DOT-TSC-OST-85-2

Competition and Cooperation in the U.S. Liner Industry: A Case Study of the North Atlantic Trade Routes

Reuben Kyle, Ph. D.

Reuben Kyle, Ph. D.
Middle Tennessee State University
Department of Economics and Finance
Murfreesboro TN 37132

March 1985
Final Report

U.S. Department of Transportation
Office of the Secretary of Transportation

Office of Economics
Washington DC 20590

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
DOT-TSC-OST-85-2		

4. Title and Subtitle
COMPETITION AND COOPERATION IN THE U.S. LINER INDUSTRY: A CASE STUDY OF THE NORTH ATLANTIC TRADE ROUTES

5. Report Date
March 1985

6. Performing Organization Code
DTS-46

7. Author(s)
Reuben Kyle, Ph.D.

8. Performing Organization Report No.
DOT-TSC-OST-85-2

9. Performing Organization Name and Address
Reuben Kyle, Ph.D.*
Middle Tennessee State University
Department of Economics and Finance
Murfreesboro, TN 37132

10. Work Unit No. (TRAIS)
OP455/R4804

11. Contract or Grant No.
DTR557-P-80466

12. Sponsoring Agency Name and Address
U.S. Department of Transportation
Office of the Secretary of Transportation
Office of Economics
Washington DC 20590

13. Type of Report and Period Covered
Final Report
Dec. 1980 - Aug. 1984

14. Sponsoring Agency Code
P-30

15. Supplementary Notes
*Under Contract to: U.S. Department of Transportation
Research and Special Programs Administration
Transportation Systems Center
Cambridge, MA 02142

16. Abstract

This study examines the nature and extent of competition among liner shipping services for cargoes on the trade routes between U.S. North Atlantic ports and Northern Europe and the effect of the Shipping Act of 1984 on that competition. Although over the past decade trade with Asia has superseded trade with Europe, the North Atlantic routes still account for a major share of U.S. foreign trade.

The study's examination of modal competition among liners, non-liners and air-freight operations indicates significant competition among the three. The competition for cargoes also occurs among ports and port ranges. The study also discusses the importance of conferences and rate agreements in the North Atlantic trade and the effectiveness of these conferences in controlling capacity.

The Shipping Act of 1984 will principally affect competition by allowing conferences to coordinate intermodal through-rates. This law also increases the freedom of conferences to employ pooling arrangements and may improve the ability of conferences to control capacity.

17. Key Words	18. Distribution Statement
Shipping, Liner Trade, Competition, Liner Conferences, North Atlantic Trade	DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	70	

PREFACE

This report examines the nature and extent of the competition among liner shipping services for cargoes on the trade routes between U.S. North Atlantic ports and Northern Europe and the effect of the Shipping Act of 1984 on that competition.

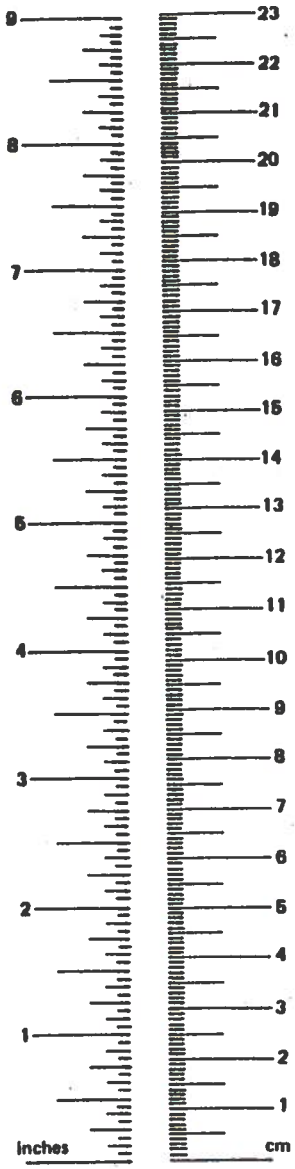
The work was sponsored by the U.S. Department of Transportation, Office of the Secretary of Transportation, Office of Economics, Washington DC. The study was performed under contract DTR 557-P-80466 to the U.S. Department of Transportation, Research and Special Programs Administration, Transportation Systems Center, Cambridge MA.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in. = 2.54 cm (exactly). For other exact conversions and more detail tables see NBS Misc. Publ. 286, Units of Weight and Measures. Price $2.25 SD Catalog No. C13 10 286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	36	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

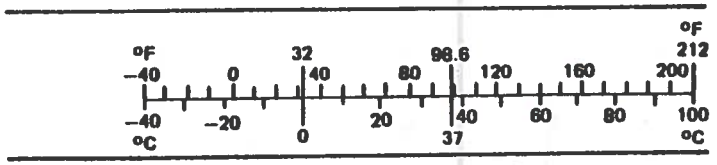


TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

This study examines the nature and extent of the competition among liner shipping services for cargoes on the trade routes between U.S. North Atlantic ports and Northern Europe and the effect of the Shipping Act of 1984 on that competition.

The North Atlantic port range from Maine through Virginia ranks second in liner tonnage and value among U.S. trade routes. Over the past decade, U.S. trade patterns have shifted so that U.S. Asian trade has superceded U.S. trade with Europe. This change has had important consequences for the competitive environment of liner shipping and the organization of liner services. Nonetheless, the North Atlantic accounts for a major share of U.S. foreign trade and the liner service on those trade routes is essential to that trade and the U.S. economy.

Competition for international cargoes on the U.S. North Atlantic takes many forms. First, the study examined modal competition among liners, non-liners and air freight operations. A comparison of important cargoes carried by all three types of transport indicates significant competition among the three. As has been argued by industry observers, non-liner ships offer competition for relatively low value cargoes and air cargo operators compete for high value cargoes. In the case of the non-liner vessels, the competition with liners is greater for imports since U.S. non-liner trade is very much imbalanced. Airborne freight has grown very rapidly over the past 20 years.

Competition for cargoes also occurs among ports and port ranges. Regional shifts of manufacturing activity have encouraged a movement of liner cargoes from North Atlantic to South Atlantic ports. There is, moreover, significant competition for U.S. cargoes from Canadian ports, most particularly Montreal. While overt competition among ports and port ranges is discouraged by liner operators, conferences and port authorities, there clearly is such competition as shippers attempt to minimize the total delivered cost of their products to consumers. In the new era of deregulated transportation services, it is a virtual certainty that point-to-point service will result in a redistribution of liner cargo movements among ports.

Among liner services, a major factor affecting competition is the importance of the conference and rate agreements covering the North Atlantic. There are five conference agreements over the trade plus two rate agreements and one joint administration and discussion agreement. At the present time, seven liner firms are members of all the basic agreements and those seven firms dominate the trade. The historical evidence indicates that many shipping firms have offered service on the North Atlantic during the past 15 years. Entry into the trade and conferences has not been difficult and even today, new firms are entering despite relatively low rates on the trade. The record suggests that while entry is easy success is not. Some new entrants have succeeded on the trade but many have not.

On the other hand, the historical record would indicate that the conferences are only modestly effective in controlling capacity. An examination of container capacity on the North Atlantic over the past five years shows that as cargo tonnage declined conference capacity has also declined but not nearly as rapidly as non-conference capacity has increased.

From the stand point of profitability, North Atlantic carriers have experienced low profits or losses over the recent past. The two major U.S. carriers, U.S. Lines and Sea-Land, have earned modest profits but, at least in the case of U.S.L., only after returning to the ODS program. Foreign-flag carriers have apparently lost money since 1981 or even earlier.

In sum, the competition for liner cargoes on the U.S. North Atlantic is intense. There is competition from other transport services, from other port ranges and among liner operations. Many firms have entered and left the trade. From a commercial standpoint, the existence of a network of interrelated shipping conferences has not assured profits for liner operators. Economists may still object that the liner conferences injure national economic welfare by behaving in a manner so that the price of liner services exceeds the marginal cost of providing them. But that injury is not evident in the form of extraordinary profits which could be an indicator of the restriction of output.

The Shipping Act of 1984 will principally affect competition by allowing conferences to coordinate intermodal through-rates, a source of much concern for liner firms. The new law also effectively increases the freedom of conferences

to employ pooling arrangements and that freedom may enhance conferences' ability to control capacity. Another change effected by the 1984 legislation is the possible expanded use of time/volume rates and the introduction of service contracts. These new rate making freedoms could well change the balance between shippers and carriers. Many observers think that large shippers, at least, will benefit.

Finally, the study considers the impact of the 1984 reforms on U.S.-flag carriers in the North Atlantic. Perhaps it is coincidental, but the new law, with its expanded flexibility for shippers and carriers, comes into force at the same time that large increases in liner capacity are being introduced on this trade. U.S.-flag carriers in particular will need to take advantage of this new flexibility if they are to accommodate this increase in competition. Ironically, at the very same time, both the U.S.-flag carriers on the North Atlantic are undergoing organizational restructuring. It could well be that the Shipping Act of 1984 will prove crucial to the survival of these two firms.

1. INTRODUCTION

The ocean liner shipping industry is currently undergoing many technological, economic and regulatory changes. In March, the Shipping Act of 1984 was signed into law with the express purpose of improving ocean carriers' ability to survive in the rapidly changing world environment. The Federal subsidy programs on which most U.S.-flag operators have depended are at best stabilized. No new contracts are being awarded and some existing contracts are being terminated under new and innovative procedures. Internationally, carriers are faced with the implementation of the United Nations (UNCTAD) Liner Code and requests by U.S. trading partners to join bilateral agreements that restrict access to the liner trade.

The purpose of this study is to analyze the competitive forces in a major U.S. liner trade in a manner which permits assessment of the likely effect of the changes at work in the international maritime industry, especially as they may affect the conferences and the U.S.-flag liner companies involved.

For this case study, the liner trade routes selected were those between the North Atlantic coast of the United States and Northern Europe: essentially Maritime Administration trade routes 5, 7, 8 and 9. These routes rank as the second largest U.S. trade routes in terms of tonnage and value.

It might be argued that the North Atlantic has been studied more extensively than any other U.S. trade route and consequently, that it would be more interesting to examine another route. However, the North Atlantic was selected because it is very important to U.S. trade and to U.S.-flag carriers. Also, it is the subject of much of the concern in the regulatory reform that has just been legislated. Finally, the past study means that data are available for comparison of the organization and structure of competition on the trade over time.

The next section of the paper provides a description of the trade route, the port ranges covered, the volume of trade, the carriers serving the trade, and the liner conference organized by carriers.

A third section examines the nature and extent of competition on the North Atlantic and seeks to answer a number of questions about that competiton. For example, to what extent do liner vessels compete for cargoes with other types of

transportation services, airborne and non-liner. What is the extent of competition among adjacent ports and port ranges? Within the liner trade itself, what is the nature and extent of competition between conferences and non-conference carriers? Under this topic, the study examines the history of entry into and exit from conferences and the trade, the success of new entrants, and the ability of conferences to control capacity on the trade.

A fourth section discusses the available evidence of the profitability of carriers and the behavior of freight rates. A final section identifies some possible consequences of the new Shipping Act for carriers and conferences in the North Atlantic and discusses recent developments on the trade.

2. DIMENSIONS OF THE NORTH ATLANTIC TRADE

2.1 PORT RANGES AND SIZE OF THE TRADE

The principal focus of this study is liner shipping on the trade routes covering U.S. North Atlantic ports to Northern Europe. The Maritime Administration[1] identifies essential trade routes 5, 7, 8 and 9 as covering U.S. ports from (Portland) Maine through (Hampton Roads) Virginia and ports in the United Kingdom, the Republic of Ireland, and continental Europe from Germany south of Denmark to the northern border of Portugal. A copy of the Maritime Administration map is provided in Figure 1.

The actual range of ports served often extends beyond those mentioned, and export cargoes readily move to competing ports, notably Canadian ports. As a result, comparisons will be drawn between liner service on TR 5, 7, 8 and 9 with service between all Canadian and U.S. Atlantic ports and all European Atlantic ports.

The principal ports on TR 5, 7, 8 and 9 are: Boston, New York, Philadelphia, Baltimore, and Norfolk. Along the South Atlantic ports which serve the same European port range on TR 11 are: Wilmington, NC; Charleston; Savannah; Jacksonville; Port Everglades and Miami. Canadian ports that may be relevant are: St. John, NB; Halifax; Montreal and Toronto.

In 1983, U.S. merchandise imports and exports totaled $458.8 billion of which $267.5 billion moved by oceangoing vessels. Liner cargoes on trade routes 5, 7, 8 and 9 amounted to more than $20 billion, about 7.6 percent of the value of all U.S. oceanborne trade and 14.5 percent of U.S. liner trade.

