

Assessing Productivity and Performance of Seaports:

The Importance for Gateways

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Agenda

- Port of Baltimore – Performing in a Competitive Marketplace
- Theories of Competitive Advantage
 - Porter Strategies
 - Resource-Based View
- Apply Theories to Port Competition
- Conclusions

Port of Baltimore

- ❑ Founded in 1706
- ❑ Continuously operated for 300 years
- ❑ Operates on 3400 waterfront acres
- ❑ Served by 2 major railroads – Norfolk Southern and CSX
- ❑ Excellent access to the Interstate Highway System – I95

Port of Baltimore

- Important Competitive Advantage –
Closest port on the U.S. Atlantic
seaboard to Chicago and many Mid-
West U.S. markets

Mid-Atlantic Region of the U.S.



Port of Baltimore - Competitors

- ❑ Competes with all ports along the Eastern Seaboard
- ❑ Main competitor is seen as the Virginia Ports (Norfolk/Hampton Roads)

U.S. Port Ranking - 2005

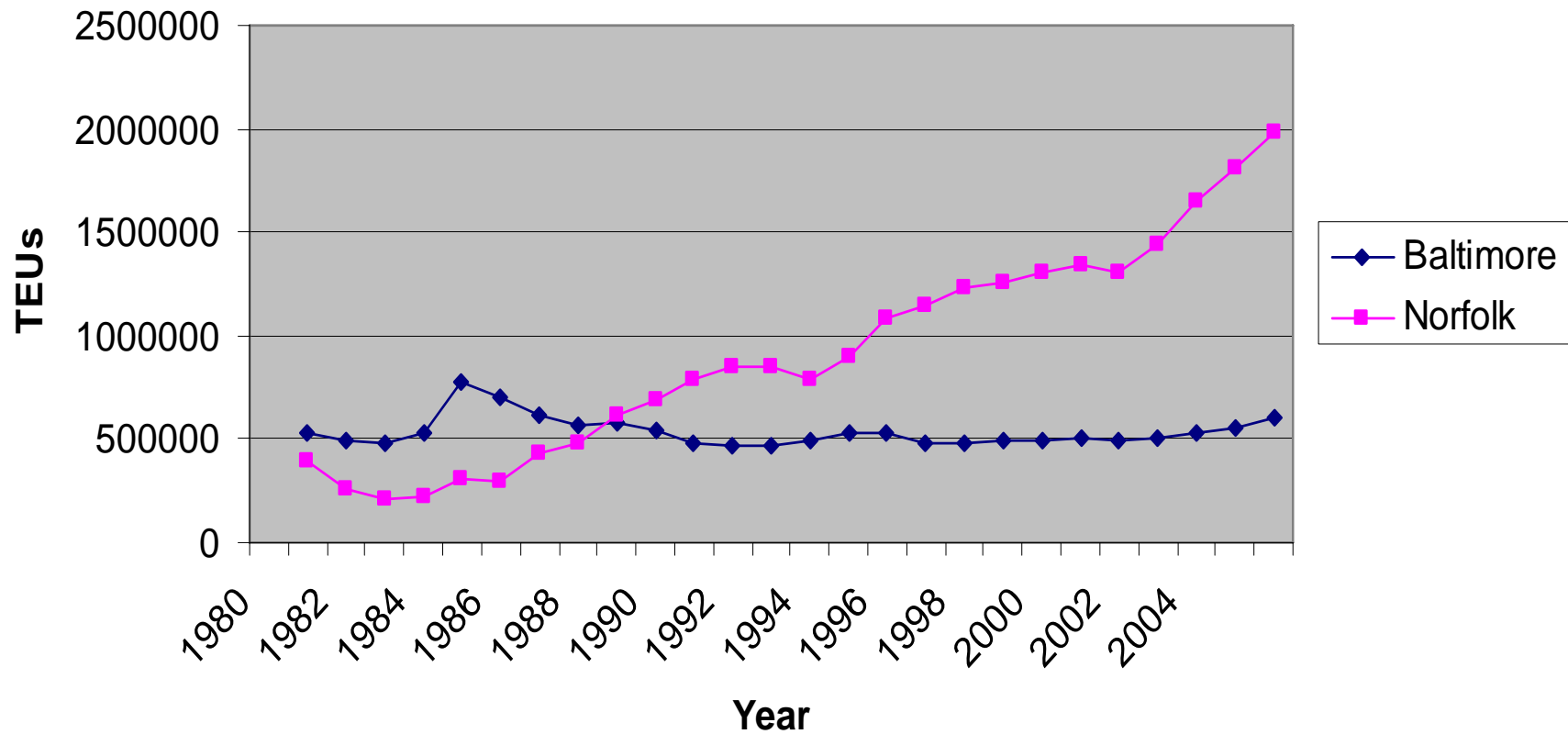
□ Baltimore

- Ranked 19th
- 44.1 million tons

□ Norfolk

- Ranked 15th
- 49 million tons

Container Traffic - Baltimore and Norfolk



Source: U.S. Army Corps of Engineers,
Waterborne Commerce Statistics Center

Port of Baltimore

- Why has Norfolk developed as a much more important gateway for container traffic than Baltimore over the past 20 years?
- In what other commodities can Baltimore be competitive?

Tales of Woe from the Port of Baltimore

- Over the past several years, there have been a number of reasons provided for Baltimore's relative decline in container traffic.

Reason 1 – Transportation Deregulation

- Prior to transportation deregulation, inland freight costs directly corresponded to shipping distance.
- Since deregulation, transporters serving competitive ports have offered deals to shippers, thus negating Baltimore's locational advantage.

Reason 2 – Labor Costs

