Ad hoc expert meeting

The maritime supply chain crisis

15

December 2021

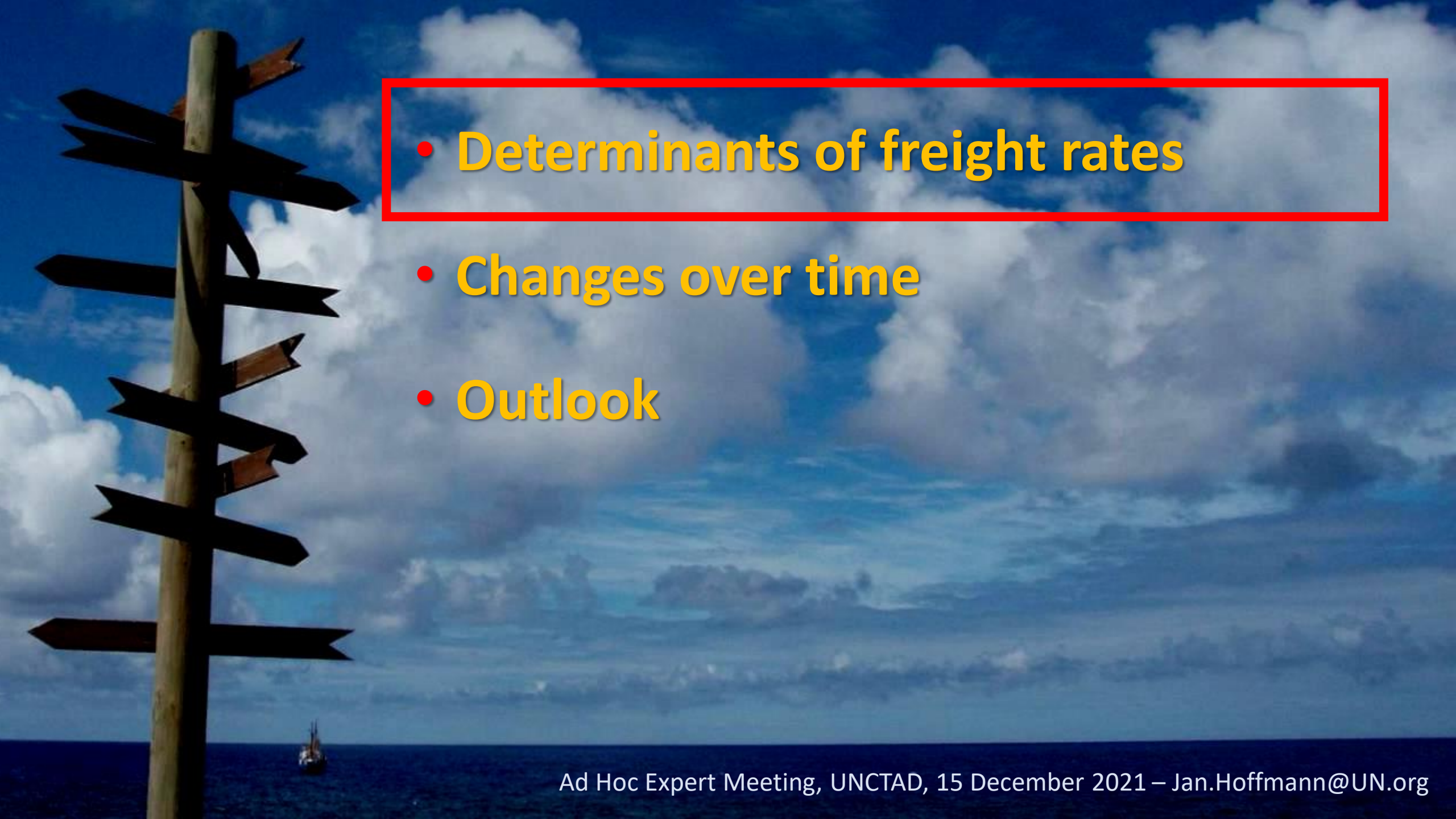
3–6 p.m. CEST

(Virtual event)

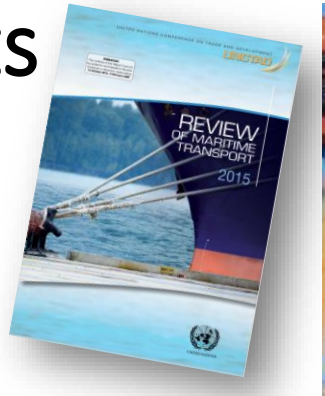
UNITED NATIONS
UNCTAD

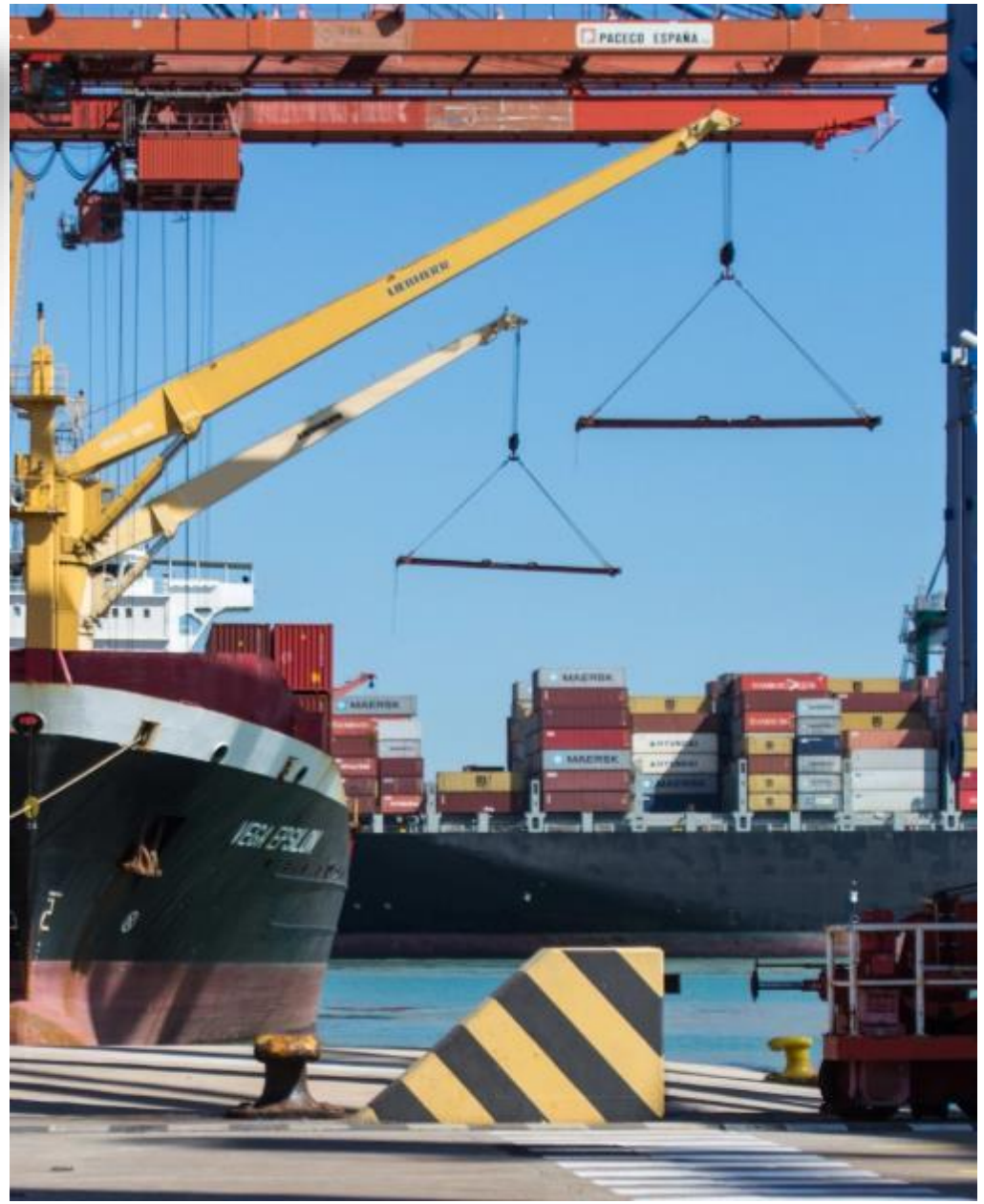
Today

- Introduction
  (about 15 min)
- 20+ Experts:
  What can policy makers do?
  (100 minutes)
- Discussion
  (45 min)
- Summary and key takeaways
  (15 min)


• Determinants of freight rates
• Changes over time
• Outlook

Differences in freight costs depend on…

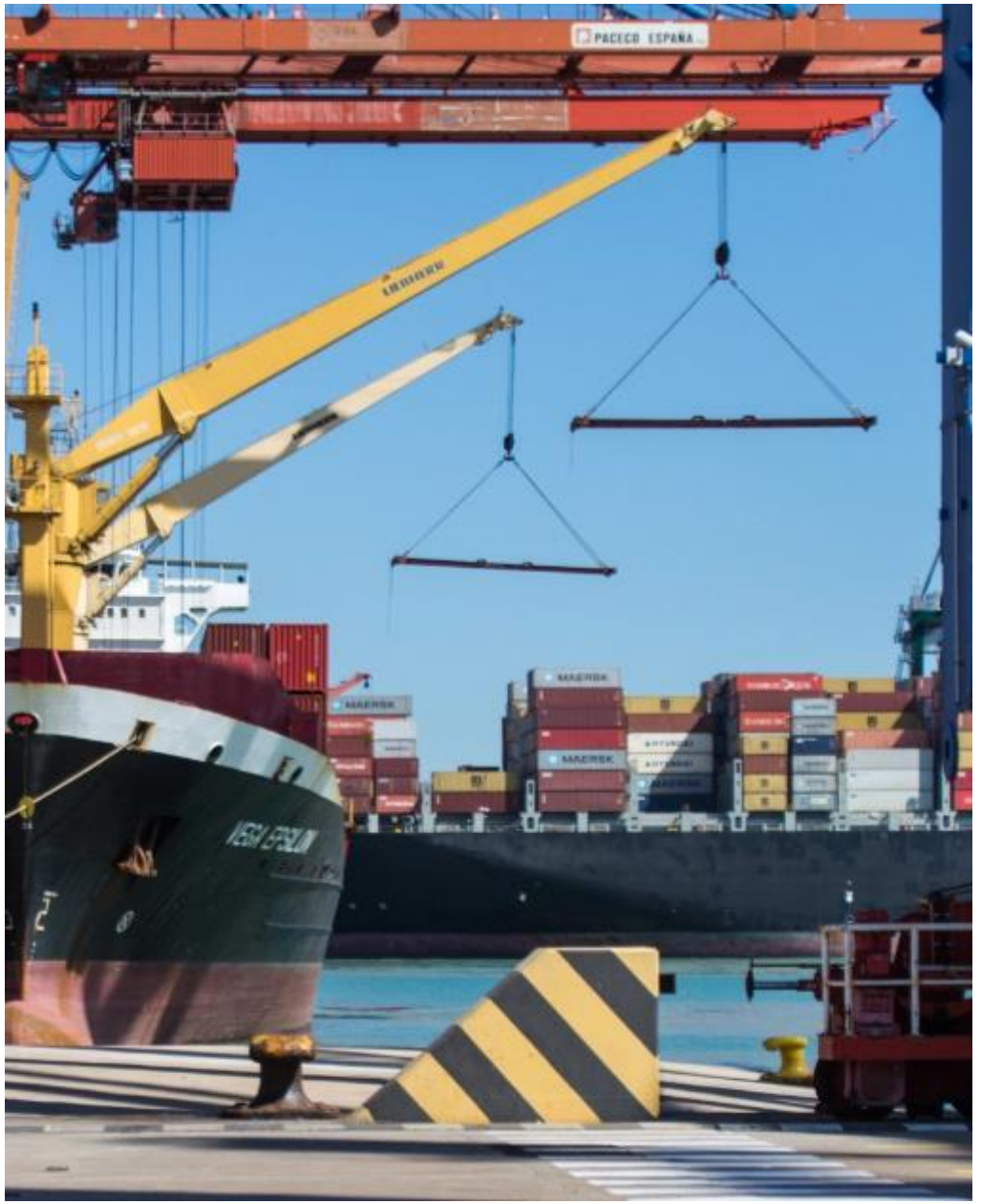




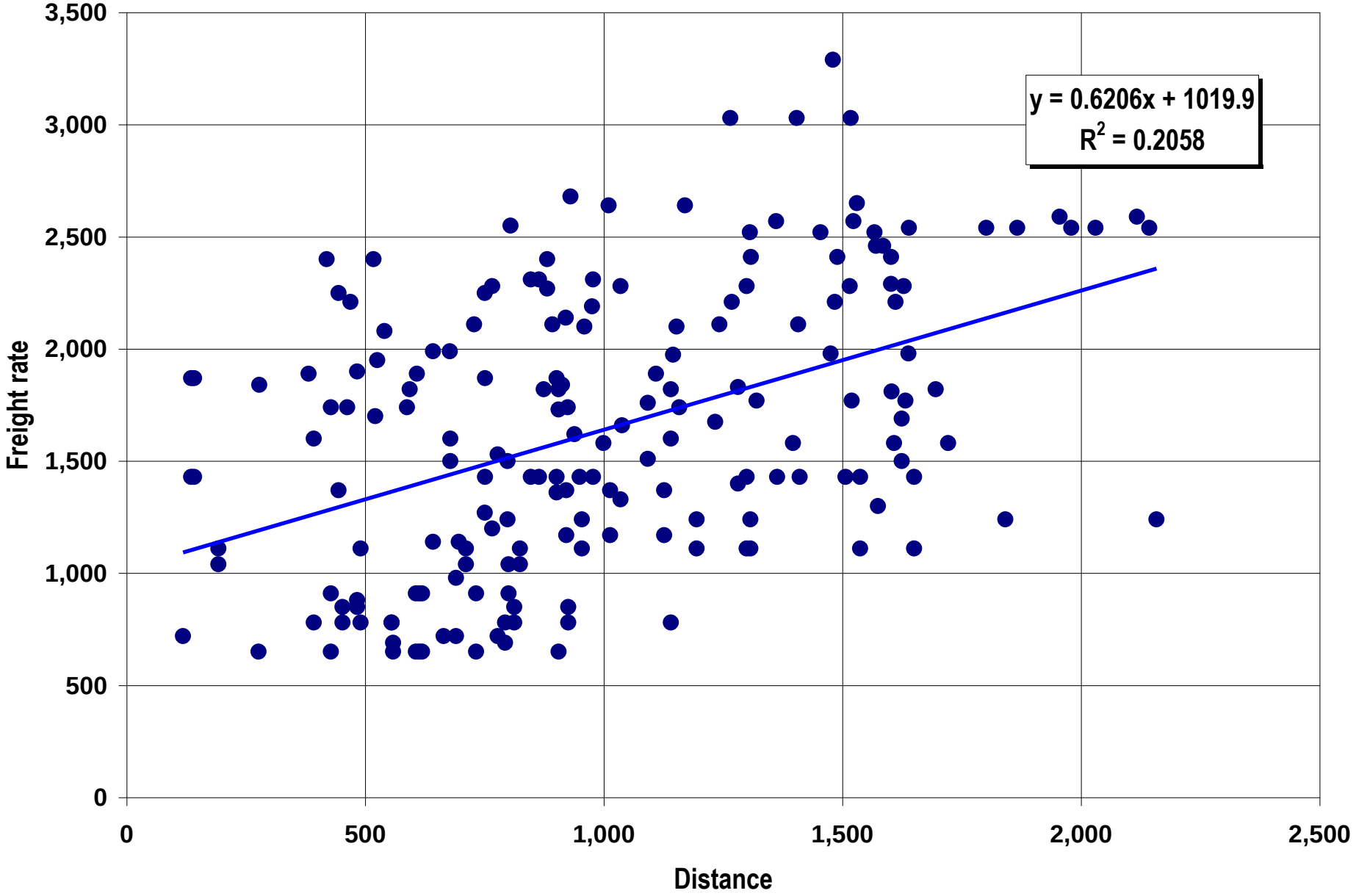
Source: UNCTAD secretariat, based on Wilmsmeier, 2014.

