fertilisers described in this section amounted to 1.9m fewer imported tonnes.

[48] SITC Code: 56 - Fertilizers (other than those of group 272). Includes nitrogenous, phosphatic and potassic mineral or chemical fertilizers
[49] See Section 1.1A for more detail on fertiliser price changes

2.1B Value

In 2023, the value of Irish imports in nominal terms declined by 1 %, from €141bn to €139.4bn. When adjusted for inflation however, the value of Irish imports declined by 7 %, from €112.6bn to €104.2bn[50]. This represents a decline of €7.7bn in the real value of Irish merchandise imports in 2023. In Figure 20 below, the real, inflation adjusted, value of Irish goods imports is provided for the years 2010 to 2023. Also provided is the real value per tonne of Irish imports.

Figure 20: Real Irish Merchandise Import Value & Value per Tonne, 2010 – 2023[51]



Source: *CSO, OECD*

As evident in Figure 20, the real value of Irish imports declined by 7 % between 2022 and 2023. This was largely due to a decline in the volume of goods imported, which in turn was driven by a steep rise in inflation rates in large economies. Across all OECD[52] countries, the consumer price index (CPI) for all goods rose by 10 % in 2022 and by 7 % in 2023. Using the same CPI data, UK inflation measured 8 % and 7 % respectively in 2022 and 2023. And in the Euro Area, prices rose by 8 % and 5 %, respectively.

The spike in global inflation in the past two years was driven by several factors, but some of the most consequential include: the energy supply crisis sparked by the Russian invasion of Ukraine in 2022; a backlog of demand arising from the COVID-19 pandemic; global supply chain disruption; and a global shortage of computer chips[53].

Although the value of Irish imports has been rising consistently since 2010, the pace of this increase accelerated in 2022 and 2023, driven by this global rise in inflation. This increase has fed into the Irish economy, as the domestic price level rose by 8 % in 2022 and by 6 % in 2023, according to the OECD's CPI.

The value per tonne of Irish merchandise goods rose by 22 % between 2021 and 2022. In 2023, it fell by 3 %. The pace of inflation has therefore abated in 2023, which will come as a welcome sign for Irish importers. However, prices remain significantly elevated compared to levels before the pandemic and before the Russian invasion of Ukraine.

The period of high inflation in 2022 and 2023 had been led by the rising cost of energy products.

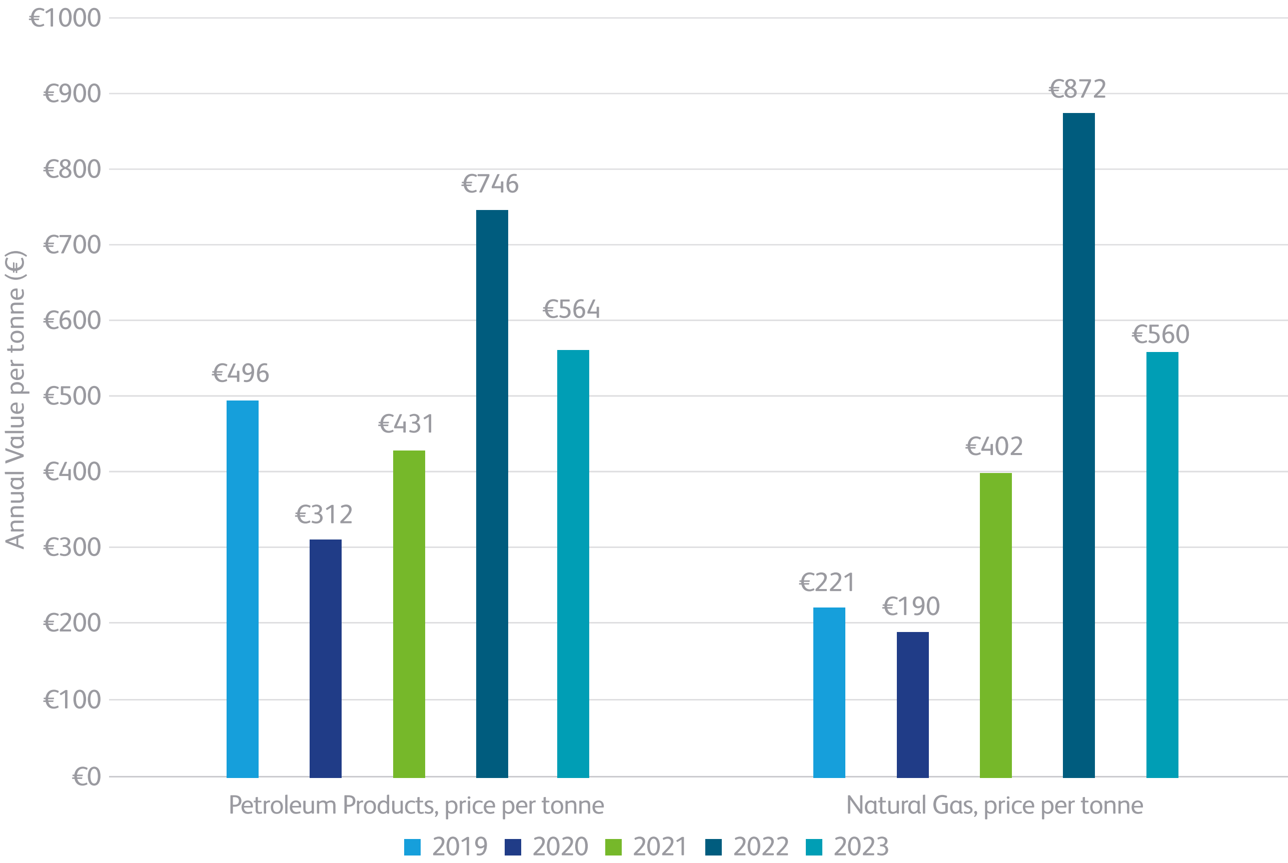
[50] OECD Consumer Price Index used to adjust for inflation. Base year = 2015
[51] As Irish import values are determined by prices on international markets, the data in Figure 20 was adjusted using Consumer Price Indices for OECD countries, found here.
[52] Organisation for Economic Co-operation and Development
[53] Inflation and monetary policy: what to expect – Central Bank of Ireland

The Russian invasion of Ukraine in 2022 created a global energy crisis that put severe upward pressure on the price of energy products, particularly oil and natural gas. The reduction in pipeline exports of Russian natural gas to European countries, coupled with the embargos placed on imports of Russian oil by the EU, US and G7 countries, led to uncertainty, scarcity, and reorganisation in global energy markets. Consequently, Irish importers, like many around the world, faced higher prices when importing oil-based products and natural gas.

In Figure 21 below, the real value per tonne of Irish imports of petroleum based and natural gas products is provided. In Figure 21, the decline in value per tonne in 2020 is evident, as COVID-19 restrictions on domestic and international transport, as well as economic activity, suppressed demand for energy. In 2022 however, the increase in price per tonne is clear in Figure 21, as the price per tonne of natural gas more than doubled.

In 2023, prices of both products have eased, but remain elevated compared to recent years. Energy products have been a dominant factor behind recent changes in import volume in Ireland.

Figure 21: Real Value per Tonne, Petroleum products[54] and Natural Gas, 2019 – 2023[55]



Source: *CSO, OECD*

[54] SITC codes: 33 - Petroleum, petroleum products & related materials
[55] SITC codes: 34 - Gas, natural & manufactured

Energy products were not the only goods to record sharp price increases, however. Driven by a computer chip shortage in the aftermath of the COVID-19 pandemic, the value of office machinery imports to Ireland have also risen dramatically. In 2022, the real value per tonne of Office machines & automatic data processing machines[56] rose by 16%, from €161,000 per tonne, to €188,000. In 2023, this has fallen back by 32%, to €127,000.

Conclusions

The real, inflation adjusted value of Irish merchandise imports declined by 7% in 2023. In addition, 2023 recorded an easing of inflationary pressure on energy products, particularly oil and natural gas. A reduction in global uncertainty surrounding supplies of oil and natural gas in the wake of the Russian invasion of Ukraine halted the dramatic price rises recorded in 2022. Inflationary pressures also eased on electronic goods such as office machinery, which recorded sharp rises in the aftermath of COVID-19 pandemic due to supply chain disruption.

[56] SITC Code: 75 - Office machines & automatic data processing machines

2.2 Ireland's Import Trading Partners

As shown in Section 2.1, Ireland has imported an average of 42.7m tonnes of merchandise goods per year over the past five years. This volume of goods is required to satisfy domestic energy, food, industrial and commercial needs. Ireland relies heavily on a small number of countries and regions for these imports, and most of these countries are geographically close to the island of Ireland.

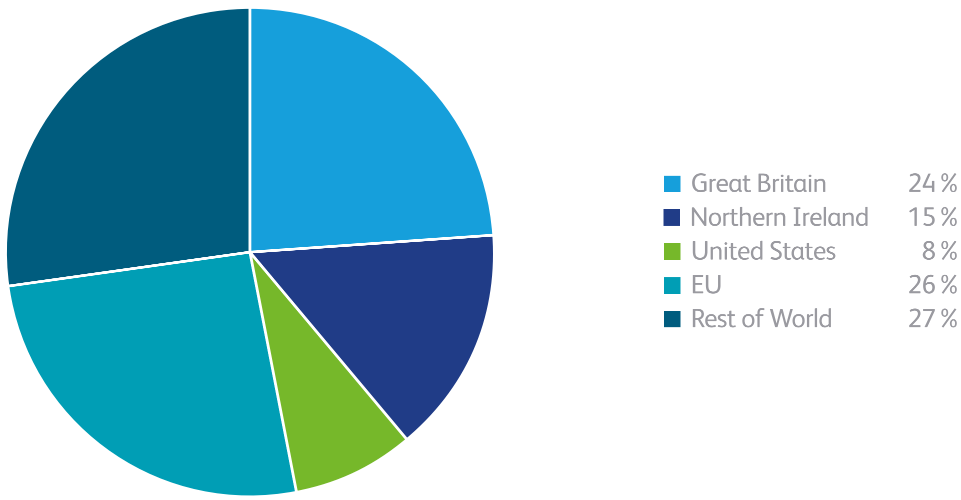
This section will describe the makeup of Ireland's largest import partners in volume terms. In doing so, it will provide context for the imported goods detailed in Section 2.1.

The countries Ireland is dependent upon for imports changes significantly depending on what goods are considered. Therefore, in this section, Irish imports will also be broken into three broad sections; **Food and Beverages, Manufactured Goods** and **Raw Materials**. These groupings split neatly, as Food and Beverages and Manufactured Goods represent approximately one quarter of Irish import tonnage each, while raw materials account for one half.

Summary of Ireland's Import Partners

Figure 22 below shows the breakdown of Ireland's main import partners in volume terms, when all Standard International Trade Classification (SITC) divisions are included.

Figure 22: Ireland's Top Merchandise Import Partners in Volume terms, 2023



Source: *CSO*

Figure 22 shows that Great Britain remains Ireland's largest import partner in volume terms. When all products are included, roughly 1 in 4 of all Irish imported tonnage is imported from Great Britain. Brexit has had a profound effect on Irish trade however, and this is reflected in the fact that for much of the last decade, Great Britain previously accounted for 1 in 3 Irish imported tonnes. Irish trade has found new markets for certain categories of goods, and these will be highlighted throughout this section.

The shares of Irish imports detailed in Figure 22 did not change materially between 2022 and 2023. The largest change came in the share held by 'Rest of World,' which declined by 4 %. The majority of this decline was transferred to EU countries.

(i) Food and Beverages

Table 16 provides a selection of Ireland's largest import partners in 2022 and 2023 for food and beverage products. Food and Beverages refers to products such as grains, dairy, beverages, and animal feeds for agricultural use. It encompasses SITC sections 0 and 1[57]. In maritime transport, the products in this grouping will employ a mix of bulk carrier vessels and RoRo and LoLo vessels. Goods such as grains and animal feed will be transported by bulk carrier vessels, whereas dairy products, seafood and meat products will be transported in containers either by RoRo vessels or by LoLo containerships.

Table 16: Ireland's Top Merchandise Import Partners in Volume terms, Food & Beverages

Trading Partner	2022	2023	Growth	Diff
	Tonnes	Tonnes	(%)	Tonnes
Northern Ireland	2,108,904	2,157,514	2%	48,610
Great Britain	1,326,730	1,383,603	4%	56,873
United States	991,448	849,310	-14%	-142,138
Argentina	963,603	669,837	-30%	-293,765
Canada	633,639	840,528	33%	206,889
Netherlands	589,688	711,318	21%	121,630
France	698,794	558,196	-20%	-140,598
Germany	401,207	453,896	13%	52,689
Brazil	564,177	280,246	-50%	-283,931
Ukraine	174,635	37,525	-79%	-137,110
Other	2,088,779	2,354,488	13%	265,709
Total Food & Beverage Imports	**10,541,604**	**10,296,463**	**-2%**	**-245,141**

Source: *CSO*

In 2023, Ireland imported 2% less food and beverage products than in 2022, equivalent to 245,141 fewer tonnes.

Imports of cereal products[58] are a significant component of the Food & Beverage grouping. In total, cereal products, which include grains such as wheat, maize, barley etc., make up 6% of all Irish import tonnage. Imports of cereals from Ukraine have fallen rapidly since the outbreak of conflict in the region. In 2019, Ireland imported more than 470,000 tonnes of cereals from Ukraine. In 2022 and 2023, this fell to 173,000 and 34,000 tonnes, respectively. Ukraine is a major producer of grain to world markets, particularly wheat and maize. Following the outbreak of the conflict, exports of Ukrainian grain were effectively halted, with heightened uncertainty surrounding future supply. Given this uncertainty, Irish importers looked to secure supply from new markets, and in 2022, imports of cereals from Brazil rose from 175,000 to 500,000 tonnes. In 2023, this has fallen back significantly, as Irish importers looked to Canada, another major global producer of grains, to fill gaps in supply. Imports of cereals from Canada rose by more than 200,000 tonnes. This fluctuation highlights that the effects on the Russian invasion of Ukraine continues to impact upon Ireland's supply of grains from abroad.

Elsewhere, imports of food and beverages from Great Britain and Northern Ireland were steady between 2022 and 2023, after significant post-Brexit fluctuation in the trade of these products.

Lastly, a sharp drop in imports of animal feed drove the decline in Argentinian imports in 2023.

[57] See Standard International Trade Classification, Revision 4

[58] SITC Code 04 - Cereals and cereal preparations

Raw Materials

Table 17 provides a selection of Ireland's largest import partners in 2022 and 2023 for Raw Materials. Raw materials are comprised mainly of energy products such as coal, petroleum, natural gas. It also includes industrial goods such as crude fertilisers and metalliferous ores. It refers to SITC sections 2 & 3. In terms of maritime transport, the products in this grouping will use tanker vessels for petroleum and other liquid products, and bulk carrier vessels for coal, fertilisers, metalliferous ores etc.

Table 17: Ireland's Top Merchandise Import Partners in Volume terms, Raw Materials

Trading Partner	2022	2023	Growth	Diff
	Tonnes	Tonnes	(%)	Tonnes
Great Britain	7,344,974	6,545,074	-11%	-799,900
Guinea	2,961,347	1,962,795	-34%	-998,552
Northern Ireland	2,614,700	2,673,121	2%	58,422
United States	2,198,519	2,088,002	-5%	-110,518
Brazil	991,005	658,112	-34%	-332,892
Russia Federation	508,176	345	-100%	-507,831
Netherlands	583,543	1,142,621	96%	559,078
Spain	540,880	564,415	4%	23,536
Norway	117,045	186,991	60%	69,946
Colombia	820,990	569,894	-31%	-251,096
United Arab Emirates	560,741	587,738	5%	26,998
Azerbaijan	531,266	617,317	16%	86,051
Other	2,173,436	3,055,315	41%	881,880
Total Raw Material Imports	**21,946,621**	**20,651,741**	**-6%**	**-1,294,880**

Source: *CSO*

As evident in Table 17, one of the largest shifts in raw material imports in 2023 came from Guinea. Ireland imported roughly 1m fewer tonnes from Guinea in 2023, and this was driven entirely by fewer imports of metalliferous ores and metal scrap[59]. Guinea is one of the world's largest producers of bauxite, the primary ore used to produce aluminium. Bauxite is imported to Shannon Foynes for use by Aughinish Alumina, Europe's largest alumina refinery. The company, located in the Shannon estuary, refines bauxite into alumina which is then shipped abroad. As highlighted in Section 1, Aughinish Alumina is indirectly owned Rusal International, a Russian company whose shareholders have faced Western sanctions in the wake of the Russian invasion of Ukraine. This explains much of the decline recorded in 2023.

