



# **The Economic Realities of Water Transportation**

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# Short Sea Shipping

- ***Short sea shipping – commercial waterborne transportation that does not transit an ocean, but rather utilizes inland and coastal waterways (via vessel and barge) to move cargo to and from ports.***
- ***In the U.S. , short sea shipping is being promoted as an alternative to truck transportation.***
- ***Advantages of short sea shipping over truck transportation --consumes less energy, incurs lower cost and incurs less pollution per ton-mile.***
- ***U.S. marine highways are also less congested than land highways.***





# Short Sea Shipping

- ***Is short-sea shipping competitive with truck transportation? Generally not in the transportation of high-valued (e.g., manufactured) cargoes that are transported a relatively short distance (less than 400 miles).***
- ***A. Although the short-sea money transport price (rate) is expected to be lower than that for truck (given the lower short-sea cost per ton-mile), the short-sea time transport price is expected to be higher (given the lower speed of service).***
- ***For containerized cargoes, the total (money and time) transport price for short sea transport service is expected to be higher than that for truck (for relatively short distances).***
- ***The time price for freight transportation is often referred to as the “logistics price”, e.g., inventory cost of cargo while in transport -- based upon the value of the cargo and the total time of transport service.***







# Short Sea Shipping

- ***B. Terminal cost for short sea shipping is greater than that for truck, especially for containers (i.e., from the labor costs of ILA and ILWU dockworkers).***
- ***On the U.S. East Coast, there is a coast-wide ILA contract that requires that all port containers be handled by the ILA (few exceptions, e.g., Charleston).***
- ***Can short sea shipping avoid the use of union dockworkers? (A question that needs to be investigated).***





# Short Sea Shipping

- ***C. Harbor Maintenance Tax***
- ***Short sea shipping pays a harbor maintenance tax but not trucking.***
- ***U.S. Senator Lautenberg (NJ) has reintroduced a bill (May 2009) to repeal the Harbor Maintenance Tax for U.S. port-to-port coastal cargo movements.***
- ***The stated benefits of passage include – growth in the use of marine highways and “significant reduction in coastal landside corridor traffic congestion.”***
- ***Not necessarily true for manufactured cargoes (containers), once the time transport price for freight transportation is considered.***
- ***That is to say, the repeal of the Harbor Maintenance Tax will lower the money price for short sea shipping but not the time price for short sea shipping.***



# Ocean Shipping: Ports and Ship Size



- *Ships exhibit diseconomies of ship size in port (i.e., ship cost per cargo ton loaded/unloaded in port increases with ship size).*
- *Ships exhibit economies of ship size at sea (i.e., ship cost per cargo ton decreases as ship size increases).*
- *Thus, as ships increase in size, they are expected to call at fewer ports and stay at sea longer.*





# Container Ships and Ports



- ***The increasing size of container ships is placing greater burdens on U.S. container ports.***
- ***Between 1992 and 2002, the largest container ship in worldwide service increased from 4,500 to 8,400 TEUs (Twenty-Foot Equivalent Units); today, new vessels on order exceed 14,000 TEUs (requiring 50+ feet of water).***
- ***To accommodate these vessels, ports are: increasing harbor and berth water depths, acquiring larger cranes and storage capacity, and increasing truck and railroad facilities.***
- ***U.S. East and Gulf Coast Container ports are spending Billions of Dollars to accommodate the larger-sized container ships that will use the expanded Panama Canal.***





# Container Ports

- *It is unrealistic to expect that “all” U.S. container ports will experience increases in container port throughput in the future, especially since larger-sized container ships will be calling at fewer ports.*
- *How can the U.S. port TEU throughput capacity be expanded at less cost?*
- *Should the Army Corps of Engineers, for example, be more selective in their choice of dredging projects – e.g., dredge at ports that are expected to become load center ports and where dredging is less costly per foot of dredged materials (sandy versus rocky bottoms)?*







# Container Ports

- *Should improvements in U.S. container port operating efficiency be promoted as an alternative to port infrastructure investments for increasing port capacity?*
- *If container ports are able to become more efficient in the use of their infrastructure (i.e., more TEUs moved per hour to and from the port), less infrastructure investment will be needed to provide a given TEU throughput.*
- *That is to say, increases in port capacity can be obtained from increases in port operating efficiency.*





# Cabotage

- ***Cabotage – is the reservation of the ship movement of cargo among ports on the coast of a given country to the ships operating under the flag of that country.***
- ***The U.S. cabotage law for freight is the Jones Act – ships that move cargo from one U.S. port to another must be U.S.-built, -crewed and –flagged.***
- ***In the EU, all member countries had eliminated cabotage laws by 2004; China is considering eliminating its cabotage law.***





# Cabotage

- ***One stated benefit of the Jones Act is to protect the domestic ship-building industry.***
- ***Costs of the Jones Act include higher retail prices of the goods (moved under cabotage) to U.S. consumers as opposed to the retail prices to be paid if the goods were moved by non-U.S. flagged ships (that face greater competition than cabotage ships).***







# Port Pollution

- *Water and air pollution are the major environmental impacts of ports.*
- *Port water pollution may be associated with ship ballast water and waste, the use of ship antifouling paints, ship oil spillage, and waterway dredging.*
- *Port air pollution may arise from emissions from ships, trucks, cargo-handling equipment and railroad locomotives while in port.*





# Port Pollution

- ***Pollution is a social cost that is not considered by polluters in their decision making.***
- ***Government can force polluters to incur this cost by regulation and/or taxation.***
- ***On June 4, 2009, the Port of Long Beach announced that it is seeking ideas to move cargo out of the port with zero air pollution emissions.***





# Port Pollution

- *It does not necessarily follow that the elimination of pollution is an optimal economic decision.*
- *The net benefits (equaling the benefits minus the costs) of reductions in port pollution may be maximized at a port pollution reduction level that is non-zero.*







- ***Thank you for your attention!***

