



Shipping Regulation, Trade Realities and Social License: the promise (or not) of short sea shipping

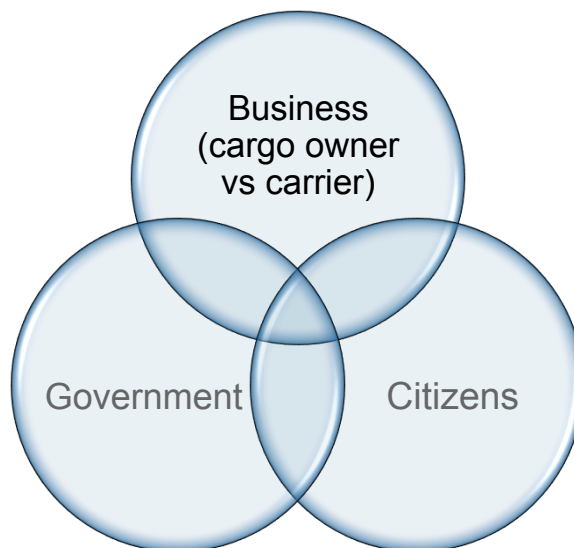


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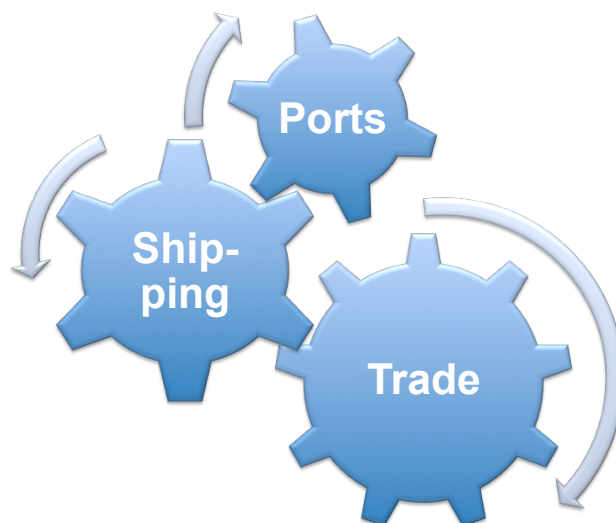
**Maritime Research Symposium
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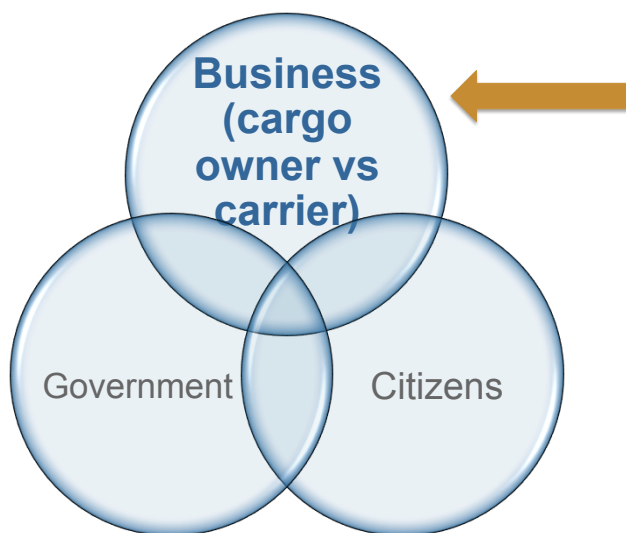
Three Primary Interested Parties in the Transport Industry



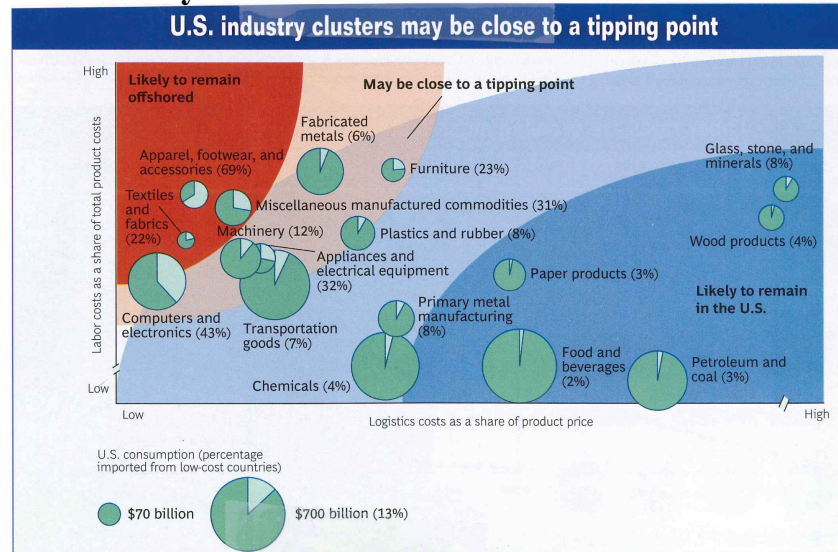
Three Levels of Trade Economics to Consider in Any Ocean Transport System



We Start with Trading and Some Key Facts...