A further impact of the Russian invasion of Ukraine has been the steep decline in almost all imports from the Russian Federation. Between 2018 and 2021, Ireland had been importing roughly 1.5m tonnes of goods from Russia each year. These goods comprised raw materials such as petroleum products and coal, and agricultural products such as animal feed and fertilisers. In 2022, Russian imports fell to approximately 1m tonnes, and in 2023, fell to approximately 140,000 tonnes. In 2023, Ireland effectively imported no petroleum or coal from Russia, and this is evident in Table 17. As noted in Section 2.1, Ireland imported about 600,000 fewer tonnes of coal. Irish imports of coal from Russia and Colombia fell sharply in 2023, by 360,000 and 250,000 tonnes, respectively.

[59] SITC Code 28 – Metalliferous ores and metal scrap

The most voluminous raw material import in Ireland is petroleum products[60], which account for 18% of all Irish imported volume. In 2023, Ireland's imports of petroleum products fell by 3%, or 220,000 tonnes. This is reflective of Irish port traffic, where liquid bulk imports fell by a similar volume (See Section 1.1B).

Where Ireland sources its petroleum imports have fluctuated significantly in recent years, particularly following the halting of Russian imports of such goods. In 2022 and 2023, Ireland imported 600,000 tonnes of petroleum products from each of Azerbaijan and the United Arab Emirates. For much of the last decade, Ireland effectively imported no petroleum from these regions. The Netherlands is another new market for Irish petroleum imports. Between 2012 and 2022, Ireland imported 250,000 tonnes of petroleum from The Netherlands. In 2023, this rose to 950,000 tonnes.

Ireland has also gradually reduced its exposure to imports of petroleum from Great Britain, a trend that began in 2018. In 2017, more than 4m tonnes of petroleum products were imported from Great Britain. This has declined steadily since then, and in 2023, stood at just over 1.7m tonnes.

(ii) Manufactured Goods

Table 18 illustrates a selection of Ireland's largest import partners in 2022 and 2023 for Manufactured Goods. Manufactured goods refer to goods that are durable, or further along the supply chain than a raw material. It includes industrial and construction materials such as iron, steel, wood, glass, and machinery. It also includes retail goods such as clothing, appliances, medical products, and various manufactured items. This grouping refers to SITC sections 4 – 9. In maritime transport, the products in this grouping will predominantly use RoRo vessels and LoLo containerships.

Table 18: Ireland's Top Merchandise Import Partners in Volume terms, Manufactured Goods

Trading Partner	2022	2023	Growth	Diff
	Tonnes	Tonnes	(%)	Tonnes
Great Britain	2,160,383	2,014,936	-7%	-145,447
Germany	1,095,614	1,028,756	-6%	-66,858
Northern Ireland	1,297,000	1,629,868	26%	332,868
Spain	991,272	869,798	-12%	-121,474
Netherlands	712,671	681,992	-4%	-30,679
China	784,969	779,609	-1%	-5,360
Belgium	721,171	542,553	-25%	-178,618
France	421,846	438,330	4%	16,484
United States	273,554	283,306	4%	9,752
Russia Federation	252,340	24,490	-90%	-227,849
Other	3,198,909	3,037,152	-5%	-161,757
Total Manufactured Goods Imports	**11,909,729**	**11,330,790**	**-5%**	**-578,939**

Source: *CSO*

In 2023, the volume of manufactured goods imports fell by 5%, or roughly 580,000 tonnes. This is the second consecutive annual decline in this group, following a period of consistent growth between 2012 and 2021. This is reflective of the intensity of the inflationary pressures that began in 2022 and continued throughout 2023. Goods in these categories will be more responsive to price changes compared with raw materials or food items, meaning the impact of global inflation is more evident.

[60] SITC Code 33 – Petroleum, petroleum products and related materials

The impact of Brexit becomes more pronounced when considering manufactured goods. Between 2010 and 2020, one third of all manufactured goods imports were from Great Britain, with little deviation in this share throughout that time. Since 2021, this share has fallen to 18%. This decline has been driven by industrial products such as iron, steel[61] and paper[62], but also miscellaneous manufactured items, many of which are destined for a retail setting. Trading with Great Britain has become more expensive and more administratively onerous for Irish importers, and this is most evident in the area of manufactured goods.

The decline in the share of manufactured goods imports held by Great Britain has been taken up by Northern Ireland and EU countries. Post-Brexit, Ireland imported roughly 11% of its manufactured goods from Northern Ireland, compared to 5% in 2019. Ireland imported 40% of its manufactured goods from EU countries prior to the end of the Brexit transition period in 2021, compared with 46% post-Brexit.

The increase in Northern Ireland has been driven by many of the industrial products previously sourced from Great Britain, such as iron and steel, but also non-metallic mineral manufactures[63], which includes construction related goods such as cement, glass, stone, ceramics, and lime.

Conclusions

Ireland imported fewer goods in 2023 compared to 2022. This was driven by a combination of inflationary pressures and reduced requirements for raw materials such as coal and bauxite.

In tonnage terms, Ireland sources fewer imports from Great Britain post-Brexit, and this is most evident when manufactured items, as opposed to food and raw materials, are focused upon. As Ireland imports roughly the same volume of imports compared to pre-Brexit, it is clear that Irish traders have found some new markets for their imports. Northern Ireland has captured a large portion of this reorganised trade from Great Britain, as have EU countries.

There have also been large changes in the makeup of Ireland's import partners resulting from the Russian invasion of Ukraine. Ireland's imports from Russia have plummeted by more than 90% when compared to 2021 levels. This has necessitated new markets for petroleum related products, and imports of these products from Azerbaijan, the United Arab Emirates and The Netherlands have all risen dramatically.

[61] SITC 67 – Iron and Steel
[62] SITC 64 – Paper, paperboard & articles thereof
[63] SITC 66 – non-metallic mineral manufactures n.e.s.

2.3. Irish Merchandise Exports

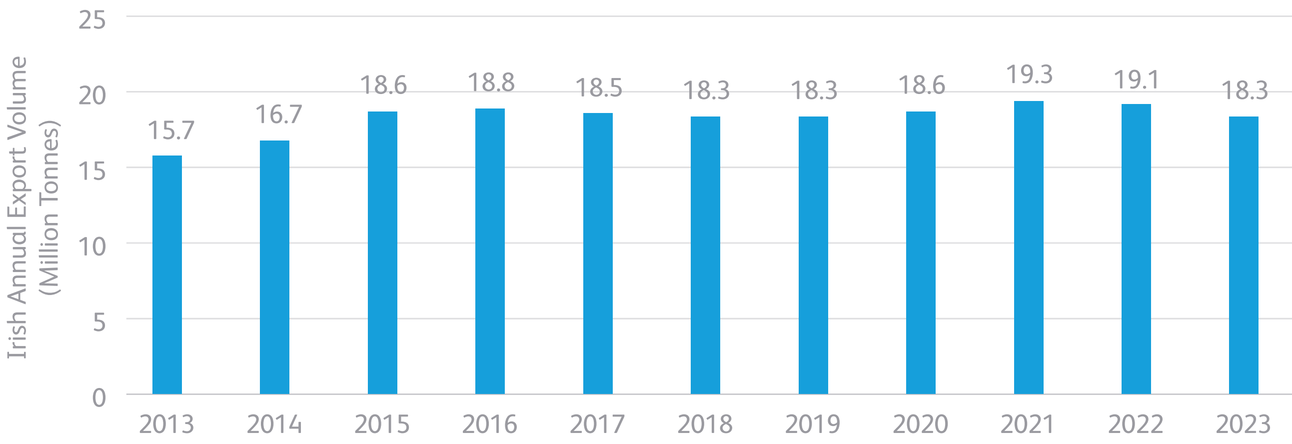
2.3A Tonnage

In 2023, 18.3m tonnes of merchandise goods were exported from Ireland based on CSO data. Approximately 90% of this was handled by Irish ports. The rest was exported by land to Northern Ireland, or by commercial air freight.

When compared to 2022, Irish merchandise exports fell by 4%, equivalent to a decline of 0.77m tonnes. Irish export tonnage has fluctuated between 18.3m and 19.3m tonnes since 2016. During that time, average annual growth has been flat. In 2023, annual export volumes are similar to those of 2018. The five-year average for Irish export volumes is 18.7m tonnes. The volumes for 2023 are 2% below this level.

The annual volume of Irish merchandise exports for the past ten years is provided in Figure 23.

Figure 23: Irish Merchandise Export Volume, 2013 – 2023



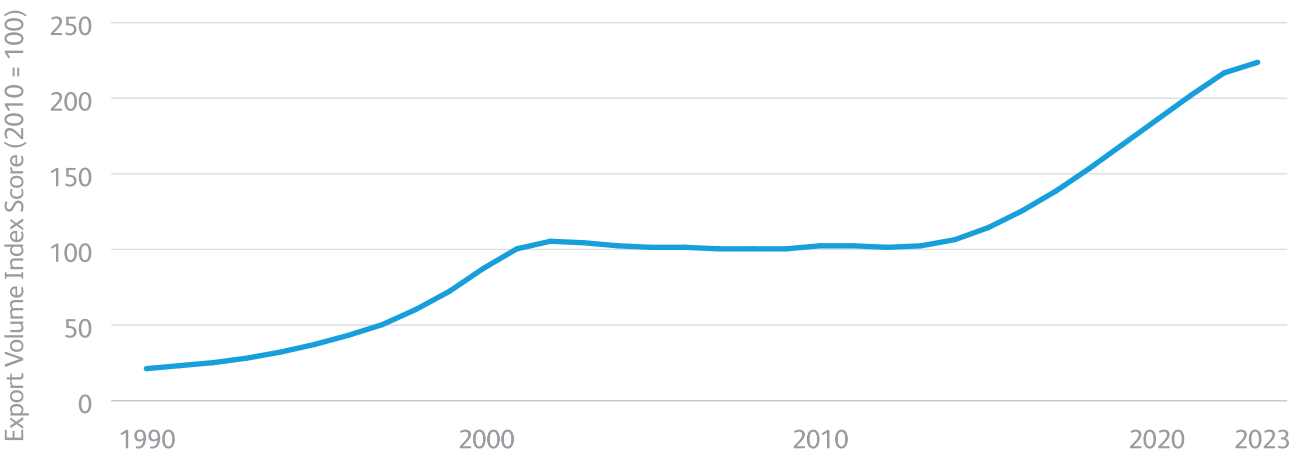
Source: *CSO*

Although there has been little growth in recent years, over the long term, Irish export volumes are rising. The CSO provides an annual merchandise export volume index for the Irish economy[64].The long-term trend in this index shows that Irish export volume continues to maintain an upward trajectory. In Figure 24, this upward trend is illustrated for the years between 1990 and 2023.

Some plateauing of export growth has occurred in 2022 and 2023, and this is reflective of the strong inflationary pressures that emerged in the wake of the Russian invasion of Ukraine. Across all OECD[65] countries, many of whom are key consumers of Irish exports, the consumer price index (CPI) for all goods rose by 10% in 2022 and by 7% in 2023. Irish export volumes have exhibited resilience by avoiding steeper declines throughout this period of higher prices.

[64] Merchandise Trade Price and Volume Indices, CSO
[65] Organisation for Economic Co-operation and Development

Figure 24: CSO Merchandise Trade Volume Index, Exports, Long Term Trend (2010 = 100)[66]



Source: *CSO, IMDO Analysis*

Export Tonnage by Type of Goods

In Table 19, Irish merchandise export goods are broken down into Standard International Trade Classification (SITC) divisions, or categories[67].

Table 19: Irish Exported Tonnes by SITC Division

SITC Product Division[68]	2022 Tonnes	2023 Tonnes	Growth (%)	Diff Tonnes
Food & Live Animals (0)	4,499,734	4,468,910	-1%	-30,824
Crude Materials, Inedible, Except Fuels (2)	4,599,988	4,440,067	-3%	-159,921
Manufactured Goods Classified Chiefly by Material (6)	3,801,809	3,627,252	-5%	-174,557
Mineral Fuels, Lubricants, and Related Materials (3)	2,260,590	1,721,145	-24%	-539,445
Chemicals & related products (5)	1,404,260	1,326,330	-6%	-77,930
Beverages & Tobacco (1)	975,576	1,021,307	5%	45,731
Commodities and Transactions Not Classified Elsewhere (9)	357,938	616,328	72%	258,390
Machinery & Transport Equipment (7)	729,206	534,031	-27%	-195,176
Miscellaneous Manufactured Articles (8)	327,747	423,271	29%	95,524
Animal and Vegetable Oils, Fats, and Waxes (4)	126,583	137,565	9%	10,982
Total Merchandise Export Volume	**19,083,432**	**18,316,207**	**-4%**	**-767,225**

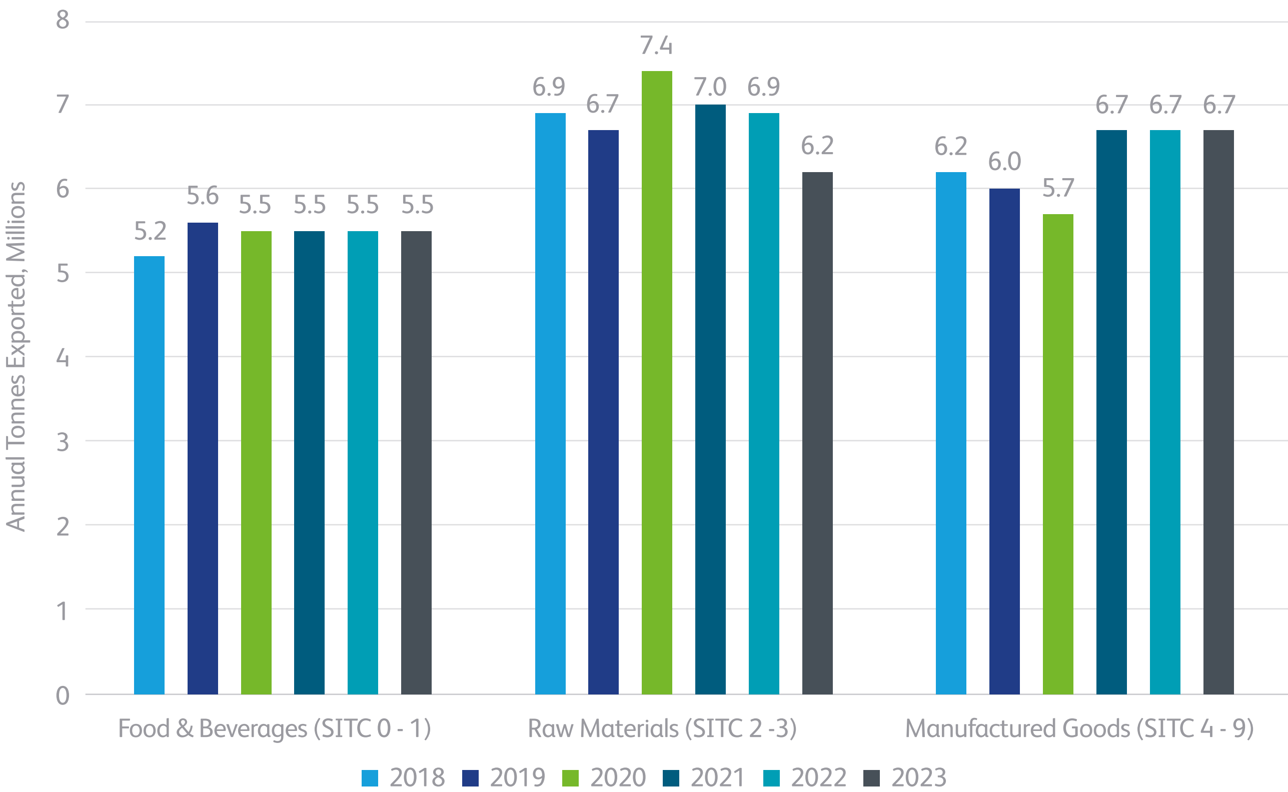
Source: *CSO*

There are ten main SITC divisions shown in Table 19. However, following the analysis provided in Section 2.2, Irish export volumes can be broken down into three broad sections: Food and Beverages, Manufactured Goods, and Raw Materials. These groupings split neatly, as each grouping has represented approximately one third of Irish export volume in recent years.

