



COVID-19 and Global Sea Transport

Institute for International Trade

Executive Summary

Maritime shipping has been at the very core of the globalisation process. It is a carefully balanced system that maximises capacity utilisation while adapting to annual shifts in demand and long-term trends in economic development. COVID-19 has delivered a dramatic shock to the system.

The pandemic has revealed weaknesses as evidenced by long offshore ship queues, skipped port calls, and substantial price hikes.

Some negative effects are likely to be transient and responsive to resolution of the health crisis, as well as economic stimulus via short-term policy measures. However, more sustained efforts will be required if we are to improve the resilience of the sea transport system ahead of future

crises. While some steps could be taken to facilitate shipping operations directly (e.g., facilitation of crew travel), actions in complementary areas may deliver more substantial results. Examples may include construction of physical infrastructure (e.g., port capacity development), reductions in red tape at ports (i.e., trade facilitation), improved international alignment of regulations and standards, and further transportation and related logistics services liberalisation in developed and developing country markets.¹

Shipping and globalisation

Shipping has contributed to globalisation and, in turn, been influenced by it. When steamships began to crisscross the Atlantic in the 1830s this halved transatlantic travel time, opening new opportunities for international travel and transportation. The introduction of the standardised shipping container some 150 years later revolutionised shipping by facilitating the loading of ships and cutting significantly the time required to sort and distribute cargo. Technological developments subsequently permitted maritime transporters to

reap tremendous economies of scale by increasing ship capacity and use of intermodal shipping channels.

Containers

In the 1950s, investments in purpose-built container shipping facilities got started. And, this mode of transport gradually became the backbone for international merchandise trade.² The acceptance of standardised container shipping accelerated during the 1960s due to pressures from the Vietnam War and the logistic needs of the US forces. By the 1980s, transport companies had adopted standardised containers for use across the various modes of transportation. Pursuit of further economies of scale fueled subsequent demand for ultra-large container ships. These developments dramatically reduced shipping and insurance costs, while improving security and the ability to manage logistics. Increased transportation efficiency fostered offshoring, the expansion of global value chains (GVCs), and the careful optimisation of production processes.

Enter COVID-19

The COVID-19 pandemic, however, created a series of challenges to the operations of the shipping sector and the business model typical of GVCs. It disrupted patterns of demand around the world, creating a series of imbalances. For example, the employment shift towards working from home and the consumer shift toward shopping via ecommerce drove a significant increase in the demand for electronic devices (and consequently microchips). Demand for health-related products greatly expanded. Shipping carriers reoriented their vessels to relatively profitable routes leading to an accumulation of containers in the “wrong” places. Meanwhile, ship crews faced impediments in travel to and from their assignments.

Moreover, various countries adopted supportive macroeconomic policies in response to the pandemic. This created additional stress in the delicately balanced global shipping system. The US alone injected stimulus of more than US\$ 5trn in supplementary, COVID-related, government spending.³ The effect on US imports, especially from Asia, has been massive. According to the US National Retail Federation⁴, imports of containers (TEU, twenty-foot equivalent units) hit an all-time high of 22 million TEU in 2020, up 43% from 2010. US retail container import volumes are on track to hit 25 million TEU or more in 2021. Chinese ports, in particular, have experienced increased demand even as they were disrupted by COVID-19 and preventive measures. Congestion and imbalances that initially hit transpacific routes have spread and affected shipping globally.

Hanging in the balance

The capital cost of a ship is substantial and owners seek to employ any available capacity while also avoiding excess capacity. For example, a recent A.P. Moller-Maersk company investor report highlighted the firm’s strong vessel capacity management skill in aligning supply and demand to deliver a utilisation rate of 95.9% in 2Q2021.⁵ Such balancing is challenging for shipping companies given the high costs, lengthy construction periods, and long service lives of ships.

Decisions must be taken even as demand shifts seasonally each year and over the multi-year business cycle.

Sizeable imbalances are not easily rectified in the short term. Across the roster of available ships, many are not readily fungible to suit the cargos and needs of a particular shipper. A ship’s size and draw can limit where it has access. And the types of cargo capacity needed may not correspond to the types of ship that are available, whether container ships, bulk dry carriers, or tankers.