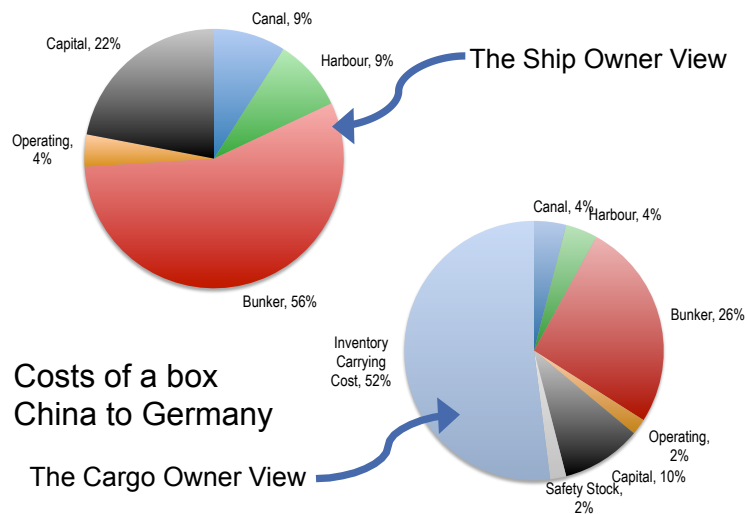


Fact: Manufacturing Location Decisions Are Not Driven by Environmental Considerations



Source: E. Kulisch, "Rightshoring," *American Shipper*, June 2012, pp. 8-15

Fact: Shipping Line and Cargo Owner Interests are Seldom Aligned



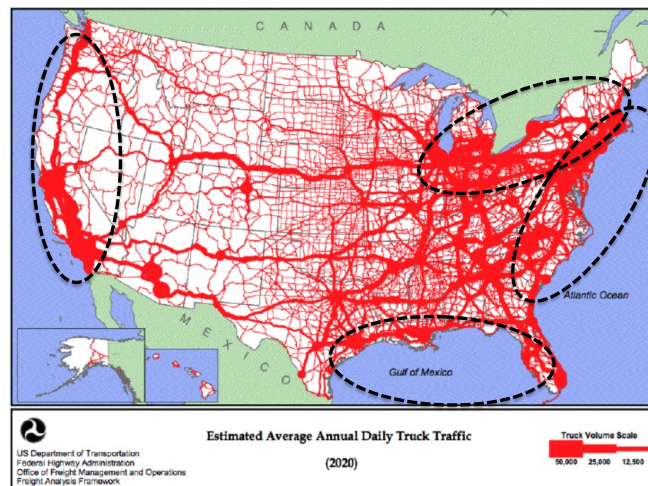
Source: T. Eefsen and B. Cerup-Simonsen (2010), Speed, carbon emissions and supply chain in container shipping, IAME Presentation, Figure 9A



Fact: European Short Sea Shipping Works in Niche Markets

- Short sea is well-established (Feeder, ro-ro, regional services, industrial shipping, passenger and cruise ferries)
- Some short sea hubs for freight have emerged (e.g. Hamburg with 22 companies offering feeder services to 12 countries in the region as of a few weeks ago)
- Geography is critical to success (Baltic, North Sea, English Channel and Mediterranean)
- Sea state also critical, e.g. Baltic open year round and more sheltered than Great Lakes between Canada and U.S. (winter access denied) and East Coast North Atlantic (high seas)
- The Marco Polo program is key; serious road congestion supports the development of short sea shipping, particularly when **citizens are prepared to financially support removing trucks from the road..**

