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MARKETING AND SURVIVAL STRATEGIES OF GULF SEAPORTS: A PRELIMINARY ANALYSIS

E. Cameron Williams
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Introduction

The seaports of the Gulf Coast have historically represented a valuable economic resource for the region. A considerable body of research has demonstrated the role of deepwater seaports in generating economic activity, both directly, in the seaport city itself, and indirectly, in the hinterland served by the port. In cities such as New Orleans, Houston, and Mobile, the port and its related businesses have provided a significant proportion of local business and personal income.

Recent trends in ocean transportation are changing traditional ways of doing business for seaports. These trends, which are interrelated, are: deregulation of transportation; intermodalism; the increasing cost of operating modern vessels; and the development of the "land bridge" and "load center" concepts. These developments have implications which are largely negative for Gulf seaports.

This paper summarizes these trends and their context, analyzes their implications for Gulf seaports, reports research which identifies alternative strategies port administrators are employing to cope with them, and suggests areas for further research.

The Economic Impact of Seaports

It has long been noted that the presence of a deepwater terminal in a community has a beneficial economic impact through the creation of employment and entrepreneurial opportunities. Since marine cargo operations were until quite recently labor intensive, the bulk of this impact was realized from waterfront employment of longshoremen. Other sources included the provision of a wide variety of goods and services. Examples include: pilotage; stevedoring services; compass adjustment; deck, engine, and cabin stores; fuel and water; and repairs.

To focus on longshore employment, it should be realized that until late in the last century, all cargo was break-bulk cargo; that is, packaged in crates, bales, or barrels, and loaded and discharged using methods which were labor-intensive. Thus, a seaport was indifferent, from an economic viewpoint, to the types of cargo it attracted, since nearly all cargoes were handled similarly. This began to change around the turn of the century with the invention of the ocean-going tanker, followed by the development of bulk-handling methods for dry cargoes such as grain and coal. Advances in intermodal-

ism, beginning in the 1950's, initiated a more drastic decline in break-bulk cargoes as general cargo of all sorts began to be containerized.

By 1988, 82 percent of liner cargo in the ocean-borne foreign trade of the United States was containerized, an increase of 7.5 percent from the previous year (MARAD 1989a). This continues an apparently-inexorable trend toward the containerization of virtually all liner cargoes. Figure I shows containerization's actual share of all liner cargoes from 1970 through 1988. It should be noted that containerized cargo not only has increased every year in relative terms, it has increased in absolute terms even in years of stagnation or decline in liner cargo overall.

Many past studies of the economic impact of a seaport have focused on aggregate tonnage of cargo movements through a port, regardless of form. As suggested above, this should have made little difference until the advent of specialized bulk handling methods and, especially, the recent explosive growth in containerization. Now, however, it is important to separate break-bulk, intermodal, and bulk cargoes in any such analysis.

A recent study (Yochum and Agarwal 1984) did this in examining the economic impact of Virginia's seaports on the state's economy. The authors found that, in terms of employment:

- break-bulk cargo generated \$105.33 of payroll per ton and one job for every 175 tons of cargo;
- containerized cargo created \$77.44 of payroll per ton and one job for every 239 tons of cargo;
- coal created a job for every 2,038 tons mined in Virginia and shipped through Virginia ports along with \$7.66 of payroll for every ton of coal;
- grain was responsible for generating one job for every 2,071 tons of cargo as well as \$9.79 of payroll per ton of grain moving through the port.

In addition, other revenue generated at the port for each ton amounted to \$18.84 for bulk cargo, \$71.67 for container cargo, and \$9.73 for break-bulk cargo. This revenue was earned by local transportation, vessel, terminal, and government services supporting port operations. These data are summarized in Table I.

While these data are for one particular port, it is reasonable to assume that at least the orders of magnitude of the differences in revenue by cargo type will be roughly constant across all U.S. ports, including Gulf ports.