Container imbalances may also be challenging to address. US transpacific imports, in particular, are affecting availability of containers elsewhere. As of autumn 2020, freight forwarder Hillebrand reported that for every 100 containers being imported by the US, only 40 were being re-exported.⁶ Consumer demand in other advanced economies, including some European nations, is further exacerbating this distress.

Challenges in availability of ships and containers are having a significant impact on freight rates.

Drewry, a UK-based maritime consulting service, has developed a standardised indicator to measure rates: their World Container Index points to a hike in 40-foot container shipping rates from about USD 1500 on 15 August 2019 to USD 9421 on 12 August 2021.⁷

Third-country impacts

The impact goes well beyond the US-Europe-China shipping routes. As the COVID-19 Delta variant leads to new partial closures of key ports in August (e.g., Ningbo-Zhoushan in China, one of the busiest container ports in the world), the ripples of the crisis reverberate and affect shipping globally in a significant manner. According to some estimates, by mid-August there were roughly 350 containerships waiting off ports around the world.⁸ These delays have impacted further on logistics costs adding to the imbalances between supply and demand of containers in different regions and leading to an increase in blank sailings – skipped port calls.

The current shortage of containers and container ships has significant implications for third countries. Although attention may focus on the costs for the most travelled routes, the reality is that the surge in freight rates is even more dramatic in the case of thinner routes serving parts of the developing world. For example, UNCTAD has been tracking weekly spot rates for containerised freight. They have found that the Shanghai-Santos (Brazil) and Shanghai-Lagos (Nigeria) routes have experienced increases even larger than the ones observed on Shanghai-US West Coast or Shanghai-Europe routes.⁹ Moreover, the current imbalances have led to an increase in the demand for new container ships. This, in turn, is crowding-out the capacity of shipyards to respond to the uptick in demand for bulk vessels, affecting the prospects of some commodity exporters.¹⁰

Infrastructure matters

Systemic stress in shipping is not solely an issue for the shipping companies. As noted in the previous section, the capacity of ports to load and unload plays a role. Economies of scale have promoted increased ship size, which can be especially challenging for ports and waterway infrastructure when things go awry. This was recently demonstrated by the temporary blockage of the Suez Canal due to the grounding of the *Ever Given* a 220,000-ton super-carrier for containers.

Incoming and outbound local transport networks – rail, truck, or plane – also need to adapt to shifts in demand. Their bottlenecks affect turnaround times for ships in ports. Thus, the quality of transportation infrastructure across the board influences maritime shipping capacities, as do the complementary port procedures, trade regulations and applicable international standards.

Reductions in port capacity due to COVID-19 and the emergence of bottlenecks have tangible impacts on shipping.

For example, as of mid-June 2021, the massive port at Yantian in South China was facing delays of 16 days or more due to such constraints.¹¹ In another example, as of 27 August 2021, the twin ports of Los Angeles and Long Beach reported 44 container ships that were anchored and waiting a berth space, with a record expected average wait of 7.6 days.¹²

A lock on the shipping channel?

Regulatory and procedural impediments constrain the supply of shipping services in most markets. The OECD Services Trade Restrictiveness Index provides an indication of the extent of such constraints for 22 service sectors in 38 OECD countries and 10 non-members. Charts 1 and 2 highlight the trade restrictions in two sectors directly related to the shipping system: *Maritime Transport* and *Logistics: Cargo-Handling*. The index is scored from zero to one, with higher scores indicating greater restrictions

