Global Trends in Maritime Logistics: Implications for Seaports

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1. The story so far
2. Supply chain crises
3. Opportunities for seaports

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1. The story so far
2. Supply chain crises
3. Opportunities for seaports
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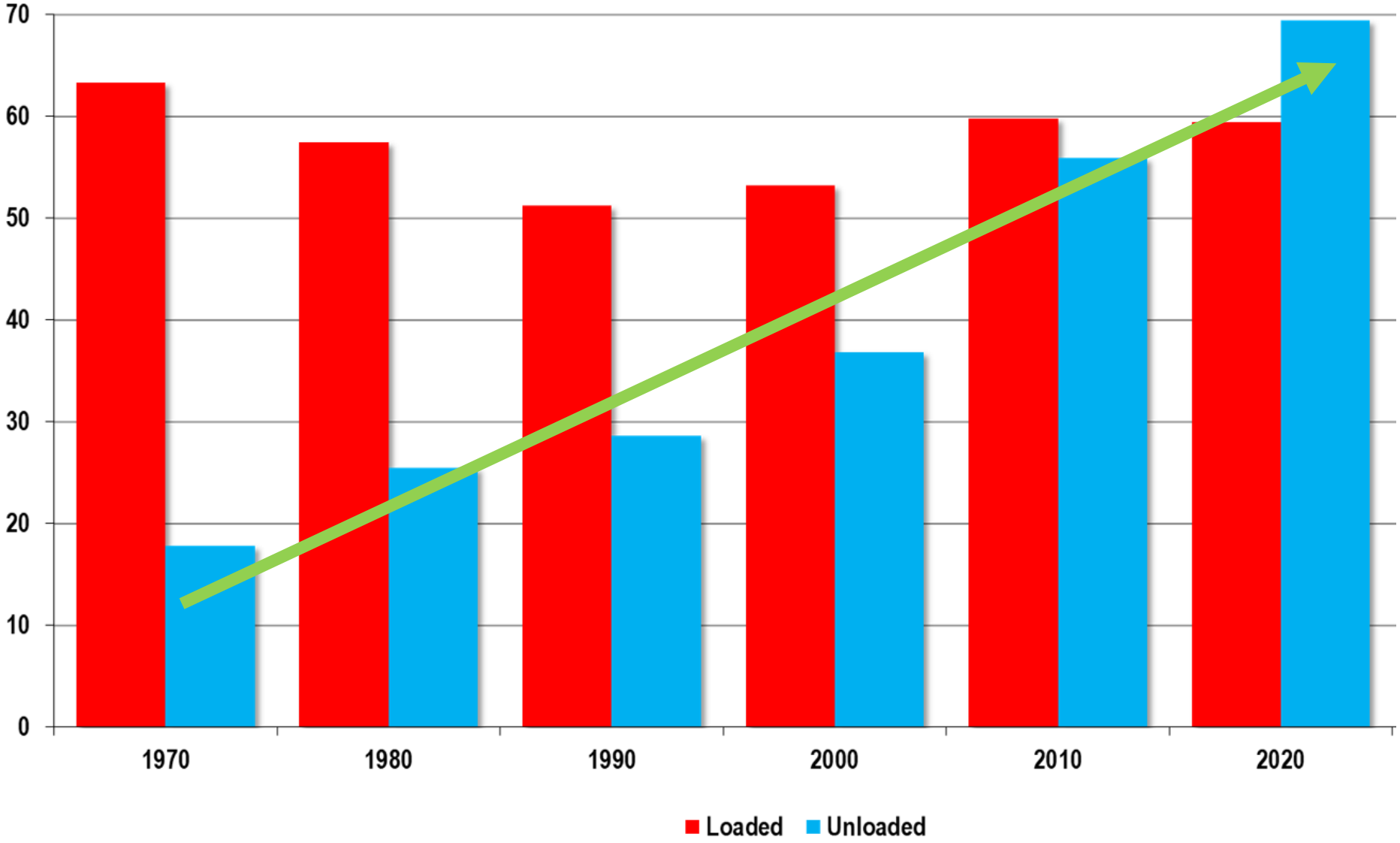
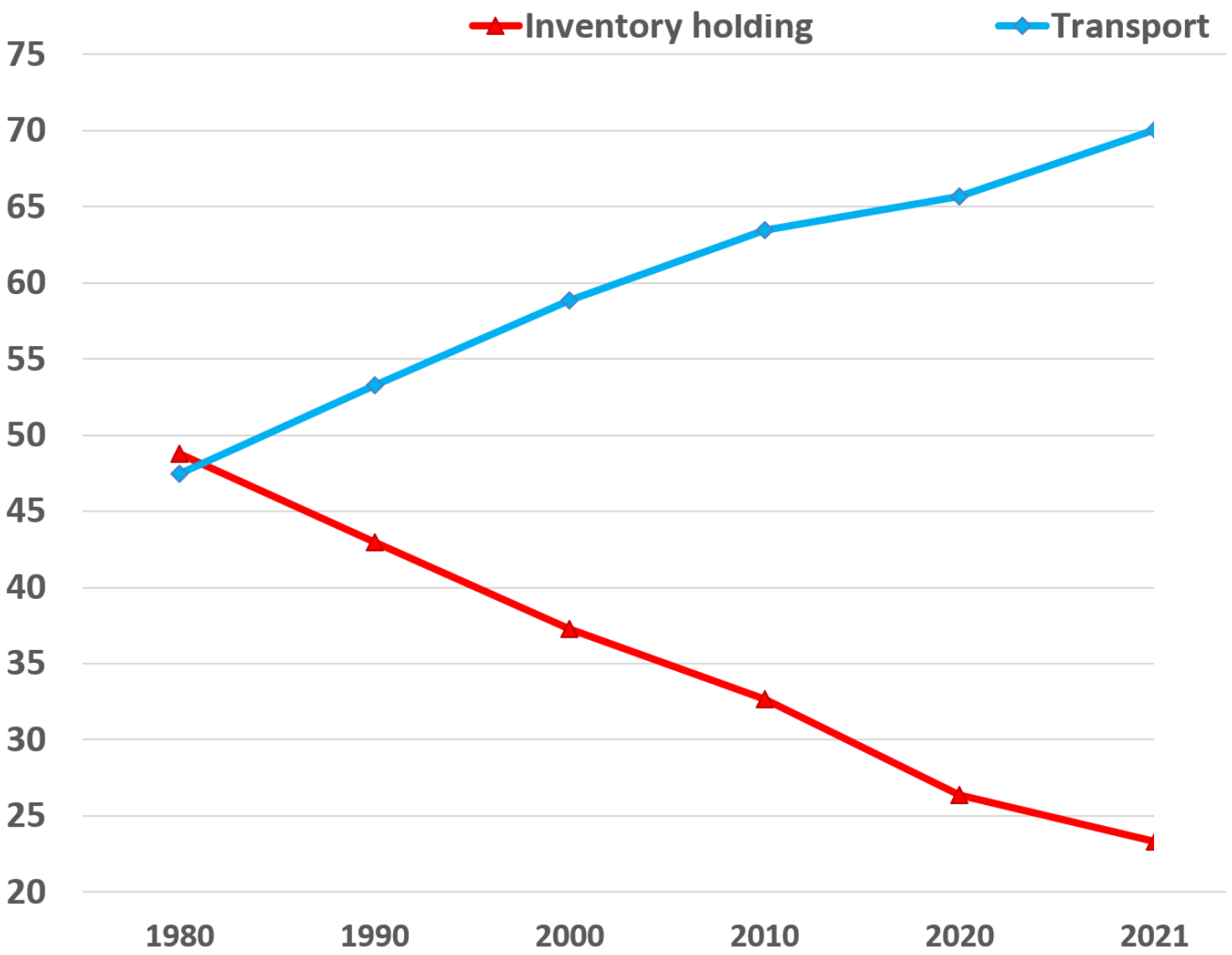
Seaborne trade: share of developing countries
Tonnes

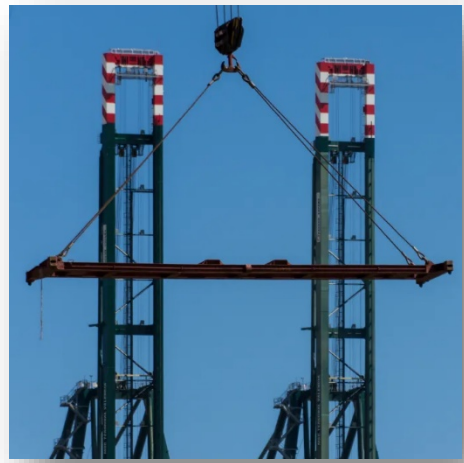


% share of tonnes. Source: *Review of Maritime Transport*

UN trade & development UNCTAD

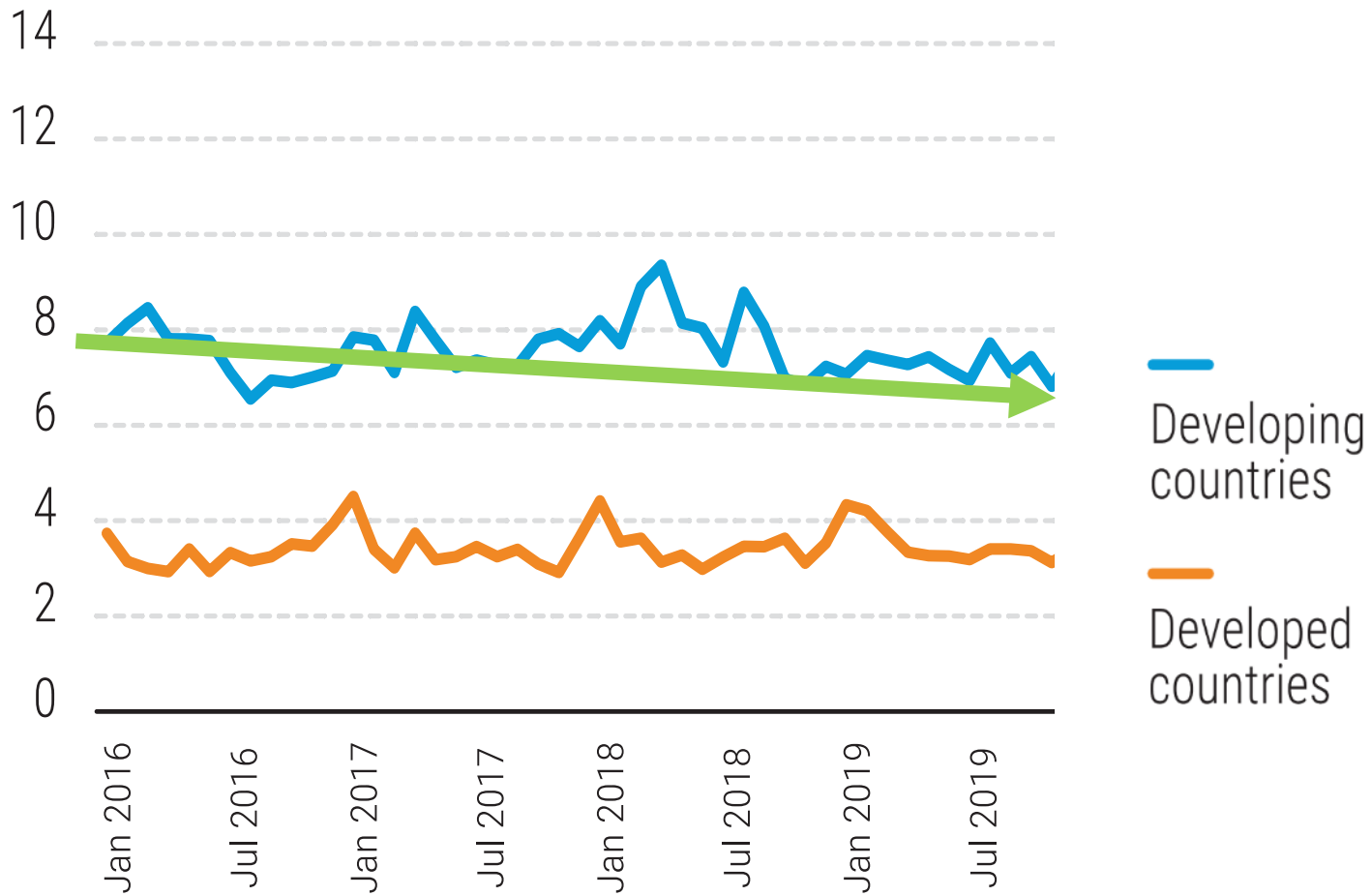
Share of transport and inventory holding expenditures within total logistics expenditures in the United States





Source: UNCTAD, based on CSCMP State of Logistics Report, via https://www.penskelogistics.com/insights/industry-reports/state-of-logistics-report

Average waiting times of container ships at port in hours, monthly



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

Notes: Waiting time estimated based on the time between vessel first entering an anchorage associated with a port group (or port where vessel has not been seen in an anchorage shape), and first entering a berth within a port.