Differences in freight costs depend on…

1) Distances
2) Economies of scale
3) Imbalances
4) Type and value of goods
5) Competition
6) Port characteristics



Freight rates and Distance in the Caribbean



Maritime Economics & Logistics, 2008, 10, (130–151)

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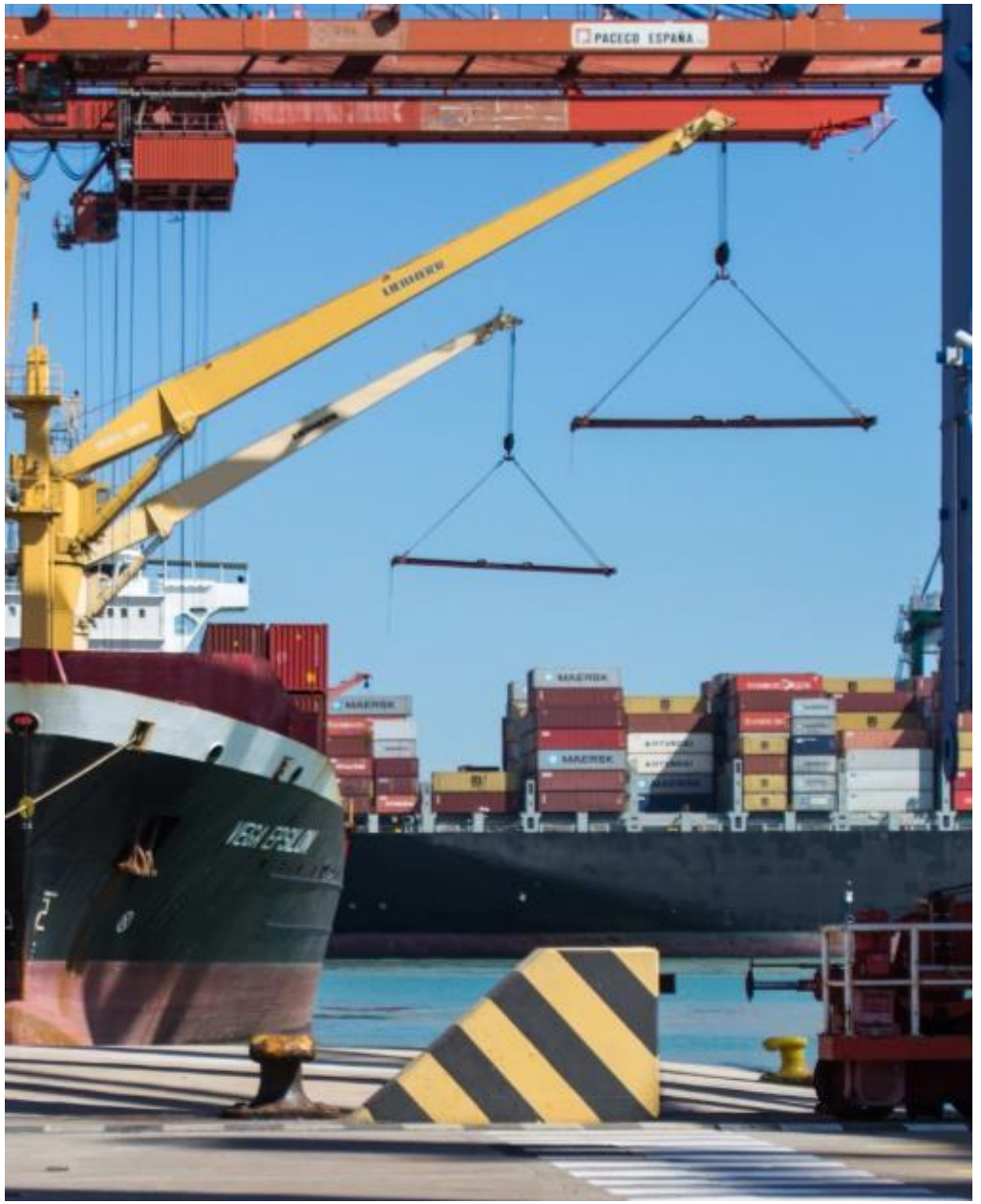
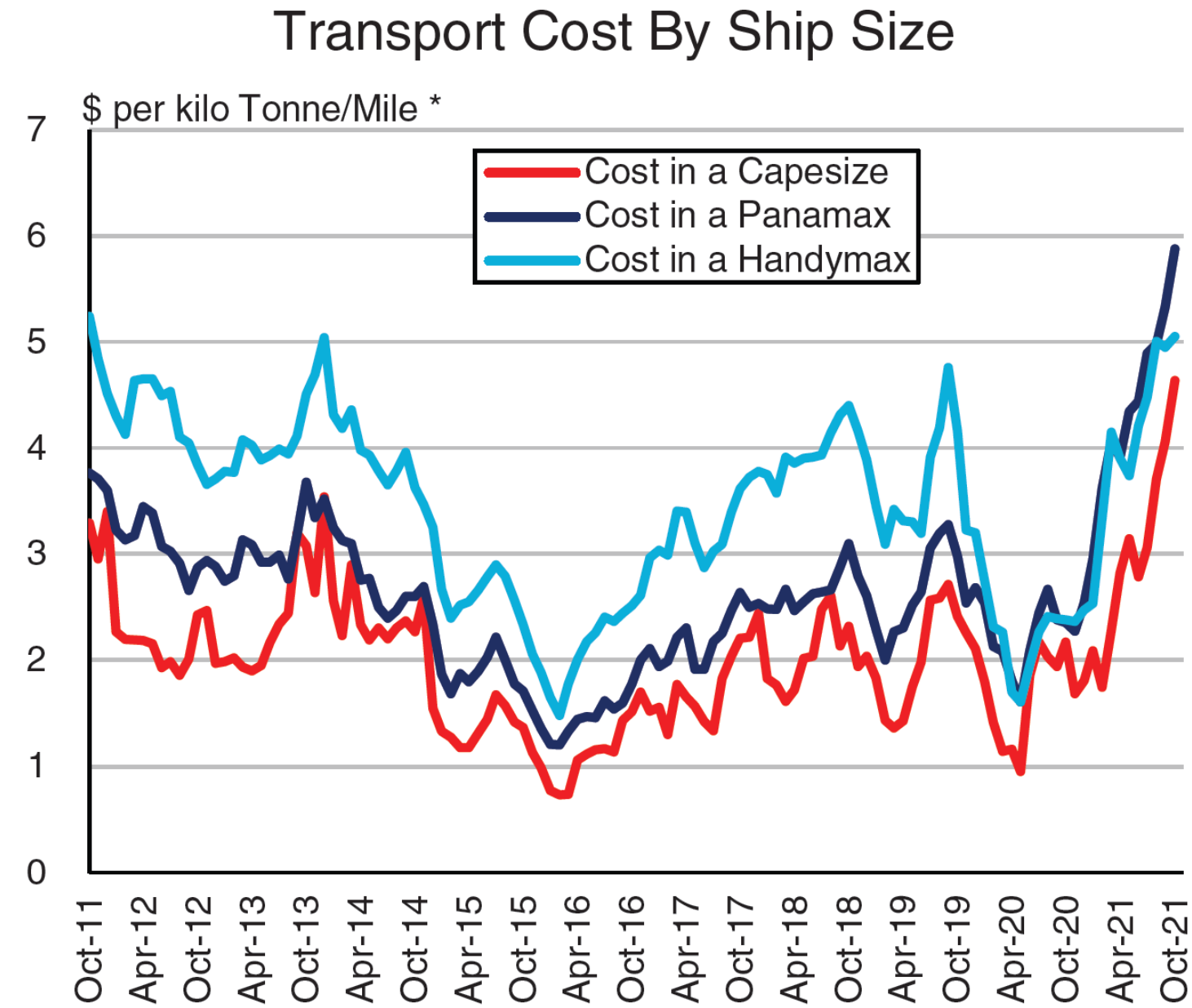


Economies of scale



** Cost of moving 1,000mt for 1 mile*

Clarksons Research, Dry Bulk Monthly, November 2021

Differences in freight costs depend on…

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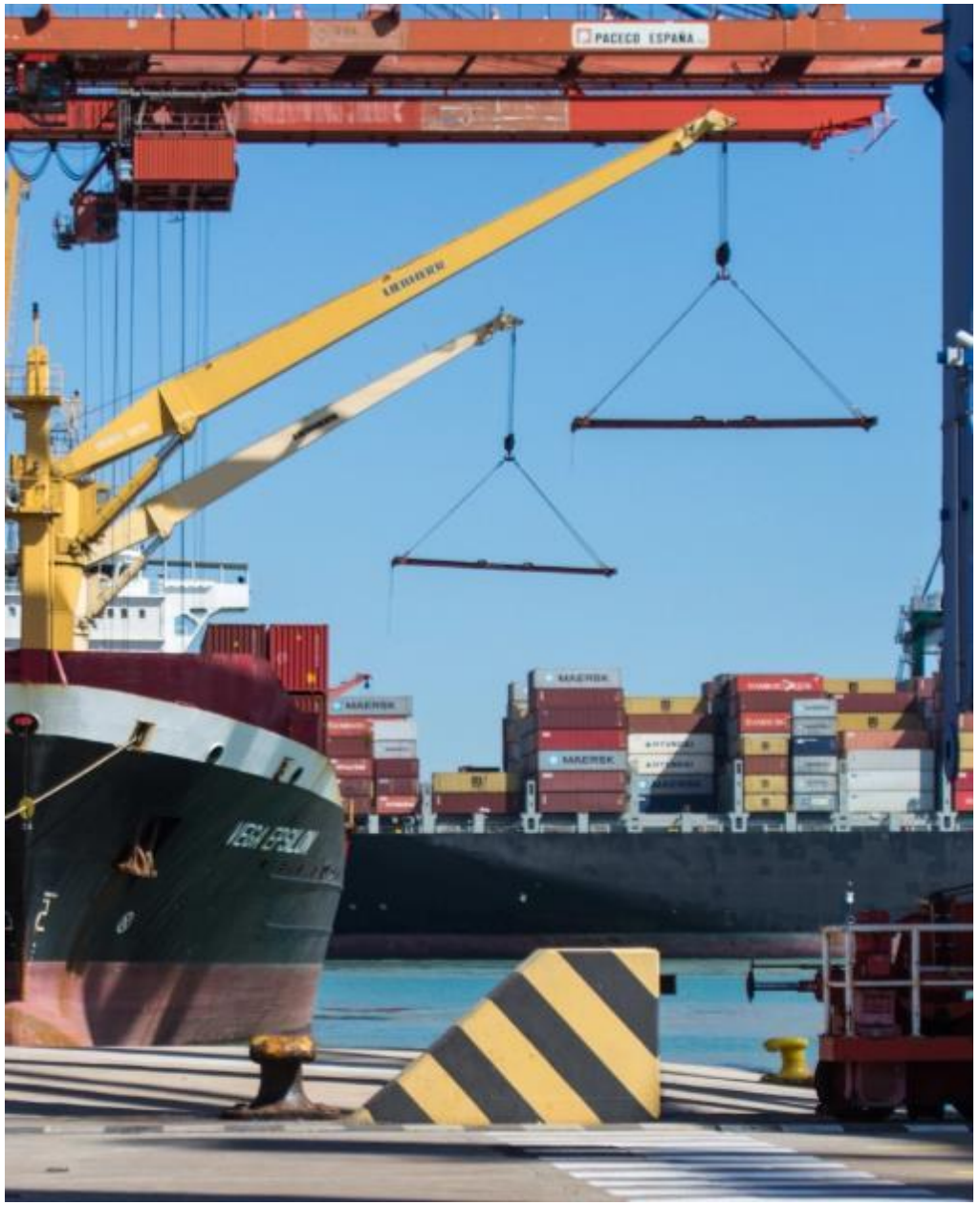

Imbalances

Table 3.1 Contract freight rates, inter-regional, 2018–2020, $ per 40-foot container (FEU)

From	To	Average	2018	2019	2020
Africa	Africa	1 862	1 812	1 849	1 924
	Asia	758	748	750	775
	Europe	1 607	1 431	1 643	1 747
	Latin America	1 950	2 010	1 860	1 979
Asia	Africa	1 946	1 800	1 927	2 112
	Asia	768	737	747	821
	Europe	1 848	1 782	1 847	1 916
	Latin America	2 198	2 290	2 075	2 230
	North America	2 580	2 426	2 603	2 711
	Oceania	1 803	1 770	1 790	1 850
Europe	Africa	1 701	1 595	1 650	1 858
	Asia	947	967	870	1 004
	Europe	887	804	881	976
	Latin America	1 232	1 019	1 302	1 376
	North America	1 838	1 518	1 742	2 256
	Oceania	2 002	1 996	1 933	2 077
Latin America	Africa	1 910	1 778	1 951	2 000
	Asia	1 796	1 623	1 963	1 802
	Europe	1 751	1 313	1 977	1 961
	Latin America	1 529	1 349	1 699	1 539
	North America	1 716	1 521	1 882	1 745
North America	Africa	2 994	2 890	3 112	2 981
	Asia	1 129	1 009	1 111	1 269
	Europe	1 097	858	1 109	1 323
	Latin America	1 353	1 254	1 318	1 486
	North America	1 516	1 534	1 429	1 584
	Oceania	2 722	2 538	2 634	2 996

Source: UNCTAD, based on data provided by TIM Consult Market Intelligence https://timconsult.com/service_areas/transport/benchmarking/.

Note: The data set provides regional averages for forty-foot container dry cargo freight, as negotiated for routes where rates were available for at least 5 shippers and at least 500 TEU per year on port-pair basis.
Rates are "gate-in gate-out", i.e., including terminal handling charges and all charges and surcharges of ocean transport. Not included are pre- and on-carriage as much as classical administrative services of forwarders (customs clearance, booking and invoice control fees, etc.).
The average is unweighted, based on representative main ports. Trade imbalance is also impacting freight rates.