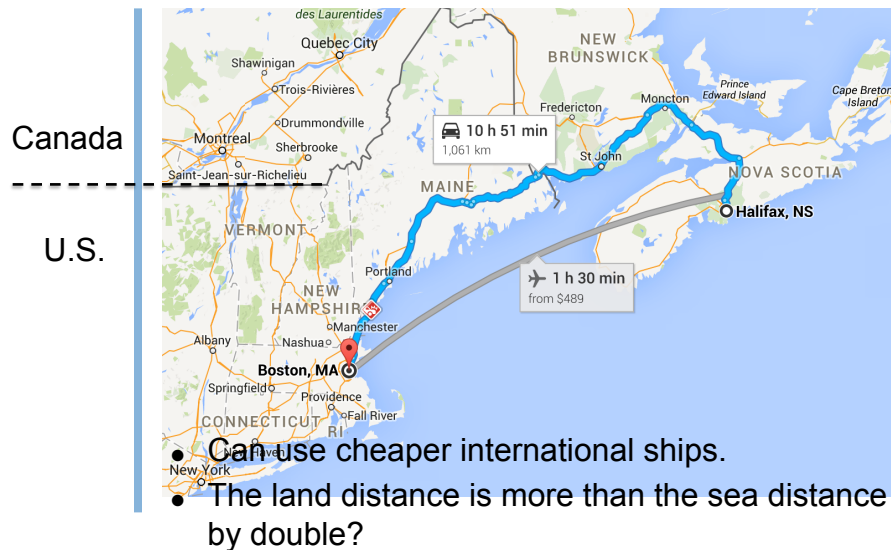
Trade is the Driver: What Makes A Corridor of Promise for Short Sea?



Research says: Road congestion plus distance: the four most promising corridors are more than 500-750 kms with no rail competition.



6 Failures: Why No Successful Service?

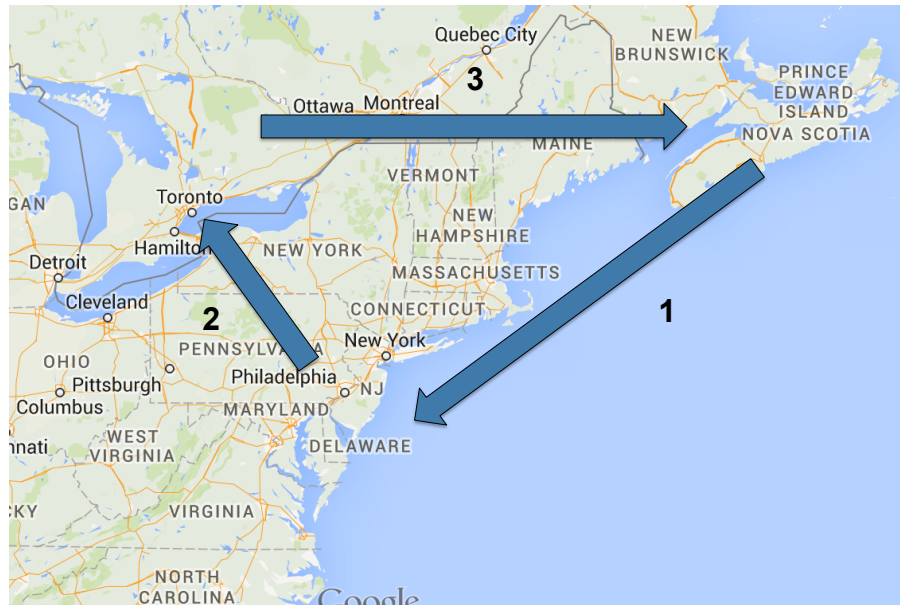


Trade Realities (1)

Answer: It isn't about only economics...

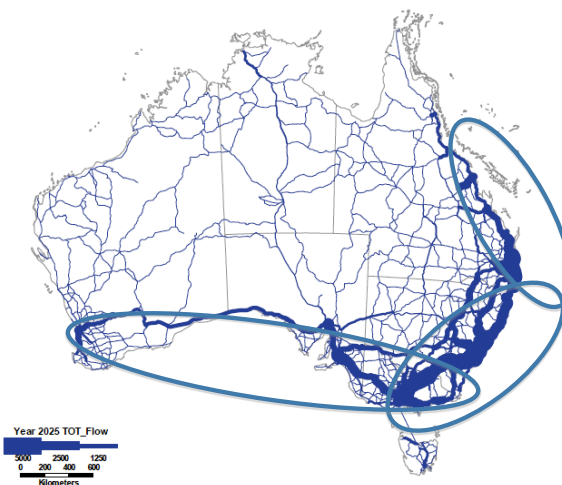
- Many companies preferred a single carriage document than multiple contracts. (e.g. potential short sea operators must retail an integrated transport package over one that is just an ocean move.)
- 25% of the shippers are unlikely to switch to short sea shipping unless trucking service deteriorates drastically (e.g. greater congestion in the New York part of the corridor).
- Service every two weeks unacceptable. More frequent departures critical.
- Most of the volume is southbound.
- Incentive pricing for an equivalent (to trucking) short sea service could induce trial. **Customer value is key.**