UN trade & development UNCTAD

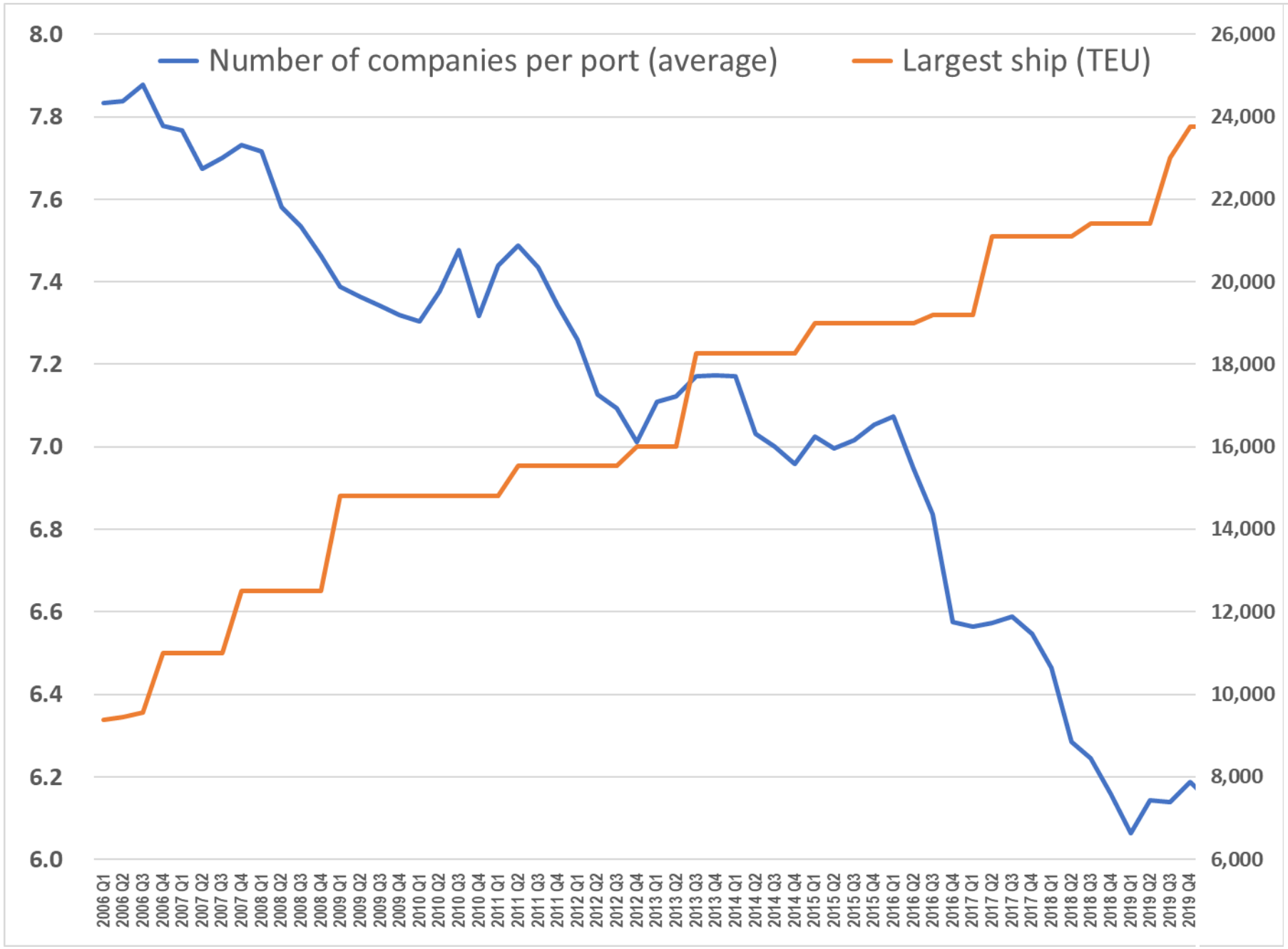
Number of container ports with regular liner services

MDS Transmodal

Overall positive long-term trends

- Trade Facilitation indicators of WTO and OECD
- UNCTAD TrainForTrade port network KPI
- UN survey on cross-border trade
- ASYCUDA case studies
- Time in port AIS data
- CIF/FOB ratios
- LPI time series
- Port handling KPIs
- Port modernization and private sector investments

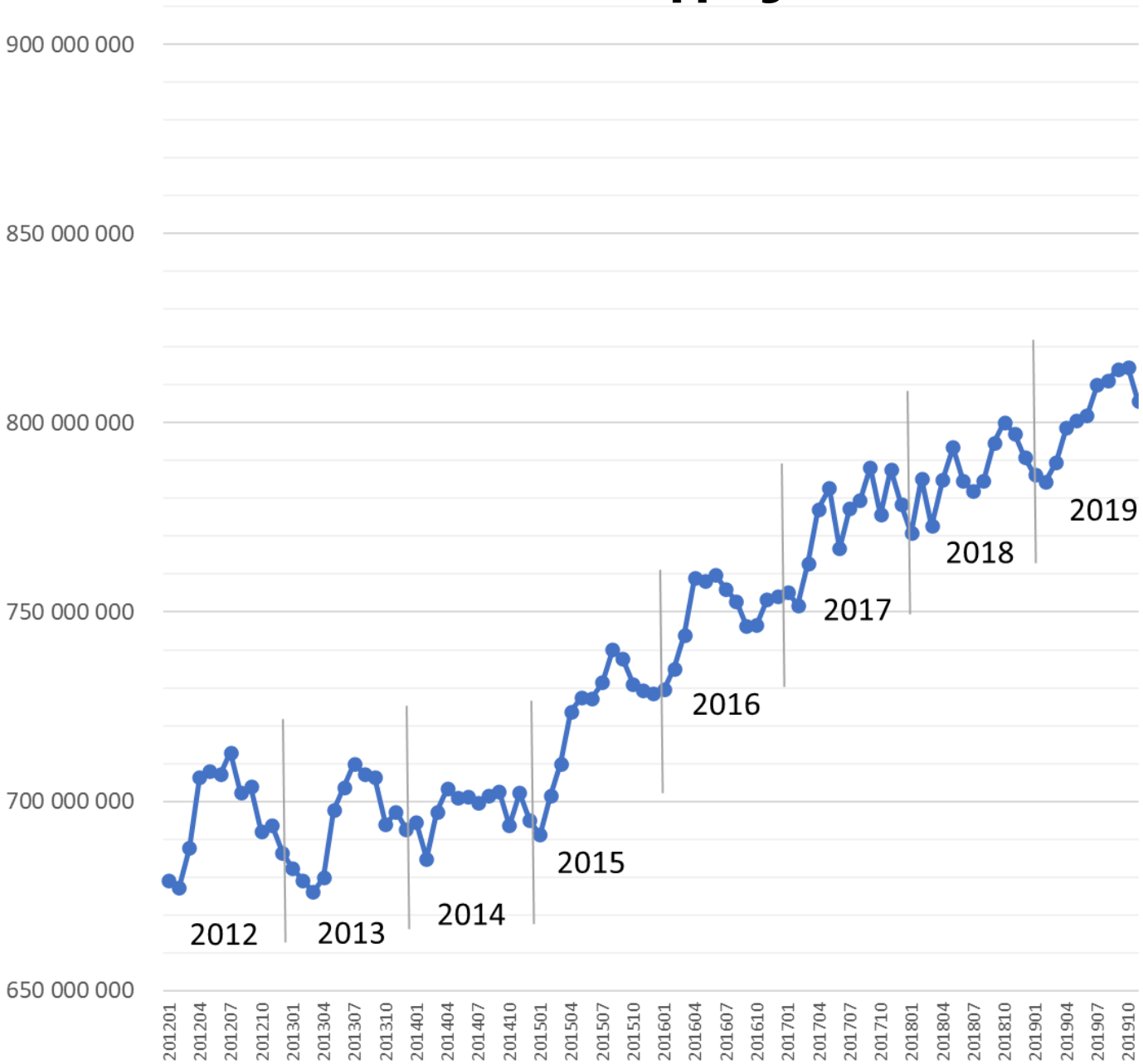
Overall negative long-term trends?