Historically, the North Atlantic has been the most important port range in U.S. foreign trade. Today, however, TR 5, 7, 8 and 9 rank second in terms of value and tonnage among U.S. trade routes. One of the factors affecting the competition for liner services on the North Atlantic is the very rapid growth of U.S. Asian trade which has had the effect of shifting cargo movements from the Atlantic to the Pacific seaboard. In 1970, the value of total U.S. merchandise exports and imports was $26 billion with Europe and $19.6 billion with Asia. By 1983, those figures had become $114.1 billion for Europe and $155.3 billion for Asia.

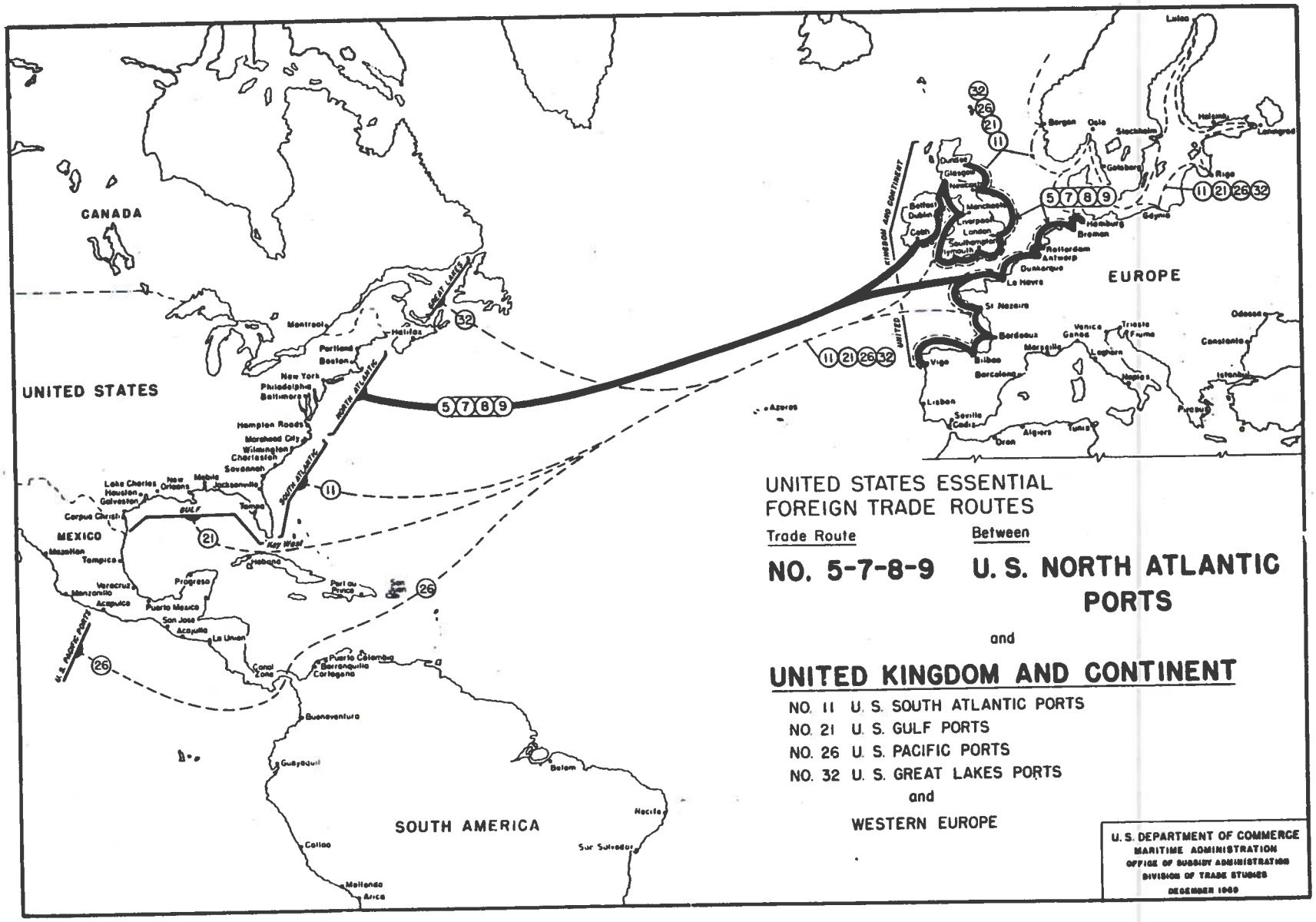


FIGURE 1. MAP OF ATLANTIC TRADE ROUTES

2.2 CARRIERS SERVING THE TRADE

As of May 1984, there are 11 shipping companies that advertise liner service on the North Atlantic. Table 1 gives the firms serving the trade, vessel flagging, indicates participation in conference and rate agreements, and gives the estimated current container capacity. The table indicates that no two carriers offer identical services. Several carriers cover both north and south Atlantic ports and ABC's service includes the Gulf. Particularly, in the case of Sea-Land and USL, the overlapping services result in an offering of much larger capacity than the other carriers on the trade. However, these slots are available on TR 5, 7, 8 and 9 whether or not they are all utilized for those trades alone.[2]

In addition to the carriers directly serving U.S. Atlantic ports, those ports and carriers compete for cargoes with liner services at nearby Canadian ports, particularly Montreal. For example, two carriers presently advertise service from Montreal to Europe in the Journal of Commerce. Those two carriers are identified in Table 1. Cast has been a major competitive factor in the North Atlantic for the past five years, but in 1982 it experienced financial problems. The firm was reorganized in 1983, and at the same time it joined the Canadian North Atlantic conference.[3] The Canada Line is a consortium consisting of Dart, CP ships, and the Manchester Line, formed in August 1981.

In May 1984, the annual container capacity offered on the North Atlantic serving U.S. ports, including those services that extend to the South Atlantic and the Gulf, amounted to approximately 715,000 TEUs annually. To that figure can be added another 160,000 TEUs annually for the services to Montreal. Of the 715,000 TEUs of capacity of strictly U.S. services, U.S.-flag carriers offer 378,000 slots or almost 39 percent.

Table 2 gives market share of liner tonnage by flag on TR 5, 7, 8 and 9 over the period 1976 through 1982. These data indicate that U.S.-flag share has remained fairly stable, fluctuating around 30 percent. More detailed data indicate that U.S. vessels have lost market share when U.S. liner exports have declined as in 1981 and 1982. While U.S. share of outbound tonnage has fluctuated widely, U.S. share of inbound tonnage has been much more stable at about 32 or 33 percent. The fairly substantial growth in West German flag share has occurred largely at the expense of U.K.and French vessels. This change may

TABLE 1. CARRIERS SERVING THE U.S. NORTH ATLANTIC/U.K., EUROPE AS OF MAY 1984

Carrier	North American Port Served	Flag	Conference/ Rate Agreement[a]	Estimated Annual Container Capacity
American Coastal Line	NY, Baltimore, Norfolk	U.S.	Independent (1983)	24,480 TEUs
Atlantic Container Line (ACL)	NY, Baltimore, Portsmouth	Mixed (Fr, Br, Du, Swe)	Conference (1967)	102,750
Contract Marine Carriers	NY, Richmond	Mixed (Lib. & Ger	Independent (1977)	27,924
Dart	NY, Phila., Balt., Boston, Norfolk, Savannah, Charleston	Br	Conference (1969)	52,832
Europe ABC	NY, Balt., Phila., Charleston, New Orleans, Houston	Mixed	Independent (1982)	31,230[b]
Hapag-LLoyd	NY, Balt., Phila., Norfolk	Ger.	Conference (1970)	91,416
Parklines	Philadelphia	Mixed (BR)	Independent (1983)	13,812
Polish Ocean Lines (POL)	NY, Phila., Balt. Norfolk, Wilmington, NC	Polish	Rate Ag. (1967)	72,800
Sea-Land	NY, Boston, Balt. Portsmouth, Wilmington, Charleston, Jacksonville	U.S.	Conference (1966)	143,000[b]
Trans Freight Lines (TFL)	NY, Boston, Phila., Wilmington, Norfolk, Balt.	Singapore	Conference (1983/1976)	44,512
United States Line (USL)	NY, Boston, Phila., Balt. Norfolk, Savanah, Jacksonville, Charleston	U.S.	Conference (1965)	110,552[b]
			Total	715,360
The Canada Line	Montreal		Independent	85,687
Cast	Montreal		Conference (1983)	76,232
				877,279

Sources: See Tables 3 and 12.

[a]The figure in parentheses is the year the firm joined the conference or rate agreement and, in the case of independents, the year in which the firm entered the trade. TFL joined the conference in 1983 but entered the trade in 1976.

[b]Note that Sea-Land and USL all offer services that overlap the North and South Atlantic ranges. ABC's service offers MarAd routes 5, 7, 8 and 9, 11 and 21. See endnote 2 for a discussion of this overlapping.

TABLE 2. FLAG SHARES OF LINER TONNAGE ON TR 5, 7, 8 AND 9

	1976		1977		1978		1979		1980		1981		1982	
Flag	Tons	Share	Tons	Share	Tons	Share	Tons	Share	Tons	Share	Tons	Share	Tons	Share
U.S.	1718	31.1	1571	31.4	1574	28.2	1560	26.4	1716	30.0	1470	29.1	1412	28.9
W. German	871	15.7	716	14.3	791	14.2	879	14.8	967	17.0	1191	23.5	1239	25.4
U.K.	874	15.8	752	15.0	1048	18.7	922	15.6	741	13.0	616	12.1	440	9.0
France	417	7.5	332	6.6	492	8.8	336	5.7	300	5.3	282	5.5	248	5.0
U.S.S.R.	272	4.9	272	5.4	302	5.4	313	5.3	20	--	--	--	--	--
Top 4 Share[a]		70.1		67.3		69.9		69.3		65.3		70.2		68.3
Total	5524		4998		5585		5910		5683		5049		4877	

[a]Note that in 1979 Singapore carried the fourth largest share, not France.

be partially accounted for by diversion of British flag Dart Container-line vessels from U.S. ports to Montreal. Therefore, the British-flag share of total North Atlantic trade may not have declined. On the other hand, Hapag-Lloyd, a German-flag carrier, has been very aggressive and part of the gain in German flag share of the trade must reflect the high quality management skills of Hapag-Lloyd.

2.3 CONFERENCES ON THE NORTH ATLANTIC

Liner operators have organized so-called shipping conferences which under U.S. policy dating to 1916 have been permited to coordinate rate setting and service offerings among their members. As of 1984, there are at least eight conference and rate agreements directly concerned with the North Atlantic. Seven agreements - five conference and two rate agreements - cover trade in one direction between a specific range of European ports and the U.S. North Atlantic port range. The eighth agreement provides for joint administration and discussion among the five major conferences, members of two conferences on an adjacent route and members of a South Atlantic rate agreement. Given that the same carriers are typically members of all the five basic conferences, these agreements appear to provide an opportunity for carriers to coordinate rates and capacity over a wide range of competing ports. These conferences and rate agreements are identified in Table 3 and in greater detail in Appendix A.

In addition to the above agreements, there is an intermodal committee which discusses issues relating to container operations and an emergency chartering agreement which permits container slot chartering. These agreements are also identified in Table 3 and Apendix A.

TABLE 3. NORTH ATLANTIC CONFERENCES AND RATE AGREEMENTS

Agreement Number	Name	Port Range
5850	North Atlantic Westbound Freight Association	U.K. and Ireland to U.S.
7100	North Atlantic United Kingdom Freight Conference	U.S. to U.K. and Ireland
7700	North Atlantic French Atlantic Freight Conference	U.S. to France
8210	Continental North Atlantic Westbound Freight Conference	Germany through France to U.S.
9214	North Atlantic Continental Freight Conference	U.S. to Belgium, Holland and Germany
9427	Germany-North Atlantic Ports Rate Agreement	Germany through France to U.S.
9552	North Atlantic West Europe Rate Agreement	U.S. to Holland, Belgium and Germany
9735	Steamship Operators Intermodal Committee	
9978	Associated North Atlantic Freight Conference	U.S. to Western Europe
10118	Atlantic Steamship Emergency Chartering Agreement	

3. THE NATURE AND EXTENT OF COMPETITION ON THE NORTH ATLANTIC

3.1 COMPETITION FROM AIR FREIGHT AND NON-LINERS

This section will examine the forms of competition for international cargoes that face liner shipping firms on the U.S. North Atlantic. It will attempt to answer a number of questions that have or might be posed regarding this competition. To what extent do ocean carriers compete with airborne transport services? Within waterborne service, what is the extent of competition between liners and non-liners? Is there competition among adjacent ports and port ranges? In the liner industry, how successful have conferences been in controlling entry and capacity? The effort here will be to present and analyze available evidence regarding the extent of competition in these various forms.