Trade Realities (2)



Remember Road Congestion as a Driver of Short Sea Development (Bendall & Brooks, 2011)

FIGURE 3.4 INTER-REGIONAL ROAD FREIGHT VEHICLE TRAFFIC ASSIGNMENT, 2025



Source: Commonwealth of Australia (2006)

Why these 3?

- Long enough (sufficient distance)
- Congested?
- May have enough truck volume

Research gaps




- Road counts
- Current DC investment
- Switching incentives



Three Australian Studies

- Corridor identification (Bendall and Brooks, 2011)
- Mode switching characteristics and incentives (Brooks, Puckett, Hensher & Sammons, 2012)
- Can permit traffic be attracted from foreign flag vessels to top up volumes attracted from road? (Brooks, 2012)

Nine Corridors of Promise (Road versus Sea)

AusLink Corridor	2025 Traffic (000 t)	Road Distance (km)	Sea Distance NM (kms)	Comments
Sydney–Melbourne	17,243	832	582 (1,078)	Deemed too short to be truck competitive. 
Melbourne–Adelaide	14,399	713	514 (952)	Deemed too short to be truck competitive. 
Sydney–Brisbane	11,828	947 (inland)	515 (954)	Deemed too short to be truck competitive. 
Melbourne–Brisbane	5,325	1,690 (inland)	1,080 (2,000)	Min. daily number of heavy vehicles projected in 2025 is 1012.

Source: Columns 1-3 and min. daily numbers from Table 2.16 of Commonwealth of Australia (2006), column 4 from www.portdistances.com (with nm converted to km).

Become Six Corridors of Promise

AusLink Corridor	2025 Traffic (000 t)	Road Distance (km)	Sea Distance NM (km)	Comments
Melbourne–Perth	3,728	3,423	1,681 (3,058)	Min. daily number of heavy vehicles projected in 2025 Melbourne–Adelaide is 1795.
Sydney–Adelaide	2,801	1,375	973 (1,802)	Min. daily number of heavy vehicles projected in 2025 is 1629.
Sydney–Perth	1,658	3,942	2,140 (3,963)	Min. daily number of heavy vehicles projected in 2025 is 1629 for Sydney–Adelaide.
Adelaide–Perth	1,530	2,692	1,343 (2,487)	The study concludes that traffic growth on this corridor will more likely accrue to rail.
Brisbane–Cairns	1,069	1,699	846 (1,567)	Min. daily number of heavy vehicles projected in 2025 is 718.

Source: Columns 1-3 and min. daily numbers from Table 2.16 of Commonwealth of Australia (2006), column 4 from www.portdistances.com (with nm converted to km).



The Australian Research (Brooks, Puckett..., 2012)

- The research conducted in 2011 focused on three Australian corridors
 - Melbourne–Brisbane (congested)
 - Perth–Melbourne and Brisbane–Townsville (less congested with rail availability)
- With four proposed/existing services (truck, rail, foreign flag shipping and national flag shipping)
- Participants: Manufacturers, forwarders, retailers (only those of each who actually buy freight shipment services)
- Methodology: A discrete choice experiment with allocation of traffic to the four mode choices to assess willingness to pay/willingness to accept parameters

Example of Choice Scenario (There are 8)

Part 2: Making Transport Choices

An example of a choice scenario is given below:

You are re-evaluating your mode options from Perth to Melbourne for your shipments this month. You have recurring shipments of non-bulk cargo (a shipping container or truckload equivalent) of 20 tonnes for delivery on this corridor. 2% of these shipments involve perishable items and 0% of these shipments must reach the destination within 3 hours of the scheduled delivery time.

Given the attributes for the mode service offerings in this corridor, how much of 100% of your cargo would you allocate to each of the modes?

After entering the first three values, the fourth value will be calculated automatically to ensure that the values add up to 100%.