MDS Transmodal

Monthly annualized ton CO2 Global fleet of IMO vessels calculated from AIS,

Emissions from shipping



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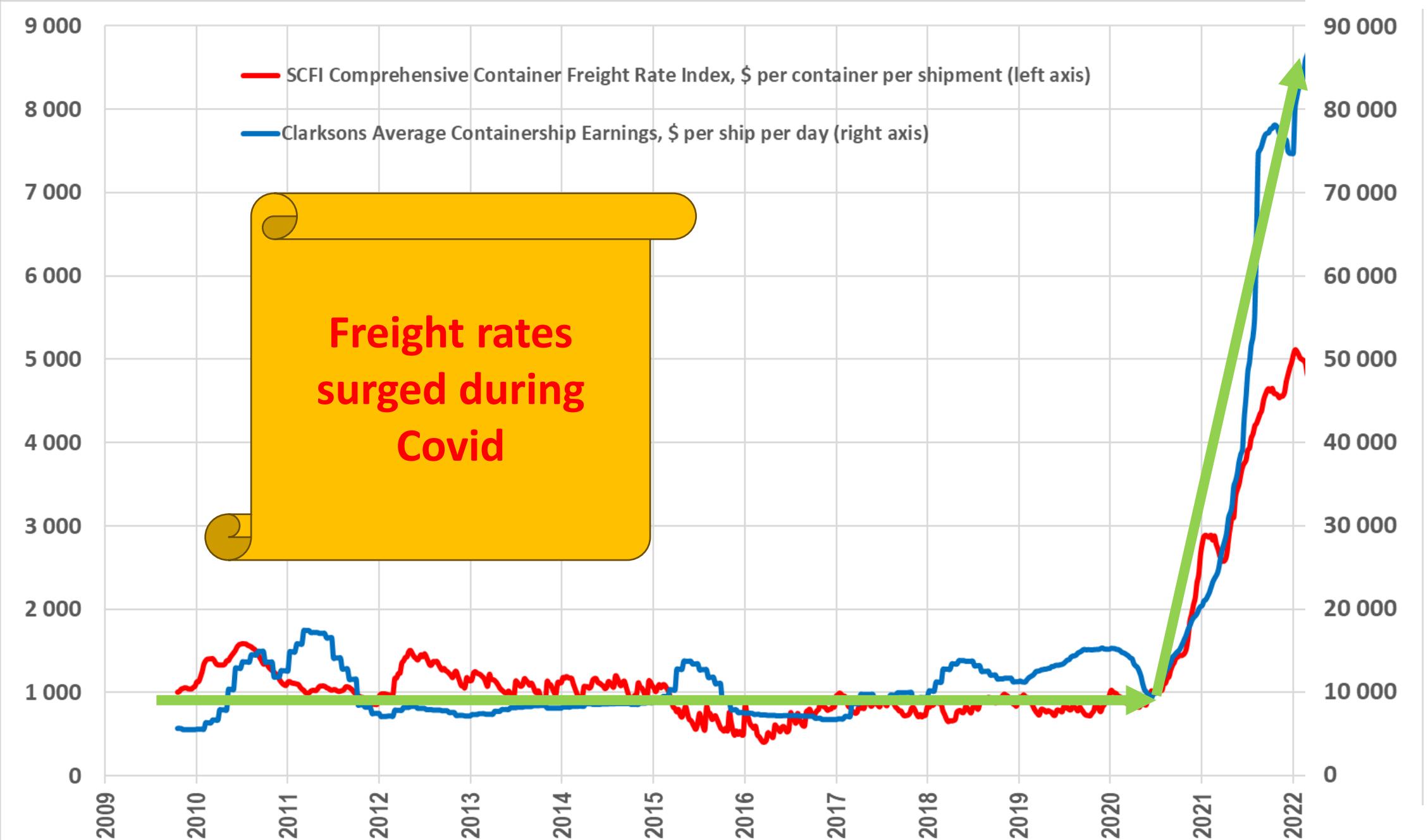
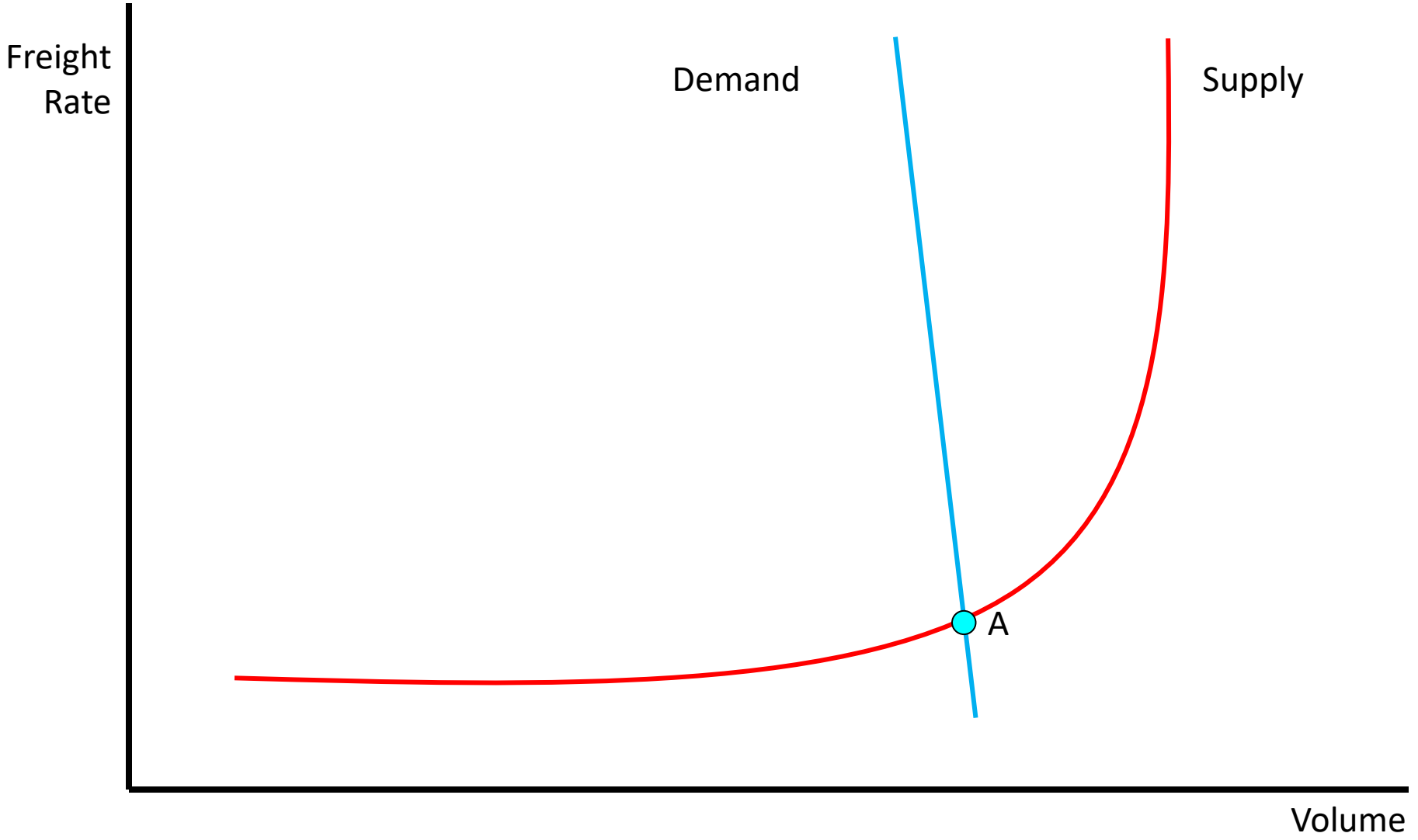
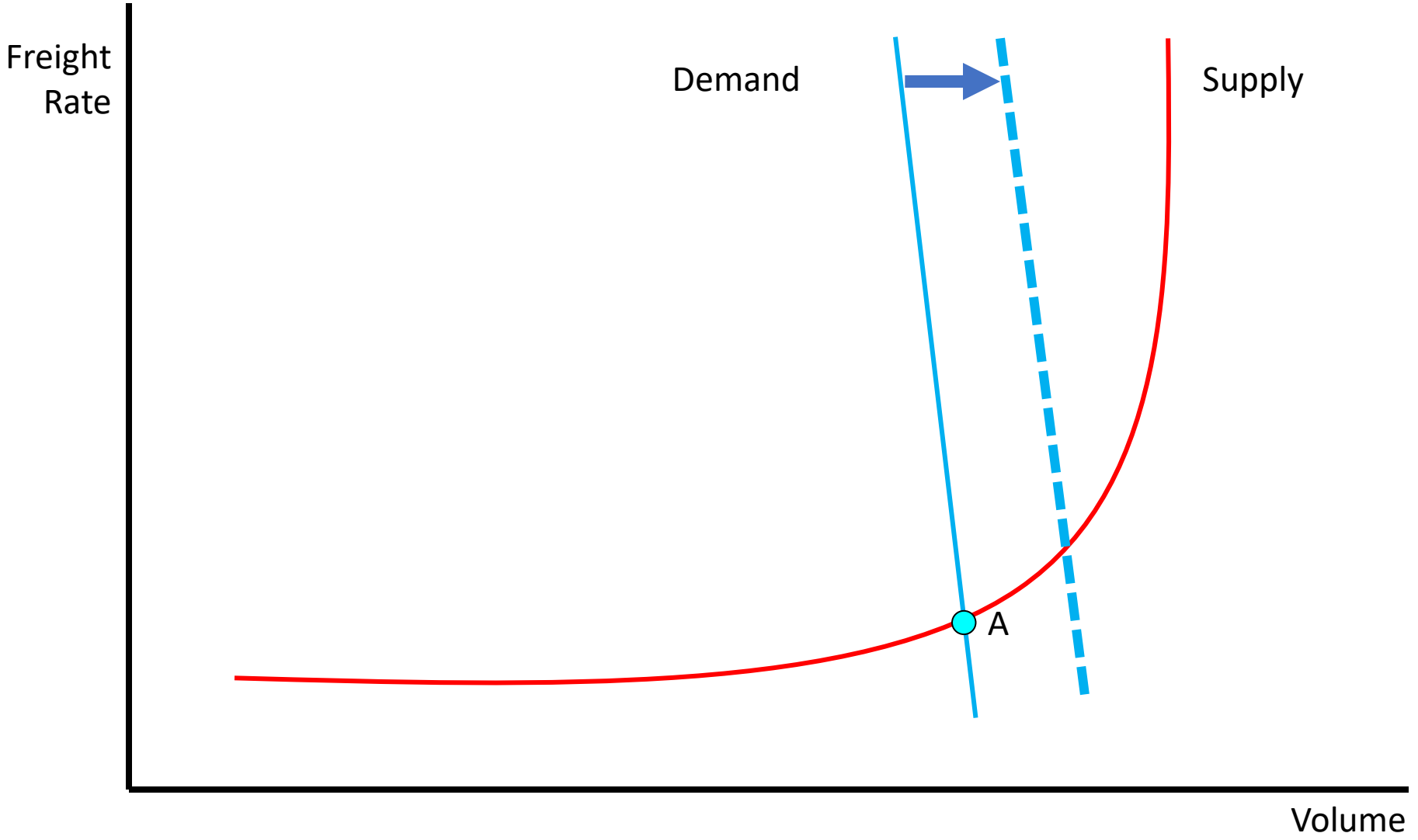
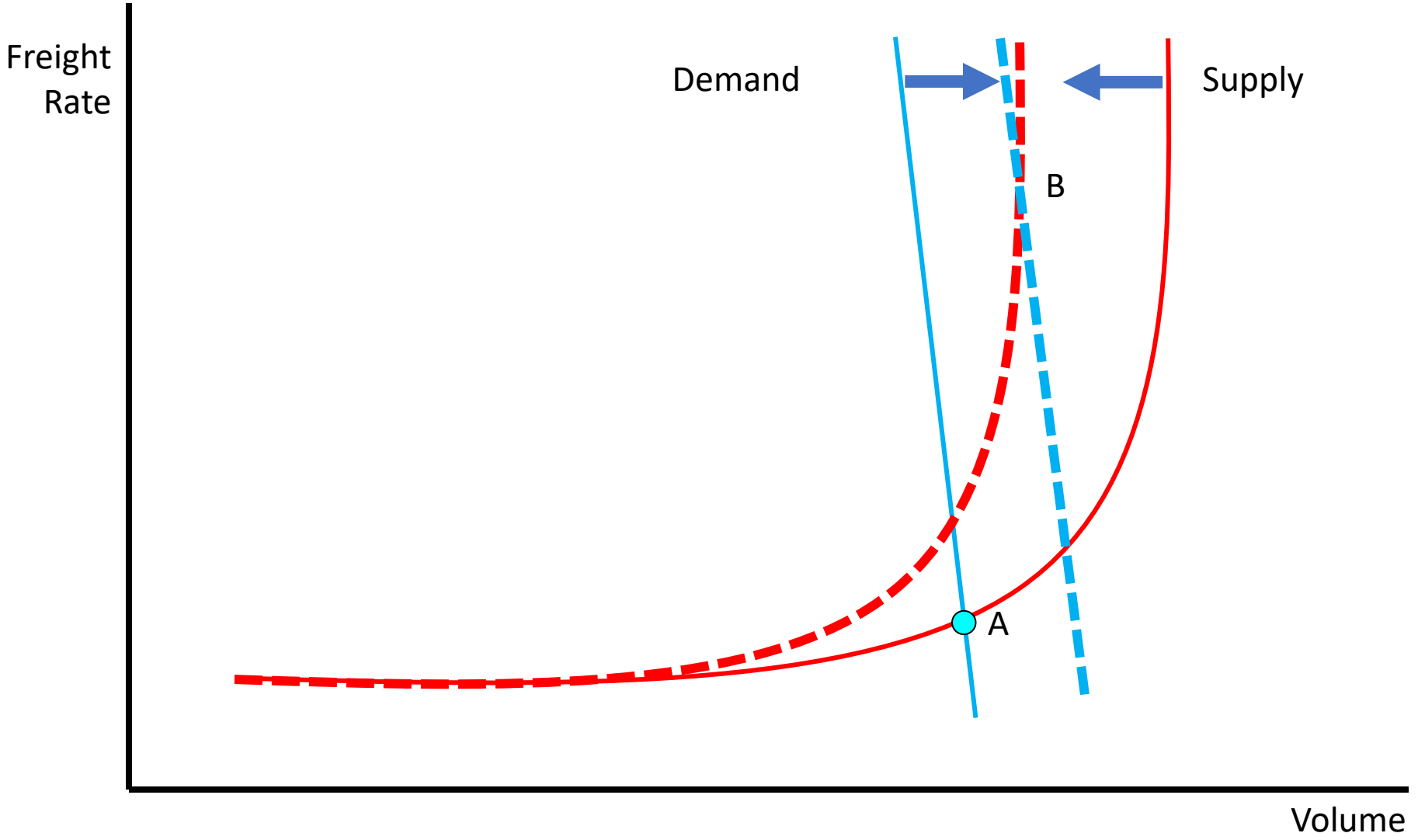
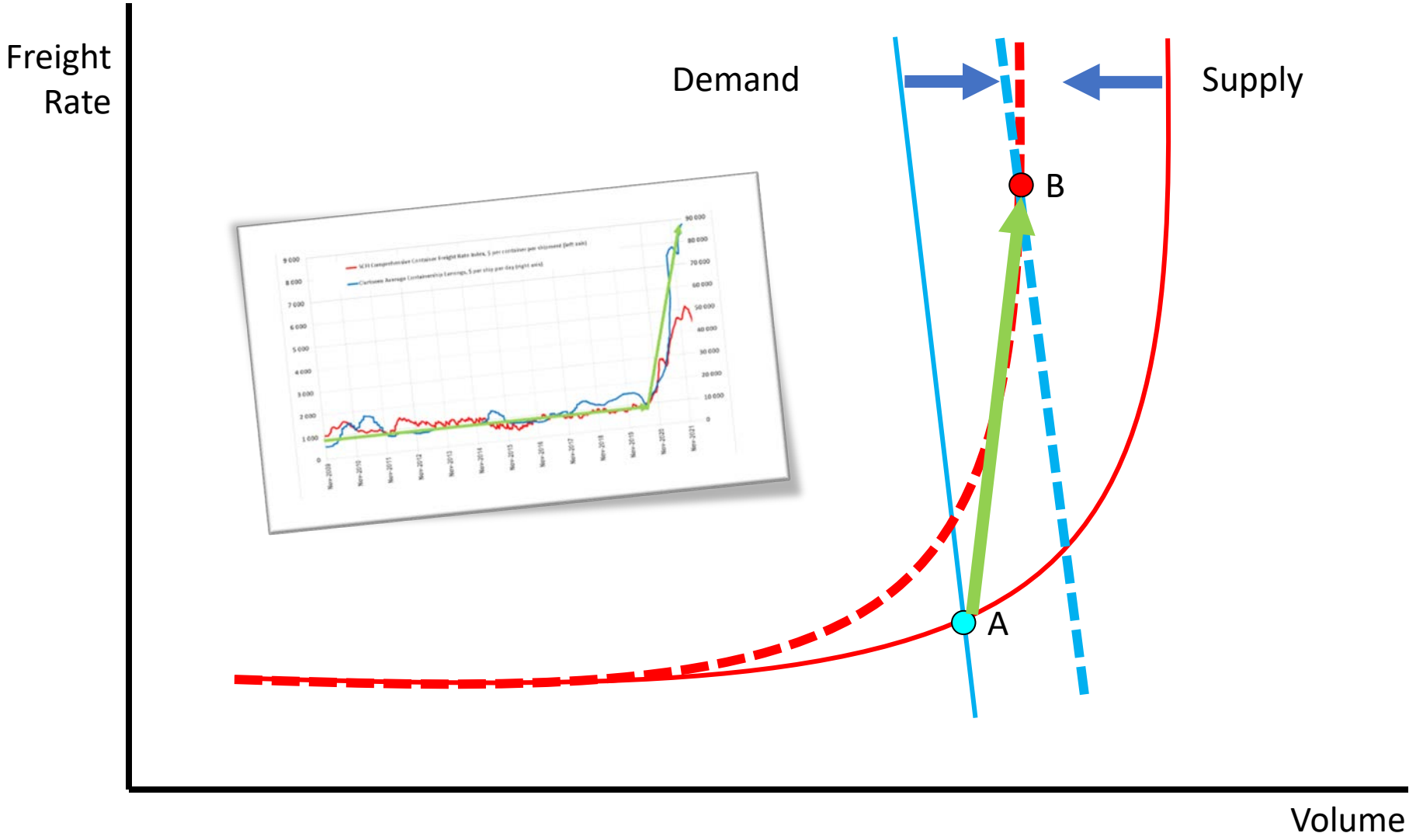


