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Government Regulation and Deregulation

The general consensus is that government economic regulation of transportation limits and stultifies intermodality, whereas deregulation liberalizes and facilitates it.[2] Government regulation of any commercial enterprise tends to make it more rigid and less able to allow for frequent change and development. (Interestingly, intermodalism developed at a far faster rate in Australia, Canada, and Great Britain, where regulations were often less restrictive than in many other countries, including the United States.)

However, government regulation is not always universally viewed as an impediment to transport development. From time to time, especially when the number of common carriers is reduced to a monopoly or oligopoly, there is often the call for reregulation. Some experts feel certain standards of practice, such as carrier liability for performance of service and safety, should be kept under government control in order to ensure intermodal uniformity and shipper protection. Others feel the growing importance of intermodality calls for more, rather than less, regulation in order to mandate uniformity and cooperation among otherwise antagonistic and competitive modes, especially in those cases where new and emerging concepts and technologies need to be introduced.

Regardless of these dissenting views, a review of government control affecting intermodality indicates that, in many cases, regulation was restrictive and therefore, contrary to intermodality.

U.S. Regulation Before the Age of Deregulation

Regulation in the United States has been legislated and administered on an intramodal basis with little regard for coordination among modes. Historically, regulation of each mode took place as the individual mode developed and was based on threatening economic characteristics noticed by legislators and their constituencies. First to be regulated were railroads in the mid- and late 1800s, then steamship lines in the early 1900s, followed by pipelines, motor carriers, and airlines in the mid-1930s. Legislation was patterned along the lines of earlier models applicable to other modes, but it was established as separate statutes applying to each mode, without consideration of intermodal coordination.

Separate Commissions

Separate commissions—the Interstate Commerce Commission (ICC), the Federal Maritime Commission (FMC), and the Civil Aeronautics Board (CAB)—were set up under different acts to regulate specific modes. Each commission was charged with promotion and welfare of their particular mode or modes, which put even the commissions in competition against each other, rather than working toward an integrated, intermodal system. There are exceptions. The ICC, until it was replaced, in part by the Surface Transportation Board as part of the ICC Termination Act of 1995, regulated economic issues of domestic inland waterways, trucklines, pipelines, and railroads, but it still had separate legislative authority and separate regulatory responsibility for each. The ICC also was responsible for waterborne trade between the continental United States and Puerto Rico and Alaska.

State Rights

Historically, states reserved the right to regulate economic and safety issues within their borders. As a result, cargo moving within a state from one location to another was subject to that state's jurisdiction. Sometimes it was more expensive to ship cargo within a state than to another state, even if the distances were the same.

The ICC Termination Act called for an end to regulate economic issues within their borders, although they retained some jurisdiction over safety—highway speeds, truck inspections, etc. States still retain the right to develop and enforce regulations which affect transportation safety such as highway speeds, maximum truck weights and lengths, etc.

Competition for Grants

Modes also are pitted against one another rather than encouraged to cooperate on an intermodal basis. Each mode competes for government grants, tax easements, permission to raise weight or size limitations, and for other subsidies or grants. Regulatory commissions become involved on behalf of their respective modes in this competition. Public subsidies and other concessions can affect the relative cost competitiveness among modes, impact the region in which they are applied, and influence modal attitudes toward each other.

Ownership Restrictions

Legislation prohibited carriers of one mode from owning carriers of another. For example, railroads could not own water carriers; freight forwarders could not own carriers directly; and surface carriers could not own airlines. These prohibitions limited development opportunities for intermodality through common ownership.

Situation Prior to 1940

Prior to 1940, there was much legislative bias against intermodality. Antitrust laws were designed to ensure free and open competition within and among modes to give the consumer an opportunity to get the lowest price. Commissions had authority to suspend antitrust laws if they found cooperative agreements among carriers to be in the public interest. One might think the commissions would encourage intermodal agreements, but it did not work that way. Regulations promulgated by commissions favoring through routes, rates and interchange points were almost without exception, intramodal—not intermodal. Each commission felt, with justification, that intermodal facilitation was beyond its scope. Each felt its powers were limited to regulating its assigned mode or modes.

Government and industry working groups were established to facilitate intermodality. These groups made relatively little progress because the underlying legislation was directed at single modes, and did not give the commissions any significant intermodal authority.

Movement Toward Deregulation

The first small glimmer of light appeared in 1940 with a national transportation policy statement from Congress:

> *It is hereby declared to be the national transportation policy of the Congress to provide for fair and impartial regulation of all modes of transportation subject to the provision of this Act, so administered as to recognize and preserve the inherent advantages of each; to promote safe, adequate, economical, and efficient service and foster sound economic conditions in transportation and among the several carriers; to encourage the establishment and maintenance of reasonable charges for transportation services, without unjust discriminations, undue preferences or advantages, or unfair or destructive competitive practices; to cooperate with the several states and the duly authorized officials thereof; and to encourage fair wages and equitable working conditions; all to the end of developing, coordinating, and preserving a national transportation system by water, highway, and rail, as well as other means, adequate to meet the needs of the commerce of the United States, of the Postal Service, and of the national defense. All the provisions of this Act shall be administered and enforced with a view of carrying out the above declaration of policy.*

This policy statement referred to "all modes of transportation," indicating that they were being considered in relation to each other. However, the statement was limited to modes "subject to the provisions of this act," which meant only modes regulated by the ICC.

The policy statement further recommended "developing, coordinating and preserving

a national transportation system by water, highway and rail, as well as by other means..." which provided some, albeit small, encouragement to intermodality. Although there had been many speeches and other unofficial comments about the need for an integrated national transportation system, this statement was the first official sign of recognition at the national legislative level that an intermodal relationship should exist. It is interesting to note that air transportation was not specifically mentioned, probably because there was very little at the time.

U.S. Department of Transportation Established

The next major step toward deregulation was creation of the U.S. Department of Transportation (DOT) in 1967 to encompass all modes. This was further recognition that intramodal economic regulation and administration were inadequate. The same law that established DOT also provided that the secretary of transportation develop a new statement of national transportation policy. Implementation of any such policy, however, required congressional action. DOT issued a number of policy pronouncements in the years that followed. In 1975, they were finally collected and edited into a new statement of national transportation policy.

National Transportation Policy Statement of 1975

The 1975 statement of national transportation policy went far beyond the policy statement of 1940. The statement was never formally adopted by Congress, but it served as the forerunner for deregulation legislation. It favored a healthy private-enterprise transportation system with minimum financial support by, and interference from, the federal government. It recommended less regulation of rates, freer entry, more user charges, and more equitable administration of subsidies. Above all, it favored elimination of unreasonable barriers to intermodal cooperation.

National Transportation Policy Statement of 1979

In 1976, the National Transportation Policy Study Commission (NTPSC) was authorized by Congress to formulate broad outlines and primary themes for improved transportation policy in the United States. The commission was composed of 19 members: 6 from the Senate, 6 from the House of Representatives, and 7 appointed by the president.

In 1979, the NTPSC issued its final report, *National Transportation Policies Through the Year 2000.* The commission recommended:

- Multimodal systems planning rather than an intramodal approach
- Reduced government economic regulation
- Equal government treatment among modes
- More competition and improved efficiency by placing maximum reliance on market factors
- Subjecting policy to economic analysis
- More streamlined government organization
- Greater coordination of government efforts
- Maximum use of the private sector

All these recommendations, if diligently pursued, would advance the cause and practice of intermodality.

Intermodal Surface Transportation Efficiency Act of 1991

The breakthrough finally came in 1991 when the Intermodal Surface Transportation Efficiency Act (ISTEA) was passed by Congress and signed by President George Bush. In passing the legislation, Congress declared its purpose to:

> *...develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner.*

The government would accomplish these goals by encouraging improved intermodal connectivity, reliability, and flexibility. It provided legislative and financial incentives ($155 billion in fiscal years 1992 to 1997) for the development of passenger and freight intermodal systems so that, under free competitive conditions, carriers can take advantage and

negotiate intermodal agreements with each other. Under these same conditions, shippers have the flexibility to select among modes, carriers, and combinations of carrier rates, timing, and conditions best suited to their needs.

ISTEA was a landmark piece of legislation. It provided for local and state incentives to promote the use of passenger and freight intermodalism. State and local governments were given more flexibility in determining passenger transportation solutions, whether transit or highways, and the tools for enhanced planning and freight transportation management to guide them in making the best choices. New technologies, such as intelligent vehicle transportation systems (advanced information systems for transportation users) and experimental prototype magnetic levitation (MagLev) systems, were funded to provide the nation with alternative transportation technologies in the 21st century.

In addition, ISTEA established the Office of Intermodalism within the secretary's office to assist DOT in developing policies and programs designed to encourage and support intermodal programs and projects. ISTEA also created the Bureau of Transportation Statistics within the DOT to enhance data collection, analysis, and reporting, and to ensure the most cost-effective use of transportation monitoring resources.

In addition, ISTEA mandated that a commission be established to take another look, perhaps in the form of an oversight committee, at the nation's approach to transportation efficiency via intermodalism. As part of that effort, the 1994 Final Report of the National Commission on Intermodal Transportation recommended that "the Federal Government should step in with carefully directed financial support, and step aside by reforming the cumbersome planning and decision-making mechanisms and regulatory structures that impede efforts to link the modes into a seamless transportation system." The report made 12 recommendations, which make no distinction between the importance of both passenger and freight transportation—a bone of contention by those who felt that highway interests received the lion's share of ISTEA funding. The recommendations talked about strengthening the relationship between the public and private sectors to promote intermodalism, and that government agencies, such as the DOT, be restructured to better support intermodal transportation.

