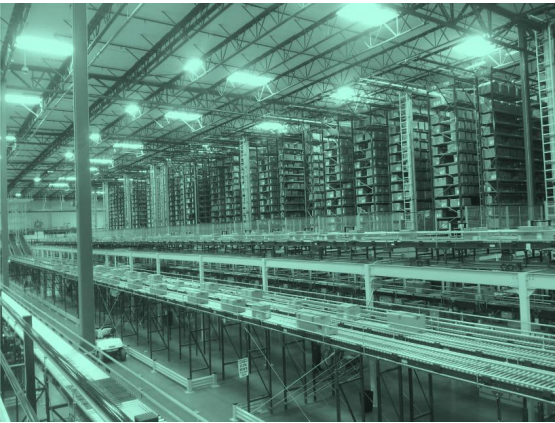




Challenges Facing Trade and Supply Chains: A Maritime Transport Perspective



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Several short-term issues being addressed

A crisis does not create a new situation, it accelerates processes already taking place by exposing their weaknesses



The continuity of shipping and port operations



Trade of essential goods, crossborder and transit operations



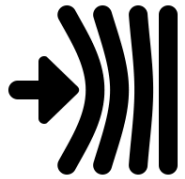
Paperless documentation and processes

Challenges Facing Maritime Shipping



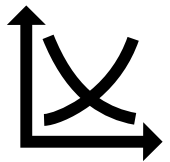
1

Reconsidering derived demand



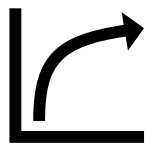
2

Massification versus atomization



3

Digitalization and automation



4

Servicing the hinterland

Containerization Growth Factors

Growth

Decline

Derived



- Economic and income growth
- Outsourcing and offshoring
- Complex supply chains

- Economic recessions
- Trade protectionism
- Automation

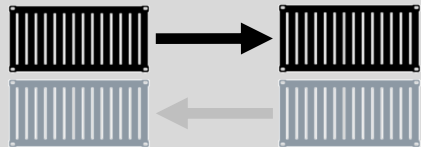
Substitution



- Capture of bulk and break-bulk markets
- New niches (commodities and cold chain)