Differences in freight costs depend on…

1) Distances
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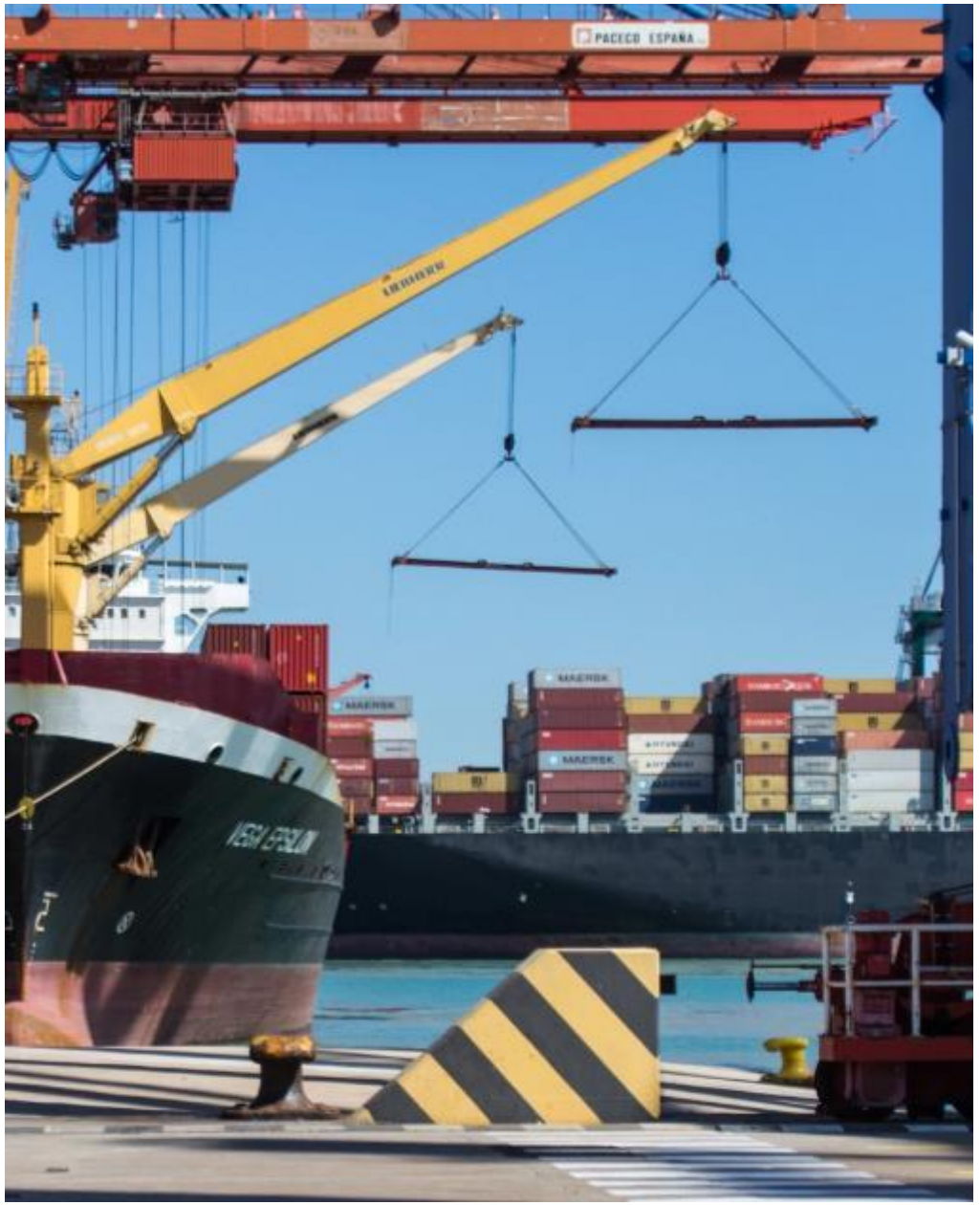

Merchandize type and value

- Increase the value by 1% implies an increase of transport and insurance costs by around 0.3 – 0.4%

Maritime Economics & Logistics, 2003, 5, (199–218)
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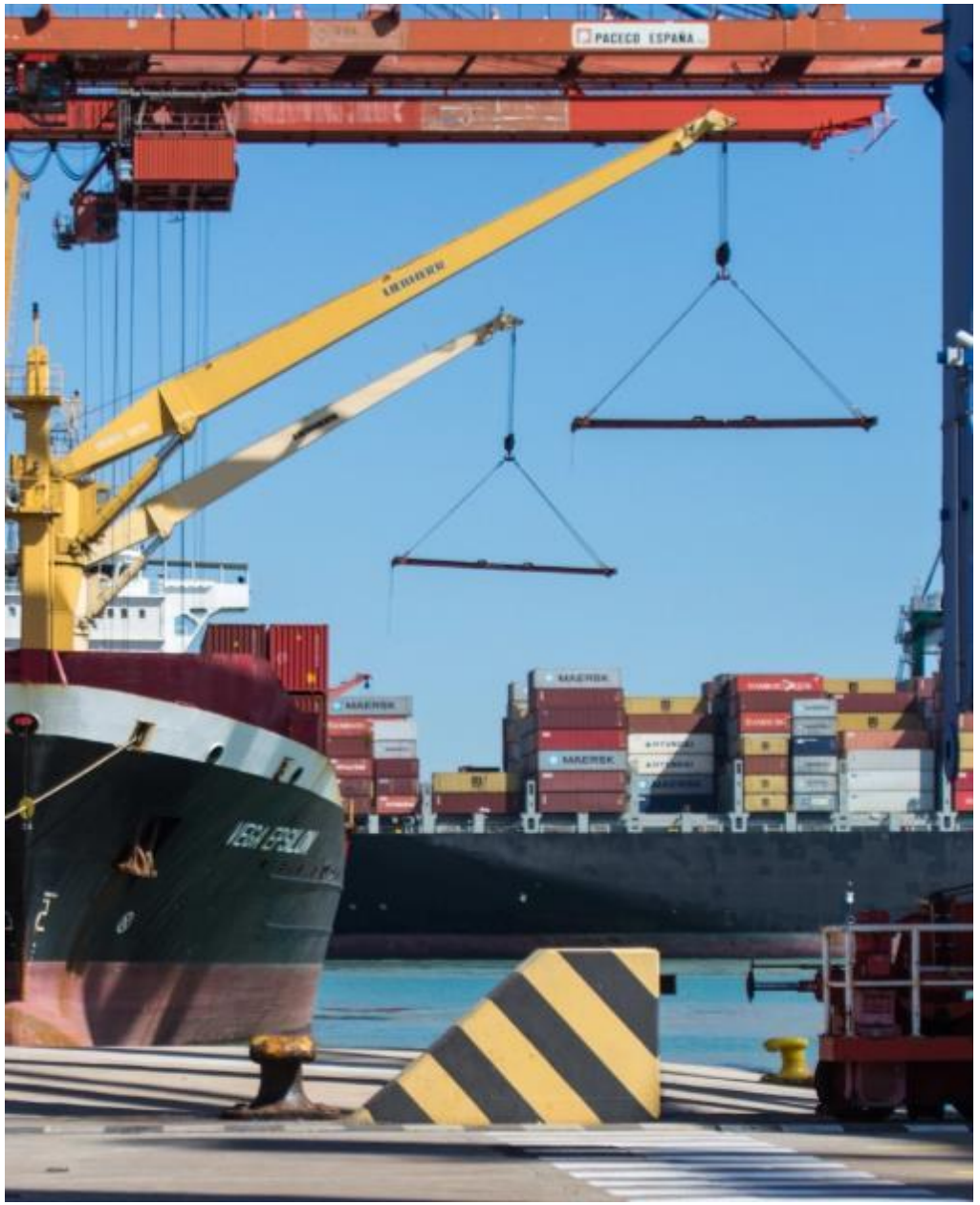
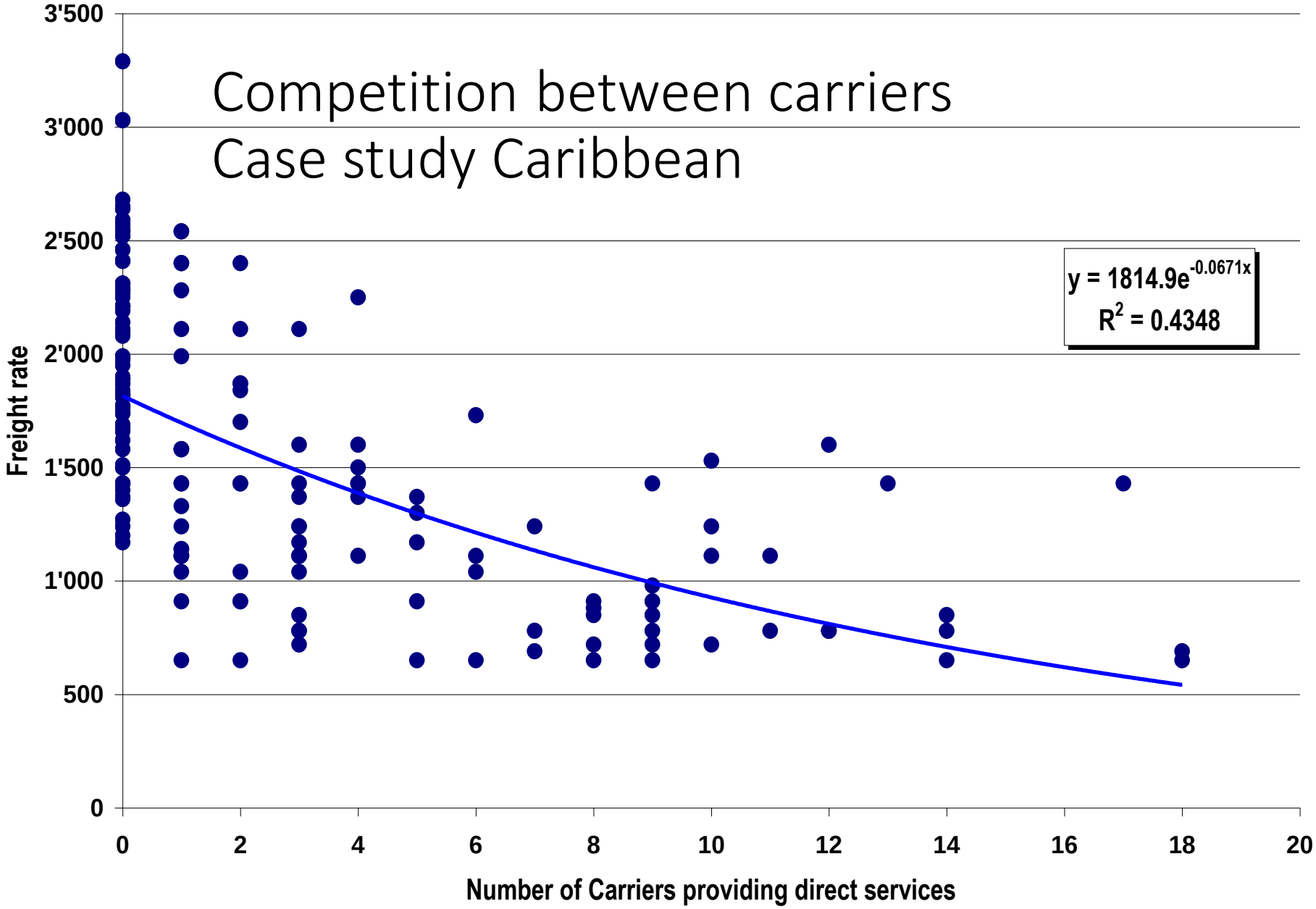


Competition between carriers
Case study Caribbean



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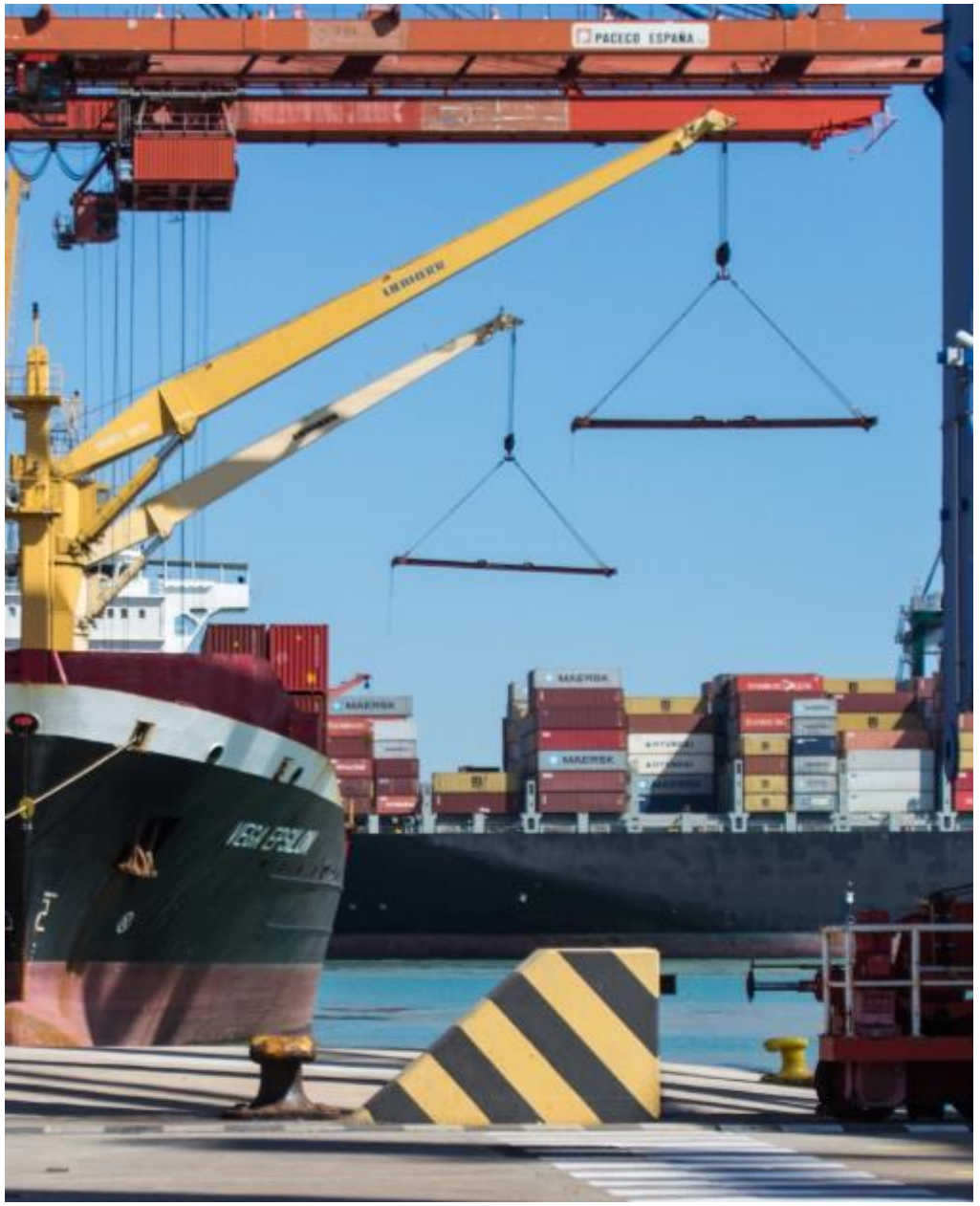

Dependent variable:
maritime transport costs per tonne of containerizable cargo

Variable	Model 7	Model 8
Observations	N = 75 928	N = 75 928
$TONS_k$	-0.0863 (-57.65)	-0.0863 (-57.67)
$VALUEPERTON_k$	0.3422 (128.74)	0.3416 (128.82)
$DISTANCE_{ij}$	0.3716 (95.80)	0.3698 (97.26)
$BILATERALVOLUME_{ij}$	-0.0100 (-4.46)	-0.0109 (-5.53)
$BALANCEROUTE_{ij}$	0.00020 (1.73)	0.00027 (2.40)
$PORTINFRA_i$	-0.0333 (-9.92)	
$PORTINFRA_j$	-0.0497 (-10.76)	
$PORTINFRA_{ij}$		-0.2444 (-13.51)