Source: UNCTAD, based on data from Clarksons Shipping Intelligence Network,

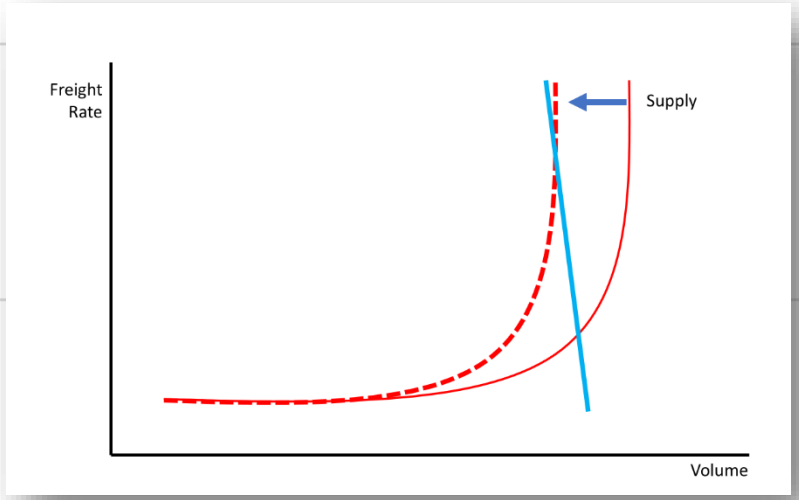

Freight
Rate
Demand
Supply
A
Volume


Freight
Rate
Demand
Supply
A
Volume


Freight
Rate
Demand
Supply
B
A
Volume


Freight Rate
Demand
Supply
B
A
Volume

SCFI (Shanghai Comprehensive Container Freight Rate Index)
2009 to 20 February 2025



Covid: Supply crunch as ships spent more time (+20%) in **ports**

Red Sea: Supply crunch as ships spend more time (+9%) at **sea**

5 000
4 000
3 000
2 000
1 000
0

2/2009 2/2010 2/2011 2/2012 2/2013 2/2014 2/2015 2/2016 2/2017 2/2018 2/2019 2/2020 2/2021 2/2022 2/2023 2/2024 2/2025

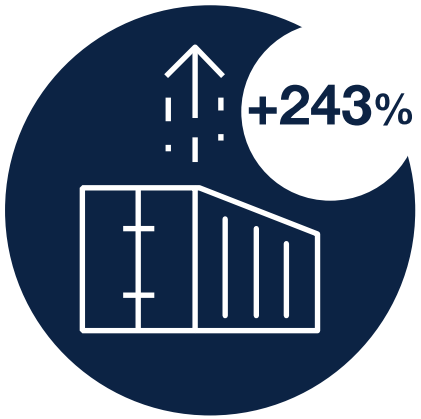
Source: JH, based on data from Clarksons SIN

SIMULATED IMPACT OF CONTAINER FREIGHT RATE SURGES

Hardest hit are SIDS

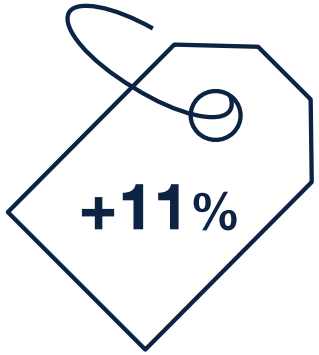
Simulation assumption:

Sustained increase in container freight rates

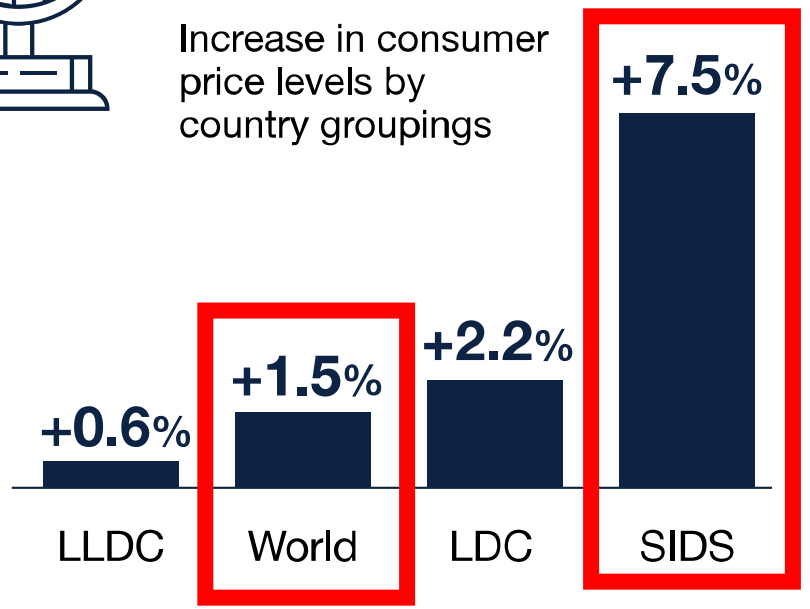


Simulation results:

Increase in global import price levels



Increase in consumer price levels by country groupings



SIMULATED IMPACT OF CONTAINER FREIGHT RATE SURGES

Simulation assumption:

Sustained increase in container freight rates

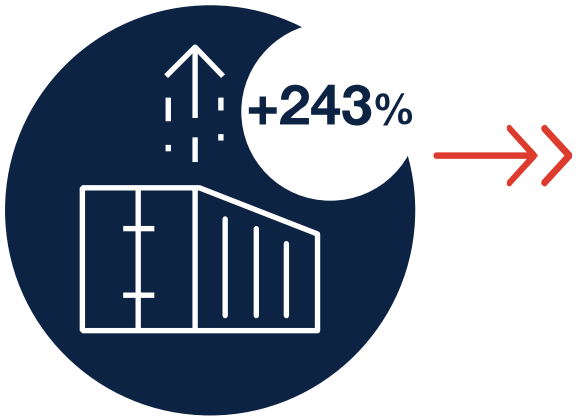
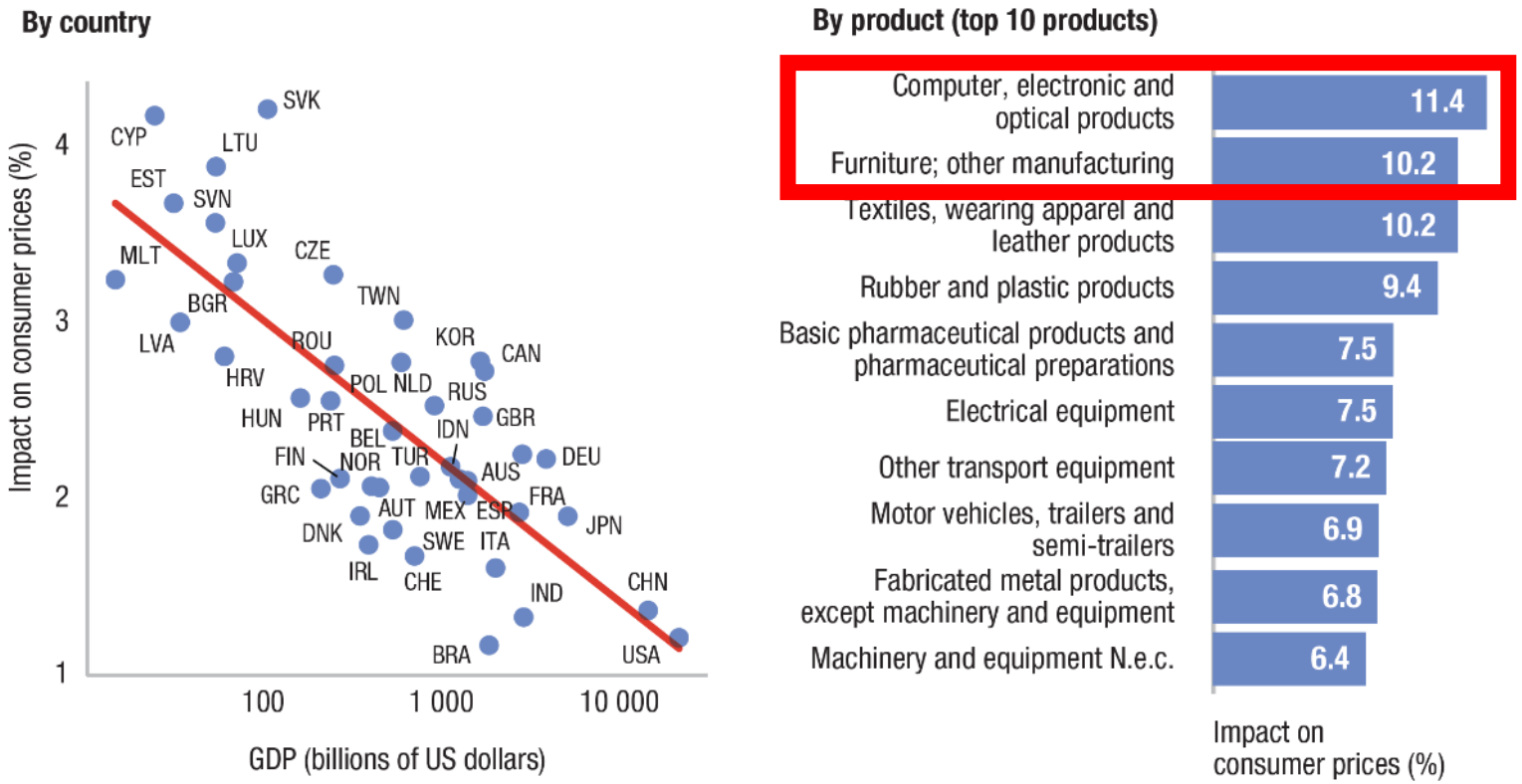