[66] For the purposed of this graphic, the Hodrick–Prescott (HP) filter was used to isolate the trend component of the CSO Merchandise Export volume index
[67] The Standard International Trade Classification (SITC) is a classification system, developed by the UN, used to categorize goods traded internationally. It provides a standardised framework for analysing and comparing international trade statistics. The SITC system organizes goods into various categories based on their characteristics and intended use.
[68] SITC Code in parenthesis

The annual volume exported in each grouping between 2019 and 2023 is shown in Figure 25.

Figure 25: Irish Merchandise Export Volume, Selected Groupings, 2018 – 2023



Source: *CSO*

Food and Beverages

Over the past five years, the story of Food and Beverage exports has been one of consistency and resilience. Despite the disturbances caused by the COVID-19 pandemic, the ending of the Brexit transition period, the energy price shock and inflationary pressures following the Russian invasion of Ukraine, exports in this category have achieved approximately 5.5m tonnes each year between 2019 and 2023.

Exports of meat products, dairy products, and seafood[69] products make up 43 % of this grouping when combined. Between 2019 and 2023, meat and dairy products have exhibited different trends. Exports of dairy products have strengthened, adding approximately 6 % growth, or 60,000 tonnes per year during that time. The volume of meat exports, however, have experienced an average annual decline of 4 % per year, or 40,000 tonnes, during the same period.

Animal feed[70] and cereals[71] (e.g. Barley, wheat) make up a further 23 % of this category when combined. In 2022 and 2023, exports of both these products have been stable. Animal feed exports amounted to 750,000 tonnes per year during that time, while cereal exports amounted to approximately 535,000 tonnes. For both products, these volumes are the highest of the last decade. Exports of both animal feed and cereals make greater use of bulk carrier cargo modes.

[69] SITC Code 02 - Dairy products & birds' eggs
SITC Code 01 - Meat & meat preparations
SITC Code 03 - Fish, crustaceans, molluscs and preparations thereof
[70] SITC Code 08 - Feeding stuff for animals (excl. unmilled cereals)
[71] SITC Code 04 - Cereals & cereal preparations

Lastly, beverages make up 19% of this grouping in 2023. Irish beverage exports have been extremely robust in recent years. In 2022, volumes grew by 12%, or just over 100,000 tonnes. In 2023, volumes grew again, by 5%, or approximately 45,000 tonnes.

In the Food and Beverage grouping, most products will be exported using the unitised (RoRo & LoLo) cargo modes. Perishable goods such as the meat, dairy and seafood products described above will be particularly suited to the RoRo cargo mode, where unloading times are fast, especially if the goods are accompanied by a driver during transit. Alternatively, if these goods are being exported further afield, e.g. to China or the United States, a LoLo container may be more appropriate. Irish exporters are heavily reliant on the efficiency of these networks to access international markets.

Raw Materials

As shown in Figure 25, the volume of raw material exports from Ireland fell sharply in 2023, from 6.9m to 6.2m tonnes. This was driven by a 300,000-tonne decline in exports of metalliferous ores & metal scrap.[72] This category is dominated by exports of alumina from the Aughinish Alumina refinery located in Limerick. As mentioned in Section 1.1A, Aughinish Almunia refines bauxite into alumina, which is then exported around Europe to be smelted to make aluminium. Imports of the key raw material input, bauxite, declined significantly into the refinery this year. Consequently, exports of the key output, alumina, also declined sharply. In Shannon Foynes port, exports of alumina declined by roughly 200,000 tonnes[73].

Elsewhere, exports of petroleum products, which have fluctuated significantly in recent years, declined by more than 400,000 tonnes. Exports of petroleum products in Ireland predominantly originate from the Whitegate oil refinery in Cork, where crude oil is processed into products such as petroleum, diesel, and kerosene.

At Irish ports, exports of raw materials will make predominant use of the bulk cargo shipping modes. Liquid bulk tankers will be used to export petroleum products, while dry bulk carriers will be used to export the metalliferous ores, or alumina, described above.

Manufactured Goods

Exports of manufactured goods, which encompasses SITC divisions four to nine, were steady in 2023, at roughly 6.7m tonnes. Despite the consistency in total volume, there were notable changes in the volume of several subdivisions.

Chemical products[74], which contain some of Ireland's most high-value exports, make up 20% of the manufactured goods grouping. In 2023, exports of this division of goods declined by 6%, equivalent to 78,000 tonnes. This is the first annual decline in these products since 2013. During that time, exports of these goods have averaged 5% growth per year. In 2013, approximately 900,000 tonnes of these products were exported. This gradually rose to 1.4m in 2022, before sliding back slightly to 1.33m tonnes.

Elsewhere, exports of miscellaneous manufactured articles[75] added 77,000 tonnes in 2023, a show of resilience in the face of inflationary pressures.

Manufactured goods are most likely to be exported using the unitised (RoRo and LoLo) cargo modes. Items in this grouping are mainly finished, durable goods, often destined for a retail setting. However, industrial equipment may often make use of the break bulk cargo mode. Break bulk cargo refers to loose, non-containerised cargo stowed directly into a ship's hold. It is often not capable, or is too large, to be containerised. The individual units may be of different shapes, sizes, and weights, and are typically loaded/unloaded individually at ports.

[72] SITC Code 28 - Metalliferous ores & metal scrap
[73] See Section 1.1A and 2.2 for more details
[74] SITC division 5
[75] SITC Code 89 - Miscellaneous manufactured articles nes

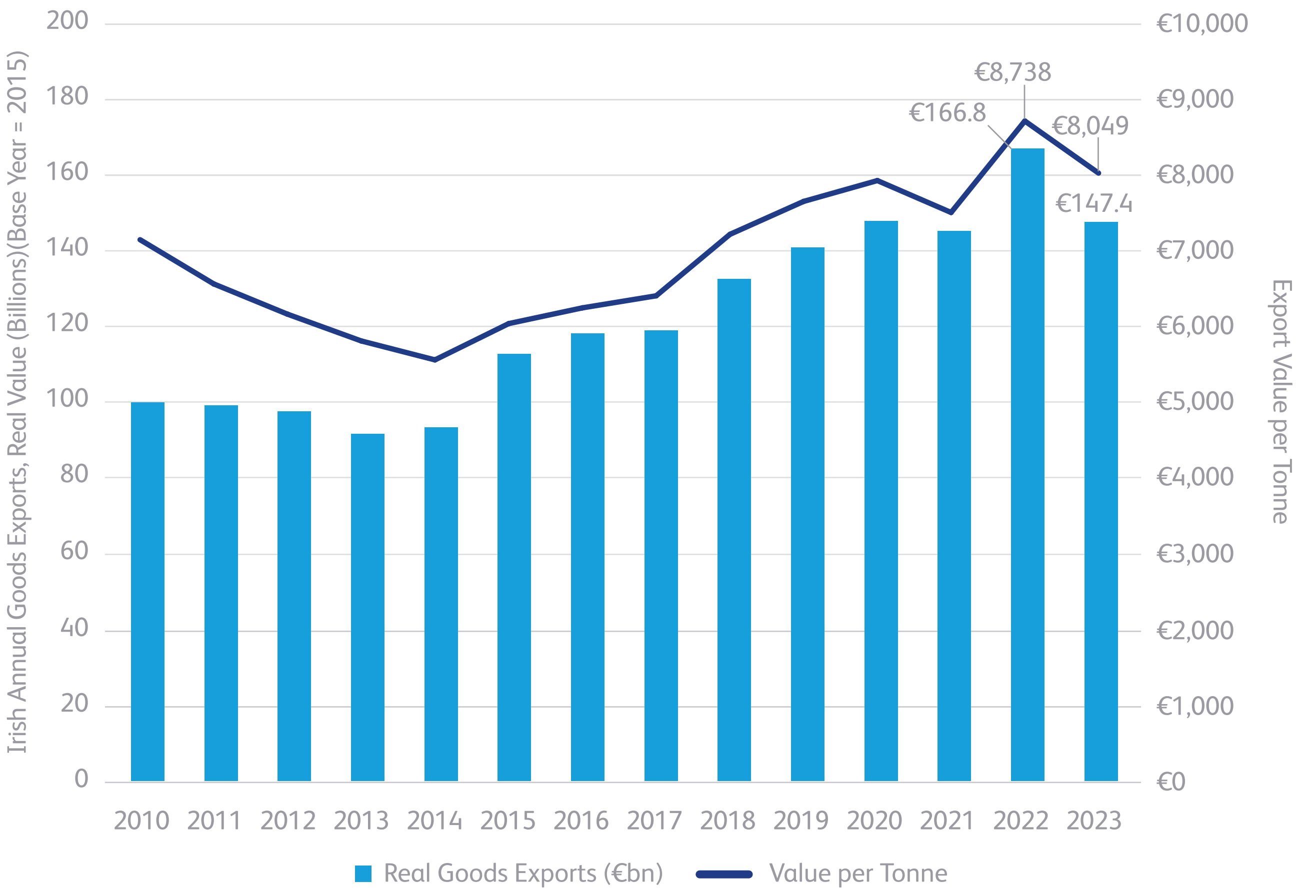
In 2023, Irish exports of the following industrial goods declined: cork and wood[76], non-metallic minerals[77], iron and steel[78], and industrial machinery[79]. When combined, the drop amounted to more than 200,000 tonnes, and is a trend that highlights the pressures of inflation on industrial activity. As shown by the European Commission's consumer price index, inflation for industrial goods across the EU was 14% in 2022 and 4% in 2023, outpacing inflation for 'all goods' during this period.

[76] SITC Code 63 - Cork & wood manufactures (excl. furniture)
[77] SITC Code 66 - Non-metallic mineral manufactures nes
[78] SITC Code 67 - Iron & steel
[79] SITC Code 74 - General industrial machinery & equipment nes & parts nes

2.3B Value

In 2023, the value of Irish exports in nominal terms declined by 6%, from €208.8bn to €197.2bn. When adjusted for inflation however, the value of Irish exports declined faster, by 12%, or roughly €19bn[80]. In Figure 26 below, the real, inflation adjusted, value of Irish goods exports is provided for the years 2010 to 2023. Also provided is the real value per tonne of Irish exports.

Figure 26: Real Irish Merchandise Export Value & Value per Tonne, 2010 – 2023[81]



Source: *CSO, OECD*

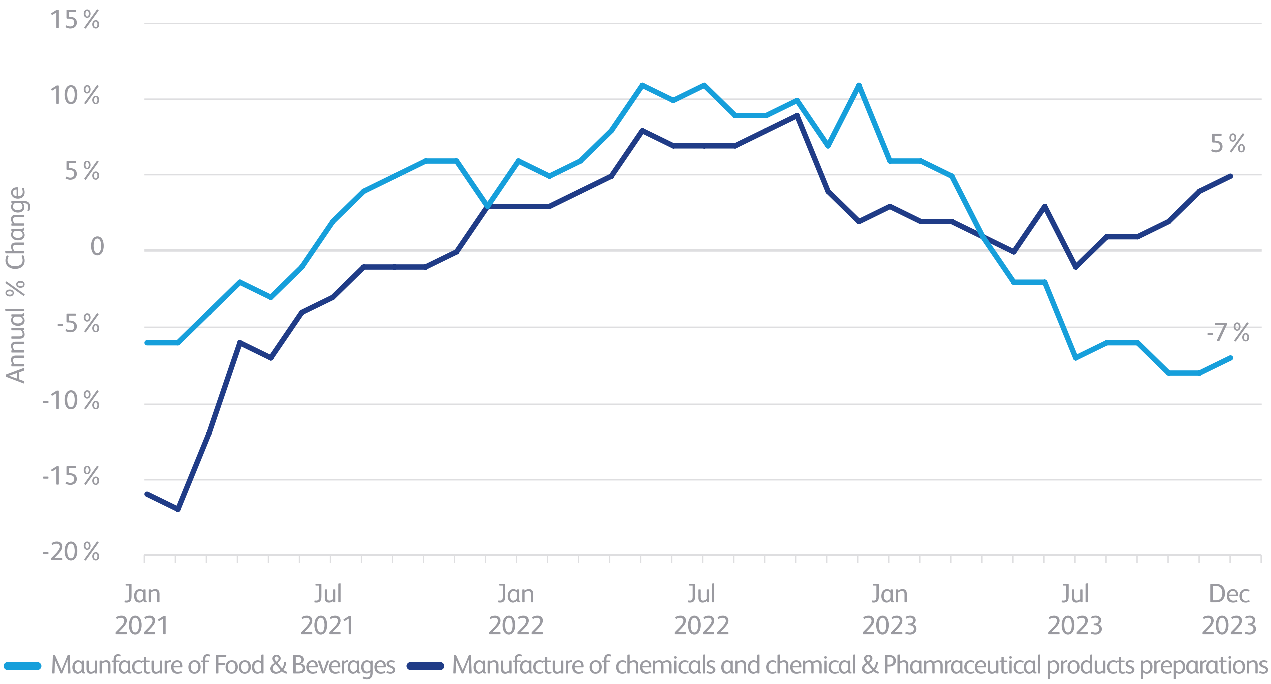
As evident in Figure 26, the real value of Irish exports declined by 12% between 2022 and 2023. This was largely due to a decline in the volume of goods exported, which in turn was driven by a steep rise in inflation in large economies, which saw the general price level across OECD[82] countries rise by 10% in 2022.

The spike in global inflation in the past two years was driven by several factors, but some of the most consequential include: the energy supply crisis sparked by the Russian invasion of Ukraine in 2022, a backlog of demand arising from the COVID-19 pandemic, global supply chain disruption, and a global shortage of computer chips[83].

[80] OECD Consumer Price Index used to adjust for inflation. Base year = 2015
[81] As Irish export values are influenced by prices on international markets, the data in Figure 26 was adjusted using Consumer Price Indices for OECD countries, found here.
[82] Organisation for Economic Co-operation and Development
[83] Inflation and monetary policy: what to expect – Central Bank of Ireland

These factors caused input costs to rise for Irish producers and manufacturers, and this is reflected in the producer price index (PPI), or output price index for Ireland, produced by the European Commission. In Figure 27, the PPI is provided for two key Irish export categories, food and beverages, and chemical and pharmaceutical products. The pattern of rising producer prices in 2022, followed by an easing in 2023 is evident from Figure 27. Prices currently remain elevated however, compared to 2021 levels, meaning Irish exporters face continued challenges to maintain competitiveness on world markets.

