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LINER SHIPPING AND THE U.S. INTERNATIONAL TRADES

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INTRODUCTION

Over the past few years liner shipping has undergone a number of changes which have been particularly important in the U.S. international trades. These changes have affected shipping lines, shippers, consignees, and intermediaries, who have had to modify the way in which they operate in order to be successful. This article will discuss some of the more important changes that have taken place, the impact that they have had on the industry, and what this means for shipping lines and their customers.¹

The international liner industry serving the U.S. consists of two types of shipping lines - conference lines and independents, with both regulated economically by the Federal Maritime Commission (FMC). Conference lines belong to voluntary organizations, whose members jointly agree on the rates to be charged and the services to be provided by member lines, and may include the determination of sailing schedules and ports of call.² A number of these Conferences are found in the U.S. trades and are given anti-trust immunity to make these joint decisions regarding rates and service. Conferences in the U.S. trades are required to be "open," which means that any line wishing to join cannot be arbitrarily denied membership. Independent lines operate outside the conference system making management decisions on an individual basis and frequently competing against the conference lines.

Among the recent and continuing changes that have affected the international liner industry in the U.S. trades are:

- * implementation of the Shipping Act of 1984³;
- * passage of the Omnibus Trade and Competitiveness Act of 1988⁴;
- * increased development and sophistication of intermodal services;
- * evolution of round-the-world services;
- * overcapacity on many U.S. international trade routes.

These changes represent both problems and opportunities for both shipping lines and their customers. Those who adapt to these changes will be successful. The following sections highlight the most prominent features of these changes and the impacts that they have had on the U.S. international liner trades.

RECENT U.S. SHIPPING LEGISLATION

Shipping Act of 1984

The Shipping Act of 1984 has resulted in a number of major changes in U.S. international liner shipping. This legislation took a somewhat different direction than did most other contemporary legislation that dealt with economic regulation of transportation. While nearly all other legislation of the last decade resulted in some form of deregulation, the Shipping Act of 1984 seemed to increase liner shipping's exemption from anti-trust considerations.⁵ At the same time, however, the power of shippers in relation to liner conference operators was also increased.

Since the Shipping Act of 1984 is quite comprehensive, only the most relevant provisions will be dealt with here.⁶ These are:

- * A clear authority for conferences and their shipping line members to offer intermodal rates and services;
- * The right for individual conference members to take independent action on 10-days' notice on any rate or service action required to be filed in a tariff;
- * Service contracts with specific rate schedules and service guarantees may be negotiated in which a shipper commits a minimum amount of cargo over a specified period of time, with independent action on service contracts only available to conference member lines when the conference permits;
- * Carriers or conferences are prohibited from refusing to deal with shipper associations.

The above provisions created a number of changes in the relationships between shipping lines and their customers. The first three provisions listed above resulted in much more flexibility in the negotiation of rate and service changes on the part of the liner conferences and their individual member lines serving the United States.

The provision of the Act which permitted conferences and their members to offer intermodal service has been quite important, because there had been legal questions about conference authority in this area. Prior to 1984, shipping line conferences were hesitant to establish intermodal services for fear of violating U.S. antitrust law. As a result of the Shipping Act's intermodal provisions, the number of intermodal services have increased dramatically, as discussed below. In order to preserve the prevailing environment of domestic transportation regulation, however, the Act specified that overland rates and terms of service by rail or highway were required to be individually negotiated between a shipping line and an overland carrier.

The use of service contracts between shippers and conferences/individual shipping lines has become an important result of the Shipping Act. A service contract provides a vehicle for negotiating transportation arrangements such as rates, terms of service, and shipper commitment of cargo between the two respective parties. Generally, shippers with large volumes of cargo and/or regularly scheduled shipment needs are in the best position to negotiate these contacts with shipping lines. In some cases, service contracts are possibly dominating scheduled liner services such as in the Japan to U.S. trades, where it is estimated that more than 80 percent of liner cargo moves under service contracts.⁷

The Act's inclusion of independent action on tariff rates by individual conference lines has also provided a method for increasing the degree of competition in the U.S. international liner trades. Under these provisions, any conference line can establish their own rate separate from one filed in a conference's tariff on 10-days' notice. This situation will often lead to individual shipping lines filing rates under independent action that are below the conference's tariff. This can lead to lower transportation costs for those shippers whose cargo moves under independent action rates. The use of independent action has grown over the last couple of years. As an example, in April, 1988, the liner members of the Asia North America Eastbound Rate Agreement took over 2,400 independent actions, more than in all of 1987.⁸

Decisions by the FMC within the last year, however, are beginning to place limits on individual liner flexibility for determining rates and services under the Act.⁹ The FMC has banned the use of changes to service contract rates based on verbal quotes a shipper may have received, known in the industry as "Crazy Eddies."¹⁰ Instead, the only justification for modification to a service contract rate is the publication elsewhere of a rate in a tariff or other service contract below the existing contract rate. An additional pricing constraint on shipping lines under consideration by the FMC is to

bar rate changes from a published tariff after cargo is in transit, known as pocket rates, in order to prevent undermining of filed tariff rates.