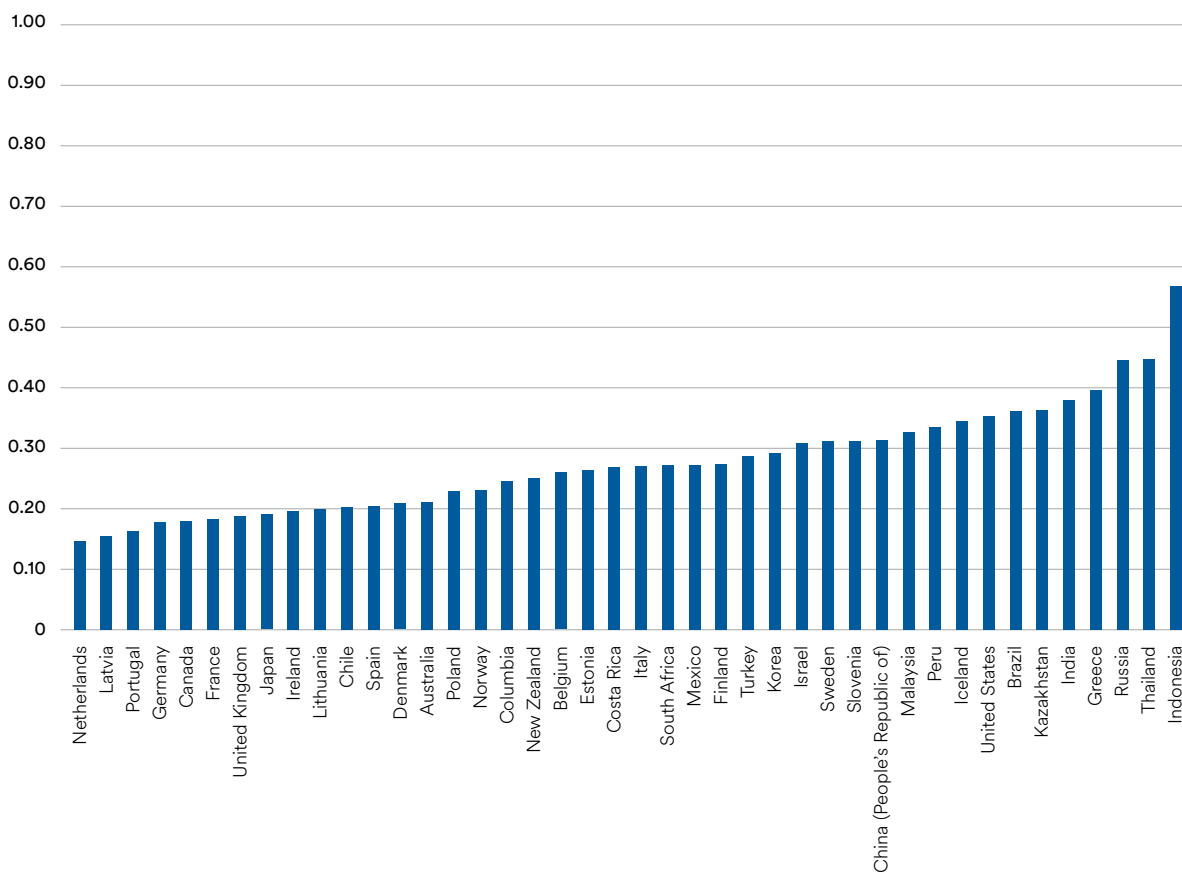
on market openness. Scores above 0.1 tend to indicate meaningful impediments to services trade.¹³ From the two charts, it can be seen that in each country and sector covered, there are substantial impediments to trade. With respect to *maritime transport*, the leading impediment is barriers to foreign entry.¹⁴ Restrictions to movement of people are also significant in many countries. For *logistics: cargo handling*, the largest impediments most often are regulatory transparency and barriers to sector competition, though restrictions to foreign entry can be significant as well.¹⁵ Moreover, there are similar impediments in other aspects of logistics such as freight forwarding, customs brokerage, and storage and warehousing.

Brittle shipping

When stressed by high demand, the system can be brittle. For example, its resilience was severely tested by the *Ever Given's* six-day blockage of the Suez Canal. Lloyd's List estimated that the stakeholder losses amounted to some US\$ 9.6bn per day.¹⁶ Perhaps more than 400 ships ultimately awaited passage through the canal during the blockage (per BBC, 14 April 2021), and a few sailed the costly long route around Africa. Some shippers resorted to air transport for time-sensitive loads. Consumers shifted some demand to e-commerce channels using express mail. Producers faced container shortages and disrupted supply chains, delaying subsequent shipments.

