Changing Tides for North Atlantic Ports

*Theodore Crone**

Competition among the ports along the east coast of the United States has always been fierce. Consider the early rivalry between the ports of Philadelphia and Baltimore for trade in the Susquehanna River Valley in Pennsylvania. Nature favored Baltimore as the major port to service the Valley. Baltimore was closer to the towns along the river, and inexpensive transportation was feasible since the Susquehanna empties into the Chesapeake Bay above Baltimore. Because of boulders and other natural obstacles in the lower portion of the river, however, upstream traffic was almost impossible and downstream traffic difficult except in the flood season. Philadelphia took advantage of this situation and successfully thwarted development of the lower river for many years. In 1799, delegates from Philadelphia even convinced the Pennsylvania legislature to pass a law fining "any individual or company who shall without proper authority from the governor...remove or attempt to remove the obstructions in the river Susquehanna between Wright's Ferry and the Maryland line." The tactics

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used by the east coast ports in their pursuit of cargoes are perhaps more sophisticated in 1985 than in 1799, but the competition is just as fierce.

In the 18th and 19th centuries, the ports in the northeast were competing in an expanding market; today they compete in a market which is shrinking. In this competition, each port possesses some natural advantages and disadvantages which it cannot alter. And each port will face new developments in shipping and inland transportation over which it will have little or no control. The major factors over which the ports have some control in their competitive battles will be labor costs and capital improvements to take advantage of new technologies and changing markets.

FOREIGN TRADE THROUGH THE NORTH ATLANTIC PORTS HAS BEEN DECLINING

There are five major groups of ports or port ranges through which waterborne cargo moves into and out of the continental United States—North Atlantic, South Atlantic, Gulf, Great Lakes, and Pacific.[1] The North Atlantic range, which runs from Maine to Virginia, includes four major ports: New York, Philadelphia, Baltimore, and Hampton Roads (Virginia).[2] Until recently the ports of the North Atlantic handled more international cargo than the ports of any of the other four ranges. Now this distinction belongs to the Gulf Coast ports. Since the early 1970s the share of international waterborne commerce passing through the ports of the North Atlantic and Great Lakes has generally declined while the other port ranges have increased their market shares or held their own. In this battle for cargo, not only has the North Atlantic *share* of U.S. foreign trade declined, but even the *total tonnage* of international cargo handled at North Atlantic ports has decreased since the mid 1970s. [See DECLINE OF INTERNATIONAL CARGOES AT NORTH ATLANTIC PORTS.] The reasons for this decline can be found in shifts in U.S. population and industry to the south and the west and shifts in U.S. trade patterns from Europe to Asia.

Shifts in Population and Employment. The northeast and midwest are the principal areas served by the North Atlantic ports, and population in these two regions has grown at a rate below the national average for the last twenty-five years. The Census Bureau projects that this slow growth will turn into an actual decline in the northeast between 1980 and 1990. Employment in manufacturing, the major source of U.S. exports, has already begun to decline in the northeast and midwest while it continues to grow in the south and the west [see REGIONAL POPULATION AND EMPLOYMENT SHIFTS, p. 18]. As a result of these population and employment shifts, the North Atlantic is less accessible to a larger proportion of U.S. consumers and exporters than ever before.

Shifts in Trading Patterns. The problems posed for the North Atlantic ports by U.S. population and industry shifts have been compounded by changes in U.S. trading patterns. Traditionally, the tonnage of non-tanker cargoes carried on the routes between the U.S. and ports in western Europe and the Mediterranean surpassed the tonnage of such cargoes carried on the routes between the U.S. and ports in the Far East and Australia.[3] In the late 1960s this pattern was reversed. In every year since 1968, non-tanker cargoes to and from the Far East and Australia have surpassed those to and from Europe and the Mediterranean. This shift has meant that the Pacific Coast ports are more accessible to those countries with which trade has increased most rapidly.