Liner shipping observers have argued that liners face competition for relatively low-valued cargoes from tramp vessels and competition for high-valued cargoes from air cargo carriers. Table 4 compares total U.S. airborne and waterborne trade for selected years since 1962. Clearly airborne trade has grown remarkably. In 1982, airborne trade with Europe amounted to $33.6 billion, 7.4 percent of total U.S. foreign trade and more than one-third larger than the value of liner trade on TR 5, 7, 8 and 9.

Table 5 shows U.S. airborne trade with Europe through six customs districts. These data indicate that in 1968 over 80 percent of U.S. airborne trade with Europe moved through the New York Customs District, primarily JFK International Airport, but that percentage steadily fell to about 54 percent in 1983. Airborne freight has the inherent advantage relative to oceanborne transport that minimum cost routing is easier to accomplish since aircraft are not confined to coastal ports of entry and exit. Air cargo operations have become more widely dispersed due to the increased freedom of international air carriers and the deregulation of those operations in 1978.

Even though it is evident that air freight has become an increasingly important mode of cargo movement in U.S. foreign trade, it may not follow that air operations compete for liner cargoes. Appendix B includes a comparison of important airborne and waterborne commodities[4] for the years 1977, 1979, 1981, and 1983. The Census data do not distinguish between types of ocean shipping service so that some of the waterborne cargoes may move on non-liner vessels.

TABLE 4. A COMPARISON OF U.S. WATERBORNE AND AIRBORNE TRADE FOR SELECTED YEARS, 1961-1982

Year	Total Trade Tonnage in Thousands of Short Tons		Value of Total Trade in Billions of Dollars	
	Waterborne	Airborne	Waterborne	Airborne
1962	345,206	157.9	$ 25.8	$ 2.2
1965	427,484	324.8	31.9	3.6
1970	538,942	758.4	49.1	9.5
1972	581,021	1006.3	59.1	12.7
1975	697,047	1241.4	124.9	24.1
1980	889,300	1800.0	286.0	74.1
1982	777,400	1900.0	275.4	76.2

Sources: 1962-1975, U.S. Department of Commerce, 1979 Statistical Supplement to the Survey of Current Business, p. 97.

1975-1983, U.S. Department of Commerce, Statistical Abstract of the United States 1984, December 1983, pp. 637, 639.

TABLE 5. U.S. AIRBORNE EXPORTS AND IMPORTS WITH EUROPE BY CUSTOMS DISTRICT FOR SELECTED YEARS, 1968-1983[a] (in Millions of Dollars and Thousands of Short Tons)

	1968		1970		1979		1981		1982		1983	
U.S. Customs District	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons
Boston	$ 114.3	9.4	$ 270.7	22.1	$ 1,551.4	44.0	$ 2088.5	42.3	$ 2,325.2	48.1	$ 2561.9	55.4
New York City	3,142.5	208.4	3,782.1	256.0	20,378.2	464.6	20,988.8	408.0	18,763.0	385.8	19,524.0	420.9
Philadelphia	30.7	2.4	112.1	7.3	244.0	8.0	--	--	275.8	6.3	--	--
Baltimore	--	-	--	-	--	--	954.6	14.6	976.4	14.3	893.3	17.5
Savannah	1.7	0.2	4.3	0.7	193.6	8.5	--	--	638.7	19.6	--	--
New Orleans	0.6	(b)	2.0	0.2	4.3	0.1	37.1	0.4	20.3	0.5	7.9	0.3
Total U.S.	$3,887.2	278.5	$5,528.8	391.3	$29,492.7	757.5	$34,408.8	943.2	$33,580.6	723.8	$36,165,7	807.4

Sources: U.S. Department of Commerce, Bureau of the Census, United States Airborne Exports and General Imports (Summary Reports FT 980), 1968, 1970, 1979, 1982.

_____, Highlights of U.S. Export and Import Trade (FT 990), Tables E-7, E-8, I-8 for December issues in 1981, 1982, and 1983.

[a]There are some small discrepancies between the two sources but in the interest of a longer observation period and more detail both sources are included.

[b]For 1968 less than 45 tons moved through New Orleans.

Moreover, the Census data are not broken down by world region. But even with these qualifications, it is possible to infer something about air cargo competion for liner type cargoes on the North Atlantic.

The tables in Appendix B show that aircraft and oceangoing vessels do carry the same commoditites. There are, however, differences between air and water cargoes. For example, the aggregated data for transport equipment would indicate that air freight operations offer significant competition to ocean carriers. But when the data are disaggregated, it can be seen that ships carry motor vehicles and heavy machinery and aircraft carry principally aircraft parts and accessories. The value per ton of waterborne exports of transport equipment was $7821 in 1983 and $72,241 for airport exports. For all exports waterborne, cargoes were valued at $288 per ton while airborne cargoes were $48,635 per ton and, in general, it is true that air cargoes are of higher value than comparable ocean cargoes. Nonetheless, there appear to be few important airborne cargoes that could not move by modern cargo ships and for that reason it is correct to regard airborne freight operations as competitive with liner services, at least for high-value cargoes and particularly in North Atlantic trade.

It has long been argued that tramp vessels, non-liners, represent the only significant competition to liner shipping. Table 6 gives liner and non-liner tonnage on the Northern (TR 5, 7, 8, and 9), Southern (TR 11), and Gulf (TR 21) routes over the period 1973 through 1982. Non-liner tonnage has increased over the period and total liner tonnage on the three port ranges has decreased. Nevertheless, the variation of non-liner tonnage is so large that it would be inappropriate to try to infer any shift of cargo from one to the other.

An examination of the important commodities among liner and non-liner cargoes does give some insight into the nature of competition between the two types of service. Appendix C includes tables of major liner and non-liner imports and exports over the period 1975 through 1981. These data indicate very little movement between liners and non-liners over time.[5] There is some change in the top ten commodities over time but they appear to change for both types of service at the same time.

TABLE 6. A COMPARISON OF LINER AND NON-LINER TONNAGE ON U.S. EAST COAST/NORTHERN EUROPE TRADES

	TR 5, 7, 8, 9			TR 11			TR 21		
Year	Liner	Non-liner	Liner as % of Total	Liner	Non-liner	Liner as % of Total	Liner	Non-liner	Liner as % of Total
1973	6270	15,672	28.6	1424	1837	43.7	3768	22,493	14.3
1974	6616	19,814	25.0	1507	2434	38.2	3925	21,443	15.5
1975	5053	17,032	22.9	1179	1685	41.2	3349	25,060	11.8
1976	5478	18,352	23.0	1752	1536	53.3	3563	30,749	10.4
1977	4942	12,938	27.6	1529	2146	41.6	3390	31,731	9.7
1978	5735	9,953	36.6	1749	1750	50.0	3985	33,933	10.5
1979	5759	18,030	24.2	1632	2561	38.9	3766	35,043	9.7
1980	5683	26,029	17.9	1700	3191	34.8	4331	30,383	12.5
1981	5049	18,726	21.2	1785	4020	30.7	4167	30,631	12.0
1982	4877	17,220	22.1	1625	2677	37.8	3756	30,813	10.9

Sources: U.S. Dept. of Transportation, Maritime Administration, United States Oceanborne Foreign Trade Routes, August 1981 (for years 1973-1979).

_____, "U.S. Foreign Trade Routes by Flag of Vessel," 1980, 1981, 1982.

On the other hand, in any one year, many of the same commodities appear to be important for both services. Thus, there does seem to be competition between liners and non-liners, particularly on the in-bound leg for which non-liner vessels have very little cargo. The degree of competition is explained by the requirement for timely service. The relative share of tonnage of a particular commodities reflects that requirement with liners carrying relatively more valuable commodities and non-liners taking the low value commodities. For 1981, liner imports were valued at $3441 per ton compared with $1481 per ton for non-liner imports. Still there is significant competition for many commodities. Moreover, the extraordinary variation in the volume of non-liner trade implies that there must typically be non-liner capacity available which, in turn, provides some measure of constraint on the power of shipping conferences.

3.2 COMPETITION AMONG PORT AND PORT RANGES

In addition to competition between modes on the North Atlantic, there may also be geographic competition among adjacent ports and port ranges. One piece of evidence of such competition might be a shifting of cargoes between North Atlantic ports and those in the South Atlantic and the Gulf of Mexico.

Table 7 gives total liner tonnage for the three east coast port ranges to Northern Europe: TR 5, 7, 8, 9 - U.S. North Atlantic; TR 11 - U.S. South Atlantic; and TR 21 - U.S. Gulf. Since the early 1970s, there has been a modest shift in cargoes along the U.S. east coast. Clearly, the North Atlantic ports have experienced a decline in absolute and relative share of liner tonnage. South Atlantic ports have increased their tonnage, absolutely and relatively, while Gulf coast liner tonnage has remained fairly stable.

For individual ports, Table 8 gives containerized tonnage and numbers of 20-foot equivalent units (TEUs) for selected ports and selected years beginning with 1973. Again, it is evident that the South Atlantic ports - Richmond, Wilmington, Charleston, Savannah, Jacksonville, and Miami - have increased their relative share of containerized cargoes. It is interesting to note that there is no evidence here that containerization is leading to the development of any super-ports. Nor does there seem to be any consistent pattern between the size of ports and the growth rate of container cargoes.

TABLE 7. U.S. LINER TRADE ON SELECTED TRADE ROUTES (Thousands of Long Tons)

	TR5, 7, 8 & 9 North Atlantic			TR 11 South Atlantic			TR 21 U.S. Gulf				
Year	Total Tonnage[a]	Total TEUs[b]	Share of Total U.S. Liner Tonnage[a]	Total Tonnage	Total TEUs	Share of Total U.S. Liner Tonnage	Total Tonnage	Total TEUs	Share of Total U.S. Liner Tonnage	South Atlantic States share of Total Mfg. Employment	South Central States Shrae of Total Mfg. Employment
1964	5849	NA	8.3 %	1236	NA	1.76%	4328	NA	6.15%	12.84	10.79
1966	4964	NA	7.90	1215	NA	1.93	3784	NA	6.02		
1973	6270	440	12.2	1424	42	2.78	3768	45	7.35	10.99	13.63
1974	6616	463	12.9	1507	47	2.93	3925	62	7.64		
1975	5053	378	11.41	1179	46	2.66	3349	77	7.56	14.35	13.81
1976	5478	415	11.00	1652	65	3.32	3563	77	7.15		
1977	4942	388	10.34	1529	67	3.20	3390	83	7.09	14.66	14.54
1978	5735	575	10.15	1749	111	3.10	3985	143	7.05		
1979	5759	622	10.10	1632	141	2.86	3766	221	6.61		
1980	5668	651	9.56	1696	143	2.86	4018	159	6.78		
1981	5049	626	8.43	1785	133	2.98	4094	138	6.83	15.05	15.36
1982	4877	583	8.95	1625	166	2.98	3756	188	6.89	15.36	15.38

Sources: [a]U.S. Department of Transportation, Maritime Administration, United States Oceanborne Foreign Trade Routes, various years.

[b]_____, Containerized Cargo Statistics.

[c]U.S. Department of Commerce, Bureau of Census, Statistical Abstract of the United States 1984, (December 1983).

TABLE 8. CONTAINERIZED TONNAGE AT SELECTED U.S. AND CANADIAN PORTS

Ports	1973 Total Loaded		1978 Total Loaded		1979 Total Loaded		1980 Total Loaded		1981 Total Loaded		1982 Total Loaded	
	Tons	TEUs	Tons	TEUs	Tons	TEUs	Tons	TEUs	Tons	TEUs	Tons	TEUs
New York	6991	523	7359	744	6962	736	7021	750	7737	805	7186	757
Baltimore	1210	95	2044	192	2469	235	2629	262	2584	258	2454	246
Norfolk	1356	96	1793	187	1302	199	1824	201	1848	188	1714	178
Houston	458	31	1226	110	1389	157	1455	136	2010	154	1705	146
Miami	241	19	757	75	976	94	1289	132	1228	126	1316	130
Charleston	471	32	1060	97	1272	121	1205	118	1303	134	1299	140
New Orleans	364	27	1024	94	1163	127	1001	93	1066	83	1024	92
Savannah	255	19	710	63	556	63	826	92	871	102	901	107
Philadelphia	519	36	630	60	793	76	760	69	769	72	874	75
Jacksonville	-	-	257	28	283	41	284	36	291	34	420	43
Boston	199	15	359	38	363	40	357	40	394	41	364	37
Wilmington, NC	-	-	421	28	361	21	167	17	252	24	309	30
Richmond, VA	-	-	-	-	-	-	-	-	188	-	166	12
Total, All Ports	18,626	1431	30,193	3039	31,577	3330	34,492	3,686	37,335	3884	37,330	3946
Halifax, N.S.				185	2083	219	1935	201	1786	123		
St. John N.B.				84	921	84	967	87	904	84	970	88
Montreal, Que.				179	3051	233	2952	281	3349	298		
Toronto, Ont.				13	-	11	-	N/A	-	N/A		
Total				461	6055	547	5854	569	6039	505		

Sources: U.S. Dept. of Transportation, Maritime Administration, Containerized Cargo Statistics, various years.