Another decision by the FMC allows conferences to ban independent action by their members on loyalty contracts whereby a lower rate may be available to a shipper who makes a specific minimum cargo commitment. Previously, mandatory independent action was available to individual conference lines on loyalty contracts. Mandatory independent action still exists on normal rate or service items filed in a conference's tariff which are available to all shippers. The above actions and decisions, if fully implemented, will probably result in increased rates paid by some shippers who are using conference lines for their liner shipping needs.

Omnibus Trade and Competitiveness Act of 1988

This recent international trade bill deals not only with general trade issues but also specifically with discrimination by foreign governments against U.S. liner operators. With regard to shipping, the intent of the legislation is to increase the power of the FMC to deal with unfair conditions affecting U.S. flag shipping.¹¹ The legislation changes the regulation of liner shipping in areas such as the inclusion of intermodal activities as subject to investigation and remedy, a wider range of penalties available to the FMC, a shortening in the length of an investigation of alleged discrimination, and subpoena power for the FMC to obtain critical information.¹²

As a result of the powers given to it by the 1988 Act, the FMC has proposed new sanctions against foreign lines (in addition to those previously available) to include:

- * limits on sailings or volume or type of cargo carried to U.S. ports;

- * suspension of agreements relating to preferential terminal arrangements;
- * space chartering, or pooling of cargo or revenues in intermodal service;
- * fines of up to \$1 million per voyage;
- * requests to the U.S. Customs Service and/or Coast Guard to deny vessel clearance or entry.¹³

The proposed sanctions, which may be adopted in their entirety or modified before final implementation, will potentially give the FMC much greater power to control unfair shipping practices.

CURRENT LINER SERVICE DEVELOPMENTS

Intermodalism

Intermodal liner services have continued to grow over the last few years, not only in the U.S. international trades but on other liner service routes as well.¹⁴ Intermodal service in the U.S. international trades today consists of three basic forms as follows:

- * microbridge, in which overland transportation between an interior point and a port is coordinated with ocean transportation;
- * minibridge, in which a segment of an all-water ocean transportation movement is replaced by an overland movement to/from an intermediate port;
- * landbridge, in which coordinated land transportation is substituted for a mid-portion of an all-water ocean transportation movement.¹⁵

In order to develop an efficient and effective intermodal service, a number of key elements must be in place. A shipping line must have coordinated services with carriers in one or more land-based modes of transportation. In the U.S., intermodal ocean service is available in coordination with both rail and highway carriers to/from many interior points. The ocean carrier must possess an adequate pool of equipment in the form of containers, chassis, container cranes, and container-handling equipment. A smooth flow with minimal delays must be accomplished in vessel discharge and loading as well as in cargo flow in the terminal area. Finally, a computerized control system is critical in the functioning of the intermodal system to ensure a high level of service.

Today, many shipping lines in the U.S. international liner trades offer intermodal service. Although pioneered by carriers such as American President Lines (APL) and Sea-Land Services (Sea-Land), a number of foreign lines also offer similar types of service. As an example, APL provides an intermodal service which includes a computerized information system that includes single transaction capability and integrated rail and highway transportation with a network of over 130 terminals throughout North America.¹⁶ Sea-Land also offers a highly developed intermodal system which includes overland rail and trucking services to much of the continental United States.¹⁷

A key component of intermodal liner service in the U.S. trades is the development of intermodal rail, and to some extent, trucking services. Rail service, known as container on flat car (COFC), is used for longer distance overland movements while trucking is generally used for shorter distance movements. In some cases, the intermodal rail service is operated by a shipping line with the actual line-haul rail service provided by contract between the shipping line and a rail carrier. In other cases a railroad may provide the service which is available to any shipping line that wishes to use the service. The railcars used in the service can be owned by either the shipping line or the railroad.

One of the most recent developments in intermodal rail service is the use of double-stack trains where the containers are carried two high. These services result in lower transportation costs because more containers can be carried with a reduction in the weight of the rail cars and only a small increase in the number of engines and rail crew size. The growth of these services has been rapid (see Table 1); thirty weekly eastbound double-stack services in 1986 increased to ninety-six in 1987. The weekly TEU capacity was over 38,000 in 1987, up from 18,000 in 1986.¹⁸ It has been estimated that in 1987 double-stack cars accounted for approximately thirty-five percent of all container miles carried by rail, up from virtually zero in 1983.¹⁹

The two largest double-stack lines for both frequency and capacity were American President Lines and Sea-Land. Nearly every other double-stack service was operated by a foreign-flag line or other type of carrier. The origins and destinations for these services are found in Table 2. Los Angeles, Seattle, and Long Beach are the principal eastbound ports on the U.S. west coast for double-stack service and the first two show the largest growth between 1986 and 1987. The principal destinations are Chicago and New York, both with large growth between the two years. In nearly every case, the double-stack trains serving New York also provide service to Chicago.

