

THE EFFECTS OF BILATERAL AVIATION AGREEMENTS ON THE MARKET
FOR INTERNATIONAL PASSENGER SERVICE FROM THE U.S. TO EUROPE

by

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A.B., History
Harvard College, Cambridge, Massachusetts
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Submitted to the Sloan School of Management
in Partial Fulfillment of
the Requirements of the Degree of
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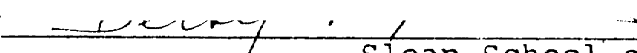
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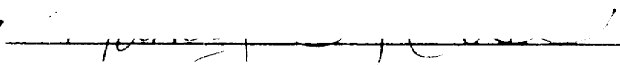
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ABSTRACT

This paper presents a study of the effects of various types of bilateral aviation agreements on the market for international direct passenger air transportation from the United States to European countries. The purpose of the study is to analyze the effects of pro-competitive bilateral agreements negotiated between the U.S. and selected European countries between 1977 and 1980 on the market for North Atlantic passenger travel originating in the U.S.

We theorize that for routes governed by pro-competitive bilateral agreements, consumers should face lower fares, more carriers, improved service, and increased city pair options. The study identifies changes in these variables from a comparison of international airline schedule data from 1976 and 1984. The study also investigates the differential in fare levels between routes governed by pro-competitive bilateral agreements and routes covered by more restrictive agreements.

Finally, the study's implications for U.S. aviation policy are discussed.

Thesis Supervisor: Nancy Rose

Title: Assistant Professor of Economics

I would like to thank my colleagues
at Analysis Group, Inc. for their
assistance and support and my
husband for his willingness
to listen late at night.

"Il serait temps qu'on n'abusât plus d'une ductilité cérébrale
qui n'est pas sans limites..."

Colette

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Chapter One

U.S. International Aviation and Bilateral Agreements

I. Historical Overview

The operation of international aviation rests upon a complex system of multinational and bilateral aviation agreements between sovereign countries. Although the history of international transport on the part of U.S. carriers dates back to the early 1920's when the U.S. Postal Department contracted with Pan American Airways to carry mail and passengers on overseas routes, the system of bilateral negotiations between governments had its inception in 1938 with the passage of the Civil Aeronautics Act. After this date, aviation rights from and to the U.S. were negotiated bilaterally by the State Department and the newly formed Civil Aeronautics Board and the representatives of other governments.¹

It wasn't until the final months of World War II that a degree of standardization was achieved in the negotiation of bilateral aviation rights. In 1944 the Allied countries gathered in Chicago to discuss plans for administering postwar international civil aviation. The purpose of the Chicago Conference

¹ The U.S. Flag System in International Air Commerce, International Economic Policy Association, pp. 3-4.

was to formulate a plan which would include technical standards of international aviation, such as pilot licensing, aircraft certification and navigational equipment standardization, as well as broader economic goals such as route assignments, fare setting, flight scheduling and landing rights. Unfortunately, no consensus as to the most appropriate system could be reached among the conference attendees. Suggestions ranged from the U.S.'s advocacy of an 'open skies' policy, i.e., letting market forces determine the most efficient service and fares in an international free for all, to New Zealand and Australia's concept of international ownership and operation of all international service.² In the absence of an agreement at the Chicago Conference, international civil aviation was left with the system of bilateral negotiations, a system which continues to the present day.

II. U.S. Bilateral Agreements Currently in Force

As of December, 1986, the U.S. was party to 72 distinct bilateral aviation agreements. These agreements establish air transportation rights between the signatories and cover operational issues such as route assignments, landing rights, capacity requirements, pricing restrictions and carrier designations. A complete list of U.S. bilateral aviation agreements currently

² The Politics of International Air Transport, Betsy Gidwitz, pp. 46-8.

in force appears in Table I.

Although a number of the agreements listed in Table 1 are unique, the majority fall within four classes: Chicago, Bermuda I, Bermuda II and Post 77. A description of the origins and the specifications of each class is provided below:

Chicago:

A Chicago agreement is designed after the standard bilateral agreement drafted at the Chicago Conference in 1944. Included in such agreements are the basic four 'freedoms' of international aviation. These four rights include:

1. the freedom of one country's aircraft to fly over other countries,
2. the freedom of one country's aircraft to land in other countries for technical reasons unrelated to traffic,
3. the freedom of one country's carrier to deliver traffic from its territory to other countries, and
4. the freedom of one country's carrier to pick up traffic destined for its own territory from other countries.

In addition to these basic four freedoms, the U.S. gains a fifth freedom which is not reciprocated in Chicago agreements. This fifth freedom is:

5. the freedom of one country's carrier to pick up traffic in foreign countries destined for other foreign countries, as long as the flight originates or terminates in the

Table 1
U.S. Bilateral Aviation Agreements, 1986

Agreement Party	Agreement Type
1 Argentina	Unique
2 Aruba	Post 77
3 Australia	Bermuda I
4 Austria	Terminated
5 Barbados	Post 77
6 Belgium	Post 77
7 Bolivia	Bermuda I
8 Burma	Bermuda I
9 Canada	Bermuda I
10 Chile	Bermuda I
11 China	Unique
12 Columbia	Bermuda I
13 Costa Rica	Post 77
14 Cuba	Bermuda I
15 Czechoslovakia	Bermuda I
16 Denmark	Bermuda I
17 Dominican Republic	Post 77
18 Ecuador	Unique
19 Egypt	Bermuda I
20 El Salvador	Post 77
21 Fiji	Post 77
22 Finland	Post 77
23 France	Bermuda I
24 Germany, Fed. Rep.	Post 77
25 Greece	Unique
26 Iceland	Chicago
27 India	Bermuda I
28 Indonesia	Bermuda I
29 Iran	Bermuda I
30 Ireland	Chicago
31 Israel	Post 77
32 Italy	Bermuda I
33 Ivory Coast	Bermuda I
34 Jamaica	Post 77
35 Japan	Bermuda I
36 Jordan	Post 77
37 Korea, Rep.	Post 77
38 Lebanon	Bermuda I
39 Liberia	Bermuda I

Table 1 (Continued)

U.S. Bilateral Aviation Agreements, 1986

Agreement Party	Agreement Type
40 Luxembourg	Post 77
41 Malaysia	Post 77
42 Mexico	Bermuda I
43 Morocco	Bermuda I
44 Netherlands	Post 77
45 New Zealand	Bermuda I
46 Nigeria	Bermuda I
47 Norway	Bermuda I
48 Pakistan	Bermuda I
49 Panama	Bermuda I
50 Paraguay	Bermuda I
51 Peru	Unique
52 Philippines	Unique
53 Poland	Bermuda I
54 Portugal	Bermuda I
55 Romania	Bermuda I
56 Saudi Arabia	Unique
57 Senegal	Bermuda I
58 Singapore	Post 77
59 South Africa	Bermuda I
60 Spain	Bermuda I
61 Sweden	Bermuda I
62 Switzerland	Bermuda I
63 Syria	Bermuda I
64 Taiwan	Post 77
65 Thailand	Post 77
66 Turkey	Chicago
67 U.S.S.R.	Unique
68 United Kingdom	Bermuda II
69 Uruguay	Bermuda I
70 Venezuela	Bermuda I
71 Yugoslavia	Bermuda I
72 Zaire	Bermuda I

Source: Air Transport Association of America.

carrier's territory.³

Fifth freedom rights are commonly referred to as 'beyond rights.' Therefore, while a Chicago agreement establishes routes, landing rights, and other general operational procedures, it does not contain capacity or pricing provisions. As Table I illustrates, the U.S. is party to three such agreements, with Iceland, Ireland and Turkey.

Bermuda I:

After the Chicago Conference, the U.S. and Great Britain negotiated their own bilateral air services agreement in Bermuda in 1946. This agreement, known as the Bermuda Agreement, entitled each country to designate an airline or airlines to provide international service adequate to meet the traffic demands of both countries. Specifically, the agreement established the

³ See Gidwitz pp. 136-9. There are also three additional freedoms:

6. the freedom of one country's carrier to carry traffic from one foreign country to other foreign countries which stops at its country of registry.
7. the freedom of one country's carrier to to carry traffic completely outside its territory.
8. the freedom of one country's carrier to carry commercial traffic between origins and destinations in the same foreign country.

The sixth freedom, known as 'gateway rights', is important for countries with relatively small home markets. Seventh freedom rights are very rarely negotiated and eighth freedom rights are only granted when there is a sudden shortage of important capacity within a country's domestic system.

following:

- Airline or airlines were to be designated by each country, subject to the approval of the other party, to operate on agreed upon routes.
- Routes, landing rights, and other general operating issues were to be settled bilaterally between the parties of the agreement, subject to the condition that they meet public demand for air transportation and provide a fair and equal opportunity for the airlines of each party.
- Fares, frequencies (the number of departures per week), and service standards were to be coordinated by the carriers named in the agreement, or, when applicable, by an association of international airlines called IATA (International Air Transport Association) in which all member airlines have one vote and all voting must be unanimous.⁴

Bilateral agreements which contain the general provisions described above are called Bermuda I type agreements. Following the signing by the U.S. and Great Britain, the Bermuda Agreement served as a model for subsequent bilateral aviation agreements. (A standard Bermuda I agreement is provided in Appendix A.) As can be seen in Table 1, Bermuda I type agreements are the most

⁴ International Airlines and Politics, Robert Thornton, p. 40. IATA was founded in Havana in 1945 and assumed the responsibilities of its predecessor organization, the International Air Traffic Association, which established technical standards for international aviation. The main responsibility of the organization after 1945 has been to set international fares.

common type signed by the U.S., which is currently party to 40 such agreements.

Bermuda II:

In 1977, Great Britain repudiated the 1946 Bermuda Agreement, and a replacement agreement between the U.S. and Great Britain, called Bermuda II, was signed in July of that year. Great Britain intended the new agreement to be more restrictive than its predecessor. The British, feeling they were receiving a less than fair and equal opportunity in the market for passenger travel between the two countries, demanded fare increases, prearranged capacity divisions between U.S. and British carriers, and a reduction of U.S. beyond rights.⁵

Through a difficult round of negotiations, an agreement was finally reached which differed from Bermuda I in the following respects:

- multiple designations of carriers on many routes were reduced,
- government control over capacity issues was increased, and
- U.S. beyond rights from British points were reduced.

Yet the agreement did not remain restrictive for long. Through a series of amendments (six in all since 1977), Bermuda

⁵ See Gidwitz, p. 61. Brenner et al. also suggest the possibility of British irritation at public resistance to the initiation of British Airways' Concorde service because of noise pollution. (see Airline Deregulation, p. 13)

II actually expanded service offerings in the U.S.-United Kingdom market. In December of 1980, both countries agreed to increase scheduled air services, expand the number of U.S. gateways, allow more airlines to offer transatlantic service through London, and liberalize fares.⁶ To date, a Bermuda II type agreement has only been negotiated between the U.S. and the United Kingdom, and governs routes to both Scotland and England.

Post 77:

U.S. international aviation policy after Bermuda II owes much to Alfred Kahn, appointed chairman of the CAB in 1977, and to the Carter Administration's drive for a more competitive domestic aviation market. Bermuda II (before its amendments) was attacked by deregulators, who thought it too restrictive in light of recent moves towards liberalization in the domestic arena. The acceptance of Bermuda II led the U.S. government to negotiate a new series of pro-competitive replacement agreements which would provide:

- unrestricted entry by an unlimited number of airlines on international routes,
- unrestricted capacity rights, which would allow carriers to expand or reduce capacity at their discretion,
- freedom of airlines to match prices, and

⁶ See Empires of the Sky, Anthony Sampson, pp. 144-6 for a detailed and amusing account of this episode in U.S. - British aviation relations.

- unlimited beyond rights.⁷

The year following the signing of Bermuda II witnessed the first acceptance of these new, Post 77 type bilateral aviation agreements. By the end of 1978, the U.S. had negotiated Post 77 agreements with Israel, the Netherlands, West Germany, and Singapore. The ultimate goal of these liberalized agreements was increased consumer benefits in the market for international air transportation. These benefits would come in the form of reduced fares, more direct service, increased frequencies, more carriers per route, and expanded routes. U.S. policy-makers hoped that the negotiation of these agreements would place pressure on more recalcitrant countries to accept their 'open skies' policy.

To date, the U.S. has negotiated a total of 19 Post 77 type agreements, in all areas of the world. (See Table 1) A copy of a standard Post 77 type agreement is provided in Appendix B. The specific differences between these bilaterals and Bermuda I type agreements are:

- Post 77 agreements explicitly allow both parties to designate as many carriers on international routes as they wish,
- Post 77 agreements do not allow either party to unilaterally restrict the capacity, frequency or aircraft choice of the other party's designated carrier(s),

⁷ Brenner et al., p. 11.

- Post 77 agreements permit the airlines of either party to match lower, more competitive fares. They also limit government intervention in pricing disputes to the prevention of predatory or discriminatory prices, monopoly prices, or prices which may be unduly subsidized.

III. The U.S.- Europe Market

The market for international scheduled passenger service between the U.S. and Europe comprises the largest share of total U.S. international traffic. From 1977 to 1983, traffic between the two regions occupied approximately 40% of traffic between the U.S. and all areas of the world. This market has also exhibited strong growth. From Table 2 we see that passenger traffic between the U.S. and Europe grew by 62.5% between 1976 and 1984. This growth in passenger traffic is derived from combination of U.S. citizens and citizens of foreign countries. As Table 3 illustrates, U.S. citizens command a larger portion of this traffic and their 1984 share of both U.S. carrier and foreign carrier traffic is greater than their European counterparts'.