Containerized International Yearbook, 1981.

Janes' Freight Containers 1983.

Journal of Commerce, March 15, 1984, p. 1A.

Several factors have influenced the cargo movements between the north and south Atlantic. First, there has been the shift in U.S. trade away from Europe toward Asia as discussed above. Secondly, a redistribution of manufacturing activities has occurred within the U.S.; see the last two columns of Table 7. In 1964, 12.84 percent of U.S. manufacturing employment was located in the South Atlantic states, from Delaware to Florida, and 10.79 percent was located in the South Central states from Kentucky to the Gulf coast. By 1981, both of these percentages had risen to 15.4 percent. Thus, the share of liner traffic moving through South Atlantic ports would likely have risen under any circumstance.

U.S. east coast ports have lost some cargoes because of minibridge services to and from west coast ports in U.S./Far East trade. A minibridge service would, say, involve shipping cargoes from New York overland to Los Angeles and then via ship to Japan. Several carriers are now discussing round-the-world services which would revive all water services from the Far East to U.S. east coast ports and then compete with existing eastbound North Atlantic services. There does not appear to be any reason for round-the-world services <u>per se</u> to affect North Atlantic competition. If there is an impact, it will be because new carriers provide this service or because of the capacity increases for that new service. This impact will be discussed below in greater detail.

One factor in port competition would be significant cost differences between ports. Recently, the Port Authority of New York and New Jersey filed a complaint with the Federal Maritime Commission (FMC) requesting a change in the assessment of port fees to fund longshoremen's benefit programs. It is reported that the port fees result in an additional $240 charge per 40-foot container relative to adjacent ports.[6] Intuitively, it would seem that liner operators would welcome, even encourage, competition among ports to reduce port fees.

On the other hand, liner conferences may have an incentive to discourage rate competition among ports. Since all members may not serve all ports the conference covers, the membership would not want the rate structure to favor certain ports. In addition, port competition might be viewed as undermining stable conference relationships and as encouraging entry into the trade. Likewise, ports might desire to avoid the appearance of rate competition in order to stabilize tonnage levels. But even if conferences and ports attempt t discourage rate competiton among ports, it would be expected that shippers woul minimize total transportation costs and cargoes will move to the lowest cost port.

There is some limited evidence of attempts by conferences and ports at suppressing competiton. In the 1977 study of this industry, the Department of Justice analysts included portions of conference tariffs indicating identical rates for many commodities on adjacent port ranges. Recently, the Journal of Commerce reported statements by Mr. Raymond G. Heinzelmann, a port authority executive, that the North American Ports Association has formed a committee to coordinate member actions to prevent cargo from moving to other port ranges.[7] In addition, port authorities and associations have testified in favor of the so-called Canadian diversions bill.

In summary, then, there may be competition among U.S. port ranges, but it is not an overt competition. To the contrary, conferences, with encouragement of port authorities, may actually discourage competition in rates between ports. The competition that does occur is the competition from the minimization of total costs including total freight costs. No collusion among liner firms and ports can deter this competition in the long run.

For the past several years, U.S. port authorities and carriers serving U.S. North Atlantic ports have complained that carriers serving Canadian ports have attracted U.S. cargoes by offering very low rates. Since Canada does not have a tariff filing and regulatory system like that of the U.S., rates paid by shippers from Canadian ports are not as readily available as in the U.S. Legislation has been under discussion in the Congress to compel the publishing of all transportation rates for cargoes moving across U.S. borders regardless of the location of the port. If this Canadian diversion occurs, then it should be evident in the tonnage statistics for U.S. and Canadian ports.

Table 8 also gives container tonnage and TEUs for major Canadian Atlantic and Great Lakes ports. From the limited data provided, the only clearly discernible pattern is the increase in container movements through Montreal. In part, that increase may be accounted for by cargo shifting from Halifax to Montreal. A major factor in that shift occurred when Dart Containerline moved its Canadian operations base from Halifax to Montreal.[8] But it is almost certainly true that U.S. cargoes have been attracted to Canadian ports.

In a study published in March 1982, the Maritime Administration[9] estimated that for 1980 over 2 million tons of U.S. cargoes valued at more than $4 billion were transshipped through Canada. Of the $4 billion in cargoes, the study indicates that more than 93 percent of the cargoes moved through eastern U.S.

customs districts in close proximity to Montreal. The implication is that most of the imports and exports diverted away from U.S. ports are moving through Montreal and the port statistics in Table 8 are consistent with that contention.

The study also points out that 29 percent of the transshipped exports between 1979 and 1980 were shipments to the Soviet Union. In 1980, U.S. longshoremen's unions imposed an embargo on cargoes bound for the U.S.S.R. Thus, a significant portion of this Canadian diversion is the result of political actions and not competitive maneuvering. As will be discussed later, it is expected that Soviet liner firms will be increasing their capacity on services to Canadian ports in order to capture some of those U.S. cargoes.

In conclusion, there is evidence that Canadian ports are attracting a significant amount of cargoes that could have been moved through U.S. east coast ports.

3.3 COMPETITION WITHIN THE LINER INDUSTRY

The evidence examined to this point is consistent with arguments that liner shipping serving the U.S. North Atlantic faces modal competition from air freight carriers and non-liner shipping services and geographic competition from adjacent ports and port ranges including Canadian ports. The next source of competition to be considered is that within the liner industry itself.

As discussed, international shipping regulation permits liner operators to reduce competition among themselves by forming shipping conferences. In the case of the North Atlantic, the conference structure was discussed above. There are currently seven firms that are members of all the North Atlantic agreements Table 1 identifies all the carriers currently serving the trade and gives the conference affiliation of each along with their estimated annual container capacity.

It is apparent that the conference members dominate the trade. From Table 1 above, it can be seen that the conference members accounted for more than 75 percent of total capacity in May 1984. With the exception of TFL and POL, all of the large carriers are conference members and have been for at least 15 years. POL, though not a conference member, has participated in a rate agreement with the five North Atlantic conferences and has essentially behaved like a conference carrier. TFL did operate as an independent for several years but finally joined the conference in December 1983. ABC and Contract Marine[10]

are strong independents and have served the trade with apparent success for a number of years. American Coastal and Parklines are the latest in a long line of independents[11] who have entered these trades and their success will simply have to be demonstrated in time.

The five basic conference agreements have existed since at least the middle 1960s and, in most cases, the current members have been members for more than 15 years. Of the 14 shipping companies that were members of at least one of the North Atlantic conferences in 1968, 6 containership operators or their consortium successors are members of all North Atlantic conferences in 1984.[12] There has been a remarkable stability among the carriers serving the trade.

Before this last statement is misinterpreted, it should be noted that many shipping companies have provided liner service on the North Atlantic over the past 15 years. The various sources used and identified in this study indicate that since 1968 about 50 liner firms have offered service on this trade. Among those firms that once served the trade under their own name, many have joined consortia. The Atlantic Container Line (ACL) was formed in 1966 and includes French, British, Dutch and Swedish companies. The Dart Containerline was formed in 1969 by shipping firms from the U.K., Belgium, and Hong Kong. Between those two consortia, the operations of about ten formerly independent firms were coordinated. Even the services of firms which have ceased to exist or moved to other trades were often sold to firms which remain in the trade or are traceable to firms still in the trade. American Export Lines was purchased in 1978 by Farrell Lines and in 1980 Farrell sold that service along with certain vessels to U.S. Lines. Seatrain Lines sold its North Atlantic service to the Australian owned Trans Freight Lines in 1980. Thus, the same ships often continued a service under new operator's names.

On the basis of this cursory examination of the current operators, it might appear that conference membership is desirable or even essential to success. A more detailed look at the history of entry into and exit from the North Atlantic conferences indicates that many shipping companies have been tempted to seek membership.

Table 9 identifies the carriers that have held membership in at least one of the five basic conference agreements covering the North Atlantic trade for selected years between 1968 and 1984. The table includes the names of 32 firms. Seven firms are members of all the agreements in 1984. These 7 firms can trace

TABLE 9. CONFERENCE MEMBERSHIP ON THE NORTH ATLANTIC, SELECTED YEARS 1968-1984

Carrier	North Atlantic Continental Freight Conf. Agreement No. 9214					North Atlantic/French Atlantic Freight Conf. (7100)					North Atlantic United Kingdom Freight Conf. (7100)					North Atlantic Westbound Freight Assoc. (5850)				
	1968	1972	1975	1978	1984	1968	1972	1975	1978	1984	1968	1972	1975	1978	1984	1968	1972	1975	1978	1984
American Export Lines		X	X			X	X	X			X	X	X			X	X	X		
Farrell Lines				X				X						X					X	X
U.S. Lines		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Atlantic Container Line	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cunard Line						X					X					X				
French Line	X					X														
Holland-America Line	X										X									
Swedish Atlantic Line												X	X	X	X		X	X	X	X
Dart Containerline		X	X	X	X		X	X	X	X	X					X				
Belgian-Line	X															X				
Hamburg-America	X															X				
North-German Lloyd	X																			
Hapag-Lloyd		X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X
Sea-Land Service	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Seatrain Lines		X	X	X			X	X	X			X	X	X			X	X	X	
Anchor Line											X					X				
Armement Deppe											X									
Black Diamond Line	X																			
Bristol City Line											X					X	X	X		
Furness Warren Line											X	X								
Furness Withy																X				
Head Line & Lord											X									
Independent Gulf																X	X			
Irish Shipping											X					X				
Manchester Lines											X					X				
Moore McCormack	X																X	X		
Atlantic Gulf Serv.																	X	X		
Johnston Warren													X				X	X		
New England Expr.																			X	
Atlantic Cargo Serv.																	X			
Combi Line Joint Serv.										X					X					X
Trans Freight Lines				X																

Sources: For 1968, 1972 and 1975 the source was the U.S. Department of Justice, The Regulated Ocean Shipping Industry. (1975)
For 1978, the source was the Federal Maritime Commission, North Atlatnic Trade Study, a staff report. (February 1980)
For 1984, the membership was determined from U.S. Federal Maritime Commission records.

TABLE 9. CONFERENCE MEMBERSHIP ON THE NORTH ATLANTIC, SELECTED YEARS 1968-1984 (CONTINUED)

Carrier	Continental North Atlantic Westbound Freight Conf. (8210)				
	1968	1972	1975	1978	1984
American Export Lines		X	X		
Farrell Lines				X	X
U.S. Lines	X	X	X	X	X
Atlantic Container Line	X	X	X	X	X
Cunard Line					
French Line					
Holland-America Line	X				
Swedish Atlantic Line					
Dart Containerline		X	X	X	X
Belgian-Line	X				
Hamburg-America					
North-German Lloyd					
Hapag-Lloyd		X	X	X	X
Sea-Land Service	X	X	X	X	X
Seatrain Lines		X	X	X	
Anchor Line					
Armement Deppe					
Black Diamond Line	X				
Bristol City Line					
Furness Warren Line					
Furness Withy					
Head Line & Lord					
Independent Gulf					
Irish Shipping					
Manchester Lines					
Moore McCormack	X				
Atlantic Gulf Serv.					
Johnston Warren					
New England Expr.					
Atlantic Cargo Serv.					
Combi Line Joint Serv.					
Trans Freight Lines					X

linkages with 10 others among the 32 firms; that is, 10 firms either merged,[13] formed consortia,[14] or sold their North Atlantic services to another carrier.[15]

In 1968, there were 22 carriers that were members of at least one of the five conferences. During the late 1960s, the container technology was being rapidly introduced into the liner industry and the effect of that new technology was to immediately create excess capacity among carriers using the old technology. The consequences of this excess capacity are reflected in the decline in the number of conference members to 13 in 1972 and 11 in 1975. It was a technological imperative rather than cartel behavior that is the dominant factor in explaining the structure of North Atlantic liner shipping.