As intermodalism has grown, the nature of the service provided has also changed. The size of containers has been growing with lengths increasing from forty feet to forty-five and then to forty-eight feet. Container heights have increased from 8.0 feet to 8.5 and 9.5 feet. Most recently, containers of fifty-three feet in length have been introduced by APL. Some of the new containers introduced by APL and others have been initially intended for domestic service only. Thus, the intermodal liner services are no longer confined to just international transportation but are also extending the overland portion of the transportation movement to also include the domestic market.

TABLE 1
EASTBOUND DOUBLE - STACK TRAINS FROM
U.S. WEST COAST BY CARRIER

Carrier	1987		1986	
	Weekly Frequency	TEU Capacity	Weekly Frequency	TEU Capacity
American President Lines	17	8,830	8	3,480
Sea-Land	8	3,920	7	2,800
K Line	4	1,240	1	400
Maersk	2	1,120	1	560
NYK	5	1,060	1	400
OOCL	2	660	1	360
MOL	1	480	1	400
Evergreen	2	400	---	---
Hanjin	1	400	---	---
HJCL	1	400	---	---
YS Line	2	260	---	---
J Line	2	200	---	---
NOL	1	200	---	---
U.S. Lines	---	---	2	700
VO-MTO's ^a	<u>48</u>	<u>19,000</u>	<u>8</u>	<u>9,110</u>
Totals	96	38,170	30	18,210

^aVessel operating multimodal transport operators

Sources: Adapted from Review Of Maritime Transport 1987 and 1986.

TABLE 2
EASTBOUND DOUBLE - STACK TRAINS BY ORIGIN
AND DESTINATION

<u>West Coast Origin</u>	1987 ^a		1986 ^a	
	<u>Weekly Frequency</u>	<u>TEU Capacity</u>	<u>Weekly Frequency</u>	<u>TEU Capacity</u>
Long Beach	9	3,700	6	2,300
Los Angeles	22	8,600	7	2,800
Oakland	1	560	1	400
Portland	1	300	---	---
Seattle	9	3,320	2	1,080
<u>Destination^b</u>				
Chicago	35	14,150	17	7,000
Cincinnati	2	560	1	200
Columbus	5	1,360	1	400
Memphis	7	2,480	1	400
New York	2	7,780	8	3,500
Houston/Dallas	7	2,020	2	760
New Orleans	1	460	2	760
Atlanta	8	3,900	2	700

^aVessel operating multimodal transport operators (VO-MTO's) not included.

^bMany stack trains operate to more than one destination; frequencies and capacities cannot be summed.

Sources: Adapted from Review Of Maritime Transport 1987 and 1986.

In order to tie an intermodal and international transportation system together, many shipping companies have implemented sophisticated computer systems for management and control. As with intermodalism itself, APL and Sea-Land have been the innovators for these computerized systems with Eagle Data Access and Sea-Trac, respectively. These computer systems, and others like them, provide for shipper/consignee access to electronic booking and tracking of intermodal cargo, vessel schedules, container equipment access, and vessel space status as well as computer generation of required documentation,²⁰ all of which benefits a line's customers. More recently, Sea-Land has developed a system known as Sea-Pay in which the freight billing and payment are handled electronically.²¹

Round-the-World Liner Service

A fairly recent development is the reimplementaion of round-the-world (RTW) liner service, in which vessels sail in only one direction rather than on a route serving one geographic region. Only a limited number of ports are served with cargo from outlying areas brought to the load center ports by either feeder vessels or overland carriers. Overland transportation may be an intermodal service or a more traditional non-integrated service. Although a recent development, RTW service existed previously in the more traditional liner trades. For example, APL had such service up until the late 1970's, although that service did not match the current services since it handled primarily break-bulk cargoes.

The innovators in the new RTW services were Evergreen Shipping of Taiwan and U.S. Lines of the United States.²² Both services started in 1984 and were gradually brought up to a sailing schedule of weekly service from the selected load center ports. Evergreen started and continues to operate their service in both eastbound and westbound directions between the Far East, North America, Europe, the Mediterranean, and the Mideast. U.S. Lines'

service was only in an eastbound direction covering the same basic service areas as Evergreen. In late 1986, U.S. Lines filed for bankruptcy and the vessels of the RTW service were sold.

More recently, other lines such as Senator Line have started RTW service while Evergreen has expanded its service. In most cases these services use large vessels with limited numbers of ports of call. RTW services have generally required large, regular volumes of cargo in order to be profitable, given the high levels of vessel, operating, and start-up costs. Since these services may not provide as high a level of service as those of intermodal carriers, the rates a RTW liner service can charge are often lower than those for intermodal service.²³ The success that Evergreen in RTW service can partially be explained by the fact that they offer intermodal service in conjunction with the RTW service. The number of lines offering RTW service continues to be much more limited than those offering intermodal services, indicating that there may not be a high level of shipper demand for this service.

