

OVERVIEW

**REVIEW
OF MARITIME
TRANSPORT**

2022



**United
Nations**

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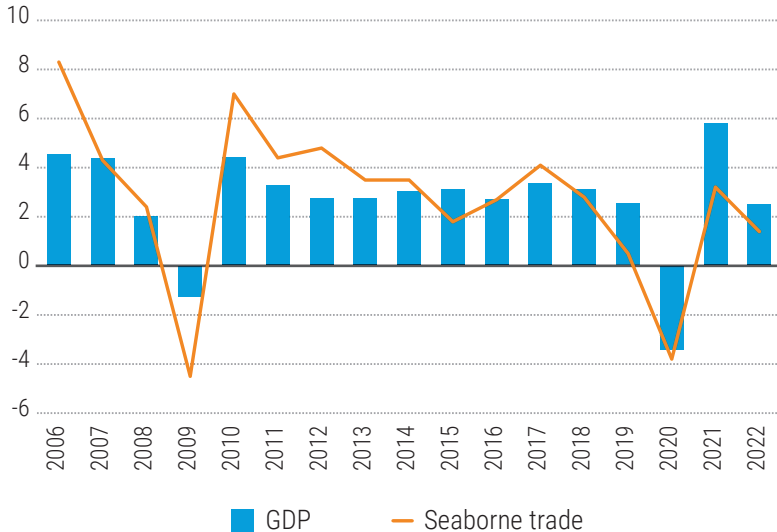
UNCTAD/RMT/2022 (Overview)

NAVIGATING THROUGH SUPPLY CHAIN DISRUPTIONS

Maritime trade recovered in 2021, but in 2022 faces a complex operating environment fraught with risk and uncertainty

Following a 3.8 per cent decline in 2020, international maritime trade bounced back in 2021 with an estimated growth of 3.2 per cent, and overall shipments of 11 billion tons (figure 1). This was slightly below pre-COVID-19 levels, as trade was still hampered by the prolonged pandemic, an unprecedented logjam in global logistics caused by a large upswing in demand and acute shortages of capacity on the supply side. Growth was driven primarily by increases in demand for containerized cargo. Gas, and dry bulk shipping also increased while shipments of crude oil declined.

Figure 1 International maritime trade and world GDP
Selected years (percentage annual change)



Source: UNCTAD secretariat, based on UNCTADstat data and *Review of Maritime Transport*, various issues. GDP figure for 2022 based on table 1.1, World Output Growth, 1991–2023, UNCTAD Trade and Development Report 2022.

For 2022, UNCTAD projects maritime trade growth to moderate to 1.4 per cent, and for the period 2023–2027 to expand at an annual average of 2.1 per cent, a slower rate than the previous three-decade average of 3.3 per cent. For many years the fastest growing segment was containerized trade, for which growth in 2022 is projected to be a tepid 1.2 per cent, before marginally picking up to 1.9 per cent in 2023. The projected deceleration is a consequence not just of pandemic-induced lockdowns, but also of strong macroeconomic headwinds combined with a weakening in China's economy. In addition, faced with rising inflation and living costs, consumers are spending less, while to some extent switching expenditure from goods to services.

For 2022, the operating landscape remains complex. Globally, inflation and living costs are rising. In China, which is the world's largest exporter, a zero-COVID policy triggered shutdowns and disrupted manufacturing, logistics, and supply chains. In Ukraine, a major food exporter, since the beginning of the war ports in the Black Sea were closed.

Industrial action and labour strikes in a number of world ports, including in Germany, the Republic of Korea, South Africa and the United Kingdom have also been affecting maritime transport. At the same time, a series of extreme weather events, with, for example, floods, hurricanes and heatwaves across Australia, Brazil, Pakistan, East Africa, Europe and the United States are also having an impact.

All these problems spell further trouble for global supply chains and logistics – and for maritime trade. By the fourth quarter of 2022, projected global economic growth had been revised downward, with fears that the world economy could slip into recession and stagflation.

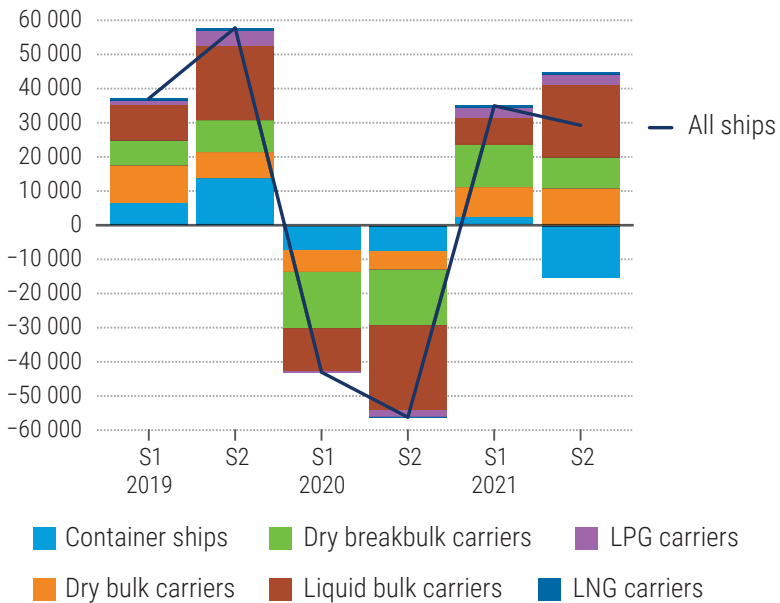
To some extent, trade in ton-miles is being sustained by market and supplier substitution. The Russian Federation, faced with economic and other restrictive measures, is seeking alternative markets, while European importers are considering other sources of supply. Ton-mile demand is also likely to be boosted as African countries source grain from more distant locations.

Port calls change with rising congestion and shifts in liner shipping connectivity

In line with maritime trade, port calls also bounced back in 2021 amid unmatched port congestion with hotspots being concentrated in the United States, Europe and China (figure 2). In Northern Europe, some shipping operators, seeking to boost efficiency, cut the number of port

call locations per rotation. This pushed up the volume of cargo exchange per call, while extending work time at terminals and putting pressure on the main ports. The effects of congestion and logjams rippled across a range of industries such as car manufacturing, healthcare and electronics, and notably through a serious shortage of semiconductors.