Because the Shipping Act of 1916 - and 1984 for that matter - requires so-called open conferences, which permit entry to virtually all who apply, a number of shipping firms have joined the North Atlantic conferences between 1972 and 1984. No effort has been made to investigate specific carriers' difficulties relating to entry into this trade but the sheer number of participants suggests that entry into the North Atlantic conferences is not difficult. On the other hand, entry into the conference is clearly not a guarantee of success on the trade. Over the period covered in the table, a number of carriers that were conference members and operated for several years eventually left the trade, some failing entirely.[16]

As the above analysis of conference membership revealed, since 1968 the number of carriers serving the North Atlantic has decreased. However, there have always been entrants both as conference and as independent operators.

Table 10 identifies the non-conference carriers that have operated on the trade in 1968, 1975, 1978, and 1984. Here again, many firms have entered the trade over this period.

It is not exactly clear what constitutes successful entry, but both Tables 9 and 10 include names of carriers that entered the trade after 1968 and served on the trade for a number of years. Among those still serving the trade is Contract Marine Carriers (CMC) which entered in 1977. Of course, CMC derives the majority of its cargo from contract service, not as a common carrier. Scandinavian Continental Line (SCOL) provided primarily break bulk service as a independent for about 10 years before disappearing in the spring of 1984. Trar Freight Line (TFL) entered the trade in 1976 and acquired Seatrain Lines' North

TABLE 10. NON-CONFERENCE OPERATORS ON THE NORTH ATLANTIC FOR SELECTED PERIODS 1968-1984

Year	1984 Status
1968	
Rate Agreement Members	
Finnlines	Operated in other trades
Meyer Lines	Unknown
Polish Ocean Lines (POL)	Unchanged
Independents	
Licht Line	Unknown
Marchessini Line	Unknown
Halveson Lines	Unknown
States Marine Lines	Defunct
Waterman Lines	Operates in other trades
1975	
Rate Agreement Members	
Baltatlantic Lines	Operates in other trades
Finnlines	Operates in other trades
New England Express Lines	Unknown
POL	Unchanged
Independents	
Cargo Lines	Unknown
Orbis Liner Services	Unknown
Schuldt Atlantic Line	Operates in other trades
Scandinavian Continental Line (SCOL)	Ended service in early 1984
1978	
Rate Agreement Members	
Baltatlantic Lines	Operates in other trades
POL	Unchanged
Independents	
Atlantic Biscay Container Line	Unknown
Trans Freight Line (TFL)	Joined conferences
Eurobridge Lines	Unknown
Contract Marine Carriers (CMC)	Unchanged
SCOL	Ended service in early 1984
Regent Line	Operates in other trades
Waterman Line	Operates in other trades

TABLE 10. NON-CONFERENCE OPERATORS ON THE NORTH ATLANTIC FOR SELECTED PERIODS, 1968-1984 (CONTINUED)

Year	1984 Status
1984	
Rate Agreement Members	
POL	
Independents	
Europe ABC Containerline	
CMC	
American Coastal Lines	
SCOL	

Atlantic service in 1980. TFL operated as an independent, and not a member of any rate agreement, until December 1983 when it joined all the North Atlantic conferences.

The evidence would indicate then that entry is relatively easy and that success is possible. One can infer from the continuing appearance of new entrants - two in the first half of 1984 - that ship operators believe that they can be successful on the North Atlantic. However, the evidence also indicates that although many are attracted to entry, many entrants fail to achieve success on this trade.

It might be argued that the difficulty of successful entry implies that conferences are adept at controlling capacity on the trade as a means of detering entry. A definitive examination of the hypothesis that shipping conferences manage capacity in order to deter entry would require a formal economic theory of shipping conference behavior. Instead, this study will present the available evidence of conference capacity offerings, market share data, and trade volumes.

The 1976 DOJ study reports capacity offerings and market share data on the North Atlantic for 1968 and 1975. Table 11 below gives these data.

TABLE 11. LINER CAPACITY OFFERINGS AND MARKET SHARES ON THE NORTH ATLANTIC, 1968 AND 1975

	Share of							
	Dwt.		Container Capacity		Sailings		Cargo Tonnage	
	1968	1975	1968	1975	1968	1975	1968	1975
Conference Operators	80.3	80.5	95.8	89.0	79.7	67.1	60.2	79.6
Rate Agreement Oper.	11.0	15.1	4.1	9.2	11.0	22.9	16.7	13.7
Independents	8.6	4.4	0	1.8	8.7	10.0	23.1	6.7

Source: DOJ, The Regulated Ocean Shipping Industry (1977), App. E, Charts 3 and 4; market shares: Chart H, p. 192.

We first observe that in these two years conference operators offered more capacity than they captured in cargo share. Such behavior could be evidence of conference efforts to exclude competition. On the other hand, it could simply indicate that conference carriers are vulnerable to competition and that they have relatively low load factors.

Table 12 gives container capacity offered, in TEUs, by carrier and conference status and cargo tonnage handled on the trade for the years 1978 and 1980-1984. Between 1978 and 1980, cargo tonnage increased modestly and conference and total capacity decreased very slightly. From 1980 through 1982, cargoes fell each year and conference capacity fell by just a slightly smaller percentage. On the other hand, non-conference capacity jumped dramatically in 1981 when POL introduced new large containerships on its service and ABC containerline inaugurated a new independent service. Moreover, in 1981, the Cast operations in Montreal also increased their capacity by about 25 percent. By spring 1983, both conference operators and independents increased capacity modestly and a new Dart - CP ships - Manchester Liner consortium began service to Montreal in obvious competition with both Cast and U.S. services. As of early 1984, TFL joined the conference operators and capacity increases by new and remaining independents resulted in significant increases in both conference and total trade capacity.

While these data do not prove that conferences attempt to limit capacity, it is consistent with that assertion. TFL's entrance into the conferences after many years might be explained by a desire for stability in the face of rapid growth of non-conference capacity, including the Canadian operations.

It would be expected that service levels would be adjusted directly with cargo levels, increasing when cargo volume increased and decreasing when cargo volume decreased. If liner conferences are effective cartels, these adjustments might occur more quickly and without carriers leaving the trade. One could view the evidence presented here as indicating such behavior. It has also been argued that conferences may attempt to deter entry by accepting lower load factors than would be the case if operators were short-run profit maximizers. One could also view the evidence offered as indicating that to be the case. At the same time, it would have to be acknowledged that the North Atlantic has always attracted a number of new firms, a sort of competitive fringe, which limit the effect of any cartel.

TABLE 12. EASTBOUND CONTAINER SLOT CAPACITY OFFERED AND NUMBER OF LOADED TEUs HANDLED ON TR5, 7, 8 AND 9 1978 and 1980-84[e]

Carrier, by Type	1978[a] Slot Capacity	1980 Slot Capacity	1981 Slot Capacity	1982 Slot Capacity	1983 Slot Capacity	1984 Slot Capacity
Conference:						
ACL	123,563	144,618	112,398	101,094	97,188	102,750
Dart	45,617	81,692	81,692	54,600	54,600	52,832
Hapag-Lloyd	79,170	91,416	91,416	91,416	91,416	91,416
Sea-Land	102,336	98,800	141,050	138,017	143,000	143,000
USL	67,200	78,000	104,000	104,000	105,733	110,552
AEL-Farrell	51,360	51,532	Sold Service	N/A	N/A	N/A
Seatrain	32,717	44,177	Bankrupt	N/A	N/A	N/A
TFL	(c)	N/A	N/A	N/A	N/A	44,512
Total	501,963	590,235	530,556	489,127	491,937	545,062
Rate Agreement:						
Baltatlantic	23,904	(d)	N/A	N/A	N/A	N/A
POL	13,686	15,080	15,080	72,800	72,800	72,800
Total	37,590	15,080	15,080	72,800	72,800	72,800
Independents:						
Atlantic Biscay	8,684	Left trade	N/A	N/A	N/A	N/A
Eurobridge	8,1216	11,700	Left trade	N/A	N/A	N/A
Spanish Lines	7,920	Left trade	N/A	N/A	N/A	N/A
Marfret	N/A	12,312	Left trade	N/A	N/A	N/A
SCOL	(b)	7,428	(b)	(b)	(b)	(b)
CMC	12,230	20,228	20,306	17,204	24,544	27,976
TFL	44,512	44,512	49,738	53,586	49,738	(c)
Europe ABC	N/A	N/A	N/A	33,282	18,260	31,230
Franco Express	N/A	N/A	N/A	6,528	N/A	N/A
American Coastal	N/A	N/A	N/A	N/A	24,480	24,480
Parkline	N/A	N/A	N/A	N/A	N/A	13,812
Total	81,562	96,180	70,044	110,600	117,022	97,498
Grand Total	621,115	701,495	615,680	672,527	681,759	715,360
Total Loaded TEUs	290,300	395,000	319,300	304,300		

Sources: The Journal of Commerce, shipcards in various issues for each year, 1980-1984.

Federal Maritime Commission, North Atlantic Trade Study, (April 1979), Table 12, pp. 28-30 for 1978.

U.S. Dept. of Transportation, Maritime Administration, Containerized Cargo Statistics, Calendar Year 1982 for loaded - outbound TEUs.

[a]In 1978, Regent Line and Waterman Line offered breakbulk services according to the FMC study.

[b]Breakbulk service.

[c]TFL was an independent from 1976 until it joined the conference in Dec. 1983.

[d]Baltatlantic actually operated briefly in 1980 but in that year U.S. longshoremen refused to load cargoes to the Soviet Union.

[e]For the years 1980-1984, annual slot capacity was estimated by multiplying the number of voyages per year by the average capacity in TEUs for the actual vessels used on the trade.

As mentioned, anything more than cautious conjecture about conference behavior requires a more thorough postulation of an economic theory of shipping firm and conference behavior and a more sophisticated analysis of the evidence. Nonetheless, the evidence presented does not contradict the assertion that liner conferences attempt to control capacity.

4. PRICING BEHAVIOR AND PROFITABILITY

4.1 CONFERENCE RATE MOVEMENTS IN THE NORTH ATLANTIC

The usual predictions of economic theory are that cartels act as a monopolizing agent for their members. As a result, they attempt to restrict output with the effect of raising prices and increasing profitability. The following section of the paper will examine the publicly available evidence regarding pricing behavior and profitability in the liner industry and the North Atlantic trades. Here again no rigourous tests of hypotheses are attempted or implied; the evidence is presented and discussed with no effort to demonstrate or refute the argument that liner conferences are effective cartels.

In U.S. trades, liner operators and conferences are required by the Shipping Acts of 1916 and 1984 to file tariffs with the Federal Maritime Commission. The FMC acts as a policing agent to insure that actual rates charged are those included in the tariff and the commission is empowered to levy large fines on violators. As a result, most industry observers report that posted rates are adhered to on U.S. trades. On the other hand, real transactions costs may be adjusted by changing the quality of the service. Table 13 gives major conference posted rates westbound from the U.K. to the U.S. east coast - and thus overlaps TRs 5, 7, 8 and 9 and 11. These data are published monthly by Lloyd's Shipping Economist and the nominal rate and the rate in constant 1979 dollars are compared in the table with Lloyd's monthly sailings from east coast U.S. ports presented as a measure of cargo volumes.

The data in Table 13 are in accord with the behavior of rates that might be expected given the economic conditions faced by liner shipping in the period 1980-1983. In 1980, oil prices, and thus bunker fuel prices, were rising very rapidly and should have led to rising freight rates. A contrary force arose beginning in late 1980 or early 1981 as the world economy began to contract. The result was that despite carriers' desire to raise rates in the face of increased costs, fewer cargoes depressed rates by mid-1981. Trade volumes increased in late 1982 and 1983; but until a conference rate hike in November 1983, rates were lower in real terms in October 1983 than they had been in January 1980. Over the period reported in the table, average nominal and real rates increased only modestly and it is likely that the posted rate overstates the actual transactions costs for ships as carriers sought to fill their ships.

TABLE 13. MONTHLY SAILINGS AND WESTBOUND CONFERENCE RATES OF THE NORTH ATLANTIC

Month	1980			1981			1982			1983		
	Sailings[a]	Nominal Rate[b]	Rate in 1979 Dollars[c]	Sailings[a]	Nominal Rate[b]	Rate in 1979 Dollars[c]	Sailings[a]	Nominal Rate[b]	Rate in 1979 Dollars[c]	Sailings[a]	Nominal Rate[b]	Rate in 1979 Dollars[c]
January	140	$3640	$3303	150	$4213	$3434	150	$3549	$2758	160	$4290	$3354
February	130	3642	3243	130	4652	3776	140	4462	3475	150	4290	3354
March	150	3800	3360	130	4644	3730	170	4483	3502	180	4290	3362
April	140	3939	3480	140	4644	3697	150	4483	3513	190	4290	3375
May	150	3817	3351	170	4602	3647	170	4397	3446	160	4290	3362
June	130	3937	3423	150	4500	3552	140	4376	3421	170	4290	3339
July	150	3983	3431	160	3893	3061	170	4376	3413	180	4290	3328
August	140	3963	3378	150	4085	3194	170	4376	3416	170	4290	3315
September	130	4005	3400	150	3834	2998	150	4376	3413	170	4290	3295
October	150	4069	3422	150	3734	2919	180	4376	3416	160	4290	3287
November	140	4135	3449	150	3783	2951	170	4376	3408	170	4934	3775
December	140	4160	3435	140	3549	2764	170	4376	3405	160	4934	3769
Annual Average	140.8	$3924	$3391	147.5	$4162	$3294	160.8	$4334	$3382	168.3	$4397	$3410

Source: Lloyd's Shipping Economist, Various issues 1981-1984.