The report served as a barometer by which the level of pressure to make changes to U.S. intermodal development was to be measured. Much effort went into gathering information for the report. A wide range of conferences was conducted and a concerted effort was made to bring the issues together in an environment which was bitterly divided—especially between passenger and cargo, and highway v. the other modes. The report was really a reflection of the times—it stayed closer to the overall issues without being too controversial. Also, the report served an important role in continuing the debate about how intermodalism can assist the more efficient flow of passengers and goods in a more coordinated way.

Transportation Equity Act for the 21st Century

ISTEA expired in September 1997. It was replaced by the Transportation Equity Act for the 21st Century, signed into law by President Bill Clinton on June 9, 1998. Intermodal freight transportation improvements are buried in the $217.3 billion act. The law calls for improvements and new construction of intermodal connectors that involve major and local highways, rail yards, marine terminals, and airports over the next six years. As this book goes to press, details of specific projects continue to be defined.

Process of Deregulation

Actual deregulation of transportation was implemented in the late 1970s and early 1980s through acts of Congress. Regulatory commissions also eliminated or liberalized rules and regulations that were considered unnecessary or unduly restrictive or burdensome. Deregulatory moves made intermodality more feasible but economic transportation deregulation is not total. In addition, the deregulatory process has not been carried out uniformly, or to the same extent in each of the modes. The net effect has been a big plus for intermodality, but a great many regulatory restraints remain depending on the mode combinations involved.

Part of the ambiguity is attributable to the fact that domestic highway, rail, and water-

borne carriers have not been totally deregulated, but reregulated. As long as the ICC existed, the modes remained regulated to one extent or another. As the regulator, the ICC had the power to exempt certain activities or operators from regulation. In effect, what the ICC gave in the name of deregulation, it still had authority to take back or modify later. To some extent this power of authority has remained with the Surface Transportation Board (STB), the successor to the ICC.

Some of the changes and effects in intermodality, introduced through the deregulatory process in recent years, are identified below. This is not meant to constitute a summary of deregulatory moves, but more of a "snapshot" of the process of U.S. government policy-making over the past few decades.

Rail–Truck Deregulation

The mood in the regulatory commissions and in Congress favored deregulation in the late 1970s. Steps were taken toward deregulation by some commissions without waiting for statutory direction from Congress.

In May 1979, the ICC deregulated rail rates on fresh fruit and vegetable shipments, resulting in a 26% increase in rail produce traffic the first year. With their newfound freedom, railroads sometimes changed rates on produce traffic daily. The ICC also gave railroads freedom to establish special contracts with large shippers based on volume and service. Much of the produce and contract rate traffic was diverted from through truck haul to an intermodal truck–rail–truck haul. Prior to deregulating rail shipments of produce, railroads carried 1% of this traffic; today the rail market share is more than 5%. This increase is a result of increased use of rail intermodalism.

In addition, the Staggers Rail Act of 1980 made it easier for railroads to sell abandoned, nonrevenue-producing operations and to eliminate or price competitively nonremunerative services.

The Motor Carrier Act of 1980 relaxed requirements for entry into the trucking business. The number of new trucking applicants in the first year of deregulation more than quadrupled, with the percentage of approved applicants rising from 69.8% to 95.4%. Many restrictions on truck routes, types of traffic carried, and areas served were eliminated.

These deregulatory activities provided a substantial measure of rate freedom to both the trucking and rail modes. The changes gave shippers a wider range of price and service options and intermodal combinations of carriers.

Deregulation Liberalizes Joint Ownership

Deregulation helped to liberalize permission for carriers of one mode to own and operate carriers of another. On January 6, 1983, the ICC eliminated most regulatory restrictions enacted in 1935 to protect the then-infant trucking industry from railroads. This new flexibility was greeted warmly by rail carriers but with some dismay by truckers, because railroads have a greater ability to acquire or develop new wholly-owned trucklines than trucklines have of acquiring or developing railroads for joint operation. To the shipper, the decision means shipments can be made intermodally via a single carrier. Additionally, railroads and trucklines now have more freedom to merge with each other, which provides greater flexibility, since single-line rates are not subject to rate bureau considerations and may be set or changed on a day-to-day basis.

Rail Management Response

In establishing motor carrier operations in the past, railroads had to adhere to a special circumstances test, requiring them to prove there was overwhelming reason to grant them motor carrier operating authority. When granted, this authority was frequently subject to key point restrictions, in effect, preventing railroads from offering anything other than radial patterns of service from key intermodal terminal "gateways." The combination of both these restrictions drastically limited the number of rail-controlled motor carriers, by placing an almost insurmountable burden of proof on railroads to demonstrate that service was required. Even if granted, the key point restrictions severely constricted the economics of such operations. The only railroads having sizable motor carrier operations were those operations granted "grandfather" authority by the 1935 Motor Carrier Act.

In Ex Parte No. 156, issued in February 1984, the ICC eliminated the special circumstances doctrine for licensing new railroad

motor carrier startups. New rail-affiliated trucking arms were merely required to meet standards of fitness that applied to any other new motor carrier. The special circumstances doctrine still applied to rail acquisition of existing trucking firms. In Ex Parte No. 438, however, it was ruled that three conditions must be met by a railroad purchasing an ongoing trucking business:

1. The proposed transaction must be in the public interest.
2. The motor carrier must be integrated into the railway's operation.
3. There will be no adverse competitive effects on the motor carrier industry.

This doctrine was ratified by the U.S. Circuit Court of Appeals for the District of Columbia, served June 23, 1987, in *Regular Common Carrier Conference v. United States.*

Now that railroads have wider authority to buy trucklines, their enthusiasm to do so varies widely from carrier to carrier. Some rail managements see it as competition against their own rail services; others have been hurt by the poor performance of their trucking subsidiaries during the business recession that came on the heels of deregulation. Still others have taken advantage of technological advances and the more relaxed regulatory atmosphere to initiate successful new single-carrier, truck–rail intermodal service.

A number of rail carriers have shown their eagerness to become totally integrated transportation providers. Some have attempted this by acquiring motor carriers. Among them were the Norfolk Southern and North American Van Lines, and the Union Pacific and Overnite Transportation. In 1993, Norfolk Southern's subsidiary, Triple Crown Service, operating the RoadRailer fleet, became a jointly-owned subsidiary of Norfolk Southern and Conrail.

Another approach railroads learned quickly was that moving cargo over long distances between fixed terminals was something they did best; accomplishing the same with motor carriers was much different. As a result, railroads started to form alliances with motor carriers whereby each party to the agreement concentrated on what each does best; namely, railroads would handle the long-distance hauls (often recognized in the United States as being more than 500 miles) and truckers would concentrate on shorter distances, including drayage.

J. B. Hunt and Schneider National are two of the many long-haul truckload motor carriers who joined forces with the nation's railroads to move their motor carrier trailers/containers long distances. Contracts to move fixed volumes of cargo over a specified time period helped to solidify these alliances. Motor carriers are now ordering equipment in 45-, 48-, and 53-foot lengths and 102- and 110-inch widths. Most of these units are capable of being carried by ocean carrier and railroad doublestack equipment.

A major benefactor of deregulation is the environment. Passage of the Clean Air Amendment Act in 1990 is one of the driving forces for reducing emissions from internal combustion engines. The movement of a hundred trailers/containers by rail removes a hundred motor carrier power units crossing the country. At the same time, the motor carrier is free to perform short-haul movements between the truck terminals, rail terminals, and shipper/consignee locations.

European and Canadian Rail Experiences

Elsewhere in the world, railroads have been limited in their attempts to form integrated transportation systems. There have been several notable exceptions, such as the formation by British Rail of the Freightliner Corporation. This carrier operated a total intermodal service, including the highway movement, for more than 20 years. In France, the French National Railways has formed a partnership with road handlers and railway wagon owners (freight car lessors), called Novatrans, to provide door-to-door intermodal service.

Canadian railways set the pace for U.S. railroads in terms of intermodal ownership. Because of the freedom both Canadian National and Canadian Pacific enjoyed relative to multimodal ownership, both raillines had trucking operations decades earlier than most U.S. railroads. Canadian Pacific not only owned several trucking companies (including Smith's Transport, one of Canada's largest trucking firms) but also owned an airline and a steamship subsidiary. Many transportation experts have noted this connection and the fact that Canada's domestic containerization was much further advanced than in the United States until the 1990s.

In many regards, ocean carriers have

taken the lead from U.S. and some European railroads in providing multimodal service. Not only have they started their own doublestack container trains, including ownership of the railcars, but in some cases they own rail terminals and separate trucking subsidiaries. Currently, American-based organizations such as American President Companies (American President Lines and APL Land Transport Services) and CSX's Sea-Land Service (with CSX Intermodal), provide a total intermodal service.

TOFC/COFC Deregulation

An important deregulatory boost to intermodality was the freeing of the rail portion of piggyback or trailer-on-flatcar (TOFC) carriage from all ICC regulations. This was accomplished by legislation and an exemption promulgated in an ICC rule-making procedure under the umbrella of the Staggers Rail Act. The ICC proceeding, titled Ex Parte No. 230, became effective March 23, 1981. Although the Ex Parte No. 230 proceeding was instituted on August 21, 1978, prior to passage of the legislation, it was not pursued vigorously by the commission until late 1980, after both the Motor Carrier and Staggers Rail Acts became law. This action gave railroads greater ability to price piggyback/TOFC competitively against truck hauls and increased flexibility for routing traffic on joint rail TOFC/container-on-flatcar (COFC) hauls involving rail-owned trucklines.