Figure 27: Change in Producer Price Index, Ireland, Selected Goods, 2021 - 2023[84]



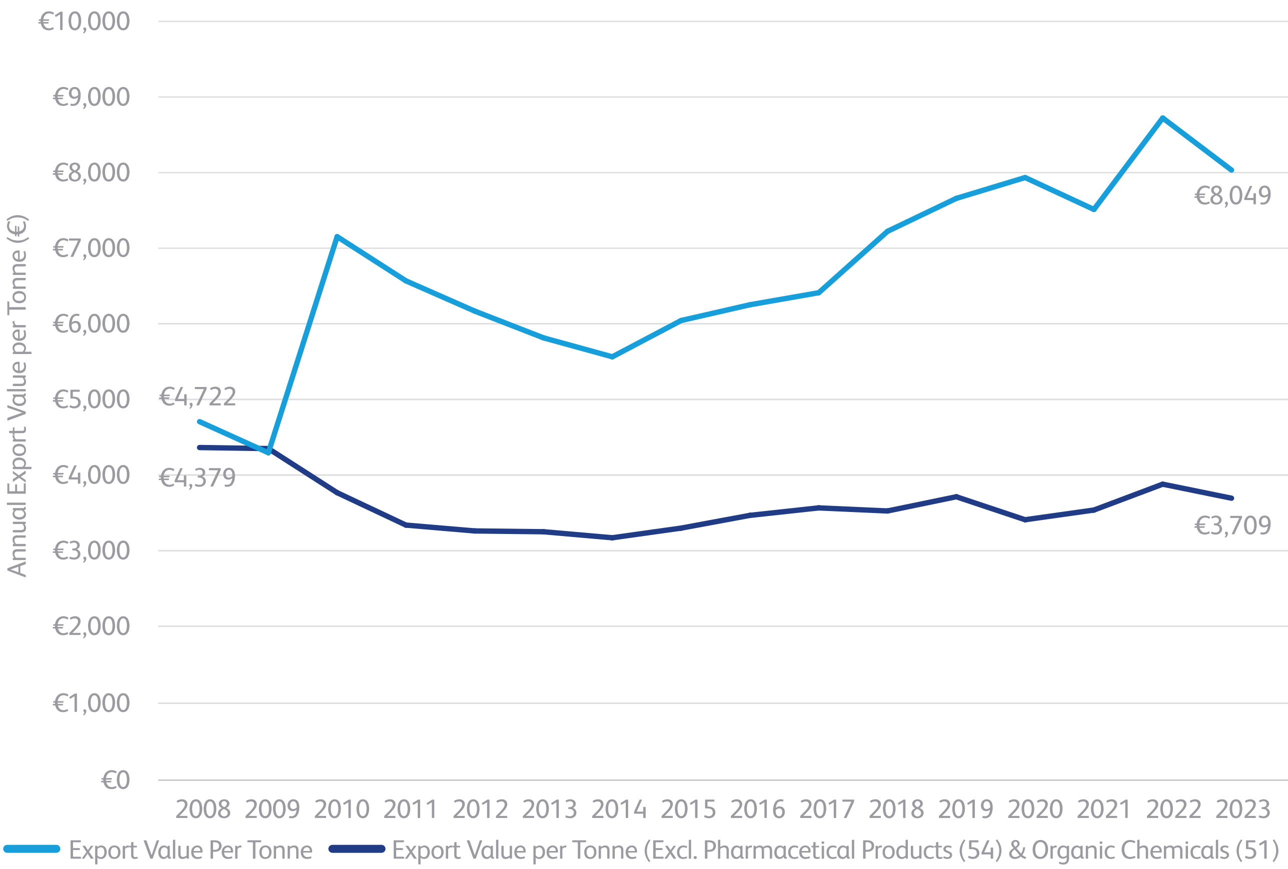
Source: *Eurostat*

As inflation rates have eased in 2023, there were significant declines in the value of certain divisions of Irish exported goods. The value of Irish exports is dominated by two product codes: Medical & Pharmaceutical Products (54), and Organic Chemical (51). When combined, exports of these products have represented 55 % of all Irish export value over the past five years. In 2023, the real value of Medical & Pharmaceutical Products fell by 9 %, and Organic Chemicals by 25 %. This had a large impact on the overall decline in Irish export value.

It is difficult to overstate the influence of these two products on the value of Irish exports. In Figure 28 below, the real per tonne value of Irish exports is provided between 2008 and 2023. This is compared against the real per tonne value of Irish exports when Medical & Pharmaceutical Products (54) and Organic Chemicals (51) are excluded. Figure 28 shows that since the financial crash of 2008, these products have been the driving force behind the increasing value of Irish exports. When excluded, growth in the per tonne value of Irish exports is relatively flat.

[84] Producer prices in industry - Eurostat

Figure 28: Real Export Value per Tonne, with and without pharmaceutical products, 2008 – 2023



Source: *CSO, IMDO Analysis*

Lastly, the value of Irish exports of food products also declined significantly this year. Inflation adjusted exports of meat products[85] fell by 10%, dairy products[86] by 12% and seafood products[87] by 19%. This pattern of falling value was repeated across the majority of product divisions in 2023.

[85] SITC Code 01
[86] SITC Code 02
[87] SITC Code 03

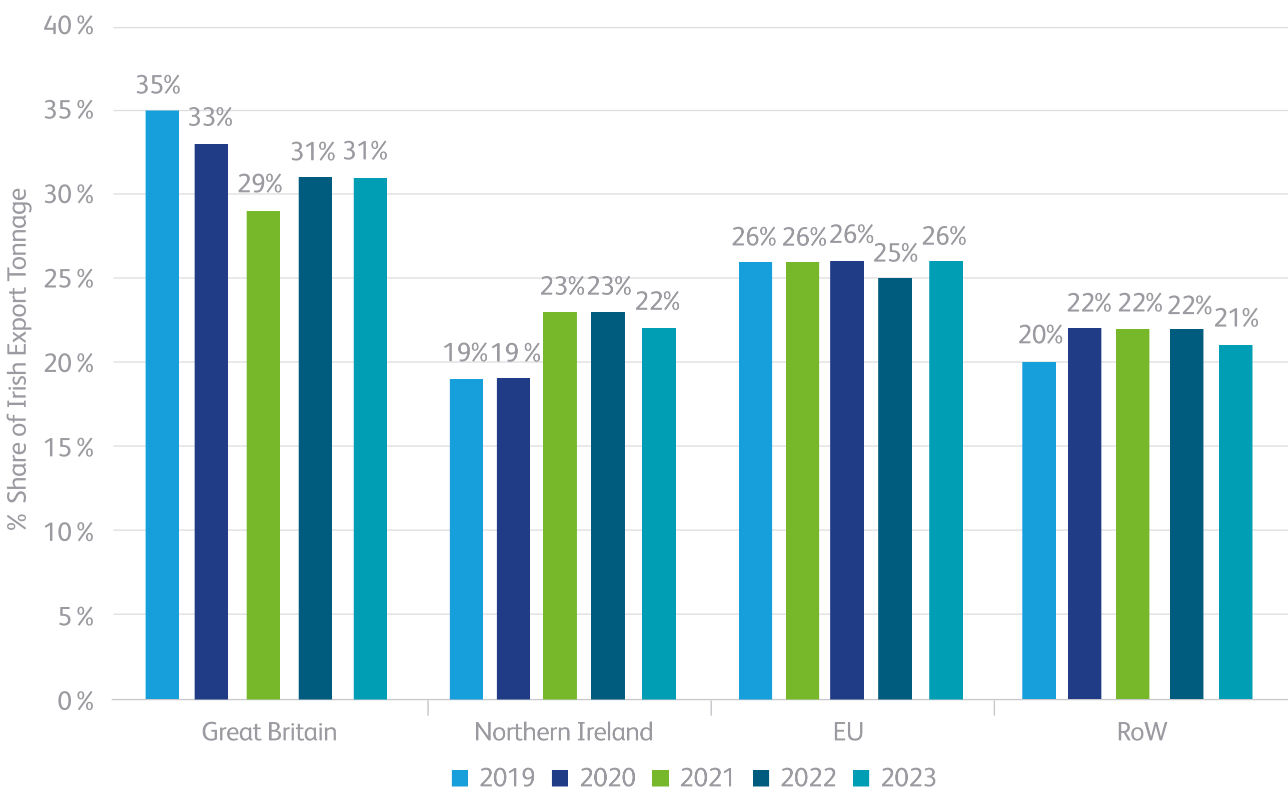
2.4 Ireland's Export Trading Partners

As shown in Section 2.3, Ireland has exported an average of 18.7m tonnes of merchandise goods per year over the past five years. This volume of goods is needed to satisfy the industrial, food and commercial needs of Ireland's international export partners.

This section will describe the makeup of Ireland's largest export partners in volume terms. In doing so, it will provide context for the exported goods detailed in Section 2.3.

Figure 29 illustrates the share of Irish export tonnage held by four countries/regions over the past five years: Great Britain (GB), Northern Ireland (NI), European Union (EU) and Rest of World (RoW).

Figure 29: Share of Irish Export Tonnage, Selected Groupings, 2019 – 2023



Source: *CSO*

Great Britain and Northern Ireland

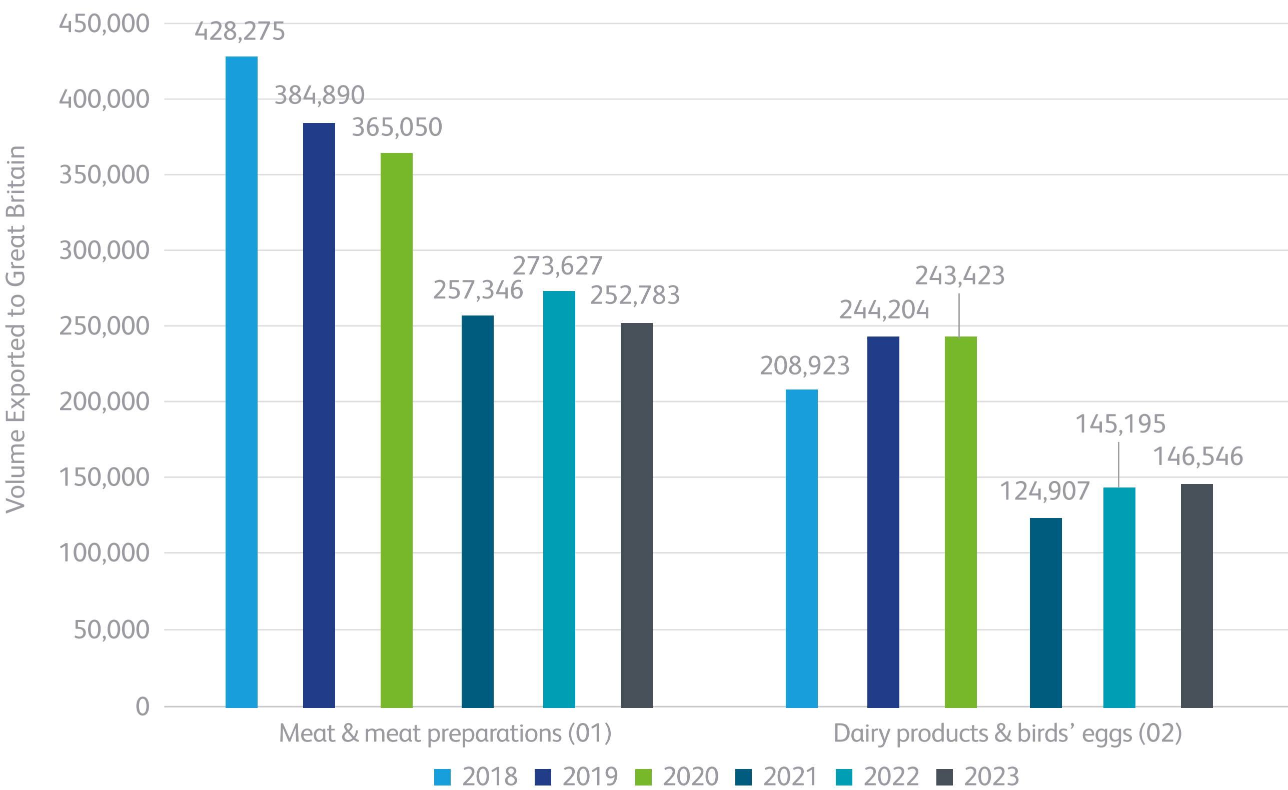
As is clear from Figure 29, Ireland is reliant on neighbouring countries, particularly Great Britain and Northern Ireland. When combined, 53 % of all exported tonnage from Ireland is destined for either Northern Ireland or mainland Great Britain.

Expressed in a different way, since 2019, roughly 10m tonnes of merchandise goods have been exported to the United Kingdom (UK) each year. Pre-Brexit, i.e. before the end of the Brexit transition period in 2021, two thirds of this tonnage went to Great Britain, and one third to Northern Ireland. Post-Brexit, approximately 10m tonnes continues to be exported to the UK, but the split between Northern Ireland and Great Britain is now closer to 60 %-40 % in favour of Great Britain.

Northern Ireland, under the Windsor Framework, has different arrangements for trading with the EU compared to the rest of the UK. Northern Ireland remains aligned to the EU single market for goods, and this has driven the shift in Irish export patterns.

In terms of what product divisions have stimulated this change, no single category is responsible. However, exports of food items have recorded significant shifts. Figure 30 below presents the volumes of dairy products and meat products exported to Great Britain since 2018. The decrease in post-Brexit volumes is clear. When the decline in pre-Brexit (2018 – 2020) and post-Brexit (2021 – 2023) averages are compared, exports of dairy products to Great Britain declined by 40 %. For meat products, the decline was 33 %. These changes are detailed in Figure 30 below.

Figure 30: Export Volume to Great Britain, Selected Products, 2018 – 2023[88]



Source: *CSO*

Brexit Update

As the analysis above shows, Irish exports to Great Britain have declined significantly since 2021. Many products have found new markets in Northern Ireland, which now holds a larger share of Irish exports post-Brexit.

Although tonnage exports have declined to Great Britain over the past three years, implementation of full border checks of imports from the EU have yet to occur, having been delayed on several occasions. Since January 2022, goods imported from the EU to Great Britain have required appropriate customs declarations and payment of any applicable tariffs. However, despite such requirements, many import controls have yet to be fully enforced. This is due to change in 2024.

[88] SITC Codes in parenthesis

In August 2023, the British Government published the final draft of its Border Target Operating Model (BTOM)[89]. The BTOM sets outs how full controls on EU imports to Great Britain will be introduced, beginning with three phases. The following information is adapted from the BTOM, pg.13[90]:

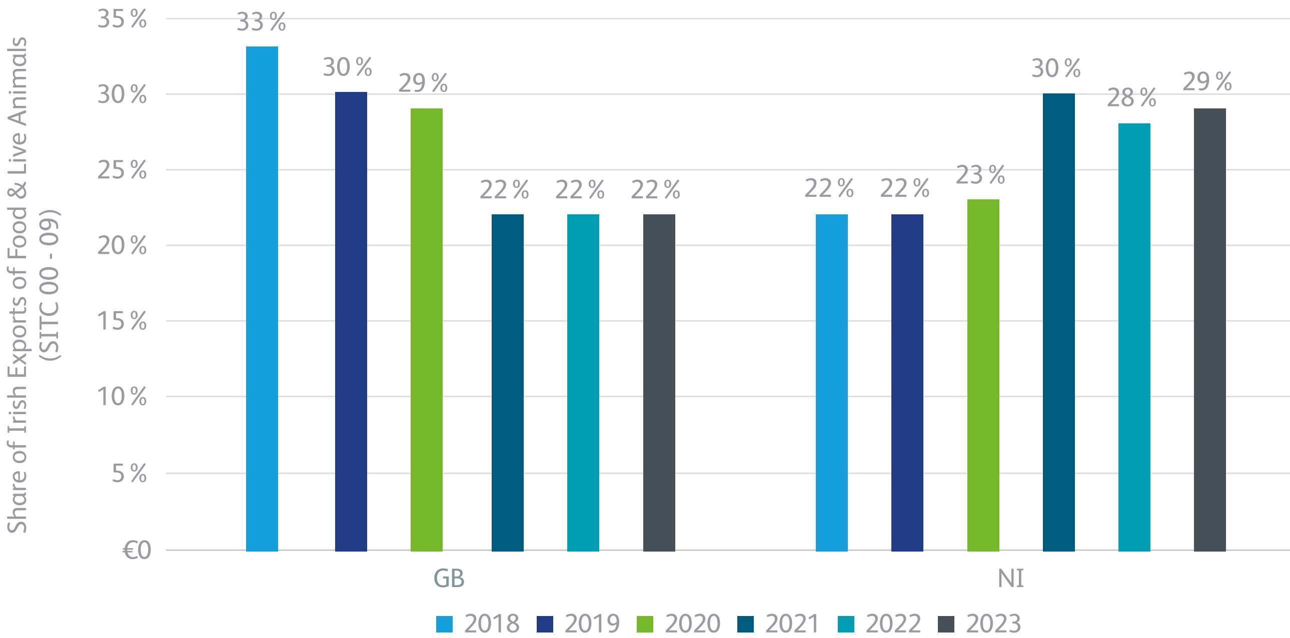
31 January 2024 - The introduction of health certification on imports of medium risk animal products, plants, plant products and high-risk food and feed of non-animal origin from the EU.

30 April 2024 - The introduction of documentary and risk-based identity and physical checks on medium risk animal products, plants, plant products and high-risk food and feed of non-animal origin from the EU. Existing inspections of high-risk plants/plant products from the EU will move from destination to Border Control Posts.

31 October 2024 - The requirement for Safety and Security declarations for imports into Great Britain from the EU will come into force. Alongside this, a reduced dataset will be introduced for imports and use of the UK Single Trade Window will remove duplication where possible across different pre-arrival datasets – such as pre-lodged customs declarations.