- Peak substitution
- Composition of container fleet

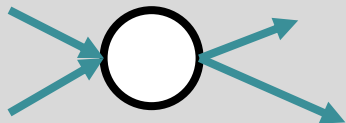
Incidental



- Trade imbalances
- Repositioning of empty containers

- Trade protectionism
- Automation

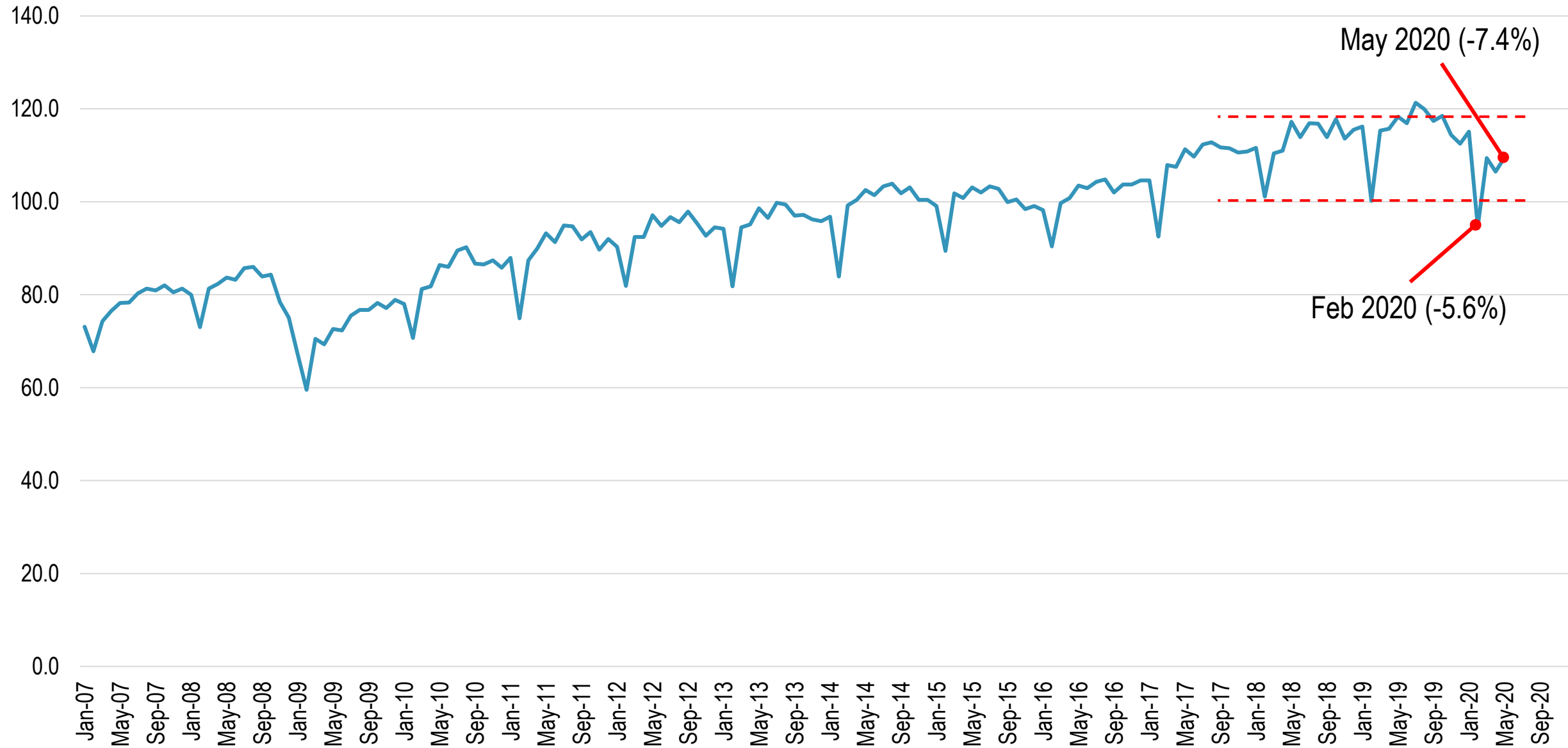
Induced



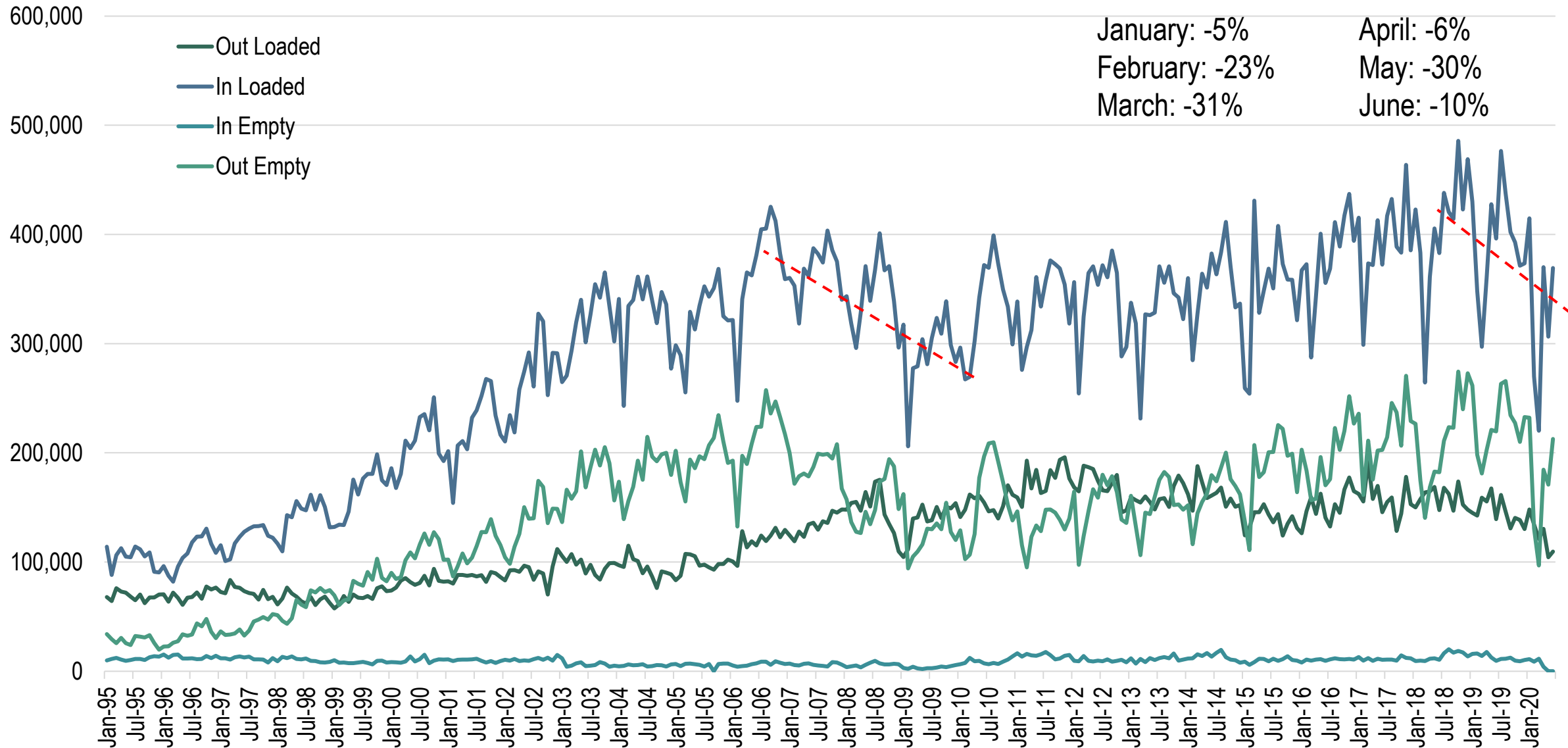
- Transshipment (hubbing, relay and intersection)