The ICC instituted another rule-making proceeding, Ex Parte No. 230 (Sub. 6), exempting truck rates from regulation in joint piggyback operations with railroads. With this proceeding, the commission extended its exemption to all motor carriers participating in a through intermodal movement by rail, regardless of affiliation or type of motor carriage. In its previous rule-making (Sub. 5), the ICC had exempted railroad-owned or controlled truckers. The only type of movement still regulated was Plan 1 service. Traffic moved subject to a substituted service rule in the motor carrier tariff (see Chapter 5, "Intermodal Movements by Rail and Motor Carrier"). Later in 1987, Ex Parte No. 230 (Sub. 7) opened the record for deregulating even Plan 1 service.

Deregulation of rail piggyback, combined with new intermodal technology and operating economies, promises a change in long-haul shipping practices. Prior to rail piggyback deregulation, long-haul truckers were able to price services below rail piggyback. Now, however, with the combination of rail ratemaking freedom and new types of equipment, the trend may move toward the direction of intermodality, with trucks providing mostly the initial and final portion of the haul.

Effect on Freight Forwarders

Recent changes in long-haul shipping will help freight forwarders. In the 1940s and 1950s, domestic forwarders built a business by consolidating less-than-carload shipments into carload quantities, and then moving them on an intermodal truck–rail–truck routing. (Foreign freight forwarders, on the other hand, arranged transportation of cargo much like that of a travel agent for passengers.) Then came trucklines, which were able to lure customers away from forwarders, consolidating the shipments (as forwarders had done), and then moving traffic by truck all the way with low truckload rates. Truckers were able to undercut freight forwarder rates, and the forwarders did not have flexibility to retaliate. Freight forwarders were prohibited from operating their own equipment beyond their terminal zones. Most freight forwarders went out of business as a result, but a handful became truckers on the old theory that if you can't beat 'em, join 'em.

Now that rail intermodal deregulation is reviving the popularity of the intermodal truck–rail–truck haul, forwarders are returning. Helped in part by the Surface Freight Forwarders Deregulation Act of 1986, which eliminated the ICC's jurisdiction over most of the industry, freight forwarders face two new competitive threats. First, with their newly found door-to-door intermodal capability, railroads might supplant trucklines and forwarders in consolidating and moving freight. Secondly, the emergence of so many other types of intermodal facilitators (see Chapter 9), especially those who have invested heavily in electronic data interchange (EDI), will compete vigorously against forwarders for business.

Rail Deregulation

Much concern was initially voiced regarding the effects of rail deregulation. Issues includ-

ed the cancellation of joint route and rate controls, liberalized merger provisions, elimination of reciprocal switching agreements, easier abandonment standards, and the threat of market abuse to rail-captive shippers. In the years since passage of the Staggers Rail Act, many of these concerns have been laid to rest. Contrary to many dire predictions, rail rates have not skyrocketed. Both intermodal rail and truck competition have kept rail rates below the general inflation level. While some increases in specific rail rates have occurred, sufficient competition has kept most rates at reasonable levels. Rail intermodal services have expanded the scope of competition by extending service well beyond a rail carrier's own lines.

Rail Mergers

A few noteworthy mergers have taken place since passage of the Staggers Act, including Norfolk and Western/Southern, Union Pacific/Missouri Pacific/Western Pacific, Soo Line/Milwaukee Road, and Union Pacific/M-K-T (the Katy). The Southern Pacific/Santa Fe merger, was disapproved. In the past few years, mergers further reduced the number of Class I railroads. The Burlington Northern later merged with the Santa Fe, and the Union Pacific later merged with the Southern Pacific.

Although widely discussed, there have been no attempts at a transcontinental merger. Most industry observers believe that, given the desirability of providing single-line service and single-line rates, a transcontinental merger is just a matter of time. With less than a handful of Class I railroads left, some observers are concerned about the fate of "orphan" lines that remain unmerged. (In mid-1994, the ICC increased the threshold of Class I railroads to $253.7 million and greater, and Class II railroads to $20.3 million. Class III railroads are those with operating revenues of less than $20.3 million. All switching and terminal railroads, regardless of revenue, are classified as Class III carriers.)

Nonunionized and Shortlines

Although rail mergers have not occurred at the frantic pace some predicted, there has been a notable increase in nonunionized regional carriers and shortlines since the Staggers Act. There are more than 500 of these lines now in operation. The ease of abandonment under the act has had just the opposite effect. Rail carriers are not compelled to provide labor protection. Rail carriers would just as well like to have an unprofitable railroad reorganize as a shortline, rather than abandoned so that they can retain at least a portion of the traffic. New regional rails and shortline operators can turn a profit on lines that Class I and II carriers felt were not viable because they have a lower cost structure. This is a factor that has resulted in increased competition, especially where the shortline is connected to two or more rail companies.

Intermodalism

Impacts of the Staggers Act on rail intermodal services have been generally positive. Most negative comments regard service quality, not market abuse. Shippers would like to see intermodal rail service similar in quality to that provided by truckers. In nearly all instances, however, competitive pressures have kept intermodal rates falling rather than moving upward.

Truck Deregulation

Many of the dire predictions made for regulatory reform in the motor carrier industry have failed to materialize. No area in the United States is without service, although remote areas often pay higher rates. Nor have any reports of widespread rate gouging surfaced. Major concerns center on the increasing concentration by the largest carriers in the less-than-truckload segment, and possible safety deterioration in some marginally competitive operations.[2]

Opinion is divided on the effectiveness of motor carrier deregulation. Nevertheless, deregulation of the motor carrier industry has had, in general, a neutral effect on users and a net favorable influence on carrier efficiency and competitiveness.

Safety

An area of continuing regulation is safety. This aspect, originally under the ICC's purview, is now handled by the U.S. DOT. The emphasis on safety has important implications. With an aging TOFC (the average age

is currently over 10 years compared with 4.1 years for over-the-highway equipment), the ability of the intermodal industry to provide safe operations is a constant challenge. Maintenance practices of container chassis also have come under scrutiny.

Push for Continued Deregulation

Looking ahead, it is difficult to envision any major changes in the current scheme of regulation, although several prominent shipper groups are pushing for total deregulation. Nearly all benefits that total deregulation could confer have already been realized. If any changes are made, they will be budgetary, not philosophic.

Deregulation of rail and truck traffic has the potential of increasing further highway weight limits. If this is the case, it could allow highway carriers to attract more bulk freight from the railroads. If trucklines order larger trailers that might not fit railroad flatcars, these larger trailers could attract less dense freight. And, finally, the low inventory levels currently being maintained can be replenished more quickly by through-truck hauls. These and other "ifs" are likely to be the major battlefields of the transportation industry.

End of State Truck Regulation

Despite deregulation of interstate trucking since 1980, as many as 42 states still regulated this sector of the transportation industry within their borders. However, after strong lobbying by some of the largest users of trucking, including United Parcel Service (UPS) and Federal Express (FedEx), one of the last vestiges of this form of regulation also succumbed to the demands of the marketplace. A section of the Airport Improvement Program (AIP) Reauthorization Act of 1994 states that local governments or bistate agencies are prohibited from regulating "prices, routes or services" of any motor carrier—common, contract, or private.

When the proposal was offered as Section 211 (later to become Section 601) of the Senate's version of the AIP bill, it was meant only to cover "intermodal all-cargo air carriers" or airfreight forwarders or carriers that utilized air cargo carriers "15,000 times" a year. But when the bill went to a House–Senate conference, House legislators demanded additional changes that embraced all intrastate trucking. Section 601 does not cover household goods carriers, nor does it prevent states from regulating safety or insurance issues. In addition, it continues to allow states to set guidelines for uniform bills of lading, cargo liability, or credit rules, and it preserves antitrust immunity for joint rates or routes, classifications, and mileage guides.

Not only did this bill open the market for greater competition by the trucking industry, it also set the stage for the government to be out of the trucking business almost entirely.[3] With the ICC Termination Act of 1995, intrastate regulation of economic regulations was finally phased out completely.

End of the ICC

The trend to continue the push for deregulation of economic transportation regulations reached one of its peaks almost 20 years after it started. Based on a rising chorus of opposition to the ICC, especially the powers it still had over surface transportation tariffs and tariff filings, joint rates, intermodal ownership, and to save the taxpayer money, Congress passed the ICC Termination Act of 1995. The act, signed into law by President Bill Clinton on December 29, 1995, not only eliminates dozens of other ICC functions, but also turns over to the newly created STB its remaining duties, primarily railroad related in January 1996. The STB also retained all regulation of domestic water carriage, except for noncontiguous domestic trade jurisdiction, tariff filing for pipelines, etc. The DOT took over the remaining motor carrier functions, except for common carrier obligations, exemptions, reasonableness of rates (especially those that involved residential household goods movers), joint motor–water rates in noncontiguous domestic trades, pooling, undercharges, etc.

Maritime Legislation Affecting Intermodality

U.S. maritime law, as it affects intermodality, consists primarily of these acts:

- Shipping Act of 1916
- Merchant Marine Act of 1920
- Intercoastal Shipping Act of 1933
- Merchant Marine Act of 1936

- Shipping Act of 1984
- Ocean Shipping Reform Act of 1998

By extension, the Jones Act of 1920, which restricts foreign-flag operators transporting cargo between American ports, has some effect on the competitive aspects of coastal intermodal activities because it limits the number of carriers that might have otherwise become more involved.

The Shipping Act of 1916 provided antitrust immunity, permitted carriers to form open conferences, and created a U.S. Shipping Board to regulate and promote ocean commerce. The name of the U.S. Shipping Board was changed several times, finally becoming the FMC, which in 1961 was established as an independent regulatory agency.

Promotional activities on behalf of the U.S. Merchant Marine were assigned in 1961 to the newly separated (from the FMC) Maritime Administration (MARAD), reporting to the secretary of commerce. In 1981, MARAD was transferred to the jurisdiction of the DOT.