	Truck	Rail	Coastal Shipping (Australian Flag)	Coastal Shipping (Foreign Flag)
Freight Rate	\$6000	\$3500	\$2500	\$2700
Total Transit Time	4 Days, 18 Hours	3 Days, 12 Hours	6 Days	6 Days
Departures per Week	25	18	2	2
Percentage of Shipments Arriving within 3 Hours of Schedule	75%	70%	70%	60%
Percentage of Shipments Arriving over 24 Hours after Schedule	5%	8%	20%	15%
I would allocate the following percentage of my cargo to these modes:	0 %	0 %	0 %	100 %

Back

Values from experience if provided or industry averages if not

Next



Results (n = 70)

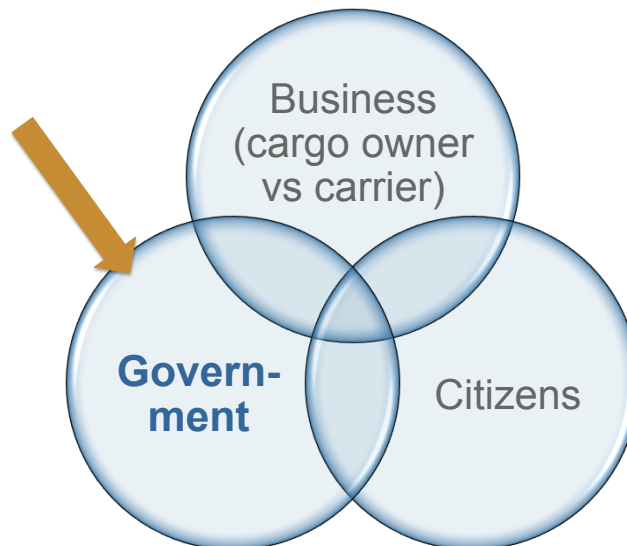
- There was no evidence of corridor or decision-maker (retailer or forwarder or manufacturer) differences in preferences.
- All else equal, road is clearly preferred to rail and short sea.
- There was a stronger disutility for short sea in the Australian market.
- There was no distinct preference for national flag.
- Reliability: Road preferences are sensitive to delays of one day or more while rail and sea are sensitive to narrow delivery windows.
- **Inertia in demand patterns is a key factor in policy initiatives to induce modal switching**
- This study important because it allowed us to calculate carbon pricing impact on transport mode choice



Can You Use Carbon Taxing to Adjust Modal Choice?

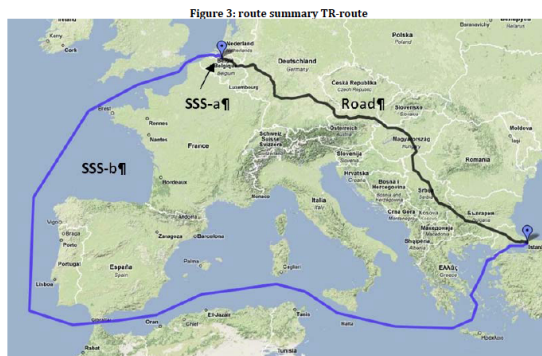
- In the **Australian** market we found for every 1% increase in the price paid for trucking on the head haul, there is a 0.12% loss in market share to truck (\Rightarrow 0.08% increase in the rail market share and a 0.04% increase in the short sea share). Backhaul the split was more even between rail and sea.
- Melbourne – Brisbane expected to have 1012 trucks a day in 2025. To get about 200 trucks a day to support a very small coastal shipping service, you would need to get a rough market share of 20%.
- In other words, a 20% share needs about $20 \times 25 = 500\%$ increase in truck prices.
- If fuel cost is a third of the total cost of trucking, this means that, in this market, the carbon tax would have to add AUD15.00 to every AUD1.00 in the cost of diesel at the pump. **Realistic? Is there another way?**

Tensions in the Transport Industry



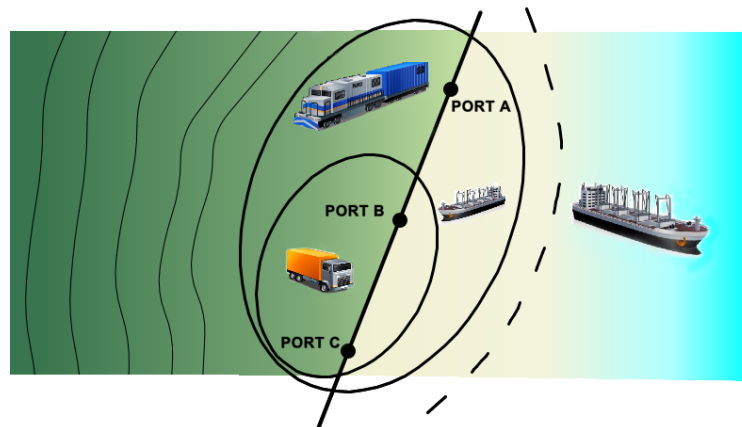
Choosing the Environmentally Friendly Mode (Vanherle & Dehaye, 2010)

