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The geography of trade and supply chain reconfiguration: Implications for trade, global value chains and maritime transport

Note by the UNCTAD secretariat*

Summary

The geography of trade is intrinsically linked to global value chains, as a growing share of trade consists of cross-border shipments of unfinished goods and components within deepening supply chains. The geography of trade has fundamentally changed over the last decades as a result of trade liberalization, technological change and shifting comparative advantages. It has also been impacted by lower trade costs resulting from trade facilitation reforms and improvements in transport services, notably maritime shipping.

Maritime shipping moves about 80 per cent of global trade volume. The volume of seaborne trade per person has doubled during the last five decades. UNCTAD data show how developing countries have increased and shifted their participation in maritime trade during this period. While in the 1970s, developing countries were mostly exporters of raw materials and oil (shipped in bulk), today many of them participate in global value chains and the production of manufactured goods (shipped in containers). Looking at logistics services, it can be observed that expenditures in inventory holding costs have gone down over the decades, while payments for transport services have increased, in line with more just-in-time deliveries and improved logistics and trade facilitation services.

These long-term trends, however, are changing, and businesses and policymakers need to reconsider some basic assumptions about ever-improving trade logistics services. The ongoing supply chain crisis, combined with challenges resulting from the energy transition and geopolitics, raises the question of implications for the future of the geography of trade, maritime transport and supply chains.

* Mention of any firm or licensed process does not imply the endorsement of the United Nations.



Introduction

1. Over the last two years, the world has been reminded of the importance of maritime transport for the functioning of supply chains, affordable consumer prices, and the delivery of essential goods. The “geography of trade” – who trades what with whom – is dependent on port and shipping services, with over 80 per cent of the volume of trade being transported by ships.
2. The present issues note discusses the mutual relationship between the geography of trade and the transport services essential to physically move this trade. Both – the volume of trade and the costs of transporting this trade – impact on each-other: Lower transport costs lead to more trade and expanding global value chains, while more trade then leads to lower transport costs, in the long term. If all goes well, this is a virtuous cycle. However, both – trade volumes and the costs of trade – have been directly impacted by the ongoing maritime logistics crisis, which has already shifted trade patterns and derailed logistics operations.
3. In this background note, historical trends in the geography of maritime trade and logistics are looked at in chapter I. The current supply chain crisis is discussed in chapter II, including if and how it may affect the future of the trends presented in chapter I. Future prospects and policy implications are discussed in chapter III.

I. The past: Trends in the geography of maritime trade and the supply of maritime logistics services

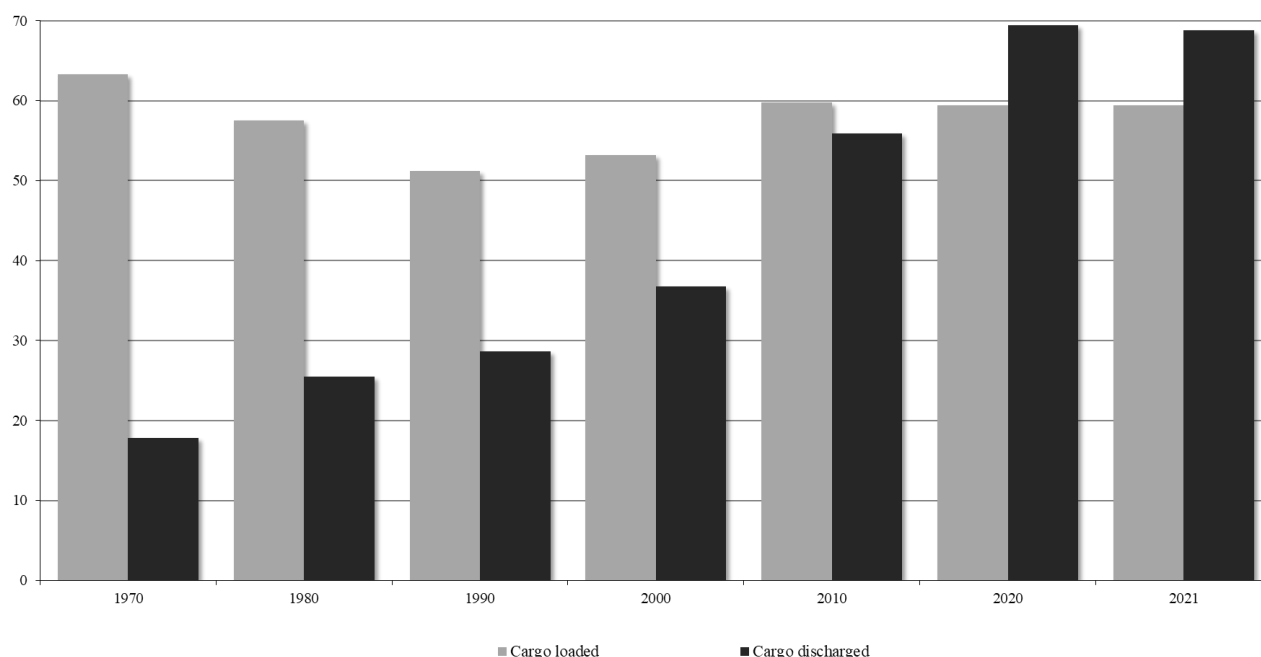
A. The geography of maritime trade

Developing countries have increased their share in seaborne trade, particularly imports

4. The geography of maritime trade has undergone fundamental changes over the last decades. Half a century ago, developing countries were mostly suppliers of raw materials, exporting large volumes of oil, iron ore, coal and grain, while developed industrialized countries exported, above all, manufactured goods, which had less volume but higher unit values. Today, the situation is fundamentally different. Many developing countries, including China, have become manufacturing powerhouses and participate in global value chains, importing energy and raw materials, while exporting manufactured goods.¹

¹ Organisation for Economic Co-operation and Development, 2015, The participation of developing countries in global value chains: Implications for trade and trade-related policies, Summary paper, Paris.

Figure 1
Developing countries: Percentage share of tons in seaborne trade



Source: UNCTAD, *Review of Maritime Transport*, 1971, 1981, 1991, 2001, 2011 and 2021 editions, and *Review of Maritime Transport 2022*, forthcoming (United Nations publication, Sales No. E.22.II.D.42, Geneva).

Note: Cargo loaded reflects seaborne exports, cargo discharged reflects seaborne imports.