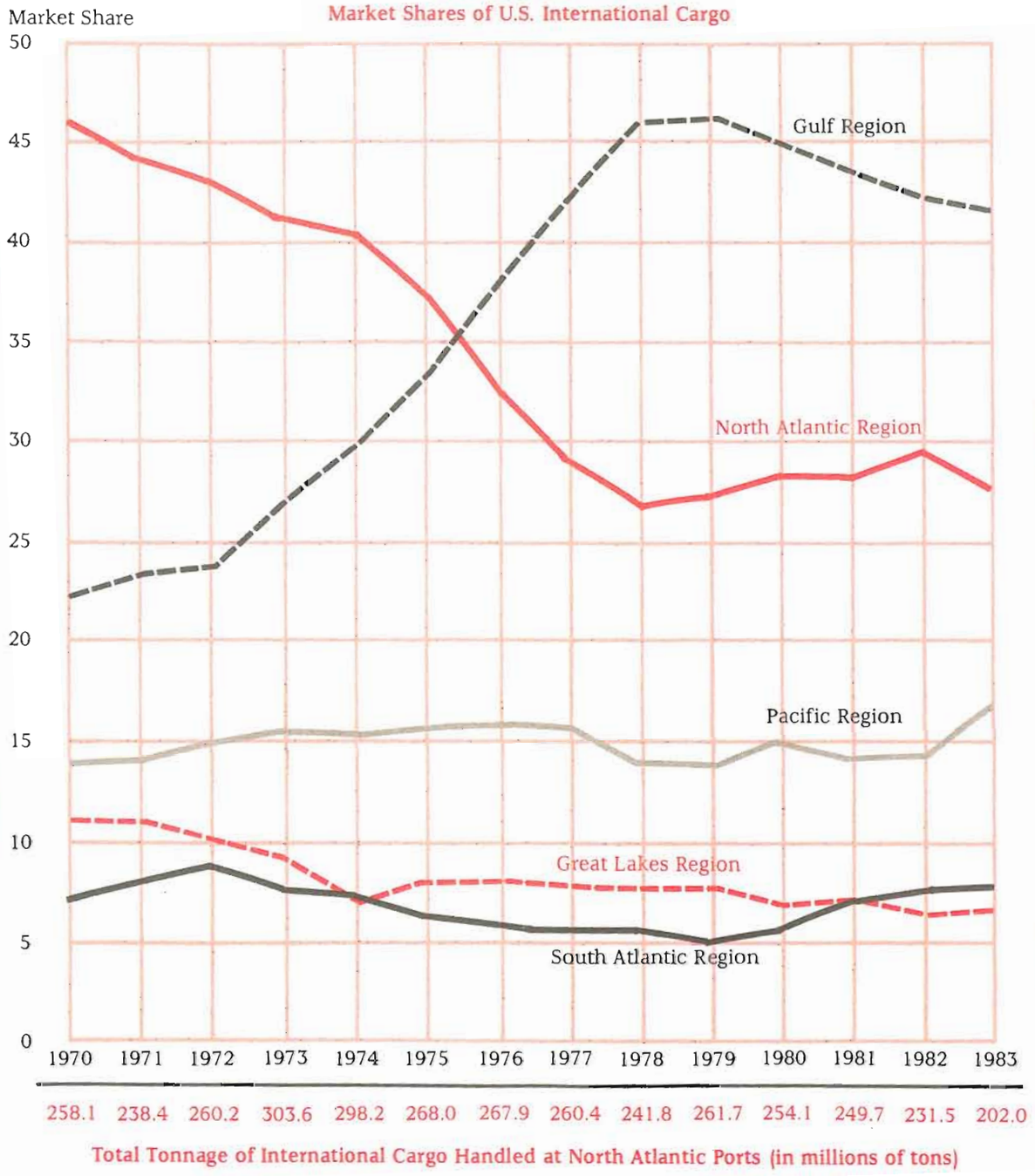
Easier Overland Transport. The Pacific ports are not only closer to the fastest growing U.S. trading partners, but reduced costs in inland transporta-

[1] In reporting import and export data, the Bureau of the Census divides the Pacific Coast range into South Pacific (California) and North Pacific (Washington and Oregon). Since these ports compete for much of the same cargo, however, we have followed the common practice of including them in one port range. In this article we have limited our discussion to foreign trade, which represents the bulk of trade through these U.S. ports and is the focus of competition.

[2] As defined by the Army Corps of Engineers, the Port of New York also includes Elizabeth and Newark, New Jersey; the Ports of Philadelphia include all of the ports of the Delaware River from Trenton to the sea; and Hampton Roads also includes the ports of Norfolk and Newport News.

[3] Tanker cargoes are omitted from this discussion because most of the extensive tanker trade between the U.S. and Europe or North Africa either originates in or is destined for ports on the Gulf Coast.

DECLINE OF INTERNATIONAL CARGOES AT NORTH ATLANTIC PORTS 1970-1983



SOURCE: Bureau of the Census, *U.S. Waterborne Exports and General Imports.*

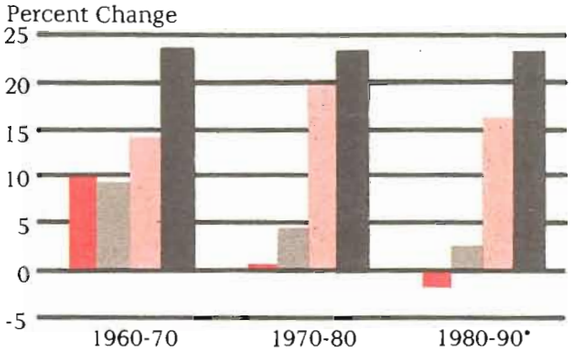
tion have also brought them closer to the rest of the country. The introduction of containers on rail cars and, more recently, of stacked containers on rail cars has reduced the cost of rail transportation. Moreover, recent deregulation has resulted in lower rates in the trucking industry and greater flexibility in the railroad industry.[4] These developments have encouraged the shipping of cargoes in the Far East trade overland to and from ports on the Pacific Coast rather than through Atlantic and Gulf Coast ports and the Panama Canal. There has been a significant increase in liner imports from the Far East and Southeast Asia destined for cities on the Atlantic or Gulf coasts which are unloaded on the West Coast and shipped by truck or rail across the continent. Liner cargoes using this so-called mini-landbridge rather than the all-water route through the Panama Canal more than doubled from 0.8 to 1.7 million tons between 1976 and 1983.[5] Meanwhile, liner imports from the Far East and Southeast Asia which were actually

[4]Prior to 1978 the Interstate Commerce Commission (ICC) held that it was illegal for railroads to negotiate contracts with *individual* shippers setting rates and terms of service. The ICC reversed its position in November, 1978, and since the passage of the Staggers Act in 1980 there have been few impediments to contracts between railroads and shippers. This increased flexibility has been the most important aspect of railroad deregulation to date. The number of contracts for individual shippers has increased greatly from an average of 50 per month in 1981 to 700 per month in 1983.