Vessel Size

Containerization in the liner trades led to the development of new vessel designs in order to take advantage of the new transportation technology. The initial vessels, however, were often small and in many cases converted from existing vessels not designed for containerization, thus creating inefficient container ships. More recently, however, container vessels have increased in technological sophistication to better use the technology of containerization as well as the more recent intermodal liner services. The increased sophistication has put pressure on shipping lines to reduce operating costs which has led to an escalation of container ship sizes.²⁴

Newer containerships are now routinely above 2,500 TEU (twenty-foot equivalent length containers) capacity with lengths of 800-900 feet and more. As of mid-1988, nearly forty percent of the world container fleet was of more than 2,500 TEU capacity, while ninety-two percent of the capacity to be added by mid-1990 is of this size.²⁵ Container vessels on order or placed in service since the beginning of 1987 or currently out for bid will add approximately 397,000 TEU to the world fleet.²⁶ Characteristics of some recent or projected containerships are found in Table 3. Of particular note is the APL C-10 class vessel with a beam of over 129 feet. This design represents a break with tradition since these vessels cannot transit the Panama Canal where the maximum beam is 106 feet. All other existing vessels listed in the table are able to fit through the Panama Canal although many of them do not actually transit the canal.

The increasing vessel sizes place a number of constraints on containerized liner service systems. Additional investments are required to acquire new and larger vessels and containers, improve and enlarge port facilities, purchase new container cranes and other handling equipment, and improve the sea/overland transportation interface. The large vessel sizes create more inflexibility in how these container vessels are used. The number of trade routes where these vessels can call are limited by available cargo volumes and length of route. Additionally, many ports cannot be used due to channel, pier, and container crane constraints. The new APL ships described earlier are not only confined to the Pacific but are able to call at only eight ports throughout their area of service.²⁷ As a result, increased reliance must be placed on feeder services to the load center ports, either via smaller containerships or overland modes. These feeder services are an important consideration in the functioning of intermodal and round-the-world liner services previously described.

Overcapacity

The escalating sizes of vessels, particularly for containerships discussed in the previous section, have helped to create an oversupply of shipping service in the liner trades. In the world general cargo and unitized fleets, which include container, break-bulk, and other types of vessels, the overcapacity in deadweight was on the order of six percent.²⁸ This represented a decline for the general cargo fleet and the same level for the unitized fleet when compared with the early to mid 1970's. Since a relatively large percentage of break-bulk and containerized cargoes are of low density, deadweight may not be a good measure for evaluating overcapacity.

A previous paper reported estimates of containership overcapacity in the Trans-Pacific and Trans-Atlantic container trades, with overall load factors for TEU of seventy-six and seventy percent respectively in 1986, representing declines from 1983 figures.²⁹ A more recent report estimates that the load factors in both trades are nearly the same or worse in the 1986-87 time period, being approximately seventy percent for both trades, as found in Table 4.³⁰ The Europe/Far East container trades are estimated to have a higher load factor of about eighty-three percent. This data indicates that not only is the overcapacity problem persisting but it is somewhat growing worse, at least for the U.S. containerized liner trades.

The worsening overcapacity problem in the U.S. liner trades creates a number of difficulties for shipping lines. One of these is increased competition among the lines in these trades, even when conferences are found on a particular trade route. Since conferences in the U.S. liner trades are required to be open, a shipping line can withdraw from the conference if constrained too much knowing that it can easily rejoin the conference if it desires. As a result, downward pressure is often exerted on the rates by independent liner operators and the threat of conference members to become independents.

TABLE 3
SELECTED CHARACTERISTICS OF LARGE CONTAINERSHIPS

Characteristic	Sea-land	APL		Evergreen	
	Atlantic ^a	C-9	C-10	G-Class	New
Length, ft.	950	860	903	750	N/A
Beam, ft.	106	106	129.2	105.6	N/A
Draft, ft.	29.5	35	41	32	N/A
Speed, knots	19.1	25	24.2	19.5	N/A
Capacity, TEU ^b	3,400	2,500	4,300	2,728	4,000

^aFormer New York class vessels of U.S. Lines; vessel TEU capacity downsized from 4,482.

^bTEU = twenty-foot equivalent units.

Sources: Marine Engineering/Log, Containerisation International, American Shipper.

This inability to implement or sustain rate increases is exactly what has often happened in the U.S. liner trades.³¹ Liner shipping rates of the U.S. Atlantic/Northern Europe Conference declined approximately fourteen percent between 1984 and 1986. The twenty-five percent decline of liner freight rates to parts of Europe between 1985 and 1987, including both U.S. and non-U.S. trades, is a further indication of this downward rate pressure. Liner rates in the eastbound Trans-Pacific trades are estimated to have declined by

ten percent or more during 1988. As a result, a number of conferences and shipping lines have found it difficult to increase operating revenues, even in the face of escalating operating costs and the need to purchase additional vessels and equipment to remain competitive.