One major reason for the dominance of U.S. citizen travelers in the market is the rise in the value of the dollar during this period. The MERM index (Multilateral Exchange Rate Model) which sets the value of the dollar at 100 in 1980, reports the

Table 2

Passenger Travel Between the U.S. and European Countries
1976 and 1984

Country	1976	1984	Percent Change
Austria	24,910	44,015	76.7%
Belgium	127,969	215,624	68.5%
Berlin	4,271	601	-85.9%
Denmark	202,417	235,073	16.1%
Finland	27,865	57,601	106.7%
France	508,362	676,086	33.0%
Germany	756,161	1,419,250	87.7%
Greece	166,811	233,727	40.1%
Hungary	5,164	234	-95.5%
Iceland	109,664	81,783	-25.4%
Ireland	174,856	212,472	21.5%
Italy	412,316	646,794	56.9%
Luxemborg	23,174	1,377	-94.1%
Malta	256	69	-73.0%
Netherlands	288,769	513,371	77.8%
Norway	27,660	51,347	85.6%
Poland	37,448	11,385	-69.6%
Portugal	78,551	124,480	58.5%
Rumania	8,156	1,898	-76.7%
Spain	253,402	378,349	49.3%
Sweden	26,494	153,451	479.2%
Switzerland	282,142	408,680	44.8%
Union Sov.	25,043	54	-99.8%
Unit. Kingdom	1,730,490	3,133,227	81.1%
Yugoslavia	17,169	43,605	154.0%
TOTAL	5,319,520	8,644,553	62.5%

Source: U.S. International Air Travel Statistics, 1976 & 1984.

Table 3
1984 Passenger Travel Between the U.S. and Europe

Country	U.S. Carriers		Foreign Carriers	
	Citizens	Aliens	Citizens	Aliens
Austria	9,328	1,457	18,984	14,246
Belgium	50,140	24,207	84,151	57,126
Berlin	501	100		
Denmark	12,261	9,169	114,486	99,157
Finland			30,845	26,756
France	279,443	120,988	108,415	167,240
Germany	560,202	118,831	398,643	341,574
Greece	129,533	10,773	73,152	20,269
Hungary	212	22		
Iceland	13	2	54,522	27,246
Ireland	49,122	11,111	109,550	42,689
Italy	333,005	70,851	157,844	85,094
Luxemborg	1,084	293		
Malta	69			
Netherlands	33,809	8,262	283,407	187,893
Norway	9,214	8,524	14,505	19,104
Poland	973	187	5,602	4,623
Portugal	59,385	8,991	46,714	9,390
Rumania			1,144	754
Spain	110,455	26,523	166,687	74,684
Sweden	5,582	8,422	125,316	14,131
Switzerland	80,891	24,434	182,485	120,870
Union Sov.			28	26
Unit. Kingdom	1,352,885	557,792	670,237	552,313
Yugoslavia	329	38	29,496	13,742
TOTAL	3,078,436	1,010,977	2,676,213	1,878,927

Source: U.S. International Air Travel Statistics, 1984.

value of the dollar based on an 18 currency comparison at 147 by the third quarter of 1984.⁸ The strong dollar made European travel relatively cheaper for U.S. citizens, while discouraging European vacationers from travel to the U.S. This trend is reversing today, as the dollar falls in relation to most European currencies and many Europeans are reconsidering tourist travel to the U.S.

Aside from being the market with the highest traffic volume, the North Atlantic region is also a region of strategic importance to air carriers of countries other than the U.S. For European airlines, these routes are important because they provide feeder traffic to their home gateways which can be connected to other points within their route systems, such as in the Middle East, Africa and other European destinations. North Atlantic routes also provide fifth freedom traffic to airlines from countries outside the region such as Israel, India, Pakistan, Kuwait, Jordan, Mexico, China and New Zealand.⁹

Because of its strategic importance and its prominence in passenger demand, the route system between the U.S. and Europe provides a suitable market in which to assess the effects of pro-competitive bilateral agreements. Of all regional route groupings worldwide, more Post 77 agreements have been signed between the U.S. and countries within the North Atlantic region

⁸ See Brenner et al., p. 108.

⁹ Airlines from these countries were providing direct nonstop service from U.S. cities to Europe as of 1984, according to the Official Airline Guide, Worldwide edition, January 1985.

than between countries in any other region. Out of a total of 19 Post 77 bilateral agreements in force in 1986, 7 have been signed with countries within this region. Therefore, in the following two chapters the market for international travel between the U.S. and Europe shall be the focus of an investigation of the effects of pro-competitive, Post 77 bilateral agreements.

Chapter Two

The Effects of Post 77 Bilateral Agreements on Direct Scheduled Passenger Service From the U.S. to Europe

I. Introduction

The focus of this chapter is to assess the impact of Post 77 bilateral agreements on the market for passenger travel from the U.S. to Europe. The purpose of the U.S. aviation policy expressed in the International Air Transportation Competition Act of 1979 was to "promote competition in international air transportation ...the availability of a variety of adequate, economic, efficient, and low-price services by air carriers and foreign carriers [and]...the encouragement of entry into air transportation markets by new air carriers, the encouragement of entry into additional air transportation markets by existing air carriers, and the continued strengthening of small air carriers." ¹⁰ This chapter assesses the actual outcomes of this policy on the U.S. to Europe market by comparing such variables as market concentration, number of entrants and exits, and changes in capacity, frequency, number of carriers and number of city pairs for a period before the signing of Post 77 agreements and a period after their

¹⁰ U.S. Congress, Hearings re: International Air Transportation Competition Act of 1979, 96th Cong., 1st sess. H. Rept. 5481, pp. 1-5.

institution. We leave the discussion of fares to Chapter Three.

II. Data

In order to assess the changes in the market for international passenger travel from the U.S. to Europe due to the acceptance of Post 77 type bilateral agreements, two years were selected for comparison. 1976 was chosen as a base year because it is the year before the signing of the Bermuda II agreement and the subsequent U.S. drive for pro-competitiveness in the market. As a comparison year, 1984 was selected for two reasons. First, the round of Post 77 bilateral agreements between the U.S. and European countries were negotiated by the end of 1980.¹¹ Second, the choice of 1984 allows a lag of four years in which airlines and passengers can adjust to the changes these new agreements would cause.

The data employed in this comparison analysis was abstracted from the Worldwide edition of the Official Airline Guide, which gives weekly schedules for international flights between worldwide city pairs. Using January editions for the years 1977 and 1985, all direct non-stop flights originating in U.S. cities with European destinations were collected for the last week

¹¹ One exception is Luxembourg, with whom the U.S. just recently negotiated a Post 77 type agreement. However, since there were no direct flights to Luxembourg in either 1976 or 1984, this fact has no bearing on the analysis.

in December in 1976 and 1984.¹² This schedule data is provided in Appendix C.

III. Comparison of U.S. to Europe Market, 1976 and 1984

In general, the market for direct passenger service from U.S. points to European destinations is characterized by many carriers. Yet between 1976 and 1984, the number of carriers offering direct service from the U.S. to Europe increased by almost 40% from 23 to 32. Tables 4 and 5 show that of the 32 carriers in 1984, 15 were new entrants in the market. The majority of entrants were U.S. carriers either established in domestic service but new to international operations such as American Airlines, Delta, Northwest Orient, or newly formed airlines ready to take advantage of the more competitive environment, such as People Express, World Airways, Capitol Air and Tower Air. Most remaining entrants were airlines from non-European countries seeking more fifth freedom traffic, such as Aeromexico, Air New Zealand, Alia (Jordan), China Airlines, and Kuwait Airways.

¹² Two countries, Israel and Egypt, were included in the analysis because of the amount of passenger traffic carried and carrier capacity operated to each of them from the U.S. Their inclusion does not alter the basic focus of the analysis since they fall within the category of Transatlantic destinations whose distance from the U.S. is less than 5800 miles.

Table 4

Carriers Offering Direct Service From U.S. to Europe, 1976

Carrier	Code
Aeromexico	AM
Air France	AF
Air India	AI
Air Niagara Inc.	NA
Alitalia	AZ
British Airways	BA
Czechoslovak Airlines	OK
East Hampton Air, Inc.	IN
El Israel Airlines	LY
Finnair	AY
Iran National Airlines	IR
KLM Royal Dutch Airlines	KL
Lufthansa German Airlines	LH
Olympic Airways, Greece	OA
Pakistan International	PK
Pan American World Airways	PA
Sabena - Belgian Airlines	SN
SAS - Scandinavian Airlines	SK
Swissair	SR
TAP Air Portugal	TP
Tarom Romanian Air Transport	RO
Trans World Airlines	TW
Yugoslav Airlines - JAT	JU
TOTAL	23

Source: Official Airline Guide, Worldwide Edition, January 1977.

Table 5

Carriers Offering Direct Service From U.S. to Europe, 1984

Carrier	Code	Entrants
Aer Lingus	EI	X
Aeromexico	AM	
Air France	AF	
Air India	AI	
Air New Zealand International	TE	X
Alia - The Royal Jordanian Airline	RJ	X
Alitalia	AZ	
American Airlines, Inc.	AA	X
British Airways	BA	
British Caledonian Airways	BR	X
Capitol Air, Inc.	CL	X
China Airlines, Ltd.	CI	X
Delta Air Lines, Inc.	DL	X
El Israel Airlines	LY	
Iberia, Spain	IB	X
KLM Royal Dutch Airlines	KL	
Kuwait Airways	KU	X
Lufthansa German Airlines	LH	
Northwest Orient Airlines, Inc.	NW	X
Olympic Airways, Greece	OA	
Pakistan International	PK	
Pan American World Airways	PA	
People Express Airlines, Inc.	PE	X
Sabena - Belgian Airlines	SN	
SAS - Scandinavian Airlines	SK	
Swissair	SR	
TAP Air Portugal	TP	
Tarom Romanian Air Transport	RO	
Tower Air, Inc.	FF	X
Trans World Airlines	TW	
Virgin Atlantic Airways, Ltd.	VS	X
World Airways, Inc.	WO	X
TOTAL	32	15

Source: Official Airline Guide, Worldwide Edition, January 1985.

As Tables 6 and 7 illustrate, the concentration of carriers in the market for direct passenger service from the U.S. to Europe fell during this period from an HHI of 1420.4 in 1976 to 1275.7 in 1984. This was due not only to the number of additional carriers in the market, but also to changes in market share among established carriers. The top four carriers remained entrenched during this period but their share of the market dropped from a four firm concentration ratio of 62.7 to 61.1. More jostling occurred among the next four largest carriers in the market. In 1976, these positions were occupied by established European flag carriers and one non European airline, Air India. From 1976 to 1984, the eight firm concentration ratio fell from 81.3 to 74.0 and two U.S. carriers new to international operations assumed 5th and 6th place in the market, World Airways and Northwest Orient.

In general, the market experienced a high rate of growth from 1976 to 1984. Yet, in order to assess the portion of that growth due to the institution of pro-competitive bilateral agreements, it is necessary to look at the market on a more disaggregated level. Scheduled flight data on a city pair basis was therefore aggregated to the country level so that the trends in the market could be analyzed in relation to the type of bilateral agreement in force. The variables to be considered on a U.S. to country basis would be capacity (number of seats per week), frequency (the number of flights per week), number of city pairs, number of carriers, and

Table 6

Direct Passenger Service From U.S. to Europe
Carrier Market Shares, 1976

Carrier	Code	Capacity	Share	Squared Share
Trans World Airlines	TW	46,220	28.5%	811.21
Pan American	PA	31,199	19.2%	369.62
British Airways	BA	13,916	8.6%	73.53
Lufthansa German Airlines	LH	10,375	6.4%	40.87
Alitalia	AZ	8,383	5.2%	26.69
Air France	AF	8,017	4.9%	24.40
Swissair	SR	7,492	4.6%	21.31
Air India	AI	6,320	3.9%	15.17
KLM Royal Dutch Airlines	KL	6,048	3.7%	13.89
Sabena Belgian Airlines	SN	3,950	2.4%	5.92
El Israel Airlines	LY	3,536	2.2%	4.75
SAS Scandinavian Airlines	SK	3,424	2.1%	4.45
Pakistan International	PK	2,370	1.5%	2.13
TAP Air Portugal	TP	2,213	1.4%	1.86
Air Niagara Inc.	NA	1,905	1.2%	1.38
Olympic Airways	OA	1,703	1.0%	1.10
Finnair	AY	1,270	0.8%	0.61
Iran National Airlines	IR	1,248	0.8%	0.59
East Hampton Air	IN	1,166	0.7%	0.52
Aeromexico	AM	953	0.6%	0.34
Yugoslav Airlines	JU	259	0.2%	0.03
Czechoslovak Airlines	OK	186	0.1%	0.01
Tarom Romanian Air	RO	130	0.1%	0.01
Total		162,278	100.0%	1420.40

Source: Official Airline Guide, Worldwide Edition, January 1977.

Table 7

Direct Passenger Service from U.S. to Europe

Carrier Market Shares, 1984

Carrier	Code	Capacity	Share	Squared Share
Trans World Airlines	TW	81,080	25.4%	644.07
Pan American	PA	64,895	20.3%	412.60
British Airways	BA	33,022	10.3%	106.84
Lufthansa German Airlines	LH	16,275	5.1%	25.95
World Airways	WO	15,435	4.8%	23.34
Northwest Orient	NW	9,040	2.8%	8.01
Air France	AF	8,558	2.7%	7.18
Alitalia	AZ	8,304	2.6%	6.76
KLM Royal Dutch Airlines	KL	8,232	2.6%	6.64
Swissair	SR	7,542	2.4%	5.57
British Caledonian Airways	BR	6,930	2.2%	4.71
SAS Scandinavian	SK	6,785	2.1%	4.51
People Express	PE	6,328	2.0%	3.92
American Airlines	AA	6,300	2.0%	3.89
Delta Airlines	DL	5,184	1.6%	2.63
El Al Israel	LY	4,068	1.3%	1.62
Iberia	IB	3,297	1.0%	1.06
Olympic Airways	OA	3,164	1.0%	0.98
Air India	AI	3,164	1.0%	0.98
TAP Air Portugal	TP	2,880	0.9%	0.81
Aer Lingus	EI	2,784	0.9%	0.76
Virgin Atlantic Airways	VS	2,260	0.7%	0.50
Pakistan International	PK	2,205	0.7%	0.48
Capitol Air	CL	2,072	0.6%	0.42
Kuwait Airways	KU	1,808	0.6%	0.32
Tower Air	FF	1,808	0.6%	0.32
Alia Royal Jordanian	RJ	1,808	0.6%	0.32
Sabena Belgian Airlines	SN	1,666	0.5%	0.27
Aeromexico	AM	1,260	0.4%	0.16
Air New Zealand	TE	904	0.3%	0.08
China Airlines	CI	238	0.1%	0.01
Tarom Romanian Air	RO	186	0.1%	0.00
Total		319,481	100.0%	1275.70

Source: Official Airline Guide, Worldwide Edition, January 1985.