- Short sea shipping produces less CO₂ than road.
- Short sea shipping produces 1000 times to SO_x, and more NO_x and PM (average on 3 route studies in EU)
- Carbon is more important for global climate change
- PM, NO_x more important for local and regional human health

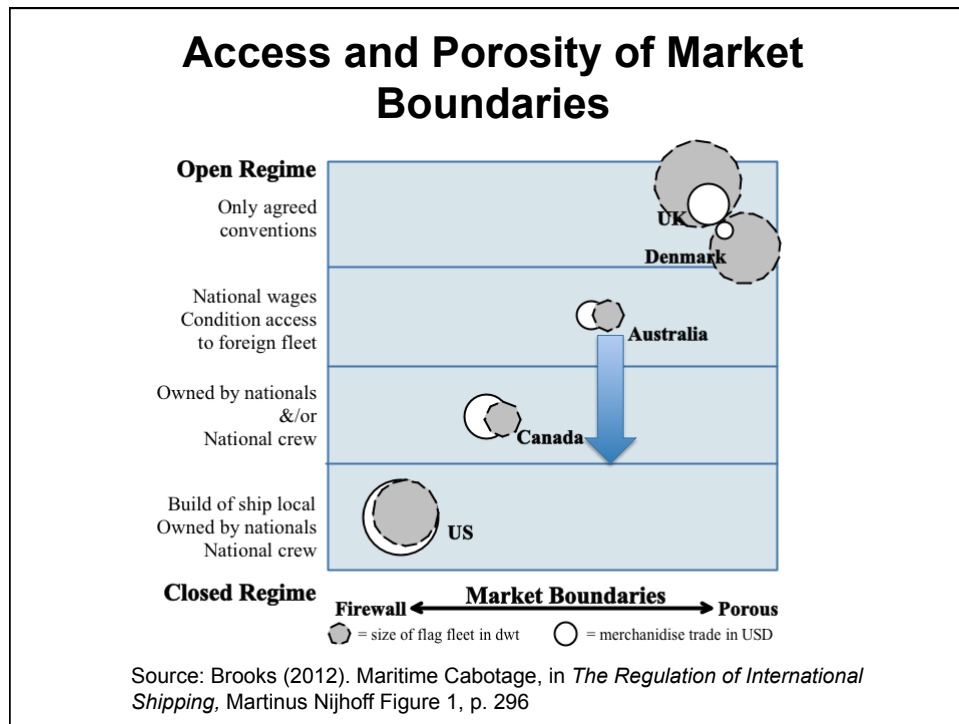


Who decides
the priorities?
Governments?
You and I?

Where the Shipping Market Begins/Ends is Dictated by Government



Source: Brooks (2012), Figure 2, p. 300.



Regulatory Lessons from N. America and Europe

• Lessons from EU:

- Size of the cabotage area is relevant.
- Successful coastal shipping can be promoted by subsidies (Marco Polo program) as part of a GHG reduction strategy. (Coastal shipping is as much an energy and environment policy as a transport policy [Brooks & Frost, 2009].)

• Lessons from North American research:

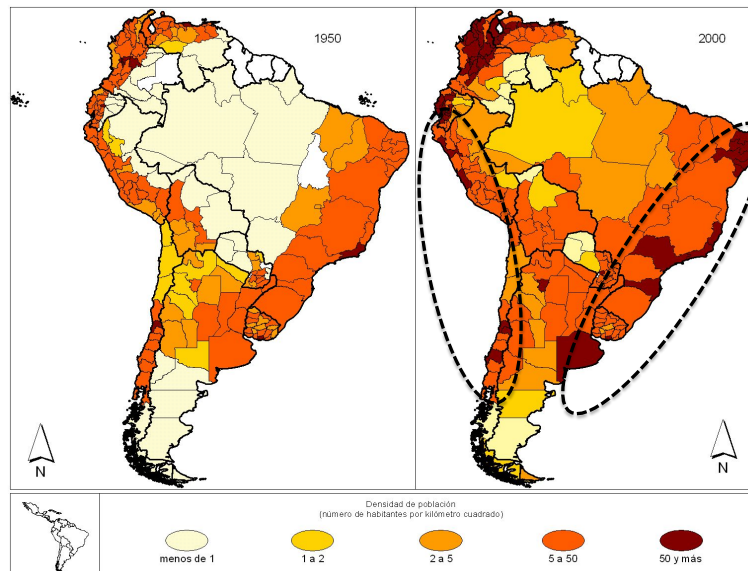
- Regulation can defeat the best of coastal shipping efforts (HMT, security rules, build requirements, etc; Brooks Hodgson & Frost, 2006)