It will be noted that break-bulk cargo generates by far the largest revenue. There are two reasons for this. First, break-bulk vessels load and discharge smaller amounts of cargo relative to port services received than either container or bulk vessels. Second, breakbulk cargo is by far the most labor-intensive of the three types, generating many more dollars per ton in long-shore payroll than the other two.

In summary, breakbulk cargo has the greatest economic impact on a port community, followed by container cargo; bulk cargoes have the smallest positive economic impact. Thus, the trends in Gulf ports — the relative shrinkage of both breakbulk and containerized cargoes, with only bulk cargoes

FIGURE I

CONTAINER SHARE OF LINER CARGO

Source: US Govt Data

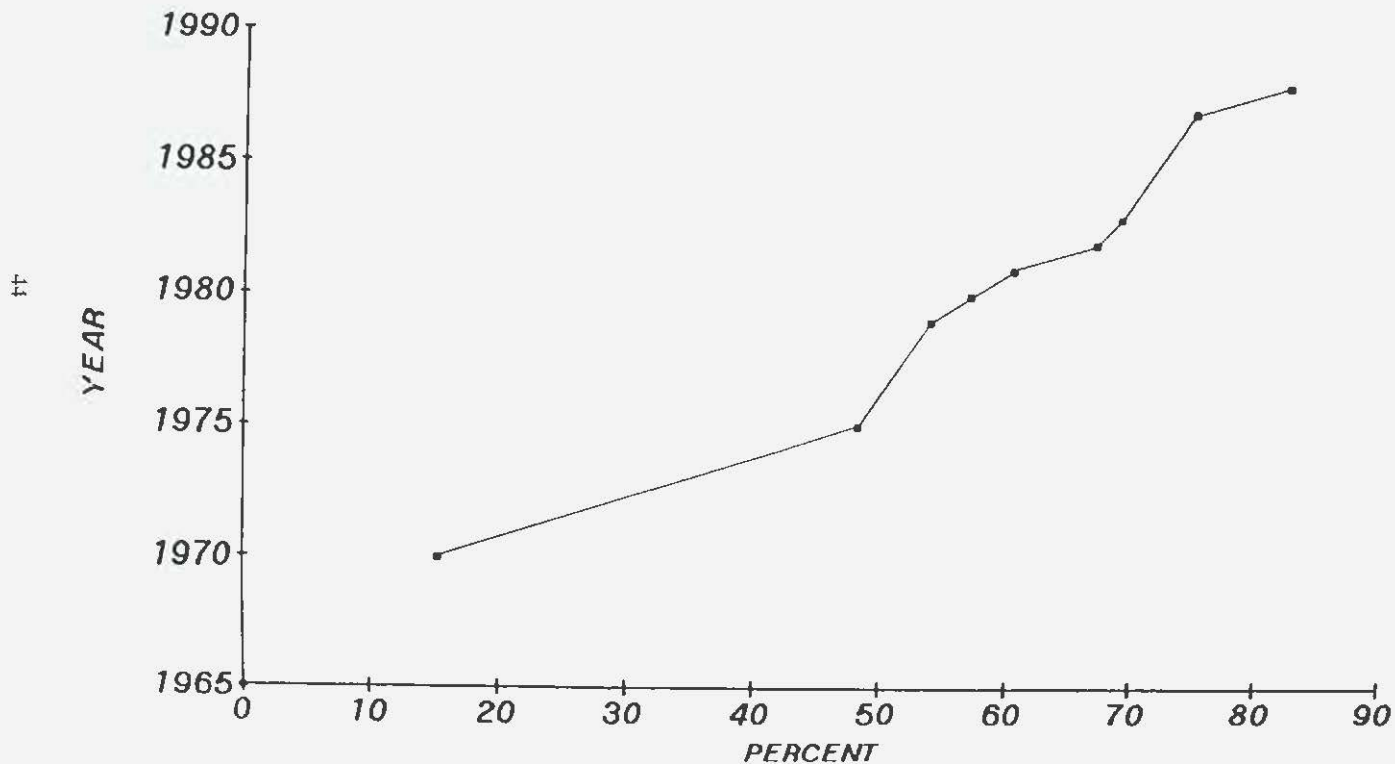


TABLE I

PORT REVENUES GENERATED BY CARGO TYPE

CARGO TYPE	PAYROLL \$/TON	OTHER \$/TON	TOTAL \$/TON
Breakbulk	105.33	97.73	203.06
Containers	77.44	71.67	149.11
Coal	7.66	18.84	26.50
Grain	9.79	18.84	28.63