U.S. share of capacity.

Capacity:

From 1976 to 1984 the total number of seats per week on direct flights from the U.S. to Europe increased by 157,203, a percentage growth of 96.9% (see Table 8). Some countries experienced a decline in capacity over the period: Greece, Belgium, Egypt, Denmark and Yugoslavia. Capacity to those countries with liberal agreements, West Germany, the Netherlands, England, Scotland and Israel (with Belgium an exception), accounted for 76.8% of this growth. Conversely, capacity on direct flights to countries with Bermuda I type agreements grew less significantly.

Frequency:

In addition to an increase in the number of seats on direct flights from the U.S. to Europe, the number of weekly departing flights also grew. Table 9 shows that weekly frequency increased from 556 in 1976 to 924 in 1984, a growth of 66%. Once again, weekly frequency to countries party to Post 77 bilateral agreements accounted for the majority of the increase. Of a total of 368 additional flights per week, these countries received 299, or 81.2%.

City Pairs:

The market for direct service from the U.S. to Europe has

Table 8

Direct Passenger Service from U.S. to Europe
Capacity Comparison, 1976 to 1984

Country	1976	1984	Difference
Netherlands	9,291	13,531	4,240
Greece	6,029	5,987	(42)
Spain	0	7,761	7,761
Belgium	5,925	5,231	(694)
Egypt	5,394	2,500	(2,894)
Denmark	4,130	3,895	(235)
Germany	22,226	58,396	36,170
Ireland	1,554	4,592	3,038
Switzerland	8,788	16,287	7,499
Scotland	0	904	904
Portugal	3,249	4,180	931
England	52,446	130,303	77,857
Italy	17,172	22,228	5,056
Norway	0	2,349	2,349
France	20,332	29,015	8,683
Sweden	0	2,801	2,801
Israel	4,585	6,861	2,276
Austria	907	2,662	1,755
Yugoslavia	259	0	(259)
TOTAL	162,287	319,483	157,196

Source: Official Airline Guide, Worldwide Edition,
January 1977 and 1985.

Table 9

Direct Passenger Service from U.S. to Europe
Frequency Comparison, 1976 to 1984

Country	1976	1984	Difference
Netherlands	28	44	16
Greece	24	18	(6)
Spain	0	24	24
Belgium	15	18	3
Egypt	15	9	(6)
Denmark	14	10	(4)
Germany	68	194	126
Ireland	12	13	1
Switzerland	33	43	10
Scotland	0	2	2
Portugal	14	14	0
England	185	338	153
Italy	56	56	0
Norway	0	8	8
France	64	92	28
Sweden	0	9	9
Israel	19	18	(1)
Austria	7	14	7
Yugoslavia	2	0	(2)
TOTAL	556	924	368

Source: Official Airline Guide, Worldwide Edition,
January 1977 and 1985.

also witnessed a 50% increase in the number of city pair options from 41 in 1976 to 62 in 1984. As Table 10 shows, of these additional 21 city pairs, six were in countries which did not have direct service in 1976: Spain (2), Scotland (2), Norway (1) and Sweden (1). Only one country, Yugoslavia, appeared to lose direct service from the U.S. during this period. Yet of the countries which continued to possess direct service over this period, West Germany and Great Britain showed the largest growth in number of city pairs, each gaining seven new routes.

Number of Carriers:

This market has also seen an increase in the number of airlines offering direct service on each route. From Table 11, we see that the average number of carriers per country increased from 3.13 in 1976 to 3.78 in 1984, an increase of over 20%. Moreover, those countries with the largest number of airlines offering direct service from the U.S. in 1984 were the Netherlands (6), West Germany (9), Great Britain (13) and France (5). Of these four, three are governed by more liberalized aviation agreements.

U.S. Share of Capacity:

Not only have passengers benefitted from the growth in the market for direct service from the U.S. to Europe, but U.S. carriers have profited as well through an increase in their

Table 10

Direct Passenger Service from U.S. to Europe
 Number of City Pairs Comparison, 1976-1984

Country	1976	1984	Difference
Netherlands	3	2	(1)
Greece	1	1	0
Spain	0	2	2
Belgium	1	1	0
Egypt	1	1	0
Denmark	1	1	0
Germany	6	13	7
Ireland	2	3	1
Switzerland	3	3	0
Scotland	0	2	2
Portugal	1	1	0
England	9	16	7
Italy	4	4	0
Norway	0	1	1
France	6	8	2
Sweden	0	1	1
Israel	1	1	0
Austria	1	1	0
Yugoslavia	1	0	(1)
TOTAL	41	62	21

Source: Official Airline Guide, Worldwide Edition,
 January 1977 and 1985.

Table 11

Direct Passenger Service from U.S. to Europe
 Number of Carriers Comparison, 1976-1984

Country	1976	1984	Difference
Netherlands	6	6	0
Greece	2	2	0
Spain	0	2	2
Belgium	2	4	2
Egypt	3	2	(1)
Denmark	3	2	(1)
Germany	4	9	5
Ireland	2	2	0
Switzerland	2	3	1
Scotland	0	1	1
Portugal	2	2	0
England	7	13	6
Italy	4	3	(1)
Norway	0	2	2
France	6	5	(1)
Sweden	0	2	2
Israel	2	4	2
Austria	1	4	3
Yugoslavia	1	0	(1)
AVERAGE	3.13	3.78	0.65

Source: Official Airline Guide, Worldwide Edition,
 January 1977 and 1985.

share of total weekly capacity, as seen in Table 12. From 1976 to 1984, U.S. airlines' share of the total number of weekly seats grew from 41.2% to 52.4%. Most of this gain was obtained on routes not offered in 1976: Spain, Scotland, Norway and Sweden. U.S. carriers lost significant share in Greece and Austria, which terminated its agreement with the U.S. in 1979. Share also dropped slightly in routes to Egypt, Portugal and England.

IV. Conclusions

From the above analysis, we see that the U.S. pro-competitive international aviation policy has had significant benefits for passengers travelling from the U.S. to Europe in general and especially to those countries which have signed Post 77 type bilateral aviation agreements. Passengers wishing to fly to Europe in 1984 faced a market containing more options in terms of the number of city pairs, the number of carriers, number of departing flights and number of countries served directly. Whether or not consumers also benefitted in the form of reduced air fares is discussed in the following chapter.

Table 12

Direct Passenger Service from U.S. to Europe
U.S. Carrier Share of Capacity Comparison, 1976 to 1984

Country	1976	1984	Difference
Netherlands	8.5%	21.9%	13.4%
Greece	71.8%	47.2%	-24.6%
Spain		57.5%	
Belgium	33.3%	68.2%	34.9%
Egypt	80.6%	74.8%	-5.8%
Denmark	9.4%	23.2%	13.8%
Germany	49.8%	69.7%	19.9%
Ireland	25.0%	39.4%	14.4%
Switzerland	14.8%	53.7%	38.9%
Scotland		100.0%	
Portugal	31.9%	31.1%	-0.8%
England	65.6%	65.2%	-0.4%
Italy	46.6%	62.6%	16.0%
Norway		19.2%	
France	43.0%	64.0%	21.0%
Sweden		32.3%	
Israel	37.1%	53.9%	16.8%
Austria	100.0%	59.1%	-40.9%
Yugoslavia	0.0%		
AVERAGE	41.2%	52.4%	

Note: Blanks indicate lack of direct service.

Source: Official Airline Guide, Worldwide Edition,

Chapter Three

The Effects of Post 77 Bilateral Agreements on Fares for Scheduled Passenger Service from the U.S. to Europe

I. Introduction

The purpose of this chapter is to investigate the relationship between fares for passenger air travel from the U.S. to European countries and the type of bilateral agreement in existence between them. The objective of this chapter is to establish whether or not the adoption of more liberal Post 77 type bilateral agreements have had an impact on the level of fares for travel from the U.S. to Europe.

The hypothesis to be tested is whether fares for travel from the U.S. to those European countries that have negotiated Post 77 type agreements with the U.S. are lower on average than fares for service between the U.S. and those European countries that operate under more restrictive Bermuda I type agreements. This hypothesis assumes that airlines operating between countries that allow open competition among designated carriers will not be able to sustain supra-competitive fares for air service. Because of the threat of entry, either in the form of a new carrier or increased capacity from existing carriers, or because of competitors' ability to match price and/or service offerings, fares for passenger air travel from the U.S. to

those countries who have signed Post 77 bilateral aviation agreements should be lower than fares charged for service from the U.S. to the rest of Europe.

II. Previous Literature

Very little empirical work has been done in the field of international air fares.¹³ Although the market for passenger air travel within Europe is gaining notoriety in the press because of the discrepancy in fare levels between intra-European air service and domestic U.S. air service, significant research in the area of international air travel has remained relatively slim. The bulk of economic interest in recent years has focused on the deregulation of the U.S. domestic airline market and the effect deregulation has had on market structure and performance. The consensus of most of this empirical work has been that U.S. domestic travellers have benefitted from deregulation in the form of lower fares and increased service.¹⁴

It is difficult to translate the domestic airline literature

¹³ Paul W. MacAvoy of the University of Rochester is preparing a soon to be published analysis of bilateral aviation agreements and fares on a worldwide basis. The analysis presented herein owes much to his work.

¹⁴ See, for example, Morrison and Winston, The Economic Effects of Airline Deregulation, pp. 1-3. The authors estimate a \$6 billion annual increase in the welfare of travellers accompanied by a \$2.5 billion annual increase in the U.S. airline industry's profits (both figures in 1977 dollars).

to the international arena because of the differences in the structure between the two markets. Yet basic determinants of fares, outside of the presence of international fare setting and arbitrating bodies such as IATA, should be relatively similar. Therefore, to model air fares, one can turn to the literature on domestic deregulation for guidance. Morrison and Winston, in their study of the economic effects of deregulation, employ fuel costs, wage rates, distance and frequency as predictors of fares (revenue per passenger mile) over time in the U.S. domestic market. In constructing a model of international air fares, these variables should be significant as well.

III. Model

To test the hypothesis that pro-competitive bilateral aviation agreements have an impact on the level of international air fares, a model was constructed to endeavor to predict fares for passenger air service from the U.S. to European countries. In this model, fares charged for a specific route would be modeled against various independent variables, such as route distance, total capacity per route, total route frequency, and a measure of carrier concentration. Also included in the model would be a binary variable to the type of bilateral agreement in existence on the route, restrictive or pro-competitive.

It was expected than fares would be positively correlated

with distance, while the relationships of the remaining variables with fares would be less clear. Total capacity per route may be negatively correlated with fares depending on the ability of carriers to handle changes in density. The number of flights per week (frequency) can be interpreted as a measure of service quality and may be expected to be positively related to fares. Assuming that increased firm concentration on a route may allow carriers to raise prices above competitive levels, we would expect concentration to be positively related to route fares. Finally, under our hypothesis that restrictive bilateral agreements have an effect on fares, we would expect that a binary variable indicating the presence of such agreements would be positively correlated with fares.

IV. Data

To estimate the above model on international air fares, our 1984 cross sectional series of 62 city pairs with U.S. origins and European destinations was employed. The complete data set is provided in Appendix D. Because of the difficulty in obtaining a complete set of variables for each route, there are a number of routes with missing variables. A description of each variable and its source is provided below:

Revenue (REV):

Average revenue per passenger per route in dollars

for 1984. The source for this variable is the CAB's Origins and Destinations, 1984. It includes all fare classes and is based on a 10% sample of passengers travelling on U.S. airlines.

Fare (FARE):

Standard unrestricted coach fare in dollars for flights between each city pair as of January 1985. This variable was abstracted from the Official Airline Guide, Worldwide Edition, January 1985.

Distance (DIST):

Distance in miles between each city pair. These figures were provided by the International Civil Aviation Organization.

Capacity (CAP):

Total capacity in number of seats per week as of January 1985. Calculated as number of flights per week (Frequency) multiplied by the number of seats per flight. Source for the number of seats per flight is same as for Fare.

Frequency (FREQ):

Number of flights per route per week as of January, 1985. Source is the same as for Fare and Capacity.

HHI (HHI):

Herfindahl Hirshman Index for concentration per route calculated as the square of each carrier's share of total route capacity multiplied by 10000.

Type of Agreement (BERM):

A binary variable whose value equals 1 if the route is governed by a Bermuda I type agreement and zero otherwise.

Source: Air Service Rights in U.S. International Air Transport Agreements, 1986.

One issue which must be taken into consideration is the quality of the dependent variable. Since discounting is quite prevalent in the airline market, the use of full, undiscounted coach fare as a dependent variable may be entirely unsuitable. It has been estimated that the discounting by U.S. carriers accounts for 85% of all passenger traffic in the domestic market and that the average discount is near 56% below normal fares. Widespread discounting also occurs in the market for international travel. Therefore, the use of yield which measures the actual average revenue received by carriers per route per passenger may be a more appropriate measure of the true transactions price in this market.¹⁵

Before estimating the model, both revenues and fares on a

¹⁵ The use of yield as a dependent variable is also supported by Morrison and Winston in their study.

per mile basis for routes upon which complete data were available were plotted in Figures 1 and 2. Although fare per mile does not appear to vary between those routes governed by Bermuda I type agreements and those routes covered by more liberal agreements, a large differential in revenue per mile does appear to exist.