These new import controls are most likely to impact Irish exports in the Food & Live Animals divisions[91], which contains goods such as dairy, meat, vegetables, animal feed, live animals, and seafood. When pre-Brexit (2018 – 2020) and post-Brexit (2021 – 2023) averages are compared however, exports of this grouping to Great Britain have already declined by 28%. Consequently, a trend of Irish exporters shifting away from British markets in order to avoid an increased administrative burden at British ports has been underway since 2021. This is illustrated in Figure 31, which shows the share of Food & Live Animals exports held by Great Britain and Northern Ireland since 2018. The post-Brexit shift is clear, with Northern Ireland's share of these exports rising from 22% to 29%. The shift has been driven by several products[92], particularly animal feed (08), cereals (04), dairy products (02) and fruits and vegetables (05). The IMDO will continue to monitor the impact of these new controls in 2024 an Irish external trade patterns.

Figure 31: Share of Irish Exports of Food & Live Animals (SITC 00 – 09), 2018 – 2023



Source: *CSO*

[89] The Border Target Operating Model, August 2023
[90] The Border Target Operating Model, August 2023, pg. 13
[91] SITC Code 00 - 09
[92] SITC code in parenthesis.

Raw Materials

Raw material products had a significant impact on the 4% decline in Irish tonnage exports in 2023. Exports of metalliferous ores and metal scrap[93] fell by 300,000 tonnes. This division includes alumina, the main output of the Aughinish Alumina factory in the Shannon estuary, where bauxite is refined into alumina and then shipped abroad for use in dozens of global products. As discussed in Section 2.1a, imports of bauxite into Ireland declined sharply in 2023. Consequently, exports of alumina also declined.

This predominantly affected Irish – French trade. Irish exports of metalliferous ores to France fell by 25%, or 138,000 tonnes, with alumina a key driver of this decline. Exports of the same division to Iceland, Norway, The Netherlands, Great Britain, and Northern Ireland all declined in 2023.

Irish exports of petroleum products[94] and coal products[95] also declined in 2023, by 436,000 and 94,000 tonnes, respectively. Ireland exported significantly less petroleum products to the USA, Gibraltar, and The Netherlands in 2023. For coal, Ireland exported less of these products to Great Britain, Northern Ireland, and The Netherlands.

As shown in Section 2.1, the Russian invasion of Ukraine has had a dramatic impact on the global price of oil, coal, and natural gas, as Russia is a large producer of each product to world markets. Given the heightened energy insecurity of the past two years, flows of energy products have been highly changeable and unpredictable. It is likely that Irish stockpiles have been built up and depleted as Irish energy producers adjust to changes in international markets.

Overall, the substantial decreases in exports of raw materials in 2023 led the overall decline in Irish export tonnage.

[93] SITC Code 28 - Metalliferous ores & metal scrap
[94] SITC Code 33 - Petroleum, petroleum products & related materials
[95] SITC Code 32 Coal, coke & briquettes

Section 3 - **Global Shipping Market Review**

3.1 Tanker Market

As highlighted in Section 1.1b, Ireland's energy usage is heavily dependent on oil, especially in the transport sector. As Ireland does not have a supply of indigenous oil[96], all of its supply is imported by sea through Irish ports. Ireland is heavily exposed therefore, to the supply and demand dynamics in the international market for seaborne oil products.

This section[97] will describe the key trends in the international market for seaborne oil products, also referred to as the tanker market. It will outline the volume of oil transported by sea in 2023 and how this compared to previous years. It will then provide an overview of the prices charged for transporting such products in tanker vessels. In both cases, the main drivers of change in these markets will be discussed.

Vessels that carry liquefied freight, or liquid bulk, are known as tanker vessels. Tankers represent one quarter of the gross tonnage of the world fleet and are extremely important for carrying the world's liquefied energy around the globe. Examples of liquefied freight include crude oil, petroleum, or bitumen. They are categorized based on their size and the task for which they are employed. Tanker vessels are named based on their size in deadweight tonnes (dwt). Some of the most common vessel classes include; Suezmax, Panamax, Aframax and Very Large Crude Carrier (VLCC).[98] Suezmax and Panamax vessels are so named because their size and operation are designed for the Suez Canal and Panama Canal.

In Ireland, approximately 9m tonnes of liquid bulk products are imported each year. Approximately 85% of liquid bulk imports arrive at Dublin Port and the Port of Cork. Dublin has held a 50% share of liquid bulk imports on average over the last five years, while Cork has held a 35% share (see Section 1.1b).

(i) Seaborne Oil Trade

Oil tankers are broken down into crude tankers and product tankers. Crude tankers are generally very large and carry unrefined oil, mainly from the point of extraction to refineries. Product tankers are smaller, and carry refined oil products, such as petroleum, to the point of market.

Globally, 3.1bn tonnes of were oil transported by sea in 2023, which includes both unrefined (crude) and refined (product) oil. This represented 2% growth over 2022 and means that the global oil trade is now slightly above 2019, or pre-pandemic levels. In the five-year period that preceded the pandemic (2015 – 2019), the average annual total of global seaborne trade in oil was also 3.1bn tonnes.

Crude oil consistently represents two thirds of global seaborne oil trade. In 2023, just over 2bn tonnes of crude oil were transported by sea. This was 2% higher than 2022 and surpasses 2019, or pre-pandemic levels for the first time. A total of 1.1bn tonnes of product oil was transported, which also represents 2% growth over 2022 levels.

Clarkson's Research[99], a leading provider of data and analysis for the shipping and maritime industries, forecasts the global volume of seaborne oil trade to rise to 3.3bn tonnes by 2025.

Two key forces drove the increase in seaborne oil trade in 2023. Firstly, global oil production rose by 2% to 101.9m barrels per day (bpd), meaning more oil was available for seaborne trade. This is the first time that 100m bpd has been surpassed since 2019. The growth was driven by US oil production, which rose by 6%, or an additional 1.5m bpd. This offset cuts in production from OPEC, which fell by 0.7m bpd.

96 *"Apart from a small amount of indigenous biofuel production, Ireland imports all of its oil. The likelihood of a new indigenous supply of crude oil is low given the low levels of recent offshore drilling activity, low oil prices and Ireland's policy position that there will be no future licensing for offshore oil exploration."* – Energy in Ireland Report 2020 – SEAI

97 Information and data in this section was sourced predominantly from Clarkson's research. Specific reports used:
-Shipping Review & Outlook, March 2024.
-Seaborne Trade Monitor, Volume 11, No. 3
-Clarkson's Shipping Intelligence Network Time series & Graphs

98 Panamax = 50,000 – 80,000 dwt, Aframax Capacity = c.80,000 dwt, Suezmax capacity = 125,000 – 180,000 dwt. VLCC capacity = c.320,0000 dwt,

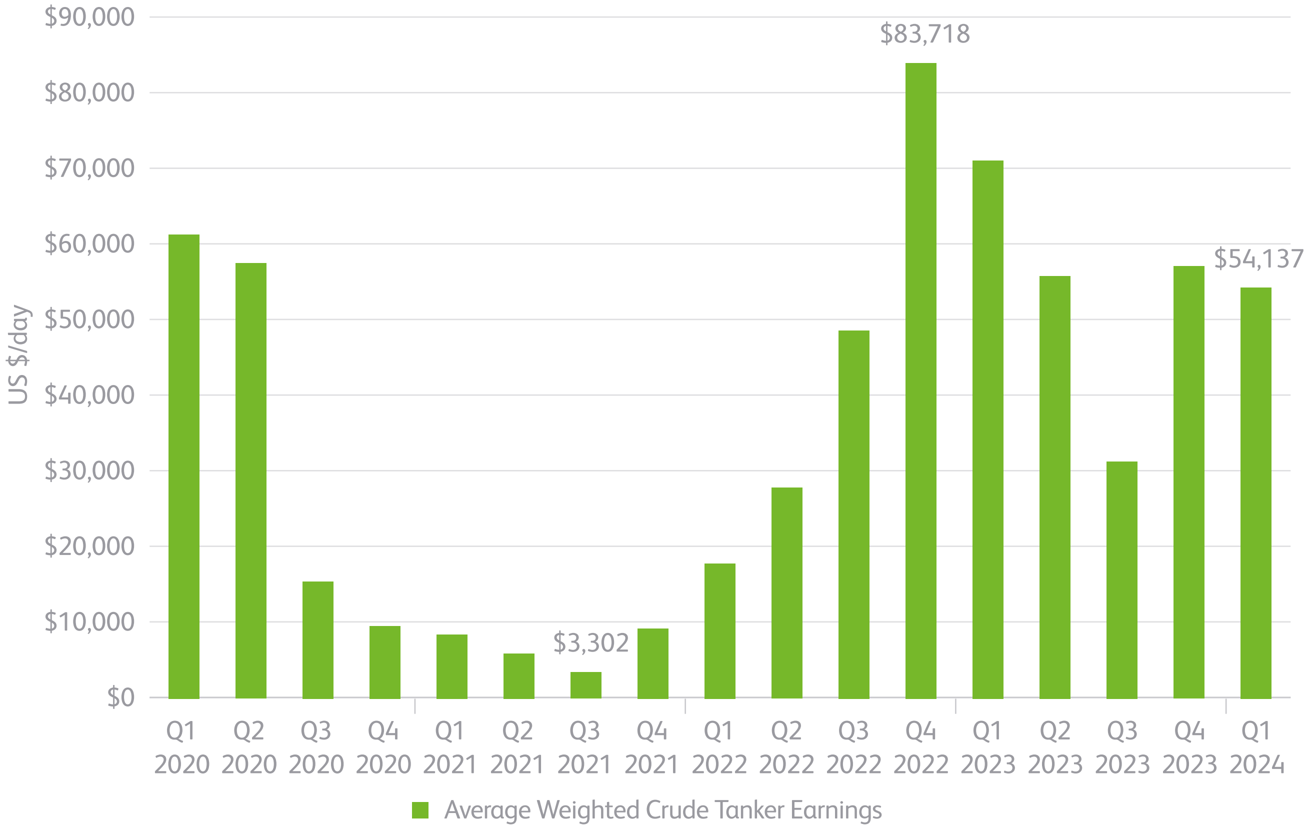
99 Clarkson's Research – About Us

The other key driver of growth in oil trade in 2023 was Chinese demand. Chinese imports of crude oil rose by 12%, from 9.1m to 10.2m bpd. Chinese imports of product rose even more sharply. Whereas they had been consistent at 0.6m bpd between 2020 and 2022, Chinese product oil imports rose by 66% in 2023, to 1m bpd. Such growth is reflective of the easing of pandemic restrictions in the Chinese economy in 2023 that had remained in place in 2022. Chinese demand has a significant impact on the price of transporting crude oil by sea, as shifts in demand are large enough to affect available fleet capacity at a given time.

(ii) Seaborne Oil Freight Rates

As for the prices charged to transport crude oil, Figure 32 shows average weighted crude tanker earnings between 2020 and 2024. This is a measure of the average daily earnings of crude oil tankers, which are the starting point for the global oil supply chain. It is calculated by Clarkson Research and is based on a weighted average of the daily earnings of different types of crude oil tankers, including VLCCs (Very Large Crude Carriers), Suezmax, Aframax, and Panamax. The metric is expressed in US dollars per day ($/day) and is often used as a benchmark for assessing the profitability of the seaborne oil tanker industry. The earnings reflect the daily rates at which tankers are hired for spot voyages and are influenced by a range of factors, including global oil demand and supply, the availability of tanker tonnage, geopolitical risks, and weather-related disruptions.

Figure 32: Average Weighted Crude Tanker Earnings, US $/day, 2020 – 2024



Source: *Clarkson's Research*

As is clear from Figure 32, tanker earnings have fluctuated heavily in recent years. In 2021, with COVID-19 related restrictions on travel suppressing global oil demand, tanker earnings plummeted to an average of $6,626 for the year. In 2022, earnings soared, and peaked in November 2022, when they averaged over $100,082 per day, a rare occurrence for this market in recent decades. The rise in 2022 was driven by the geopolitical uncertainty following the Russian invasion of Ukraine. This surge in earnings gradually abated in 2023, before rising again in Q4 2023 and early 2024. The predominant factors behind these price changes are discussed in the following section.

(iii) Seaborne Oil Market – Catalysts of Change

There have been three key trends that have driven the rapid increase in the cost of seaborne oil transport in 2023 and early 2024: increased journey times, shipping disruption in the Red Sea and moderate fleet growth.

Increased Tonne-Miles

A significant factor behind the spike in the price of tanker freight rates in 2022 and 2023 is the increase in the average distance travelled per voyage. This is also referred to as the tonne-miles. Tonne-miles is a measure used in the shipping industry to quantify the volume of cargo transported over a distance. It is calculated by multiplying the weight of the cargo by the distance travelled. Tonne-miles are an important metric for assessing the efficiency and environmental impact of the shipping industry. It is also used as a basis for calculating freight rates, as shipping companies often charge based on the tonne-miles transported.

In 2022, the US, UK and EU all placed embargos on the import of Russian oil. This had two large effects on the dynamics of the international market for seaborne oil.

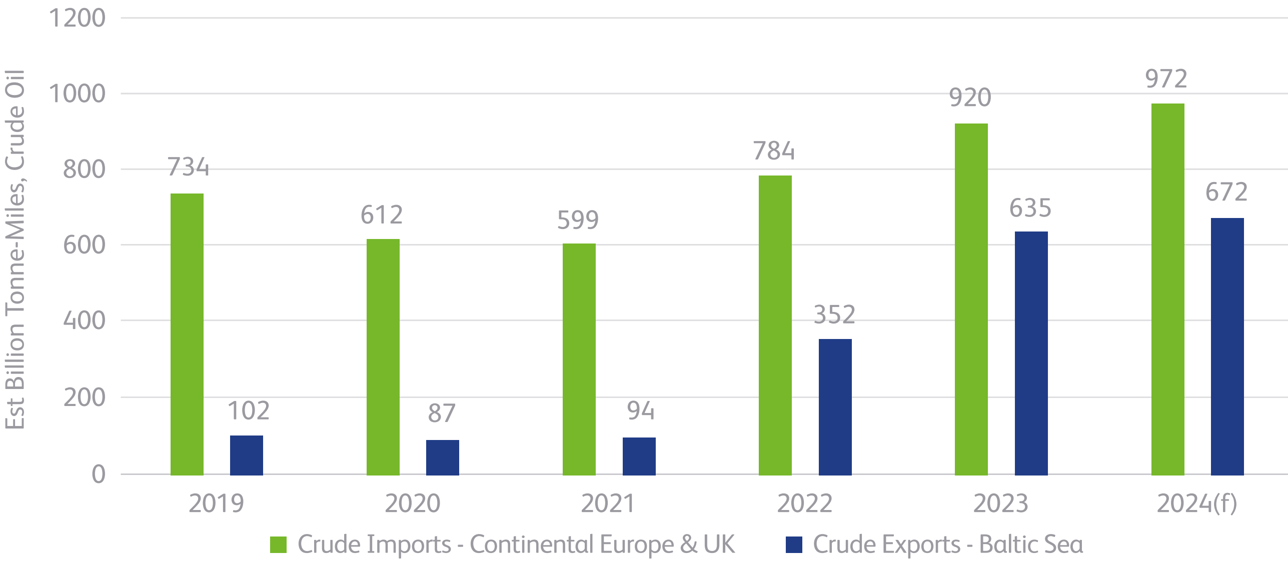
First, by gradually reducing oil imports from Russia, European countries have replaced this with imports from countries further away, particularly the US. As shown in part (i), The US drove a global increase in oil production in 2023. This shift means that seaborne crude oil imports to European countries are travelling further distances to arrive in ports. This has the effect of increasing costs faced by the ship owner, but also acts as a reduction in available tanker supply, as vessels are at sea for longer.

Second, due to the European ban on Russian exports of oil and oil products, these have been redirected to markets further away, notably China and India. This is reflected in the tonne-miles of crude oil exports in the Baltic Sea region.

In Figure 33 below, the estimated tonne-miles of crude oil imports to continental Europe and the UK are set alongside the tonne-miles of crude oil exports from the Baltic Sea region. Figure 33 shows that the tonne-miles in both measures have increased dramatically since the Russian invasion of Ukraine and subsequent bans on Russian oil imports to the EU and the UK.

Both Russian exports and European imports of crude oil are travelling significantly further to reach their destinations, and this has driven large increases in the cost of hiring tanker capacity, amplifying the sharp increase in tanker earnings.