SOURCE: Yochum, Gilbert R. and Vinod B. Agarwal, *The Economic Impact of Virginia's Ports on the Commonwealth, 1984*
 Norfolk: Old Dominion University, Maritime Trade and Transport, 1984.

having a positive growth outlook — are having and will continue to have significant negative effects on maritime-related business and employment in these cities. Each of these trends is briefly described below.

Intermodalism

Generally speaking, any transfer of goods between two modes of transportation, however accomplished, is an intermodal transfer (Mahoney 1985). However, in common usage, the term usually means the development of systems for rationalizing and facilitating intermodal transfers. Of these systems, the one which has had the most profound effect on global logistics is containerization.

Briefly, containerization involves the use of standard-sized steel containers which can be quickly transferred between rail, highway, and ocean carriers, using special container-handling equipment and vehicles. As an illustration of the productivity increases brought about by containerization, a single crane operator, assisted by a handful of spotters and yard drivers, can load or discharge as much cargo in containers in 15 minutes as a gang of 20 or more longshoremen, handling breakbulk cargo, can accomplish in an entire working day.

This additional productivity comes at the cost of increased capital investment; however, full enjoyment of the benefits of containerization requires special terminals, container handling equipment, and vessels. Nevertheless, liner steamship companies, reacting to shipper preference for the advantages in speed, convenience, and reduced damage and pilferage containerization enjoys over break-bulk, have invested massively in containerization over the past twenty years. Beginning with high-unit value, high-value-added cargoes and working downward, virtually every kind of cargo which moves in liner service has been containerized.

At the port level, traditional waterfronts do not readily lend themselves to the requirements of container operations because of the land required; a rule of thumb is that a minimum of seven acres of paved container marshalling area is required for each container-vessel berth. This has promoted the growth of container terminals in areas remote from traditional waterfronts, and has hampered the development of container operations in the major U.S. gulf ports of Houston, New Orleans, and Mobile. In addition, at least one, and ideally two, container cranes are needed per berth, at a cost of 5 to 10 million dollars each. Also costly is the specialized container-handling equipment, such as the straddle-trucks which can stack containers five-high, which is essential for maximum utilization of the facility.

Even when ports in the Gulf have been willing to make this investment, other factors, such as the cost of vessel operations and the rise of mini-land-bridge services, have made it difficult for them to attract container service.

Deregulation and Landbridge Service

The deregulation of transportation in the United States, culminating with the Shipping Act of 1984, has had profound effects on transportation in general, and port development in particular. The most important development, from the point of view of Gulf ports, has been the greater freedom of steamship companies to issue ocean bills of lading from any point, including inland points, and to use other modes of transportation. This has led to the development of the "mini-landbridge." (This term is an offshoot of the concept of the "landbridge" — for example, transporting cargo originating in Japan and destined for Europe by ship to the West Coast of the U.S., by rail to an East Coast port, and by ship again the balance of the voyage, thus avoiding the Panama Canal transit and saving time and distance).

Mini-landbridge operations allow a steamship company to issue an ocean bill of lading from a port at which its ships do not actually call, and rail or road the cargo to another port for loading on one of the company's ships (the reverse takes place for inbound cargo). Incentives for steamship companies to do this arise from lower road and rail freight rates, due to deregulation, and higher vessel operating costs which encourage minimizing the number of port calls.