V. Estimated Model

The model was estimated in linear and log-log form. A good fit was achieved with the simple linear form of the following model:

$$\text{Revenue} = \alpha + \beta_1 * \text{Distance} + \beta_2 * \text{Type of Agreement}$$

The regression results for the simple linear model using a sample of 46 of the total 62 city pairs are provided in Table 13 and the results for the logged model appear in Table 14. In both models, Distance (DIST) and the binary variable for the type of bilateral agreement (BERM) are positively related to revenue and highly significant. The R^2 of the both regressions equal .63 and .66 respectively, which allows us to conclude that these models explains at least 63% of the variation in yield per route.

Figure 1

Fare Per Mile From U.S. to Europe

Bermuda I versus Liberal Agreements

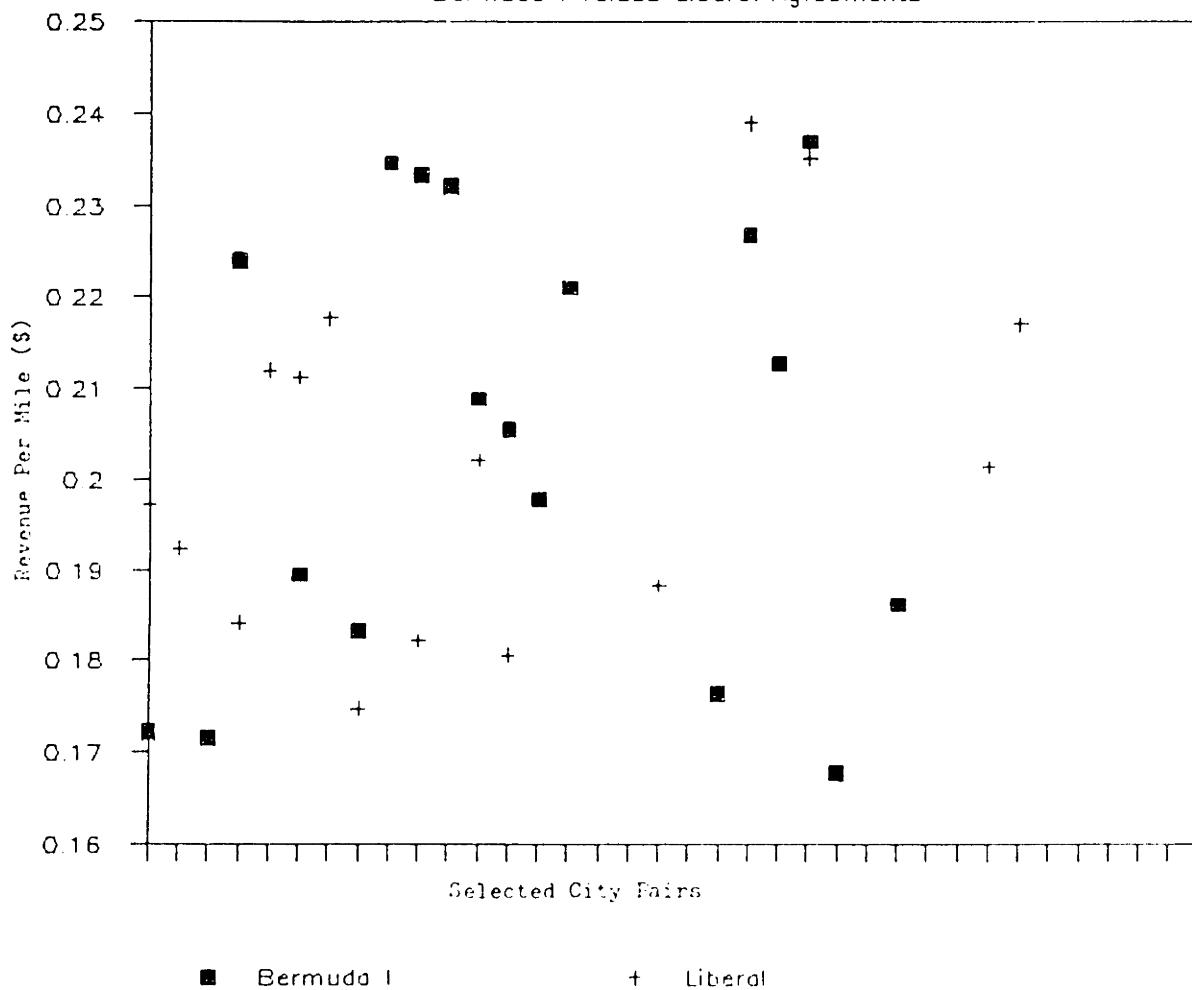


Figure 2

Revenue Per Mile From U.S. to Europe

Bermuda I versus Liberal Agreements

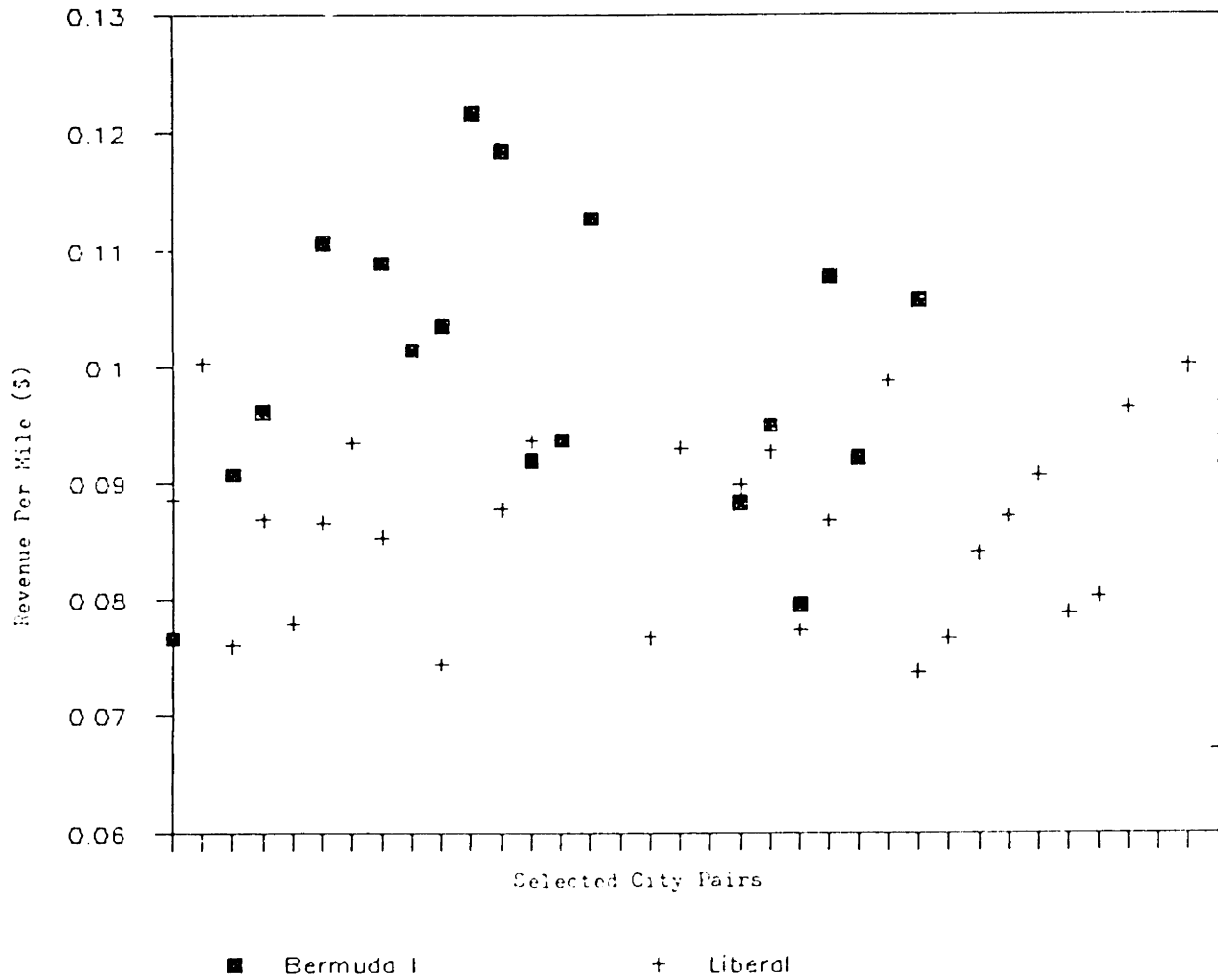


Table 13

Linear Regression Model Estimating Fares

SMPL 1 - 3 5 - 7 9 - 13
 15 - 15 17 - 18 20 - 20
 23 - 24 26 - 29 31 - 39
 42 - 50 55 - 60 62 - 62

46 Observations

LS // Dependent Variable is REV

```
=====
      VARIABLE      COEFFICIENT      STD. ERROR      T-STAT.      2-TAIL SIG.
=====
          C          62.006957          39.681831          1.5626032          0.125
          DIST        0.0707684          0.0089465          7.9101510          0.000
          BERM        57.048479          13.781279          4.1395635          0.000
=====
R-squared              0.629748      Mean of dependent var      385.9130
Adjusted R-squared    0.612527      S.D. of dependent var      72.79616
S.E. of regression    45.31368      Sum of squared resid      88293.17
Durbin-Watson stat    1.785351      F-statistic                 36.56853
Log likelihood         -239.1460
=====
```

Table 14

Log-Log Regression Model Estimating Fares

SMPL 1 - 3 5 - 7 9 - 13
 15 - 15 17 - 18 20 - 20
 23 - 24 26 - 29 31 - 39
 42 - 50 55 - 60 62 - 62

46 Observations

LS // Dependent Variable is LREV

```
=====
```

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	-0.9664219	0.7958943	-1.2142590	0.231
LDIST	0.8210941	0.0951781	8.6269210	0.000
BERM	0.1410950	0.0337282	4.1832974	0.000

```
=====
```

R-squared	0.662334	Mean of dependent var	5.938576
Adjusted R-squared	0.646628	S.D. of dependent var	0.186392
S.E. of regression	0.110801	Sum of squared resid	0.527903
Durbin-Watson stat	1.872902	F-statistic	42.17236
Log likelihood	37.48095		

```
=====
```


VI. Results

The model above yielded the most significant results given the data to be estimated. Alternative models, using different combinations of independent variables and fare as a dependent variable, were estimated. Copies of the results of these alternative specifications appear in Appendix E. The log-log form of the model given in Table 14 produced the best fit among the variables used to predict revenue on international air transportation routes from the U.S. to Europe.

As predicted, distance (DIST) is positively related to revenue and the coefficient of .82 on distance is highly significant with a t statistic of 8.63. This suggests that there may be economies of scale with respect to distance on international routes. The coefficient for the binary variable (BERM), which equals one for all routes governed by Bermuda I type agreements and zero otherwise, is positive as expected and surprisingly large and significant. The estimated coefficient equals .14 and implies that revenue per passenger obtained on routes governed by restrictive Bermuda I agreements are on average 14% higher than an average revenue obtained by carriers on routes to European countries which abide by more liberal aviation agreements.

This model illustrates, in a rather simple and straightforward fashion, that a large differential exists between the

yield received by U.S. international carriers which provide air transportation from the U.S. to European countries which have signed liberal bilateral aviation agreements and the yield obtained on routes governed by more restrictive, anti-competitive agreements. This differential is not related to distance or other determinants of fares, such as HHI, capacity, and frequency (see Appendix E).

Chapter Four

Implications for U.S. International Aviation Policy

I. Recent Trends in U.S. International Aviation Policy

The pro-competitive international aviation policy articulated in the International Air Transportation Competition Act of 1979 (IATCA) expected to achieve the following objectives:

1. freedom of air carriers and foreign air carriers to offer fares and rates which correspond with consumer demand;
2. the fewest possible restrictions on charter air transportation;
3. the maximum degree of multiple and permissive international authority for U.S. air carriers so that they will be able to respond quickly to shifts in market demand;
4. the elimination of operational and marketing restrictions to the greatest extent possible;
5. the integration of domestic and international air transportation;
6. an increase in the number of nonstop U.S. gateway cities;
7. opportunities for carriers of foreign countries to increase their access to U.S. points if exchanged for benefits of similar magnitude for U.S. carriers or the traveling public with permanent linkage between rights

granted and rights given away;

8. the elimination of discrimination and unfair competitive practices faced by U.S. airlines in foreign air transportation, including excessive landing and user fees, unreasonable ground handling requirements, undue restrictions on operations, prohibitions against change of gauge, and similar restrictive practices; and
9. the promotion, encouragement and development of civil aeronautics and a viable, privately owned U.S. air transport industry.¹⁶

The tools designed to achieve these goals were 1) the negotiation of new, more liberal bilateral aviation agreements and 2) the CAB's 1978 Show Cause Order which removed antitrust immunity granted to U.S. airlines who participated in the IATA fare setting conferences. The focus of both these initiatives was to increase consumer benefits in the market for international air transportation by relying on competitive market forces to determine the most efficient service and fares.

Yet, at the urging of U.S. international carriers, who were reporting heavy financial losses in the early 1980's, Congress decided to review the IATCA and its impact on the "economic health and fair market environment for our carriers."¹⁷ In 1981

¹⁶See H.R. 5481, pp. 16-17.

¹⁷ See U.S. Cong. House. Subcommittee on Oversight of the Committee on Public Works and Transportation. Implementation of U.S. Civil Aviation Policy, 97th Cong., H. Rept. 642.9. Washington, D.C.: GPO, 1983.

and 1982, the Subcommittee on Oversight of the Committee for Public Works and Transportation held a series of hearings which focused specifically on goals 8 and 9 of the IATCA. The findings of this Committee, published in 1983, exhibit an increased interest on the part of the Reagan Administration in the benefits for U.S. international airlines as opposed to the benefits for international passengers.