Regulatory Lessons from Australia

- **Taxation/Subsidies/Incentives**
 - Australia changed its permit system in 2012 and made short sea shipping even more expensive; the number of Australian flag coastal trading vessels in 2012-13 was 13 (down from 37 ten years earlier! BITRE, 2014)
 - The carbon tax imposed in 2011 resulted in no modal shift
 - No incentive support programs exist in support of coastal shipping.
- **Fuel Costs Do Not Include Social Costs.** The cost of providing the highway network is not incorporated into the price of trucking in Australia.
- **Regulatory Divergence.** Intra-state shipping is governed differently from inter-state shipping. Regulatory uniformity is desirable.

Population Density in Coastal Areas Drives the Promise of Short Sea Shipping

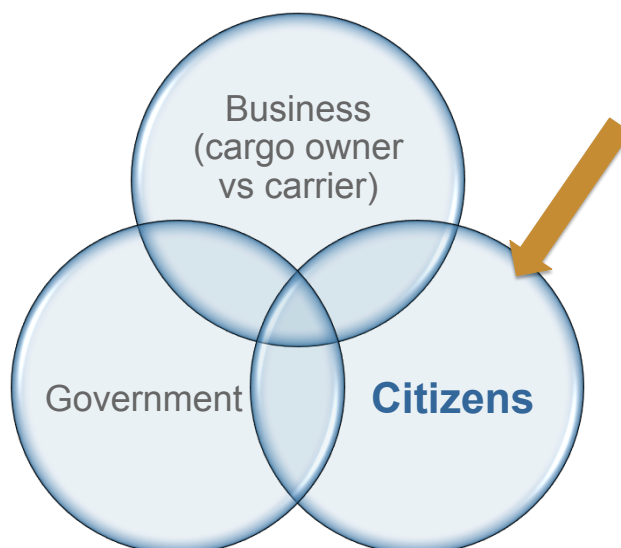


Regulatory Impediments to Growth of Short Sea on the E. Coast of S. America

Factor	Brazil	Uruguay	Argentina
Cabotage	Yes	Yes	Yes
Exceptions	Single Voyage	Particular circumstance	Single Voyage
Shipbuilding	Limited exceptions	Not specifically indicated	Limited exceptions
Foreign ownership restrictions	Local establishment; national flag	Minor; ship needs to be registered	Minor; ship needs to be registered
Shipping taxation	Special treatment for cabotage income	Reciprocal exemptions possible	No information
Special treatment cabotage vessels	NA	NA	Yes

Source: These are examples only; please see original for details. Abridged from Brooks, Sánchez and Wilmsmeier (2014), Table 4 .

Tensions in the Transport Industry





Transport Cost: How Relevant is It to You?

Show of hands: How many of you drink wine?

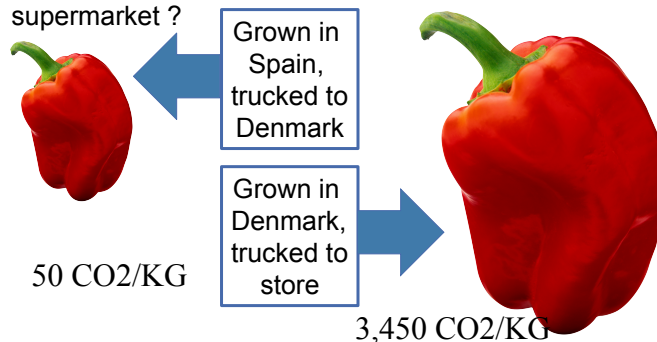
If the cost of transport of a bottle of wine doubles due to fuel cost increases, you will...

- Stop drinking wine?
- Switch from drinking wine to drinking beer?
- Switch from drinking Chilean wine to drinking French wine?
- Make no changes to your normal alcohol purchases?