Figure 33: Estimated Tonne-Miles in Seaborne Crude Oil Trade, Selected Routes



Source: *Clarkson's Research*

Red Sea Disruption

In November 2023, attacks began to take place on vessels transiting the Red Sea/Gulf of Aden by rebel groups based in Yemen. These escalated in the following months and as a result, many shipping companies announced that they would pause transits through the region, with many diverting ships to alternative route such as the Cape of Good Hope.

The Red Sea, with the Suez Canal at its northern tip, is an essential shipping route that accommodates approximately 10% of all global seaborne trade volumes. In 2023, there were a total of 25,888 transits through the Suez Canal, roughly one quarter of which (6,092) were crude and product oil tankers.

Driven by this disruption, the volume of oil tankers transiting through the Suez Canal has fallen significantly. When compared to October 2023, the last month before the attacks began, oil tanker transits between January and March 2024 fell by an average of 35%. In March 2024, 305 oil tankers transited through, compared to 500 in October.

The effect of these attacks has been for oil tankers to reroute to longer voyages such as the route around the Cape of Good Hope, increasing tonne-mileage, ship costs and ultimately tanker earnings.

Moderate Fleet Growth

Subdued growth in the global tanker fleet helped to sustain the sharp rises in tanker freight rates in described in part (ii). Tanker fleet growth in 2023 was just 1.9% and is expected to be less than 1% in 2024.

With Chinese oil imports growing, and with the changing trade patterns towards longer-haul voyages, tanker prices are expected to remain elevated for some time.

3.2 Dry Bulk Market

Dry bulk vessels, or bulk carriers, are employed to transport large volumes of loose, non-containerised bulk cargoes like coal, grains, and iron ore. These products are essential to global food supplies and industrial production.

At Irish ports, 50% of all dry bulk traffic is handled by Shannon Foynes Port Company[100]. As detailed in Section 1.1a, much of this trade involves imports of bauxite to Aughinish Alumina, Europe's largest Alumina refinery. Outside of this trade, Ireland imports significant volumes of fertilisers, animal feed and grains using the dry bulk cargo mode, most of which is in support the domestic agricultural sector. Dry bulk vessels are also used to import products such as cement, steel, and coal. Three quarters of all dry bulk traffic at ROI ports is imported, meaning Irelands industrial and agricultural sectors are heavily reliant on global trends in the market for bulk carriers.

This section will provide an overview of the volume of seaborne dry bulk cargo in 2023[101]. It will show that dry bulk trade rose in 2023, driven predominantly by Chinese demand. It will also describe the trends in the general price level associated with transporting this cargo. In doing so, it will show that the cost of transporting dry bulk products fell significantly in 2023. Lastly, a brief analysis of the key trends currently driving changes in the global bulk carrier market is provided.

(i) Seaborne Dry Bulk Trade

In 2023, 5.5bn tonnes of dry bulk cargo was transported by sea around the world. This represents 4% growth on 2022 volumes, equivalent to an increase of 195m tonnes. This is the largest annual increase since 2017 and is 3% above the five-year average for the sector. Overall, dry bulk seaborne trade has been rising consistently for the past two decades. The annual average growth in dry bulk trade has been 4% a year since 2000, when 2.3bn tonnes of seaborne dry bulk cargo was traded in that year.

Dry bulk products can be categorised into four main groups; grains, iron ore, coal, and minor bulk commodities. The first three - grains, iron ore and coal - are often referred to as 'major bulk' commodities, given the large volumes in which they are traded around the world. Minor bulk commodities refer to cargo that is transported in smaller quantities and/or is packaged in some way. Examples of minor bulk commodities include; steel, fertilisers, agricultural products, cement etc.

[100] When combined, Ireland's Tier 1 ports of Dublin, Cork and Shannon Foynes handle three quarters of all dry bulk traffic in the Republic of Ireland. See Section 1.1A for more detail.

[101] Information and data in this section was sourced predominantly from Clarkson's research. Specific reports sourced:

-Shipping Review & Outlook, March 2024.

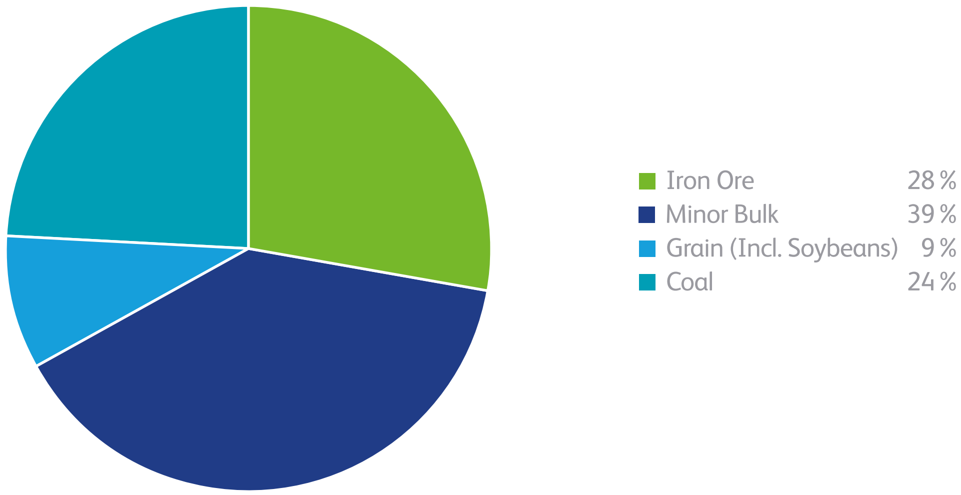
-Seaborne Trade Monitor, Volume 11, No. 3

-Clarkson's Shipping Intelligence Network Time series & Graphs

-Dry Bulk Trade Outlook, Vol 30, No. 3

Figure 34 shows the average share of total seaborne dry bulk traffic held by each of the four commodities listed above. The shares presented in Figure 34 have changed little over the past decade.

Figure 34: Average Share of World Seaborne Dry Bulk Trade, 2013 – 2023



Source: *Clarkson's Research*

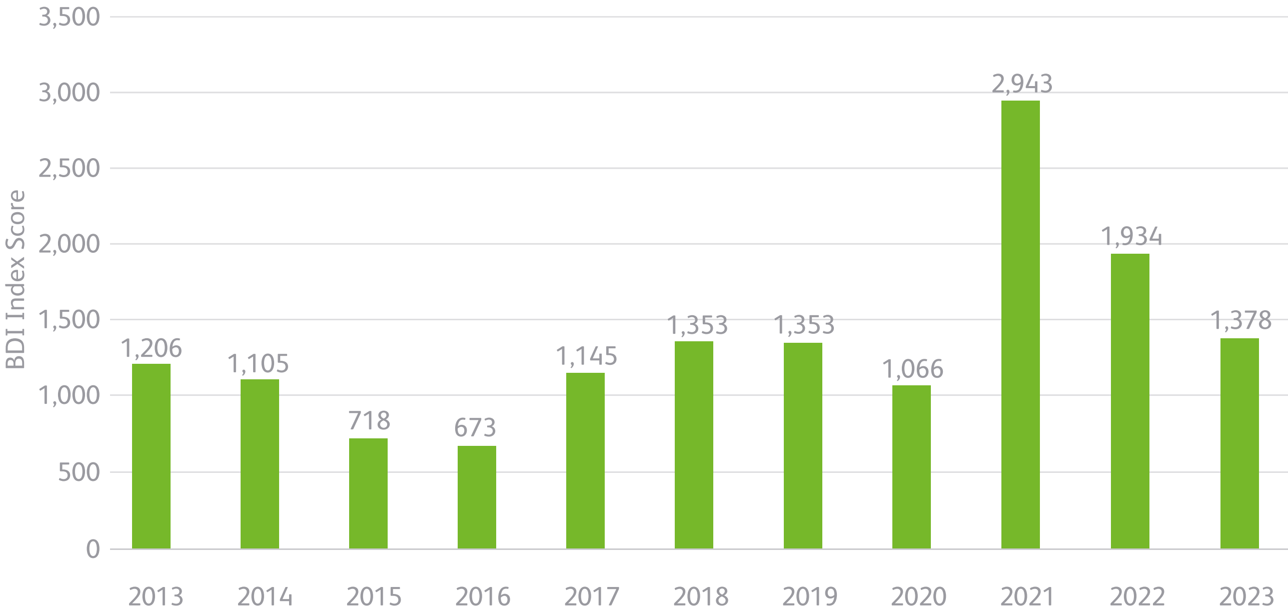
In 2023, all four of the component sectors shown in Figure 34 improved. As stated above, seaborne dry bulk trade rose by 195m tonnes in 2023. 74m tonnes, or 38 %, is attributable to increased trade in coal, while 69m tonnes, or 36 %, is attributable to iron ore trade. Trade in grains increased by 7m tonnes, while trade in minor bulks grew by 45m tonnes. In the minor bulk sector, growth was driven by increased trade in metals and metal manufactures such as steel.

(ii) Seaborne Dry Bulk Freight Rates

The London Baltic Dry Index (BDI) measures the rates charged for chartering the bulk carrier ships that carry essential raw materials. This index is a made up of the Capesize, Supermax and Panamax time charter rate averages.[102] The BDI is underpinned by the interaction between the demand for dry bulk trade and the supply of dry bulk carriers. It is a measure of the cost of shipping the dry bulk commodities that facilitate the global economy. In this way, it is not only an effective benchmark for shipping rates, but a leading economic indicator, providing insight into global demand for raw materials and the state of international trade. When the BDI is rising, it can indicate increased demand for commodities and a growing global economy. Conversely, a declining BDI may suggest weaker demand and a slower economy. In Figure 35, the annual average index score for the BDI is provided between 2013 and 2023.

[102] Like tanker vessels, bulk carriers are named for their size and the task for which they are employed. Supramax (50,000 – 60,000 dwt), Panamax (80,000 dwt) and Capesize (80,000 – 200,000 dwt) are among the most common vessel classes.

Figure 35: London Baltic Dry Index, 2013 – 2023 (1st Nov 1999 = 1,334)

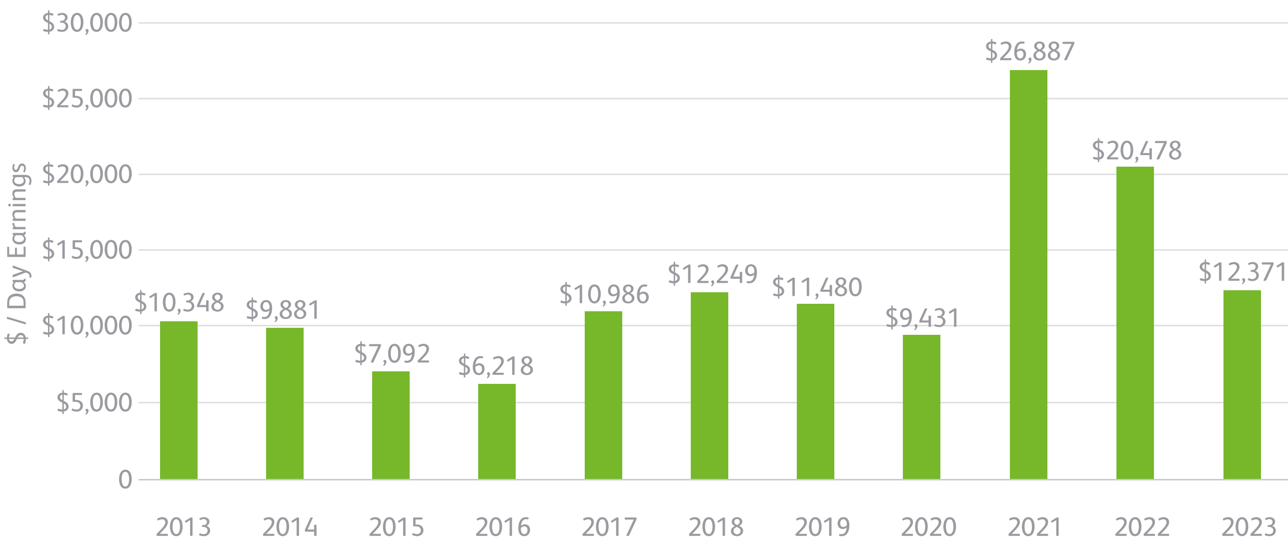


Source: *Clarkson's Research*

In 2023, the BDI declined by 29%. This follows a decline of 34% recorded in 2022. The last two years therefore represent a cooling off in charter rates in this sector, after prices soared in 2021 by 176%, as shown in Figure 35.

The rise in charter prices in 2021 was driven by the effects of the COVID-19 pandemic, which suppressed global trade in 2020 before a sharp rise in pent-up demand was recorded in 2021 that put dry bulk shipping capacity under significant pressure. Prices have eased in 2022 and 2023, but the index remains slightly above pre-pandemic levels, meaning ship owners continue to record strong earnings. This is reflected in Figure 36 below, which shows the average weighted earnings for a range of bulk carrier sizes, recorded in dollars per day. Figure 36 shows that average bulk carrier earnings are 40% below 2022 levels and 54% below the elevated levels of 2021.

Figure 36: Average Bulk Carrier Vessel Earnings, 2013 - 2023



Source: *Clarkson's Research*

(iii) Seaborne Dry Bulk Market – Catalysts of Change

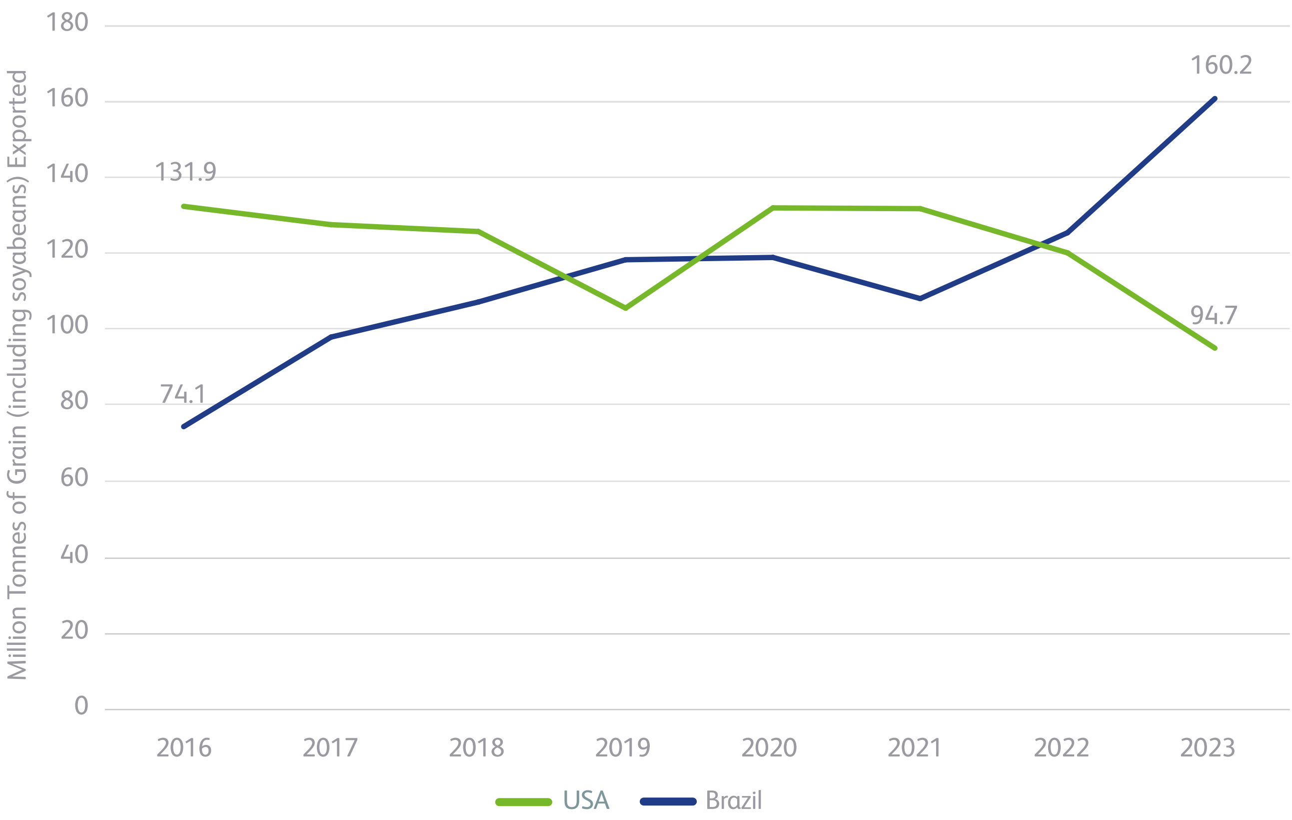
In parts (i) and (ii) of this Section, an overview was provided of the volume of seaborne dry bulk trade in 2023 and the earnings of ship owners who transport this cargo. In the following paragraphs, the key trends that are currently driving changes in the seaborne dry bulk sector will be briefly explained.