- Changes in shipping networks (more direct services)

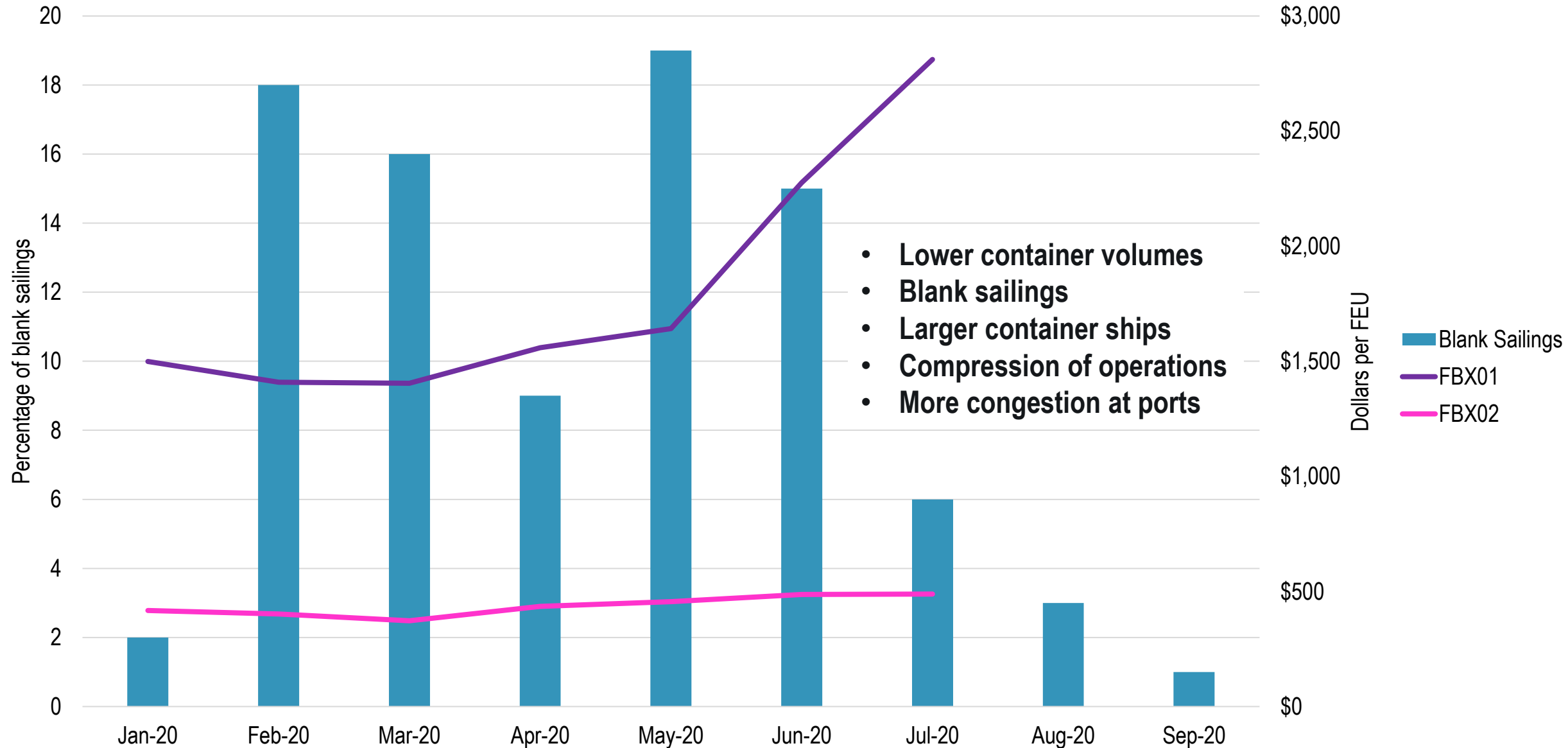
RWI/ISL Container Throughput Index, 2007-2020 (2015 = 100)