Figure 2 Changes in port calls per half year, world total
 First semester 2018 – second semester 2021
 (year-on-year differences)



Source: UNCTAD, based on data provided by MarineTraffic.

Note: Ships of 1,000 GT and above, not including passenger ships and Ro/Ro vessels.

Since the onset of the logistics disruptions in late 2020, there has been an overall global decline in liner shipping connectivity, though with variations between countries. The world’s most connected country remained China which widened its lead. And India extended its regional connections by upgrading port capacity. Similarly, in North Africa continued development of port infrastructure helped mitigate the impact of the pandemic.

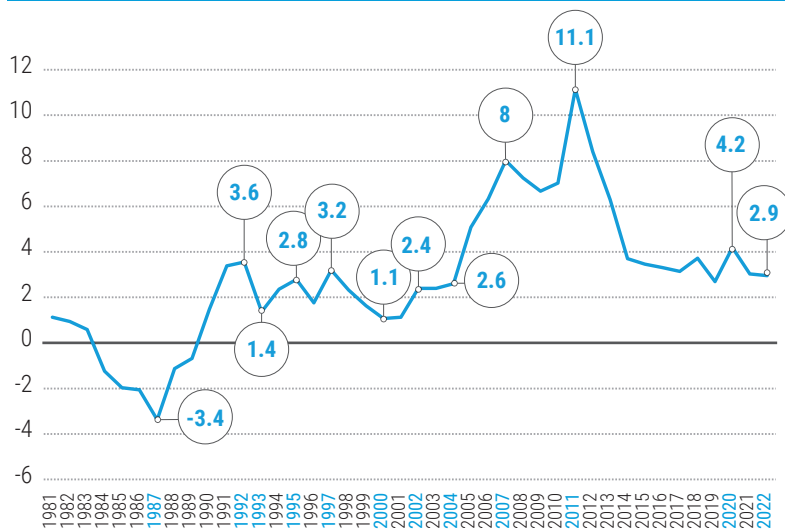
These gains were offset by declines in connectivity elsewhere, including leading economies. In the United States of America, for example, container

port operational performance was undermined by weakness in West Coast port infrastructure as a consequence of long-term underinvestment. But the picture was even worse in parts of the developing world: over this period, most of Africa and Latin America and the Caribbean suffered significant reductions in direct connections.

Trade recovery is confronted with low fleet growth

In 2021, the global commercial fleet grew by under three per cent – second lowest rate since 2005 (figure 3). The fastest growth, driven by global gas demand was for liquefied gas carriers followed by containerships and bulk carriers.

Figure 3 Annual growth of commercial fleet, 1981–2021
Growth rate (percentage of the dwt)

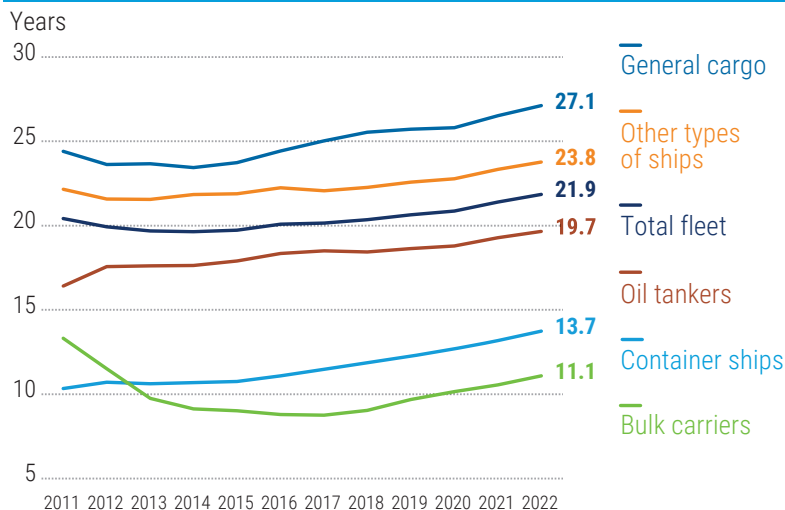


Source: UNCTAD calculations, based on data from Clarksons Research.

Note: Propelled seagoing vessels of 100 gross tons and above, as of 1 January 2022.

Since 2011, the fleet has been ageing. By number of ships, the current average age is 21.9 years, and by carrying capacity 11.5 years. Bulk carriers remain the youngest vessels with an average age of 11.1 years, followed by container ships at 13.7 years, and oil tankers at 19.7 years (figure 4).

Figure 4 Average age of the commercial fleet, weighted by number of ships, by vessel type, 2011–2022



Source: UNCTAD calculations, based on data from Clarksons Research.

Average ship age has been increasing partly because, in the wet and dry bulk sector especially, shipowners have been uncertain about future technological developments and the most cost-efficient fuels, as well as about changing regulations and carbon prices. To benefit from the current high freight and charter rates, they have therefore kept their older ships in operation. In 2020, in terms of gross tons, ship deliveries contracted, but in 2021 they increased by 5.2 per cent. Nevertheless, shipbuilding volumes remain below the 2014–2017 levels.

Maritime trade recovery faces unprecedented port congestion and unreliable schedules

The global logistics logjam started in late 2020 and intensified in 2021. Congested ports struggled to cope with increased demand, as they and their hinterland connections were often short of equipment, of labour and of storage facilities. As a result, in 2021 global average container schedule delays doubled. And on the Far East and North America routes, between the first quarter of 2020 and the last quarter of 2021, delays increased from two days to 12. Meanwhile, between 2020 and 2021, median turnaround time for container ships increased by 13.7 per cent (table 1).