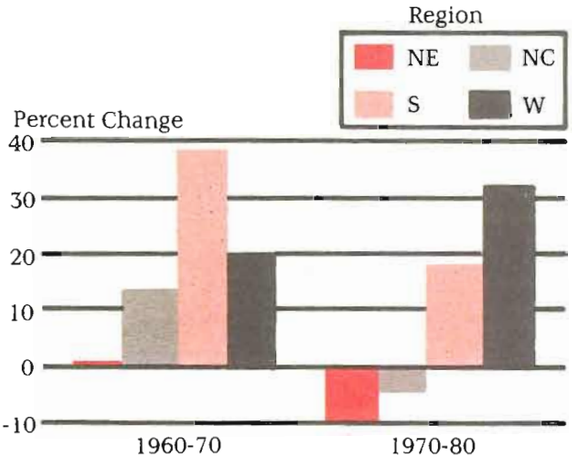
[5]In a landbridge operation, cargo is shipped in three phases from the port of origin to the final port of destination. The first phase is by water (say, from Kobe, Japan to Oakland, CA); the second phase is by land (from Oakland to New York); the third phase is by water again (from New York to Le Havre, France). A mini-landbridge operation would use only the first two phases of the full landbridge, from Kobe to Oakland and then overland to New York. The mini-landbridge cargo estimates cited in the text were made by the staff of the Port of Oakland, California and are reported in James J. O'Brien, "The West Coast Connection - Landbridge and the Deep Draft Port," paper presented at *International Conference on Ports of the Future,* Philadelphia, PA, June, 1984.

REGIONAL POPULATION AND EMPLOYMENT SHIFTS

Percentage Change in Population



Percentage Change in Manufacturing Employment



*projected change

NOTE: These population and employment statistics are for the four census regions as defined by the Bureau of the Census. The figures for the West exclude the states of Alaska and Hawaii because population and employment growth there have no effect on foreign trade through ports in the contiguous forty-eight states.

SOURCE: Bureau of Labor Statistics and Bureau of the Census

unloaded at Atlantic and Gulf Coast ports declined slightly from 4.4 million tons in 1976 to 4.1 million tons in 1983.

Less Trade Heightens Competition Among North Atlantic Ports. The decline in cargo tonnage passing through the North Atlantic ports is reflected in the underutilization of capital equipment and a general reduction in port-related employment. In a recent study, Booz-Allen and Hamilton estimated the capacity of several terminals at the four major North Atlantic ports. If we consider only those terminals from the study which can handle containerized cargoes, the three in New York were operating at only 17 percent of their combined capacity in 1980. The three in Philadelphia were operating at only 49 percent of their capacity. The two in Baltimore were operating at 64 percent of capacity, and the two in Hampton Roads at 70 percent.[6] A corollary to the low utilization rates at many port facilities has been the drop in port-related employment. The combined number of longshoremen hours worked at the four major North Atlantic ports declined by 46 percent between 1974 and 1983 from more than 38 million hours annually to less than 21 million. And longshoremen hours have declined by more than one-third at each of the ports.

Against this background, each of the major North Atlantic ports has been competing aggressively to increase its share of a market which has been shrinking. If we look at total tonnage of imports and exports, New York, Philadelphia, and Hampton Roads each handles about 30 percent of the cargo passing through the four major North Atlantic ports [see MARKET SHARES OF NORTH ATLANTIC PORTS, p. 20]. In terms of port income, however, all types of cargo are not equal. Bulk cargoes which are either pumped, dumped, or poured provide considerably less revenue than the other so-called general cargoes. For example, it has been estimated that in 1981 a ton of petroleum brought $2.80 in income to the port community in Philadelphia while automobiles brought $200.50 per ton.[7] The high market shares of total tonnage for Philadelphia and Hampton Roads are the result of bulk cargoes—large petroleum imports into Philadelphia and coal exports from Hampton Roads. If we consider only general (non-bulk) cargoes, New York continues to command a market share of more than 50 percent. The traditional rivals, Philadelphia and Baltimore, have been battling for several years for second place, while Hampton Roads has been slowly increasing its market share.