Federal Maritime Commission

The major intermodal functions of the FMC are:

1. Regulating ocean carrier rate-making on foreign routes
2. Investigating discriminatory rates and practices among shippers, carriers, terminal operators, and freight forwarders
3. Licensing ocean freight forwarders
4. Ensuring carriers serve the public interest

The FMC regulates liner trade to and from the United States, and provides antitrust immunity to shipping conferences to the extent it finds conference activities to be in the public interest. In this connection, it requires all liner tariffs to be filed. It prohibits rebating, pooling, or "rationalization" of services, unless approved by the commission. Until passage and signing of the Shipping Act of 1984, the FMC prohibited conferences from establishing through intermodal rates to and from inland U.S. points.

Regulation of Conference Systems

One of the more prominent responsibilities of the FMC is keeping track of ocean carrier conferences, which were established to bring some form of order and stability to ocean rates and competition. They allow carriers to join together without the threat of antitrust actions by a governing agency, to agree and establish joint rates, and to provide common levels of service and schedules on a particular trade route.

Under the terms of the Shipping Act of 1984, conferences are permitted to establish different levels of rate-making, including noncontract rates that are the basic rates charged to shippers who do not have sufficient volume or frequency of shipments to justify special rates. Shippers who meet this criteria (i.e., have sufficient volume), however, can negotiate special rates with the conference. These shippers sign "exclusive patronage agreements" with the conference in which they are charged rates that sometimes are 10% to 15% lower than noncontract. In exchange, they must use only member carriers of the conference. The exclusive patronage agreement evolved from a deferred rebate system, but was replaced by the terms specified in the 1984 act.

The conference system, however, is being challenged in several ways. Many carriers, depending on the trade route in which they operate, frequently withdraw from a particular conference whenever it is in their best interest to do so. This often results in a carrier belonging to a conference for one direction and not being a member for the opposite direction. At the same time, conferences are being threatened by nonconference carriers serving the same trade route, especially those who charge considerably less for the same level of service as the conference carrier.

More recently, conference membership has become a confusing issue as a result of new carrier alliances. In some ways, alliances act as a conference, but the terms and conditions of their agreements are more extensive, including vessel and container slot sharing, using alliance member terminals and operations. If this trend continues, the conference system as it exists today will no longer be an effective force for both shippers and carriers. The alliances will become their own form of conference. Exceptions will exist, especially on trade routes with limited competition or vessel sharing and other operational agreements that are not as effective.

In recognition of this growing issue, in 1995 the European Commission (EC) issued

Regulation 870/95. This regulation left no doubt that the commission believes the conference system is antiquated and destined to be replaced by a network of more flexible arrangements between carriers within a quasi conference system.[5] Until now, there was no counterpart to the FMC in Europe, and in most other places in the world as well. However, the document makes it clear that there is concern regarding such a form of cooperation between carriers, while ensuring that the impact it will have on shippers does not get out of control. Together with other requirements contained in the regulation, the new rules attempt to balance the carrier's needs for commercial flexibility with the need to protect shippers.

The regulation affects intermodal operations as well. Whereas the FMC allows the filing of through rates involving land transportation and services, the EC underscored the notion that such practices are inherently anticompetitive. In the opinion of the EC, ocean and inland through rates need to be separated to ensure greater competition.

As expected, the regulation has met with considerable objection by carriers that established such through rate services. One thing in favor of those who oppose the regulation is that the regulation is scheduled to expire in five years.

Maritime Administration

MARAD's major mission is to develop and maintain a U.S.-flag Merchant Marine. To support this mission, the agency promotes and supports concepts and projects to advance technological improvements aboard vessels and in ports. As authorized in earlier acts of Congress, including the Merchant Marine Act of 1936, MARAD also administered federal ship construction and operating subsidies to permit the U.S. Merchant Marine to compete against lower cost foreign operators. Construction subsidies, however, expired several years ago and vessel operating subsidies were extended to 1996.

Concern continues over the apparent decline in U.S.-flag shipping. More than 90% of the world's trade in volume moves by sea in some 27,000 ships. By 1997, the U.S.-flag merchant fleet ranked 14th in the world in ocean-going vessels of 1,000 gross tons and over (483 active ocean-going vessels), having declined year after year from its first-place position in 1945.[6] In 1997, Panama ranked first with 4,164 ships. In the mid-1990s, U.S.-flag vessels accounted for less than 4% of the international ocean trade.

Despite the fact that about 95% of U.S. trade by volume moves in ocean-going vessels, the percentage of U.S. breakbulk and container trade carried in U.S.-flag vessels was less than 17%, while the U.S.-flag share of dry bulk and tanker traffic was just a little more than 3%.[7] U.S.-flag registry, furthermore, does not necessarily coincide with U.S. ownership. It is to the shipowners' advantage to register ships in foreign countries and operate them according to foreign rules and with foreign crews. In recent years, U.S. ownership of foreign-registered vessels exceeded the number of U.S.-registered vessels, and tonnage of American-owned foreign-flag vessels far exceeded the tonnage of U.S.-registered vessels.[8]

Merchant fleets of many other industrial nations have also declined. The higher cost of labor for constructing and operating ships in developed industrial countries (compared to economically emerging countries) has caused much of this situation. The last merchant ship built in a U.S. yard was launched in 1987. Since 1980, more than 80 shipyards have closed.

Officers and Crew (21)	$6,000
Taxes and Fringe Benefits	$5,000
Ships Store	$4,200
Insurance	$1,500
Total	$16,700

Exhibit 4.1. Breakdown of representative costs to operate a U.S.-flag containership.
Source: Composite of various industry sources.

Led in part by the phase-out of operating subsidies and the lessons learned from Operations Desert Shield and Desert Storm, a movement was begun by both the administration and Congress to develop a new program which would maintain, if not replace, a more viable U.S.-flag Merchant Marine. Congress passed the Maritime Security Act of 1996 to assure the availability of an active, privately owned, U.S.-flag and -crewed merchant shipping fleet to meet national and foreign commerce needs and to provide a sustainable

sealift capability in time of war or national emergency." When fully operational, the program would include approximately 40 to 50 U.S.-flag vessels at a total cost of $100 million dollars a year for 10 years.[9] In the program's first phase, 38 ships were selected, including 12 large (3,000 TEU's) and 15 medium (up to 3,000 TEU's) containerships, 5 barge-carrying ships (also known as LASH vessels), 3 ships which can carry both containers and vehicles that can be driven on and off (ro/ro), and 3 car/truck carriers. In return, and upon request by the U.S. Department of Defense, vessel owners would be required to make their vessel's capacity and their intermodal equipment, terminal facilities, and management services available for sealift operations.

Maritime Relatively Unaffected by Deregulation

Maritime economic regulation has been relatively untouched by the wave of deregulatory sentiment that has so changed laws and procedures for other modes. The minor changes that have occurred consist mostly of reactions to changes made in other modes. Maritime regulation has generally been unaffected by deregulatory changes because many powerful forces with opposing views have stalemated each other. Those who would strengthen the conference system are challenged by many shippers who have profited from competition by nonconference operators and by transborder intermodal movements via Canada. Those who want greater government subsidy support for U.S. shipbuilding, despite continued White House policy to cut subsidies, are opposed by shipowners who want to build cheaper vessels abroad.

As a result of these differing viewpoints, maritime legislation, introduced into both the House and Senate in 1979 failed to pass. A new bill was submitted in each House of Congress in 1981, each titled "The Shipping Act of 1981," but the title had to be changed to "The Shipping Act of 1982" because of slow progress. Although the House bill passed overwhelmingly, the Senate bill was bottled up, and the 97th Congress adjourned without producing any new maritime legislation. The "Ocean Shipping Act of 1983" was introduced in the Senate side early in the 98th Congress.

Shipping Act of 1984

The most important intermodal aspect of the proposed 1983 legislation was that it would permit intermodal through rates to be established. In other respects it supported the conference system generally with a continuation of antitrust immunity and the requirement that conference rates be filed with the commission. However, opposing forces balanced each to such an extent that the legislation was held over for another year. The bill was finally signed into law on March 20, 1984, as the "Shipping Act of 1984."

The Shipping Act of 1984 is comprehensive and detailed, containing clauses of interest to intermodality. It calls for FMC to implement or review provisions applicable to the role of facilitators (such as nonvessel operating common carrier [NVOCCs] and ocean freight forwarders) in promoting intermodal carriage.

The 1984 act rewrote, revised, and encompassed previously passed laws and regulations that were generally agreed to be outdated. It established the basis for streamlining FMC procedures, especially in the area of rate regulation and agreement processing. Antitrust immunity for carriers, conferences, and ports was redefined to allow for greater rationalization of resources and services. The act also permitted shippers and carriers to negotiate service contracts or volume pricing outside the tariff system. (A service contract guarantees a certain price for a particular commitment of cargo from the shipper for a fixed portion of its cargo to a carrier.) Conference carriers received the mandatory right to withdraw from a conference rate.

The Shipping Act of 1984 gave smaller shippers the right to form shippers associations to increase their influence on carriers, similar to what larger shippers were able to do previously. Shippers associations are nonprofit groups of shippers who consolidate members' freight to secure volume rates or service contracts. They have existed for many years in Europe and Canada in maritime trades that did not involve U.S. cargoes or ports.

The act also set up a five-year review process, with specific instructions to study the continued need for port and marine terminal antitrust immunity and whether tariffs should be filed with and enforced by the commission. Although that review process

was completed, no substantial changes were made to the act because of often-diverse opinions.