Table 1 Time in port, vessel age and size, by vessel type, 2021
(world total)

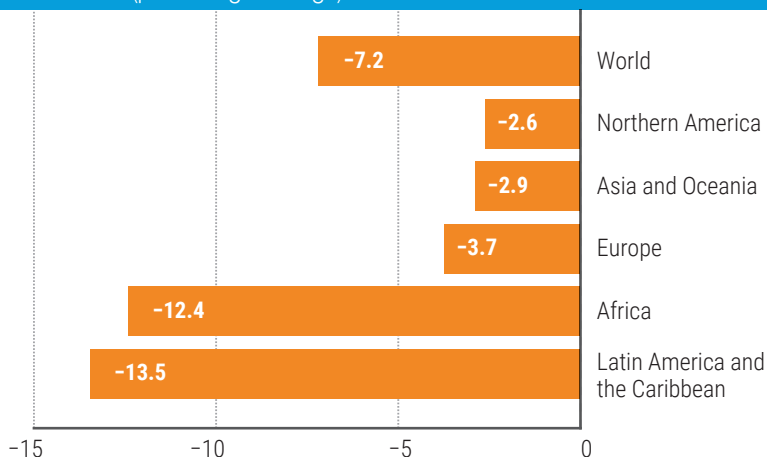
Vessel type	Median time in port (days)	Median time in port, annual change (%)	Average size (GT) of vessels	Maximum size (GT) of vessels	Average cargo carrying capacity (dwt) per vessel	Maximum cargo carrying capacity (dwt) of vessels	Average container carrying capacity (TEU) per container ship
Container ships	0.80	13.7	37 223	237 200			3 431
Dry breakbulk carriers	1.17	2.1	5 463	91 784	7 427	116 173	
Dry bulk carriers	2.11	2.3	32 011	204 014	57 268	404 389	
LNG carriers	1.13	0.9	95 356	168 189	74 522	155 159	
LPG carriers	1.03	-1.5	10 541	61 000	11 799	64 220	
Liquid bulk carriers	0.98	1.3	15 739	170 618	27 275	323 183	
All ships	1.05	4.8	21 732	237 200	26 997	404 389	3 431

Source: UNCTAD, based on data provided by MarineTraffic.

Note: Ships of 1,000 GT and above. Not including passenger ships and Ro/Ro vessels.

Port congestion was initially concentrated in three hotspots: China, Northern Europe, and the West Coast of the United States. But as shipping lines redeployed ships to the busier and more profitable United States and China routes other countries suffered even more. Africa and Latin America and the Caribbean, for example, lost more than 10 per cent of their direct liner shipping connections (figure 5). Many developing countries were faced with late arrival of vessels and shortage of containers.

Figure 5 Number of direct calls by region from 2020Q3 to 2022Q2
(percentage change)



Source: UNCTAD, based on data provided by MDS Transmodal.

In addition, carriers seeking greater profitability changed their shipping patterns, stopping calls at certain ports. Since the beginning of the pandemic, schedule reliability has dropped consistently, resulting in losses to shippers totalling \$5-10 billion. Shippers have complained about this and the withdrawal of shipping capacity, especially from smaller and vulnerable developing countries, as well as about high charges for demurrage and detention, and called on governments to scrutinize the industry more closely.

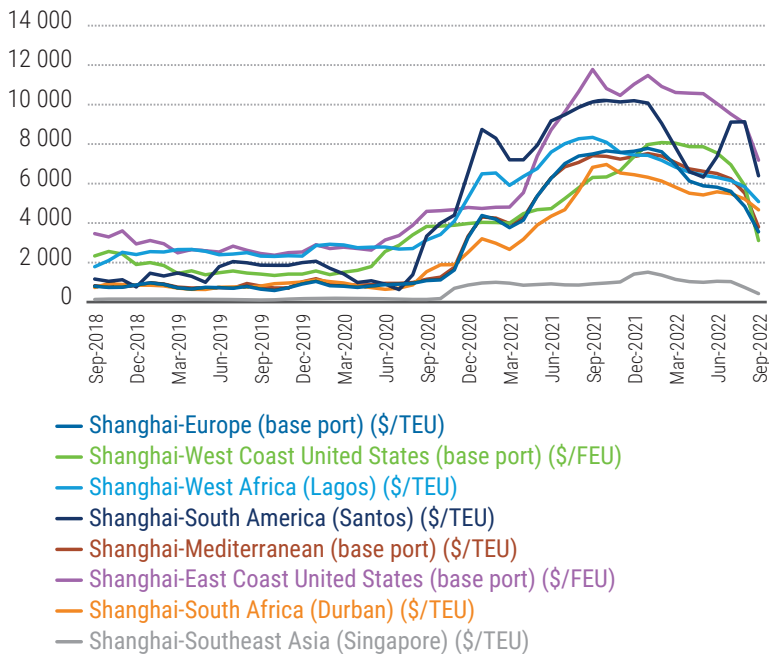
Congestion and logistical problems persist in 2022, prompting rerouting and new regional services in Asia

In 2022, the pandemic continued to disrupt supply chains and maritime transport, with many ships stuck in port. Over the period 2016–2019, port congestion had caused around 32 per cent of world containership fleet capacity to be held up at ports, but by July 2022 the proportion had reached 37 per cent. In spring 2022, China's zero-COVID policy led to lockdowns in Shenzhen and Shanghai, two of its largest manufacturing and commercial centres, requiring carriers to reroute to alternate ports such as Ningbo. To fill the gaps left by the redeployment of ships to the more lucrative East-West trade lanes, Asian regional carriers launched new intra-Asia services or enhanced existing loops to provide additional calls.

Container freight rates reach historic highs

In 2021, the shortage of shipping capacity and continued disruptions caused by COVID-19, combined with a rebound in trade volumes boosted container freight rates to record levels. By mid-2021, rates had peaked at four times their pre-pandemic levels. Container carriers also faced extra expenses, but were able to post record profits.

Figure 6 Shanghai containerized freight index (SCFI) monthly spot rates, September 2018 to September 2022 selected routes



Source: UNCTAD secretariat, based on data from Clarkson Shipping Intelligence Network.

Spot container freight rates surged on most routes, including those to developing regions. For example, in 2019 on the China to South America (Santos) route the rates per TEU were around \$2,000 but by December 2020 were \$6,543, and by December 2021 had reached \$10,196. Over the same period, December 2020-December 2021, rates per TEU on the Shanghai to South Africa (Durban) route increased from \$2,521 to \$6,450

and on the Shanghai to West Africa (Lagos) route increased from \$2,521 to \$7,452 (figure 6).