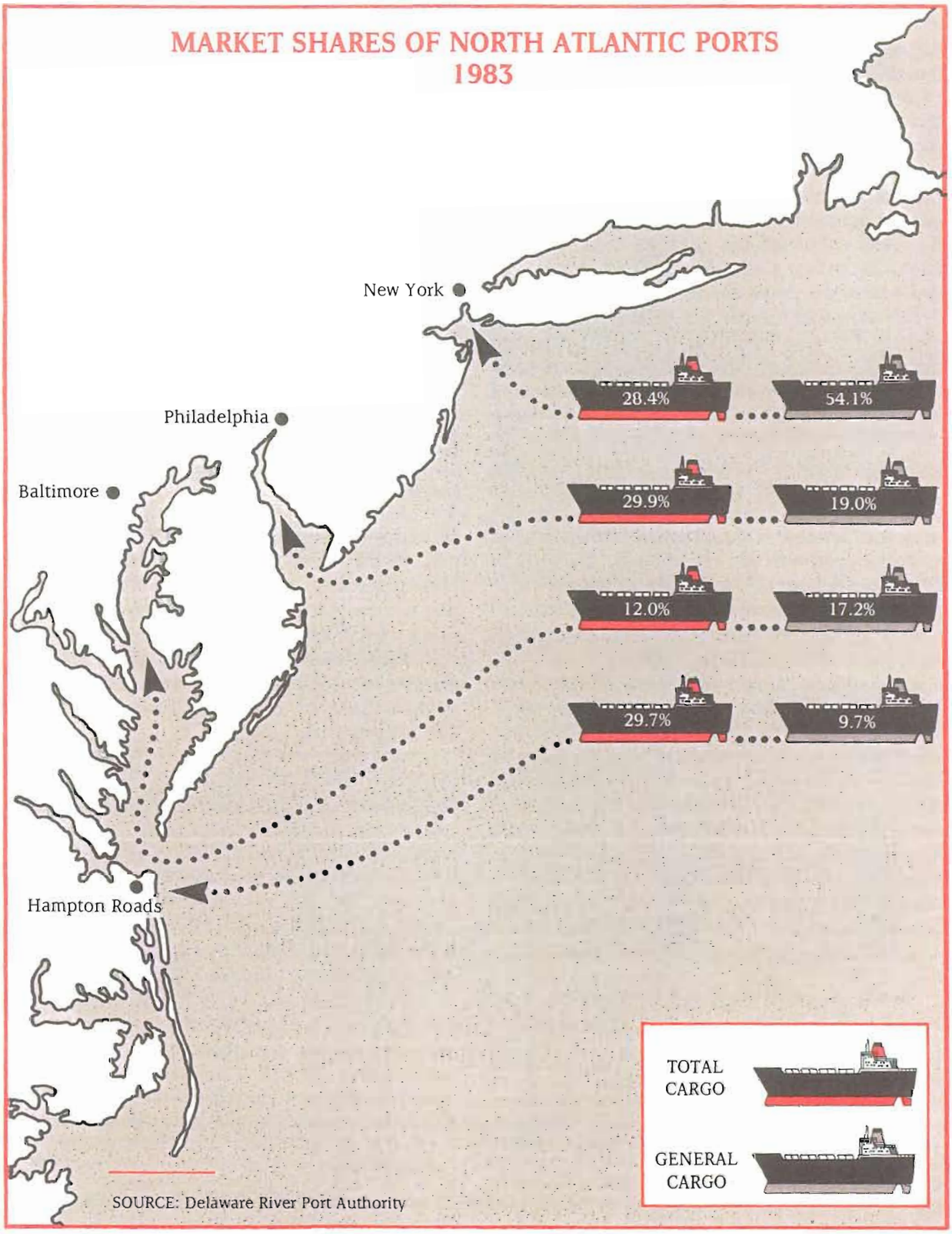
THE RELATIVE ADVANTAGES AND DISADVANTAGES AMONG THE PORTS

A port is the link between sea transport and land transport, and a successful port must enjoy relatively inexpensive access to both the open sea and inland points. Clearly, advances in shipping technology and inland transportation could alter the relative accessibility of the North Atlantic ports. Furthermore, changes in government regulation and proposed changes in federal funding could have significant effects on the relative costs of using the four major North Atlantic ports.

Access from the Sea. The early competition between Baltimore and Philadelphia for the Susquehanna Valley trade illustrated the relative importance of proximity to inland points over proximity to the sea in colonial times. Before good inland transportation was developed to the midwest, the 90 miles from the mouth of the Delaware Bay to Philadelphia and the 160 miles from the mouth of the Chesapeake to Baltimore meant that goods unloaded at these ports were that much closer to remote inland destinations. Today, these distances may simply represent extra time and costs for large ocean-going vessels. With daily capital and operating expenses for a large container ship running as high as $50,000 per day, it may not pay a shipper to make these time-

[6]See Booz-Allen and Hamilton Inc. *Comparison of Marine Terminal Leases in Philadelphia and Three Atlantic Coast Ports,* (Bethesda, Md: April, 1982). The percentage for the three terminals in N.Y. may be artificially low because of a high estimate of capacity by the operators of the Sea-Land terminal in Elizabeth, N.J. Excluding this terminal from the calculations brings the estimate for the other two New York terminals up to 24 percent of their combined capacity. These percentages should not be interpreted as capacity utilization figures for the ports in question, but they do give an idea of the excess capacity at some of the most modern facilities at the North Atlantic ports.

[7]See Booz-Allen and Hamilton Inc., *The Delaware River Regional Port Study,* (March, 1983).


MARKET SHARES OF NORTH ATLANTIC PORTS
1983
New York
Philadelphia
Baltimore
Hampton Roads
28.4%
54.1%
29.9%
19.0%
12.0%
17.2%
29.7%
9.7%
TOTAL CARGO
GENERAL CARGO
SOURCE: Delaware River Port Authority

consuming trips to unload (or load) only a small portion of a ship's cargo.

Financing Channel Maintenance. A potentially more serious concern than mere distance from the open sea for the ports of the North Atlantic is the maintenance of the deep draft channels into these ports. The federal government has traditionally maintained port channels in the United States free of any charge to the individual ports or shippers. Early in its first term, the Reagan Administration proposed user fees to cover the cost of this maintenance. These fees would have a large differential impact on the cost of shipping at the North Atlantic ports. It has been estimated that the per ton charge, based on projected 1990 traffic, would have to be 11 cents in Philadelphia, about 7 cents in Baltimore and Hampton Roads, and 6 cents in New York.[8] The ports of Philadelphia would labor under a significant cost disadvantage if a strict user fee were imposed. But thus far the North Atlantic ports have successfully opposed the user fee concept.