Economically, the trade transport challenge is closely bound up with the disruption in supply chains. They are mutually reinforcing: surges or failures in supply chain segments can leave shippers with too many or too few containers at certain locations; a lack of ship availability can lead to production shutdowns as input supplies are exhausted at factories. In response, producers may feel compelled to boost inventories and build redundancy into systems, sacrificing some efficiency.

Chart 1. OECD Services Trade Restrictiveness Index (STRI): Maritime Transport, 2020



Source: OECD (2021), *Services Trade Restrictiveness Index*. Note: The STRI is scored with a range from 0.0 to 1.0, with zero reflecting a completely open market and one a completely closed market. Scores above 0.1 reflect meaningful restrictions on trade. The STRI covers up to 48 countries including the 38 OECD members and 10 non-members. For maritime transport, no scores are reported for: Austria, Czechia, Hungary, Luxembourg, Slovakia or Switzerland.

In sum, COVID-19, economic stimulus policies in the US and Europe, and infrastructure shortfalls have combined with existing impediments to trade such as red tape and regulatory burdens at borders to reveal costly weaknesses in global shipping. This picture has been further complicated by geopolitical developments such as Brexit, US-China trade tensions, and blockages in key activities at the WTO (e.g., the functioning of the Appellate Body of the Dispute Settlement System). Multilateral rules can help address some of the bilateral frictions among major trading powers. In this context, a solution to the current crisis in the appointment of judges to the WTO Appellate Body should be a priority.¹⁷

Depending on the evolution of the pandemic, the immediate COVID-related congestion may prove transient and could clear during 2022. But, sustainable improvements in the resilience of the world's shipping networks are likely to take even longer. Triggers for imbalances are complex and hard to resolve, requiring

legal changes, infrastructure construction projects, and bilateral or multilateral negotiations to further cut red tape and align standards and regulations.

What is to be done?

Winston Churchill once said that one should “Never let a good crisis go to waste.”¹⁸ Given the complexity of the crisis and the continuing stress in global shipping, a multipronged policy response will likely be required if the system resilience is to be enhanced in a substantial manner. The foregoing assessment points to at least three priority areas for action.

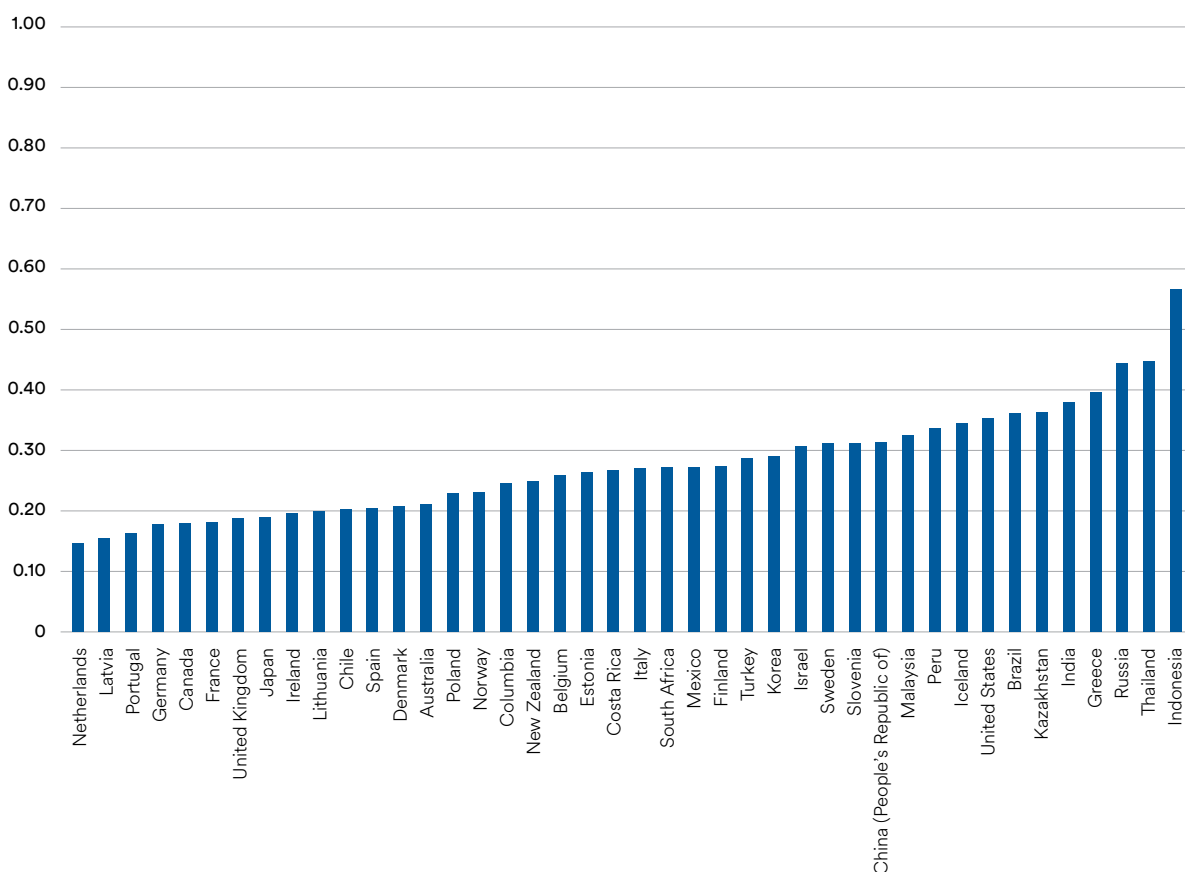
Crew travel facilitation – From the early stages of the pandemic, the shipping industry faced a challenge in staffing. As highlighted by the International Maritime Organization (IMO), government health measures around the world impeded crew changes and repatriation of seafarers.¹⁹ This disrupted shipping and also constituted a humanitarian crisis. IMO has developed a detailed set of protocols for safe passage