Shifting Grain Trade

In 2023, 523m tonnes of grain was exported by sea in the dry bulk sector. This represents 1% growth compared to 2022, equivalent to a rise of approximately 7m tonnes.

The composition of the countries exporting global grain volumes has shifted in recent years. The United States and Brazil are the two largest exporters of seaborne grain volumes. In the last two years however, Brazil has overtaken the US as the largest global exporter. In Figure 37, the seaborne volumes exported by both countries are shown between 2016 and 2023.

Figure 37: Seaborne Grain Exports, Million Tonnes, 2016 – 2023



Source: *Clarkson's Research*

In 2023, US seaborne grain exports fell by 25m tonnes compared to 2022, equivalent to a decline of 21%. Brazilian seaborne grain exports rose by 35m tonnes, or 28%, meaning Brazil is now the largest global exporter of seaborne grain products.

According to Clarkson's Research, significant volumes of US grain were carried over in stocks from 2022 as grain producers held onto their crops in anticipation of higher prices. This supply change came as a response to a steep rise in the global price of grain in 2022 following the Russian invasion of Ukraine.

Ukraine is a major producer of grain, and prior to 2022, exported approximately 50m tonnes a year by sea, or 10% of global seaborne volumes. Following the outbreak of conflict, Ukrainian grain exports were effectively halted. This supply shock, coupled with major uncertainty surrounding future production, caused global prices to surge. The International Grains Council (IGC) Grains and Oilseeds Index is a measure of global market prices for a basket of major grains and oilseeds[103]. The index is based on prices for wheat, maize, barley, rice, and soybeans. Following the Russian invasion of Ukraine, the Grains and Oilseeds Index (GOI), along with sub-indices for wheat and barley, rose quickly. Prices peaked around June 2022, with the index at this point 25% higher than June 2021. For wheat and barley, the increase was 49% in both cases. Throughout 2023, grain prices steadily declined and in early 2024, are below pre-conflict levels, driven in large part by the increased Brazilian supply.

Exports of Ukrainian grain are yet to recover, however. Volumes fell from 50m tonnes in 2021 to 30m in 2022. In 2023, they have recovered to 37m tonnes, but remain well below pre-conflict levels.

Chinese Demand

One of the most consequential current trends in global seaborne dry bulk trade is robust Chinese demand. In late 2022, COVID-19 controls were fully lifted from the Chinese economy[104], and this led to a rebounding in import volumes to the region.

Chinese imports of iron ore rose by 6% in 2023, worth 69m tonnes. China accounts for more than 70% of the global seaborne iron ore trade, meaning this had a significant impact on global demand and fleet supply. Following this rise in iron ore imports, exports of Chinese steel rose by 37%, equivalent to 25m additional tonnes.

Elsewhere, imports of Chinese coal grew sharply, by 54%, equivalent to 127m tonnes, while Chinese imports of grain grew by 13%, or 18m tonnes.

Route Disruption

In early 2024, there has been significant declines in the use of the Suez Canal by international shipping companies. As highlighted in Section 3.1, use of the Suez Canal has been disrupted by attacks on vessels transiting the Red Sea/Gulf of Aden by rebel groups based in Yemen. These attacks have escalated since November 2023 and as a result, many shipping companies have announced a pause in transits through the region, with many diverting ships to longer routes such as the Cape of Good Hope.

In 2023, there were a total of 25,888 transits through the Suez Canal, roughly 30% of which (7,395) were bulk carrier vessels. Driven by this disruption, the volume of bulk carrier transiting through the Suez Canal has fallen significantly. The number of bulk carrier transits through the Suez Canal averaged 616 each month in 2023. In February and March 2024, there were 417 and 384 transits by bulk carriers, respectively. The level of disruption has been more pronounced in the containership market, however, like the containership market, the effect of longer journey times to avoid the Suez Canal is expected to increase tonne-mileage, ship costs and ultimately vessel earnings in 2024.

[103] The IGC is an intergovernmental organization that promotes cooperation in the global grain trade and provides analysis and statistics on grains and oilseeds markets
[104] "China's economy shows gradual recovery after COVID reopening" – Reuters, March 15th 2023

3.3 Containership Market

In this section, the global containership market will be analysed[105]. In part (i), the volume of seaborne container trade in 2023 will be illustrated, with a focus on major European ports. In part (ii), the freight rates associated with transporting shipping containers will be discussed by analysing changes in spot rates and charter rates. In part (iii), the effects of the disruption in the Red Sea/Gulf of Aden will be described, which is the predominant issue facing this market in early 2024.

(i) Seaborne Container Trade

In 2023, a total of 201m Twenty-foot-equivalent units (TEU's)[106] were traded around the world on containership vessels. This total represents growth of approximately 1m TEU's, or 0.5 %, compared to 2022.

Global seaborne container trade has fluctuated in recent years in the face of difficult economic challenges which include: The COVID-19 pandemic, rising energy costs and steep inflation. In 2020, volumes fell by 2 % to 195m TEU's, driven by the outbreak of COVID-19. In 2021, volumes rebounded sharply, to 207m TEU's, as pent-up demand and continued COVID-19 restrictions on service industries meant incomes were redirected to physical goods, which are predominantly handled by the containership sector[107].

In 2022 and 2023, high inflation has been the predominant factor influencing seaborne container trade volumes. Global inflation rates average 9 % in 2022 and 7 % in 2023, according to the latest edition of the IMF's World Economic Outlook.[108] In the Euro Area, inflation ran at 8 % in 2022 and 6 % in 2023. On both measures, this was the sharpest jump in price level in well over a decade, particularly for the Euro Area. An increase in the general price level suppresses demand for manufactured and consumer goods such as those carried in containerised form.

In all, 2023 was a relatively weak year for global container trade. Of the growth that did occur, it was driven by increased exports from Asia, underpinned by COVID-19 controls being lifted from the Chinese economy in late 2022. This is evident on the Far East – Europe mainlane shipping route, where volumes rose from 15m to 17m TEU's between 2022 and 2023, driven largely by a rise in Chinese export activity.

In European ports, container volumes remained sluggish in 2023. In Figure 38, the volume of container imports and exports at European ports is presented for the last five years. The COVID-19 related surge in 2021 is evident, followed by the suppressive effects of inflation in 2022 and 2023. For both imports and exports, European container trade is below pre-pandemic levels. European container exports are also at their lowest point since 2016.

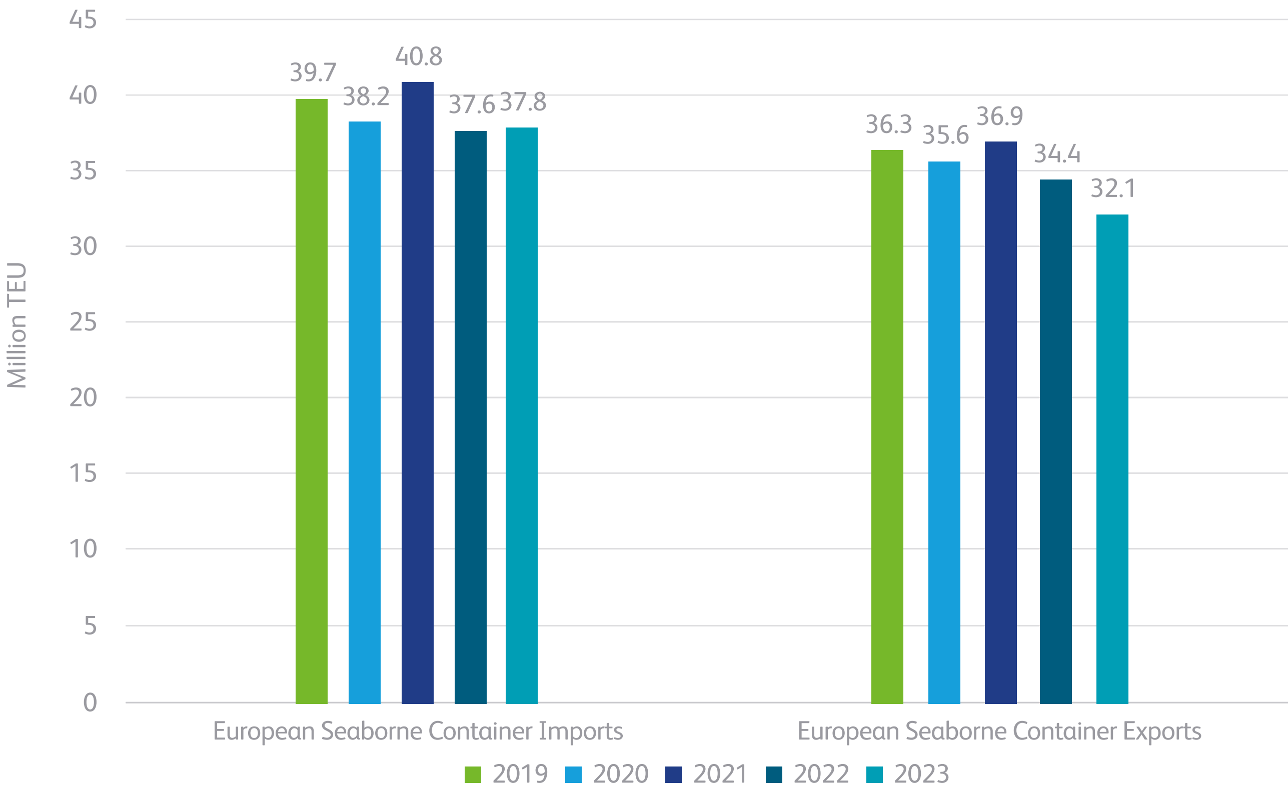
[105] Information and data in this section was sourced predominantly from Clarkson's research. Specific reports sourced:
-Shipping Review & Outlook, March 2024.
-Seaborne Trade Monitor, Volume 11, No. 3
-Container Intelligence Quarterly, Q1 2024

[106] TEU's are a standard unit of measurement in the shipping industry used to describe the capacity of container ships and container terminals. One TEU is equal to one standard 20-foot long container.

[107] See IMTE Vol 20 for more detail on the impact of COVID-19 on the global containership market

[108] IMF World Economic Outlook, January 2024

Figure 38: European Container Imports & Exports, 2019 – 2023, Million TEU's per year



Source: *Clarkson's Research*

In the ports of Rotterdam and Antwerp, Europe's two largest container ports, container throughput fell by 1m TEU's in each port. In Rotterdam, container volumes fell from 14.5m to 13.5m TEU's, while in Antwerp, volumes fell from 13.5m to 12.5m TEU's. When combined, total container throughput at both ports fell by 7% in 2023, to their lowest level since 2018.

Despite the subdued volumes of 2023, there were positive signs for global container trade in the latter half of the year. Clarkson's Research produce a monthly global seaborne container trade indicator. This volume-based indicator is formulated by analysing trends in container data measured in TEU's. It is an effective metric for showing the current trajectory of global container throughput, and in the latter half of 2023, the outlook was clearly positive, as annual growth in the index averaged 6% per month between July and December of 2023. This has coincided with a gradual abatement in inflation levels in major economies. In the EU, inflation[109] averaged 8.3% in the first six months of 2023, and 4.5% in the second six months. In February 2024, the annual rate of inflation across the EU was 2.8%. In the US, inflation[110] fell from 5% to 3% in the first and second halves of the year respectively, and in February 2024, stood at 3.2%.

[109] As measured by the European Commission's Harmonised Index of Consumer Prices, All Goods.
[110] As measured by the Bureau of Labour Statistics Consumer Price Index

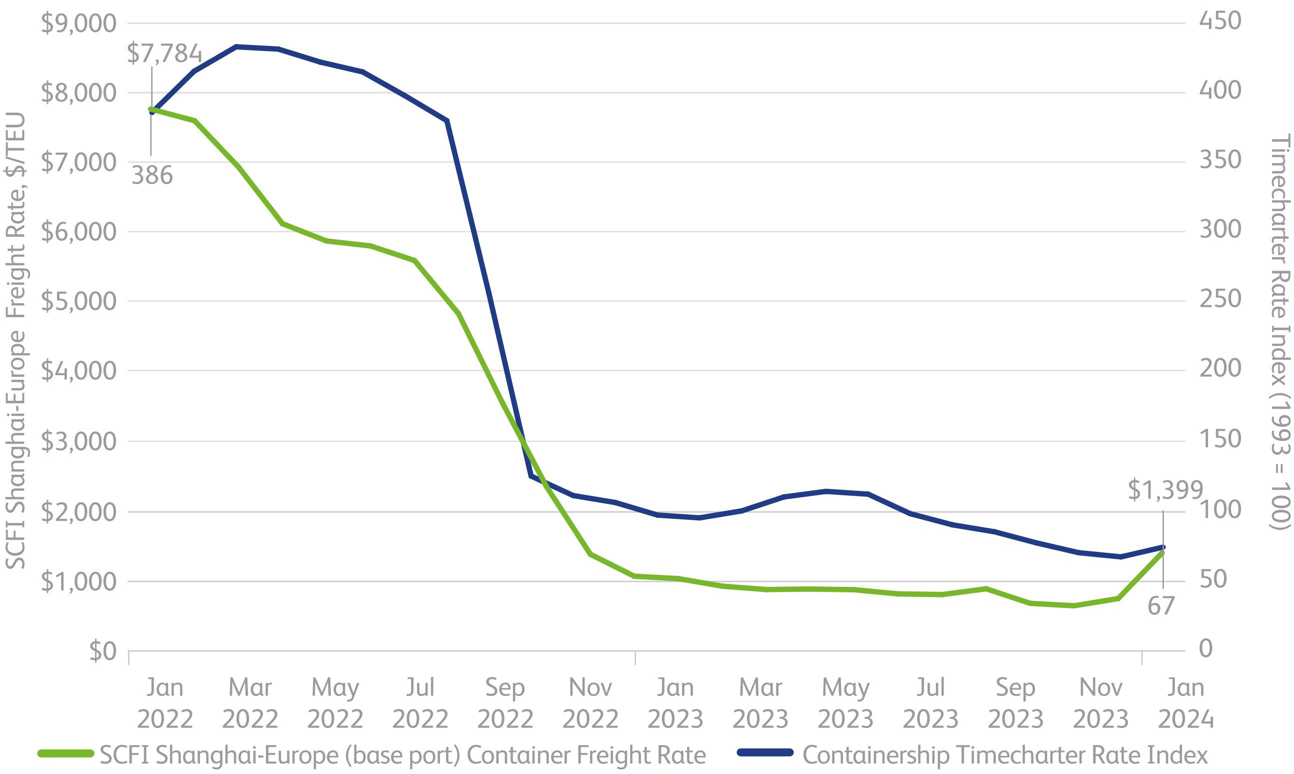
(ii) Seaborne Container Freight Rates

International containership freight rates can be understood and benchmarked in numerous ways, but two metrics are commonly used; spot rates and charter rates. Spot rates refer to the price of booking space on a vessel for a single, once-off shipment, typically for immediate or near-term use. Spot rates fluctuate based on the real-time interaction between supply and demand dynamics and can change rapidly based on factors such as shipping capacity, cargo volume, and port congestion. Charter rates refer to the cost of leasing a vessel on a longer-term basis, typically ranging from a few months to several years. Charter rates are negotiated between the charterer and the ship owner and are usually based on a daily rate ($/day).

In Figure 39, two metrics are shown which accurately capture the trajectory of containership freight rates in 2022 and 2023. The first metric in Figure 39 is the Shanghai Export Containerized Freight Index (SCFI). The SCFI is an index that reflects the spot rates on key global shipping routes from Shanghai, China.[111] The SCFI index presented in Figure 39 is for the Shanghai – Europe container route and is measured in US dollars per TEU. Figure 39[112]. Throughout 2023, this rate averaged $875, compared to $4,915 throughout 2022.