[a]Sailings are thousands of TEUs.

[b]The nominal rate is the unit rate for major conferences from any U.K. port to any U.S. east coast port exclusive of any service, customs, documentation and insurance charges.

[c]The nominal rate was deflated by the producer price index for intermediate materials converted to base year of 1979. Business Conditions Digest, July 1982 and June 1984 issues.

Even if shipping conferences are effective cartels, they are not recession proof. Next, the study examines the profitability of carriers operating on the North Atlantic.

4.2 CARRIER PROFITABILITY

As noted, many shipping firms have operated on the North Atlantic, but only a few have succeeded in staying the course. Unfortunately, financial data on the shipping industry is most often not publicly available. But from the data that is available, together with observation of carrier behavior, it is possible to get some idea of the profit performance of North Atlantic carriers.

The ingredients for success on the trade are not easily identified as the characteristics of the carriers that have failed and succeeded are quite varied. Among those that have failed were U.S. flag operators that received operating differential subsidies, American Export Lines and Farrell Lines. At the same time, U.S. Lines after it had struggled to survive for several years without subsidy returned to the ODS program by acquiring the AEL-Farrell North Atlantic service. The 1983 Annual Report of McLean Industries, Inc. indicates that U.S.L. has experienced modest financial success since 1981. Table 14 gives financial data for U.S.L. and Sea-Land.

In contrast to U.S.L, Sea-Land Services, the largest U.S.-flag liner company and the largest carrier on the trade, has never received O.D.S. However, during most of its affiliation with R. J. Reynolds Industries, Sea-Land has produced positive cash flows for the parent firm;[17] although between 1978 and 1982, funds from Sea-Land operations totaled $941 million while its capital expenditures totaled $1,002 million.[18] In 1984, Reynolds initiated steps to spin off Sea-Land as an independent operation and that has now been accomplished. Some observers[19] have argued that Reynolds' decision to divest itself of the shipping operation was precipitated by U.S. Lines arrangement to finance 14 giant new container ships by means of MarAd's "buy out" of U.S.L.'s subsidy contract.

Hapag-Lloyd, one of the three largest carriers on the North Atlantic, has lost money in 1982 and 1983 and the North Atlantic is reported to be responsible for about $36 million of an almost $80 million loss in 1983.[20] The company has done considerable financial and operational restructuring in order to restore profitability.[21]

TABLE 14. FINANCIAL DATA FOR U.S. LINES AND SEA-LAND, 1979-83
(in Thousands of Dollars)

	1979	1980	1981	1982	1983
Operating Revenues					
U.S. Lines	$ 503,243	$ 516,342	$ 598,005	$ 655,526	$ 768,216
Sea-Land	1,220,000	1,414,000	1,623,000	1,583,000	1,586,000
Operating Profit					
U.S. Lines	33,566	3,500	56,864	89,019	62,152
Sea-Land	58,000	696,000	103,000	157,000	75,000
Net Income					
McLean Industries	(1,941)	(313)	28,847	56,035	26,552
Sea-Land[a]	N/A	N/A	17,000	79,000	46,000
Gross Capital Expenditures					
U.S. Lines	28,550	49,139	55,152	76,972	291,570
Sea-Land	276,000	381,000	80,000	102,000	
Return on Assets					
McLean Industries[b]	N/A	N/A	4.99%	8.30%	2.34%
Sea-Land[c]	N/A	N/A	2.04	8.69	4.83
Assets					
McLean Industries[d]	311,349	319,602	393,861	499,235	837,188
Sea-Land[e]	N/A	N/A	833,000	909,000	952,000

Sources: McLean Industries, Inc. 1983 Annual Report.

R.J. Reynolds Industries 1982 and 1983 Annual Reports.

[a]"Net earnings from discontinued operations" 1983 RJR Annual Report, p. 39.
[b]Income from continuing operations ÷ total assets, McLean, 1983, p. 2.
[c]Net earnings from discontinued operations ÷ net assets of discontinued operations, 1983 RJR Annual Report, p. 39.
[d]Identifiable assets attributable to transportation, McLean p. 2; the 1983 figure includes Moore McCormack Lines acquired in January 1983.
[e]Net assets of discontinued operations, RJR p. 39.

The Atlantic Container Line (ACL) has also reorganized its North Atlantic operations since 1981. After experiencing its first losses in the trade, ACL dropped direct service to Montreal in the face of severe competition.[22] The consortium also steadily reduced the capacity of its U.S. North Atlantic operations. These factors suggest that ACL continues to lose money as have most North Atlantic carriers. It has, however, carried through with a long discussed new building program.[23]

The other consortium on the trade, Dart Containerline, has responded to the competitive environment in a different fashion. In 1981, Dart joined Manchester Liners and CP Ships in the St. Lawrence Co-ordinated Service (SLCS). A further development occurred in late 1983 when Dartcan, Inc. announced a joint venture with CP Ships to be called The Canada Line. This move represents an additional rationalization effort by both participants and will not affect the SLCS operation.[24] It is evident that they plan to attract U.S. cargoes. Thus, Dart is taking the unusual course of competing with its own U.S. Service.

With regard to the profitability of non-conference carriers (and TFL is included in the category for present purposes), the only information can be the inference of some success due to their continuing service. Contract Marine, TFL and ABC have all expanded their U.S. operations although the latter two have expanded their non-North Atlantic operations.

A most interesting operation on this trade has been the Cast North America, Ltd. service between Montreal and Antwerp. Although it started as far back as 1970,[25] Cast adopted a particularly aggressive attitude in 1979. Their strategy was to combine bulk and container service. While bulk commodity trade was expanding rapidly in 1979 and 1980, the strategy appeared to be brilliant. The firm ordered six huge combination bulk-container ships with 1966 container slots. Then in 1981, the bulk market contracted and Cast immediately began to experience financial trouble. When Cast began to negotiate in 1982 with the Canadian North Atlantic conferences, a group of Cast employees broke with the company and formed Sofati Container Lines. Sofati chartered two small ships and entered the trade itself.[26] In August 1983, Cast's European parent firm collapsed and it was reorganized by the Royal Bank of Canada. At the same time, Cats (1983) Ltd. acquired Sofati which ceased operating its own vessels.

Finally, in January 1984, the new Cast joined the Canadian conferences after which time the conference raised its rates by 12.5 percent.[27]

In summary, conditions on the North Atlantic have been difficult for the past six years. Due to a shift in U.S. trade patterns plus the contractions in the U.S. and European economies in 1980 and 1981-82, trade volumes have fallen on the North Atlantic since 1979. Profitability was also severely hurt by the doubling of fuel prices in 1980 and 1981, although there has been some relief since mid-1981. Still another negative impact on the profitability has been the growth of non-conference capacity plus competition from Montreal transshipments of U.S. cargoes. It is clear that even the strongest carriers on the trade have been reorganizing their operations in order to survive during this difficult period.

5. IMPACT OF THE SHIPPING ACT OF 1984 AND RECENT DEVELOPMENTS

5.1 OUTLINE OF THE CHANGES AFFECTED BY THE SHIPPING ACT OF 1984[28]

The long-awaited maritime regulatory reform legislation was signed into law by President Reagan on March 20, 1984. The bill accomplished three things: it reaffirms the U.S. policy acceptance of shipping conferences albeit in a regulated environment; it substantially reforms the regulatory mechanism; and it provides new freedom for both conferences and for shippers. This discussion focuses principally on the last aspect of the law.

Perhaps more so than any maritime legislation since the Shipping Act of 1916, this reform package explicitly acknowledges the uncertainty of economists and policymakers regarding the effect of shipping conferences on the public welfare. Because of that uncertainty, the bill offers new opportunities for experimentation in conference organization and conference-carrier-shipper relationships while at the same time, preserving the regulatory framework that has existed since 1916.

Of principal interest in this study are the provisions of the new law that are likely to immediately affect competition as discussed above. The only things that the new law explicitly identifies with regard to conference agreements that the 1916 Act did not are "through" rates, service contracts, and agreements with terminal operators and non-vessel-operating common carriers. The new section 4 pertaining to agreements mentions the regulation of intermodal through rates. The old Section 15 did not mention such rates and the regulators - the FMC and the courts - did not agree that the law permitted conferences to set intermodal tariffs. However, in late 1983, FMC began granting conferences intermodal authority.[29]

The new law includes provisions for carriers and conferences to permit - or disallow - negotiation of service contracts. Under the old regime, service contracts were essentially prohibited. A related provision of the new law gives carriers much greater freedom to offer time/volume rates including an interesting requirement of the "right" of independent action by conference members. The FMC has permitted time/volume rates and contracts in recent years

but only after much procrastination. The availability of service contracts and time/volume rates will offer strong shippers new bargaining strength in dealing with carriers.

Another important aspect of the new law concerns its affect on pooling arrangements by conferences. The language of the 1984 bill is no different than that of the 1916 bill except that the new law changes the procedures and criteria for FMC approval of agreements. Specifically, the new bill eliminates the "public interest" criterion on which the Department of Justice and the FMC had based their objections to pooling and otherwise restrictive conference activities. The legislative history of the new bill makes quite clear that the Congress intends for the law to permit so-called rationalization efforts including the pooling of "traffic, revenues, earnings, or losses."

As much as anything, the new Shipping Act ratifies a new attitude toward the regulation of shipping activities. That attitude is that, short of complete deregulation as occurred in the airline industry, the shipping industry should move closer to market regulation than has previously existed. The difference between shipping and the domestic transportation industries with regard to regulatory reform is, of course, that in the international shipping industry, cooperative rate setting and capacity management is permitted, even encouraged.

5.2 LIKELY EFFECTS OF THE ACT ON CONFERENCE BEHAVIOR

To the extent that the new shipping regulation permits conferences to establish pooling agreements more readily, it can be expected that U.S. conferences will behave more like conferences in non-U.S. trades. There are conferences which employ pooling arrangements, but they are most often successful when government reinforces the pool by excluding non-conference vessels.[30] It might be expected that carriers' first rationalization efforts will take the form of space chartering agreements.

There is already evidence that conference carriers will quickly move to take advantage of their new ability to file intermodal agreements. Under the old system, the absence of authority to file conference intermodal tariffs meant that carriers filed their own tariffs on intermodal shipments. In other words, such rates were effectively unregulated by the conferences and carriers were forced by competition to absorb in-land freight charges. This new authority will then eliminate this unregulated segment of liner traffic and strength the

conference position vis-a-vis shippers. Some observers argue that intermodal agreements will increase the competition among ports[31] as carriers will have increased incentive to find the least cost routing of cargoes.

Another impact on conference behavior will derive from the incentives created by permitting service contracts.[32] The bill allows conferences to agree to permit or <u>not</u> permit services contracts to be offered by the conference or individual members. Should conferences prohibit such contracts or make their use too difficult, pressure or attractive offers by shippers might encourage a breakdown in conference discipline. Some industry observers have suggested that time/volume and service contracts will principally benefit large shippers and that may be the case. However, the new bill also mentions[33] shippers' associations and authorizes conferences to develop preferential arrangements with non-vessel-operating common carriers.[34] As a result, it is entirely possible that small shippers may develop cooperative arrangements that afford them bargaining strength. Sceptics argue[35] the new law does not grant antitrust immunity to shipper groups. On the other hand, the antitrust laws have allowed cooperative activities among otherwise competing firms. In particular, cooperative buying arrangements are not common in certain industries. Why not cooperative buying of shipping services?

5.3 RECENT DEVELOPMENTS IN THE NORTH ATLANTIC

It would not be an overstatement to say that 1984 represents the beginning of a new era for U.S. liner operators, particularly those on the North Atlantic. As of June 1984, Sea-Land becomes an independent enterprise free of financial and managerial links with the R.J. Reynolds conglomerate. Throughout its history, Sea-Land has been an innovator; its management has behaved in unorthodox ways among tradition-bound shipping firms. Since 1969, however, it has enjoyed a certain measure of security through its association with Reynolds. It remains to be seen if the absence of Reynold's "deep pocket" affects management behavior. If Sea-Land remains true to form, it would likely be among the first to explore the limits of the new regulatory environment and several factors suggest that will be necessary.