Figure 3.9 Simulated impacts of the container freight rate surge on consumer price levels, by country and by product

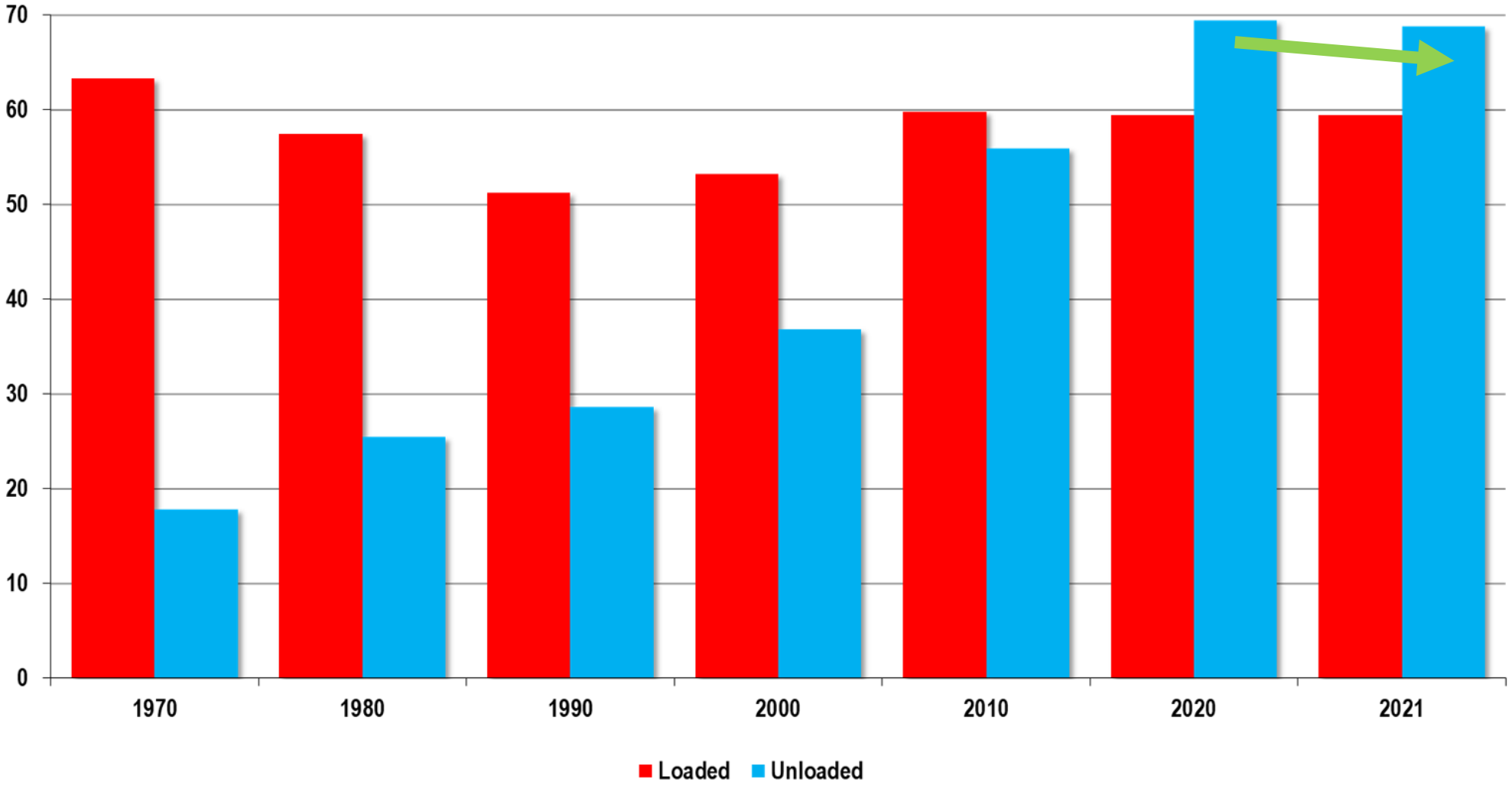


Sources: UNCTAD calculations based on the WIOD (accessed 7–8 June 2021) developed by Timmer et al., 2015, Clarksons Research, *Shipping Intelligence Network* (accessed 2 September 2021), UNCTADstat (accessed 24 June 2021), and the Centre d'Études Prospectives and d'Informations Internationales, *Gravity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

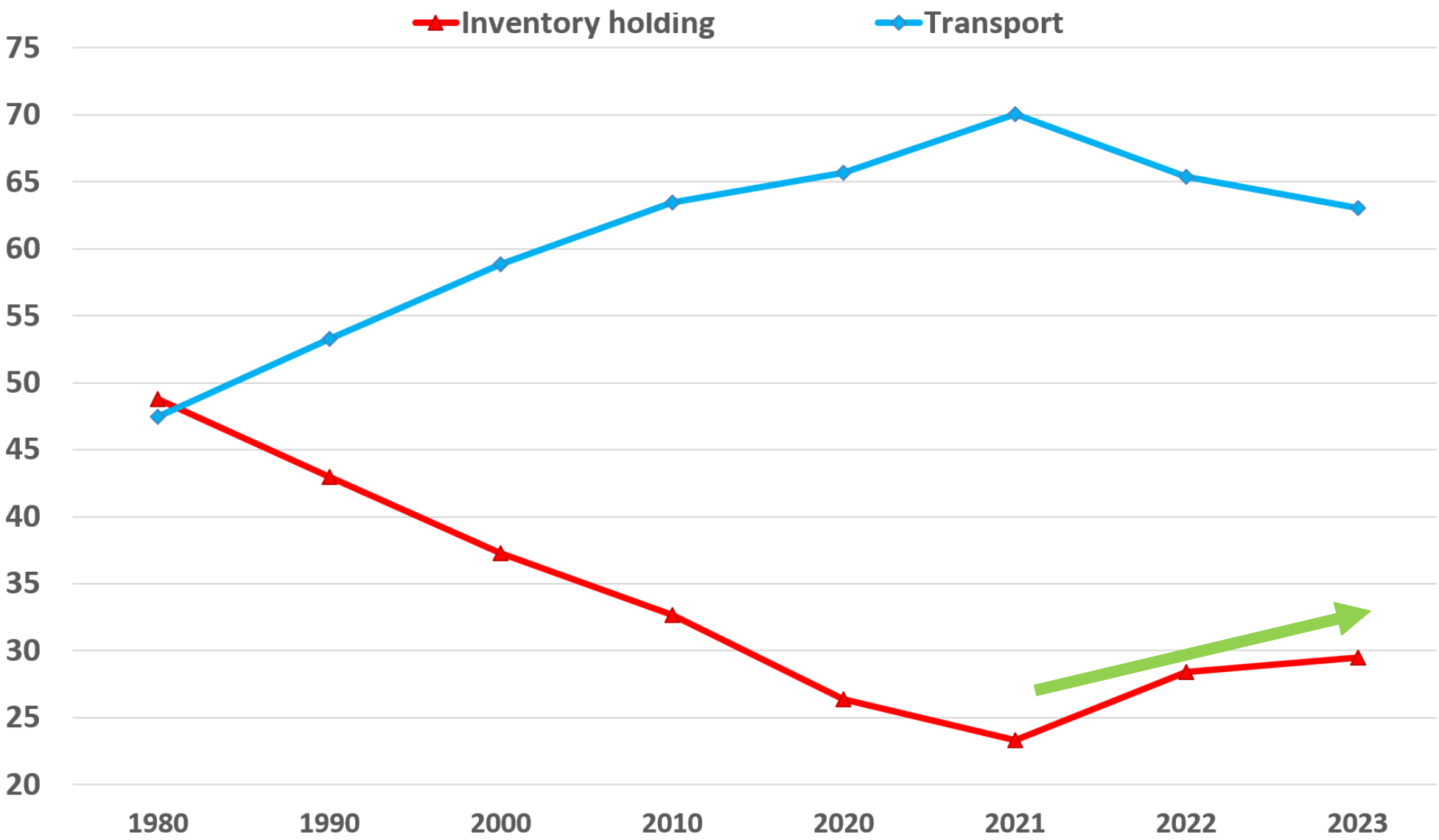
UN trade & development UNCTAD

Seaborne trade: share of developing countries
Tonnes



% share of tonnes. Source: *Review of Maritime Transport*

Share of transport and inventory holding expenditures within total logistics expenditures in the United States