5. This shift is visible in UNCTAD statistics on seaborne trade (figure 1). The share of developing countries' maritime import volumes went up from under 18 per cent in 1970, to around 69 per cent in the 2020s. As the efficiency of international transport and logistics improved (see next chapter), labour cost differentials encouraged the setting up of factories in developing countries, which in turn imported more intermediate goods and raw materials. In parallel, developing countries also became more important consumer markets, in line with their growing share of global income.

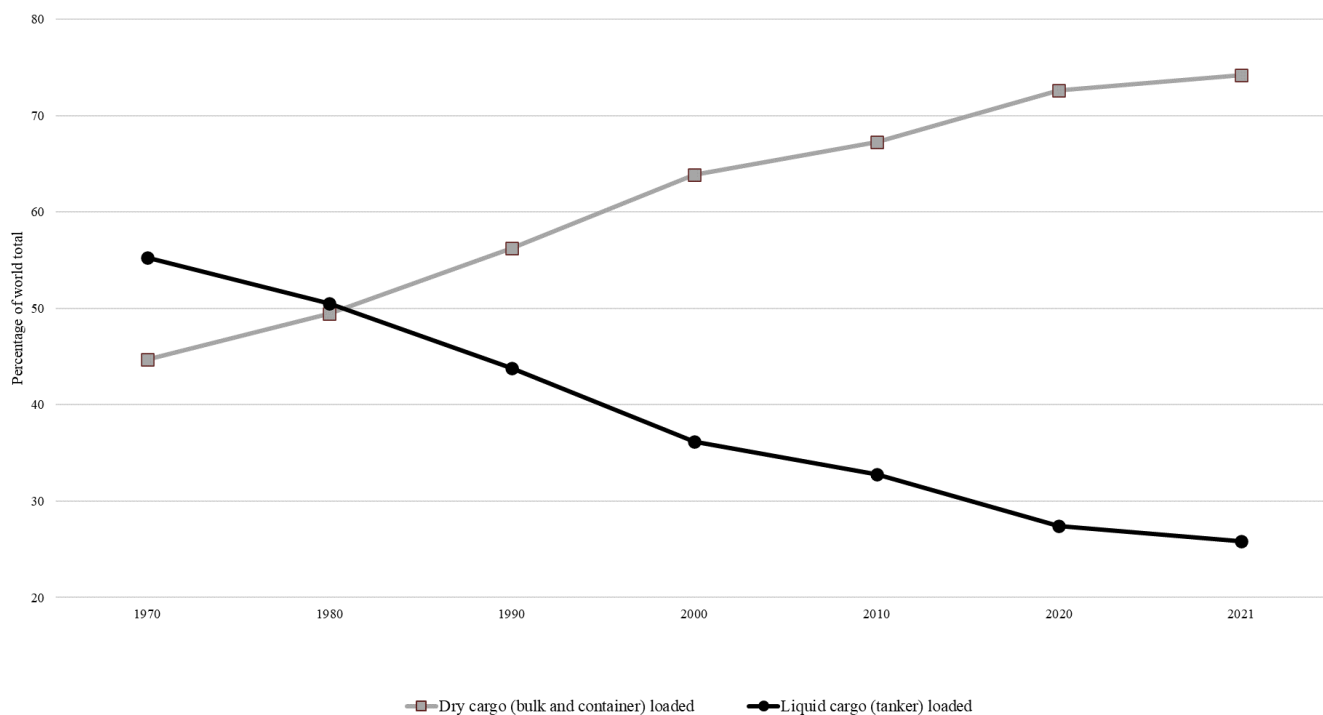
Less oil, and more dry bulk and containerized trade

6. A related aspect of the geography of maritime trade is the cargo composition (figure 2). In 1970, more than half of global seaborne trade was oil and other tanker cargo, while today almost three quarters of tonnes loaded are dry cargo, including bulk and containers.

7. This trend reflects several developments. Expanding global value chains and increased globalized production and manufacturing require the movement of more raw materials (e.g. iron ore) and intermediate products (e.g. containerized trade), while the long-term trend of improved energy efficiency contributes to reducing the need for shipments of tanker cargo.²

² Enerdata, 2022, World energy and climate statistics: Yearbook 2022 – Energy intensity, available at <https://yearbook.enerdata.net/total-energy/world-energy-intensity-gdp-data.html> (accessed 29 August 2022).

Figure 2
Share of dry and liquid cargo in global maritime trade



Source: UNCTAD, *Review of Maritime Transport*, 1971, 1981, 1991, 2001, 2011 and 2021 editions, and *Review of Maritime Transport 2022*, forthcoming.

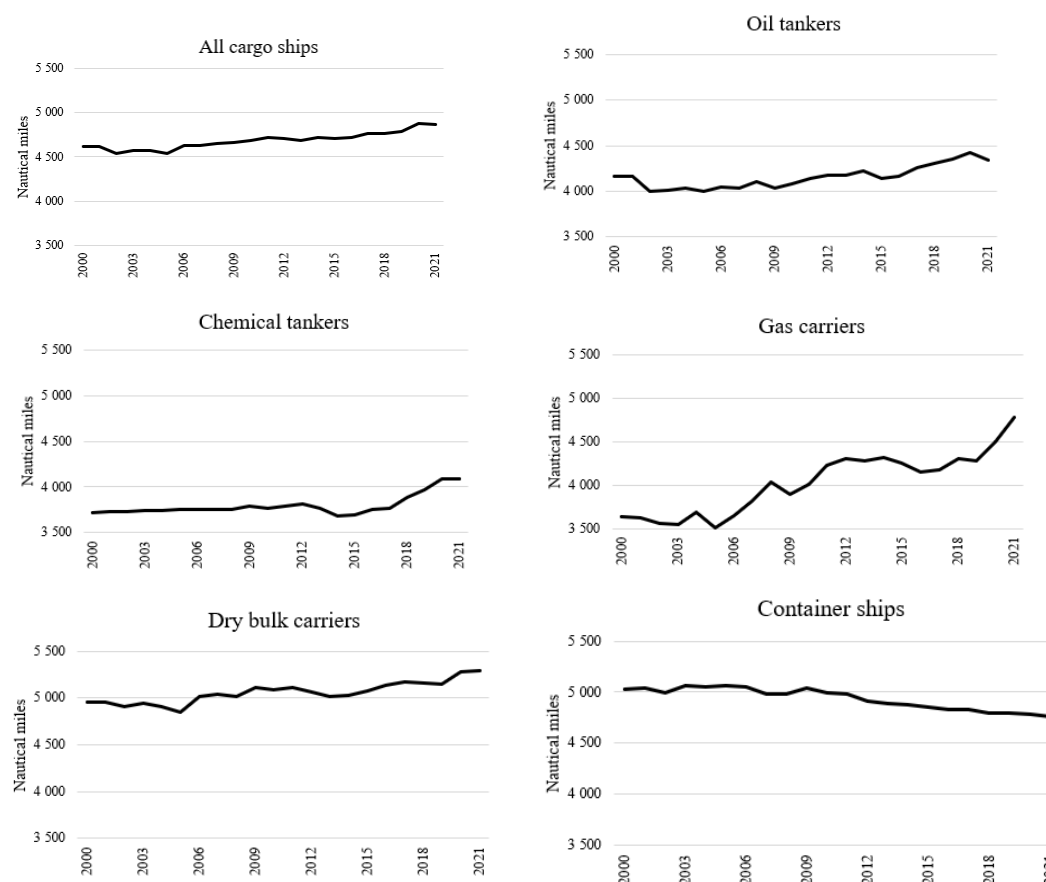
Distance travelled goes up for most cargo, except containers