Another issue facing shipping lines due to overcapacity is the use of rebates, where a shipping line makes payments to customers who use their liner service. This effectively reduces the transportation rate charged below that filed in the legal tariff. Although rebating is a common practice in the world liner trades, Federal law prohibits such actions by shipping lines in the U.S. international liner trades. Previous enforcement action was undertaken by the FMC in the Trans-Atlantic trades and similar action is now underway in the

TABLE 4
SELECTED CHARACTERISTICS OF LARGE CONTAINERSHIPS

<u>Trade Route</u>	<u>Estimated Annual Cargo TEU, mm's</u>	<u>Estimated Annual Capacity TEU, mm's</u>	<u>Load Factor (Percent)</u>
Trans-Pacific	4.4	6.3	70%
Trans-Atlantic	2.8	4.0	70%
Europe/Far East	2.0	2.4	83%

Sources: Adapted from Review of Maritime Transport 1987.

Trans-Pacific trades.³² One line was recently fined \$2.5 million and further enforcement action is expected. Liner firms find it difficult to resist using rebates to encourage cargo bookings given the current overcapacity, but the rebates are illegal nonetheless.

The current overcapacity has thus created financial difficulties for some shipping lines, both foreign and U.S.³³ As an example, U.S. Lines had to declare Chapter 11 bankruptcy in late 1986 because of difficulties with its RTW service and will apparently not recover from this situation. Not only were the 11 rates too low and vessel capacity too large, but U.S. Lines was not carrying enough high rated cargo. Lykes Line and Hapag-Lloyd also withdrew from the Trans-Pacific trades while Showa Line of Japan withdrew in early 1988 from nearly all liner trades including the Trans-Pacific. Financial difficulties are also being experienced on other trade routes due to the overcapacity problem.

ANALYSIS

The environment for liner shipping in the U.S. international trades today is one that potentially creates both problems and opportunities for all concerned. Whether a firm is a shipping line, shipper, consignee, or intermediary, its operations have been affected. The reaction to the current environment and the anticipation of the future environment will help to determine a firm's success or failure. The following sections examine the impacts on and reactions of shipping lines and their customers.

Shipping Line Effects

The effects of the environment on liner shipping are numerous. The Shipping Act of 1984 determines to some extent the nature and scope of these effects. The three principal components of intermodal authority, mandatory independent action, and service contracts

discussed earlier have resulted in changes in the industry that have, in some cases, worsened the effects of the current overcapacity problem. Mandatory independent action and service contracts, in particular, have been used by individual shipping lines to lower the rates charged for international liner transportation. As a result, shipping line profitability has eroded for many lines since lower rates don't always result in increased total revenue and/or profitability.

A number of surveys and meetings evaluating the Shipping Act have taken place since its implementation nearly five years ago.³⁴ These have found major disagreements between how shipping lines view the Act as compared to shippers (covered below). Shipping lines appear to have the most concerns about the mandatory independent action for conferences required by the Act, which has generally led to a depressed level of rates. Shipping lines have also expressed reservations about service contracts, which have often resulted in lower rates than might otherwise have been obtained.

Shipping lines, however, have positive views about other portions of the Act as well. Principal among these are the streamlined process to implement new rates and services, increased anti-trust immunity, and the ability to offer intermodal rates and services. This last view is reinforced by the large growth in intermodal services since the passage of the Act in 1984. Overall, the overcapacity that exists in the liner trades accounts to some degree for the carrier dissatisfaction. In a market with a better balance between supply and demand, there would be much less pressure to lower rates through independent action or service contracts.

The liner conferences and individual lines in the U.S. trades have instituted actions to address the overcapacity issue and its impacts. Although overcapacity affects most liner trades in the world, it appears to be more acute in the U.S. trades because of the size of the gap between supply of capacity and cargo available. One way in which this situation can be addressed is for liner conferences

to rationalize (reduce) service among their members in order to decrease total capacity. For example, conference and independent shipping lines in the trans-Pacific trades have recently agreed to cut eastbound container capacity.³⁵ The result of this rationalization may be the increase of shipping rates in both directions on the trans-Pacific trades and reduced numbers of independent actions by individual lines.

Another strategy to cope with overcapacity has been to form joint services through what are known as space charters. These services use the ships of one or more lines, with space on each vessel allocated to two or more shipping lines, even though the vessel may be operated by a single liner firm. A space charter agreement allows two or more lines to participate on a liner route without each line having to operate its own vessels, thus easing the overcapacity situation. Space charters have been concluded, among others, by Sea-Land with Nedlloyd and Trans Freight Lines and Atlantic Container Line with Wilhelmsen and Hapag-Lloyd in the trans-Atlantic trades, and Barber Blue Sea with Norwegian Specialized Auto Carriers in the trans-Pacific trades.³⁶ Another possibility is the merger of shipping lines in order to create a more efficient carrier, such as the proposed merger of Lykes with Farrell Lines.³⁷

The continued evolution of liner service appears to be toward a greater offering of intermodal service, as opposed to more traditional liner service or RTW service. Although RTW service has expanded somewhat, the bankruptcy of U.S. Lines removed a major competitor from this market. Evergreen has enjoyed success in this segment of international liner shipping but few other lines have implemented similar services. Traditional liner services, which handle break-bulk or general cargo, are still quite viable in the less developed U.S. international trades such as those with much of Africa. The liner trades between industrialized nations will probably be dominated even more by container and intermodal shipping in the years to come.