As of mid-2022, many pandemic-driven conditions were unwinding. Capacity constraints were easing, spot freight rates moderating (but still above the pre-pandemic levels), and volumes were not increasing so fast. Less port congestion frees up more shipping supply and helps dissipate logistics logjams and the supply-chain crunch. Nevertheless, maritime trade conditions and logistics could deteriorate depending on the state of the world economy.

Divergent freight rate pathways with high volatility and uncertainty looming

At the start of 2022, container freight rates remained high and volatile, though they started to drop in the second quarter of the year. Future rates will be driven by a number of factors, working singly or in combination, suggesting greater volatility and an overall downward trend in some segments. These include increased uncertainty regarding demand, the extent of port congestion, potential new supply chain disruptions, and the effects of the war in Ukraine, including increased fuel costs.

By early 2022, freight rates had already started to decline on some routes, and from mid-year there was a drastic downturn. Over four weeks between August and September, there was a double-digit fall. By the third week of September, the Shanghai Container Freight Index had dropped by nearly 60 per cent. Nevertheless, these rates are more than double the pre-pandemic averages.

Container freight rates can be expected to decline further as merchandise trade normalizes and newly built vessels enter the market. But freight rates and their volatility will increasingly be shaped by environmental regulations. In 2023, the IMO's Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicator (CII) measures will come into force for all vessel types. These will likely reduce shipping capacity as they stipulate slower sailing speeds to save fuel and will require some vessels to be retrofitted or recycled.

For dry bulk shipping, by September 2022 rates had softened as congestion eased and China's economy slowed. Future demand will be affected by a persistent pandemic and its impact on supply chains, a global economic slowdown and volatile commodity prices, while the supply will depend on fleet growth, for which in 2022 deliveries only grew

by 3.6 per cent. Dry bulk freight rates are further being disrupted by the war in Ukraine as well as by higher operational costs arising from the energy transition and new environmental regulations.

For oil tankers, freight rates can be expected to increase with a potential rise in oil demand and trade and a reshuffling of global oil flows resulting from the war in Ukraine. There is also likely to be some fall in capacity as the IMO's EEXI and CII regulations take old tankers out of markets.

Digital trade facilitation speeds up customs clearance, and the release of goods, particularly during emergencies

Many supply chain disruptions and logistical logjams can be eased through trade facilitation, especially in the developing and least developed countries, and particularly by digitalization which enhances transparency, speeds up clearance, allows for risk management and pre-arrival processing, and enables more responsive and agile processes. Indeed, had COVID-19 struck a few decades earlier the disruption would have been far worse.

A number of trade facilitation solutions specifically aim to cut waiting and clearance times in ports. Some speed up documentary processes, including pre-arrival processing, with the use of e-documents and electronic payments. Others relate to enabling the separation of release from clearance – where goods can be conveyed directly to warehouses of trusted importers to await subsequent clearance, often not even undergoing physical inspections. Trade facilitation also provides for specific measures for shipments of medical supplies, emergency goods, and perishable cargoes, with expedited procedures.

The war in Ukraine disrupts food and energy supplies and moves shipping into sharp focus

The war in Ukraine, and the related economic restrictive measures, are affecting maritime transport far beyond Europe and the war zone. The war dented global business confidence, amplified uncertainty and increased volatility. The effects rippled across commodity and financial markets, and supply chains, with serious implications for food and energy security as well as for inflation and the cost of living. Inflation had already started rising in 2021 amid high freight rates, but the war in Ukraine further drove up commodity prices and inflation, opening up the prospect of stagflation and a global recession.

Ukraine and the Russian Federation are among the world's breadbaskets; they provide around 30 per cent of the world's wheat and barley, one-fifth of its maize, and over half of its sunflower oil. The Russian Federation is also a major supplier for other critical products: together with Belarus, the country exports around a fifth of the world's fertilizers, and is leading exporter of natural gas and the second-largest exporter of oil. The war thus has serious implications for commodity shipments and food security and has brought shipping and ports to the forefront of public attention.

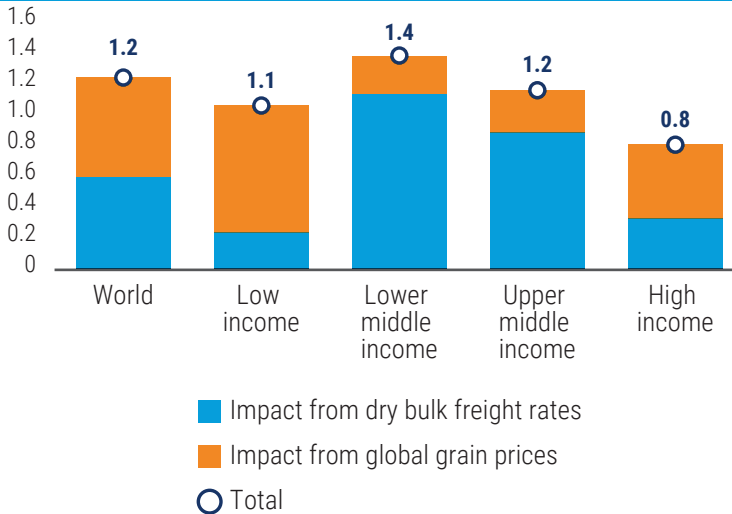
The war stopped grain shipments through Black Sea ports, with dire consequences for poor countries. In 2021, Ukraine's grain exports had been about 4.2 million tons per month, totalling 50 million tons for the year. By early March 2022 they had dropped to zero. Food prices, which had already been increasing, then soared.

Dry bulk freight rates also increased because of the war in Ukraine, rising energy costs, and the prolonged pandemic. An UNCTAD simulation projects that higher grain prices and dry bulk freight rates can contribute to a 1.2 per cent increase in consumer food prices (figure 7). The price increases will be slightly higher in middle-income economies whose food imports depend more on dry bulk shipping (figure 8). Low-income economies have limited capacity in primary food processing and import more processed food which arrives in containers (figure 9).