8. The typical distance travelled in seaborne trade has been increasing over the last decades (figure 3). Growing long-distance trade in commodities, such as iron ore exports from Brazil to China and Japan, liquified natural gas exports from Trinidad and Tobago, and grain and other food exports across continents, have led to an increase in ton-miles travelled per ton of cargo.

9. The exception is containerized trade, where the highest growth rates have been recorded on intra-Asian routes serving intraregional supply chains, thus leading to a declining trend in the typical distance travelled per container.

10. Looking into the future, these various trends cannot be simply extrapolated. The future geography of trade will be impacted by a range of impending shifts, including the geopolitical landscape, energy transition and trends and changes in maritime logistics.

Figure 3
Distance travelled per ton of maritime cargo, 2000–2021



Source: UNCTAD, based on data provided by Clarksons Research Services.

B. The maritime logistics for international trade

Shipping is a globalized business

11. As regards the port and shipping services that make international merchandise trade possible, there is a long-term trend of improving efficiency, containerization and globalized provision of maritime transport.

12. It can be said that there is also a “geography of trade” in relation to provision of a maritime transport service, with different countries participating at different stages of that provision. The largest shipbuilding country is China; the highest number of shipowners can be found in Greece; the largest container carrier is based in Switzerland; Panama has the highest share of the world fleet registered under its flag; the Philippines provides the largest number of seafarers; and more than half of decommissioned tonnage is recycled in Bangladesh.³

13. The ability to source inputs from different providers leads to an overall, well-functioning international maritime transport system, which has supported the growing seaborne trade over the last decades. The tons of maritime cargo shipped each year for each inhabitant in the world doubled from 0.7 to 1.4 tons per person between 1970 and the present.

³ UNCTAD, 1971, 1981, 1991, 2001, 2011 and 2021 editions of *Review of Maritime Transport*, and UNCTADstat database.

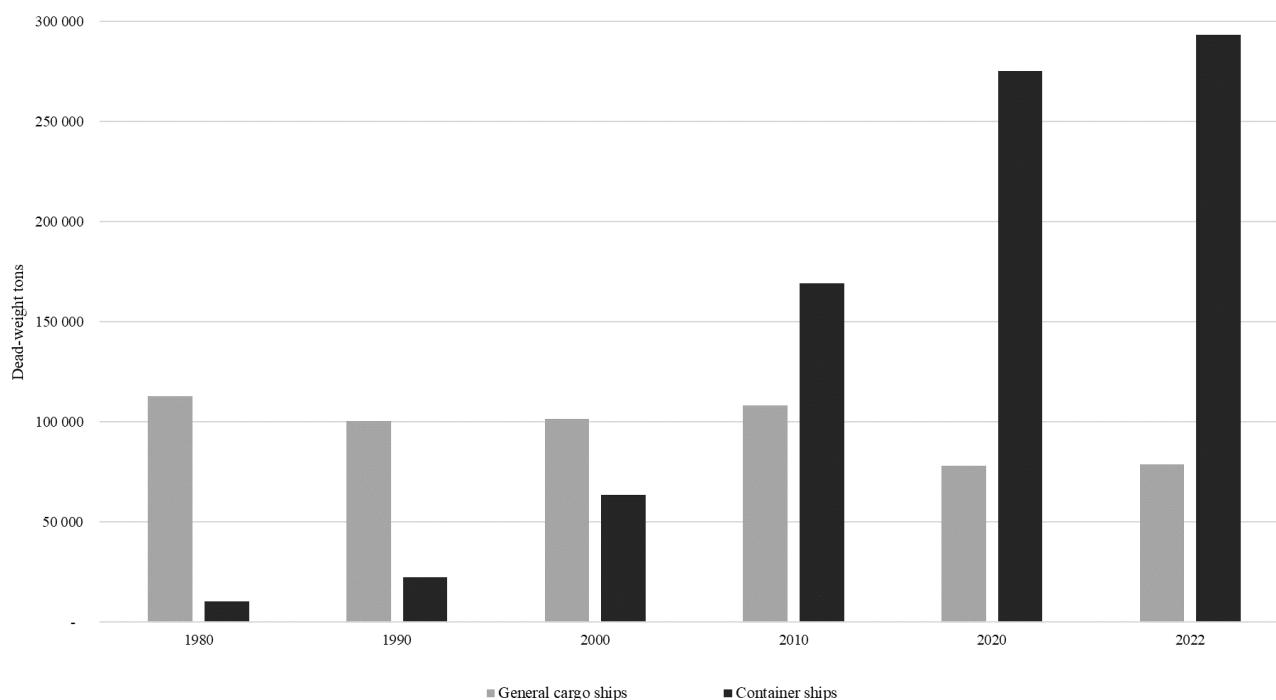
Containerization

14. Without containerization, the globalization of production, as it is currently known, would not have been possible.⁴ At the same time, dependency on containerized shipping has also come to the forefront in view of the ongoing supply chain crisis, which is above all a disruption of container shipping, ports and intermodal connections.

15. The growth of containerization can perhaps best be depicted by showing the growth of the world container shipping fleet, compared to that of general cargo ships, as shown in figure 4. General cargo ships used to be deployed in regular liner shipping services prior to containerization; they are currently utilized only for some project cargo and other dry merchandize that cannot be shipped as bulk or containerized.

Figure 4

The world fleet of general cargo and container ships



Source: UNCTAD, based on data from the UNCTADstat database.

Note: Beginning of year figures.