Port Economics
Research in Transportation Economics, Volume 16, 117–140

ISSN: 0739-8859/doi:10.1016/S0739-8859(06)16006-0

Better <u>port infrastructure</u> reduces maritime transport costs

Dependent variable:
maritime transport costs per tonne of containerizable cargo

Variable	Model 7	Model 8	Model 9
Observations	N = 75 928	N = 75 928	N = 75 928
$TONS_k$	-0.0863 (-57.65)	-0.0863 (-57.67)	-0.0869 (-58.11)
$VALUEPERTON_k$	0.3422 (128.74)	0.3416 (128.82)	0.3416 (128.94)
$DISTANCE_{ij}$	0.3716 (95.80)	0.3698 (97.26)	0.3542 (90.31)
$BILATERALVOLUME_{ij}$	-0.0100 (-4.46)	-0.0109 (-5.53)	-0.0161 (-7.97)
$BALANCEROUTE_{ij}$	0.00020 (1.73)	0.00027 (2.40)	0.00047 (4.25)
$PORTEFIC_{ij}$			-0.3835 (-17.65)

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Research in Transportation Economics, Volume 16, 117–140

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Better (perceived) <u>port efficiency</u> reduces maritime transport costs

Dependent variable:
maritime transport costs per tonne of containerizable cargo

Variable	Model 11	Model 12	Model 13
Observations	N = 75 928	N = 35 438	N = 73 818
$TONS_k$	-0.0874 (-58.85)	-0.0632 (-29.15)	-0.0857 (-57.00)
$VALUEPERTON_k$	0.3374 (127.73)	0.4665 (113.19)	0.3447 (129.16)
$DISTANCE_{ij}$	0.3890 (96.81)	0.3380 (55.36)	0.1769 (30.28)
$BILATERALVOLUME_{ij}$	-0.0322 (-13.70)	-0.0794 (-23.74)	0.0256 (10.91)
$BALANCEROUTE_{ij}$	0.00022 (-1.80)	0.00082 (5.06)	0.00228 (14.31)
$PORTPRIVAT_i$	0.0038 (2.00)		
$PORTPRIVAT_j$	-0.0562 (-32.00)		

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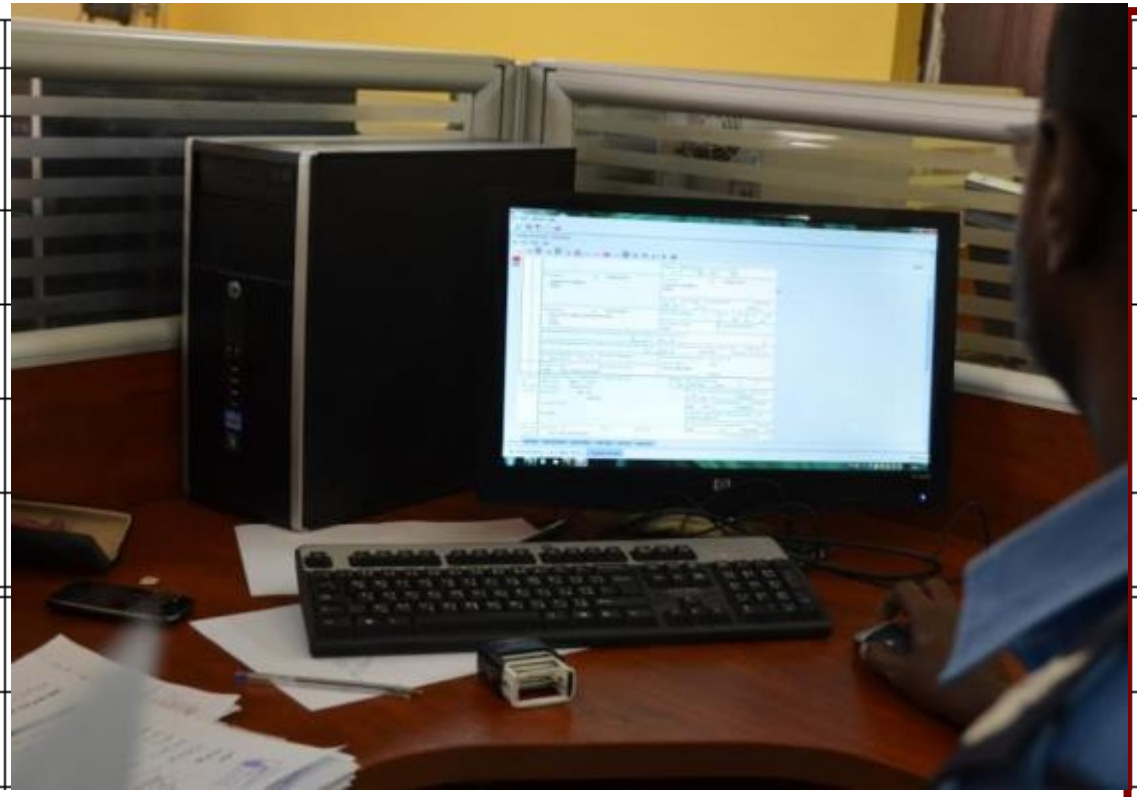
<u>Port privatization</u> in the exporting country reduces maritime transport costs

Dependent variable:
maritime transport costs per tonne of containerizable cargo

Variable	Model 12	Model 13
Observations	N = 35 438	N = 73 818
$TONS_k$	-0.0632 (-29.15)	-0.0857 (-57.00)
$VALUEPERTON_k$	0.4665 (113.19)	0.3447 (129.16)
$DISTANCE_{ij}$	0.3380 (55.36)	0.1769 (30.28)
$BILATERALVOLUME_{ij}$	-0.0794 (-23.74)	0.0256 (10.91)
$BALANCEROUTE_{ij}$	0.00082 (5.06)	0.00228 (14.31)
$CUSTOMSDELAY_i$	0.0512 (4.32)	
$CUSTOMSDELAY_j$	0.0074 (0.80)	



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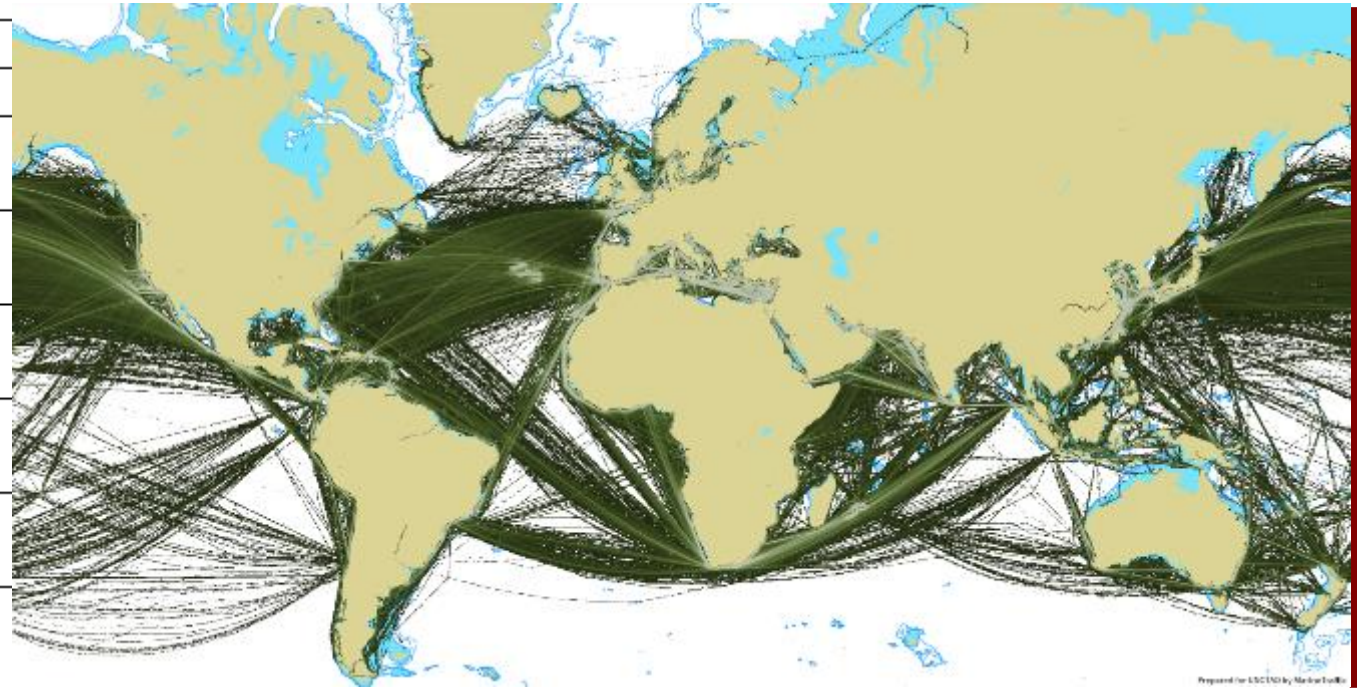
ISSN: 0739-8859/doi:10.1016/S0739-8859(06)16006-0

<u>Trade facilitation</u> in the importing country reduces maritime transport costs

Dependent variable:
maritime transport costs per tonne of containerizable cargo

Variable	Model 13
Observations	N = 73 818
$TONS_k$	-0.0857 (-57.00)
$VALUEPERTON_k$	0.3447 (129.16)
$DISTANCE_{ij}$	0.1769 (30.28)
$BILATERALVOLUME_{ij}$	0.0256 (10.91)
$BALANCEROUTE_{ij}$	0.00228 (14.31)
$LINERSERVICES_{ij}$	-0.1129 (-32.60)



Better <u>connectivity</u> / more competition among carriers reduces maritime transport costs (shippers perspective)

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Differences in freight costs depend on…

1) Distances
2) **Economies of scale**
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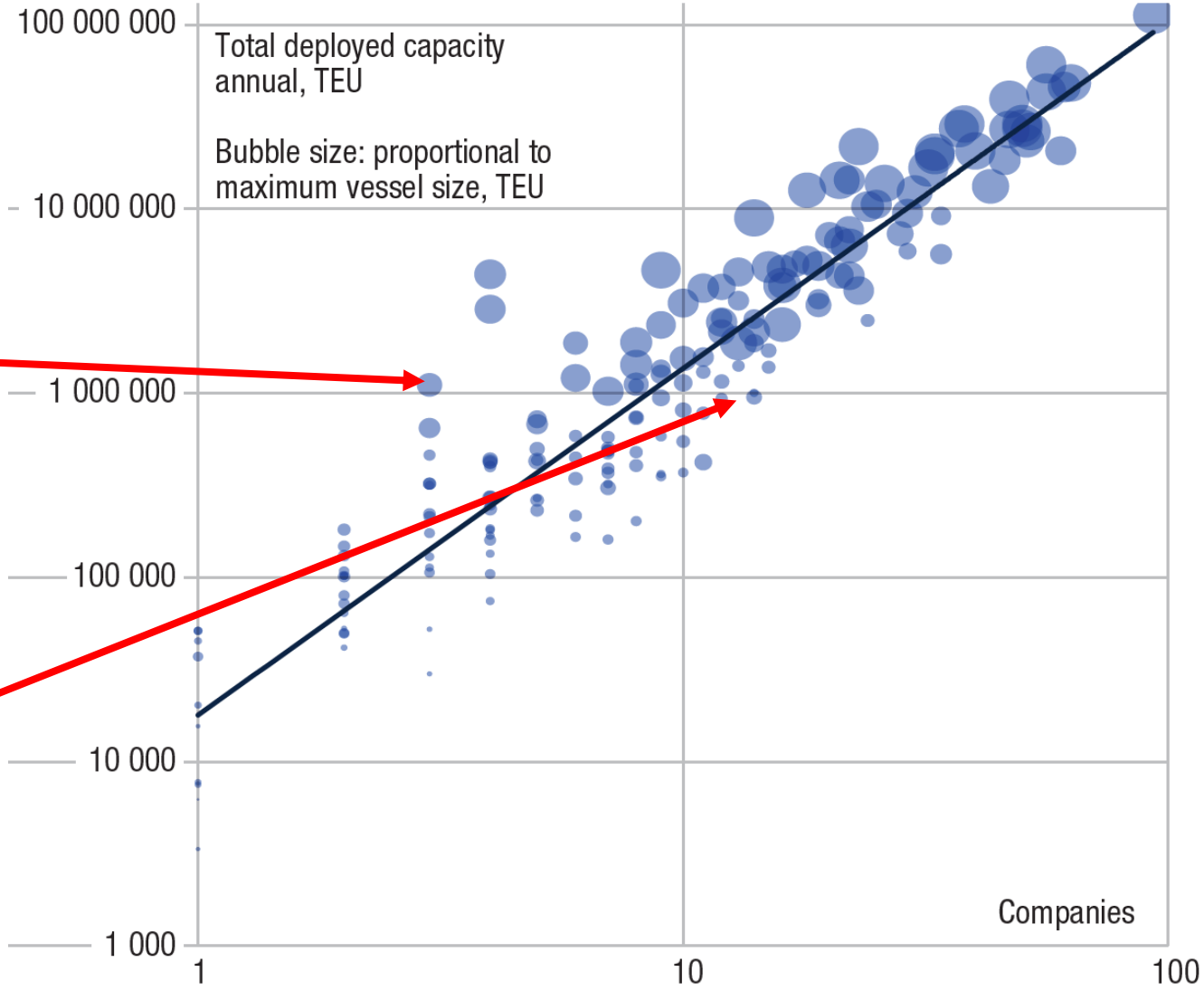
Figure 4.13 Relationship between maximum vessel sizes, deployed capacity, and the number of companies, second quarter 2021



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

Figure 3.16 Maritime transport costs for importing goods, by country and size of economy

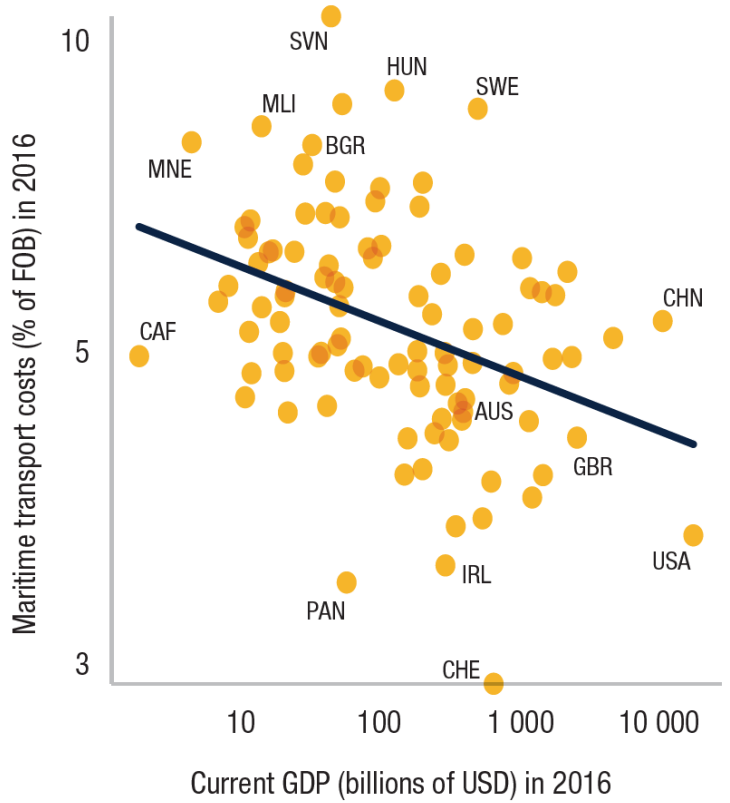
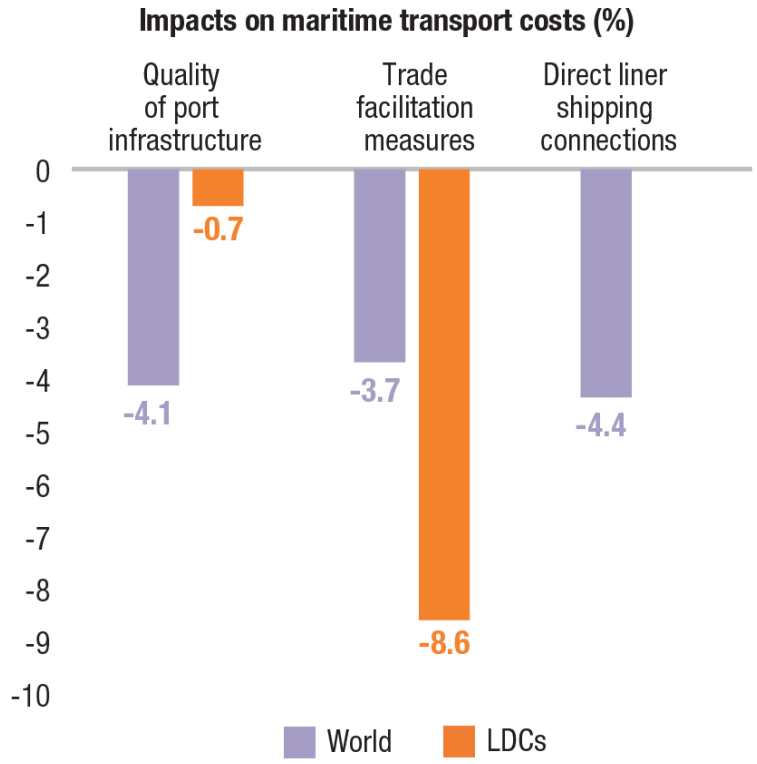


Figure 3.17 Impact of structural determinants on maritime transport costs for importing goods



Sources: UNCTAD calculations based on the GTCDIT developed by UNCTAD, the World Bank, and Equitable Maritime Consulting (accessed 24 June 2021), *World Development Indicators* published by the World Bank (accessed 24 June 2021), *Global Competitiveness Index* published by the World Economic Forum (accessed 24 June 2021), *UN Global Survey on Digital and Sustainable Trade Facilitation* conducted by the UN Regional Commissions (accessed 24 June 2021), and a dataset provided by MDS Transmodal.