In its report, the Committee cited six major areas of concern in the implementation of the IATCA:

1. weakness in the negotiation of bilateral agreements due to the lack of U.S. carrier representation and the multiplicity of government agencies involved;
2. unequal trading of rights in bilateral negotiation which lead to an imbalance of benefits in favor of foreign air carriers;
3. increased costs of adding new U.S. carriers on international routes which may later be abandoned to foreign carriers;
4. weakness of the international structure of air fares caused by the absence of U.S. carriers from IATA conferences which makes it difficult to maintain a "comprehensible" passenger tariff structure;
5. unfair disadvantage suffered by privately owned U.S. carriers who face foreign government owned or subsidized airlines on international routes; and
6. prevalence of unfair and discriminatory practices

exercised by foreign governments or their carriers against U.S. carriers.

The identification of these "problems" in international air transportation betrayed the Reagan Administration's bias towards the interests of a powerful and vocal lobby of major U.S. international airlines. Despite evidence which suggested that the sluggish world economy and rising fuel costs were responsible for the decline in profitability experienced by both U.S. and foreign international carriers, Congress blamed poor carrier performance on the pro-consumer bias of earlier legislation. Among their recommendations for future policy initiatives was the return of the U.S. to active participation in IATA and other international aviation conferences to compensate for what they perceived as the ineffectiveness of bilateral negotiations in maintaining profitable prices and equitable divisions of the market for international passenger service.

II. Recommendations for Future Analysis

U.S. policy makers will continue to encounter difficulties in framing and implementing an open skies policy in the international aviation arena. Even today, the U.S. is the only country which possesses a privately owned airline industry in both domestic and international transportation. The existence of foreign countries which have vastly different philosophies concerning their international air carriers

implies that bilateral agreements will remain the system upon which countries will negotiate international aviation rights.

This analysis suggests that the implementation of the IATCA, with its pro-consumer bias has led to increased competition on routes from the U.S. to Europe. As we have seen, bilateral negotiations were not inconsistent with the U.S. government's aim to increase competition on international routes. A number of specific goals outlined in the IATCA were achieved in the market for direct passenger service from the U.S. to Europe between 1976 and 1984. With respect to goals 1,3,4,6, and 7, we have seen that the institution of Post 77 type bilateral agreements between the U.S. and several European countries generated significant consumer benefits in the form of increased number of city pairs with more U.S. and European gateways, more operational flexibility for air carriers in capacity and frequency offerings, more U.S. carriers, and more competitive fares. In light of these results, the recent recommendations of Reagan Administration officials for a return to U.S. participation in international airline rate setting seems misplaced.

Future analyses should, therefore, be conducted in two major areas. First, the effects of Post 77 agreements on the market for international air transportation on a worldwide basis must be investigated. Second, the link between U.S. airline profitability and the negotiation of liberal bilateral agreements

should also be studied.

Appendix A

A Standard Bermuda I Type Bilateral Agreement

A U.S. Standard "Bermuda I" Agreement

AIR TRANSPORT AGREEMENT

BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA
AND THE GOVERNMENT OF _____

The Government of the United States of America and the
Government of _____,

Recognizing the increasing importance of international air
travel between the two countries and desiring to conclude an
agreement which will assure its continued development in the
common welfare, and

Being parties to the Convention on International Civil
Aviation opened for signature at Chicago on the seventh day of
December 1944,

Have agreed as follows:

ARTICLE 1

For the purpose of the present Agreement:

A. "Agreement" shall mean this Agreement, the Schedule
attached thereto, and any amendments thereto.

B. "Aeronautical authorities" shall mean in the case of
the United States of America, the Federal Aviation Administration
with respect to the technical permission, safety standards, and
requirements referred to in Articles 3 and 6(B) respectively,
otherwise the Civil Aeronautics Board, and in the case of
_____, _____, or in both cases, any person or
agency authorized to perform the functions exercised at present
by those authorities.

C. "Designated airline" shall mean an airline that one
Contracting Party has notified the other Contracting Party to
be an airline which will operate a specific route or routes
listed in the schedule to this Agreement. Such notification
shall be communicated in writing through diplomatic channels.

D. "Territory", in relation to a State, shall mean the
land areas under the sovereignty, suzerainty, protection,
jurisdiction or trusteeship of that State, and territorial waters
adjacent thereto.

E. "Air service" shall mean any scheduled air service
performed by aircraft for the public transport of passengers,
cargo or mail, separately or in combination.

F. "International air service" shall mean an air service which passes through the air space over the territory of more than one State.

G. "Stop for non-traffic purposes" shall mean a landing for any purpose other than taking on or discharging passengers, cargo or mail.

ARTICLE 2

Each Contracting Party grants to the other Contracting Party rights for the conduct of air services by the designated airline or airlines, as follows:

- (1) To fly across the territory of the other Contracting Party without landing;
- (2) To land in the territory of the other Contracting Party for non-traffic purposes; and
- (3) To make stops at the points in the territory of the other Contracting Party named on each of the routes specified in the appropriate paragraph of the Schedule of this Agreement for the purpose of taking on and discharging international traffic in passengers, cargo, and mail, separately or in combination.

ARTICLE 3

Air service on a route specified in the Schedule to this Agreement may be inaugurated by an airline or airlines of one Contracting Party at any time after that Contracting Party has designated such airline or airlines for that route and the other Contracting Party has granted the appropriate operating and technical permission. Such other Contracting Party shall, subject to Articles 4 and 6, grant this permission, provided that the designated airline or airlines may be required to qualify before the competent aeronautical authorities of that Contracting Party, under the laws and regulations normally applied by those authorities, before being permitted to engage in the operations contemplated in this Agreement.

ARTICLE 4

A. Each Contracting Party reserves the right to withhold or revoke the operating permission referred to in Article 3 of this Agreement with respect to an airline designated by the other Contracting Party, or to impose conditions on such permission, in the event that:

- (1) Such airline fails to qualify under the laws and regulations normally applied by the aeronautical authorities of that Contracting Party;

- (2) Such airline fails to comply with the laws and regulations referred to in Article 5 of this Agreement; or
- (3) That Contracting Party is not satisfied that substantial ownership and effective control of such airline are vested in the Contracting Party designating the airline or in nationals of that Contracting Party.

B. Unless immediate action is essential to prevent infringement of the laws and regulations referred to in Article 5 of this Agreement, the right to revoke such permission shall be exercised only after consultation with the other Contracting Party.

ARTICLE 5

A. The laws and regulations of one Contracting Party relating to the admission to or departure from its territory of aircraft engaged in international air navigation, or to the operation and navigation of such aircraft while within its territory, shall be applied to the aircraft of the airline or airlines designated by the other Contracting Party and shall be complied with by such aircraft upon entrance into or departure from and while within the territory of the first Contracting Party.

B. The laws and regulations of one Contracting Party relating to the admission to or departure from its territory of passengers, crew, cargo or mail of aircraft, including regulations relating to entry, clearance, immigration, passports, customs, and quarantine, shall be complied with by or on behalf of such passengers, crew, cargo or mail of the airlines of the other Contracting Party upon entrance into or departure from and while within the territory of the first Contracting Party.

ARTICLE 6

A. Certificates of airworthiness, certificates of competency, and licenses issued or rendered valid by one Contracting Party, and still in force, shall be recognized as valid by the other Contracting Party for the purpose of operating the routes and services provided for in this Agreement, provided that the requirements under which such certificates or licenses were issued or rendered valid are equal to or above the minimum standards which may be established pursuant to the Convention on International Civil Aviation. Each Contracting Party reserves the right, however, to refuse to recognize, for the purpose of flights above its own territory, certificates of competency and licenses granted to its own nationals by the other Contracting Party.

B. The competent aeronautical authorities of each Contracting Party may request consultations concerning the safety standards and requirements relating to aeronautical facilities, airmen, aircraft, and the operation of the designated airlines which are maintained and administered by the other Contracting Party. If, following such consultations, the competent aeronautical authorities of either Contracting Party find that the other Contracting Party does not effectively maintain and administer safety standards and requirements in these areas that are equal to or above the minimum standards which may be established pursuant to the Convention on International Civil Aviation, they will notify the other Contracting Party of such findings and the steps considered necessary to bring the safety standards and requirements of the other Contracting Party to standards at least equal to the minimum standards which may be established pursuant to said Convention, and the other Contracting Party will take appropriate corrective action. Each Contracting Party reserves the right to withhold or revoke the technical permission referred to in Article 3 of this Agreement with respect to an airline designated by the other Contracting Party, or to impose conditions on such permission, in the event the other Contracting Party does not take such appropriate action within a reasonable time.

ARTICLE 7

Each Contracting Party may impose or permit to be imposed just and reasonable charges for the use of public airports and other facilities under its control, provided that such charges shall not be higher than the charges imposed for the use of such airports and facilities by its national aircraft engaged in similar international services.

ARTICLE 8

A. Each Contracting Party shall exempt the designated airline or airlines of the other Contracting Party to the fullest extent possible under its national law from import restrictions, customs duties, excise taxes, inspection fees, and other national duties and charges on fuel, lubricants, consumable technical supplies, spare parts including engines, regular equipment, ground equipment, stores, and other items intended for use solely in connection with the operation or servicing of aircraft of the airlines of such other Contracting Party engaged in international air service. The exemptions provided under this paragraph shall apply to items:

- (1) Introduced into the territory of one Contracting Party by or on behalf of the designated airlines of the other Contracting Party;
- (2) Retained on aircraft of the designated airlines of one Contracting Party upon arriving in

or leaving the territory of the other Contracting Party; or

- (3) Taken on board aircraft of the designated air lines of one Contracting Party in the territory of the other and intended for use in international air service;

whether or not such items are used or consumed wholly within the territory of the Contracting Party granting the exemption.

B. The exemptions provided for by this Article shall also be available in situations where the designated airline or airlines of one Contracting Party have entered into arrangements with another airline or airlines for the loan or transfer in the territory of the other Contracting Party of the items specified in paragraph A, provided such other airline or airlines similarly enjoy such exemptions from such other Contracting Party.

ARTICLE 9

A. There shall be a fair and equal opportunity for the airlines of each Contracting Party to operate on any route covered by this Agreement.

B. In the operation by the airlines of either Contracting Party of the air services described in this Agreement, the interest of the airlines of the other Contracting Party shall be taken into consideration so as not to affect unduly the services which the latter provide on all or part of the same routes.

C. The air services made available to the public by the airlines operating under this Agreement shall bear a close relationship to the requirements of the public for such services.

D. Services provided by a designated airline under this Agreement shall retain as their primary objective the provision of capacity adequate to the traffic demands between the country of which such airline is a national and the countries of ultimate destination of the traffic. The right to embark or disembark on such services international traffic destined for and coming from third countries at a point or points on the routes specified in this Agreement shall be applied in accordance with the general principles of orderly development to which both Contracting Parties subscribe and shall be subject to the general principle that capacity should be related to:

- (1) traffic requirements between the country of origin and the countries of ultimate destination of the traffic;

- (2) the requirements of through airline operations; and,
- (3) the traffic requirements of the area through which the airline passes, after taking account of local and regional services.

E. Without prejudice to the right of each Contracting Party to impose such uniform conditions on the use of airports and airport facilities as are consistent with Article 15 of the Convention on International Civil Aviation, neither Contracting Party shall unilaterally restrict the airline or airlines of the other Contracting Party with respect to capacity, frequency, scheduling or type of aircraft employed in connection with services over any of the routes specified in the Schedule to this Agreement. In the event that one of the Contracting Parties believes that the operations conducted by an airline of the other Contracting Party have been inconsistent with the standards and principles set forth in this Article, it may request consultations pursuant to Article 12 of this Agreement for the purpose of reviewing the operations in question to determine whether they are in conformity with said standards and principles.

ARTICLE 10

A. All rates to be charged by an airline of one Contracting Party for carriage to or from the territory of the other Contracting Party shall be established at reasonable levels, due regard being paid to all relevant factors, such as costs of operation, reasonable profit, and the rates charged by any other airlines, as well as the characteristics of each service. Such rates shall be subject to the approval of the aeronautical authorities of the Contracting Parties, who shall act in accordance with their obligations under this Agreement, within the limits of their legal competence.

B. Any rate proposed to be charged by an airline of either Contracting Party for carriage to or from the territory of the other Contracting Party shall, if so required, be filed by such airline with the aeronautical authorities of the other Contracting Party at least thirty (30) days before the proposed date of introduction unless the Contracting Party with whom the filing is to be made permits filing on shorter notice. The aeronautical authorities of each Contracting Party shall use their best efforts to insure that the rates charged and collected conform to the rates filed with either Contracting Party, and that no airline rebates any portion of such rates by any means, directly or indirectly, including the payment of excessive sales commissions to agents.

C. It is recognized by both Contracting Parties that, during any period for which either Contracting Party has approved the traffic conference procedures of the International Air

Transport Association, or other association of international air carriers, any rate agreements concluded through these procedures and involving an airline or airlines of that Contracting Party will be subject to the approval of the aeronautical authorities of that Contracting Party.

D. If the aeronautical authorities of a Contracting Party, on receipt of the notification referred to in paragraph B above, are dissatisfied with the rate proposed, the other Contracting Party shall be so informed at least fifteen (15) days prior to the date that such rate would otherwise become effective, and the Contracting Parties shall endeavor to reach agreement on the appropriate rate.

E. If the aeronautical authorities of a Contracting Party, upon review of an existing rate charged for carriage to or from the territory of that Party by an airline or airlines of the other Contracting Party are dissatisfied with that rate, the other Contracting Party shall be so informed and the Contracting Parties shall endeavor to reach agreement on the appropriate rate.

F. In the event that an agreement is reached pursuant to the provisions of paragraph D or E, each Contracting Party will exercise its best efforts to put such rate into effect.

G. If:

- (1) under the circumstances set forth in paragraph D, no agreement can be reached prior to the date that such rate would otherwise become effective; or
- (2) under the circumstances set forth in paragraph E, no agreement can be reached prior to the expiration of sixty (60) days from the date of notification,

then the aeronautical authorities of the Contracting Party raising the objection to the rate may take such steps as may be considered necessary to prevent the inauguration or the continuation of the service in question at the rate complained of; provided, however, that the aeronautical authorities of the Contracting Party raising the objection shall not require the charging of a rate higher than the lowest rate charged by its own airline or airlines for comparable service between the same points.