16. In 1980, general cargo tonnage was 11 times greater than container shipping tonnage, whereas the container shipping fleet currently provides 3.7 times more dead-weight tonnage than the declining fleet of general cargo ships.

Improved logistics services lead to lower inventory holding

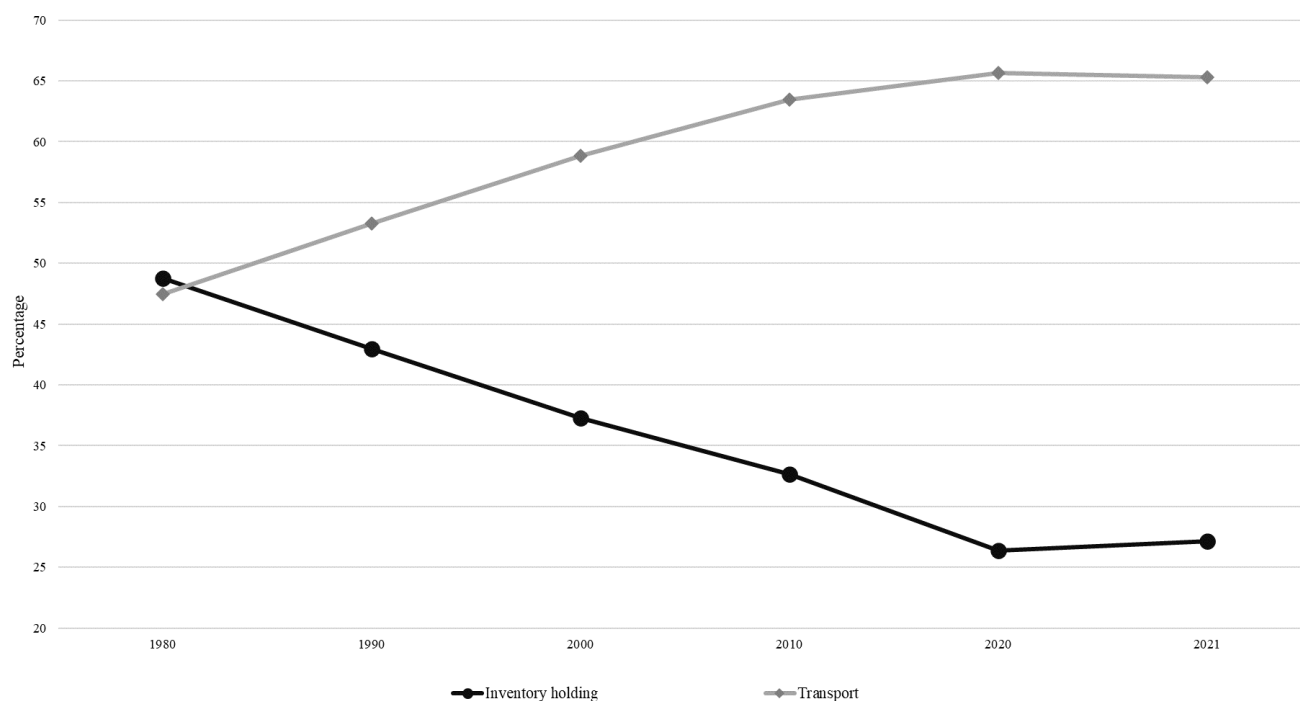
17. Within logistics costs, expenditure on transport has increased, while reducing expenditures on inventory holding. Transport and trade facilitation services become more efficient, allowing for faster and more just-in-time deliveries.

18. While global data are not available, the case of the United States of America can serve as an example (figure 5). In 1980, in the United States, more than half of the logistics expenditures of the country's economy was spent on inventory holding, while by 2020, twice as much was spent on transport as compared to inventory holding. This does not

⁴ UNCTAD, 2018a, *50 years of Review of Maritime Transport, 1968–2018: Reflecting on The Past, Exploring the Future* (United Nations publication, Geneva); Levinson M, 2016, *The Box: How the Shipping Container Made the World Smaller and the World Economy Bigger*, second edition, Princeton University Press, New Jersey, United States of America.

mean that transport has become more expensive, but rather, that, as in the long term, transport costs had declined and just-in-time deliveries increased, demand for transport went up. This was the case until 2021.

Figure 5
Share of transport and inventory holding expenditure within total logistics expenditure: United States



Source: UNCTAD, based on data from the 1981, 1991, 2001, 2011, 2021 and 2022 editions of the annual *State of Logistics Report* of the Council of Supply Chain Management Professionals.

Note: Total expenditures do not add up to 100 per cent; the remaining expenditures not reflected in the figure are administrative and other logistics costs.

19. As seen in figure 5, between 2020 and 2021, against the long-term trend, inventory holding expenditures increased more than transport expenditures. This is a reflection, at least in part, of the problems the logistics system has been facing, including high freight rates, congestion and longer delivery times.

20. A question to be discussed in the next chapter is whether this change is an indication of a long-term change in the trend or only a short hiccup, before the long-term trend moves back to lower shares of inventory holding.

II. The supply chain crisis

A. Current problems in maritime logistics

Shifts in demand and supply

21. The supply chain crisis and its causes have been analysed in detail by UNCTAD.⁵ At the core of the situation, during the coronavirus disease (COVID-19) pandemic, two things occurred. First, the supply of port, shipping and intermodal transport services slowed down following lockdowns, social distancing, staff absences and the need for additional

⁵ UNCTAD, 2021a, *Review of Maritime Transport 2021* (United Nations publication, Sales No. E.21.II.D.21, Geneva); see also <https://unctad.org/programme/covid-19-response-and-recovery>, COVID-19 response and recovery, and TD/B/C.I/MEM.7/26.

controls, as well as the fact that, confronted with congestion at the outset of the pandemic, ships skipped port calls, and containers were left stranded. As a result, for example, container ships spent about 20 per cent longer in port at the end of 2021 than before the pandemic. Second, the demand for containerized goods trade did not slow down, as might have initially been expected in view of economic deceleration. Rather, in some key markets, demand went up as a result of economic stimulus packages and a shift in consumer spending, from services (restaurants, movies, haircuts, travel) to manufactured goods, easily ordered on electronic commerce platforms, but which still required physical production and shipping.⁶