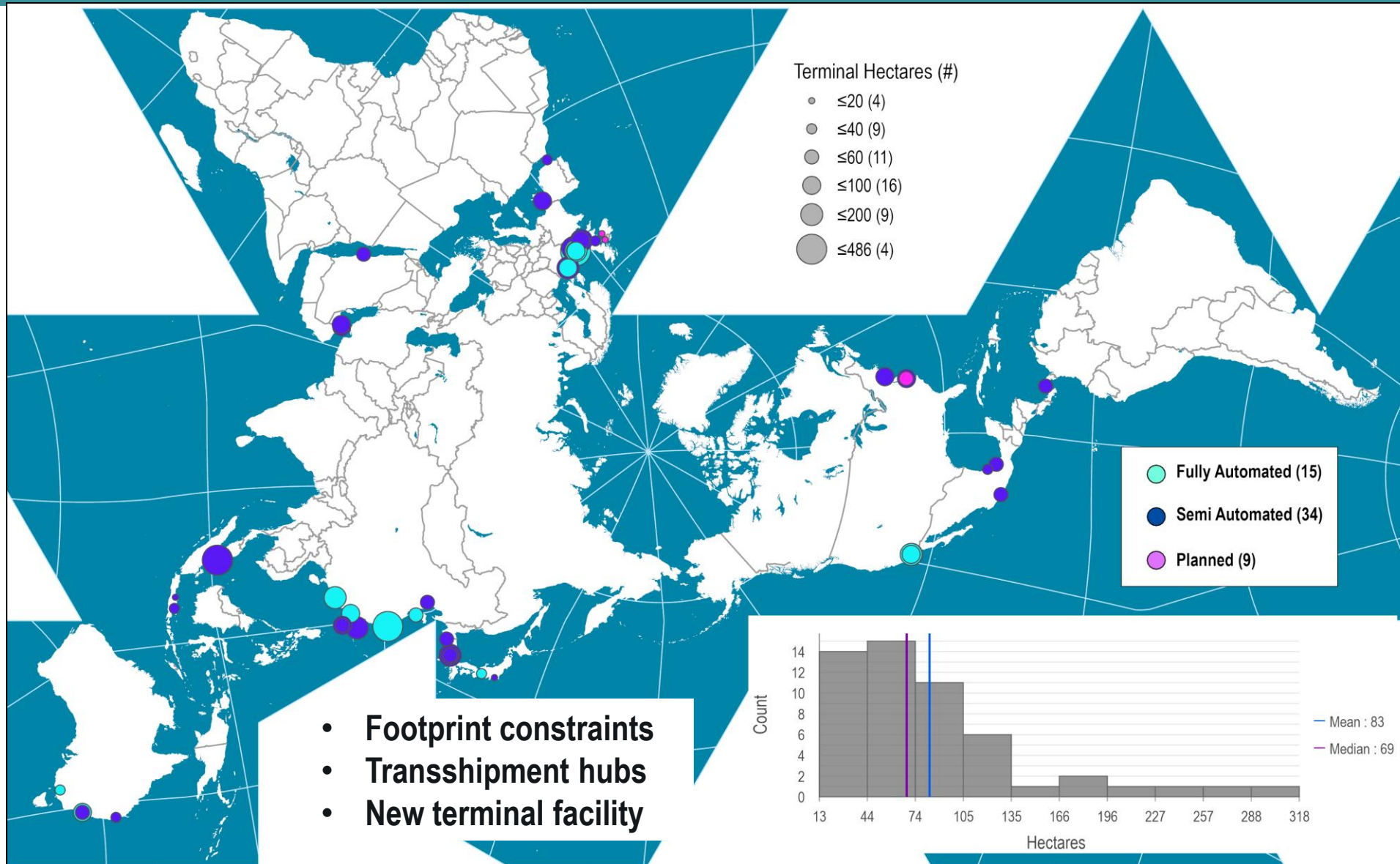
Monthly Container Traffic at the Port of Los Angeles, 1995-2020