Prospects improved in July 2022 as the United Nations, the Russian Federation, Türkiye and Ukraine agreed the Black Sea Grain Initiative. The initiative allows exports from Ukraine of grain, other foodstuffs, and fertilizers, including ammonia, to resume through a safe maritime humanitarian corridor from three key Ukrainian ports: Chornomorsk, Odesa, and Yuzhny/Pivdennyi, to the rest of the world. A Joint Coordination Centre (JCC) was established in Istanbul to monitor implementation of the deal. Shipments monitored by the Initiative began on 1 August. As of 12 October 7.2 million tons of grains and other foodstuffs had left Ukraine. This freed up some space in Ukraine's silos still full from previous harvests, but more grain needs to be exported to allow for storage of the new harvest. Equally important is resuming fertilizer exports.

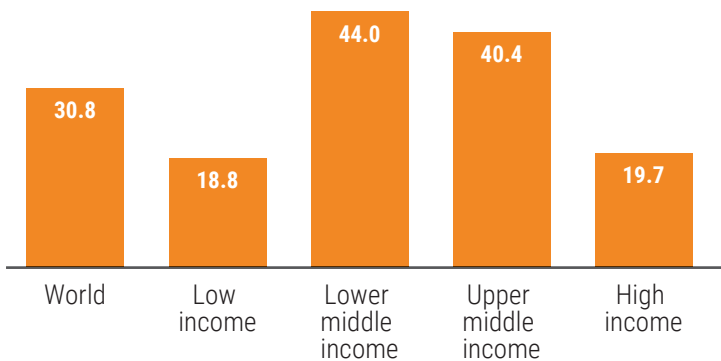
One major obstacle for grain-carrying ships from Ukraine's Black Sea ports is insurance. Ships from the Russian Federation also face high vessel insurance premiums.

Figure 7 Impact of higher dry bulk freight rates and global grain prices on consumer food prices, selected country groups (percentage change)



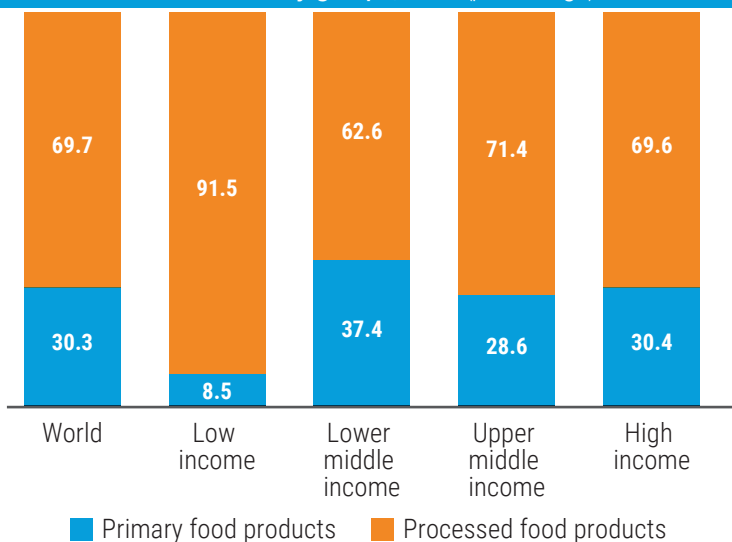
Source: UNCTAD calculations based on data provided by Clarksons Research, Shipping Intelligence Network, the IMF, International Financial Statistics, Direction of Trade Statistics and Consumer Price Index, UNCTADstat, and the World Bank, World Integrated Trade Solution, Commodity Price Data (The Pink Sheet) and A Global Database of Inflation.

Figure 8 Share of grains imported by bulk ships in total food imports, selected country groups, 2019 (percentage)



Source: UNCTAD calculations based on data provided by Sea/Net and Food and Agriculture Organization, Food Balances.

Figure 9 Share of primary and processed food products in food imports mainly for household consumption selected country groups, 2020 (percentage)



Source: UNCTAD calculations based on World Bank, World Integrated Trade Solution.

The war alters trading patterns and disrupts supply chains

Following the war in Ukraine, trade patterns are shifting as buyers seek substitute suppliers, who are usually more distant, adding to ton-miles. Nigeria, for example, is now sourcing potash from Canada, while Egypt is importing wheat from India, as are several East Asian countries. African countries are importing more grain from Brazil, while China is expected to switch its corn sources to Brazil and buy more from the United States. The European Union is also likely to import more corn from Brazil and from the United States.

Oil and gas trades are also being reconfigured as the war deeply challenged global energy supply. Bans on Russian exports are likely to boost global coal demand, while also stimulating investment in renewable electricity, which will in turn boost the demand for minor bulk metals.

There have also been impacts on container shipping. Nine of the top-ten global container lines have suspended operations in the Black Sea region, while other logistics businesses have exited the Russian market.

As a result, between the first and second quarters of 2022 Ukraine lost all its liner shipping connections. Over the same period, the Russian Federation lost 50 per cent of its liner services – for its ports in the Black Sea, Baltic Sea and the Far East.

The fall in direct connections to the Black Sea area has affected global logistics, and amplified port congestion in Europe. Moving ahead, the war's impact on container shipping is likely to deepen as a protracted war will dampen global economic growth, cut consumer spending power and reduce demand. It will also increase oil prices, inflation, and the cost of living, and add economic and investor uncertainty.

The Russian Federation and Ukraine are not deeply integrated into global networks for container shipping. Nevertheless, because the two countries supply metals used in the manufacture of cars and renewables the war is amplifying global supply chain disruptions.

In addition, restrictions have made it difficult for shippers and logistics service providers to use the China–Europe rail route which runs through the Russian Federation. They are, however, finding new routes, such as the Middle corridor and the Trans-Caspian International Transport Route.

Seafarers are affected by the lasting pandemic, and by new disruptions

In 2022, based on lessons from the COVID-19 pandemic, governments, seafarers and shipowners agreed amendments to the ILO Maritime Labour Convention, which aimed to strengthen ship health and safety policies and improve seafarer access to medical care ashore and to communications lines with their loved ones. The International Chamber of Shipping also released guidelines for ship operators and shipping companies, covering seafarer health and wellbeing, and vaccination best practices. WHO has issued guidance for the management of COVID-19 on cargo ships and fishing vessels, and has started work towards an international instrument on pandemic preparedness and response.