- Labor costs are higher at Baltimore than Norfolk
 - Inferior union agreement – Longshoremen were paid but did not work if it rained.
 - As an old port, Baltimore has a much larger surplus of labor – no longer required with containerization.
 - Since the port has not been growing, labor has a lot of seniority.

Reason 3 - Railroads

- ❑ Railroads prefer to concentrate their business at Norfolk.
- ❑ Old infrastructure restricts the operation of double-stacked trains into Baltimore.

Reason 4 – Shipping Economics

- ❑ Container lines do not want to spend 12 hours each way traveling up and down the Chesapeake Bay.
- ❑ The economics of the container business makes stopping at the Port of Baltimore uneconomical.

Mid-Atlantic Region of the U.S.



What is Baltimore's Competitive Advantage?

- In what trades can the Port of Baltimore compete given today's shipping economics?

Baltimore's Competitive Advantage

- Ro/Ro and Automobile traffic
- Forest Products

- Why?
 - Large local market for automobiles and building materials.
 - Plenty of room for ro/ro cargo.

Lessons Learned for the Port of Baltimore

- ❑ Baltimore used to be able to compete by using its locational advantage with the shortest transportation corridor to Mid-West markets.
- ❑ When transport rates were deregulated and the economics of the shipping industry changed, transportation distance no longer was key in providing Baltimore a competitive advantage in the general cargo trade.

Lessons Learned for Baltimore

- As a result, container traffic growth moved to Norfolk, and Baltimore had to develop a new strategic focus based on different competitive advantages; i.e., the local population base and the space available at the port.
- The Port switched its focus from containers to ro/ro cargo, automobiles, and forest products.

Theories of Competition

- In general, how do firms or organizations such as ports compete?