Notes: Figure 3.16: Maritime transport costs are aggregated by importing country. The aggregation is the sum of transport costs over all commodities and trading partners, divided by the sum of trade values (in FOB) over the corresponding commodities and trading partners, for commodities and country pairs where transport costs data are available.
Figure 3.17: The impact on maritime transport costs is the impact of improving each transport costs determinant from the 25th percentile to the 75th percentile. See technical note 4 for the detail of the methodology and the data sources.

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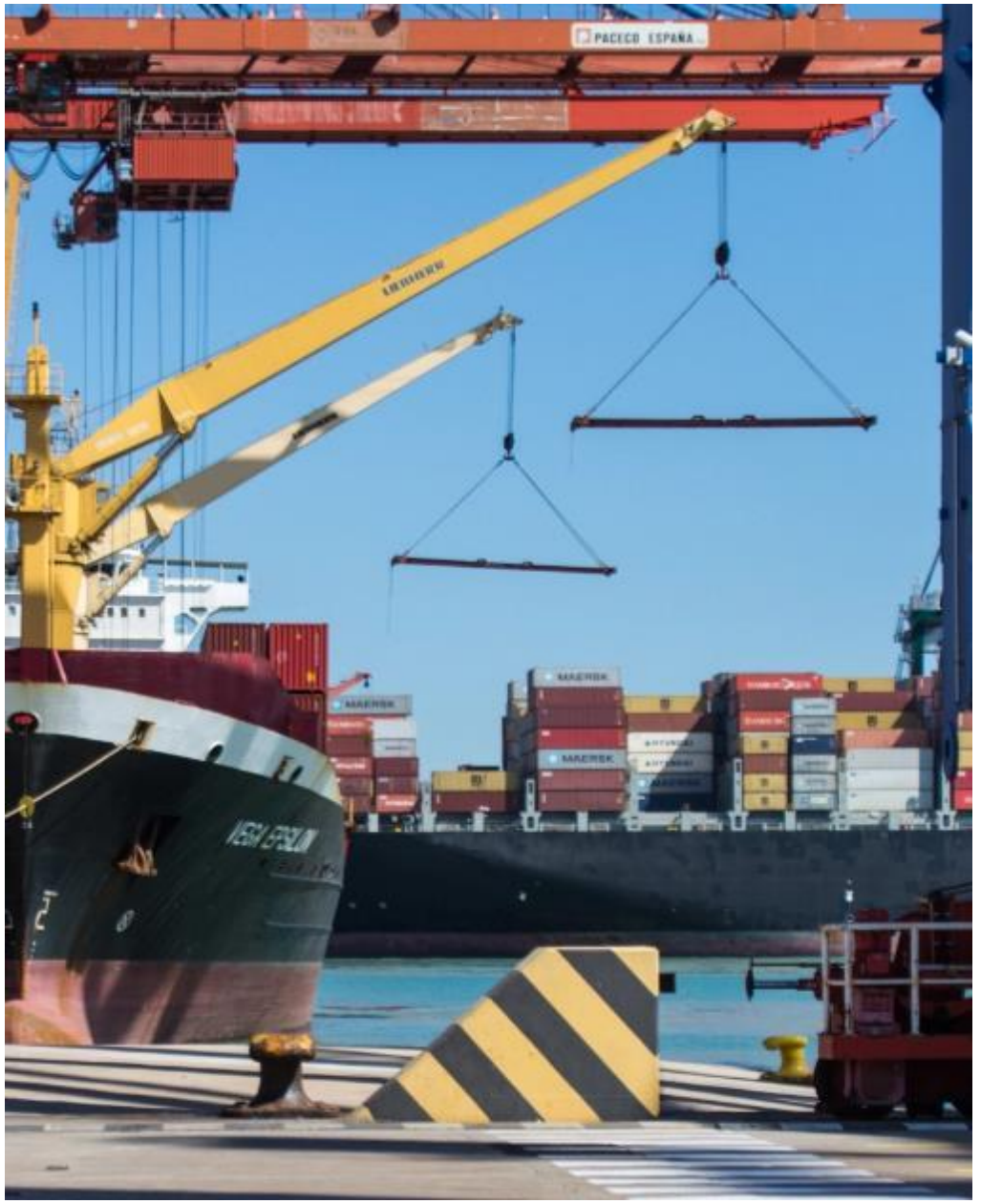

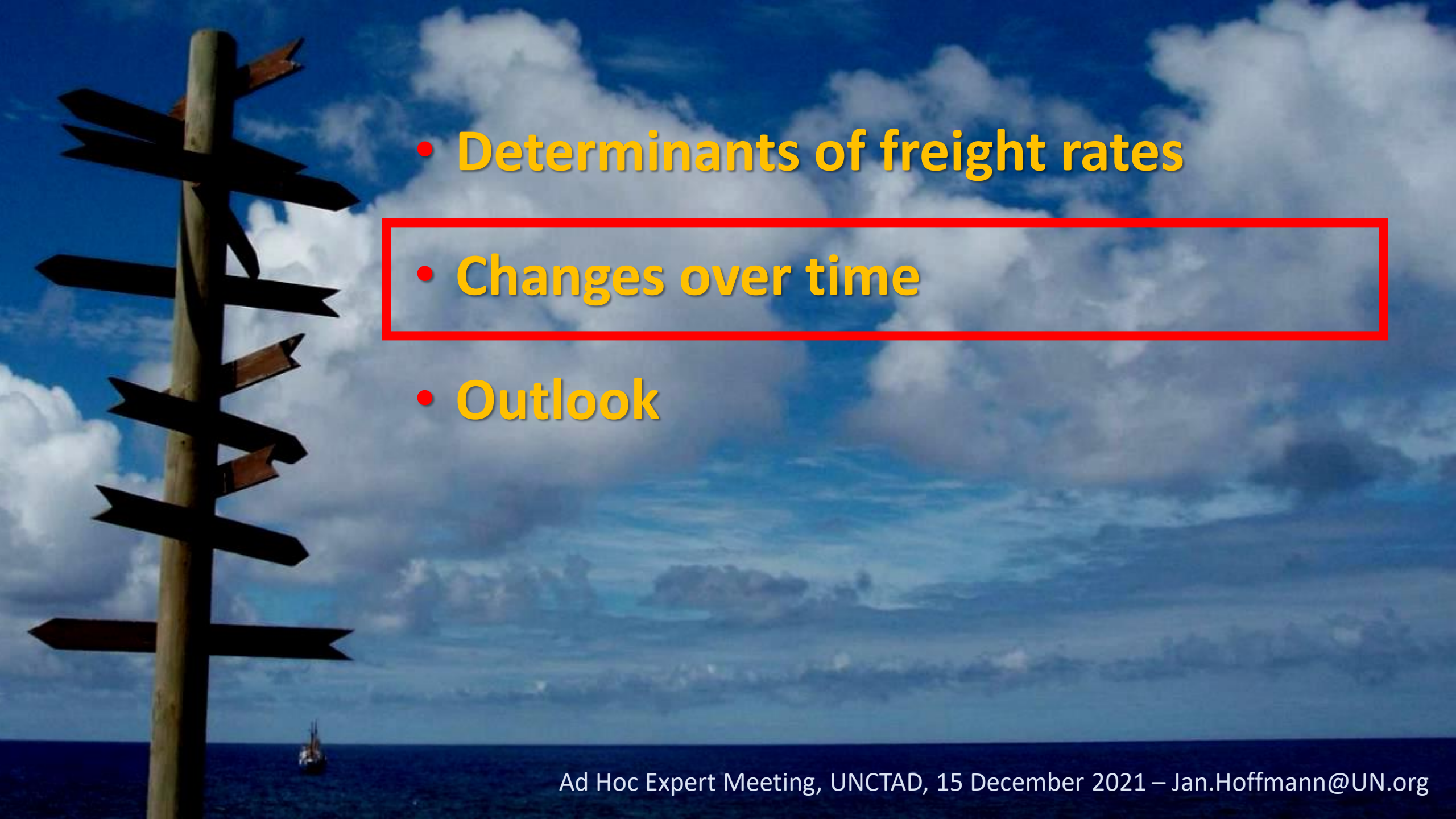
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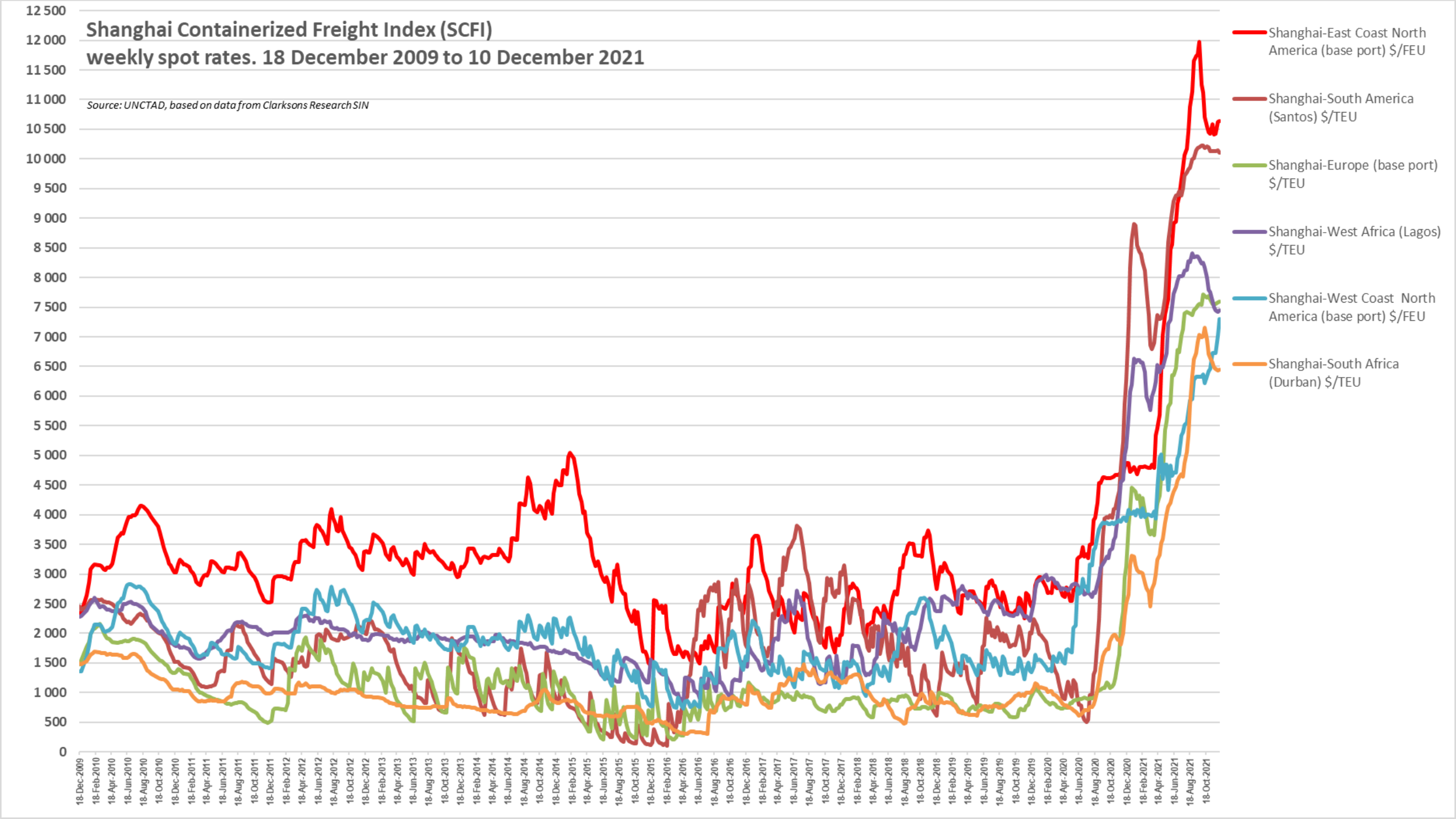
Shanghai Containerized Freight Index (SCFI)
weekly spot rates. 18 December 2009 to 10 December 2021
Source: UNCTAD, based on data from Clarksons Research SIN
Shanghai-East Coast North America (base port) $/FEU
Shanghai-South America (Santos) $/TEU
Shanghai-Europe (base port) $/TEU
Shanghai-West Africa (Lagos) $/TEU
Shanghai-West Coast North America (base port) $/FEU
Shanghai-South Africa (Durban) $/TEU
12 500
12 000
11 500
11 000
10 500
10 000
9 500
9 000
8 500
8 000
7 500
7 000
6 500
6 000
5 500
5 000
4 500
4 000
3 500
3 000
2 500
2 000
1 500
1 000
500
0
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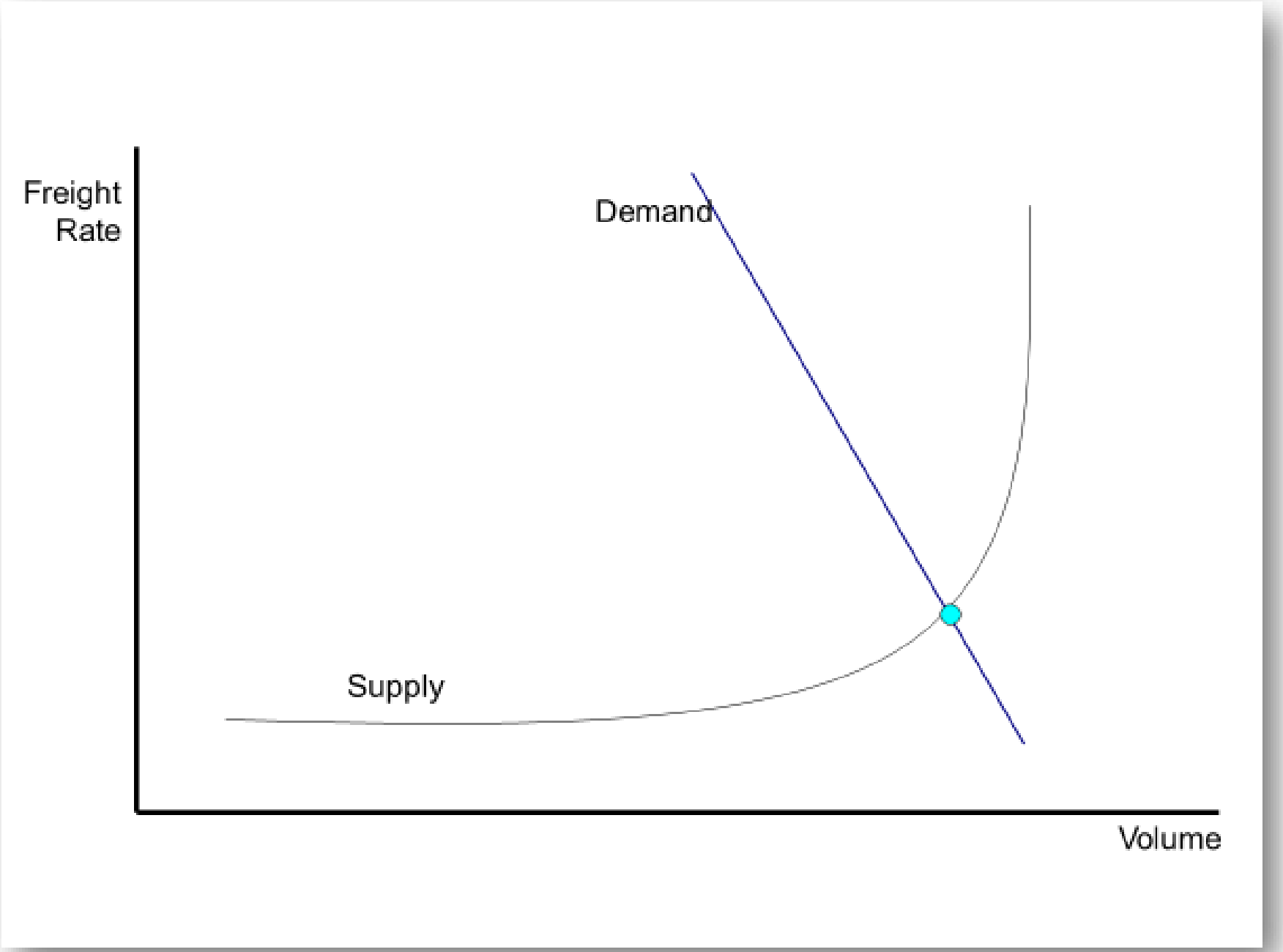
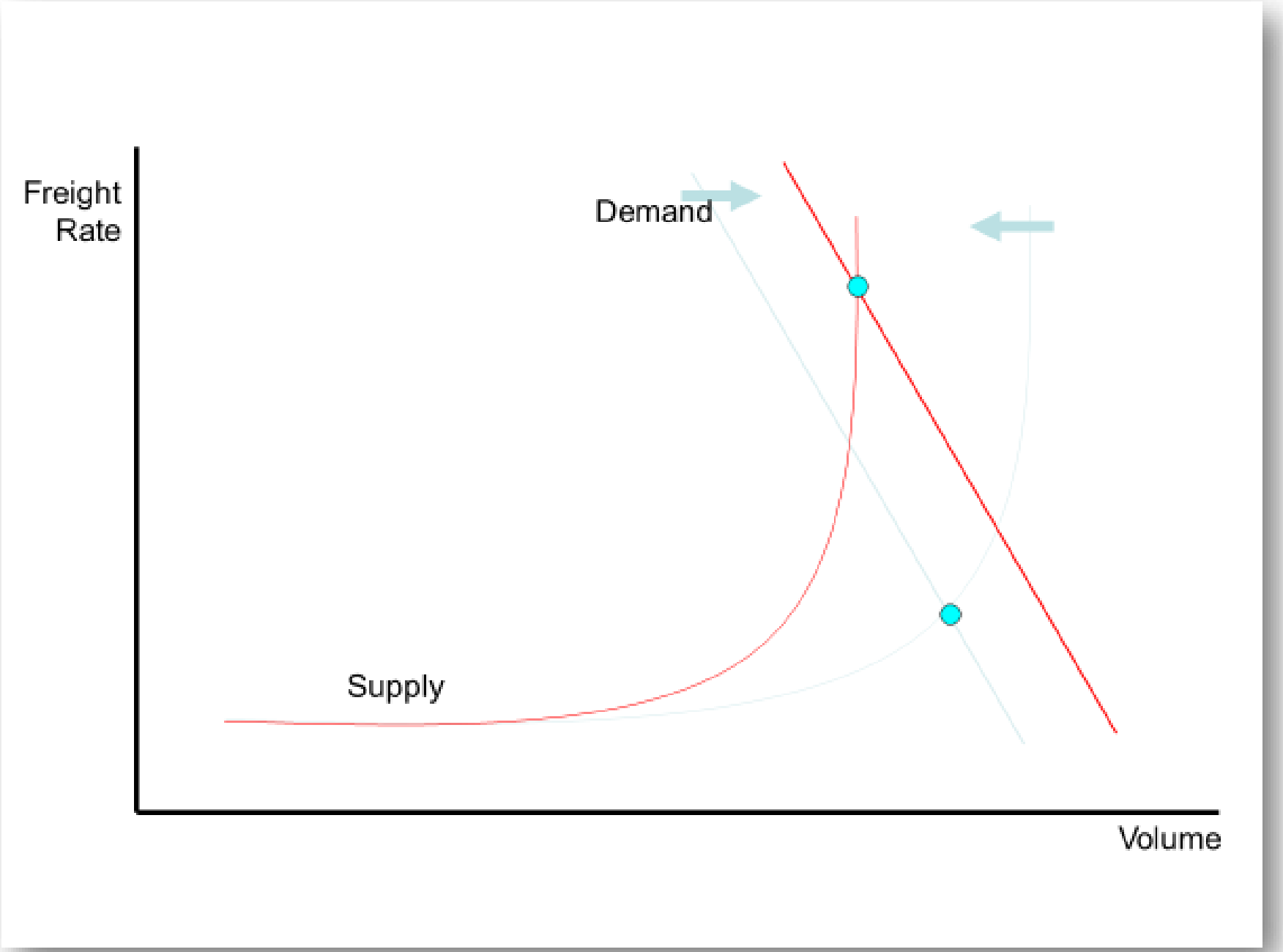
18-Oct-2021