U.S. Lines also begins a new era this year as it takes delivery of the first of its new giant containerships under construction in South Korea. These new ships present several challenges. For U.S.L., the ships must be

incorporated into the company's operations in a profitable manner. They will receive no subsidy. The company has discussed for several years operating the new vessels on an around-the-world service,[36] but many uncertainties remain. For other carriers, U.S.L.'s new vessels represent a potentially vast increase in capacity on the North Atlantic trade. Accommodating this capacity would test the conferences' ability to cooperate if it were the only new capacity on the trade, but it is not.

The Taiwanese firm Evergreen Line will also begin taking delivery of a large new fleet of 2200 TEU containerships.[37] These vessels are also planned for a round-the-world service.[38] ACL has already added the first of a series of new combination ro-ro/container ships which have almost three times the capacity of the ships they replace. It is also expected that the Soviets will greatly expand their services to Canadian ports.[39] In sum, Seatrade reported that between mid-1983 and the end of 1984, outsiders would introduce 290,000 additional container slots on the North American/Northern European liner trades.

With the prospects for vast increases in container capacity at a time when container rates are still low relative to those of five years ago, all North Atlantic operators are going to face a difficult period. It is just such circumstances which encourage the formation of shipping conferences and the new U.S. shipping regulations could provide a means for conference members to coordinate their introduction of new capacity. But the potential for the expansion of North Atlantic capacity will challenge the ability of the conferences to survive.

For U.S. shipping companies, the future is also uncertain - not altogether bleak but challenging to say the least. U.S. shippers, on the other hand, appear to be in store for a period during which new service options and attractive rate alternatives will be available.

If one were to speculate on the likelihood of there being a U.S.-flag merchant marine in the year 2000, the speculator must certainly hedge. First, it seems very unlikely that the Congress or any President would permit the U.S. flag to disappear. Almost certainly some form of subsidy programs will exist to sustain a U.S. liner fleet. If the point is conceded that there will be a U.S. flag fleet, a second speculation might be that the fleet will likely consist of only one or two carriers.

To confine the discussion strictly to the North Atlantic, the competitive environment will force substantial restructuring of the trade. There is already industry gossip that Sea-Land and U.S. Lines are discussing a merger. The situation in U.S.-Far East trade is very similar so that U.S. carriers will have few places in which to escape severe competition. Given the recent failure rate of U.S. operators and the unlikelihood of a resurrection of a generous O.D.S. system, further consolidation of U.S. liner firms seems very likely. The competitive pressures will compel U.S. carriers to reduce their costs but it will almost certainly lead them to try to reduce those pressures through conference cooperation.

APPENDIX A

NORTH ATLANTIC CONFERENCE AND RATE AGREEMENTS

The following information is from agreements on file with the Federal Maritime Commission.

Agreement Number 5850, North Atlantic Westbound Freight Association (effective Feb. 6, 1945)

Port Range:

from, ports in the United Kingdom and the Republic of Ireland
to, North and South Atlantic ports of the U.S. and coastal or interior points via such Atlantic ports

Membership (Date joined)

Atlantic Container Line (Oct. 6, 1967)
Dart Containerline (May 29, 1969)
reorganized as Dart U L Ltd. (Dec. 6, 1983)
Gulf Europe Express (Jan. 1, 1980)
Hapag-Lloyd (Sept. 1, 1970)
Sea-Land Service (June 30, 1966)
United States Lines (Feb. 6, 1945)
Trans Freight Lines (Dec. 11, 1983)

Agreement Number 7100, North Atlantic United Kingdom Freight Conference (effective Aug. 15, 1940)

Port Range:

from, U.S. North Atlantic ports
to, ports in the United Kingdom and the Republic of Ireland

Membership (Date joined)

Atlantic Container Line (Sept. 28, 1967)
Dart/Dart U L Ltd. (June 2, 1965/Dec. 9, 1983)
Hapag-Lloyd (Sept. 1, 1970)
Sea-Land Service (June 1969)
United States Lines (Aug. 6, 1965)
Trans Freight Lines (Dec. 12, 1983)

Agreement Number 7770, North Atlantic French Atlantic Freight Conference (effective Feb. 23, 1965)

Port Range:

from, U.S. North Atlantic ports and coastal and interior points via such North Atlantic ports
to, ports within the French Atlantic Bordeaux/Dunkirk range and interior points via such ports

Membership (Date joined)

Atlantic Container Line (Sept. 27, 1967)
Dart/Dart U L Ltd. (Dec. 9, 1970/Dec. 9, 1983)
Hapag-Lloyd (Sept. 7, 1970)
Sea-Land Service (June 1, 1966)
United States Lines (Feb. 23, 1965)
Trans Freight Lines (Dec. 12, 1983)

Agreement Number 8210, Continental North Atlantic Westbound Freight Conference (effective Nov. 9, 1953)

Port Range:

from, ports of Germany, The Netherlands, Belgium and France - Hamburg to the boundary line of France and Spain

to, U.S. North Atlantic ports and coastal and interior points via such North Atlantic ports

Membership (Date joined)

Atlantic Container Line (Oct. 1, 1971)
Dart/Dart U L Ltd. (June 10, 1969/Dec. 7, 1983)
Hapag-Lloyd (Jan. 1, 1970)
Sea-Land Service (Apr. 23, 1966)
United States Lines (Oct. 9, 1953)
Trans Freight Lines (Aug. 18, 1983)

Agreement Number 9214, North Atlantic Continental Freight Conference (effective Nov. 17, 1964)

Port Range:

from, U.S. North Atlantic ports and coastal and interior ports via such ports

to, ports in Belgium, Holland and Germany (excluding German Baltic ports)

Membership (Date joined)

Atlantic Container Line (Sept. 25, 1967)
Dart/Dart U L Ltd. (June 13, 1969/Dec. 9, 1983)
Hapag-Lloyd (Sept. 1, 1970)
Sea-Land Service (May 15, 1966)
United States Lines (Nov. 17, 1964)

Agreement Number 9427, Germany - North Atlantic Ports Rate Agreement (effective Apr. 1, 1965)

Port Range:

from, ports of the Federal Republic of Germany, The Netherlands, Belgium and France

to, U.S. North Atlantic ports

Membership (Date joined)

Continental North Atlantic Westbound Freight Conference, Agreement 8210 (Dec. 12, 1972)
Polish Ocean Lines (Sept. 17, 1967)

Agreement Number 9552, North Atlantic West Europe Rate Agrement (effective Aug. 30, 1966)

Port Range:

from, U.S. North Atlantic ports

to, ports in Western Europe Antwerp/Hamburg range

Membership (Date joined)

North Atlantic Continental Freight Conference, Agreement 9214 (Sept. 14, 1973)
Polish Ocean Lines (Aug. 30, 1968)

Agreement Number 9735 - B, Steamship Operators Intermodal Committee - Atlantic Regional Committee (effective June 10, 1969)

The membership includes 28 carriers among them U.S. operators: American President Lines, Coordinated Caribbean Transport, Delta, Farrell, Sea-Land, U.S. Lines

Committee discusses issues relating to containerization.

Agreement Number 9978, Associated North Atlantic Freight Conference (effective Aug. 3, 1972)

The agreement provides for maintenance of common administrative, policing and enforcement facilities and the discussion of and the acting upon a broad range of non-ratemaking matters.

Membership

Agreements 5850, 7100, 7670 (U.S. to Baltic), 7770, 8210, 998, (Baltic to U.S.) and 9984 (South Atlantic Rate Agreement)

Agreement Number 10118, Atlantic Steamship Emergency Chartering Agreement (effective Mar. 7, 1975)

The agreement is limited to slot-charter operations, ancilliary arrangements and exchange of data and information necessary.

Membership (Date joined)

Atlantic Container Lines (Feb. 6, 1975)
Dart (Feb. 6, 1975)
Hapag-Lloyd (Feb. 6, 1975)
Sea-Land Service (Feb. 6, 1975)
United States Lines (Feb. 6, 1975)

APPENDIX B

A COMPARISON OF IMPORTANT AIRBORNE AND WATERBORNE
EXPORTS AND IMPORTS FOR SELECTED YEARS, 1977-1983
(in Billions of Dollars and Thousands of Short Tons)

	1977		1979		1981		1983	
Waterborne Exports	Value	Tons	Value	Tons	Value	Tons	Value	Tons
Chemical Elements and Compounds	$ 3.65	9,537	$ 6.14	13,030	$ 7.33	13,198	$ 6.68	11,977
Textiles, exc. fibers & clothes	1.23	447	2.21	677	2.48	705	2.78	724
Nonmetals Mineral Manufactures	0.44	803	0.64	927	0.85	1,086	0.65	580
Metal Manufactures - NES	1.24	556	1.80	609	2.67	759	1.78	466
Nonelectrical Machinery & Appl.			0.75	126	0.95	132	0.61	72
Electric Power App. & Switchgear	1.33	210	0.55	100	0.70	97	0.62	76
Transport Equipment	4.34	1,185	5.96	1,360	7.30	1,199	4.99	638
Total Waterborne Export	$67.31	274,026	$99.57	357,360	$125.83	406,493	$103.80	360,585

Airborne Exports	1977 Value	1977 Tons	1979 Value	1979 Tons	1981 Value	1981 Tons	1983 Value	1983 Tons
Chemical Elements and Compounds	$ 0.35	18	$ 0.46	20	$ 0.43	19	$ 0.38	18
Textiles, exc. fibers & clothes	0.16	27	0.26	36	0.30	31	0.82	115
Nonmetal Mineral Mfs.	0.13	12	0.27	14	0.34	13	0.39	12
Metal Manufactures - NES	0.28	28	0.47	33	0.58	31	0.49	27
Office Machinery & Computers	3.01	58	5.33	97	7.93	115	9.26	122
Nonelectrical Machinery & Appl.	1.29	72	0.65	20	0.94	20	1.07	18
Electric Power App. & Switchgear	0.51	19	0.81	25	1.08	26	1.16	28
Radio, TV and Telecom. Equip.	1.24	25	1.76	36	2.28	37	2.22	24
Transport Equipment	1.90	24	2.76	89	4.20	77	4.19	58
Scientific and other Instruments	1.19	37	2.96	45	4.06	45	4.05	42
Total Airborne Exports	$20.25	898	$37.32	1,122	$47.23	1,129	$46.69	960

Waterborne Imports	1977 Value	1977 Tons	1979 Value	1979 Tons	1981 Value	1981 Tons	1983 Value	1983 Tons
Chemical Elements and Compounds	$ 2.31	7,380	$ 2.63	5,478	$ 3.22	5,642	$ 4.07	6,868
Medicinal & Pharamaceutical Prep.	0.21	34	0.22	52	0.27	46	0.25	51
Textiles, exc. fibers & clothes	1.38	820	1.67	718	2.26	722	2.36	767
Metal Manufactures - NES	1.76	1,826	2.55	1,966	2.96	1,914	3.23	2,113
Power Generating Machinery	0.70	258	1.52	385	1.67	409	1.79	398
Office Machinery & Computers	0.71	83	1.118	115	1.73	124	3.30	261
Radio, TV, & Telecom. Equip.	2.97	473	4.59	527	6.61	559	8.04	645
Clothing	2.55	379	3.84	542	5.16	538	3.06	478
Footwear	1.38	364	2.12	396	2.25	363	0.54	47
Total Waterborne Imports	$100.85	612,798	$140.18	597,495	$177.59	464,420	$156.26	368,304

Airborne Imports	1977 Value	1977 Tons	1979 Value	1979 Tons	1981 Value	1981 Tons	1983 Value	1983 Tons
Chemical Elements and Compounds	$ 0.19	5	$ 0.28	16	$ 0.42	10	$ 0.51	13
Medicinal & Pharmaceutical Prep.	0.18	3	0.19	2	0.29	4	0.42	7
Textiles	0.27	23	0.41	24	0.60	34	0.65	46
Gem Diamonds	0.21	-	0.27	-	1.41	-	1.99	-
Precious Metals exc. gold	0.34	1	1.20	1	1.15	1	1.77	3
Power Generating Machinery	0.28	8	0.52	17	1.24	17	1.12	19
Office Machinery & Computers	0.65	20	0.88	17	1.22	22	2.66	48
Radio, TV & Telecomm. Equip.	0.35	19	0.66	26	1.16	38	1.73	57
Aircraft and parts	0.22	2	0.34	1	0.69	4	2.91	138
Clothing	1.38	100	1.75	96	2.05	91	0.91	56
Footwear	0.41	43	0.65	47	0.67	43	1.12	19
Scientific and other Instruments	0.82	20	0.66	15	0.99	15		
Artworks, Collectors Items	0.61	2	1.33	3	1.86	2	1.78	3
Total Airborne Imports	$12.49	655	$22.04	720	$29.97	804	$37.78	1,132