Would Deeper Channels Give An Advantage? At various times plans have been proposed for deepening the channels in New York (to 55 feet), Hampton Roads (to 55 feet), and Baltimore (to 50 feet). The Baltimore plan was the last major port-deepening project authorized by Congress (1970) but still has received no federal funding. None of these projects would have an effect on the port's ability to handle general cargo. The current channel depths of all the North Atlantic ports are sufficient to accommodate today's large container ships, about 50,000 dwt (dead weight tons). And it is not likely that the maximum size of container ships will increase beyond 60,000 dwt in the near future because the Panama Canal, one of the major container routes in the world, cannot accommodate ships larger than 60,000 dwt or requiring more than 40 feet of draft.

The situation with bulk carriers is more complex. Deepening a port's channel would increase its ability to accommodate larger tankers and colliers (coal carriers) which benefit from economies of scale. But would a deeper channel give any of the North Atlantic ports a competitive edge with respect to oil imports or coal exports? Philadelphia receives about 50 percent of the North Atlantic oil imports. The limitations of the channel are circumvented by "lightering" the supertankers in the deep water of the Lower Delaware Bay — by transferring some petroleum to barges — so that they can then make their way up the river. For the immediate future most of the oil imported to the North Atlantic will continue to come to Philadelphia because the refineries are already located there. In the long run, other ports with deeper channels may be more attractive than Philadelphia for refinery expansion. But Philadelphia's major competition for oil imports will come not from other North Atlantic ports but from Gulf Coast ports, which increased their tanker imports more than tenfold between 1970 and 1982.

Channel depths are a much more important factor in the competition for coal exports than for oil imports. Hampton Roads currently handles 45 to 50 percent of all U.S. coal exports. The ability of the port to accommodate colliers of 80,000 dwt with 45 feet draft and the efficient coal loading equipment at the port reduce the cost of transporting coal to Europe and Japan from Hampton Roads by as much as 20 percent compared to its two North Atlantic competitors, Baltimore and Philadelphia. Baltimore's plan to deepen its channel is clearly aimed at accommodating larger colliers (100,000 dwt.) and lowering the cost of exporting coal from that port. But the success of this plan will depend upon Hampton Roads' response to Baltimore's challenge. The channel at Hampton Roads could be deepened to 55 feet while Baltimore's maximum channel depth is limited to 50 feet by the Chesapeake Bridge-Tunnel. Baltimore is projected to increase its share of coal exports from the North Atlantic whether or not it deepens its channel.[9] A deeper channel would help, but if local port users must bear a large part of the cost of channel improvement, the advantages of a deeper port would be diminished. In any case, Hampton Roads, with greater coal

[8]Booz-Allen and Hamilton, *The Delaware River Regional Port Study.*

[9]For estimates of 1990 coal exports see U.S. Department of Energy, Energy Information Administration, "Port Deepening and User Fees: Impact on U.S. Coal Exports," (Washington: 1983).

loading capacity, will remain the leading exporter of U.S. coal in the foreseeable future.

Access From Land. Inland transportation costs are the flip side of access from the sea in determining the success of a port. In the past 200 years changes in inland transportation have had a greater effect on the relative fortunes of the North Atlantic ports than changes in shipping technology. There was a time when the hinterland, the area serviced by each port, was fairly clearly defined. With advances in inland transportation the well-defined hinterlands have shrunk and their boundaries have become blurred. A 1983 study found that the port of Philadelphia dominated as the point of entry or exit for cargo only in the area within 50 miles of the port.[10] The limitations of the traditional notion of distinct hinterlands are well illustrated by traffic in and out of the state of Delaware, which is sandwiched between the ports of Philadelphia and Baltimore. The same 1983 study estimated that 34 percent of the general cargo either originating in or destined for points in Delaware was shipped through the port of New York. Only 30 percent was shipped through Philadelphia and 25 percent through Baltimore.

With rail deregulation, the Midwest promises to be the major battleground for general cargo for the Ports of New York, Philadelphia, and Baltimore. Baltimore's location, closer to midwestern cities, has traditionally meant that transportation to that port was less expensive than to New York or Philadelphia. In 1977 Conrail's rail rates for containerized cargo from Chicago were 12 percent higher to New York than to Baltimore; they were 3 percent higher to Philadelphia than to Baltimore. Now the Conrail rates have been equalized from Chicago to all three ports, increasing the competition for midwest cargoes.[11]

A Trend Toward Load Centers. With the advent of large container ships and the decline in inland transportation costs, the trend is for cargoes to come to ships rather than for ships to come to the cargoes. Rather than call at all of the major ports in the North Atlantic, the operators of some regularly scheduled or liner services have begun to use only one or two ports as load centers. In 1984, U.S. Lines eliminated calls to Philadelphia and Boston and now stops only in Baltimore and New York. A number of small lines, for example, Delta and ABC, have concentrated their business in Philadelphia, in part because of its central location. In both cases, the load center concept was being implemented.