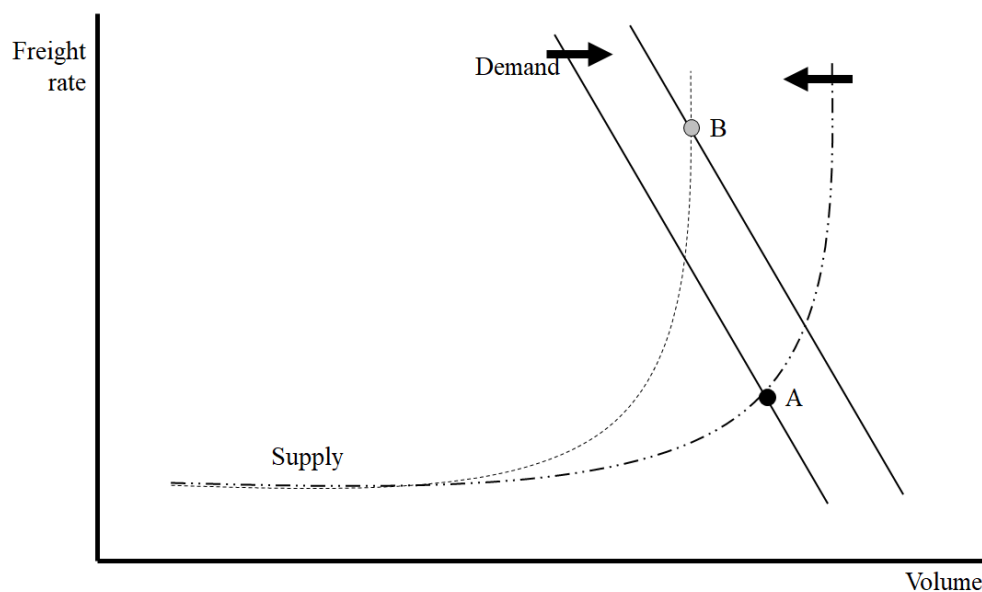
22. Shipping markets are characterized by relatively steep demand curves, as transport costs are only one part of the final price of the goods in the shop. The supply curve, on the other hand, starts out rather flat, with low marginal costs once a ship is built and ready to be deployed, but it becomes especially steep once a capacity limit is reached.

23. Many of the goods that were ordered are made in East Asia, notably in China, and the heaviest congestion in terms of held-up container capacity was initially at the West Coast of the United States and, more recently, also at China and the East Coast of the United States. The held-up capacity in ports and at anchor led to a shift in the supply curve to the left, while the growth in orders for manufactured goods led to a shift in the demand curve to the right (see figure 6).

24. The combination of these two shifts led to an increase in the freight rate. Figure 6 presents a standard model for the move of the freight rate from A to B for a shipping market confronted with these two shifts.

Figure 6

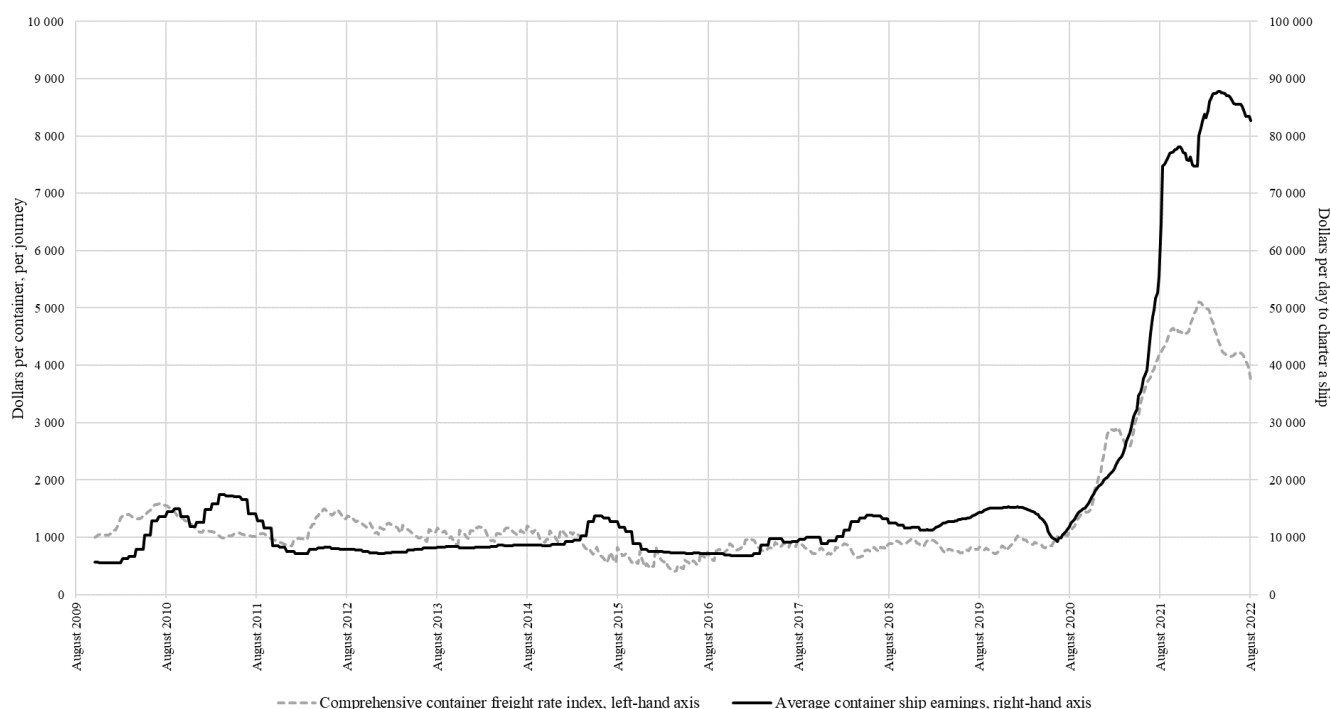
Model of demand and supply curve shifts in container shipping



Source: UNCTAD secretariat.

⁶ UNCTAD, 2022a, *Key Statistics and Trends in International Trade 2021: The Effects of the COVID-19 Pandemic on International Trade* (United Nations publication, Sales No. E.22.II.D.7, Geneva).

Figure 7
Container spot freight rates and container ship charter rates, October 2009–August 2022



Source: UNCTAD, based on data provided by Clarksons Research.

25. Figure 7 depicts the development of spot freight rates and container ship earnings, which is in line with the hypothetical situation illustrated in the model seen in figure 6. The charter rate for container ships increased even more than the spot freight rate charged by carriers. The former represents the price that container shipping lines, which own only approximately half of the ships they operate, have to pay to independent vessel owners for chartering the ships they do not own themselves. The latter represents the price the container shipping lines charge to importers and exporters for the service of transporting their cargo. Both reached historical heights in early 2022, but since then have seen some decline.