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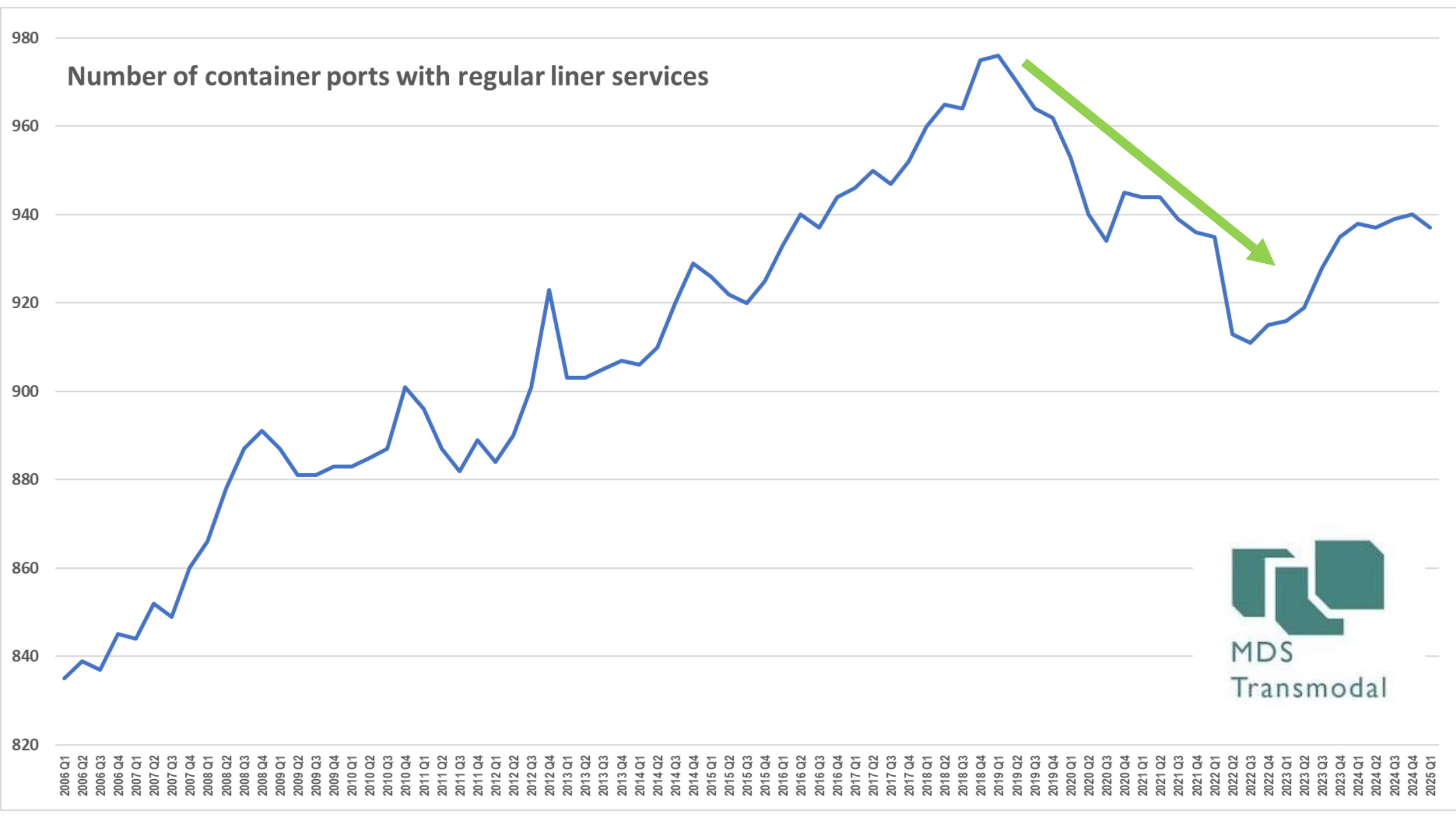
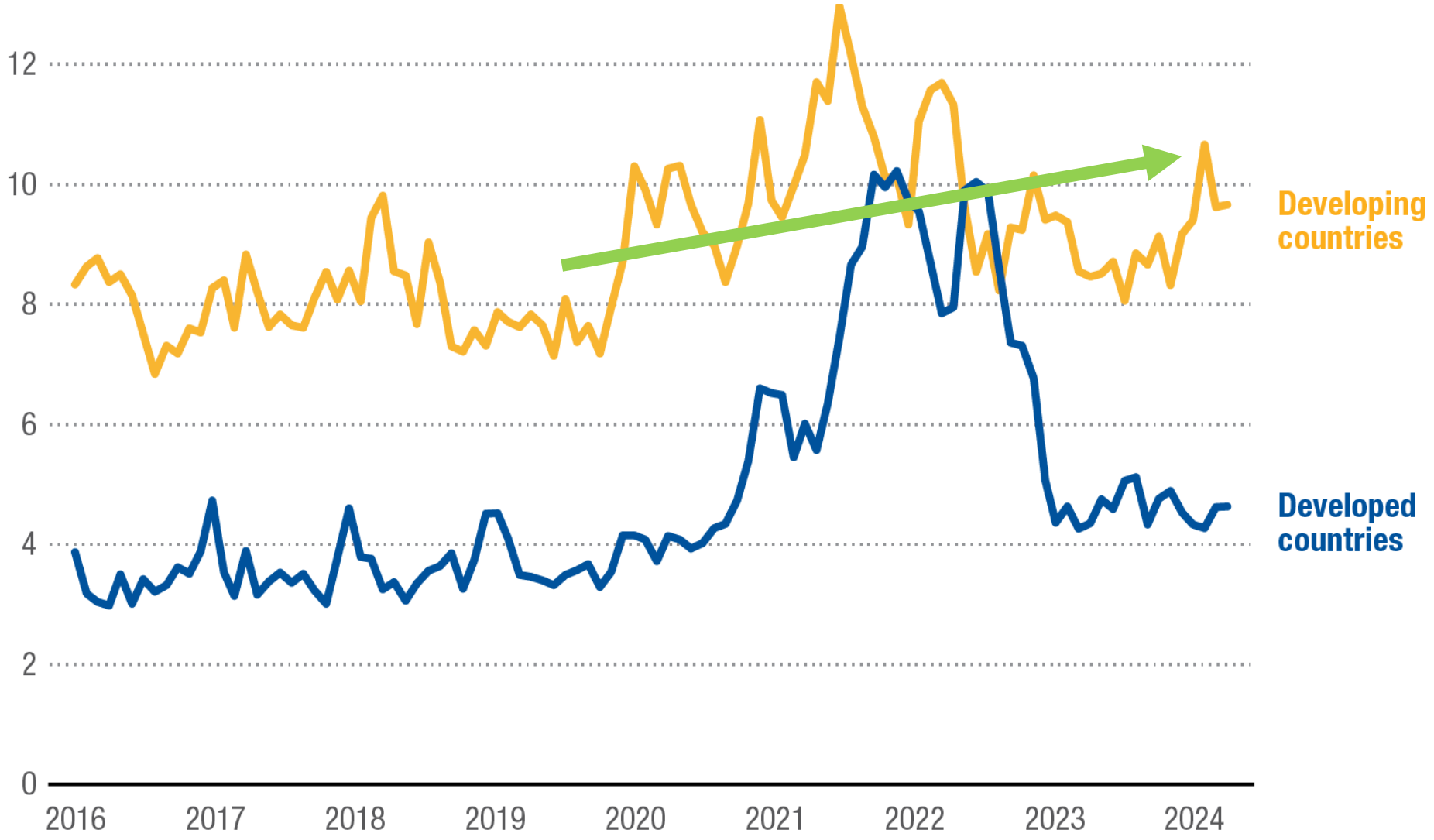
UN trade & development UNCTAD

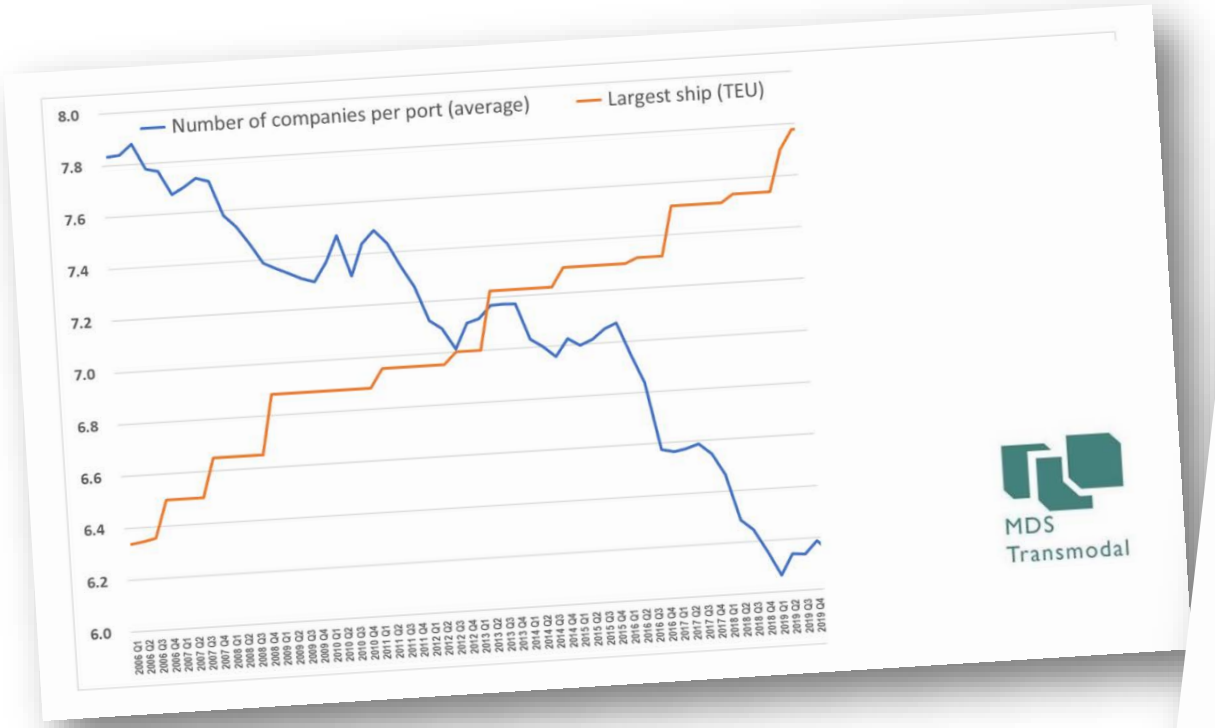

Number of container ports with regular liner services
980
960
940
920
900
880
860
840
820
2006 Q1
2006 Q2
2006 Q3
2006 Q4
2007 Q1
2007 Q2
2007 Q3
2007 Q4
2008 Q1
2008 Q2
2008 Q3
2008 Q4
2009 Q1
2009 Q2
2009 Q3
2009 Q4
2010 Q1
2010 Q2
2010 Q3
2010 Q4
2011 Q1
2011 Q2
2011 Q3
2011 Q4
2012 Q1
2012 Q2
2012 Q3
2012 Q4
2013 Q1
2013 Q2
2013 Q3
2013 Q4
2014 Q1
2014 Q2
2014 Q3
2014 Q4
2015 Q1
2015 Q2
2015 Q3
2015 Q4
2016 Q1
2016 Q2
2016 Q3
2016 Q4
2017 Q1
2017 Q2
2017 Q3
2017 Q4
2018 Q1
2018 Q2
2018 Q3
2018 Q4
2019 Q1
2019 Q2
2019 Q3
2019 Q4
2020 Q1
2020 Q2
2020 Q3
2020 Q4
2021 Q1
2021 Q2
2021 Q3
2021 Q4
2022 Q1
2022 Q2
2022 Q3
2022 Q4
2023 Q1
2023 Q2
2023 Q3
2023 Q4
2024 Q1
2024 Q2
2024 Q3
2024 Q4
2025 Q1
MDS
Transmodal