The introduction of more large container ships will accentuate the development toward load centers. Current evidence suggests that larger ships spend more time in port than smaller ones of the same design.[12] If a shipping line wishes to maintain the market advantage of quick delivery while enjoying the economies of scale of large ships, it must compensate for this longer time spent in port. The elimination of some ports from itineraries saves the extra time involved in entering the port, docking, and leaving. Elimination of ports of call can also simplify stowage plans and reduce requirements for restowage involved in multi-port itineraries.[13]

Ports in the North Atlantic cannot halt the development of load centers; they can only compete to be chosen as a load center. Several factors including labor costs and port charges will figure in the choice of load centers. An important consideration will be the ability of a port to match general cargo exports and imports. Recently, general cargo imports in the North Atlantic region have been outpacing exports by as much as two to one. In 1983, imports exceeded exports at each of the four major North Atlantic ports, with Philadelphia experiencing the greatest imbalance. [See PERCENTAGE OF GENERAL CARGO EXPORTS AND IMPORTS.] Major steamship lines will favor

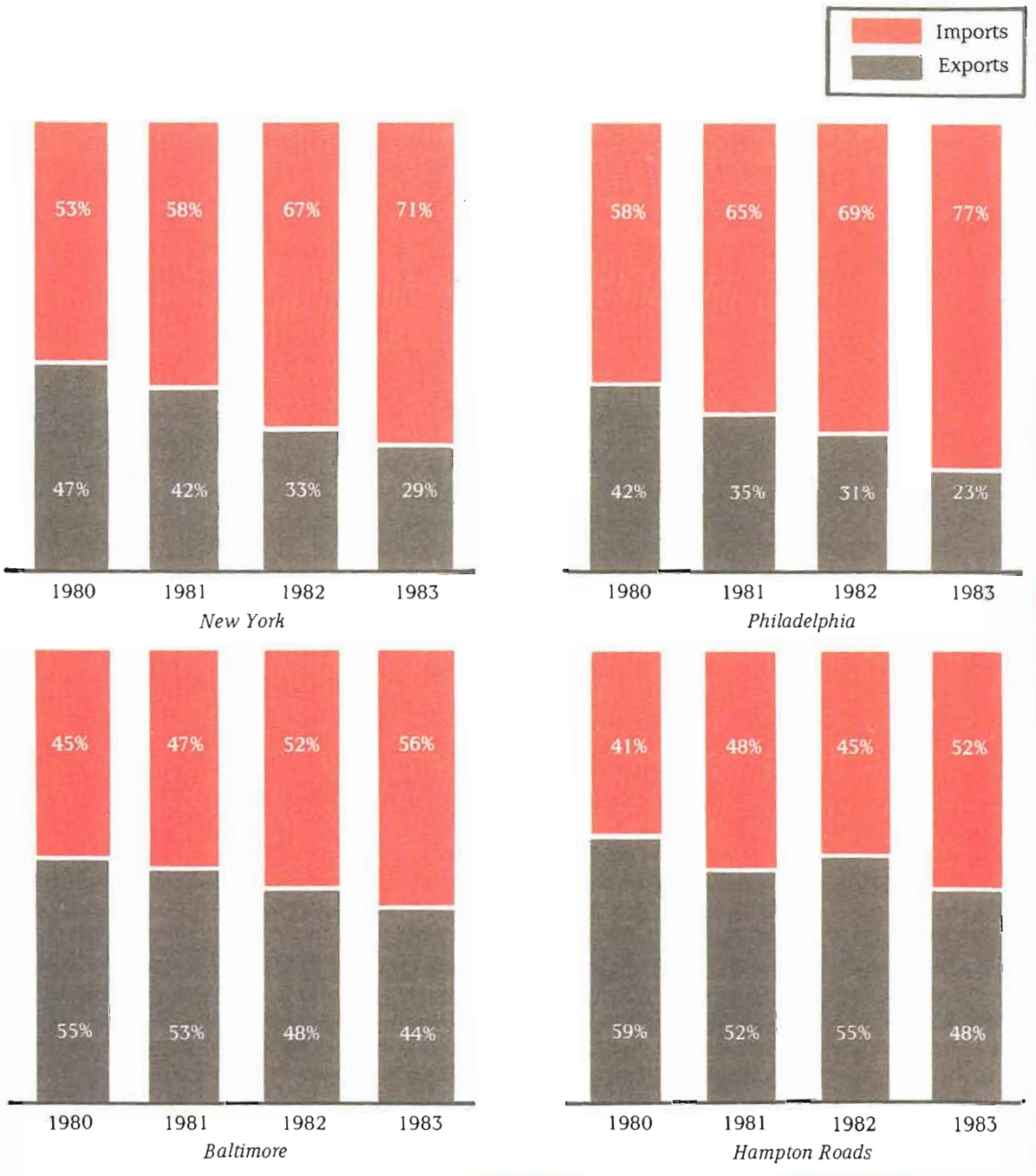
[10] See Booz-Allen and Hamilton, *The Delaware River Regional Port Study.*

[11] See Sharon P. Smith, "The Port of New York and New Jersey: Lifeline to the Region," Federal Reserve Bank of New York *Quarterly Review,* (Summer, 1978).

[12] See Jan Owen Jansson and Dan Shneerson, "Economies of Scale of General Cargo Ships," *Review of Economics and Statistics* 60 (1978), pp. 287-293, and Jan Owen Jansson and Dan Shneerson, "The Optimal Ship Size," *Journal of Transport Economics and Policy* 16(1982), pp. 217-238. For an opposing view, see Ross Robinson, "Size of Vessels and Turnaround Time," *Journal of Transport Economics and Policy* 12 (1978) pp. 161-178.

[13] See S. Gilman and G. F. Williams, "The Economics of Multi-port Itineraries for Large Container Ships," *Journal of Transport Economics and Policy* 10(1976), pp. 137-149.