Mini-landbridge service has deprived Gulf ports of container service between both Europe and the Far East, representing the bulk of U.S. foreign trade. As an example, a large U.S. flag container operator offered service to all major Gulf ports — but its vessels never entered the Gulf. Instead, this cargo was railed to Savannah. The Port of Savannah, in trade advertisements, has billed itself (somewhat tongue-in-cheek) as the "fastest-growing port in the Gulf."

The impact on Gulf ports can be seen from recent volume statistics. Over the three-year period 1986-1989, inclusive, total U.S. waterborne foreign commerce grew by 17 percent, and by 22 percent for the Gulf region. However,

while the liner segment of that trade grew by about 11 percent for the U.S., it grew by less than 1.7 percent for the Gulf region. Between 1987 and 1988, containerized liner cargoes handled by Gulf region seaports **declined** by 12 percent. While the Gulf ports' share of total U.S. waterborne foreign commerce has remained constant at about 40 percent from 1984 through 1988, the region's share of liner cargoes has declined from 18 percent to 14 percent over the same period (American Association of Port Authorities 1989).

Such a decline can be fully explained only by the growth in land-bridged cargo bound for destinations in what was once the traditional hinterlands of Gulf seaports.

The innovation of the "double-stack" train (a special railcar on which ocean containers may be stacked two-high) provided the productivity boost which made mini-landbridge service take off. The first such train operated early in 1984. By 1989, one steamship company alone was operating more than 600 of its own special railcars, with 38 departures per week from major west coast ports to Houston, New Orleans, Memphis, and Atlanta, as well as major midwestern and northeastern cities. These are unit trains, each hauling as many as 280 full-sized ocean containers. (American President Lines 1988). At last count, more than a half-dozen steamship companies, both American and foreign, were offering similar service from the west coast, serving the Far East — U.S. trades. Several other companies offer similar service via East coast ports (including Savannah) in the Europe-U.S. trades.

Ports, such as Long Beach (California) and Savannah, service high hinterlands through the use of mini-landbridge services and are known as "load-center ports"; and the trend among container operators toward calling at fewer and fewer ports is called "load-centering."

Cost of Vessel Operations

Along with containerization of general cargo has come a trend toward larger, faster, and more expensive vessels. This trend is by no means confined to container operations; in breakbulk cargo, there has been a trend away from conventional geared (self-unloading) vessels to roll on/roll off ships which are larger and more expensive than those they replaced.

Daily operating costs, plus the variable costs associated with a port call (pilotage, fees, etc.), are compared by the ship operator to the marginal revenue likely to be derived from the port call in order to determine the economic feasibility of calling at any given port. Operating costs have risen drastically. In 1989, the average daily operating cost of 25,000 dwt containership was \$100,189, as compared to \$26,655 per day for a general cargo ship of about 15,500 dwt (average size for respective vessel type (MARAD 1989b)). The amount of revenue, and thus cargo, needed to justify a port call has risen accordingly. Twenty years ago, one of the authors observed that the scheduling of ports for calls by conventional breakbulk vessels was induced in practice by as little as ten tons of cargo. By contrast, a recent study surveyed steamship companies to ascertain the volume of cargo necessary to

induce calls at a particular Gulf port; the responses ranged from several hundred to a thousand tons, and from \$40,000 to \$150,000 in revenue, per call (PRC Harris 1983).

Therefore, the economics of modern container operations can result in a decision not to call at any Gulf port, but to serve the region instead by mini-landbridge, as in the example already cited. Consider a hypothetical steamship company in the trans-atlantic trade, operating 18-knot container-ships with a total operational cost-per-day of \$100,000. Calling at Gulf ports as opposed to land-bridging cargo to Savannah adds nearly 1,000 nautical miles, or about two and one-quarter steaming days of more than \$250,000 in operating costs for a call at Mobile (the easternmost major Gulf lines — cargo port) alone, plus port costs. A similar calculation for transpacific service, comparing landbridge service vs. the all-water route through the Panama Canal to Gulf ports, would show even more dramatic cost differences.