Calls for Reforming the Shipping Act of 1984

Despite the economic reforms which the shipping act made to U.S. maritime commerce, organizations, like the National Industrial Transportation League (NITL), and carriers, such as Sea-Land Service, called for changes which they felt were necessary in light of competitive pressures. In particular, advocates for change wanted the right to negotiate private service contracts between carriers and shippers which would not be required to be filed under present regulations. They also wanted to see these contracts as confidential. Those pressing for change believed that if cargoes such as bulk cargo, forest products, recycled metal scrap, waste paper, and paper are exempt from FMC's filing requirements, so should other cargoes as well. They felt that ocean carriers and shippers should deal with each other the same way truckers and railroads negotiate with their customers.

To ensure that there would be no ambiguity about this, some also called for the complete removal of the FMC as a regulatory body. Regulations which remain, they argue, should come under the jurisdiction of a new Intermodal Transportation Board, which in turn would mean the demise of the STB after only a few years in business.

After more than four years of persistence, the call for change to the Shipping Act of 1984 was finally realized.[1] Effective May 1, 1999, Congress passed the Ocean Shipping Reform Act of 1998. Despite some last-minute attempts to include issues not directly relevant to ocean shipping reform and some residual opposition by cargo facilitators who felt they will be disadvantaged, the final bill received the solid backing of all industry segments, including U.S. shippers, American and foreign ocean carriers, ports nationwide, and U.S. labor.

Some of the act's more important provisions are outlined below.

- *Confidential contracts.* Shippers and ocean carriers will, for the first time, be allowed to negotiate and reach service contracts that are confidential and often outside the bounds of conferences. This will give importers and exporters more choice and flexibility in negotiating for international transport of goods, including contracts among combinations of a number of shippers and carriers in associations and conferences and other groups. Shippers still remain subject to standard U.S. antitrust laws, while ocean carriers remain under the jurisdiction of FMC regulations.

- *FMC authority.* Although the FMC will be downsized somewhat, it will still have authority to regulate ocean carrier conferences operating under antitrust immunity. The FMC's enforcement procedures were strengthened in some areas including the need to file contracts between carriers and shippers for FMC oversight.

- *Elimination of tariffs.* Individual carriers are no longer required to file tariffs with the FMC. Instead, carriers now are required to publish rates including a "baseline" or "ceiling" of market rates, via the Internet and other media.

- *Prohibition of discrimination.* Ocean carriers continue to be prohibited from participating in anticompetitive practices as clearly stated in the 1984 and earlier acts. Although there is some leeway given in cases where carriers are allowed to differentiate between customers based on common carriage standards, the act clearly notes that it will not tolerate discrimination against freight facilitators, shipper associations, and NVOCCs. To remove any ambiguity about this, the FMC is required to establish "fairness standards."

- *Disclosure of confidential information with unions.* Whenever an ocean carrier has a confidential arrangement with big shippers, it must share that information with specific terminal and port movements to longshore unions.

Like earlier national maritime policy changes, the Ocean Shipping Reform Act of 1998 will undoubtedly have an impact on carriers, facilitators, and shippers involved with U.S. international ocean trade. This could lead to a shakeout among carriers where those

with deep pockets and extensive trade routes and partners will place extra pressure on those who are not as well endowed. It is reasonable to assume that such a fallout and its impact on the ocean transportation industry could take several years before more definitive results are realized.

Controversy About the Jones Act

To protect U.S.-flag shipping, Congress passed the Jones Act in 1920. This act prevents foreign-flag carriers from carrying cargo directly between American ports. The act also requires that all domestic waterborne freight move on U.S.-built ships crewed with American citizens. This form of cabotage has been in existence for centuries, especially by nations that were particularly vulnerable to foreign-flag competition in their own waters.

There are approximately 35 "Jones Act" containerships operating in domestic trade lanes between the continental United States and Puerto Rico, Hawaii, Guam, and Alaska. The biggest beneficiaries of this act include U.S.-flag carriers and shipyards.

In recent years, however, the act has been under attack by shippers, such as the Jones Act Reform Coalition, who believe that they are forced to pay higher rates for their cargoes because of the lack of competition. Others contend that the act, like some of the restrictions connected with FMC-affected vessel operations, affect the spirit and intent of deregulation, causing the maritime industry to lag far behind the other modes.

Meanwhile, American carriers and shipyards are sitting on the fence, not sure if they want to invest in constructing and operating U.S.-flag vessels. This is particularly important because the strict requirements of the Oil Pollution Act of 1990 are forcing many older vessels to be removed from domestic services.

1974 Convention on a Code of Conduct for Liner Conferences

For many centuries freedom of the seas was an accepted concept: ships of any nation could trade among ports regardless of whose flag the vessel flew. The only restriction was that ships of one nation usually were prohibited from carrying on domestic trade in another nation, a practice often referred to as "cabotage." Today, under the United Nations Code of Conduct on Liner Conferences, there is a new way of allocating ocean trade by flag carrier. The code was developed and refined in meetings held under the auspices of the United Nations Conferences for Trade and Development (UNCTAD). It was put into effect in 1983.

The code was intended to help developing countries establish their own maritime liner services. Liner services include containership operations, and full maintenance of the code could impact intermodal trade. With increased international trade, especially as a result of new international trade agreements between countries and economic blocs, however, this form of protectionism is being challenged by countries whose carriers want to enter these markets without restrictions.

Effect of Liner Code on Intermodality

While introduction of liner services for developing countries would appear to expand intermodality, some would argue the point that there are many factors involved that could accomplish the opposite end. Whenever free competition is restricted and entry of carriers is circumscribed, rates tend to rise and carriage conditions become less favorable. An allocation of capacity is like any system of market allocation or trade restrictions, and usually operators are not enthusiastic about instituting improved systems (including intermodal options) for the consumer's benefit. The underlying question is whether having a national-flag liner actually helps the economies of developing countries or whether it is an expensive and economically draining prestige effort that raises consumer prices. The flag flown by the vessel does not always represent the nationality of the owner. Certain developing countries have made a business of providing flags-of-convenience for owners. They offer convenience in the areas of taxes and relaxed safety requirements, and provide crews to staff vessels. Liberia and Panama are known for flags-of-convenience registrations.

Emerging Influence of China

As some countries become more involved with international trade, they are considering developing their own protectionist policies.

Such activities are aimed at protecting their carriers from those who have been in the business longer and are more established in terms of vessels and other related operations including intermodalism.

China, for example, has developed national policies that, in some respects, are similar to the FMC's policies and regulations. On the plus side, in 1993 China introduced an extensive maritime code covering many aspects of maritime law, including contracts of carriage of goods by sea. The code was an attempt to adapt Chinese legislation to the latest international legal developments. In particular, the maritime code incorporates some of the principles and wider carrier obligations of the 1978 Hamburg Rules, which became effective in 1992. On another front, Chinese intermodal documents were encouraged to be transmitted by EDI, another indication that they were looking to help stimulate and streamline the exchange of information.

However, working through regulatory bodies like the Shanghai Shipping Exchange, (established in 1996), China established regulations, which restrict foreign carrier activities with China's international trade. Additionally, other regulations cover intermodal operations, including foreign operators of intermodal transport, especially in regards to the use and transport of international containers. These regulations also apply to liability and insurance issues involving freight carried by foreign carriers when they involve Chinese shippers. When the exchange began operations, many feared that the government-run organizations would seek to manipulate freight rates, especially if they favored China Ocean Shipping Co. (COSCO), the government-run giant container ocean carrier.[12] Carriers doing business with both China and the United States not only have to comply with the exchange's regulations, but also with the FMC.

China is determined to regulate more closely its shipping and intermodal transport markets at a time when most of the international transportation community, including their respective governments, are moving toward less regulatory restrictions. U.S. and European transport agencies are opposed to these measures and it seems likely that discussions on these issues will continue for the foreseeable future.

Deregulation of Land–Waterway Transport

The theory of deregulation is that "the marketplace should prevail" without undue influence of restrictive government regulation. The corollary is that user charges should be assessed on carriers and ports to permit the government to recover its costs of maintaining the facilities. This is another way of letting the marketplace prevail—by allocating to each mode the actual public cost that makes operation possible. Payment of user fees would raise the costs of inland waterway carriers more than those of carriers in other modes. A key provision of the Water Resources Development Act of 1986 includes graduated cost-sharing arrangements between local agencies and interest groups for new construction of channels. Ocean ports also are being required to repay the government for maintenance of harbors and facilities.

Competitive Relationships Among Modes

The federal government is pushing for cost recovery and, to the extent that it is successful, it may change the competitive position of each mode involved.

Inland waterway operators faced imposition of a fuel tax for the first time in 1980, but there still are no lockage fees, except on the St. Lawrence Seaway. Since 1980, there have been no noticeable increases in rail tonnage. The trucking industry was also faced with a $0.05 per gallon fuel tax increase contained in the Surface Transportation Assistance Act of 1982. Increased nationwide size and weight limits offset additional expenses in fuel taxes to some extent. On balance, increased size and weight limits have made the long-distance trucking industry more competitive with the nation's railroads.

There remains a question of equity in relation to how adequately user fees cover capital and operating subsidies supplied by the government. This debate is being conducted worldwide and has as much relevance in the European Union (EU) as it does in the United States. The battleground of further increases in both vehicle dimensions and weight allowed on highways will determine very clearly whether intermodal service can remain competitive in the future.

Rail/Truck–Ocean Deregulation

For domestic rail/truck-ocean deregulation, the ICC deregulated intermodal container movements between the U.S. mainland and Puerto Rico, Alaska, and Hawaii, including freeing piggyback TOFC traffic from all regulations.

Deregulation of international rail/truck-ocean has helped promote long-haul rail–ocean traffic. The Shipping Act of 1984 promoted rail–ocean cooperation to its fullest potential. More importantly, the act has given a boost to single-bill intermodal rates by permitting ocean conference members to agree on inland rates without violating provisions of antitrust laws. Many are convinced that trends in this direction were clear, even when carriers had to publish such rates on an individual basis. The service considerations and economics of doublestack movement made point-to-point rates inevitable.