Beyond higher freight rates: worsening connectivity

26. Beyond high freight rates, the crisis has also led to historically low schedule reliability, congestion, delays, additional surcharges and vessel redeployment. Some smaller economies, including small island developing States, have seen their connectivity decline as ships were redeployed to more lucrative markets.

27. The crisis initiated by the COVID-19 pandemic is compounded by other developments affecting maritime transport, including the war in Ukraine and other political developments. Future freight rates and vessel supply will further be impacted by the need to comply with recent and upcoming national and multilateral regulations, including those of the International Maritime Organization, aimed at reducing emissions. Although freight and charter rates have started to decline, it is unlikely that they will return to pre-COVID-19 levels in the foreseeable future.

Different impacts on different routes

28. A more detailed look at interregional freight rates tells an interesting story about the relevance of the geography of trade and the impact of the pandemic. In the table, average contract freight rates for container transport between major regions are shown.

Contract freight rates for containerized trade, 2018–2020 average, and 2021

<i>Average, 2018–2020 (United States dollars)</i>						
<i>From or to:</i>	<i>Africa</i>	<i>Asia</i>	<i>Europe</i>	<i>North America</i>	<i>Oceania</i>	<i>South America</i>
Africa	1 862	758	1 607	n/a	n/a	1 950
Asia	1 946	768	1 848	2 580	1 803	2 198
Europe	1 701	947	887	1 838	2 002	1 232
North America	2 994	1 129	1 097	1 516	2 722	1 353
South America	1 910	1 796	1 751	1 716	n/a	1 529

<i>2021 (United States dollars)</i>						
<i>From or to:</i>	<i>Africa</i>	<i>Asia</i>	<i>Europe</i>	<i>North America</i>	<i>Oceania</i>	<i>South America</i>
Africa	2 013	664	1 487	n/a	n/a	1 616
Asia	2 733	1 194	3 285	3 820	2 800	3 589
Europe	1 727	1 225	1 077	2 304	2 319	1 465
North America	2 639	1 385	1 053	1 362	2 475	1 064
South America	2 187	1 841	1 767	1 969	n/a	1 243

<i>Percentage change, 2021 (previous three-year average)</i>						
<i>From or to:</i>	<i>Africa</i>	<i>Asia</i>	<i>Europe</i>	<i>North America</i>	<i>Oceania</i>	<i>South America</i>
Africa	8	-12	-7	n/a	n/a	-17
Asia	40	55	78	48	55	63
Europe	1	29	21	25	16	19
North America	-12	23	-4	-10	-9	-21
South America	14	2	1	15	n/a	-19

Source: UNCTAD, based on data provided by Transporeon/TIM Consult Ocean Transport.

Notes: Rates in United States dollars per full 40-foot container load, gate in, gate out. Contract freight rates presented in the table reflect long-term agreements between shippers and carriers, while the spot rate index depicted in figure 7 is calculated on a weekly basis and more volatile than contract rates.

29. The highest intraregional freight costs are those within Africa, reflecting the region's geography and infrastructure development. Moving cargo out of Asia is two to three times more costly than the return journey, with often empty containers. Contract freight rates, which tend to be negotiated at the beginning of the calendar year, increased on most routes in 2021, following the pandemic. Those out of Asia saw the highest increases, between a 40 per cent increase for shipments to Africa and a 78 per cent increase for those to Europe.

30. The changes in contract freight rates also respond to changes in trade imbalances, which have increased according to UNCTAD trade analysis.⁷ Container ships thus have to return with more empty containers than prior to the pandemic. This change in the geography of trade is then also reflected in greater differences between freight rates in cases of growing trade imbalances. For example, before the pandemic, it cost 2.57 times more to ship a container from Asia to Africa than from Africa to Asia (\$1,946/\$758); in 2021, this coefficient increased to 4.12 (\$2,733/\$664). This is another example of the changing geography of trade having an impact on maritime freight rates and services.

⁷ UNCTAD, 2022b, Global Trade Update, available at https://unctad.org/system/files/official-document/ditcinf2022d1_en.pdf.

B. What higher freight rates and maritime logistics challenges could mean for the geography of trade

If lower shipping costs lead to more trade, higher shipping costs should lead to less trade

31. As shown above, the long-term growth of international trade and global value chains would not have been possible without continued improvements in maritime logistics services. By the same token, if the real costs of shipping were to go up systematically, it should be expected that global trade growth would slow down and distances between trading partners decrease.

32. Effectively, the results of an assessment undertaken by UNCTAD on the potential impacts of regulatory measures on maritime logistics costs and trade confirm the expectation that if maritime transport costs go up, trade over shorter distances can be expected to increase as compared to trade over larger distances.⁸

33. Today's higher shipping costs and volatility, combined with factory lockdowns and the desire to improve the resilience of supply chains, beg the question if the long-term trends presented above will continue.

34. Reversals of long-term trends would take time to materialize. Discussion is taking place on reshoring and nearshoring, yet there is so far little data-based evidence to indicate systemic changes in the arrangement of global production. On the contrary, the early success in the economies of East Asia in mitigating the economic effects of the pandemic may have resulted in increased reliance, in global value chains, on manufacturing production originating from East Asia.⁹

35. A recent study of the electronics and machinery sector also suggests that, overall, Asian supply chains remain little changed, albeit with a shift from China to other Asian countries, as production costs in China are increasing. Electronics exports from China to the United States dropped by 10 per cent between 2018 and 2021, while exports from South-East Asia, particularly Viet Nam, to the United States increased. But overall production remained in Asia, with growing intra-Asian trade, as some final assembly is moving from China to South-East Asia.¹⁰

36. Stronger intra-Asian supply chains represent a continuation of several of the long-term trends described above. That is, the distance travelled for containerized trade has been declining over the last decades, largely due to the growth of intra-Asian services (figure 3); intra-Asian shipping costs have been the lowest among the intraregional connections (see table); and intra-Asian trade significantly contributed to the growing share of developing countries in seaborne trade (figure 1).

Higher prices for different types of products

37. While it takes time for trade flows to adjust to price changes, the impact of higher shipping costs on prices can be seen relatively quickly. An UNCTAD simulation from late 2021 and a subsequent estimate by the International Monetary Fund in early 2022 both concurred that consumer prices increase by about 1.5 percentage points as a result of higher container shipping costs.¹¹

38. The prices for two types of products, above all, are most strongly affected by higher freight rates. First, for low-value, high-volume goods, such as plastic furniture, significantly

⁸ UNCTAD, 2021b, *UNCTAD Assessment of the Impact of the [International Maritime Organization] IMO Short-Term [Greenhouse Gas] GHG Reduction Measure on States* (United Nations publication, Geneva).