In April 2022, the IMO adopted a resolution on the evacuation of seafarers from war zones around the Black Sea and the Sea of Azov. The organization has also encouraged continuing efforts to create safe maritime corridors and evacuate seafarers from affected areas, and issued guidance on the impact of the situation in the Black Sea and the Sea of Azov on insurance or other financial security certificates.

Pandemic-related disruptions affect international commercial contracts

With more than 80 per cent of global merchandise trade carried by sea, and much of global commodities trade conducted on cost, insurance, freight (CIF) and free on board (FOB) terms, the pandemic has legal implications for many closely interconnected commercial contracts. In all cases where performance is disrupted, delayed, or has become impossible, legal consequences and claims arise, involving complex jurisdictional issues and increasing the need for costly dispute resolution.

Commercial risks arising from the pandemic should be fairly allocated through suitably drafted contractual clauses, but considerations will differ depending on the type of contract and the relative bargaining power of the parties. Governments can also provide support, for example by strengthening formal and informal dispute resolution mechanisms and by considering possible mandatory controls on container demurrage accruing at pandemic-affected ports.

MARITIME TRADE IN A RAPIDLY CHANGING AND UNPREDICTABLE WORLD

Maritime transport and trade systems are thus evolving in complex global economic environment and being buffeted by cascading disruptions. But they are also being reshaped by other global factors that can trigger structural shifts. These include climate change and the energy transition, the need for sustainability and resilience, digitalization and e-commerce, and growing market and industry consolidation.

E-commerce expansion outlives the pandemic driven by changing consumer habits and technology

The pandemic resulted in a surge in e-commerce for consumer goods transported in containers. Even as the pandemic eases and the global economy reopens, these trends are continuing. Shippers, retailers and supply chain managers are increasingly adjusting their operations and reassessing their logistics systems.

Major maritime businesses have, for example, been extending their activities by tapping areas such as air freight, final-mile delivery, and e-commerce logistics. In 2021 Maersk, for example, the second world

largest container line, acquired various e-commerce logistics companies, including a cloud-based logistics start-up that specializes in technology solutions for B2C warehousing for the fashion industry.

Ecommerce is acutely time-sensitive so shipping and port operators need to speed up their services to remain competitive while also differentiating themselves. This will entail changing shipping patterns and port operations, and extending warehousing capacity. Going forward, digital tools that enable e-commerce growth, collaboration and data sharing will all be important for reaping the full benefits of the growing e-commerce segment.

Digitalization transforms trade and transport

Disruptions are accelerating the use of technology to navigate through the complexities of transport planning and supply chain operations. In a post-COVID, post-war era, higher expectations of rapid delivery put a premium on efficiency, optimization, reliability, visibility, resilience, predictability, and sustainability. If maritime transport operators are to navigate through this new environment, they will need to find innovative business models, and use more advanced digital technologies.

Digitally enabled shopping boosts trade. At the same time, other technologies, such as automation which may reduce the need to offshore production to take advantage of lower labour costs, will probably constrain trade flows. Either way, maritime transport and trade will need to adjust and adapt to technology, and an important part of this is to defend information and communication systems and infrastructure against ever present threats to cybersecurity.

Governments and international organizations must therefore make every effort to close digital divides in transport and logistics and ensure that developing countries can also ride the digitalization wave.

Frequent disruptions and geopolitical risks fuel supply chain reconfiguration debate

The limitations of the just-in-time supply chain model have been exposed not only by the pandemic but by other disruptors observed over the past decade, including, earthquakes, floods, blockage of strategic maritime passages, trade tensions and restrictive trade measures.

In 2022, supply chains were further threatened by the deteriorating geopolitical environment – especially those that relied on one or two suppliers, whether for food, energy or parts and components. These risks were spotlighted by the 2021–2022 semiconductor shortages, whose effects rippled across many industries, notably car manufacturing, electronics, and healthcare.

These developments have reignited the debate over globalization and the future of lean supply chains. Rather than relying on just-in-time models, some companies are therefore revising their operations and considering adopting just-in-case and just-enough business models and seeking other ways to build resilience, supply chain integrity and continuity. Instead of seeking lowest-cost solutions, more companies are pursuing best-cost options that balance manufacturing and transportation costs against factors such as supply chain resilience and environmental sustainability.

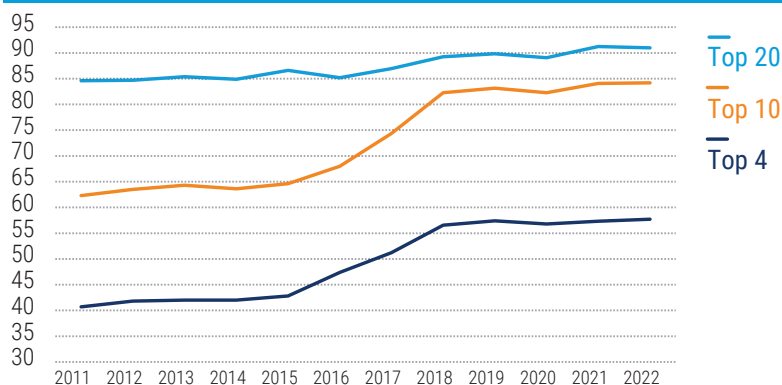
While the debate is ongoing, thus far there is no evidence of a mass exodus from distant manufacturing. Reshoring may not be feasible for all manufacturers because domestic suppliers will require the capacity to rapidly scale up operations as well as build the required expertise. In these circumstances, shifts in sourcing are likely to be more gradual.

Authorities need to ensure competitive markets in the face of industry consolidation

Often in response to oversupply of capacity, the container shipping sector has undergone horizontal consolidation through mergers and acquisitions, including outside shipping. Shipping carriers have also pursued vertical integration by investing in terminal operations and other logistics services. They are also working together in consortia and alliances.