Rail bridge services were first introduced in 1972 (see the section on bridge services in Chapter 6). These services include landbridge, minibridge, and microbridge traffic. The progressive rates permitted joint water and overland rail and truck services under a single bill of lading. In the early years, there were many restrictions, including the requirement to file single and combination rates with the commission.

Deregulation legislation and rule-making did away with the need to file intermodal rates and divisions of those rates with the government. The Shipping Act of 1984 permitted the Ocean Rate Conference to file joint rates covering both the inland portion and the water movement of an intermodal movement, which could apply to many carriers on several routes. This freedom allowed carriers to establish through routes on an ad hoc basis, adjusting them daily if desired.

More important from the standpoint of promoting intermodalism, the ability of all participants to contract for rates and services, particularly rail and steamship operators is critical. These rates and contracts, if filed by an ocean-borne carrier, must still be filed with the FMC. Rail and motor carriers do not have to file contract rates with the government. The amount of rail traffic actually moving under contract rates is between 40% and 60%, with the proportion increasing each year. This has increased the amount of competition between ports, as well as making it more difficult for competitors to obtain data. Overall, however, it has increased shipper choices and has made intermodal shipment a more viable option.

Effect of Rail Deregulation on Rail–Barge Intermodality

Transportation by inland waterway traditionally has been a low-cost option for shippers of bulk commodities. Fierce competitive battles have occurred over the years between water carriers and railroads for traffic. Bargelines have accused railroads of monopolistic practices by setting rates high at barge connecting points in order to divert traffic to an all-rail haul.

The Staggers Act gave railroads the ability to cancel joint rates and through routes, coupled with greater freedom to merge. Bargelines fear this gives railroads every incentive to close off the intermodal rail–barge interchange. This fear was brought to a head in 1984 when CSX Corp., a major rail holding company, acquired American Commercial Barge Lines, one of the nation's largest waterway operators. The Coal Exporter Association expressed the greatest alarm, fearing a lack of competition if CSX was able to control both rail and barge rates and services.

To date, much of this concern seems unnecessary. Barge–rail interchange and joint rates are increasing, not decreasing. No other rail carrier has acquired a bargeline since the commission gave its historic blessing. Perhaps even more significant, with nearly a decade of experience under the Staggers Act, barge carriers were not active in filing complaints under Section 707 of the act, which prohibits any practice that is "unfair, destructive, predatory, or otherwise undermines competition." It appears deregulation encourages cooperation, yet does not destroy competition.

Air Cargo Deregulation

Airfreight was the first mode to be deregulated by formal legislation in the wake of the National Transportation Policy Statement of 1975. Amendments to the Federal Aviation Act implementing deregulation of airfreight were made effective in the Air Cargo Act of 1977. Deregulation of air passenger transportation came later (Airline Deregulation Act

of 1978), and of rails and trucks still later (Staggers Rail Act of 1980 and Motor Carrier Act of 1980). In addition to being first, airfreight was foremost, in that it was deregulated almost entirely in terms of route entry or withdrawal by carriers and freedom of rate-making.

Air deregulation was a precursor to deregulation in other modes, in that the regulatory commission (in the case of air, the CAB) made more or less spontaneous moves toward deregulation prior to, and concurrent with formulation, and passage of legislation by Congress. The trend toward air deregulation was bipartisan, starting in the Ford administration, which set up a special staff on regulatory reform to study the impact of CAB regulations on the economics of air transportation. The staff issued its report in July 1975 with recommendations that the CAB proceed immediately with an experimental relaxation of regulation in the cargo area, and gradually revise its policies to introduce price and entry competition in air transportation.

An interesting regulatory difference between air and other modes is that the Federal Aviation Act deals mostly with passenger carriage, whereas freight has been the dominant objective of most surface transportation regulation since its beginning. Most air deregulation has been in passenger carriage, probably because it is of more popular interest and attracts more public attention.[13] And, it is interesting to note that more than 55% of the world's airfreight moves in passenger aircraft as belly cargo.

Airfreight deregulation, effective November 1977, was implemented in two steps, one immediately applicable to so-called "grandfather" carriers already engaged in airfreighter operations, and the second a year later, opening the field to all applicants and completely liberalizing airfreight rate-making.

Airfreight Forwarder Deregulation: Envisioning a Self-regulating Market

Before the CAB went out of business in 1984, it granted airfreight forwarders freedom of rate-making and ease of entry for new applicants. The number of airfreight forwarders grew from 300 in 1976 to more than 1,200 in 1979. By the late 1980s, their numbers decreased to about 700 because of mergers, consolidations, and bankruptcies. However, by 1997, the International Air Transport Association's (IATA) cargo arm, Cargo Network Services, estimated that the air freight forwarders' industry experienced a resurgence—growing to 1,400 companies. Clearly showing the trend of the industry, the busiest 45 of those 1,400 firms controlled 60% of the business, and the largest 85 firms controlled 95% of the industry's business. Airfreight forwarders have always had a freer hand than their surface counterparts, filling mostly the combined roles of forwarder, agent, and NVOCC in surface transportation.

All airfreight is intermodal in the sense that freight moves to and from airports by surface transport means. Single-document intermodal air waybills have been common for many years. In terms of intermodality, the effect of deregulation on airfreight has been the same as in other modes: to give shippers a wider choice of modes, carriers, combinations of modes and carriers, and of combination and joint rates from which to choose. However, as explained more fully in Chapter 6, true air intermodality, especially with ocean and truck, has been limited. Aviation industry professionals believe that air cargo movements are intermodal by definition because of the necessity to move cargo between aircraft and origin typically by truck.

Rapid Expansion by Air Units

Air carriers, airfreight forwarders, courier services, small commuter airlines, and nonscheduled airlines have taken advantage of deregulation by expanding into each others' areas. For example, some larger airfreight forwarders have purchased or leased planes and have, in effect, become airlines to a large portion of their business. This occurred at the same time the number of U.S. air forwarders was expanding explosively. Today, there are a small amount of large forwarders operating their own aircraft. In response to airline-type activities of airfreight forwarders, many scheduled airlines have taken on consolidation and door-to-door transport activities formerly considered the preserve of airfreight forwarders. In some cases, forwarders operate their own aircraft, and airlines have in other cases taken on consolidation and door-to-door transport activities.

Competition for U.S. companies, especially at the international level, has been strong. Since

deregulation, the commercial airlines', and forwarders' share of the U.S. domestic and air cargo export market has decreased sharply. In 1977, the year in which the move toward deregulation of transportation started, U.S. companies had a comfortable 52% share of the market and 63% of revenues. By 1996, its share of the market dropped to 3% and 18% of revenues (air cargo accounts for about 37% of global transport by value). In the past 20 years, total industry revenue has grown 16-fold, while the number of shipments has increased at nearly the same rate. Collectively, small package, integrated carrier traffic has increased an average of 250-fold since deregulation.[14]

Rise of Express Delivery Operators

One of the most spectacular phenomena emanating from airfreight deregulation has been the rise of express package delivery operations. By making it easier to acquire larger, more efficient aircraft, deregulation has helped express delivery operators such as UPS, FedEx, DHL Worldwide, TNT, and others develop more rapidly.

Blurring of Distinctions

The result of air cargo deregulation, rapid expansion of carriers into other services, the rise of express delivery operators, and more recently, the formation of partnerships, alliances, and other marketing and operational agreements (see Chapter 13), has been a blurring of distinctions among various types of operators in the airfreight field. Previously, classes of carriers could be considered separately and carriage statistics analyzed by scheduled carriers, forwarders, and express-package operators. This is no longer possible because almost all entities are engaged in multiple aspects of the business and the statistics are commingled.

Impact of the Motor Carrier Act on Air

The Motor Carrier Act of 1980 exempted from regulation "...transportation of property (including baggage) by motor vehicle as part of a continuous movement, which, prior or subsequent to such part of the continuous movement, has been or will be transported by an air carrier...." This gave free rein to greater possibilities of intermodal air–truck transportation. The CAB previously specified a 35-mile radius limit around airports for surface transport pickup and delivery services in connection with air transport, and required carriers to file separate tariffs describing their pickup and delivery services beyond the 35-mile zone. These restrictions were eliminated by CAB in regulations issued under the new law.

Since 1941, U.S. airlines have jointly owned Air Cargo, Inc. (ACI), which provides pickup and delivery services at U.S. cities. ACI, based in Annapolis, Maryland, has provided this popular service with its own trucks and indirectly through contracts negotiated with local trucking firms. CAB granted ACI immunity from antitrust laws until December 1981.

Since the ACI agreement did not obligate airlines to use ACI trucking contractors exclusively, the effect of withdrawal of antitrust immunity was slight. But, in consonance with other deregulatory moves, it encouraged a greater freedom of choice in intermodal transportation.

Intergovernment Regulation of U.S. International Intermodal Air Trade

International transportation regulation involves two governments, or in the case of multinational regulation, several governments. Therefore, intergovernment regulation requires more time to negotiate and to ratify than domestic transportation regulation.

In many cases, other governments, representing both developed and economically emerging countries, were not ready to move along the deregulatory path. In fact, many countries resented and objected to the United States's deregulatory bent, interpreting it as an effort to give multiple U.S.-flag air carriers advantage over airlines operating under the flags of other countries. To deal with this, many governments continued to subsidize their national flag carriers, although this practice is becoming less frequent, mainly because of privatization and other pressures from organizations such as the EC.