PERCENTAGE OF GENERAL CARGO EXPORTS AND IMPORTS NORTH ATLANTIC PORTS, 1980-1983



those ports where their ships can both arrive and depart as fully loaded as possible.

WHAT CAN PORT AUTHORITIES DO?

Even though most of the publicly owned terminals at the North Atlantic ports are leased to private operators, planning and development remain the responsibility of public agencies. The structure of these agencies can be crucial to the successful development and marketing of these ports. Coordination of planning and marketing presents little problem for the ports of Baltimore and Hampton Roads because each is included within a single state and governed by a single state agency. The New York port complex is located in two states, and the Delaware River (Philadelphia) port facilities are located in three states.

In the New York area the traditional rivalry between New York and New Jersey was ended in 1921 with the signing of the Port Compact. According to the compact, the Port Authority of New York and New Jersey is responsible for developing and operating the seaports within the defined port district.

Resolution of the tri-state jurisdictional division at the ports of Philadelphia has not been achieved so easily or successfully. Two bi-state agencies exist in the area of the Philadelphia ports with potential responsibilities for port development. However, the authorities have been hindered from development activities by compact provisions which require legislative approval in both states in order to undertake port projects. The Delaware River Port Authority, which was established in 1951, has jurisdiction in New Jersey and Pennsylvania but has confined its port activities to the promotion of trade in the ports. The Delaware River and Bay Authority, which was established in 1961, has jurisdiction in New Jersey and Delaware but has confined its operation to a bridge and ferry service. Ideally, a tri-state agency with broader powers would better serve the development of the Delaware River ports. However, political realities make that unlikely.[14] For the foreseeable future the ports of Philadelphia will labor under the disadvantage of fragmented governance, with several municipal and state agencies responsible for major planning.

The greatest advantage of efficient governance at a port is planned and timely development. Given the low utilization rate of North Atlantic port facilities, there is no need for any general expansion at the present time. In the near term, capital improvements will focus on facilities needed to handle specialized cargoes and the introduction of new transportation and handling technologies.

Specialization. Trade statistics reveal considerable specialization among general cargoes at the North Atlantic ports. The port of Philadelphia, for example, claims 50 percent of the meat and meat products imported through the four major North Atlantic ports. These products require special handling and refrigerated storage which are available in Philadelphia. The ports of New York and Baltimore handle more than 75 percent of the automobile imports through the four major North Atlantic ports. In order to capture some of this lucrative trade, Philadelphia is planning a new automobile import-export facility. Competition for these types of specialized cargoes in the North Atlantic will complement the competition to become general load centers. But none of the major North Atlantic ports will attempt to thrive on specialized cargoes alone; each will vie for cargoes shipped on regular liner service.

Technological Innovation. The second type of capital improvements which will figure in the competition among the North Atlantic ports will be those necessary for the introduction of new technologies. New York's experience with container handling facilities demonstrates the importance of the timely introduction of new technologies. Container service was initiated by Sea-Land in New York in 1955. And in 1962 the Port Authority of New York and New Jersey began

[14] A civic group known as the Committee of Seventy reported in 1980 that "Among the members of the (Philadelphia) port community interviewed, there was general agreement that, *in the best of all possible worlds,* unhampered by political constraints and economic factionalism, a tri-state authority (Delaware, New Jersey, and Pennsylvania) could most effectively manage the maritime resources of the Delaware Valley. Clearly, then, the dream of a regional solution to port governance has not died. But the vast majority of those interviewed agreed that this dream is utterly unattainable, either now or in the near future." See Committee of Seventy, *Ports Governance Study,* (December, 1980).

constructing the first specially designed container port. Because of its early entry into the field, New York captured a large portion of containerized cargo and still accounted for almost 20 percent of the containerized freight in the U.S. in 1982. Baltimore and Norfolk were early competitors for containerized cargoes, and in 1982 each was handling more than twice as much container freight as the ports of Philadelphia.

The latest innovation in the container revolution has been the introduction of double-stacked containers on rail cars. This development has proceeded faster in the west than in the east where tunnel and bridge clearances present obstacles for these higher cargoes. At present, the double-stacked containers cannot reach any of the North Atlantic ports from points in the midwest. They can be brought as far as South Kearny, New Jersey, more than five miles from Port Elizabeth in the New York port complex. And Conrail is studying the possibility of increasing clearances in western Pennsylvania which would allow stacked containers to reach the city of Philadelphia. But two low-clearance tunnels would still block such cargoes from reaching the port in Philadelphia. Clearly, if double-stacked containers are the next cost-cutting innovation in inland transportation, that port which accommodates them most easily will have some advantage in becoming the east coast connecting port in a landbridge for cargoes to and from Japan and Europe. That port would also obtain an initial cost advantage in inland transportation for cargoes originating in or destined for points in the midwest. Most of the capital improvements necessary to introduce this technology in the northeast involve access to the ports, and this will require close cooperation between the ports and railroads.[15]

While the double-stacked containers represent the most promising new technology in handling general cargo, advances in handling bulk commodities will focus on faster and continuous loading and unloading techniques. To take advantage of these new techniques, capital improvements will be demanded at the ports themselves.