The second metric presented in Figure 39 is Clarkson's Containership Timecharter Rate Index, which specifically tracks the movement of time charter rates for containerships and is published weekly by Clarkson Research. The index covers a range of vessel sizes and is based on actual charter rates agreed upon by ship owners and charterers in the market. It is effective tool to monitor trends and changes in the market for containership capacity. Figure 39 shows that this benchmark measurement of timecharter rate fell from 386 in January 2022, to 67 in December 2023, a decline of 83%. Throughout 2023, this index averaged 93, compared to 323 throughout 2022.

Figure 39: Spot & Charter Rates in the Containership Market, Selected Indicators



Source: *Clarkson's Research*

[111] The Shanghai Export Containerized Freight Index (SCFI) is a weekly index that tracks changes in the shipping rates for containerized cargo exported from Shanghai, China to destinations around the world. The SCFI is published every Friday by the Shanghai Shipping Exchange (SSE), which is a specialized exchange for shipping-related products and services (Shanghai Shipping Exchange).

[112] At its peak, SCFI freight rate hit $7,797 on January 14th 2022.

The narrative that arises from Figure 39 is that in 2023, the price of transporting goods on containerships became significantly cheaper compared to the extraordinary highs recorded in 2022.

There were three key reasons that underpinned this trend. Firstly, the aforementioned global rise in inflation suppressed demand, and this is evident in the moderate levels of container trade recorded in 2022 and 2023.

Second, the supply of new containership capacity to the global market grew strongly. In 2023, 359 new containerships were delivered to market, an 82% increase on the number delivered in 2022, and the highest annual delivery since 2008. This had the effect of adding an additional 1.3m TEU's worth of capacity to the global market, a major factor that caused the freight rates charged by vessel owners to decline. A shortage of new vessel deliveries during the years of the COVID-19 pandemic exacerbated the capacity issued faced by global traders, as supply lines were disrupted by intermittent closures of factories. Many of the deliveries in 2023 were ordered in response to this period when demand far outstripped shipping capacity.

Lastly, port congestion eased in 2023, removing inefficiencies that served to amplify capacity issues throughout 2022. Clarkson's Port Congestion Index, which measures the level of containership capacity in port as a percentage of total fleet capacity, fell from 35% in 2022, to 31% in 2023.

(iii) Red Sea/Gulf of Aden Disruption

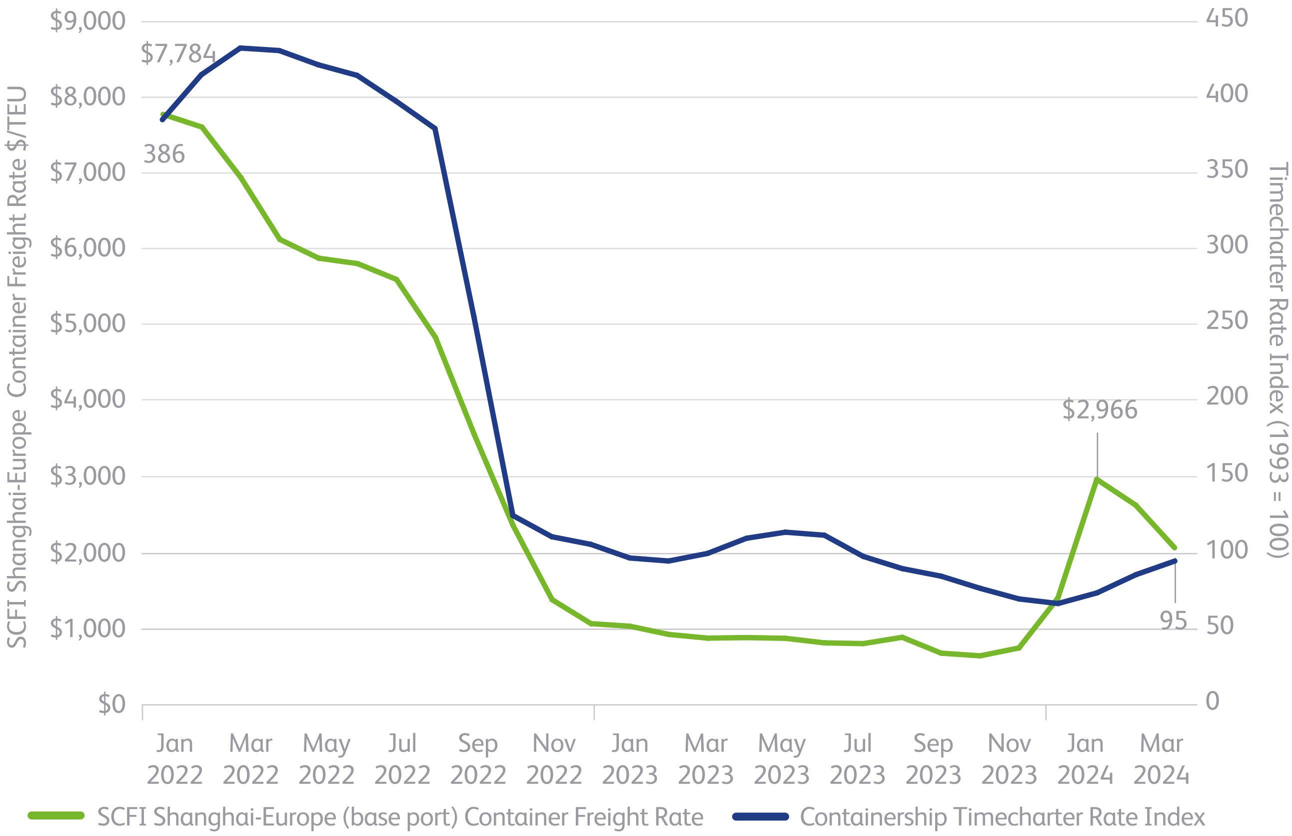
As discussed in Section 3.1, in November 2023, attacks began to take place on vessels transiting the Red Sea/Gulf of Aden by rebel groups based in Yemen. These escalated in the following months and as a result, many shipping companies announced that they would pause transits through the region, with many diverting ships to alternative route such as the Cape of Good Hope.

The Red Sea, with the Suez Canal at its northern tip, is an essential shipping route that accommodates approximately 10% of all global seaborne trade volumes. In 2023, there were a total of 25,888 transits through the Suez Canal, 23% of which (5,847) were containerships.

This disruption has had the greatest effect on the containership market, as these are the vessels which have been predominantly targeted during attacks. Driven by these events, the volume of containerships transiting through the Suez Canal has fallen precipitously. In the first three months of 2023, there were 1,325 transits through the Suez Canal by containerships. In the first three months of 2024, there were just 440, a decline of 67%.

Specifically, the disruption has had the greatest impact on the Far East - Europe mainlane route, in both directions. In Figure 40, the two metrics that were presented in Figure 39 are recreated and extended out to March of 2024. Figure 40 shows that the SCFI has risen steeply in early 2024, peaking at $2,966 in January 2024, more than twice the average price recorded throughout 2023. Also evident in Figure 40 is the increase in Clarkson's Timecharter Rate index.

Figure 40: Spot & Charter Rates in the Containership Market, Selected Indicators



Source: *Clarkson's Research*

The increase in containerships freight rates stemming from the Red Sea disruption has been caused by a reduction in vessel capacity, as containerships are at sea for longer due to rerouting, mainly around the Cape of Good Hope. For a standard Far East - Europe voyage, voyage time increases by approximately 30% when routing via the Cape of Good Hope rather than via the Suez Canal. With ships tied up for longer, Clarkson's Research estimates that the effect is equivalent to a 9% increase in vessel demand. If the disruption continues, and demand for container trade becomes firmer in 2024, the net effect will likely be a period of higher freight rates within this market. The IMDO continues to monitor these issues closely and will provide updates through quarterly reporting throughout 2024.

3.4 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. To help reduce the dependency of transportation across the European Union on fossil fuels, and to reduce the associated harmful environmental effects, the EU Commission established an alternative fuels strategy in 2014. As a result, the Alternative Fuels Infrastructure Directive (AFID)[113] (2014/94/EU) was published in November of that year.

The AFID required Member States to assess the need for a framework for the supply of shore-side electricity at maritime ports, and based on this assessment, install such infrastructure by 2025. These objectives were to be met by the target year, unless there was an absence of demand or that the relevant costs were disproportionate to the benefits.

In response to the AFID, the IMDO 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 in the context of the Irish market. A copy of the report can be found here.

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 to gain experience and insights into this area. At present, the IMDO are involved with several EU initiatives which are directly and indirectly seeking to make progress in this area. These initiatives include:

- Motorways of the Sea – International Fast & Secure Trade Lane[114] (IFSTL): Dublin – Cherbourg pilot.
- ASPBAN: Atlantic Smart Ports Blue Accelerator Network[115]
- EALING: European flagship Action for Cold-Ironing in Ports
- Atlantic Strategy:[116] Liam Lacey, Director of the IMDO, is the coordinator of Pillar 1: 'Ports as gateways and hubs for the Blue Economy'.
- SMARTDEC: An Interreg Project that has a goal to create a network across the Atlantic Area in the maritime transport sector. The aim is to provide the necessary tools, knowledge, and structure to quickly tackle the challenge of reducing pollution from waterborne transportation in the Atlantic region. This collaborative effort involves key players from different regions in Ireland, France, Portugal, and Spain. These regions will be organized as hubs, and they'll work together with a quadruple helix approach.
- Green Shipping Corridor: Working with InnovateUK, the Marine Institute will co-fund research projects on Green Shipping Corridors between Ireland and the UK that identify ways to tackle carbon emissions and move the maritime industry towards a more sustainable future. The UK government has put the SHORE funding mechanism in place to advance this ambition. A co-funded mechanism, to the value of €1m has been put in place, allowing Irish and UK companies and researchers to apply for feasibility studies on green shipping corridors. InnovateUK will fund the UK partners and the Marine Institute will fund the Irish partners.

The IMDO and other state agencies continue to explore further opportunities to involve Irish stakeholders in such initiatives.

In all, the IMDO report concluded that in the absence of marked changes in environmental regulation or increases in commercial viability, the targets for the development of AFI in Ireland's maritime sector by 2025 should be set at zero.

[113] Directive 2014/94/EU of the European Parliament and of the Council
[114] Overview of Ireland – France pilot IFSTL route
[115] For more information, please visit the AspBAN website
[116] Atlantic Strategy: Pillar 1 Goals

Environmental Regulation

Since the publication of the IMDO's report, there has been significant progression in environmental regulation at EU level.

In December 2019, a list of priorities was set out in the European Green Deal.[117] Within this communication, the European Commission announced that it would undertake a review of the AFID. In 2021, the European Climate Law was adopted, which set an EU target for 2030 of reducing greenhouse gas emissions by at least 55% compared with 1990 levels. Subsequently, the Fit for 55 package[118] was published, and contains a list of legislative proposals to deliver the targets set out in the European Climate Law. Existing European legislation is made more ambitious, and where necessary, new proposals are put forward.

As of January 2024, the European Emissions Trading Scheme (ETS) has been extended to maritime transport. Maritime transport emissions are now included in the overall ETS cap, which will be gradually reduced to meet EU climate objectives, incentivising energy efficiency and low-carbon solutions. Shipping companies must purchase and surrender EU ETS emission allowances for their reported CO2 emissions, with Member States ensuring compliance.

The IMDO continues to engage closely with these proposals and what they will mean for the Irish maritime industry.

Alternative Fuel Infrastructure Uptake

As of 2024, the global shipping fleet is made up of 108,789 commercial vessels. Tanker vessels make up 16% of this total, bulkcarriers (bulkers) 12%, and containerships 6%.[119] The rest of the global fleet is comprised largely of passenger vessels, tugs, offshore vessels and general cargo vessels.

According to Clarkson's Research, in 2023, this global shipping fleet produced 841m tonnes (Tank-to-Wake) (TTW) of C02 emissions, a decline of 1m tonnes compared to 2022. This represented 2.22% of global C02 emissions. The five-year average share of global C02 emissions held by the world's shipping fleet is 2.25%.

Scrubber Technology

The number of tankers, bulkers and containerships fitted (and retrofitted) with Exhaust Gas Cleaning Systems (ECGS) - also known as scrubbers – has risen significantly in recent years. Scrubbers offer a competitive alternative in meeting emission requirements. 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. While strictly not a fuel option, the growing use of scrubber technology has influenced market transition from conventional oil-based fuels, to alternative fuels.

This accelerated after 2020, when the IMO 2020 Sulphur Cap was introduced, which placed a global upper limit on the Sulphur content of ships' fuel oil to 0.5%[120]. In 2019, there were 477 scrubber-fitted vessels in the global fleet. As of 2024, there are 5,524.

In Table 20, the number of scrubber-fitted vessels in each vessel category is presented. As Table 20 shows, just 5% of all commercial vessels are fitted with scrubber technology as of 2024. However, this has risen from 0.5% in 2019.

[117] The European Green Deal
[118] Fit For 55': Delivering The EU's 2030 Climate Target On The Way To Climate Neutrality
[119] Clarkson's Shipping Intelligence Network, World Fleet Data
[120] IMO 2020 - cleaner shipping for cleaner air

Table 20: Scrubber-Fitted Vessels in Global Fleet, 2024

Vessel Type	SOx Scrubber Fitted	SOx Scrubber Fitted (% of Global Fleet)
Containerships	1,371	22.2%
Bulkcarriers	1,801	13.2%
Product Tankers	489	4.8%
Crude Tankers	834	36.0%
Total Fleet (All vessel types)	**5,524**	**5.1%**

Source: *Clarkson's Research*

As for the RoRo market, which represents approximately 30% of all freight tonnage at ROI ports, there has also been significant uptake of scrubber technology.

There are currently six companies providing scheduled services in the Irish RoRo market: Irish Ferries (Irish Continental Group), Stena Line (Stena AB), DFDS, Brittany Ferries, CLdN, Finnlines plc (Grimaldi). When combined, the total RoRo fleet - including passenger/car ferries, RoPax vessels and RoRo freight vessels - under ownership of these companies amounts to 176 vessels. As of 2024, half of this fleet, or 88 vessels, are fitted with scrubber technology[121].

Alternative Fuels

As of 2023, the global uptake of vessels with alternative propulsion technology remains slow. DNV[122], a classification society providing consultation on energy infrastructure and technical standards for the shipping industry, produce detailed information on the development of alternative fuel technology in the global shipping fleet. An overview of the status of the global shipping transition for 2023 is provided in DNV's Maritime Forecast to 2050 report[123].

According to DNV, in 2023, 98% of the global fleet continues to be propelled by conventional fuel oil. As of July 2023, there were 2,002 ships in operation with alternative fuel technology.[124] 54% of this total are LNG vessels. A total of 800 are battery/hybrid powered, while 91 use LPG, 27 methanol and 5 employ hydrogen.

As for the global order book, there are a total of 1,376 vessels on order which will be fitted with alternative fuel technology, the preponderance of which will be LNG[125]. LNG is the most prominent choice because it can be employed as a dual-fuel option with conventional fuel oil. However, most ships that are fitted with alternative fuel technology can operate as dual-fuel vessels, maintaining the ability to use conventional fuel oil.

In all, DNV highlight several obstacles that currently stand in the way of widespread uptake of alternative fuel technology. They include: limited fuel availability and bunkering infrastructure, capital investment and high fuel costs.

The IMDO will continue to monitor these trends and the impact they will have on the Irish shipping industry. Research has already taken place with The University of Galway, in relation to the economic implications of the FuelEU maritime proposal[126]. The IMDO will continue to research, assess and engage with the Fit for 55 proposals and the implications of these regulatory changes for the Irish maritime sector.

[121] Clarkson's Shipping Intelligence Network, World Fleet Data
[122] DNV – About
[123] Maritime Forecast to 2050 - DNV
[124] Maritime Forecast to 2050 - DNV, Pg. 24, Figure 4-2
[125] Maritime Forecast to 2050 - DNV, Pg. 24, Figure 4-2
[126] The impact of Fit for 55 on Ireland's maritime transport sector and the macroeconomy

Glossary of Terms:

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

Break Bulk: 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.

RoPax: The sector that uses vessels capable of carrying passengers, passenger vehicles, and RoRo freight.

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.

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.

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

Product tankers: are used to transport petroleum-based chemicals.

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

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.

Sources of Data:

The bulletin 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[127]
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[128]

Northern Irish Port Companies:

Belfast Harbour Commissioners
Foyle Port
Port of Larne
Warrenpoint Harbour Authority

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

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