Freight
Rate
Demand
Supply
Volume


Freight
Rate
Demand
Supply
Volume

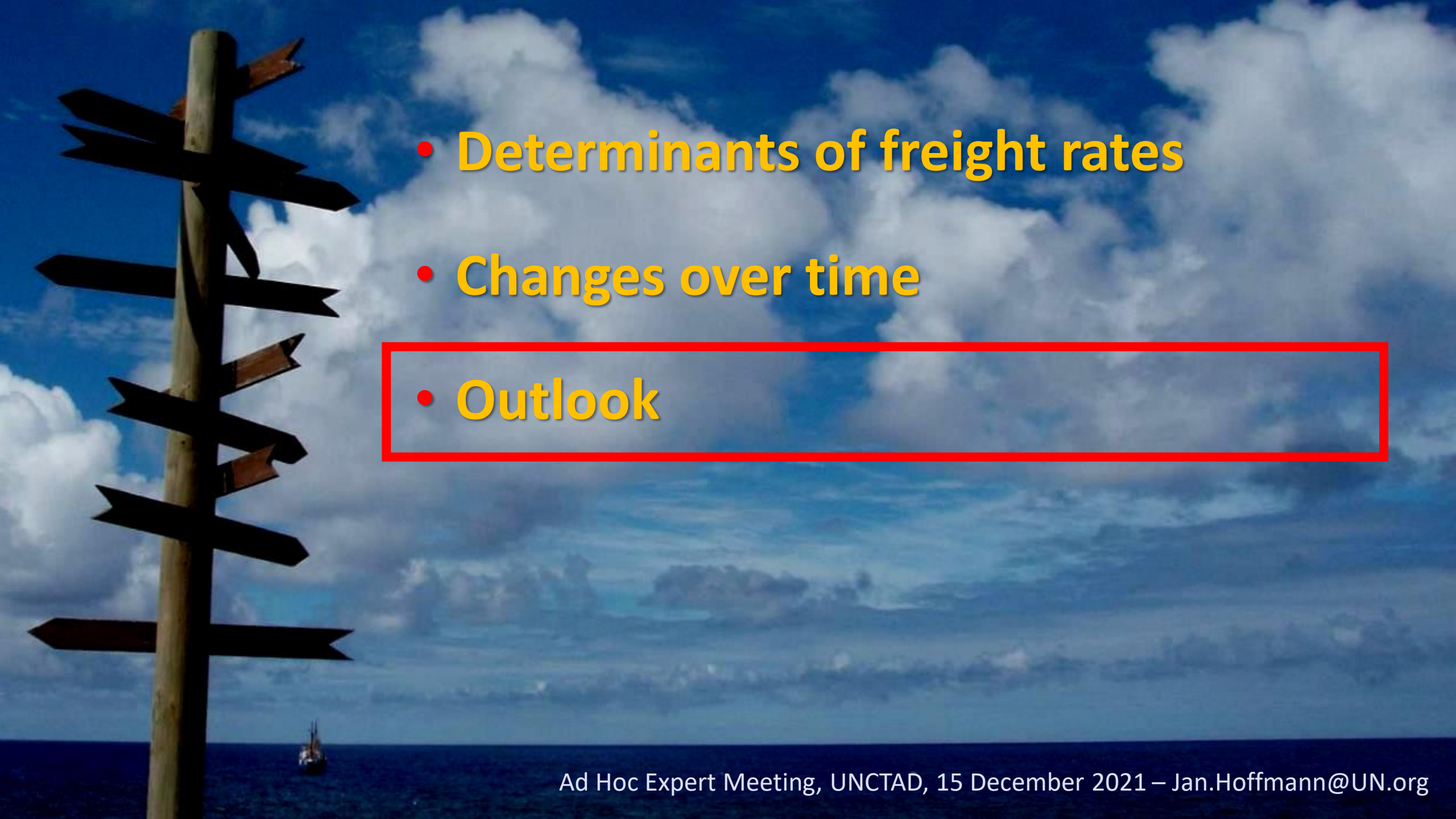
Why did freight rates go up so much?

Demand

- E-commerce and stimulus packages:
  More demand than expected

Supply

- Covid impact:
  Handling in ports and hinterland slows down
- Main routes changed and boxes were not where they were needed. Carriers skipped port calls/ blank sailings:
  Boxes were left behind.
- Carriers benefit from high freight rates:
  Is there an oligopolistic market?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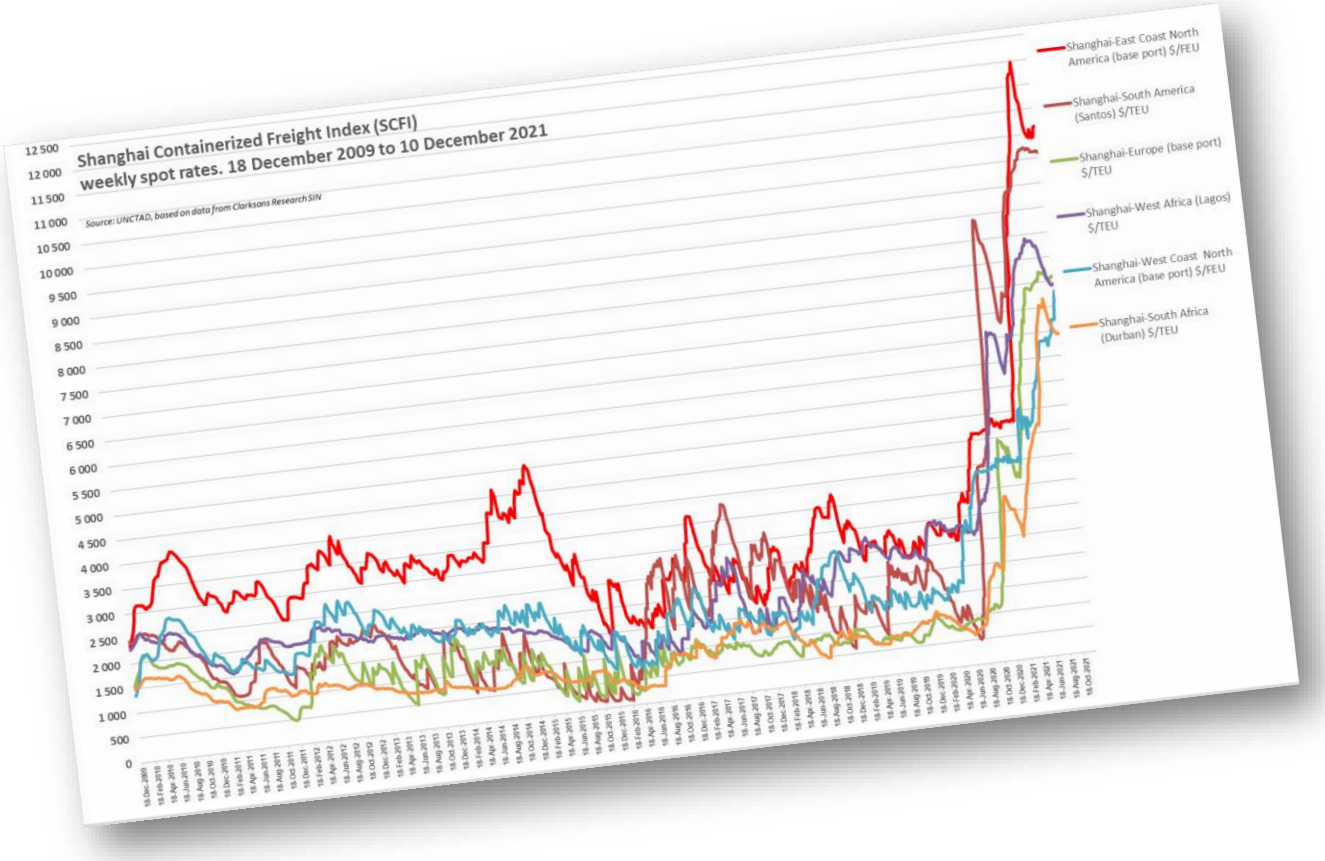
6 reasons why freight rates are likely to remain higher than over the previous decade

1. COVID-19
2. Shipping Cycle
3. Consolidation
4. Decarbonization
5. Will we have enough ships?
6. Risk premium?



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Source: Dr. Chaichan Charoensuk, Chairman, Thai National Shippers' Council
UNCTAD webinar 13 July 2021 - https://unctad.org/meeting/maritime-webinar-series-container-shipping-crisis-its-impact-and-why-it-different-anything