H. When in any case under paragraph D and E the Contracting Parties cannot agree within a reasonable time upon the appropriate rate after consultation initiated by either of them, the terms of Article 13 of this Agreement shall apply. In rendering its decision or award, the arbitral tribunal shall be guided by the principles laid down in this Article.

ARTICLE 11

The following provisions shall govern the sale of air transportation and the conversion and remittance of revenues:

A. Each designated airline shall have the right to engage in the sale of air transportation in the territory of the other Contracting Party directly and, in its discretion, through its agents. Such airline shall have the right to sell such transportation, and any person shall be free to purchase such transportation, in the currency of that territory or in freely convertible currencies of other countries.

B. Any rate specified in terms of the national currency of one of the Contracting Parties shall be established in an amount which reflects the effective exchange rate (including all exchange fees or other charges) at which the airlines of both Parties can convert and remit the revenues from their transport operations into the national currency of the other Party.

C. Each designated airline shall have the right to convert and remit to its country local revenues in excess of sums locally disbursed. Conversion and remittance shall be permitted promptly and without restrictions at the rate of exchange in effect for the sale of transportation at the time such revenues are presented for conversion and remittance and shall be exempted from taxation to the fullest extent permitted by national law. If a Contracting Party does not have a convertible currency and requires the submission of applications for conversion and remittance, the airlines of the other Contracting Party shall be permitted to file such applications as often as weekly free of burdensome or discriminatory documentary requirements.

ARTICLE 12

Either Contracting Party may at any time request consultations on the interpretation, application or amendment of this Agreement. Such consultations shall begin within a period of sixty (60) days from the date the other Contracting Party receives the request.

ARTICLE 13

A. Any dispute with respect to matters covered by this Agreement not satisfactorily adjusted through consultation shall, upon request of either Contracting Party, be submitted to arbitration in accordance with the procedures set forth herein.

B. Arbitration shall be by a tribunal of three arbitrators constituted as follows:

- (1) One arbitrator shall be named by each Contracting Party within sixty (60) days of the date of

delivery by either Contracting Party to the other of a request for arbitration. Within thirty (30) days after such period of sixty (60) days, the two arbitrators so designated shall by agreement designate a third arbitrator, who shall not be a national of either Contracting Party.

- (2) If either Contracting Party fails to name an arbitrator or if the third arbitrator is not agreed upon in accordance with paragraph (1), either Contracting Party may request the President of the Council of the International Civil Aviation Organization to designate the necessary arbitrator or arbitrators.

C. Each Contracting Party shall use its best efforts consistent with its national law to put into effect any decision or award of the arbitral tribunal.

D. The expenses of the arbitral tribunal, including the fees and expenses of the arbitrators, shall be shared equally by the Contracting Parties.

ARTICLE 14

This Agreement and all amendments thereto shall be registered with the International Civil Aviation Organization.

ARTICLE 15

Either Contracting Party may at any time notify the other of its intention to terminate this Agreement. Such notice shall be sent simultaneously to the International Civil Aviation Organization. This Agreement shall terminate one year after the date on which the notice of termination is received by the other Contracting Party, unless withdrawn before the end of this period by agreement between the Contracting Parties.

ARTICLE 16

This agreement will come into force on the day it is signed.

In witness whereof, the undersigned, being duly authorized by their respective Governments, have signed the present Agreement.

Done in duplicate at _____ in the English and _____ languages, both texts being equally authentic, this _____ day of _____, 19____.

For the Government of the United States of America:

For the Government of _____:

SCHEDULE

A. An airline or airlines designated by the Government of the United States shall be entitled to operate air services on each of the specified routes, in both directions, and to make scheduled landings in _____ at the points specified in this paragraph:

1.

B. An airline or airlines designated by the Government of _____ shall be entitled to operate air services on each of the specified routes, in both directions, and to make scheduled landings in the United States at the points specified in this paragraph:

1.

C. Points on any of the specified routes may at the option of the designated airlines be omitted on any or all flights.

Source: Air Transport Association of America.

Appendix B

A Standard Post 77 Type Bilateral Agreement

A U.S. STANDARD "POST 1977" AGREEMENT

AIR TRANSPORT AGREEMENT
BETWEEN THE GOVERNMENT OF THE
UNITED STATES OF AMERICA
AND
THE GOVERNMENT OF

The Government of the United States of America and the Government of

Desiring to promote an international air transport system based on fair and constructive competition among airlines in the marketplace with as little governmental intervention and regulation as possible, consistent with the provisions of this Agreement,

Desiring to facilitate the expansion of international air transport opportunities,

Desiring to make it possible for airlines to offer the traveling and shipping public a variety of service options at the lowest prices that are not predatory or discriminatory and do not represent abuse of a dominant position and wishing to encourage designated airlines to develop and implement innovative and competitive prices,

Desiring to ensure the highest degree of safety and security in international air transport and reaffirming their grave concern about acts or threats against the security of aircraft, which jeopardize the safety of persons or property, adversely affect the operation of air transportation, and undermine public confidence in the safety of civil aviation,

Being Parties to the Convention on International Civil Aviation opened for signature at Chicago on December 7, 1944,

Desiring to conclude a revised agreement covering scheduled and charter air transportation to replace the Air Services Agreement concluded between them and signed at _____ on _____

Have agreed as follows:

ARTICLE 1

Definitions

For the purposes of this Agreement, unless otherwise stated, the term:

- (a) "Aeronautical authorities" means, in the case of the United States, the Civil Aeronautics Board or the Department of Transportation, whichever has jurisdiction, or their successor agencies, and in the case of the Kingdom of Thailand, means the Minister of Communications and/or any person or body authorized to perform any Civil Aviation or similar functions exercised by the said Minister;
- (b) "Agreement" means this Agreement, its Annexes, and any amendments thereto;
- (c) "Air transportation" means any operation performed by aircraft for the public carriage of traffic in passengers (and their baggage), cargo and mail, separately or in combination, for remuneration or hire;
- (d) "Convention" means the Convention on International Civil Aviation, opened for signature at Chicago on December 7, 1944, and includes:
 - (i) any amendment which has entered into force under Article 94(a) of the Convention and has been ratified by both Parties, and
 - (ii) any Annex or any amendment thereto adopted under Article 90 of the Convention, insofar as such Annex or amendment is at any given time effective for both Parties;
- (e) "Designated airline" means an airline designated and authorized in accordance with Article 3 of this Agreement;
- (f) "Price" means:
 - (i) any fare, rate or price to be charged by airlines, or their agents, and the conditions governing the availability of such fare, rate or price;

- (ii) the charges and conditions for services ancillary to carriage of traffic which are offered by airlines; and
- (iii) amounts charged by airlines to air transportation intermediaries;
for the carriage of passengers (and their baggage) and/or cargo (excluding mail) in air transportation.
- (g) "Stop for non-traffic purposes" means a landing for any purpose other than taking on or discharging passengers (and their baggage), cargo and mail in air transportation;
- (h) "Territory" means the land areas under the sovereignty, jurisdiction, protection, or trusteeship of a Party, and the territorial waters adjacent thereto; and
- (i) "User charge" means a charge made to airlines for the provision of airport, air navigation or aviation security property or facilities.
- (j) "Full economic costs" means the direct cost of providing service plus a reasonable charge for administrative overhead.

ARTICLE 2

Grant of Rights

Each Contracting Party grants to the other Contracting Party rights for the conduct of air services by the designated airline or airlines, as follows:

- (1) to fly across the territory of the other Contracting Party without landing;
- (2) to land in the territory of the other Contracting Party for nontraffic purposes; and
- (3) To make stops at the points in the territory of the other Contracting Party named on each of the routes specified in the appropriate paragraph of the Schedule of this Agreement for the purpose of taking on and discharging

international traffic in passengers, cargo,
and mail, separately or in combination.

ARTICLE 3

Designation and Authorization

- (1) Each Party shall have the right to designate as many airlines as it wishes, consistent with its domestic laws and policies, to conduct international air transportation in accordance with this Agreement and to withdraw or alter such designations. Such designations shall be transmitted to the other Party in writing through diplomatic channels, and shall identify whether the airline is authorized to conduct the type of air transportation specified in Annex I or in Annex II or in both.
- (2) On receipt of such a designation and of applications in the form and manner prescribed from the designated airline for operating authorizations and technical permissions, the other Party shall grant appropriate authorizations and permissions with minimum procedural delay, provided:
 - (a) substantial ownership and effective control of that airline are vested in the Party designating the airline, nationals of that Party, or both.
 - (b) the designated airline is qualified to meet the conditions prescribed under the laws and regulations normally applied to the operation of international air transportation by the Party considering the application or applications; and
 - (c) the Party designating the airline is maintaining and administering the standards set forth in Article 6 (Safety).

ARTICLE 4

Revocation of Authorization

- (1) Each Party may revoke, suspend or limit the operating authorizations or technical permissions of an airline designated by the other Party where:
 - (a) substantial ownership and effective control of that airline are not vested in the other Party or the other Party's nationals;
 - (b) that airline has failed to comply with the laws

and regulations referred to in Article 5 of this Agreement; or

- (c) the other Party is not maintaining and administering the standards as set forth in Article 6 (Safety).
- (2) Unless immediate action is essential to prevent further non-compliance with subparagraphs (1) (b) or (1) (c) of this Article, the rights established by this Article shall be exercised only after consultation with the other Party.

ARTICLE 5

Application of Laws

- (1) While entering, within or leaving the territory of one Party, its laws and regulations relating to the operation and navigation of aircraft shall be complied with by the other Party's airlines.
- (2) While entering, within or leaving the territory of one Party, its laws and regulations relating to the admission to or departure from its territory of passengers, crew or cargo on aircraft (including regulations relating to entry, clearance, aviation security, immigration, passports, customs and quarantine or, in the case of mail, postal regulations) shall be complied with by or on behalf of such passengers, crew or cargo of the other Party's airlines.

ARTICLE 6

Safety

- (1) Each Party shall recognize as valid, for the purpose of operating the air transportation provided for in this Agreement, certificates of airworthiness, certificates of competency, and licenses issued or validated by the other Party and still in force, provided that the requirements for such certificates or licenses at least equal the minimum standards which may be established pursuant to the Convention. Each Party may, however, refuse to recognize as valid for the purpose of flight above its own territory, certificates of competency and licenses granted to or validated for its own nationals by the other Party.
- (2) Each Party may request consultations concerning the safety and security standards maintained by the other Party relating to aeronautical facilities, aircrew, aircraft, and operation of the designated airlines. If, following such consultations, one Party finds that the other Party does not effectively maintain and administer safety and security

standards and requirements in these areas that at least equal the minimum standards which may be established pursuant to the Convention, the other Party shall be notified of such findings and the steps considered necessary to conform with these minimum standards; and the other Party shall take appropriate corrective action. Each Party reserves the right to withhold, revoke or limit the operating authorization or technical permission of an airline or airlines designated by the other Party in the event the other Party does not take such appropriate action within a reasonable time.

ARTICLE 7

Aviation Security

Each Party:

- (1) reaffirms its commitment to act consistently with the provisions of the Convention on Offenses and Certain Other Acts Committed on Board Aircraft, signed at Tokyo on September 14, 1963, the Convention for the Suppression of Unlawful Seizure of Aircraft, signed at The Hague on December 16, 1970, and the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation signed at Montreal on September 23, 1971;
- (2) shall require that operators of aircraft of its registry act consistently with applicable aviation security provisions established by the International Civil Aviation Organization; and
- (3) shall provide maximum aid to the other Party with a view to preventing unlawful seizure of aircraft, sabotage to aircraft, airports, and air navigation facilities, and threats to aviation security; give sympathetic consideration to any request from the other Party for special security measures for its aircraft or passengers to meet a particular threat; and, when incidents or threats of hijacking or sabotage against aircraft, airports or air navigation facilities occur, assist the other Party by facilitating communications intended to terminate such incidents rapidly and safely.

ARTICLE 8

Commercial Opportunities

- (1) The airline or airlines of one Party may establish offices in the territory of the other Party for the promotion and sale of air transportation.

- (2) The designated airline or airlines of one Party may, in accordance with the laws and regulations of the other Party relating to entry, residence and employment, bring in and maintain in the territory of the other Party managerial, sales, technical, operational and other specialist staff required for the provision of air transportation.
- (3) Each designated airline may perform its own ground handling in the territory of the other Party ("self-handling") or, at its option, select among competing, authorized agents and designated airlines of either Party engaged in regular air transportation, scheduled or charter, in the territory of the other Party, for such services. These rights shall be subject only to physical constraints resulting from considerations of airport safety. Where such considerations preclude self-handling, ground services shall be available on an equal basis to all airlines; charges shall be based on the costs of services provided; and such services shall be comparable to the kind and quality of services if self-handling were possible.
- (4) Each designated airline of one Party may engage in the sale of air transportation in the territory of the other Party directly and, at the airline's discretion, through its agents, except as may be specifically provided by the charter regulations of the country in which the charter traffic originates. Each designated airline may sell such transportation, and any person shall be free to purchase such transportation, in the currency of that territory or, subject to domestic law, in freely convertible currencies.
- (5) Each designated airline of one Party may convert and remit, without restrictions or taxation, to its country, on demand, local revenues in excess of sums locally disbursed. Such conversion and remittance shall be permitted promptly, in accordance with the applicable administrative currency regulations, at the rate of exchange for current transactions and remittance.