of ship crews. Government acceptance of these protocols and designation of ship crews as key workers would contribute to shipping resilience in the event of continued disruption from COVID-19 or, where appropriate, in the event of future health emergencies.

Infrastructure improvements –

The visible weaknesses and bottlenecks revealed by the pandemic, for example, queues of ships anchored off the US coast – have helped create momentum for infrastructure development. For example, a portion of the proposed US infrastructure package now before the US Congress – *The Infrastructure Investment and Jobs Act* – would begin to address US port, rail and road bottlenecks. Other countries may follow suit in response to their own pandemic experiences with shipping congestion. A paper published by the Commonwealth Secretariat recommends upgrading port infrastructure in order to improve economic resilience among its 54 member-states.²⁰

Chart 2. OECD Services Trade Restrictiveness Index (STRI): Logistics Cargo Handling, 2020



Source: OECD (2021), *Services Trade Restrictiveness Index*. Note: The STRI is scored with a range from 0.0 to 1.0, with zero reflecting a completely open market and one a completely closed market. Scores above 0.1 reflect meaningful restrictions on trade. The STRI covers up to 48 countries including the 38 OECD members and 10 non-members. For maritime transport, no scores are reported for: Austria, Czechia, Hungary, Luxembourg, Slovakia or Switzerland.

Given the experience with bottlenecks, the continued lackluster performance of the global economy in some areas, and the relatively low capital costs currently available in some economies, now may prove to be a good time for appropriate steps to address infrastructure shortfalls. In the Eurasian region, one important test case may be found in the Chinese-led Belt and Road Initiative, which aims to improve regional trade policy coherence and close gaps in physical infrastructure related to ports, roads, railways, airports, telecommunications and power plants.²¹ While some significant steps have been taken under the initiative, debt concerns in some participating countries may slow progress. Reinforcement of resources and political engagement in support of BRI may be needed if it is to achieve its objectives.

Trade policy action – Further trade policy action could complement physical infrastructure improvements. Resilience will flow from a more complete implementation of the WTO’s Trade Facilitation Agreement that entered into force in 2017 with an objective of cutting red tape and other constraints at the border. The upcoming WTO Ministerial Conference in November 2021 could provide an opportunity to unblock adjudication at WTO and advance negotiations to reduce regulatory barriers in areas such as e-commerce and domestic services, among other areas. Over the long term, negotiation of further rules-based services trade liberalisation in transport and port services could facilitate shipping operations, promote resilience, and enhance competition.