Porter's strategies to achieve competitive advantage

- Low-cost leader – provide your product or service in a competitive environment at a lower cost than your competitors
 - Wal-Mart in the retail sector
 - Hyundai in the automotive industry
 - Producers of generic/store brand food products
 - Chinese manufacturers, in general
 - Port of Baltimore up until the 1980s

Differentiation Strategy

- Differentiate your product or service to attract a premium price
 - Provide value-added to purchasers
 - Whole Foods Market
 - Starbucks
 - BMW
 - FedEx

Focus Strategy

- Differentiate your strategy by focusing on a niche market
 - A special case of a differentiation strategy
 - Vegetarian restaurant
 - Made-to-measure suits
 - Hedge Fund
 - Port of Baltimore today

Resource-Based View

- ❑ All organizations possess a set of resources.
- ❑ Resources that are valuable and rare, and whose benefits can be appropriated by an organization, can provide a temporary competitive advantage.
- ❑ The competitive advantage can be sustained over a longer period to the extent that the valuable resources can be protected against imitation, transfer, or substitution.

Examples of Rare and Valuable Resources

- ❑ The Windows software code to Microsoft.
- ❑ The North Shore mountains and ocean scenery to Vancouver.
- ❑ Wal-Mart's information system capabilities.
- ❑ A patent for Lipitor to Pfizer.

Longterm Competitive Advantage

- ❑ Windows could be replaced by Linux or another open sourced operating system.
- ❑ Generic versions of Lipitor can be produced and distributed.

Application of Theory to Ports

- How can a port achieve competitive advantage?

Become the Low-Cost Operator

- Develop trades that serve local markets.
- Become more efficient/productive than the competitive ports.
 - Most important for container traffic moving to/from inland destinations.

Factors that Contribute to Port Productivity

- Many studies have been conducted on port productivity.
- Highlight the results of our own study – largely consistent with most of the other work.

Port Productivity

- Collected data on the top 26 North American container ports for the years 1984-1997.
- Collected data on physical inputs at the ports:
 - Total terminal land dedicated to container operations
 - Number of quayside container cranes
 - Total container berth length

Port Productivity

- Collected data on the output of the container port operations:
 - TEU equivalents
- Calculated the relative productivity of the ports using a linear programming technique (DEA analysis).
- Determined which factors influence relative productivity using regression analysis.

Factors that Positively Affect Port Productivity

- ❑ The size of the port.
- ❑ The average size of vessels calling at the port.
- ❑ The number of Class 1 railroads serving the port.

Factor that Negatively Affects Port Productivity

- Area devoted to on-dock rail
 - Opportunity cost could be high

How Can a Port Become More Efficient?

- ❑ By growing larger (economies of scale).
- ❑ By attracting larger container ships (increases throughput).
- ❑ By attracting more railroads (without on-dock facilities).

How Else Can A Port Achieve Competitive Advantage

- Differentiate services in a way that is difficult to imitate and provides value to customers.
 - Note customers include shippers, consignees, freight forwarders, third party logistics firms, and shipping lines.

What Services Do Customers Find Valuable?

- ❑ Value-added services such as refrigerated warehousing or packaging.
- ❑ Frequent sailings to important destinations.
- ❑ Careful freight handling with low loss and damage rates.
- ❑ The ability of shippers/logistics companies to operate their own services if needed.
- ❑ Easy truck and rail access.
- ❑ Short travel time from the pilot station to the port.

Ability to Sustain Competitive Advantage

- Obviously, some of these services are relatively easy to imitate, making it difficult for a port to sustain its competitive advantage over the long term.

What Else Can Ports Do?

- Develop one or more niche markets.
 - e.g., Port of Baltimore in the ro/ro, automobile, and forest products trades.

Conclusions

- ❑ Shipping economics, transportation deregulation, and other factors have greatly changed the competitive dynamics for seaports.
- ❑ In order to be successful, ports need to develop and maintain a competitive advantage.

Conclusions

- Ports can achieve competitive advantage by being the low cost operator or by differentiating their services in a way that creates value for customers.
- Low costs can result from locational advantages and/or from highly productive operations.

Conclusions

- Ports tend to increase efficiency as they get larger; i.e., economies of scale appear to exist among port.
- Ports can add value by offering services for their customers, although many of these services may be easy to imitate and thus will not create long term competitive advantage.



Thank you!!!