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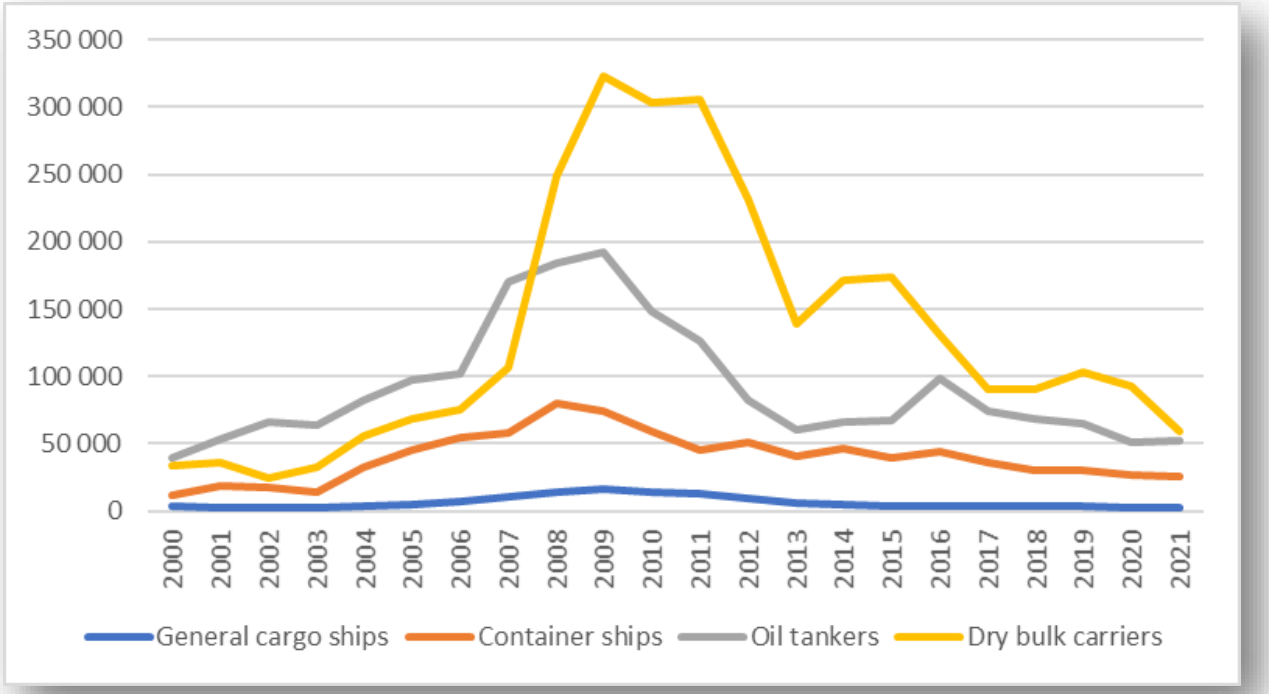

ORDERBOOK (beginning of year data)
Source: UNCTAD, with Clarksons Research data

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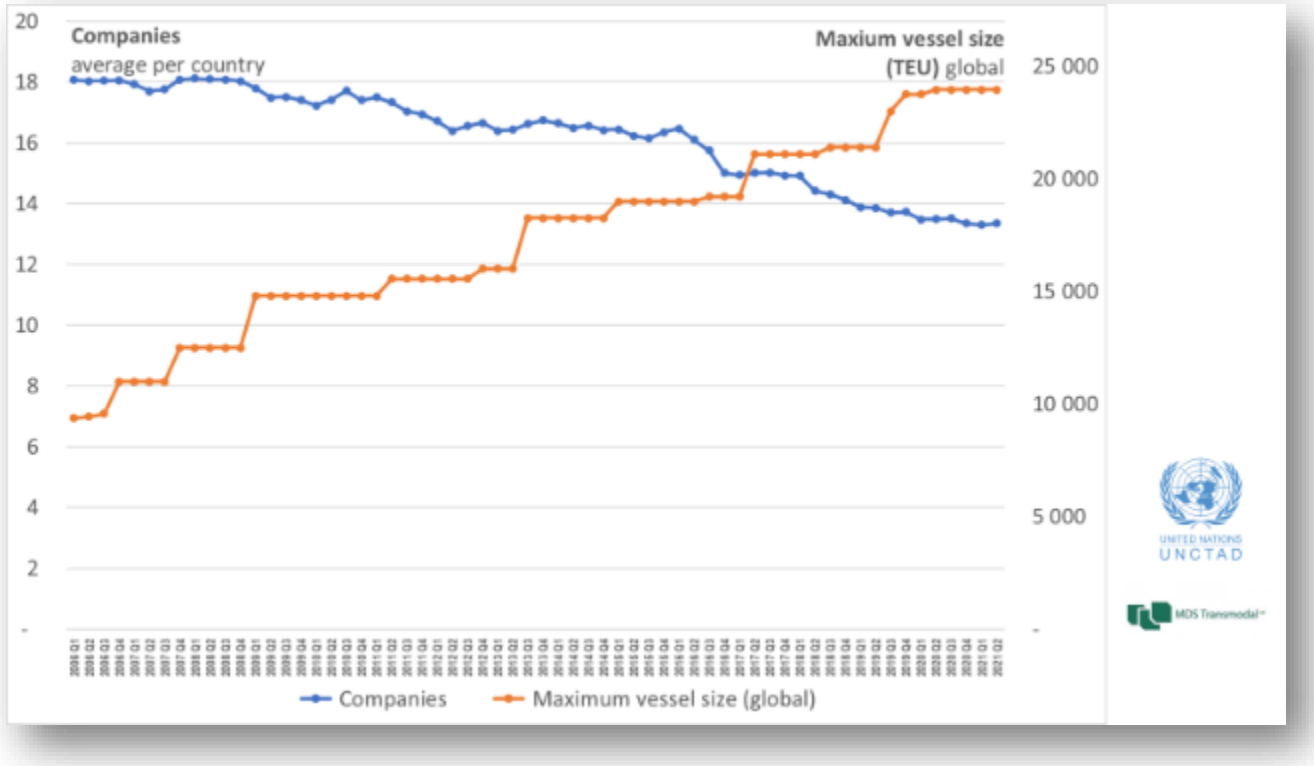

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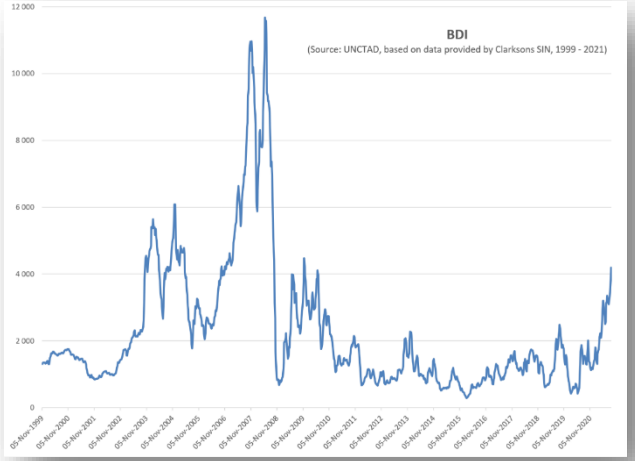
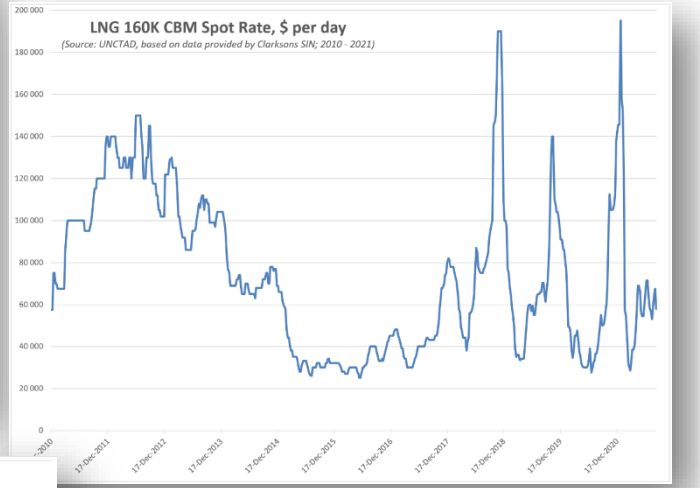
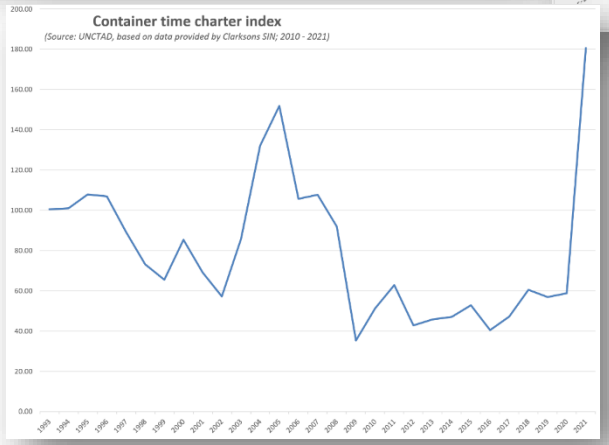
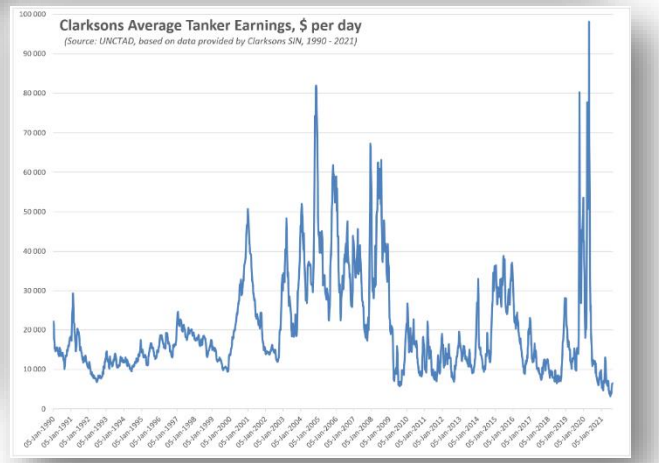
1. COVID-19
2. Shipping Cycle
3. Consolidation **?**
4. Decarbonization
5. Will we have enough ships?
6. Risk premium?









6 reasons why freight rates are likely to remain higher than over the previous decade

1. COVID-19
2. Shipping Cycle
3. Consolidation
4. Decarbonization
5. Will we have enough ships?
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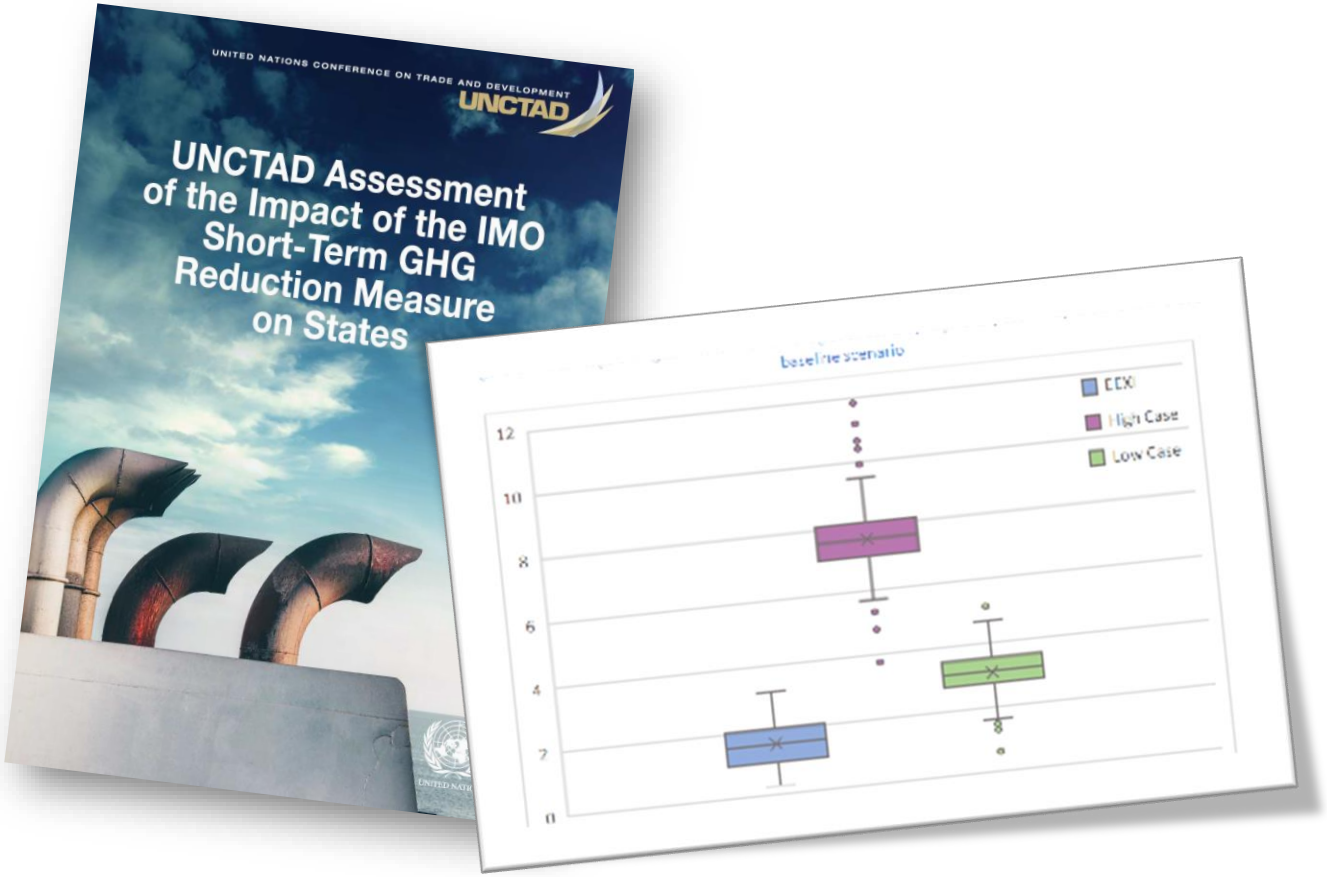

Source: UNCTAD
https://unctad.org/news/vulnerable-countries-need-help-adjust-carbon-cuts-maritime-transport