Coping Strategies of Gulf Ports

Port managers and local authorities in the Gulf are, of course, cognizant of these trends. Depending upon the circumstances of each port, a variety of coping strategies appear to have evolved, as identified by the authors during the course of recent exploratory research. The research methodology involved in-depth interviews with key managers for port authorities in seaports of the South Atlantic and Gulf regions. Responses were obtained from senior management representatives of every port with the capability of handling deep draft vessels from Hampton Roads, Virginia, to Brownsville, Texas, inclusive. Striking differences in marketing strategies and market outlooks were noted between South Atlantic and Gulf ports, for many of the reasons cited above. South Atlantic ports anticipated overall growth in their range, and planned marketing strategies intended to maintain or increase their market shares; their outlook was generally optimistic.

Gulf port managers, on the other hand, were pessimistic, and focused on survival or "zero-sum-game" strategies. While the marketing/survival strategy of each Gulf port was unique in detail, some common factors emerged. The authors were thus able to identify several generic "coping" strategies evolving in the Gulf range of ports. Some ports concentrate on one of these strategies, others pursue two or more simultaneously. These strategies are briefly outlined below (confidentiality considerations preclude going into greater detail).

"Zero-Sum Game" Strategies with Regard to Container Traffic

Gulf ports which have invested heaviest in containerization have developed marketing strategies which focus on competing more effectively or aggressively with neighboring ports, thus capturing a larger share, at competitors' expense, of a market acknowledged to be static or shrinking. Realizing that there is no such thing as a captive hinterland, these ports position themselves as the optimal call for a steamship company pursuing a strategy of offering

container service into the Gulf but minimizing port calls, for the financial reasons already cited. Houston and New Orleans both aggressively promote their container terminals. This strategy is by no means confined to the larger ports, however. A very much smaller port — Gulfport, Mississippi — positioned itself as an alternate single call to separate calls at both New Orleans and Mobile, with some success. Of the major Gulf ports, only Mobile seems to have focused its primary marketing effort on other than the container market.

“Market Nicher” Strategies

These are strategies which focus on becoming technical and marketing specialists in certain specialized kinds of cargo. The small ports of Pensacola and Corpus Christi have both aggressively sought to increase traffic in bagged agricultural products, principally foreign-aid cargoes, with some success. This class of cargo has the advantage of being both profitable and labor-intensive, and thus having a larger-than-average positive economic impact on a port. Success factors for such a strategy include favorable access to inland transportation modes, and efficiency and productivity in cargo handling.

Mobile, a larger port, includes a “nicher” strategy in its overall marketing plan. A recent marketing initiative by the Alabama State Docks (ASD) to attract more break-bulk specialty cargoes such as steel pipe and forest products has met with some success. As a result, ASD has begun developing a new break-bulk terminal facility especially designed for these two cargo categories.

One obvious drawback of this strategy is the vulnerability of the port to environmental changes affecting its narrow market niche. For example, changes in foreign aid policy could greatly impact the availability of bagged agricultural good for export. Changes in supply and demand, or in currency values, could affect the demand for steel pipe or forest products, and thus their availability as cargoes.

Another danger lies in the trend illustrated in Figure 1; only a break-bulk cargo such as a large steel pipe, which cannot fit into an ocean container, seems safe from this tendency. It seems clear that eventually, as the productivity of container operations improves and the industry grows ever more competitive, every cargo which moves in liner trade and can be made to fit into an ISO container will be containerized. Even oversized cargo may not be safe for break-bulk operations; the pattern of developing special containers for targeted cargoes (e.g., refrigerated, tank, “high-cube” containers) offers an ominous parallel.