⁹ UNCTAD, 2022c, Global Trade Update, available at https://unctad.org/system/files/official-document/ditcinf2022d2_en.pdf.

¹⁰ Rudnik R, 2022, Supply chain diversification in Asia: Quitting China is hard. Macro Polo, Paulson Institute, available at <https://macropolo.org/>.

¹¹ UNCTAD, 2021a, chapter 3; International Monetary Fund, 2022, How soaring shipping costs raise prices around the world, Chart of the Week blog, available at <https://blogs.imf.org/2022/03/28/how-soaring-shipping-costs-raise-prices-around-the-world/> (accessed 2 September 2022).

higher long-distance freight rates can make a difference. In the longer term, if freight rates remain elevated, such trade may not remain commercially viable, and some low-value furniture production may shift to a place closer to the consumer.

39. Second, there are “deep” supply chains within global value chains, where the components that are assembled into a final product in different locations need to be transported several times. For example, for some complex and expensive optical equipment, even if the freight rate is still low compared to the five- or six-digit United States dollar value of the goods inside a container, the fact that the final product has to go through several shipments during the production process will still lead to a significant increase in the final price. In such cases, it can be expected that producers will try to shorten the supply chain, with fewer locations and locations closer to each other. This motivation may be among those behind the strengthening of intra-Asian supply chains.

40. For other cargo types, too, higher freight costs could lead to a changing geography of trade. A recent assessment of dry bulk imports into China concluded that a hypothetical increase in shipping costs by 10 to 30 per cent would be equivalent to 1 to 3 per cent of trading prices. This would lead to changing the geography of trade, with raw materials being imported more from sources closer to China.¹²

The plight of small island developing States

41. Small island developing States are already confronted with an adverse geography and tend to participate little in global value chains. On average, they pay twice as much for the transport of their imports than the world average and record significantly lower, and stagnant, liner shipping connectivity.

42. Many small island developing States are served by a small and decreasing number of carriers only, leading to less choice for their shippers and, empirically, higher freight rates. By the same token, often, they count on only one or very few seaports, without any inter-port competition. While private sector investment can still be attracted, there is a danger of passing on a public monopoly to a private monopoly, which would necessitate a strong regulatory authority.¹³

43. Small island developing States would normally need to invest in ports to accommodate the most modern ships, which tend to get larger. At the same time, there is little scope to increase trade volumes through expanding hinterlands on an island economy. Thus, many small island developing States are confronted with a vicious cycle of lower connectivity leading to less trade, leading again to higher trade costs. As described above, this is the opposite of the virtuous, positive relationship between economies of scale and growing trade volumes.

44. Starting from this already precarious situation and their dependence on maritime transport, higher global freight rate levels have a particularly strong impact on the import and consumer prices of small island developing States. While global import prices are projected to be 11.9 per cent higher in 2023 than they would have been without the freight rate surge, the increase is more than twice as high in small island developing States (26.7 per cent).¹⁴

45. Higher import prices translate into higher costs of production, and the participation of small island developing States in global value chains can thus be expected to become even more difficult in future.

¹² Wu Y, Wen K and Zou X, 2022, Impacts of shipping carbon tax on dry bulk shipping costs and maritime trades: The case of China, *Journal of Marine Science and Engineering*, 10(8), 1105.

¹³ UNCTAD, forthcoming.

¹⁴ UNCTAD, 2021a.

C. What changes in the geography of trade could mean for the future of maritime transport

If volumes and directions of trade change, so will shipping services and costs

46. Higher trade volumes lead to economies of scale, which are important in international shipping. Whether a ship carries 6,000 or 24,000 containers, it will still employ only 20 to 30 crew members, while the fuel costs and emissions per container carried can be significantly reduced by increasing the size of ships.¹⁵ Also, as volumes go up, more transport providers enter a market, and freight rates trend down. However, this will not happen in markets where the ongoing process of consolidation in container shipping creates an oligopolistic structure where competition is deliberately thwarted.¹⁶

47. In practice, a minimum volume is required to justify the establishment of a direct transport service. For shipping, it has been estimated that counting on a direct liner (container) shipping service between a pair of countries leads to a decrease in trade costs by 9 per cent.¹⁷

48. These same causalities also work in the other direction; that is, if volumes go down, freight rates can be expected to increase, and services from and to some ports and countries will be discontinued.

Connecting to liner services through container ports

49. As container shipping companies respond to demand for containerized trade, they may add or remove ports in their liner network. Figure 8 depicts the number of seaports connected to regular container shipping services. While up to early 2019, there had been a long-term trend of expansion, since then, numbers have declined. The most recent significant drop followed the start of the war in Ukraine, but the overall downward trend seems to have continued for more than three years.

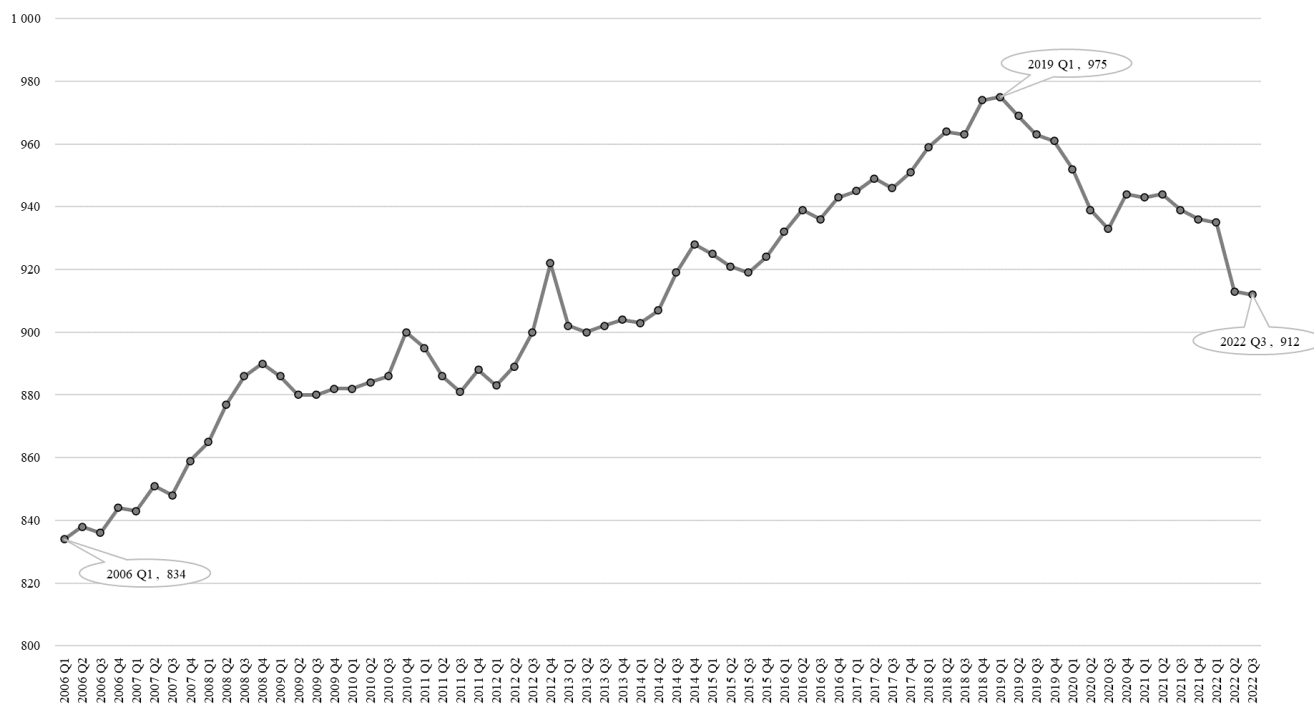
50. While there are different reasons associated with the relevant hinterland, market, infrastructure and geographical position for each port's inclusion or not in a network, the recent downward trend could be the result of an interplay between a changing geography of trade (such as shorter supply chains) and trends in the maritime industry (such as consolidation).