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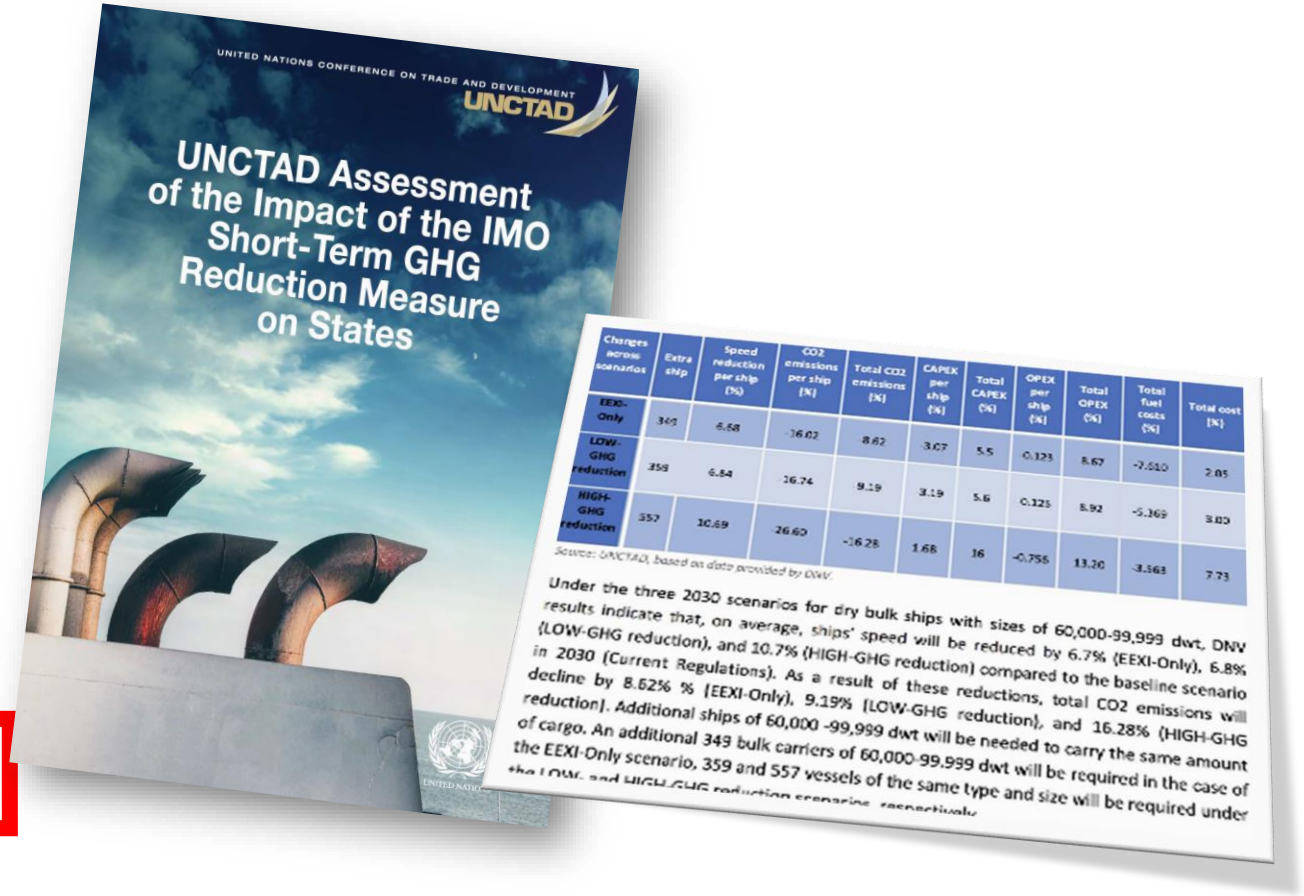

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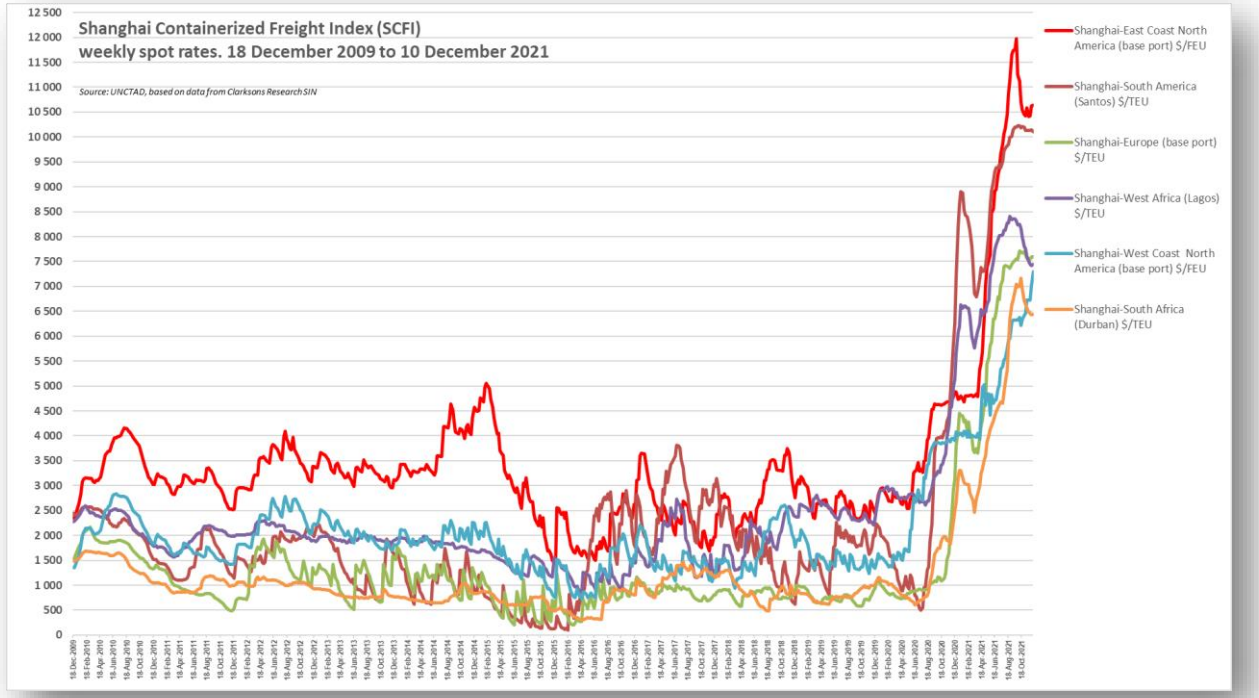


SIMULATED IMPACT OF CONTAINER FREIGHT RATE SURGES

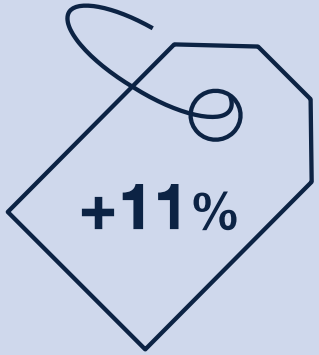
Hardest hit will be SIDS

Simulation assumption:

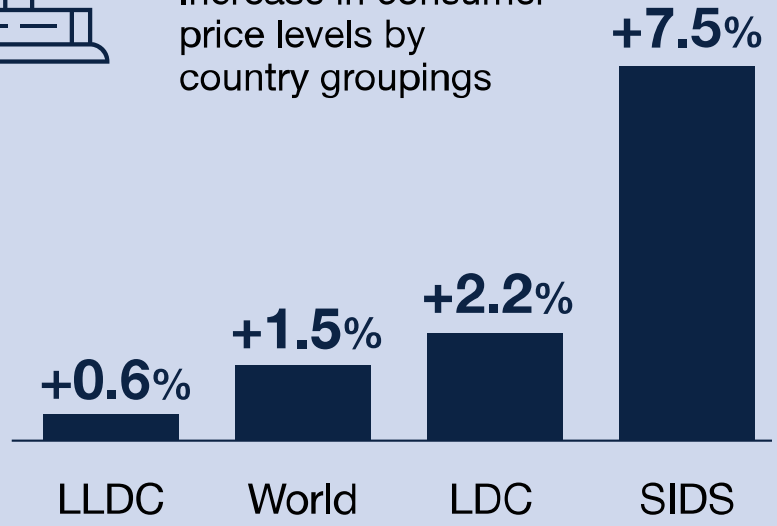
Sustained increase in container freight rates

Simulation results:

Increase in global import price levels



Increase in consumer price levels by country groupings



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SIMULATED IMPACT OF CONTAINER FREIGHT RATE SURGES

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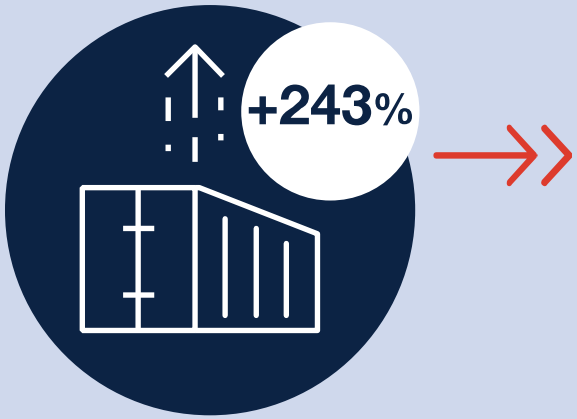
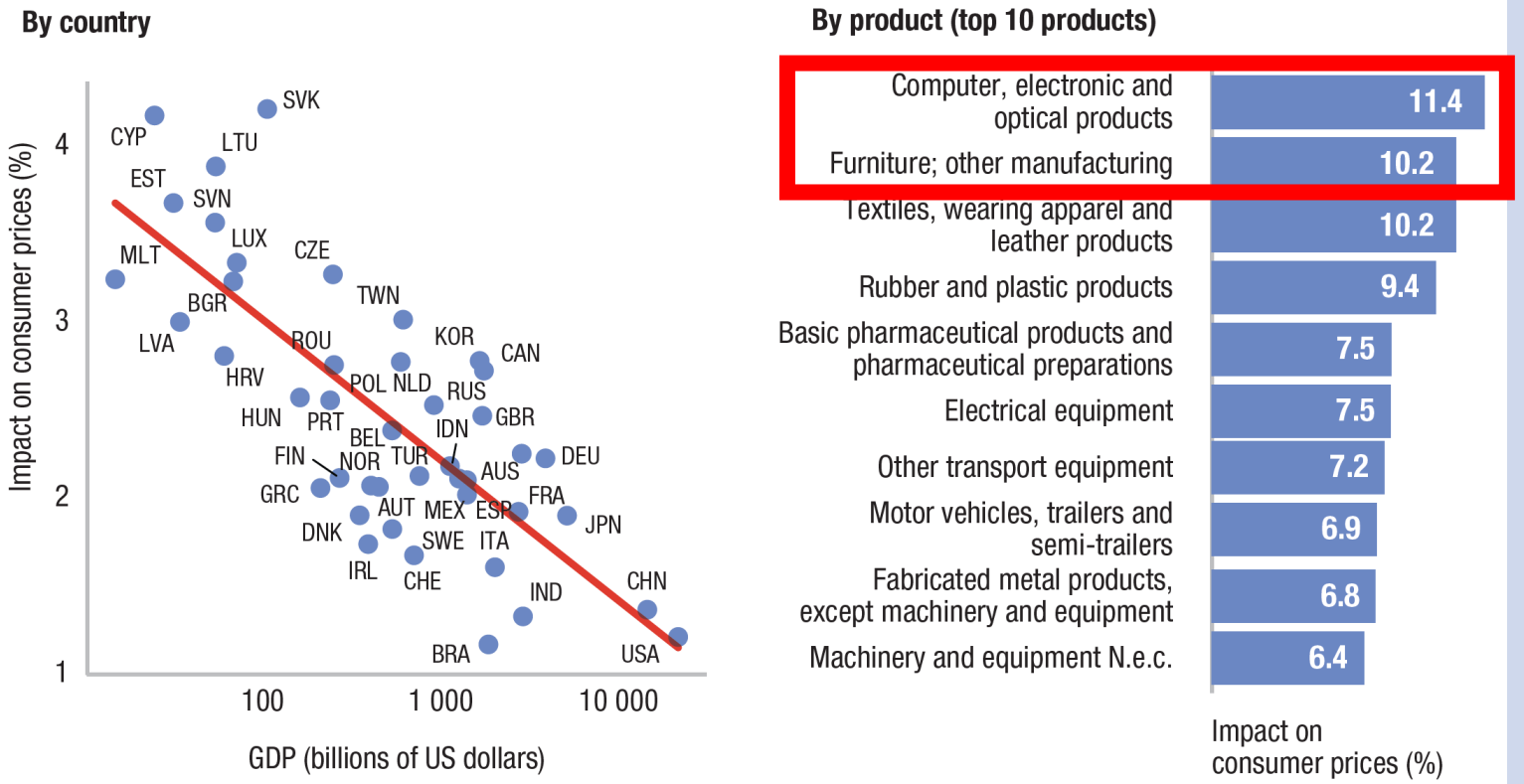


Figure 3.9 Simulated impacts of the container freight rate surge on consumer price levels, by country and by product



Sources: UNCTAD calculations based on the WIOD (accessed 7–8 June 2021) developed by Timmer et al., 2015, Clarksons Research, *Shipping Intelligence Network* (accessed 2 September 2021), UNCTADstat (accessed 24 June 2021), and the Centre d'Études Prospectives and d'Informations Internationales, *Gravity Database* (accessed 21 May 2021).

Note: The impacts of the container freight rate surge on prices are based on a 243 per cent increase in the CCFI between August 2020 and August 2021. The simulated impacts on price levels are long-term impacts, i.e., the simulation assumes that the current container freight rate surge and the corresponding increases in production costs are fully passed to consumers. See technical note 2 for the detail of the methodology.

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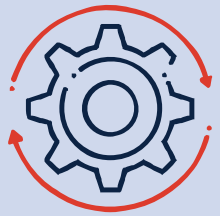
CARBON DIOXIDE EMISSIONS

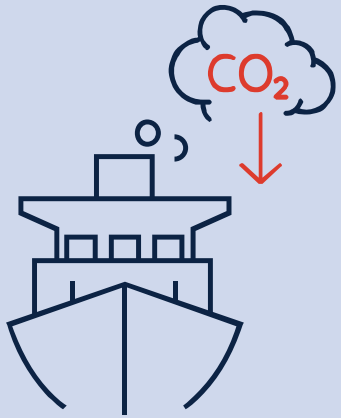
GHG emissions from shipping must be phased out to avoid the costs of not acting in the face of climate change

Decarbonization measures will have a greater impact on some countries than others, notably on SIDS or LDCs, which may need support to mitigate the increased maritime logistics costs

The energy transition in maritime transport implies a major transformation of the industry

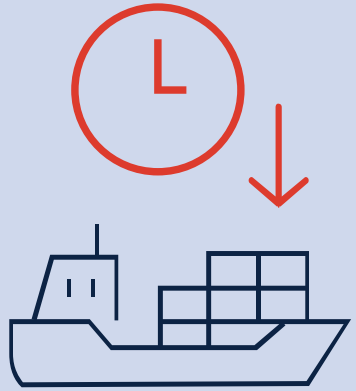


In the process of decarbonizing shipping,



maritime transport costs will increase,

and average shipping speeds will decrease



as a result, maritime logistics costs will go up

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Today

- Introduction
  (about 15 min)
- 20+ Experts:
  What can policy makers do?
  (100 minutes)
- Discussion
  (45 min)
- Summary and key takeaways
  (15 min)

“Ad Hoc Expert Meeting”

To help us/ UNCTAD answer the following questions:

- ***What can policy makers do*** *to help reduce freight rates (and the burden of excessive freight rates on vulnerable economies and small players across the maritime supply chain) and improve connectivity in the short term?*
- *What are* ***long-term policy options*** *to enhance the resilience of the maritime supply chain, including in view of longer-term industry developments such as the energy transition?*

Shippers and cargo interest's perspective

- Achil Yamen, Cameroon Shippers Council
- Chaichan Chareonsuk, Thai National Shippers' Council
- James Hookham, Global Shippers' Forum
- Sean Van Dort, Global Shippers' Forum, Sri Lanka

Industry

- Andrea Tang, FIATA
- Kasper Søgaard, Global Maritime Forum
- John Butler, World Shipping Council
- Stéphane Graber, FIATA

Analysts

- Alan Murphy, Sea-Intelligence
- Antonella Teodoro, MDS Transmodal
- Ashok Pandey, Massachusetts Maritime Academy
- Björn Klippel, TIM Consult - Transporeon

Ports' perspective

- Ben van Scherpenzeel, International Taskforce Port Call Optimization
- Karuppiah Subramaniam, International Association of Ports and Harbors

Government, and international organizations

- Denis Drechsler, Agricultural Market Information System, FAO
- Eduardo Gonzalez, CONACOM, Paraguay
- Jean-Francois Arvis, World Bank
- Olaf Merk, OECD-ITF
- Ricardo Sanchez, ECLAC
- Rodolfo Sabonge, Association of Caribbean States

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Further information:
https://unctad.org/meeting/ad-hoc-expert-meeting-maritime-supply-chain-crisis