Rate of Blank Sailings, Asia – United States, and FBX Index



Fully and Semi Automated Container Terminals, Total Hectares, 2019

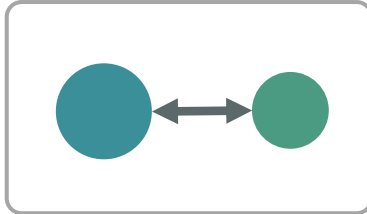


- Footprint constraints
- Transshipment hubs
- New terminal facility

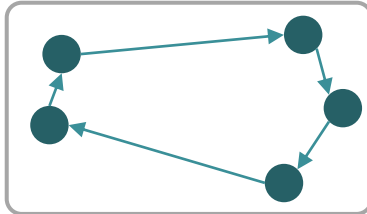
Rotterdam	APM Terminals Maasvlakte II
Xiamen	Xiamen Ocean Gate Container Terminal
Rotterdam	Rotterdam World Gateway
Hamburg	Altenwerder Container Terminal
Hong Kong	Hong Kong International Terminals
Rotterdam	ECT Delta Terminal
Rotterdam	ECT Euromax Terminal
Melbourne	Victoria International Container Terminal
Los Angeles	TraPac Terminal
Nagoya	Tobishima Pier South Side Container Terminal
Long Beach	Long Beach Container Terminal
Brisbane	Brisbane AutoStrad Terminal
Qingdao	Qingdao New Qianwan Container Terminal
Sydney	Sydney AutoStrad Terminal
Shanghai	Shanghai Yangshan Deep-Water Port Phase IV
Lazaro Cardenas	Lazaro Cardenas Terminal 2
Vado Ligure	APM Vado Ligure
Tianjin	Tianjin Five Continents International Container Terminal
Antwerp	Antwerp Gateway Terminal
Brisbane	DP World Australia Brisbane Terminal
Busan	Pusan NewPort
Jebel Ali	DP World Jebel Ali T3
Jebel Ali	DP World Jebel Ali T4
London	London Gateway Terminal
Kaohsiung	Kaohsiung Intercontinental Terminal (Terminal 4)
Taipei	Taipei Port Container Terminal
New York	Global Container Terminals Bayonne
Busan	HanJin NewPort
Incheon	HanJin Incheon Container Terminal
Hamburg	HHLA Terminal Burchardkai
Barcelona	Barcelona Europe South Terminal
Brisbane	Brisbane Container Terminals
Sydney	Sydney International Container Terminal
Thamesport	London Thamesport
Veracruz	New Port Veracruz
Algeciras	Total Terminals International Algeciras
Busan	Busan NewPort Container Terminal
Abu Dhabi	Khalifa Port Container Terminal
Jeddah	Red Sea Gateway Terminal
Semarang	Terminal Pelikemas Semarang
Tanjung Perak	Lamong Bay Terminal
Liverpool	Liverpool2 Container Terminal
Busan	PSA Hyundai Pusan Newport Terminal
Busan	Pusan Newport International Terminal
Singapore	Pasir Panjang Container Terminal 1-2-3
Singapore	Pasir Panjang Container Terminal 4-5-6
Colon	Manzanillo International Terminal
Tuxpan	Tuxpan Marine Terminal
Hampton Roads	Virginia International Gateway
Tokyo	Ohi Terminal 5
Kaohsiung	Kao Ming Container Terminal
Los Angeles	APM Terminals Pier 400
Tangier	APM Terminals MedPort Tangier
Ashdod	Hadarom Container Terminal
Auckland	Fergusson Container Terminal
Copenhagen	Outer Northern Harbour
Dublin	Dublin Ferryport Terminals
Mubarak	Mubarak Al Kabeer Port
Vizhinjam	Vizhinjam International Seaport
Hampton Roads	Norfolk International Terminal
Belfast	Belfast Container Terminal
Singapore	Tuas Container Terminal Phase 1
Haifa	Haifa Bay Port