This led to a series of confrontations and negotiations between the United States and other nations where air deregulation was advanced somewhat, but not to the extent as in the United States. Entry rules for new carriers were eased and rate-making was

relaxed, but both remained restricted to varying degrees, depending on the countries involved. The conference system of the IATA continues to be approved and given antitrust immunity.

The following deregulatory moves were made by the United States on a fairly unilateral basis.

1. Requirements for air cargo rate filings were eliminated.
2. Enforcement of IATA cargo rate agreements was dropped.
3. Cargo agency commissions were freed from regulation.
4. Airfreight forwarders were released from regulation.
5. Transportation of property in the United States by motor vehicle, as part of a continuous domestic or international air movement, was exempted from provisions of the Motor Carrier Act of 1980. This meant it was free of motor carrier regulation. However, an important exception was included: if the air movement is by a foreign carrier the exemption has to be "...so agreed by the United States and approved by the Civil Aeronautics Board or its successor agency...." This exception ensures reciprocal rights for U.S. air carriers in foreign countries. Additionally, the 35-mile radius was retained as a limit on intermodal air–surface operations of foreign air carriers in instances where their governments would not give reciprocal intermodal rights to U.S. air carriers. However, the limitation appears to be ineffective because shippers can get around the 35-mile restriction if they want by working with local carriers who are sometimes unaware of the shipping circumstances and/or the zone itself. (For further details on how this exception works in respect to intermodal competition between U.S.- and foreign-flag airlines, see the section "Competition Between U.S. and Foreign Air Carriers" in Chapter 13.)

Since a foreign airline must have prior approval of its route authority in order to operate scheduled services to and from the United States, exemptions from the Motor Carrier Act and the approval to provide air–motor intermodal service is based on such route authority.

Deregulation of Trade: The Potential for Increased North/South Trade in North America

Over the past few centuries, domestic and international trading transportation patterns in Canada, the United States, and Mexico have had a basically east/west orientation. This is due largely to geographic orientations of the respective countries and with predominant international trading patterns with some of their largest international trading partners. The one exception is the large volume of goods that flows between the United States and Canada.

This pattern is expected to change in the next few decades for each of these countries. Trading patterns, and the affected transportation infrastructure, will take a renewed emphasis in a more north/south orientation.

U.S.–Canadian Free Trade Agreement

A new trade agreement started on January 1, 1989, when the United States and Canada, based on the U.S.–Canada Free Trade Agreement, began a process to reduce trade and transportation barriers and other restrictions between the two countries. Reduced trucking and rail costs between the two countries, and easier access for new industry entrants due to deregulation were part of this important agreement. At the same time, the agreement made possible the potential for reduced minibridge and landbridge costs, and allowed Canadian ports such as Halifax and Vancouver to compete effectively with U.S. ports south of the border.

North American Free Trade Agreement (NAFTA)

NAFTA, which went into effect in 1994, opened trade and transportation possibilities between Canada, the United States, and Mexico. In doing so, it created one of the world's largest free trade areas—an area which includes over 360 million people and has a combined annual output of more than $8.0 trillion. Tariffs on industrial and agricultural goods produced by the three countries

were either removed at the time the agreement went into affect, or will be phased out over the next few years.

NAFTA created a timetable for removal of the barriers for international cargo and passengers. Free trade between the countries has the potential to change distribution strategies by allowing a company to relocate its distribution centers. Changes in distribution centers will have implications for trucking, rail, water, and intermodal transport. In addition, NAFTA established a work program for making technical and safety standards regarding land transport.

NAFTA ensures that U.S. railroads and intermodal companies will continue to take advantage of gains they made through informal agreements with Mexico. These informal agreements affect the ability to market services; operate unit trains; construct, own, and operate terminals; and to finance rail infrastructure. NAFTA also opens up full investment and operating rights to U.S. and Canadian companies in Mexico's port facilities.

For the motor carrier industry, Mexican trucks, starting in 1995, were allowed into the United States as far as the four border states: California, Arizona, New Mexico, and Texas. U.S. trucks have the same privileges. By the year 2000, all restrictions on cross-border access should be lifted: trucks from each of the three countries will be able to travel within each other's borders to deliver or pickup international cargo. Progress with opening this sector of the business has been difficult because of sharp differences in safety regulations, including driver qualifications and truck length and weight.

Need for Infrastructure Improvement

The success of NAFTA transportation issues will depend heavily on the need to improve infrastructure between the three countries. For the United States and Canada, much of that infrastructure is already in place, although improvements are constantly being made to upgrade corridors that will see an increase in north/south transportation. Between the United States and Mexico, much of the infrastructure improvement for highways will be funded by private companies which, in turn, will charge tolls. Government agencies will establish and enforce maximum toll rates. Railroads, however, will need to work with Mexico's national railroad, which is in the process of being privatized, to ensure cargo transported by rail moves efficiently. In recent years, U.S. railroads have experienced a 10% to 15% increase in cargo transported between the United States and Mexico. This trend is expected to continue.

NAFTA and Ocean Transportation

Ocean transportation will experience some major changes as well. Tangled restrictions imposed to protect labor and other interests has reduced marine transportation between Mexico, the United States, and Canada. The dominant seaports in Mexico are along the Gulf Coast, reflecting Mexico's long established relations with Europe; most west coast trade is with Asia. With the potential for shorter sea routes to the United States and Canada, however, ports in Mexico will need to invest heavily in port infrastructure that can better accommodate smaller and more frequent vessel activity than presently exists. One step toward improving these conditions is the move toward privatization of these ports, thereby attracting more private investment. In addition, discussions have focused on starting landbridge services via Mexico, which could compete with U.S. landbridge services and vessels using the Panama Canal.

Impact on Small Businesses

One of the biggest concerns with trade agreements is their impact on small- and medium-size businesses. Shifts in economic activities will cause relocation of businesses to other geographic areas within North America to remain competitive, including other emerging trading blocs. Many companies have started to look at North America as a single distribution region. This new perspective requires in-depth investigation of how business is conducted and of the transportation systems necessary to connect them. Companies will need to develop innovative and more competitive transportation corridors and services that respond to these new challenges. As an example, Monterey, Mexico, is closer to Toronto, Canada, than is Vancouver, British Columbia.

European Union and Transportation

The European Common Market, now known as the EU, started with the Treaty of Rome in

1957, but only with the Treaty of Maastricht in 1991 have sweeping reforms been initiated in areas such as transportation.

At the end of 1992, the 12-member nations of the EU—Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom—agreed on appropriate regulatory reforms to lower or remove existing trade among members, and to organize into a single international market. In 1996, the EU expanded its membership to include Austria, Finland, and Sweden.

The EU has a population of 360 million and a GNP of $6 trillion. Benefits expected included a 6% savings to the consumer and a 5% increase in the EU's gross domestic product.

EU treaty articles relating to competition apply to international air transport between member-nation airports and an open skies policy for both government-owned and private airlines. Under such flexibility, major carriers could merge or even buy out other carriers to improve domestic and international routes and take advantage of greater cost economics through improved rationalization of services and operations. Only 5 to 10 carriers are expected to exist by the year 2000, and they will probably be in a stronger position to compete with other foreign carriers for both passengers and cargoes.

Rail and highway will also experience major changes. EU rail carriers, most of which are still nationalized, are required to develop rationalized operating systems to enhance cross-border switching of locomotive equipment and crews; open access to rail networks for one another, third parties, and private rail operators; and improve tracking and controlling of operations. Highway transportation, which is the main mode for semiprocessed and finished goods in Europe, will operate more closely to the deregulated highway industry in the United States. The highway industry must deal with economic and environmental impacts of increased highway traffic. These impacts have led to road-use toll systems and include indirect costs (up to now carried by the community), increased operating restrictions (as on the Alpine transit highways), and objections of increased numbers of non-EU and substandard trucks using highly congested highways, especially in Germany.

Currently, maritime commerce reforms are less dramatic, although they may have tremendous influence on related industries and services. The maritime package includes cargo-sharing arrangements; measures to address unfair pricing by reducing costs of inland transport, especially road haulage; improving the efficiency of water transport in Central Europe, especially the Danube; and formation of a master plan for port development whereby the EU, as a whole, decides which ports to invest in and what type of cargo is handled at the ports. The master plan might face considerable resistance given the huge investments that are at stake.

The removal of regulatory barriers in communications will affect the flow of information, especially customs and real-time data, between member nations.

All these steps are designed to create an integrated, single Europe with free and fair competition, supported by strategic communications and transport networks for economic efficiency.

This reform package will have major impacts on the status of non-EU countries, including Switzerland. Former Eastern-bloc countries, as well as he rest of the world, broken down into major trading blocs—such as the United States/Canada/Mexico, China, and the Far East rim—will need to adjust their trading practices, including restraints on trade, to compete effectively with the full anticipated impact of the EU's reforms.

To move this process along, the European Commission, the organization that is the executive branch of the European Parliament, which includes transportation and competition, issued a policy paper in May 1997. The paper, *Intermodality and Intermodal Freight Transport in the European Union,* recommends a strategy for intermodal freight transportation and reaffirms the need to reduce road congestion, pollution, and accidents—all of which are associated with highway transport. At the same time, it recognizes that intermodal operations within the EU are restricted by the lack of a coherent network of modes and facilities where they are connected; the "interoperability" between and within the modes; and ineffective regulations and standards for transportation, data interchange, and related procedures.

The paper also included proposed actions to support intermodal transportation, including the development of trans-European rail freight "freeways," common pricing prin-

ciples, alternative ways for providing government support to intermodal freight transport, and improved means for monitoring and regulating restrictive agreements between operators across different modes which disrupt the efficiencies associated with intermodal operations.

Although the paper is a good starting point for discussion, given the differences of cultures and nationalities within the EU, it provides a point of reference from which policies and regulations could be made that might otherwise not have been possible.