The Bulk Cargo Strategy

This is the strategy Mobile has pursued until recently, spurred in part by the development of the Tennessee-Tombigbee Waterway, resulting in more than 80 percent of the revenue of the Alabama State Docks coming from bulk cargoes. However, the port is somewhat diversified, retaining bimonthly

container service, as well as some breakbulk liner service. Also, as noted above, it also pursues a "niche" strategy with respect to steel pipe and forest products exports. A drawback of the bulk strategy, as already discussed, is that bulk cargoes have the smallest economic impact on the port community, resulting in the paradox of record tonnages for the Alabama State Docks existing side by side with a deeply depressed Mobile maritime industry.

Devoting Port Property to Alternative Uses

Many smaller, and some larger, ports are seriously considering abandoning the effort to compete in favor of devoting waterfront land and facilities to other, totally unrelated uses. As the supply of undeveloped waterfront property near urban areas available for recreational, residential, and other non-industrial uses has declined, the value of industrial waterfront with redevelopment possibilities has climbed. Ports on all three coasts have seen industrial waterfront redeveloped into upscale condos, shopping centers, and recreation areas. Baltimore's Inner Harbor, Norfolk's Waterside, New Orleans' Riverwalk, and other similar projects have presented appealing alternatives to managers of unprofitable marine terminal facilities. Therefore, the possibility exists that some smaller cities, with struggling port operations, will simply cease to be seaports. Recently, the Pensacola (Florida) City Council narrowly defeated a motion to shut down the port (a city department) and develop the city's waterfront for recreational and other uses. As the value of waterfront property for non-maritime purposes increases and port revenue decreases, this type of development will become an increasingly attractive option for many smaller ports.

None of these strategies is optimum in terms of enhancing or replacing the income derived from ocean terminal operations in seaport communities, but port planners are handicapped by both a lack of adequate information about their competitive environment, and a lack of published guidance in the still-new area of strategic marketing planning for seaports.

Research Needed

Implicit in the coping strategies enumerated above is the assumption that the present adverse trends are permanent, irreversible, and beyond the capability of individual ports to remedy. This assumption is by no means proven, and research is needed to provide more information on which ports can base sound policy and strategy decisions.

One area may be an examination of the extent to which the adverse trends identified are fundamental and long-lasting, as opposed to the effects that temporary factors such as the strong dollar, imbalances in U.S. trade with the Far East and Europe, and the depression in the U.S.-South American trade may be having.

Another area for investigation is the possibility that innovative strategies for Gulf ports can mitigate the negative effects of, or even reverse, one or more of the adverse trends identified. For example, the North Carolina State

Ports authority has enjoyed (until recent reverses) some success in competing with Hampton Roads and Charleston due to its Charlotte Intermodal Terminal, which, in effect, moved the port of Wilmington inland to a more favorable conjunction with inland modes of transportation. Using a similar strategy to compete with the Port of Baltimore, the Virginia Ports Authority just established an inland intermodal terminal at Front Royal, Virginia. This terminal has a direct rail link to Norfolk for regularly-scheduled unit container trains (as did Charlotte with Wilmington). Although it is too early to gauge the success of Virginia's inland terminal, early indications are favorable.

Is this innovation transferable to one or more Gulf ports? Likely candidates would seem to include Birmingham (for the port of Mobile) and Dallas-Fort Worth (for the ports of Houston and/or Galveston). Research is needed to determine the factors governing the utility of such facilities in allowing ports to compete successfully.

Finally, is it feasible for a Gulf port to become a terminus for a new, as yet undeveloped land bridge, such as one between the Far East and ports in the Caribbean or the east coast of South America? Or western Canada and the east coast of South America? What strategies might a Gulf port use in promoting such a land bridge to shippers, steamship lines, and railroads? These and other possibilities require investigation by researchers in the areas of marketing, economics, transportation, and international business.

Summary and Conclusions

The rise in load-center and mini-landbridge operations in ocean liner service are the result of several interrelated trends in ocean shipping, and has had, and will continue to have, negative impacts on U.S. seaports in the Gulf of Mexico. Coping strategies have evolved through the efforts of individual ports, but are believed to be suboptimal due to a lack of information on which to base sound strategic planning. Research is badly needed in this area.

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