Opportunities and Challenges in Containerized Maritime Shipping

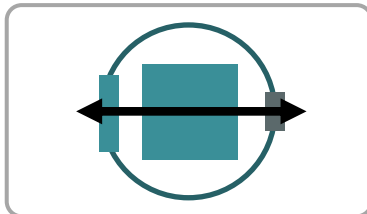
Demand Push
International Trade
(Volume)



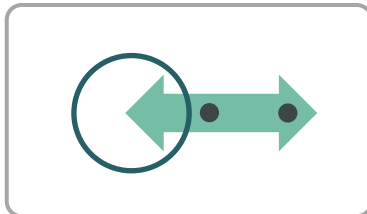
Shipping Network
(Capacity)



Port Operations
(Throughput)



Hinterland
(Accessibility)



Opportunities

Niche markets.
Additional container volumes.

Consolidation of existing routes
(Suez and Panama).
Transshipment, feeders and
short sea shipping.

Adding equipment and yard
space.
Automation.

Corridors, logistical zones and
inland ports.

Challenges

Imbalanced flows.
Reshoring and technological
changes in manufacturing.

Less frequency and ports of
call.
Rationalization and alliances.

Duplication of infrastructure.
Compression of throughput.

Zero-sum game competition.
Congestion and externalities.

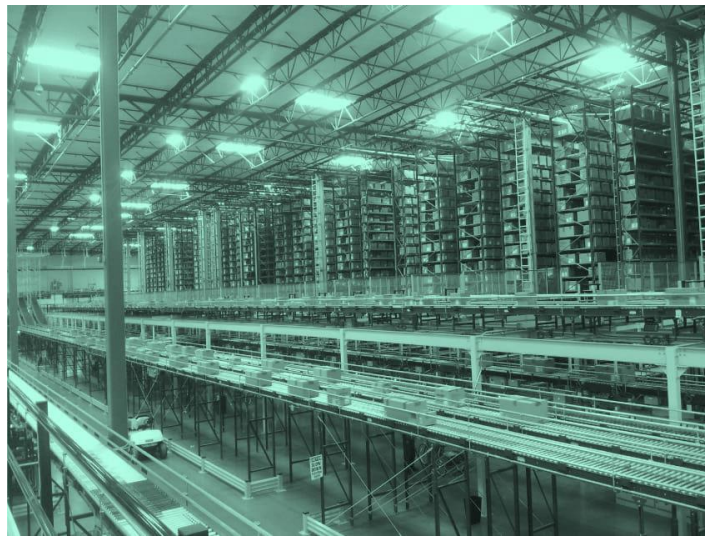
Decarbonization

Locations (vmt), processes and
packaging.

Economies of scale. Carbon
pricing. Scrubbers. Low sulfur
bunker fuel. Slow steaming.

Berth planning. Electrification of
yard equipment.
Environmentally differentiated
port pricing.

Modal shift (rail and
waterways). Freight platforms /
ITS. City logistics. Road tolls.



Thank you for your attention!

For more information: <https://transportgeography.org/>