APPENDIX C

TOP LINER AND NON-LINER COMMODITIES

TR 5-7-8-9 (Thousands of Tons)

1973 Liner Exports	Tons
Synthetic Resins	177
Organic Chemicals	132
Machinery and Appliances	123
Motor Vehicles and Parts	111
Tobacco	96
Paper and Paperboard	79
Nonferrous Metal Scrap	59
Wood Manufacturers	
Chemical Products	58
Iron or Steel Plates and Sheets	55
Total	2,587

1973 Non-Liner Exports	Tons
Coal, Coke and Briquets	9,050
Corn	2,598
Oil seeds, Nuts and Kernels	627
Iron and Steel Scrap	540
Feed - Stuff for Animals	495
Wheat	146
Total	13,688

1973 Liner Imports	Tons
Alcohol Beverages	491
Motor Vehicles and Parts	276
Iron or Steel Plates and Sheets	223
Iron or Steel Bars, Rods	188
Machinery and Appliances	115
Organic Chemicals	92
Rubber Manufacturers	88
Power Generating Machinery and Parts, other than Electric	85
Meat in Containers	82
Iron or Steel Wire	74
Total	3,683

1973 Non-Liner Imports	Tons
Coal, Coke and Briquets	544
Iron or Steel Plates and Sheets	343
Lime, Cement, and Fabricated Building Materials	284
Iron or Steel Bars, Rods	187
Motor Vehicles and Parts	182
Alcohol Beverages	121
Fertilizers	77
Paper and Paperboard	62
Total	1,984

1976 Liner Exports	Tons
Machinery - Nonelectric	277
Synthetic Resins	176
Fruit and Vegetables	149
Chemical Elements and Compounds	145
Transport Equipment	141
Tobacco	128
Textile Yarn, Fabric	115
Wood, Lumber, and Cork	104
Paper, Paperboard	102
Nonmetallic Mineral Mfrs.	101
Total	2,412

1976 Non-Liner Exports	Tons
Coal, Coke and Briquets	11,392
Cereal and Cereal Preparations	3,851
Metalliferous Ore and Scraps	1,195
Oil Seeds, Nuts and Kernels	351
Feed Stuff for Animals	327
Iron and Steel	109
Fruit and Vegetables	83
Petroleum and Petroleum Products	70
Pulp and Wastepaper	25
Wood, Lumber and Cork	11
Total	17,472

1976 Liner Imports	Tons
Alcoholic Beverages	560
Machinery - Nonelectric	293
Chemical Elements and Compounds	254
Iron and Steel	246
Transport Equipment	238
Misc. Mfd. Articles	133
Nonmetallic Mineral Mfrs.	122
Nonferrous Metals	115
Manufactures of Metal	100
Meat and Meat Preparations	77
Total	3,066

1976 Non-Liner Imports	Tons
Iron and Steel	331
Crude Fertilizer	117
Nonmetallic Mineral Mfrs.	110
Transport Equipment	76
Manufactured Fertilizer	76
Special Transactions	45
Nonferrous Metals	36
Paper, Paperboard	23
Chemical Elements and Compounds	21
Petroleum and Petroleum Products	18
Total	880

1979 Liner Exports	Tons
Motor Vehicles and Parts	194
Wood, Lumber and Cork	182
Synthetic Resins	172
Tobacco	131
Textile Yarn, Fabric	126
General Industrial Machinery	100
Chemical Elements and Compounds	98
Paper and Paperboard	97
Electrical Man. Appar. and Appl.	95
Metalliferous Ore and Scraps	89
Total	2,586

1979 Non-Liner Exports	Tons
Coal, Coke and Briquets	12,398
Cereals and Cereal Products	2,206
Metalliferous Ore and Scraps	765
Oil Seeds, Oil Nuts and Kernels	684
Feed - Stuff for Animals	99
Pulp and Wastepaper	34
Wood, Lumber and Cork	16
Paper and Paperboard	13
Total	16,277

1979 Liner Imports	Tons
Alcoholic Beverages	701
Motor Vehicles and Parts	200
Iron and Steel	190
Mineral Tar, Tar Oil	170
Electrical Man. Appar. and Appl.	135
Manufactures of Metal	131
Nonmetallic Mineral Mfr.	127
Chemical Elements	127
Nonferrous Metals	104
Total	3,173

1979 Non-Liner Imports	Tons
Iron and Steel	776
Coal, Coke and Briquets	513
Motor Vehicles and Parts	110
Fertilizers	170
Nonferrous Metals	49
Paper and Paperboard	42
Electrical Man. Appar. & Appl.	22
Chemical Products	9
Total	1,752

1981 Liner Exports	Tons
Wood, Lumber and Cork	182
Synthetic Resins	122
Motor Vehicles and Parts	113
Tobacco	111
General Indus. Machinery	88
Machinery for Specialized Ind.	85
Fruit and Vegetables	77
Organic Chemicals	73
Meat and Meat Preparations	71
Paper and Paperboard	68
Total	2,070

1981 Non-Liner Exports	Tons
Coal, Coke and Briquets	22,855
Cereal and Cereal Preparations	1,892
Petroleum and Petro. Products	454
Oil Seeds, Oil Nut, and Kernels	378
Feed - Stuff for Animals	118
Metalliferous Ore and Scraps	96
Pulp and Wastepaper	46
Wood, Lumber and Cork	21
Fruit and Vegetables	10
Paper and Paperboard	6
Total	25,906

1981 Liner Imports	Tons
Alcoholic Beverages	638
Motor Vehicles and Parts	184
Iron and Steel	180
Organic Chemicals	142
Nonmetallic Mineral Mfrs.	132
Inorganic Chemicals	131
Machinery for Specialized Ind.	118
Nonferrous Metals	117
Coffee, Cocoa, Tea and Spices	110
Manufactures of Metal	109
Total	2,953

1981 Non-Liner Imports	Tons
Iron and Steel	553
Motor Vehicles and Parts	94
Nonferrous Metals	54
Nonmetallic Mineral Mfrs.	41
Fertilizers	58
Machinery for Specialized Ind.	30
Paper and Paperboard	22
Metalliferous Ore and Scraps	4
Organic Chemicals	3
Total	870

APPENDIX D

NOTES

SECTION 2. DIMENSIONS OF THE NORTH ATLANTIC TRADE

1. Under Section 211 (a) of the Merchant Marine Act of 1936, as amended, the "Secretary of Commerce (now Transportation) is authorized and directed to . . . determine . . . the ocean services, routes, and lines from ports in the United States . . . to foreign markets, which are, or may be . . . essential for the promotion, development, expansion, and maintenance of the foreign commerce of the United States. . . . As of the latest available issue of United States Oceanborne Foreign Trade Routes (April 1983) 32 such essential trade routes plus 5 trade areas are defined.

2. In the 1979 FMC North Atlantic Trade Study, an effort was made to adjust capacity estimates for the share of cargo "normally" accounted for on TR 11. While there is no doubt that carriers intend for some of the capacity to be devoted to TR 11 traffic, the capacity is still available on TR 5, 7, 8 and 9. Consequently, no such adjustment is attempted here.

3. Sofati Container Line was formed in 1982 by a group of Cast executives. The firm initially chartered space to trade in competition with Cast. In turn, Cast acquired Sofati in August 1983. By April 1984 Sofati ceased trading on the North Atlantic. (Journal of Commerce, April 3, 1984, p. 24B).

SECTION 3. THE NATURE AND EXTENT OF COMPETITION ON THE NORTH ATLANTIC

4. The commodities were primarily selected as important airborne commodities and those included typically accounted for between 40 and 50 percent of the value of total U.S. airborne exports. At the same time, an effort was made to select commodities for which competition was evident.

5. If there is any such movement it appears to be from non-liners to liners.

6. Journal of Commerce, June 4, 1984, pp. 1, 9 A.

7. U.S. Department of Justice, The Regulated Ocean Shipping Industry (1977), pp. 178-181; Journal of Commerce, March 30, 1984, p. 1B.

8. Seatrade, October 1981, pp. 13, 15.

9. U.S. Dept. of Transportation, Maritime Administration, U.S. Exports and Imports Transshipped Via Canadian Ports (March 1982).

10. Contract Marine Carriers is a U.S. based firm that in addition to its common carrier service operates as a contract carrier with a majority of its business going to Dupont.

11. A new independent announced service in mid-April 1984. BCR-Lines, a joint venture of two W. German firms, will offer barge, container and ro-ro service between Philadelphia, Boston, Rotterdam and Hamburg. (Journal of Commerce, April 18, 1984, p. 1A).

12. U.S. Dept. of Justice, The Regulated Ocean Shipping Industry (1977), Appendix E.

13. Hamburg-America and North German Lloyd (Hapag-Lloyd) and American Export and Farrell (Farrell-AEL).

14. Atlantic Container Line and Dart Containerline are consortia.

15. In 1980, Farrell sold their subsidized N.A. service to U.S.L. and Seatrain Lines sold their N.A. service to TFL.

16. Seatrain Lines.

SECTION 4. PRICING BEHAVIOR AND PROFITABILITY

17. In the 1980 R.J. Reynolds separate annual report for Sea-Land Investments, Inc., p. 34, cash flow from operations is defined as after tax "earnings from operations adjusted for depreciation, deferred income taxes, investment tax credits and the net change in other non-current liabilities." For overlapping time periods identical figures are given in the 1982 R.J. Reynolds Annual Report, p. 55, as "funds provided by operations" for transportation in their line of business report.

18. R.J. Reynolds 1982 Annual Report, pp. 55-56.

19. Seatrade, April 1983.

20. Journal of Commerce, May 31, 1984, p. 12A.

21. Seatrade (Feb. 1984), pp. 3, 5, Journal of Commerce, ibid.

22. Lloyd's Shipping Economist, Mar. 1982, pp. 9-10; June 1983, p. 37; Seatrade, July 1982, p. 99.

23. The first of five new combination roll-on/roll-off, container ships entered North Atlantic service in March 1984. Journal of Commerce, Mar. 30, 1984, p. 1B.

24. Journal of Commerce, Nov. 23, 1983, p. 1A.

25. Lloyd's Shipping Economist (March 1982), p. 11.

26. Seatrade, April 1983, pp. 39-40; Nov. 19892, pp. 27-28.

27. Journal of Commerce, Feb. 6, 1984, p. 24B.

SECTION 5. IMPACT OF THE SHIPPING ACT OF 1984 AND RECENT DEVELOPMENTS

28. The following discussion is largely based on a working paper entitled "Shipping Act of 1984" written by Thomas E. Marchessault, OST staff economist.

29. Journal of Commerce, Dec. 19, 1983, p. 1A.

30. Reuben Kyle, "Review and Analysis of the Economic Impact of Rate and Service Cooperation by Ocean Liner Companies," U.S. DOT, September 1983.

31. Journal of Commerce, March 30, 1984, p. 1B.

32. Journal of Commerce, May 22, 1984, p. 24B.

33. Sec. 8 (c) and 10 (b) (13).

34. Sec. 4 (a) (5).

35. Stanley O Sher and John A. DeVierno, "Maritime Reform," American Shipper (April 1984), p. 20.

36. Around-the-world services are being discussed by U.S.L. and, as this is written, initiated by Evergreen Lines. Although not new to liner shipping there is new interest in such services. The principal explanation appears to be the imbalance of cargoes in the trade between the Far East and the U.S. and the Far East and Europe. Evergreen's service will not stop at U.S. west coast ports - a separate service will be used for those ports. Evergreen's owner contends that the North Atlantic leg has its main purpose to facilitate equipment utilization. U.S.L. has publicly discussed employing its new ships in an around-the-world service but no definite plans have been announced. Journal of Commerce, March 13, 1984, p. 1A. and June 25, 1984, p. 13C.

37. Journal of Commerce, March 13, 1984, p. 1A.

38. Journal of Commerce, May 30, 1984, p. 12A. The service is expected to begin in late July 1984.

39. Seatrade, April 1983, p. 99.

U.S. Department
of Transportation

**Research and
Special Programs
Administration**

Kendall Square
Cambridge, Massachusetts 02142

Official Business
Penalty for Private Use $300

Postage and Fees Paid
Research and Special
Programs Administration
DOT 513