Conclusion

While crew travel facilitation, infrastructure development, and trade policy actions could go a long way to improving global shipping, it should be acknowledged that some strategic issues will remain beyond the scope of such technical solutions. Some geopolitical and security matters will await foreign policy shifts or other political solutions. Meanwhile, the risks of further international fragmentation in approaches to trade governance will probably persist. While the efficiency gains associated with GVC operations outweigh the costs of hedging the risks, the balance could be improved via concerted efforts towards technical and political solutions to

improve the conditions for shipping. Absent such progress, public perceptions of this dimension of globalisation may remain characterised by a negative bias.

Success in delivering systemic improvements in shipping would facilitate global trade on an on-going basis, reducing inefficiencies and deadweight losses. It would also improve the resilience of shipping transport systems. Achievement of such enhancements would benefit not only shippers but could have positive effects for other stakeholders. For example, the resilience of producers engaged in supply chains activity may be improved. And, of course, with improvements in shipping channels, consumers could see their supply of competitive goods and services enhanced.

References

- ¹ The views expressed here are the authors’ alone, and do not express the views of the Institute for International Trade.
- ² Levinson, Marc (2016), *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger*, second edition, Princeton University Press.
- ³ This estimate is from a review by the Peter G. Peterson Foundation (“Here’s everything”, 15 March 2021) and covers COVID-related US Government spending between March 2020 and March 2021.
- ⁴ As cited in *The Maritime Executive*, “NRF: Imports are on Track for a TEU Record at US Ports in 2021”, 8 July 2021.
- ⁵ A.P. Moller – Maersk A/S, “Q2 2021 Interim Results”, 6 August 2021, pp. 43-44.
- ⁶ Hillebrand, “Where are all the containers? The global shortage explained”, 2020.
- ⁷ Drewry, “World Container Index”, 12 August 2021.
- ⁸ E.g., see *Financial Times*, “Shipping Bottlenecks”, 15 August 2021.
- ⁹ UNCTAD, Container shipping in times of COVID-19: Why freight rates have surged and implications for policy makers, April 2021.
- ¹⁰ See *FreightWaves*, “Container shipping boom is bleeding over into dry bulk”, 7 May 2021
- ¹¹ *Seatrade Maritime News*, “Yantian operations start improving”, 17 June 2021.

About the authors

Douglas C. Lippoldt is a non-resident Senior Fellow at the Centre for International Governance Innovation (CIGI) and former Chief Trade Economist, HSBC Global Research.

Carlos A. Primo Braga is an Adjunct Professor at the Fundação Dom Cabral, Brazil and former Director, Economic Policy and Debt, The World Bank.

- ¹² *Business Insider*, “A record-breaking 44 container ships”, 30 August 2021.
- ¹³ OECD, 2014, “OECD Services Trade Restrictiveness Index (STRI): Policy Brief”, May, p. 5.
- ¹⁴ OECD, 2021, “STRI Sector Brief: Maritime Transport”, January.
- ¹⁵ OECD, 2021, “STRI Sector Brief: Logistics Services”, January.
- ¹⁶ The Lloyd’s List estimate is cited from gCaptain, “The \$9.6 Billion A Day Price Of A Suez Stuck Ship”, 25 March 2021.
- ¹⁷ For further details see M.S. Aikman et al, 2021, “Confronting “Deglobalization” in the Multilateral Trading System,” Policy Brief T20, September.
- ¹⁸ A quote popularized by Rahm Emanuel, Chief of Staff for President Obama, in 2008.
- ¹⁹ See IMO, 2021, “In Focus: Coronavirus disease”, which includes an overview and links to details of the crew change protocols.
- ²⁰ Commonwealth Secretariat, 2021, “Harnessing Maritime Trade for Post-COVID Recovery and Resilience-Building in the Commonwealth”.
- ²¹ EBRD, 2021, “Belt and Road Initiative”.

Further enquiries

The University of Adelaide SA 5005 Australia
enquiries iit01@adelaide.edu.au
phone +61 8 8313 6900
web iit.adelaide.edu.au