ARTICLE 9

Customs Duties and Taxes

- (1) On arriving in the territory of one Party, aircraft operated in international air transportation by the designated airlines of the other Party, their regular aircraft equipment, fuel, lubricants, consumable technical supplies, spare parts including engines, aircraft stores (including but not limited to such items as food, beverages and liquor, tobacco and other products destined for sale to or use by passengers in limited quantities during the flight), and other items intended for or used solely in connection with the operation or servicing of aircraft engaged in

international air transportation shall be exempt, on the basis of reciprocity, from all import restrictions, property taxes and capital levies, customs duties, excise taxes, and similar fees and charges imposed by the national authorities, and not based on the cost of services provided, provided such equipment and supplies remain on board the aircraft.

- (2) There shall also be exempt, on the basis of reciprocity, from the taxes, duties, fees and charges referred to in paragraph (1) of this Article, with the exception of charges based on the cost of the service provided, as follows:
 - (a) aircraft stores introduced into or supplied in the territory of a Party and taken on board, within reasonable limits, for use on outbound aircraft of a designated airline of the other Party engaged in international air transportation, even when these stores are to be used on a part of the journey performed over the territory of the Party in which they are taken on board;
 - (b) ground equipment and spare parts including engines introduced into the territory of a Party for the servicing, maintenance or repair of aircraft of a designated airline of the other Party used in international air transportation; and
 - (c) fuel, lubricants and consumable technical supplies introduced into or supplied in the territory of a Party for use in an aircraft of a designated airline of the other Party engaged in international air transportation, even when these supplies are to be used on a part of the journey performed over the territory of the Party in which they are taken on board.
- (3) Equipment and supplies referred to in paragraphs (1) and (2) of this Article may be required to be kept under the supervision or control of the appropriate authorities.
- (4) The exemptions provided for by this Article shall also be available where the designated airlines of one Party have contracted with another airline, which similarly enjoys such exemptions from the other Party, for the loan or transfer in the territory of the other Party of the items specified in paragraphs (1) and (2) of this Article.
- (5) Each Party shall use its best efforts to secure for the designated airlines of the other Party, on the basis of reciprocity, an exemption from taxes, duties, charges and fees imposed by State, regional and local authorities on

the items specified in paragraphs (1) and (2) of this Article, as well as from fuel through-put charges, in the circumstances described in this Article, except to the extent that the charges are based on the actual cost of providing the service.

ARTICLE 10

User Charges

- (1) User charges imposed by the competent charging authorities on the airlines of the other Party shall be just, reasonable, and nondiscriminatory.
- (2) User charges imposed on the airlines of the other Party may reflect, but shall not exceed, an equitable portion of the full economic cost to the competent charging authorities of providing the airport, air navigation, and aviation security facilities and services. Facilities and services for which charges are made shall be provided on an efficient and economic basis. Reasonable notice shall be given prior to changes in user charges. Each Party shall encourage consultations between the competent charging authorities in its territory and airlines using the services and facilities, and shall encourage the competent charging authorities and the airlines to exchange such information as may be necessary to permit an accurate review of the reasonableness of the charges.

ARTICLE 11

Fair Competition

- (1) Each Party shall allow a fair and equal opportunity for the designated airlines of both Parties to compete in the international air transportation covered by this Agreement.
- (2) Each Party shall take all appropriate action within its jurisdiction to eliminate all forms of discrimination or unfair competition practices adversely affecting the competitive position of the airlines of the other Party.
- (3) Neither Party shall unilaterally limit the volume of traffic, frequency or regularity of service, or the aircraft type or types operated by the designated airline or airlines of the other Party, except as may be required for customs, technical, operational or environmental reasons under uniform conditions consistent with Article 15 of the Convention.
- (4) Neither Party shall impose on the other Party's designated airlines a first refusal requirement, uplift ratio, no-

objection fee, or any other requirement with respect to the capacity, frequency or traffic which would be inconsistent with the purposes of the Agreement.

- (5) Neither Party shall require the filing of schedules, programs for charter flights, or operational plans by airlines of the other Party for approval, except as may be required on a nondiscriminatory basis to enforce uniform conditions as foreseen by paragraph (3) of this Article or as may be specifically authorized in an Annex to this Agreement. If a Party requires filings for information purposes, it shall minimize the administrative burdens of filing requirements and procedures on air transportation intermediaries and on designated airlines of the other Party.

ARTICLE 12

Pricing (Mutual Disapproval)

- (1) Each Party shall allow prices for air transportation to be established by each designated airline based upon commercial considerations in the marketplace. Intervention by the Parties shall be limited to:
- (a) prevention of predatory or discriminatory prices or practices;
 - (b) protection of consumers from prices unduly high or restrictive because of the abuse of a dominant position; and
 - (c) protection of airlines from prices that are artificially low because of direct or indirect governmental subsidy or support.
- (2) Each Party may require notification to or filing with its aeronautical authorities of prices proposed to be charged to or from its territory by airlines of the other Party. Notification or filing by the airlines of both Parties may be required no more than 60 days before the proposed date of effectiveness. In individual cases, notification or filing may be permitted on shorter notice than normally required. Neither Party shall require the notification or filing by airlines of the other Party or by airlines of third countries of prices charged by charterers to the public for traffic originating in the territory of that other Party.
- (3) Neither Party shall take unilateral action to prevent the inauguration or continuation of a price proposed to be charged or charged by (a) an airline of either Party or by an airline of a third country for international air transportation between the territories of the Parties, or (b) an airline of one Party for international air

transportation between the territory of the other Party and a third country, including in both cases transportation on an interline or intra-line basis. If either Party believes that any such price is inconsistent with the considerations set forth in paragraph (1) of this Article, it shall request consultations and notify the other Party of the reasons for its dissatisfaction as soon as possible. These consultations shall be held not later than 30 days after receipt of the request, and the Parties shall cooperate in securing information necessary for reasoned resolution of the issue. If the Parties reach agreement with respect to a price for which a notice of dissatisfaction has been given, each Party shall use its best efforts to put that agreement into effect. Without mutual agreement, that price shall go into or continue in effect.

- (4) Notwithstanding paragraph (3) of this Article, each Party shall allow (a) any airline of either Party or any airline of a third country to meet a lower or more competitive price proposed or charged by any other airline or charterer for international air transportation between the territories of the Parties, and (b) any airline of one Party to meet a lower or more competitive price proposed or charged by any other airline or charterer for international air transportation between the territory of the other Party and a third country. As used herein, the term "meet" means the right to establish on a timely basis, using such expedited procedures as may be necessary, an identical or similar price on a direct, interline or intra-line basis, notwithstanding differences in conditions relating to routing, roundtrip requirements, connections, type of service or aircraft type, or such price through a combination of prices.

ARTICLE 13

Consultations

Either Party may, at any time, request consultations relating to this Agreement. Such consultations shall begin at the earliest possible date, but not later than 60 days from the date the other Party receives the request unless otherwise agreed. Each Party shall prepare and present during such consultations relevant evidence in support of its position in order to facilitate informed, rational and economic decisions. If there are any revisions of this Agreement or its annexes as a result of such consultations, they shall be confirmed by an exchange of Diplomatic Notes.

ARTICLE 14

Settlement of Disputes

- (1) Any dispute arising under this Agreement which is not resolved by a first round of formal consultations, except

those which may arise under paragraph 3 of Article 12 (Pricing), may be referred by agreement of the Parties for decision to some person or body. If the Parties do not so agree, the dispute shall at the request of either Party be submitted to arbitration in accordance with the procedures set forth below.

- (2) Arbitration shall be by a tribunal of three arbitrators to be constituted as follows:
 - (a) within 30 days after the receipt of a request for arbitration, each Party shall name one arbitrator. Within 60 days after these two arbitrators have been named, they shall by agreement appoint a third arbitrator, who shall act as President of the arbitral tribunal;
 - (b) if either Party fails to name an arbitrator, or if the third arbitrator is not appointed in accordance with subparagraph (a) of this paragraph, either Party may request the President of the International Court of Justice to appoint the necessary arbitrator or arbitrators within 30 days. If the President is of the same nationality as one of the Parties, the most senior Vice President who is not disqualified on that ground shall make the appointment.
- (3) Except as otherwise agreed, the arbitral tribunal shall determine the limits of its jurisdiction in accordance with this Agreement and shall establish its own procedure. At the direction of the tribunal or at the request of either of the Parties, a conference to determine the precise issues to be arbitrated and the specific procedures to be followed shall be held no later than 15 days after the tribunal is fully constituted.
- (4) Except as otherwise agreed, each Party shall submit a memorandum within 45 days of the time the tribunal is fully constituted. Replies shall be due 60 days later. The tribunal shall hold a hearing at the request of either Party or at its discretion within 15 days after replies are due.
- (5) The tribunal shall attempt to render a written decision within 30 days after completion of the hearing or, if no hearing is held, after the date both replies are submitted,

whichever is sooner. The decision of the majority of the tribunal shall prevail.

- (6) The Parties may submit requests for clarification of the decision within 15 days after it is rendered and any clarification given shall be issued within 15 days of such request.
- (7) Each Party shall, consistent with its national law, give full effect to any decision or award of the arbitral tribunal.
- (8) The expenses of the arbitral tribunal, including the fees and expenses of the arbitrators, shall be shared equally by the Parties. Any expenses incurred by the President of the International Court of Justice in connection with the procedures of paragraph (2) (b) of this Article shall be considered to be part of the expenses of the arbitral tribunal.

ARTICLE 15

Termination

Either Party may, at any time give notice in writing, through Diplomatic channels, to the other Party, of its decision to terminate this Agreement. Such notice shall be sent simultaneously to the International Civil Aviation Organization. This Agreement shall terminate at midnight (at the place of receipt of notice to the other Party) immediately before the first anniversary of the date of receipt of the notice by the other Party, unless the notice is withdrawn by agreement before the end of this period.

ARTICLE 16

Multilateral Agreement

If a multilateral agreement, accepted by both Parties, concerning any matter covered by this Agreement enters into force, this Agreement shall be amended so as to conform with the provisions of the multilateral agreement.

ARTICLE 17

Registration with ICAO

This Agreement and all amendments thereto shall be registered with the International Civil Aviation Organization.

ARTICLE 18

Entry into Force

This Agreement shall enter into force on the date of signature and shall supersede the Air Services Agreement of February 26, 1947, as amended.

ANNEX I

SCHEDULED AIR SERVICE

Section I

Airlines of one Party whose designation identifies this Annex shall, in accordance with the terms of their designation, be entitled to perform international air transportation (1) between points on the following routes, and (2) between points on such routes and points in third countries through points in the territory of the Party which has designated the airline.

- A. Routes for the airline or airlines designated by the Government of the United States:

From the United States via intermediate points to points in _____ and beyond.

- B. Routes for the airline or airlines designated by the Government of _____

1. From _____ via intermediate points to _____

Section 2

Each designated airline may, on any or all flights and at its option, operate flights in either or both directions and without directional or geographic limitation, serve points on the routes

in any order, and omit stops at any points or points outside the territory of the Party which has designated that airline, without loss of any right to carry traffic otherwise permissible under the Agreement.

Section 3

On any international segment or segments of the routes described in Section 1 above, a designated airline may perform international air transportation without any limitation as to change, at any point on the route, in type or number of aircraft operated, provided that in the outbound direction the transportation beyond such point is a continuation of the transportation from the territory of the Party which has designated the airline and, in the inbound direction, the transportation to the territory of the Party which has designated the airline is a continuation of the transportation beyond such point.

ANNEX II

Charter Air Service

Section I

Airlines of one Party whose designation identifies this Annex shall, in accordance with the terms of their designation, be entitled to perform international air transportation to, from and through any point or points in the territory of the other Party, either directly or with stopovers en route, for one-way or roundtrip carriage of the following traffic:

- (a) any traffic to or from a point or points in the territory of the Party which has designated the airline;
- (b) any traffic to or from a point or points beyond the territory of the Party which has designated the airline and carried between the territory of that Party and such beyond point or points (i) in transportation other than under this Annex; or (ii) in transportation under this Annex with the traffic making a stopover of at least two consecutive nights in the territory of that Party.

Section 2

With regard to traffic originating in the territory of either Party, each airline performing air transportation under this Annex shall comply with such laws, regulations and rules of the Party in whose territory the traffic originates, whether on a one-way or roundtrip basis, as that Party now or hereafter

specifies shall be applicable to such transportation. When the regulations or rules of one Party apply more restrictive terms, conditions or limitations to one or more of its airlines, the designated airlines of the other Party shall be subject to the least restrictive of such terms, conditions or limitations. Moreover, if the aeronautical authorities of either Party promulgate regulations or rules which apply different conditions to different countries, each Party shall apply the most liberal regulation or rule to the designated airlines of the other Party.

Section 3

Neither Party shall require a designated airline of the other Party, in respect of the carriage of traffic from the territory of that other Party on a one-way or roundtrip basis, to submit more than a declaration of conformity with the laws, regulations and rules of that other Party referred to under Section 2 of this Annex or of a waiver of these regulations or rules granted by the aeronautical authorities of that other Party.

Source: Air Transport Association of America.