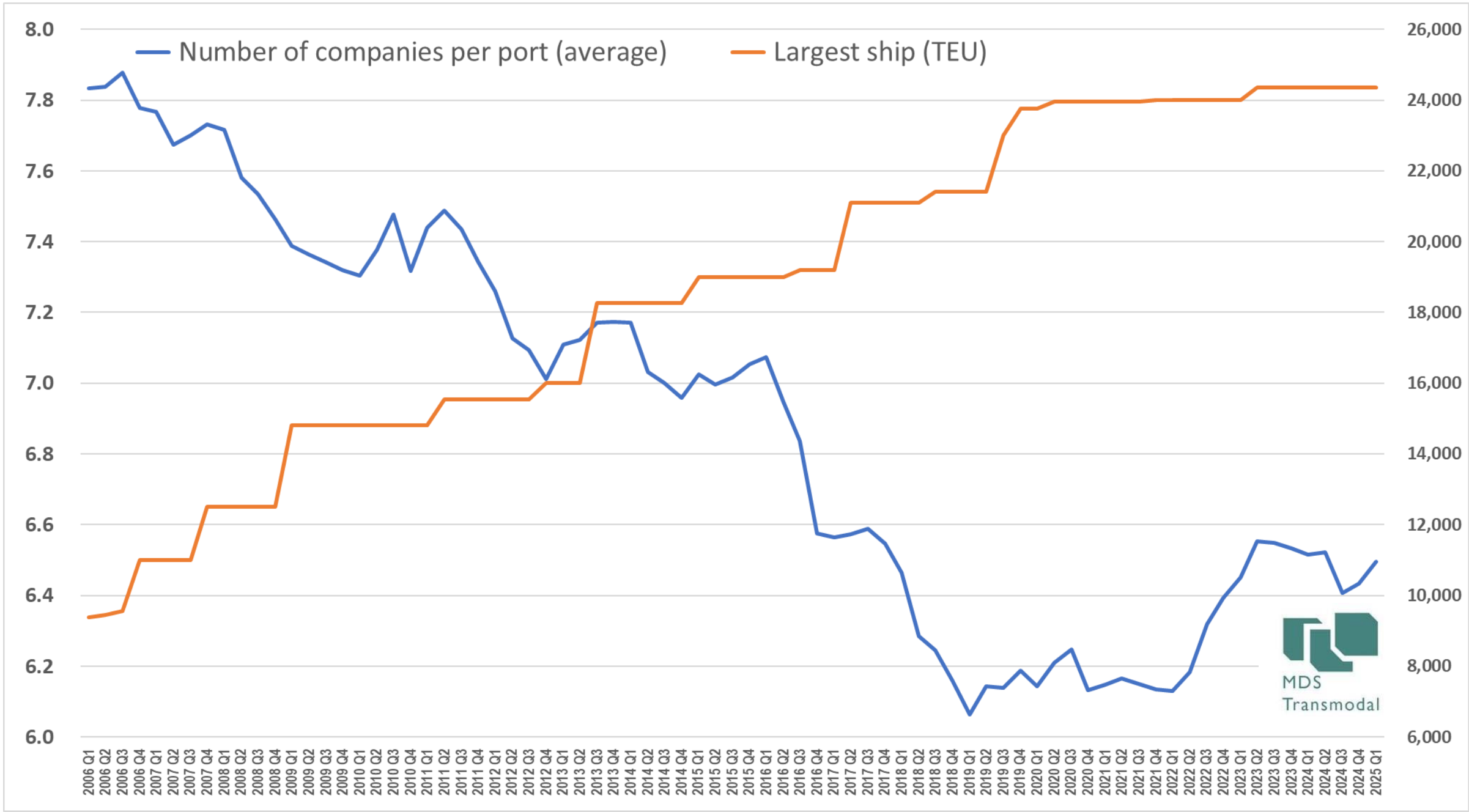
Time in port (hours)



UNCTAD, Review of Maritime Transport 2024
Based on data provided by Clarksons Research.

Overall negative long-term trends?




Number of companies per port (average)
Largest ship (TEU)
8.0
7.8
7.6
7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
26,000
24,000
22,000
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
2006 Q1
2006 Q2
2006 Q3
2006 Q4
2007 Q1
2007 Q2
2007 Q3
2007 Q4
2008 Q1
2008 Q2
2008 Q3
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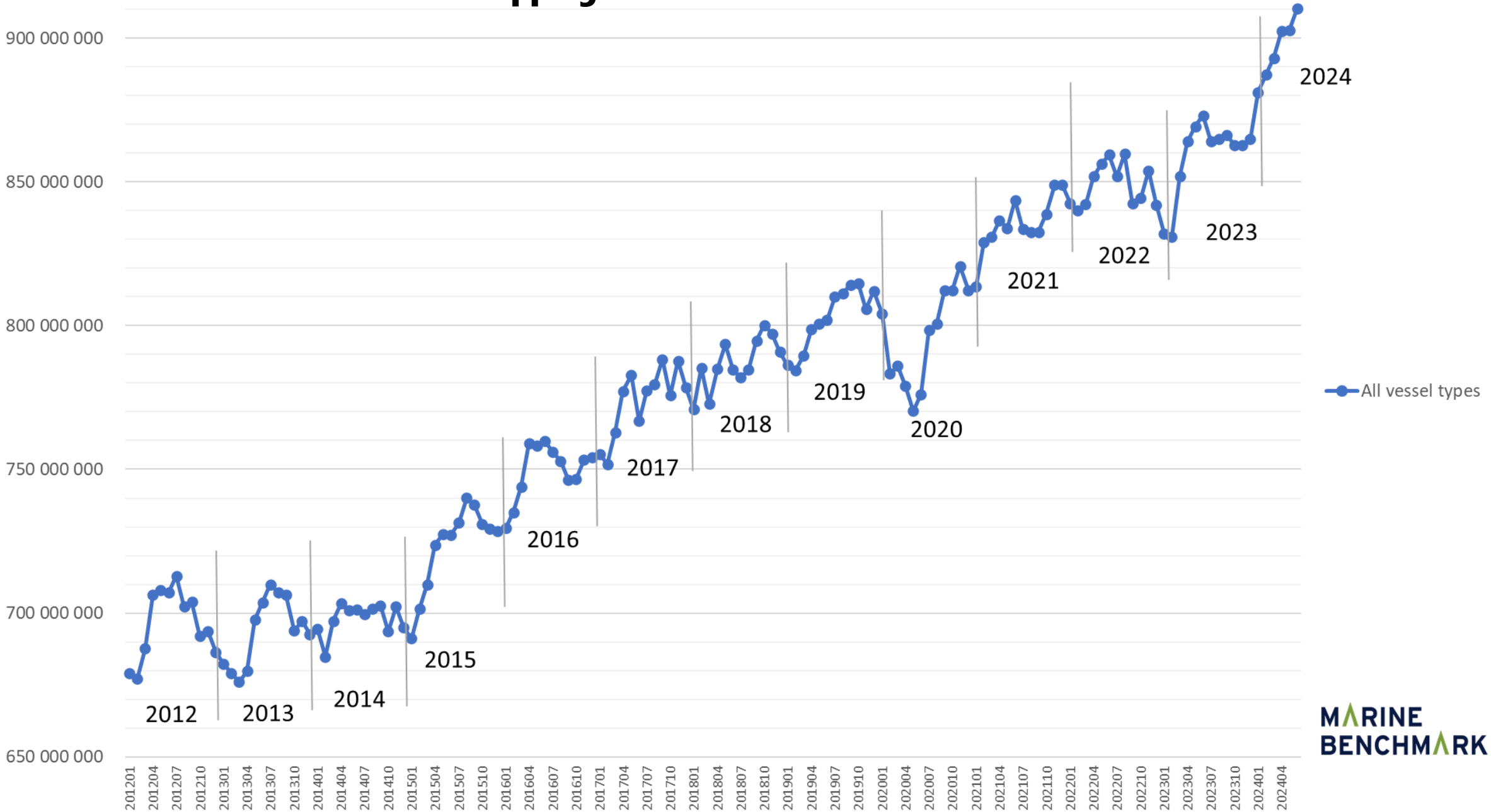
2019 Q4
2020 Q1
2020 Q2
2020 Q3
2020 Q4
2021 Q1
2021 Q2
2021 Q3
2021 Q4
2022 Q1
2022 Q2
2022 Q3
2022 Q4
2023 Q1
2023 Q2
2023 Q3
2023 Q4
2024 Q1
2024 Q2
2024 Q3
2024 Q4
2025 Q1
MDS
Transmodal

Monthly annualized ton CO2 Global fleet of IMO vessels calculated from AIS,

Emissions from shipping



MARINE BENCHMARK

In parallel…
Disruptions and transitions

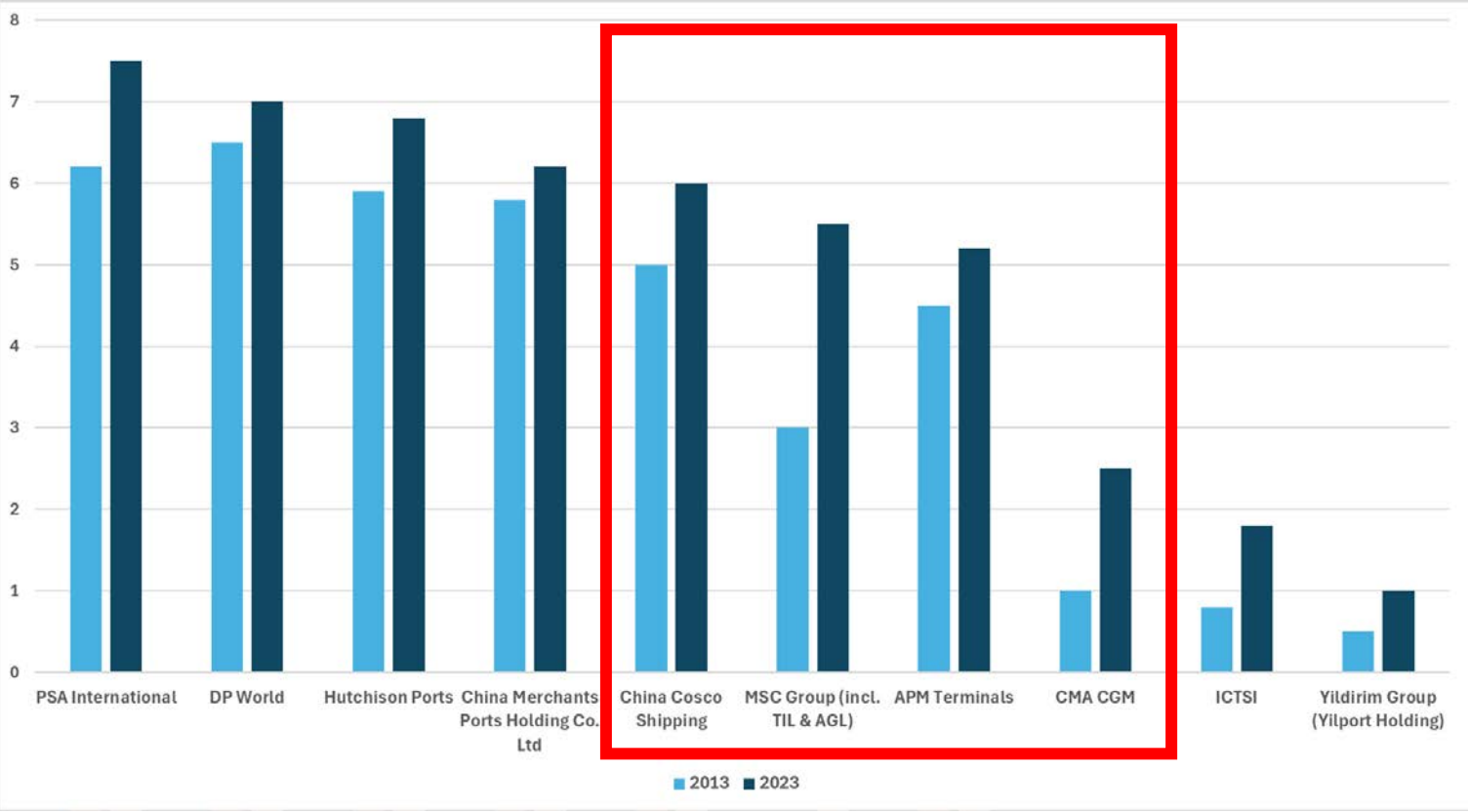
1. The story so far
2. **Supply chain crises**
3. Opportunities for seaports and for the World Bank

In parallel…
Disruptions and transitions

1. **Push for digitalization**

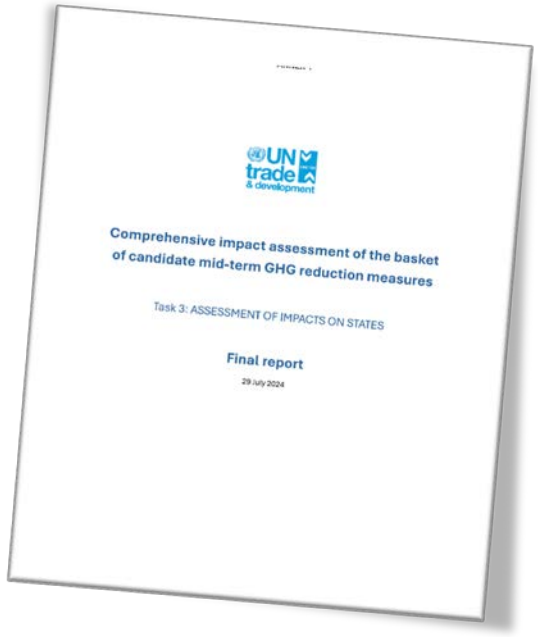
In parallel…
Disruptions and transitions