¹⁵ Haakon L, Asbjørnslett BE and Strømman AH, 2012, The importance of economies of scale for reductions in greenhouse gas emissions from shipping, *Energy Policy*, 46:386–398; UNCTAD, 2021a, chapter 4.

¹⁶ TD/B/C.I/CLP/49.

¹⁷ Shepherd B, 2017, Trade costs and connectivity, unpublished, Developing Trade Consultants.

Figure 8
Quarterly number of container ports served by regular liner shipping services



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

Abbreviations: Q1, first quarter; Q2, second quarter; Q3, third quarter; Q4, fourth quarter.

51. There are thus several recent developments that could suggest a change in historical long-term trends. The number of ports in the shipping network has started to decline (figure 8); freight and charter rates have significantly increased (see figure 7 and table); and, in the United States, expenditures on inventory holding have slightly increased as compared to expenditures on transport (figure 5).

52. Some of these changes are a direct result of the ongoing logistics crisis and may be short lived. Other changes may indicate a longer-term shift of direction, resulting, inter alia, from a change in the geography of trade.

III. Outlook and policy implications

53. Risks and uncertainties remain high for global supply chain operations. Long-term trends to shorten supply chains and to diversify suppliers will have a bearing on global value chains and the geography of trade. In particular, trade over longer distances is expected to be negatively affected by rising transport costs, logistic disruptions and geopolitical frictions.¹⁸

54. Traders and policymakers will need to prepare for a future where shipping may be more costly and volatile than in the past. The supply chain crisis and a number of other warning bells, such as the temporary closure of the Suez Canal and the war in Ukraine, combined with more volatility and less schedule reliability, call for shippers as well as Governments to invest in the resilience of logistics operations.

55. Beyond the recent and ongoing disruptions, the shipping industry and its clients also have to prepare for the energy transition in maritime transport, which is necessary if the industry is to achieve its goal of significantly reducing greenhouse gas emissions. This transition goes hand-in-hand with uncertainty about future fuels, vessel types and impacts on shipping services and networks.

¹⁸ UNCTAD, 2022c.

56. In view of these uncertainties and the likelihood of higher transport costs and more volatility in the foreseeable future, areas of attention for policymakers include the following:

(a) **Systematic resilience building in maritime transport and seaports.** Maritime logistics providers need to enhance their understanding of the resilience building imperative and then invest in adequate infrastructure, services, processes and skills. UNCTAD has developed comprehensive guidelines and technical notes with practical solutions in this regard.¹⁹

(b) **Trade facilitation and digitalization.** During the pandemic, the efficiency of logistics systems suffered. This added pressure to further reform and increase investments in digitalization, electronic documents, automation and other trade and transport facilitation measures. UNCTAD programmes in the areas of customs automation, electronic commerce, port reform, smart ports and trade facilitation saw a surge in demand during the COVID-19 pandemic, and it can be expected that these tools will become even more important in future.²⁰

(c) **Competition and options for diversification.** Counting on more suppliers, whether for merchandize goods or for shipping services, can help to reduce risks and enhance supply chain resilience. Strong national competition authorities, cooperation among them and the monitoring of maritime transport markets can help ensure that shippers can choose among different transport service providers.²¹

(d) **Regional trade agreements and logistics.** Intraregional trade tends to be less strongly affected by volatile international shipping costs, logistics disruptions and global political frictions.²² Strong regional value chains have been pointed out as imperative for the economic resilience of Africa.²³ The effectiveness of regional trade agreements can be strengthened through policy measures in the area of trade logistics. Many trade facilitation measures involve close cooperation among neighbouring countries and regional partners. Regional markets for transport services can also help reduce inefficiencies, for example, by liberalizing cabotage services and avoiding cargo reservation regimes.²⁴

¹⁹ See <https://unctad.org/news/building-resilient-maritime-logistics-challenging-times>; UNCTAD, 2022d, *Building Capacity to Manage Risks and Enhance Resilience: A Guidebook for Ports*, UNCTAD/TCS/DTL/INF/2022/3, Geneva; see also <https://tft.unctad.org/documents/report-on-the-trainfortrade-special-course-building-port-resilience-against-pandemics-bpr/>.

²⁰ UNCTAD, 2020, *UNCTAD Toolbox: Delivering Results*, third edition (United Nations publication, Sales No. E.20.II.D.5, Geneva).

²¹ UNCTAD, forthcoming, chapter 7; TD/B/C.I/CLP/49.

²² Nicita A and Saygili M, 2021, Trade agreements and trade resilience during COVID-19 pandemic, Research Paper No. 70, UNCTAD.

²³ UNCTAD, 2022c; *Chronicle*, 2022, Strong regional value chains imperative for Africa's economic resilience, 11 August.

²⁴ UNCTAD, 2018b, *Rethinking Maritime Cabotage for Improved Connectivity*, Transport and Trade Facilitation Series, No. 9 (United Nations publication, Geneva).