As a result, between 1996 and 2022, the top 20 carriers increased their share of container-carrying capacity from 48 to 91 per cent. And over the past five years the four largest carriers increased their market shares so as to control more than half of global capacity (figure 10).

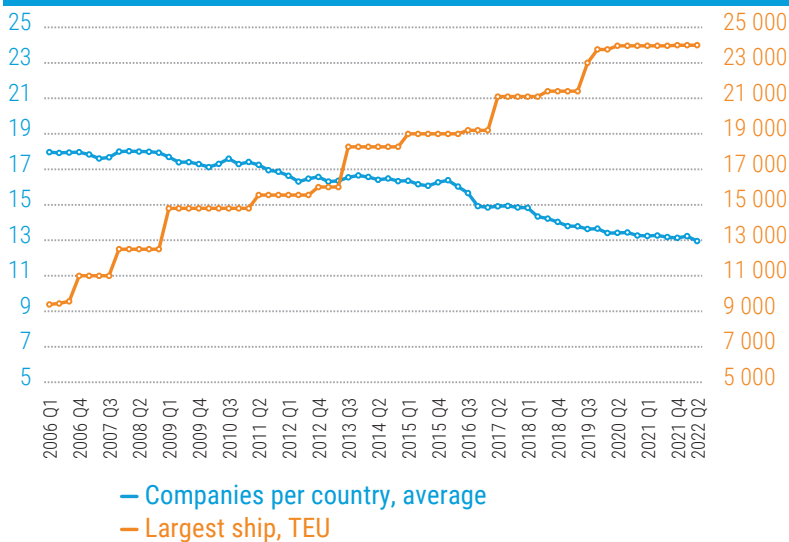
Figure 10 Market shares of top four, top ten and top twenty carriers, 2011–2022 (percentage)



Source: UNCTAD, based on data provided by Alphaliner.

An important consideration is the number of companies that provide services in each country. Generally, this has been falling. As indicated in figure 11, between 2006 and 2022 the average number dropped from 18 to 13. At the same time, the average size of the largest ship arriving in each country almost tripled. As ships expand faster than volumes, this tends to squeeze out smaller competitors. Compared with 2006, the number of companies offering services to importers and exporters rose in 56 countries, but fell in 110 countries, and notably in several small island developing States, where a duopoly of just two carriers dropped to a monopoly of one.

Figure 11 Average number of companies providing services per country, and size of the largest ship
Q1 2006–Q2 2022



Source: UNCTAD, based on data provided by MDS Transmodal.

Vertical integration has enabled the four largest container shipping lines to offer more of their own terminal services. Today the two largest container terminal operators, in terms of throughput, are China Cosco Shipping and APM Terminals, both of which are affiliated to two major Chinese and Danish shipping lines.

The most common form of collaboration is strategic alliances. Since 2015, the proportion of global capacity controlled by carrier members of such alliances has increased to more than 80 per cent. Today, the top nine container operators organize their East-West route services through three strategic alliances that include no smaller carriers.

Integration has given carriers and their alliances stronger negotiating and bargaining positions vis-à-vis the port authorities, as they now have two seats at the table – as both tenants of terminals and providers of shipping services.

To meet climate goals, shipping and ports look to alternative fuels

Ship owners face more stringent environmental regulations. On 1st January 2023 three new IMO regulations come into force – aiming to reduce maritime greenhouse gas emissions and the environmental impact of ships. One is the CII regulation, on the basis of which 30 to 40 per cent of containerships and dry bulk carriers were considered non-compliant in 2021.

The most immediate way to reduce emissions is slow sailing. But ship owners can also retrofit their ships with energy-efficient technologies so as to use alternative fuels such as LNG, methanol, ammonia, or electricity, or make operational changes. This will drive up costs and affect insurance coverage, as well as future access to investment and capital.

Alternative fuels currently cost two to five times as much as conventional fuel so are not yet commercially viable. Fleet owners can, however, keep their options open with dual-fuel vessels. As of 1 March 2022, almost 40 per cent of the orderbook consisted of ships capable of running on one or more fuels. To scale up the use of alternative fuels, ports need to provide low-emission energy supply infrastructure.

Ports, carriers and everyone involved in maritime supply chains can redefine the competitive landscape for low-emission shipping. This could, however, create a two-tier system of ports and corridors in which only small proportion are alternative-energy-ready. This would limit the number of potential routes.

Climate change mitigation and adaptation in maritime transport: two sides of the same coin

Adapting ports to the impacts of climate change is a growing concern for policymakers and industry alike, but progress on the ground remains slow. There is a growing risk of climate change impacts threatening ports, with important implications for the sustainable development prospects of the most vulnerable nations.

At COP26 in Glasgow the Clydebank Declaration aimed by 2025 to establish six zero-emission green corridors – entirely decarbonized maritime routes between two or more ports. Also at that conference, the Climate Vulnerable Forum, comprising more than 50 developing countries, issued the Dhaka-Glasgow Declaration which included a call for the IMO to work on a mandatory GHG levy on international shipping.

To accelerate efforts on climate change mitigation, the IMO has started work on a revised GHG Strategy for consideration in 2023, as well as on mid-term measures, including some that are market-based. In addition, there are proposals to establish an International Maritime Research and Development Board, and a related fund which could finance the development of zero-GHG technologies to be available to all countries. Other proposals for market-based measures include the use of generated funds for financing climate change adaptation investments, especially in the most vulnerable economies. At the EU level, regulatory proposals are under consideration to extend the EU Emission Trading Scheme to maritime transport activities; if and when adopted, these could have potentially important implications for both intra and extra EU trade.

Reducing pollution from shipping

As well as emitting CO₂, ships are a major sources of air pollution. From 2020, to comply with the International Convention for the Prevention of Pollution from Ships, 1973/1978, ships operating worldwide, have had to use fuels that contain less than 0.5 per cent sulphur. In 2021, the IMO's Marine Environment Protection Committee adopted updated guidelines for exhaust cleaning systems, as well as a resolution urging the voluntary use of cleaner alternative fuels or methods of propulsion that could contribute to the reduction of black carbon emissions from ships operating in or near the Arctic.