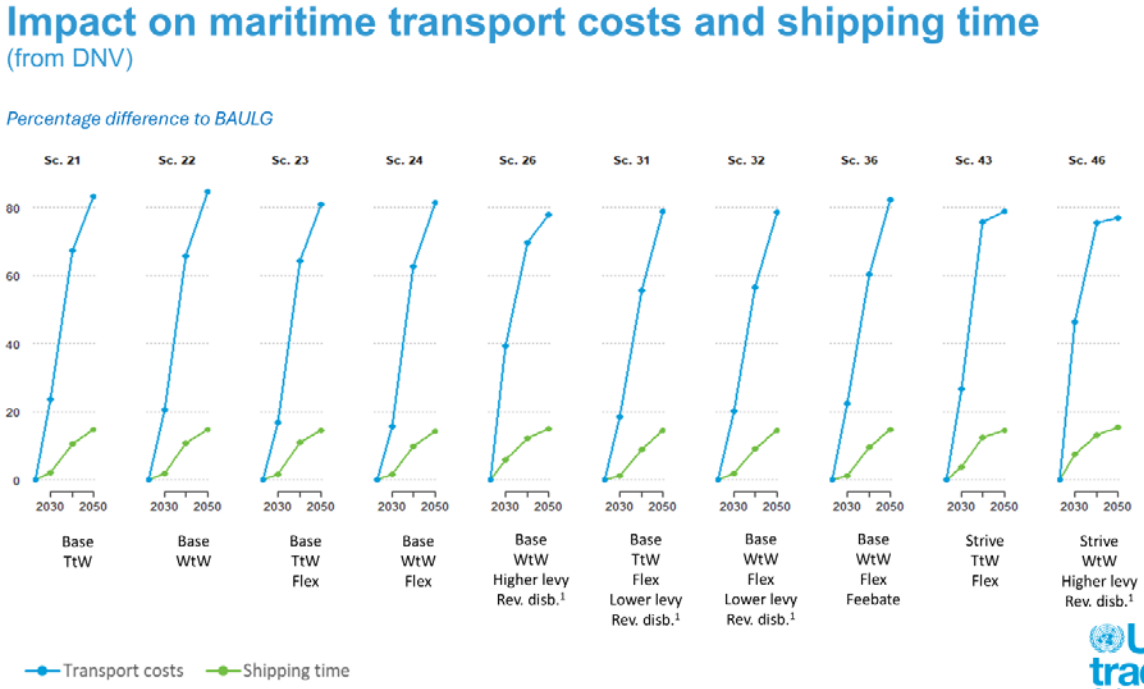
1. Push for digitalization
2. **Push for further horizontal and vertical integration**



In parallel…
Disruptions and transitions

1. Push for digitalization
2. Push for further horizontal and vertical integration
3. **Push (?) for decarbonization**



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2. Supply chain crises
3. Opportunities for seaports
• Energy transition/ decarbonization / climate
• Resilience / data / supply chains
• Port reforms/ investments / PPPs
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Climate change:
7 Opportunities for seaports

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations
2. **Climate change adaptation**

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations
2. Climate change adaptation
3. **Accommodate new ship types**

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations
2. Climate change adaptation
3. Accommodate new ship types
4. **Cold ironing**

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations
2. Climate change adaptation
3. Accommodate new ship types
4. Cold ironing
5. **Provide fuel for new ships**

Climate change:
7 Opportunities for seaports

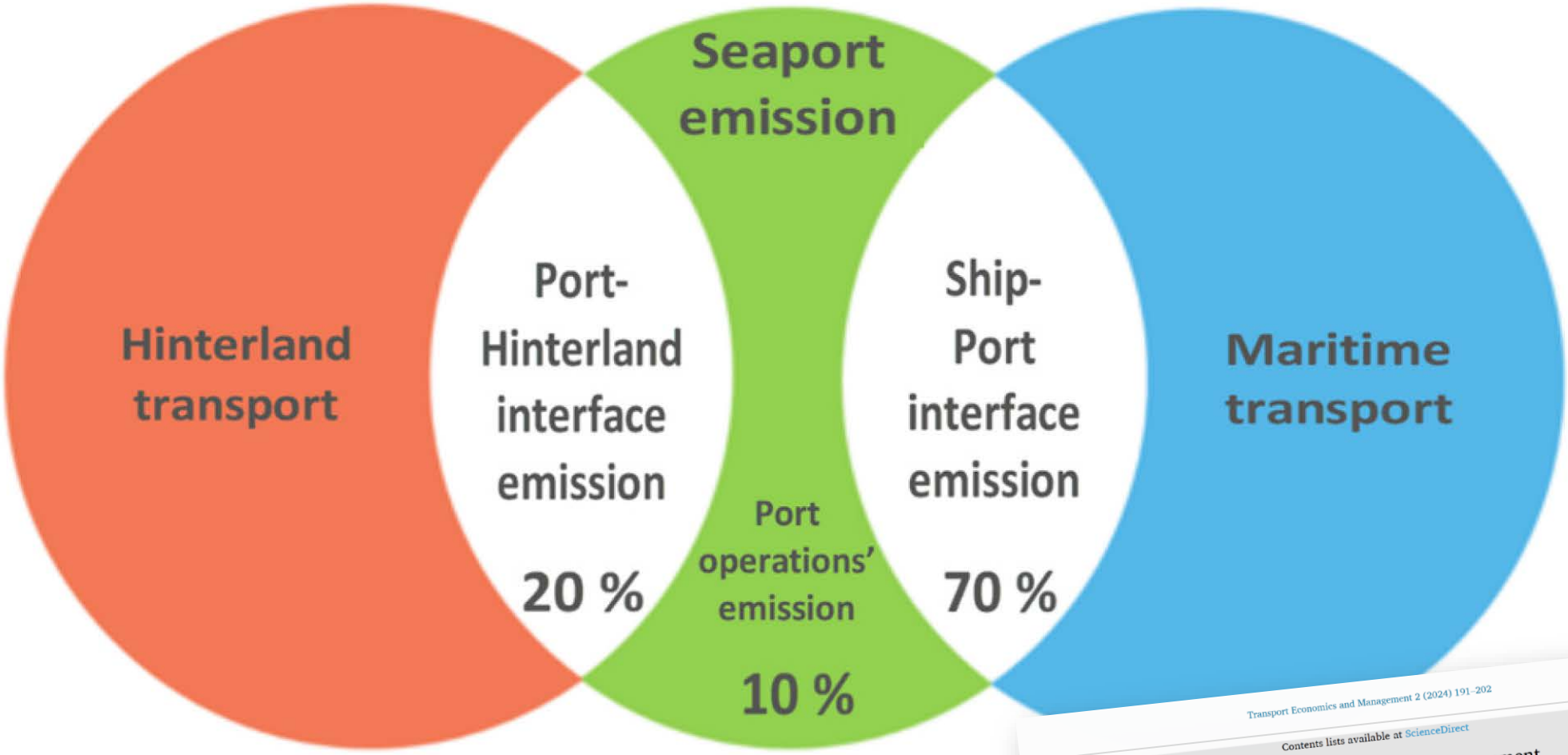
1. Decarbonize port's own operations
2. Climate change adaptation
3. Accommodate new ship types
4. Cold ironing
5. Provide fuel for new ships
6. **Handle new cargo**

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations
2. Climate change adaptation
3. Accommodate new ship types
4. Cold ironing
5. Provide fuel for new ships
6. Handle new cargo
7. **Optimization and digitalization**

Climate change:
7 Opportunities for seaports

1. Decarbonize port's own operations
2. Climate change adaptation
3. Accommodate new ship types
4. Cold ironing
5. Provide fuel for new ships
6. Handle new cargo
7. Optimization and digitalization



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The contribution of ports to shipping decarbonization: An analysis of port incentive programmes and the executive role of port state control

Peyman Ghaforian Masodzadeh *, Aykut I. Ölçer, Fabio Ballini, Dimitrios Dalaklis

World Maritime University, Malmö 21118, Sweden

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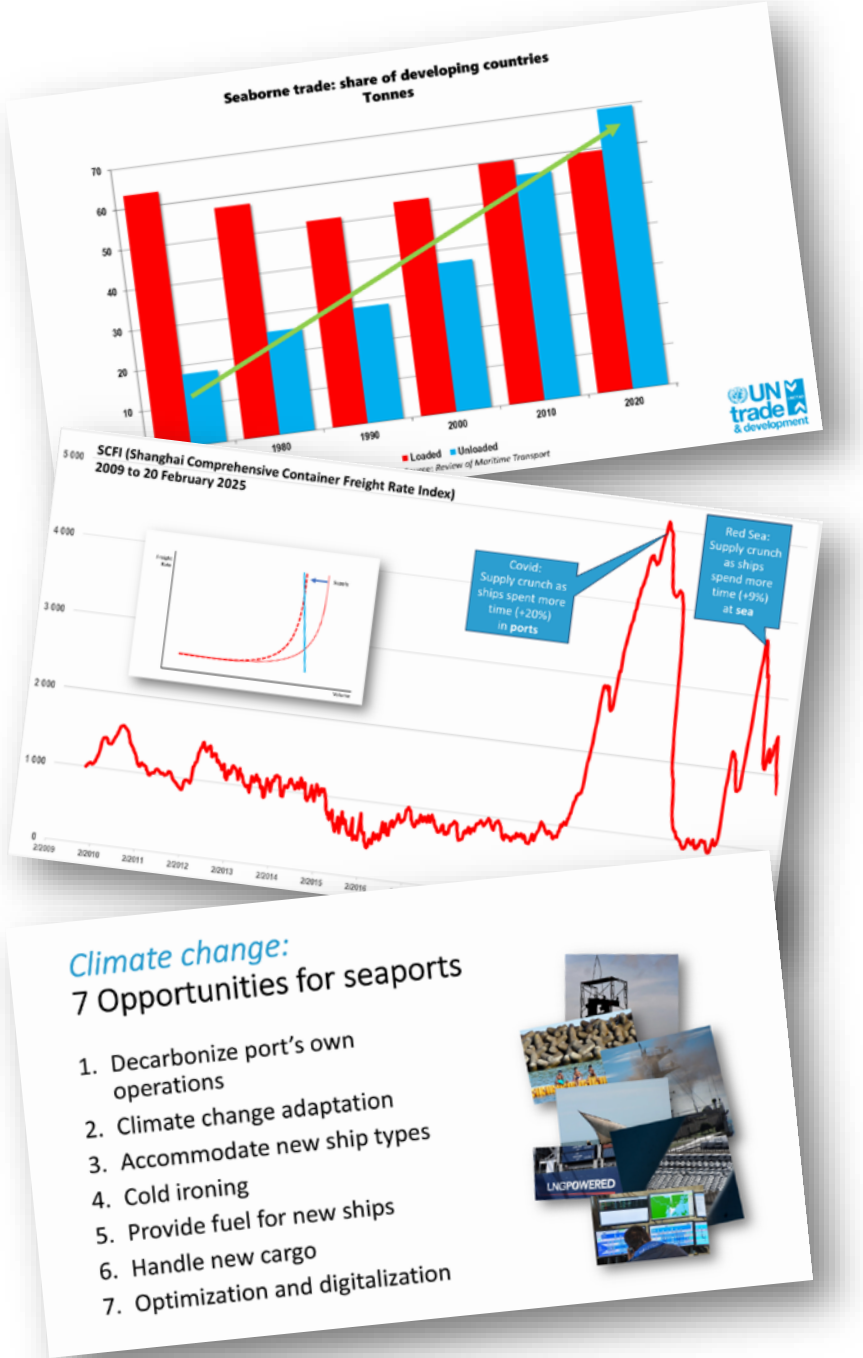

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