Intermodal service, as discussed previously, has grown dramatically. Part of this is undoubtedly due to the freedom granted by the Shipping Act of 1984 for conferences to offer such service. These services have expanded to include multiple overland modes, the stack-trains described earlier, domestic transportation service, and well-developed computer information systems to support intermodalism and are now marketed as a value-added service.³⁸ The stack-train services, through their expansion to domestic transportation, are apparently beginning to replace the trailer on flat car (TOFC) intermodal services offered by U.S. railroads. More and more shipping lines are expanding the scope of intermodal service they can directly offer, as is found with APL and Evergreen. Sea-Land has taken this one step further since, through their ownership by CSX, they are often able to offer a complete intermodal movement for which CSX has complete responsibility.

Shipping Line Customer Effects

As with the shipping lines, shippers have also been dramatically affected by the Shipping Act of 1984. In the case of shippers, the effects of the Act have, for the most part, been quite positive.³⁹ While shipping lines find independent action and service contracts a barrier to achieving financial success, just the opposite is true of shippers primarily because rate reductions through both means have been quite prevalent in recent years. Not all shippers have necessarily benefited as a result of service contracts and independent action, since some are not large enough to enjoy the deepest rate reductions.

There have been a number of specific benefits enjoyed by shippers in addition to the reduced transportation costs resulting from reduced rate levels. Among these benefits are increased intermodal services, faster transit times, more sailings, and greater choices between the origin/destination gateways used.⁴⁰ Many of these benefits have resulted from the increased intermodal services

since these services must emphasize speed, frequency, reliability, and geographic scope of coverage in order to attract shipper cargo. Thus, there have been a range of benefits to shippers as a result of the Shipping Act.

The overcapacity in international liner shipping today has generally benefitted shippers who use these services. Overcapacity, with the resulting pressure to decrease rates, has allowed shippers the opportunity to negotiate favorable shipping rates. This has been done through service contracts or through conference rate levels and independent action on the part of individual shipping lines. Concurrently, shipping lines have had to be responsive to the full range of needs of shippers, thus enabling many shippers to receive higher levels of service. The lower levels of rates have created some uncertainties with regard to the availability of particular shipping services when a line drops a particular service.⁴¹

The range of liner service available to shippers today is much greater than it was only a few years ago. Shippers can now choose among traditional break-bulk, containerized, RTW, and intermodal services. In order to make these choices, however, a shipper needs to better understand the transportation decision environment. Thus, to make a good decision about what carrier and service to use, the shipper may have to make a total cost analysis of the transportation alternatives. For a high value or perishable cargo, a reliable intermodal service can potentially offer the lowest total logistics cost,⁴² even though the transportation cost may be higher than other liner alternatives. A shipper of lower value non-perishable goods, however, might be better to choose a more traditional, containerized, or RTW liner service offering lower transportation and total logistics cost.

Although an intermodal service may offer a higher level of service, it does have some potential drawbacks for a shipper. One of these is that the shipper will no longer have control over the selection of individual overland carriers. The intermodal shipping

line will, in most cases, have already selected the inland carriers to use for its intermodal service. The heavy reliance on rail transportation could lead to increased loss and damage when compared with the use of a highway carrier for overland transportation. These considerations will often be outweighed by the advantages to intermodal shipping.

Other types of liner service also have potential drawbacks as well. The non-intermodal services require a shipper to make a wider range of transportation decisions regarding type of service to use, which carriers to select, how to ensure efficient cargo transfer from one carrier to another, and what routes to use. Additionally, the amount of documentation will generally be much greater for the non-intermodal services. For shippers who are not well versed in international transportation, intermodal service offers a way to ship cargo internationally without having to necessarily acquire the expertise in-house. Thus, intermodal liner service can be advantageous to not only shippers of high value cargo but to others as well.

CONCLUSIONS

The dynamic environment both within and outside liner shipping in the U.S. international trades has caused many changes. Regulatory changes have created an environment of greater competition in liner shipping. The Shipping Act of 1984 with its provisions for intermodal service, independent action, and service contracts, created stronger competition. Recent rulings or pending actions by the FMC may, however, reduce carrier pricing flexibility with resulting rate increases. The outcome of a formal review of the Act will take place during 1989, and the implementation of any subsequent recommendations cannot be determined at the present time. Likewise, the actual role of the Omnibus Trade and Competitiveness Act of 1988 in liner shipping has yet to be fully determined.

In spite of the uncertainties, the current overcapacity in the industry will probably continue to exert downward pressure on rates. The increasing vessel and fleet sizes will continue to contribute to this overcapacity. Current efforts in the industry to rationalize liner service through space charters, mergers, and capacity restrictions should relieve some of the pressure. The capacity reductions in the industry will probably not be sufficient to alleviate the situation in the near term. As a result, rate increases may be difficult to sustain and practices such as below tariff rates and rebating may be difficult to completely eliminate in the U.S. international trades.