Less Transport Does Not Necessarily Mean Less CO2

Question: Which is less carbon intensive? The red pepper (he said tomato) grown in Denmark and sold in the Danish supermarket or the red pepper (he said tomato) grown in Spain and sold in the Danish supermarket ?



Source: Bo Cerup-Simonsen of Maersk Maritime Technology, July 2010.



In Shipping, Social License Happens at the Port (1)

Baltimore

- Wanted to be a deep-sea port of call for post-Panamax container ships (was a short sea provider to Puerto Rico)
- Convinced USACE to dredge the channel to 50'
- Convinced Ports America Chesapeake to make the investment in cranes



In Shipping, Social License Happens at the Port (2)

Jacksonville

- Wanted to be a short-sea port of call for Caribbean feeder traffic
- Working with USCG for rule-making on LNG fueling barges
- Working with Crowley and Sea Star re: investment in LNG feeder ships; providing community liaison support



- ✓ Clean Energy has chosen Jacksonville for its new LNG facility
- ✓ LNG as a marine fuel on its way to use in short sea vessels
- ✓ Citizens see the jobs benefits

Transfennica stops Bilbao route

The route started in September 2007 and saw a steady increase in volumes and results. Due to the upcoming Sulphur Directive per 1 January 2015, which will result in increasing fuel costs, it is expected that up to 50% of the trailer volumes will return to the road. The Board of Directors of Solihoff Group

Many shippers are temporarily shifting to airfreight to deliver their eleventh hour holiday shipments in order to avoid chronic congestion and labor slowdowns at U.S. ports, according to this week's issue of Container Insight from Drewry

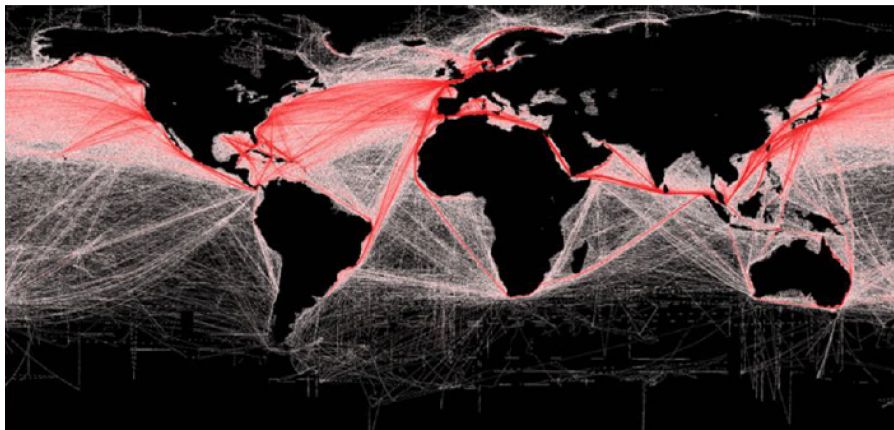
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Thinking about This Symposium



Sea _____ Land
Science _____ Emotion
Global _____ Local

In Closing ... Trade Routes Today

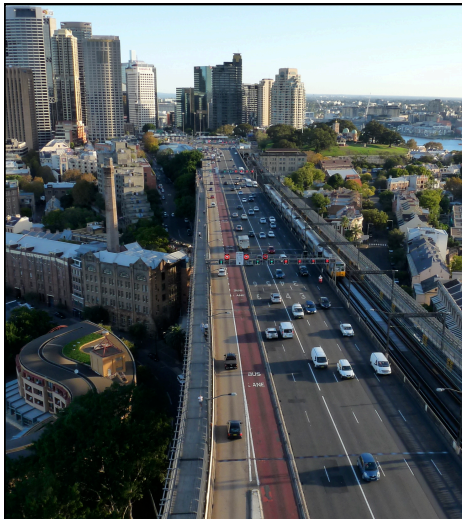


Trade routes are driven by population location and consumption ... If ocean transport is diminished, the freight will, like water, take the path of least resistance. How transport challenges are addressed requires in-depth understanding of consumer choice and business trade realities.



Key Studies

- Bendall, H. B. & M. R. Brooks (2011). Short Sea Shipping: Lessons For or From Australia, *International Journal of Shipping and Transport Logistics*, 3 (4), 384-405.
- Brooks, M. R., J.R.F. Hodgson and J. D. Frost (2006), *Short Sea Shipping on the East Coast of North America: an analysis of opportunities and issues*, Halifax: Dalhousie University.
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Questions?

Thank You!
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