Through Intermodal Liability Provisions

Through origin-to-destination liability provisions are important to intermodality. It is desirable for uniform conditions and limitations to be applicable to each mode in a through movement. An equally important requirement is that documents of carriage spell out conditions and limitations applicable to each mode and carrier.

Since federal government regulation was directed at each mode separately, significant differences exist with regard to liability in regulatory requirements among modes. Interagency task forces have worked on establishing uniform provisions and limitations of liability for a through intermodal movement, but without much success. As a practical matter, the liability provisions of each mode apply, especially where rates are a combination of the local rates of carriers involved. Where a through joint rate has been established, the higher provisions and limitations of the modal carriers usually apply.

Liability Provisions Changed Under Deregulation

Deregulation eased government control over liability provisions and limitations and, as a result, caused some protest and debate. Some liability and claims specialists contend that carriers have taken unfair advantage of deregulation by lowering their liability limits and otherwise evading their responsibilities to shippers in cases of loss or damage to cargo. They feel most shippers are not aware of their new vulnerability until they meet with a problem—and then it is too late. They advocate that liability standards be separated from other measures, and that legislation be adopted prescribing uniform liability limits, claim-filing time limits, and other reasonable standards for all modes of freight transportation.

Liability v. Carriage Rates

Opponents of a reregulatory approach maintain there is a tradeoff between liability rules and rates for carriage—carriers would not be as free to lower rates for carriage or provide better conditions of service if they were burdened with the cost of strict government-imposed liability rules. They feel it is much more cost effective for the shipper to take out its own insurance tailored to the specific needs of its cargo.

Ocean Carrier Liability Provisions

The Hamburg Rules, which went into effect in November 1992, on ocean carrier liability were drawn up in 1978 under the auspices of the United Nations. They provide uniform common-carrier liability for ocean carriers starting from acceptance of goods by the ocean carrier to delivery at destination port. The rules place the burden of proof on the carrier. The Hamburg Rules call for the carrier to be liable from the time it takes over the cargo in the port of loading until the time it delivers it at the port of discharge. This includes the time when the cargo enters and leaves the terminal, rather than the former "ships tackle-to-tackle." (At the time this book was written, the United States had not ratified the Hamburg Rules because of different viewpoints between shippers and carriers on the limits of liability.)

Uniform International Intermodal Liability Rules

The concept of uniform international liability rules for intermodal transport (with emphasis on land–sea) surfaced in the early 1960s with expansion of the container revolution to many parts of the world. The first draft was started in 1965 under the auspices of the International Institute for Unification of Private Law and the Comite Maritime International. In 1967, a draft convention was produced at the "Tokyo Round." In 1971, another draft was discussed at a meeting in London sponsored by the Intergovernmental Maritime Consultative Organization and the

Economic Commission for Europe.

In 1973, the Economic and Social Council of the United Nations requested that the Trade and Development Board of UNCTAD establish an intergovernmental preparatory group on international intermodal transport to prepare a preliminary draft convention "bearing in mind, particularly, the needs and requirements of developing countries." UNCTAD veered from the London draft, which had been prepared largely by delegates from developed countries, and held six preparatory sessions and a two-part diplomatic conference, from which the United Nations Convention on International Multimodal Transport of Goods was finally adopted in May 1980.

Although there remain controversies from different public and private organizations regarding the intent and specifics of the convention, UNCTAD released a commercial and policy guide in 1997. The guide, *Multimodal Transport Handbook for Officials and Practitioners*,[15] stresses that a coherent institutional and legal regime would have to cover "the systematic rationalization of procedures, information flows, and documentation related to trade and transport in a country." It identifies major issues to be recognized by the private and public sectors in the development of intermodal transportation, both in developed and emerging countries. Among the issues identified are: transport policy; infrastructure and technological developments; deregulation, updating of national laws and regulations; and customs, banking, insurance, and commercial activities.

Some international trade agreements such as the Cartagena Agreement of ANDEAN pact—comprising Venezuela, Colombia, Ecuador, Peru, and Bolivia—already adopted harmonization legislation on intermodal transportation including the transfer of documents. The Association of South East Asian Nations (ASEAN) is currently working on harmonized legislation for intermodal policies, using the Cartagena Agreement as a mode.

Approaches to Multimodal Liability Provisions

There are two approaches (regulatory and deregulatory) regarding loss or damage to intermodal cargo. The regulatory approach (taken by a single government for domestic application or by several governments for international application) imposes a uniform system to replace what otherwise can be a confusing patchwork of differing modal liability limits and procedures.

The deregulatory approach lets competition seek the lowest rate level for the consumer's benefit. The two approaches are still being debated and only time will tell which system will prevail.

International Air Carrier Liability

The Warsaw Convention, a treaty governing liability procedures and limits for air transportation, was adopted in 1929 and ratified by the United States in 1934. In 1983, the U.S. Senate questioned the validity of the Warsaw Convention by voting against two facilitating amendments known as Montreal Protocols 3 and 4. The convention is still effective, albeit weakened. Montreal Protocol 4, drawn up in 1975, however, gave the "green light" finally to the air waybill with an electronic record of carriage.

The Warsaw Convention applies to international air–surface intermodal transportation, which is covered by a single air waybill, and subject to a through rate. However, airline deregulation encourages creativity in the establishment of through rates for carriage and liability, and the conflict in philosophies carries into international air–surface intermodality as well.

The Staggers Rail Act and the Motor Carrier Act are applicable to U.S. interstate and foreign commerce. Where the domestic surface portion of the haul has been deregulated (as in the case of rail intermodal), domestic and international air carriers are free to introduce separate liability provisions for their portion of the haul.

Intergovernment Regulation of Intermodal Container Safety

Although the focus of this chapter has been on economic regulation, its important to note that intergovernment regulation of intermodality also encompasses uniformity and safety of shipping containers used in international transportation.

The International Maritime Organization (an intergovernmental group) sponsored the international Convention for Safe Containers

(CSC), which has been accepted by most countries, including the United States. The CSC specifies construction details for containers, periodic inspections and testing, and a uniform marking system for containers to show test strengths and other safety indicators. Since there have been difficulties in getting all containers marked with the standardized "data plate" indicating the container's safety condition, the CSC effective date was postponed from September 1982 to January 1985, making it easier for additional countries to join. Some container marking provisions of the CSC overlap those of the International Standards Organization. Steps are being taken in both organizations to rationalize the marking systems.

Essentially, the CSC is a maritime activity. However, anything dealing with standardization of conditions relating to intermodal containers has an effect on intermodal activity. Air containers currently are exempt from CSC regulations, and the exact dividing line between air and sea containers has yet to be fully defined. To be completely intermodal, air–sea containers would have to meet CSC standards.

Greater Scope for Intermodality

The record suggests that increased intermodal activity can be achieved if regulations are relaxed and government agencies are combined or their scope reduced.

This is the intermodal age. The United States and other governments are taking steps to adjust their regulations to cope with the challenges brought about by intermodalism. In some cases, they are trying to unify regulations, so they apply to the through movement of freight via several modes. In other cases, they are working toward elimination of restrictions, to allow room for commercial ingenuity. Relaxation of government controls, combined with technological improvements, such as computerized rating, intransit visibility, electronic commerce, improved intermodal connector infrastructure, fuel-efficient vehicles, and higher truck weight limits, promise even greater opportunities for intermodality in the years ahead.

Endnotes

1. Significant parts of this chapter were derived from information found in David J. DeBoer's book, *Piggyback and Containers: A History of Rail Intermodal on America's Steel Highway*. San Marino, CA: Golden West Books, 1992. DeBoer's recording of the history of the U.S. intermodal industry is outstanding and a good source of information.
2. The issue of government safety regulations is a topic that is distinct from economic regulation. Discussion of safety regulations are found in Chapter 11 of this book.
3. For a complete discussion of truck deregulation, see Nicholas A. Glaskowsky, *Effects of Deregulation on Motor Carriers*, Second Edition. Westport, CT: Eno Transportation Foundation, 1989.
4. "Truckers Prepare for New Era as Congress Orders End to State Economic Regulation," *Traffic World*, August 15, 1994.
5. Framework for Consortia, *American Shipper*, June 1995.
6. Maritime Administration, *Merchant Fleets of the World*, 1997.
7. The value of total U.S. exports and imports in 1996 was $1.4 trillion, an increase of 45% from 1992 levels. (Source: *Enhanced Freight Movement of Domestic and International Gateways*, Cambridge, MA: Volpe National Transportation Systems Center, 1997.)
8. Approximately 32% of the cargo was shipped on container and chartered U.S.-flag ships, and 47% was shipped on government-controlled U.S.-flag ships. All of the U.S.-flag ships used were crewed by trained American merchant marines.
9. *Code Congressional and Administrative News*, 104th Congress, Second Session, 1996, Vol. 6, pp. 3521–3529.
10. Each ship that participates in the program will receive $2.3 million per year for the first year and $2.1 million per year for the remaining nine years of the program. These payments are about 50% less than similar payments under the former subsidy program.
11. "A Sea-Change in Shipping Deregulation Bill Passes," *Journal of Commerce*, October 5, 1998, p. 1A.

12. *Journal of Commerce*, January 6, 1998.
13. For a complete discussion on air passenger deregulation, see Melvin A. Brenner, James O. Leet, and Elihu Schott, *Airline Deregulation*. Westport, CT: Eno Transportation Foundation, 1985.
14. "Midnight Rider," *Traffic World*, November 17, 1997, p. 45.
15. *Multimodal Transport Handbook for Officials and Practitioners*, United Nations, UNCTAD/SOO/MT/Misc. 1/Rev 1, New York and Geneva, 1996.