The competitive environment has also witnessed a growth in the types of international liner service available. Intermodalism has grown rapidly and can be expected to continue to expand, although the growth rate will slow at some point in the future. RTW services appear to have stabilized in size and market impact and can be expected to remain stable without major environmental changes. Containerized shipping, be it via intermodal, RTW, or traditional liner service will continue to dominate the trades with developed nations. Traditional break-bulk liner services appear to be confined primarily to the trades with less-developed nations where the overland transportation infrastructure is more rudimentary.

The current difficulties with the level of rates and the wide range of liner services available has created a real need for more efficient and effective management. Shipping lines require management that is able to cope with an environment of overcapacity and reduced rate levels. Management must also be in a position to make effective decisions regarding the competing needs to reduce overcapacity yet at the same time purchase new vessels and equipment to maintain a competitive edge. This tradeoff is especially critical for intermodal lines, where the current technological lead on competition may not last very long.

Likewise, shippers, consignees, and intermediaries require effective management. Although lower rates are generally an advantage to shipping line customers, decisions are still required in a number of areas. The wide range of services available and the potential flexibility in rates means that a firm must do a careful analysis to determine the best shipping alternative. This analysis must not only include the ocean transportation cost incurred but also other transportation and logistics costs. Thus, the changing environment is a challenge to both shipping lines and their customers.

ENDNOTES

¹Fredrick M. Collison, "Recent Developments in International Liner Shipping," Journal of Transportation Management: 1986 Proceedings Issue, 1987, pp. 22-34.

²For a more detailed description of liner conferences, see Lane C. Kendall, *The Business of Shipping*, 5th. ed., Centreville, MD: Cornell Maritime Press, 1986, pp. 301-333.

³P.L. 98-137.

⁴H.R. 4848.

⁵As a counterpoint, the Staggers Rail Act of 1980 and the Motor Carrier Act of 1980 increased the exposure of carriers to anti-trust law, rather than reducing it as the Shipping Act of 1984 did.

⁶For a comprehensive description of the provisions of the Shipping Act of 1984, from which the following summary is drawn, see Stanley O. Sher and John A. DeVierno, "Maritime Reform: The Players Are the Same But the Rules Have Changed," American Shipper, April 1984, pp. 11-22.

⁷Elizabeth Canna, "Dilemma of Service Contract & Common Carriage," American Shipper, July 1988, p. 12.

⁸Bruce Vail, "IAs Threaten ANERA," American Shipper, July 1988, p. 16.

⁹The recent decisions and proposed action of the FMC can be found in Tony Beargie, "FMC Meets Crazy Eddie Half Way," American Shipper, December 1988, p. 7; Tony Beargie, "Compromise Is Reached On Pocket Rates Issue," American Shipper, December 1988, p. 27; Tony Beargie, "Shippers Lose IA On Loyalty Contracts," American Shipper, December 1988, 28.

¹⁰A "Crazy Eddie" is named after the salesman you sometimes see in advertisements who guarantees to "meet the price charged by any other competitor," whether the price makes sense or not.

¹¹Francis J. Invancie, "Recent Legislation Has Broadened the Powers of the FMC," Pacific Shipper, January 23, 1989, p. 16.

¹²Peter J. Finnerty, "What's in the Trade Act?" American Shipper, October 1988, p. 24.

¹³Tony Beargie, "Five New Sanctions For FMC Arsenal," American Shipper, December 1988, p. 11.

¹⁴Intermodalism can be defined as the coordinated transportation movement of cargo by two or more modes of transportation in which one carrier generally arranges the entire movement, one set of shipping documents are required, and the administrative task of the shipper/consignee is simplified.

¹⁵For more detailed definitions of these terms, see John J. Coyle, Edward J. Bardi, and Joseph L. Cavinato, Transportation, 2nd. ed., St. Paul, MN: West Publishing Company, 1986, pp. 218-220.

¹⁶A description of APL's intermodal service can be found in, among others, Richard Knee, "APC Value Added Package," American Shipper, August 1987, pp. 50-51; Richard Knee, "APL to More on Land-Side," American Shipper, June 1986, p. 55; Richard Knee, "APL Buys Three Domestic Firms," American Shipper, May 1985, pp. 25-26; "APL Launches Intermodal Unit," The Journal of Commerce, February 13, 1985, p. 2A; Mark Magnier, "Challenge Match: APL's Doublestack Linertrain," American Shipper, September 1984, pp. 18+.

¹⁷See, for example, Ian Middleton, "Analysis: Sea-Land," Seatrade Business Review, November/December, 1988, pp. 19-21, and Francis E. Phillips, "CSX/Sea-Land Intermodal Rolls Out," Containerisation International, July 1988, pp. 48-49.

¹⁸United Nations Conference on Trade and Development Secretariat, Review of Maritime Transport 1987, New York: United Nations, 1988, pp. 53-53, and Review of Maritime Transport 1986, New York: United Nations, 1987, p. 51.

¹⁹Bruce Johnson, "Stack Car/Road Rail Test," American Shipper, June 1988, p. 48.