Another major form of maritime pollution is associated with bunker oil spills. Work continues at the IMO on developing a claims manual for the Bunker Oil Pollution Convention, 2001 which governs liability for bunker oil spills from vessels other than tankers. Care should be taken in further related work to ensure that the manual effectively responds to the needs and concerns of claimants, including in vulnerable developing countries. In November 2021, reacting to the ever-growing crisis of plastic pollution the IMO adopted a strategy on marine plastic litter from ships. And in March 2022, UNEP adopted a resolution to start work towards an international legally binding instrument to end plastic pollution. Discussions also continue on elaborating the text of an international legally binding instrument under the UNCLOS 1982 on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.

Maritime transport needs to keep pace with change and ensure resilience

Faced with a rapidly changing operating landscape, along sudden disruptions, the maritime trade and transport industry, including shipping, ports, and shippers, has little option but to keep pace with change. Returning to a pre-COVID and pre-war normal seems less and less likely, so maritime trade stakeholders will need to strike balances between a new, and often competing, sets of objectives and priorities.

Already, and largely accelerated by the pandemic, industry stakeholders are shifting focus and revisiting plans and strategies. While the pace of this trend may vary across shipping segments and stakeholders, much of maritime transport industry is putting more priority on customer relations, managing risks, stronger planning, preparedness, resilience and digitalization. They are also increasingly reinventing their own image and service offerings including by tapping new business areas and frontiers with end-to-end control over supply chains.

The maritime industry should also build women's skills and achieve gender equality

The ports industry is still dominated by men. The UNCTAD TRAINFORTRADE Port Performance Scorecard (PPS) gathers data from 58 port entities and in 2021 found that women made up only 17 per cent of the overall port workforce. Most were employed in management where they were 43 per cent of workers, though the proportion was higher in Asia at 60 per cent. But for cargo handling women were only 8 per cent of workers, and for port operations only 6 per cent.

Ports need to conduct more training for both women and men. In 2020–2021, training was only a small proportion of labour costs, partly because ports reallocated funds to managing the pandemic while also switching to cheaper online and distance learning.

PRIORITY ACTION AREAS

1. Governments should control the pandemic and mitigate its impact on the most vulnerable

- This calls for better access to vaccines, testing and to therapies, particularly in developing countries. Governments will need to minimize lockdowns and restrictions that could unduly penalize recovery in vulnerable economies.

2. Support growth, protect the poorest, and enable trade

- Promote economic growth and strengthen macroeconomic frameworks, while taming inflation and reducing financial vulnerability.
- Help the most vulnerable by promoting food security and reducing poverty.
- Avoid export and import restrictions that compound disruptions.

3. Tackle supply side infrastructure and services constraints

- Before investment, carefully assess potential changes in shipping demand.
- Enhance transport infrastructure, improve port performance and productivity, enable connectivity, expand storage and warehousing space and capabilities, minimize labour and equipment shortages, and generally make ports and their hinterland connections more efficient and adequate to handle shifts in demand.
- Develop and upgrade port infrastructure and hinterland connections while involving the private sector.
- Develop regional fleets and shipping services to tackle high transport costs and other challenges faced by developing countries.

4. Implement transport and trade facilitation solutions at ports and borders

- Speed up processes through digitalization, particularly pre-arrival processing, electronic payments, and e-documents. Continuously simplify procedures and requirements and remove those no longer needed. For any trade measure, choose the least trade restrictive.

- Adopt smart and green trade logistics systems and remove legal and regulatory obstacles to the use of electronic documents.
- Facilitate crew changes and address the seafarers crew change crisis, through collective action by governments and industry.
- Coordinate efforts, enhance collaboration, share information and prepare for coordinated solutions. Employ real-time, digital platforms and electronic single windows using the AIS/GIS system.

5. *Move to a clean-energy and low-emissions future*

- Establish a predictable global regulatory framework for investing in the energy transition and decarbonization.
- Raise awareness of the new IMO regulations and support implementation and compliance.
- Help ports in developing countries harness the energy transition and decarbonization.

6. *Encourage digitalization and tapping the opportunities from e-commerce*

- Help developing countries expand the use of digitalization and e-commerce, and adopt smart maritime logistics. Provide more training, particularly for the use of new technology.
- Upgrade trade facilitation and logistics infrastructure and services, including last-mile logistics.

7. *Monitor freight rates and charges*

- Monitor industry trends and, when necessary, take action to ensure level playing field that does not exclude smaller players, including stakeholders in developing countries.
- Establish monitoring tools and performance measurements, including regional maritime indices and freight observatories.
- Introduce mandatory controls on demurrage charges for containers at ports, and strengthen formal and informal dispute resolution mechanisms.

8. *Ensure competitive markets*

- Strengthen the capacity of national regulators as well as competition and port authorities, especially in SIDS and LDCs and introduce more transparent indices for freight costs, similar to those available for the main shipping routes.
- Competition and port authorities should work together respond to vertical integration of carriers with measures to protect competition.
- Strengthen international cooperation on cross-border, anti-competitive practices in maritime transport, including on the basis of the UN Set of Competition Rules and Principles, and using the expertise of UNCTAD.

9. *Build resilience*

- Establish a long-term vision and resource mobilization strategy for resilient and sustainable maritime supply chains.
- Help developing countries build capacities to anticipate, prepare for, respond to, and recover from, significant multi-hazard threats, by promoting agile and resilient maritime transport systems.
- Invest in risk management and emergency preparedness for pandemics and other disruptive events in ports and maritime supply chains.
- Upscale capacity-building and affordable infrastructure finance for climate change adaptation and resilience-building of seaports and other critical transport infrastructure in developing countries.
- When reconfiguring supply chains and deciding on where to locate production for more resilient supply chains, options should be carefully assessed to balance efficiency and cost savings, and concerns for national security, autonomy, self-reliance and resilience.
- Employ more women in ports and scale up staff training as a resilience-building strategy.

10. *Revitalize multilateral cooperation*

- Build stronger and more effective multilateral cooperation frameworks that can reduce conflict and disruptions, accelerate a robust and inclusive global recovery, address climate change and its impacts, and move towards low-carbon growth.

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