Labor Costs. Currently cost savings from increased productivity through the introduction of new technologies are limited by labor contract provisions at the North Atlantic ports. The introduction of containerization greatly reduced the demand for longshoremen. And in order to ease the burden on their members from this sudden sharp reduction in demand for their services, the International Longshoremen's Association negotiated a guaranteed annual income (GAI). The provisions of the GAI differ from port to port in the North Atlantic. In New York the guaranteed income is funded by a per ton charge on cargoes, and in the other North Atlantic ports it is funded by a charge per hour worked. The cost per ton to support the GAI in New York exceeds the cost at the other North Atlantic ports, and this difference is the major contributor to higher labor costs in New York.[16] The containment of labor costs will rank with the introduction of new technologies as a major weapon in the battle for cargo in the North Atlantic.

SURVEYING THE HORIZON

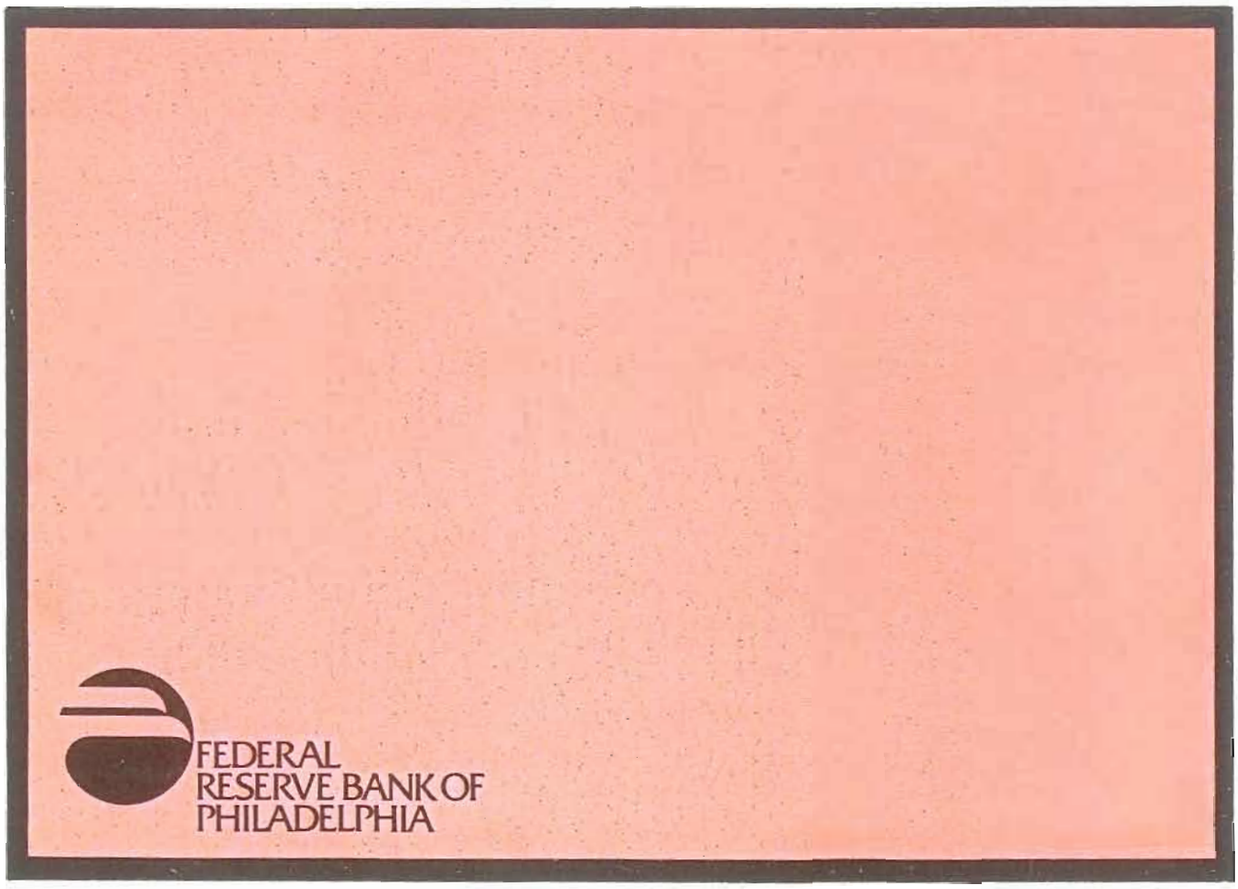
The share of U.S. foreign trade passing through the North Atlantic ports has been declining as U.S. population and industry have moved to the south and the west and as U.S. trade has shifted from Europe to the Far East. The result has been underutilized capacity and less port-related employment at the North Atlantic ports. At the same time, the traditional boundaries of port hinterlands have become blurred with recent advances in inland transportation. And steamship lines are moving toward the establishment of load centers rather than maintaining several ports of call. All of these developments have only served to intensify the age-old competition among the major North Atlantic ports.

In this new environment, the battle for market share in the northeast is likely to be waged on three fronts. Each port will attempt to attract specialized cargoes by introducing or expanding the facilities needed to handle them. Each port will pursue

[15] A precedent was set recently when the Philadelphia Port Corporation aided Conrail in lowering tracks to allow for larger cargoes to reach the port of Philadelphia by train.

[16] See Booz-Allen and Hamilton, *The Delaware River Regional Port Study*, and Sharon P. Smith, "The Port of New York and New Jersey: Lifeline to the Region," Federal Reserve Bank of New York, *Quarterly Review*, (Summer 1978).

those capital improvements which promise to reduce inland transportation costs to the port or handling time at the port. And each port will use the deteriorating position of the North Atlantic port range in negotiations to contain labor costs. How well any individual port will fare in this competition will depend largely on the ability of port authorities to coordinate and implement these marketing and development efforts.



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