²⁰Elizabeth Canna, "On-Line Tracking & Booking," American Shipper, November 1988, pp. 40, 42.

²¹Elizabeth Canna, "Sea-Land Breaks Ground With Electronic Payments," American Shipper, November 1988, p. 52.

²²For a more detailed description of these two services, see Reference 1, pp. 22-24.

²³As an example, because the transit times of RTW service may be longer and less reliable due to the use of only a few load center ports, feeder vessels rather than overland transportation in some cases, and the difficulty in coordinating vessels schedules, the rates for these services may have to be lower than competing intermodal services.

²⁴For a discussion of some of these issues, see "Ocean Liner Technologies of the Future," Transportation Quarterly, Vol. 42, No. 4 (October 1988), pp. 625-637.

²⁵"Top 20 Lines on Course for Larger Share of World Fleet," Containerisation International, October 1988, p. 35.

²⁶David F. White, "Nedlloyd Ship Plan Stirs Fears," The Journal of Commerce, February 6, 1989, p. 10B.

²⁷These ports are Yokohama, Los Angeles, Oakland, Kobe, Hong Kong, Kaohsiung, Seattle, and Singapore, with the last two not presently ports of call, as reported in "C-10's Enhance APC's Pacific Presence," Containerisation International, June 1988, pp. 37-38, and Elizabeth Canna, "The Next American Presidents," American Shipper, May 1988, p. 14.

²⁸Review of Maritime Transport 1987, p. 28.

²⁹Reference 1, p. 29.

³⁰Reference 28, p. 29.

³¹See, for example, "Pacific Talks," Containerisation International, December 1988, p. 8; Reference 28, pp. 44, 46; Leo J. Donovan, "Will U.S. Ports Be the Stepchild of the 1984 Shipping Act," Pacific Shipper, October 26, 1987, p. 18.

³²This issue is discussed in William DiBenedetto, "Further Anti-Rebating Action Anticipated in Trans-Pacific Trade," The Journal of Commerce, February 14, 1989, p. 1B, and Mark Magnier, "OOCL Fined \$2.55 Million for Rebating," The Journal of Commerce, February 13, 1989, pp. 1A, 12A.

³³Some of the following issues are discussed in Hiroshi Takahashi, "Haunted Sea To the Orient: Where Carriers Disappear Like Bubbles," American Shipper, August 1988, pp. 21-28.

³⁴The analysis here is drawn primarily from Tony Beargie, "No Quick Fix of Shipping Act Seen for '89," American Shipper, December 1988, pp. 66-69; Erik S. McMahon, "Another Report Card on the Shipping Act of 1984, With Focus on Conferences," Pacific Shipper, October 24, 1988, pp. 29-30; Tony Beargie, "Shippers Evenly Divided," American Shipper, August 1987, pp. 35-38.

³⁵See, for example Richard Knee, "Look for Changes in Pacific," American Shipper, March 1989, pp. 6-7; Mark Magnier, "Anera Lines Optimistic on Rate Hike," The Journal of Commerce, February 2, 1989, pp. 1B, 3B; Richard Knee, "Pacific Capacity Reduction Plan," American Shipper, January 1989, pp. 16, 18.

³⁶Some aspects of these space charters are described in "Sea-Land, Norasia Sign Space-Sharing Pact," Pacific Shipper, January 23, 1989, p. 12; Barbara Casassus, "Consortia Still Play Ship Role, Official Believes," The Journal of Commerce, February 13, 1989, pp. 1B, 10B; Elizabeth Canna, "More Rationalization in Atlantic," American Shipper, January 1989, pp. 40, 42; Tony Beargie and Elizabeth Canna, "Ro/Ro Liner & Contract Operators Rationalize," American Shipper, April 1988, p. 54; Bruce Vail, "Sea-Land Breaks the Ice," American Shipper, March 1988, pp. 28-30.

³⁷Gloria Joseph, "Money, People, Ports Key Issues in Lykes-Farrell Combination," The Journal of Commerce, February 16, 1989, pp. 1A, 10A.

³⁸See, for example, Richard Knee, "Value-Added Service Is Paying Off," American Shipper, May 1988, p.11, and Elizabeth Canna, "Value Added Spells Relief," American Shipper, January 1988, pp. 34-36.

³⁹Reference 34.

⁴⁰"The US Shipping Act of 1984: Measuring Shipper Benefits," Containerisation International, September 1988, pp. 37-43.

⁴¹As an example of this type of problem, shippers who used U.S. Lines RTW service received only short notice of the service suspension and some consignees whose cargo was already on the ships did not receive their shipments for some period of time after the service stopped operating.

⁴²Total logistics cost includes basic cost elements such as transportation, inventory maintenance, and ordering; this type of analysis attempts to minimize the total cost, rather than the cost of any individual element. For more information, see Donald J. Bowersox, David J. Closs, and Omar Keith Helferich, Logistical Management, 3rd. ed., New York: Macmillan Publishing Company, 1986, pp. 268-273.