Appendix C

Data for Chapter Two:

Direct Flights from U.S. to Europe, 1976 & 1984

1976 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
Chicago	Amsterdam	kl	612		7 747	395	2765
Los Angeles	Amsterdam	lh	451		3 747	395	1185
New York	Amsterdam	ay	102		1 D10	318	318
New York	Amsterdam	ay	104		2 D10	318	635
New York	Amsterdam	kl	644		4 707	130	518
New York	Amsterdam	kl	642		7 747	395	2765
New York	Amsterdam	ok	601		1 IL6	186	186
New York	Amsterdam	pa	100		2 747	395	790
New York	Amsterdam	ro	302		1 707	130	130
New York	Athens	oa	418		4 707	130	518
New York	Athens	oa	412		3 747	395	1185
New York	Athens	tw	904		1 747	395	395
New York	Athens	tw	840		7 747	395	2765
New York	Athens	tw	910		2 707	130	259
New York	Athens	tw	900		3 707	130	389
New York	Athens	tw	880		4 707	130	518
New York	Brussels	pa	100		5 747	395	1975
New York	Brussels	sn	532		1 747	395	395
New York	Brussels	sn	542		2 747	395	790
New York	Brussels	sn	548		7 747	395	2765
New York	Cairo	ir	772		2 707	130	259
New York	Cairo	pk	712		1 747	395	395
New York	Cairo	pk	704		1 747	395	395
New York	Cairo	tw	840		7 747	395	2765
New York	Cairo	tw	800		4 747	395	1580
New York	Copenhagen	ay	102		1 D10	318	318
New York	Copenhagen	pa	44		3 707	130	389
New York	Copenhagen	sk	914		3 D8S	220	659
New York	Copenhagen	sk	912		7 747	395	2765
Boston	Frankfurt	lh	421		2 D10	318	635

1976 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
Boston	Frankfurt	lh	421	2	707	130	259
Chicago	Frankfurt	lh	431	7	747	395	2765
Los Angeles	Frankfurt	lh	451	3	707	130	389
New York	Frankfurt	ai	108	1	747	395	395
New York	Frankfurt	ai	116	1	747	395	395
New York	Frankfurt	ai	106	1	747	395	395
New York	Frankfurt	lh	493	1	D10	318	318
New York	Frankfurt	lh	491	1	D10	318	318
New York	Frankfurt	lh	495	1	D10	318	318
New York	Frankfurt	lh	401	7	747	395	2765
New York	Frankfurt	pa	72	7	747	395	2765
New York	Frankfurt	pa	66	7	747	395	2765
New York	Frankfurt	pa	2	7	747	395	2765
New York	Frankfurt	pk	712	1	747	395	395
New York	Frankfurt	pk	704	1	747	395	395
New York	Geneva	sr	111	7	747	395	2765
New York	Geneva	tw	830	3	707	130	389
New York	Hamburg	lh	405	4	707	130	518
New York	Lisbon	tp	311	1	74M	238	238
New York	Lisbon	tp	311	5	747	395	1975
New York	Lisbon	tw	900	6	707	130	777
New York	Lisbon	tw	910	2	707	130	259
Boston	London	ba	560	7	VCX	143	1001
Boston	London	pa	54	4	747	395	1580
Boston	London	tw	754	7	707	130	907
Chicago	London	ba	570	5	747	395	1975
Chicago	London	tw	770	5	747	395	1975
Detroit	London	ba	520	4	747	395	1580
Detroit	London	pa	54	4	747	395	1580
Los Angeles	London	ba	598	7	D10	318	2223

1976 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
Los Angeles	London	tw	760	7	747	395	2765
Los Angeles	London	tw	756	7	707	130	907
Los Angeles	London	tw	702	7	707	130	907
Miami	London	ba	660	6	747	395	2370
Miami	London	na	2	6	D10	318	1905
New York	London	ai	108	1	747	395	395
New York	London	ai	112	1	747	395	395
New York	London	ai	116	1	747	395	395
New York	London	ai	106	1	747	395	395
New York	London	ai	104	1	747	395	395
New York	London	ai	102	1	747	395	395
New York	London	ai	110	1	747	395	395
New York	London	ba	590	7	VCX	143	1001
New York	London	ba	510	7	747	395	2765
New York	London	ir	776	1	707	130	130
New York	London	ir	776	2	74L	300	600
New York	London	ly	16	1	747	395	395
New York	London	ly	16	1	707	130	130
New York	London	ly	16	1	707	130	130
New York	London	pa	100	7	747	395	2765
New York	London	pa	2	7	747	395	2765
New York	London	tw	700	7	747	395	2765
New York	London	tw	702	7	707	130	907
Philadelphia	London	ba	560	7	VCX	143	1001
Philadelphia	London	tw	756	7	707	130	907
San Francisco	London	pa	124	7	747	395	2765
San Francisco	London	tw	756	7	707	130	907
San Francisco	London	tw	760	7	747	395	2765
San Francisco	London	tw	770	5	L10	328	1640
San Francisco	London	tw	702	7	707	130	907

1976 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier	Capacity
Seattle	London	pa	124	7	747	395	2765	
Boston	Milan	az	625	3	D8S	220	659	
New York	Milan	az	603	7	747	395	2765	
New York	Milan	tw	830	1	707	130	130	
New York	Milan	tw	842	6	707	130	777	
New York	Munich	lh	409	7	707	130	907	
New York	Munich	pa	72	7	747	395	2765	
Boston	Paris	tw	810	7	707	130	907	
Chicago	Paris	af	30	4	747	395	1580	
Chicago	Paris	tw	810	7	L10	328	2296	
Houston	Paris	af	66	4	747	395	1580	
Los Angeles	Paris	af	4	3	747	395	1185	
Los Angeles	Paris	tw	760	7	747	395	2765	
Miami	Paris	am	450	3	D10	318	953	
New York	Paris	af	70	7	747	395	2765	
New York	Paris	af	10	7	707	130	907	
New York	Paris	ai	106	1	747	395	395	
New York	Paris	ai	102	1	747	395	395	
New York	Paris	ai	116	1	747	395	395	
New York	Paris	ai	108	1	747	395	395	
New York	Paris	ir	772	2	707	130	259	
New York	Paris	pk	712	1	747	395	395	
New York	Paris	pk	704	1	747	395	395	
New York	Paris	tw	800	7	747	395	2765	
Boston	Rome	az	625	1	D8S	220	220	
Boston	Rome	tw	910	3	707	130	389	
Boston	Rome	tw	810	1	707	130	130	
New York	Rome	ai	102	1	747	395	395	
New York	Rome	ai	104	1	747	395	395	
New York	Rome	az	603	7	747	395	2765	

1976 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
New York	Rome	az	611	5	747	395	1975
New York	Rome	pa	110	7	747	395	2765
New York	Rome	tw	910	2	707	130	259
New York	Rome	tw	900	3	707	130	389
New York	Rome	tw	904	1	747	395	395
New York	Rome	tw	840	7	747	395	2765
Boston	Shannon	in	122	1	707	130	130
Boston	Shannon	in	116	1	707	130	130
New York	Shannon	in	104	7	707	130	907
New York	Shannon	tw	876	3	707	130	389
New York	Tel Aviv	ly	2	1	747	395	395
New York	Tel Aviv	ly	16	6	707	130	777
New York	Tel Aviv	ly	4	2	747	395	790
New York	Tel Aviv	ly	16	1	747	395	395
New York	Tel Aviv	ly	16	1	707	130	130
New York	Tel Aviv	ly	2	1	747	395	395
New York	Tel Aviv	tw	800	3	747	395	1185
New York	Tel Aviv	tw	880	4	707	130	518
New York	Vienna	tw	832	7	707	130	907
New York	Zagreb	ju	501	2	707	130	259
Boston	Zurich	sr	165	6	707	130	777
New York	Zurich	sr	111	7	747	395	2765
New York	Zurich	sr	101	3	747	395	1185
New York	Zurich	tw	832	7	707	130	907

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
Chicago	Amsterdam	pa	90	7	72S	145	1015
Chicago	Amsterdam	pa	54	5	73S	123	613
Chicago	Amsterdam	kl	614	1	74M	238	238
Chicago	Amsterdam	kl	612	7	747	452	3164
Chicago	Amsterdam	ly	6	1	747	452	452
New York	Amsterdam	ci	12	1	74M	238	238
New York	Amsterdam	kl	642	7	747	452	3164
New York	Amsterdam	kl	644	7	74M	238	1666
New York	Amsterdam	ly	36	1	747	452	452
New York	Amsterdam	rj	262	2	747	452	904
New York	Amsterdam	tw	814	5	L10	325	1625
New York	Athens	oa	412	7	747	452	3164
New York	Athens	tw	840	7	72S	145	1015
New York	Athens	tw	880	4	747	452	1808
New York	Barcelona	ib	952	4	727	101	402
New York	Barcelona	ib	952	1	727	101	101
New York	Barcelona	tw	900	4	L10	325	1300
New York	Brussels	cl	220	2	D8S	259	518
New York	Brussels	cl	220	2	D8S	259	518
New York	Brussels	ff	30	2	747	452	904
New York	Brussels	sn	548	7	74M	238	1666
New York	Brussels	tw	814	5	L10	325	1625
New York	Cairo	pk	704	1	D10	315	315
New York	Cairo	pk	712	1	D10	315	315
New York	Cairo	tw	880	1	72S	145	145
New York	Cairo	tw	882	3	74L	430	1290
New York	Cairo	tw	880	2	72S	145	290
New York	Cairo	tw	840	1	72S	145	145
New York	Copenhagen	nw	30	2	747	452	904
New York	Copenhagen	sk	912	4	747	452	1808

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
New York	Copenhagen	sk	912	2	D10	315	630
New York	Copenhagen	sk	902	1	D10	315	315
New York	Copenhagen	sk	912	1	74M	238	238
Boston	Dublin	ei	112	1	747	452	452
Boston	Dublin	nw	34	1	747	452	452
Atlanta	Frankfurt	dl	14	7	L15	288	2016
Atlanta	Frankfurt	lh	429	1	D10	315	315
Atlanta	Frankfurt	lh	439	4	D10	315	1260
Baltimore	Frankfurt	wo	32	7	D10	315	2205
Boston	Frankfurt	lh	423	2	D10	315	630
Boston	Frankfurt	lh	423	2	74M	238	476
Boston	Frankfurt	nw	42	2	747	452	904
Chicago	Frankfurt	lh	431	1	D10	315	315
Chicago	Frankfurt	lh	431	6	74M	238	1428
Dallas	Frankfurt	dl	22	4	L15	288	1152
Dallas	Frankfurt	lh	481	3	74M	238	714
Dallas	Frankfurt	lh	439	4	D10	315	1260
Honolulu	Frankfurt	wo	32	7	D10	315	2205
Los Angeles	Frankfurt	lh	451	4	74M	238	952
Los Angeles	Frankfurt	lh	453	3	74M	238	714
Los Angeles	Frankfurt	pa	120	5	747	452	2260
Los Angeles	Frankfurt	wo	32	7	D10	315	2205
Minneapolis	Frankfurt	nw	44	1	747	452	452
New York	Frankfurt	cl	220	2	D8S	259	518
New York	Frankfurt	ku	176	1	747	452	452
New York	Frankfurt	lh	401	2	D10	315	630
New York	Frankfurt	lh	401	5	747	452	2260
New York	Frankfurt	lh	403	4	D10	315	1260
New York	Frankfurt	pa	66	7	747	452	3164
New York	Frankfurt	pa	72	7	747	452	3164

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
New York	Frankfurt	pk	712	1	D10	315	315
New York	Frankfurt	pk	716	1	D10	315	315
New York	Frankfurt	pk	704	1	D10	315	315
New York	Frankfurt	tw	740	7	747	452	3164
San Francisco	Frankfurt	lh	455	1	747	452	452
San Francisco	Frankfurt	lh	453	3	74M	238	714
San Francisco	Frankfurt	pa	124	7	73S	123	858
San Francisco	Frankfurt	pa	72	7	747	452	3164
Washington	Frankfurt	pa	74	7	72S	145	1015
Washington	Frankfurt	pa	64	7	72S	145	1015
Washington	Frankfurt	tw	744	7	72S	145	1015
Washington	Frankfurt	wo	32	7	D10	315	2205
New York	Geneva	sr	111	7	743	238	1666
New York	Geneva	tw	830	7	L10	325	2275
Boston	Glasgow	nw	34	1	747	452	452
New York	Glasgow	nw	38	1	747	452	452
New York	Hamburg	lh	407	5	737	138	690
New York	Hamburg	nw	30	1	747	452	452
New York	Hamburg	pa	2	7	73S	123	858
New York	Hamburg	pa	102	7	73S	123	858
New York	Lisbon	tp	315	7	L15	288	2016
New York	Lisbon	tp	311	3	L15	288	864
New York	Lisbon	tw	900	4	L10	325	1300
Atlanta	London	br	232	7	D10	315	2205
Atlanta	London	dl	10	7	L15	288	2016
Boston	London	ba	274	7	747	452	3164
Boston	London	nw	42	3	747	452	1356
Boston	London	tw	754	7	747	452	3164
Chicago	London	ba	296	7	747	452	3164
Chicago	London	tw	770	7	747	452	3164

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
Dallas	London	aa	78	3	D10	315	945
Dallas	London	aa	50	7	D10	315	2205
Dallas	London	br	254	5	D10	315	1575
Detroit	London	ba	72	7	747	452	3164
Detroit	London	pa	108	7	72S	145	1015
Detroit	London	pa	554	7	L15	288	2016
Detroit	London	tw	732	7	72S	145	1015
Honolulu	London	wo	32	7	D10	315	2205
Houston	London	br	246	6	D10	315	1890
Houston	London	pa	52	7	747	452	3164
Los Angeles	London	aa	78	3	D10	315	945
Los Angeles	London	aa	50	7	D10	315	2205
Los Angeles	London	ba	282	4	747	452	1808
Los Angeles	London	ba	282	1	747	452	452
Los Angeles	London	ba	282	2	747	452	904
Los Angeles	London	br	224	4	D10	315	1260
Los Angeles	London	pa	120	2	747	452	904
Los Angeles	London	pa	120	5	747	452	2260
Los Angeles	London	pe	2	7	747	452	3164
Los Angeles	London	te	2	1	747	452	452
Los Angeles	London	te	2	1	747	452	452
Los Angeles	London	tw	770	7	747	452	3164
Los Angeles	London	tw	760	6	747	452	2712
Los Angeles	London	wo	32	7	D10	315	2205
Miami	London	ba	292	7	747	452	3164
Miami	London	ba	188	1	SSC	118	118
Miami	London	pa	98	7	747	452	3164
Minneapolis	London	nw	44	2	747	452	904
New York	London	ai	108	1	747	452	452
New York	London	ai	102	1	747	452	452

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
New York	London	ai	110	1	747	452	452
New York	London	ai	106	1	747	452	452
New York	London	ai	116	1	747	452	452
New York	London	ai	104	1	747	452	452
New York	London	ai	112	1	747	452	452
New York	London	ba	194	1	SSC	118	118
New York	London	ba	178	7	747	452	3164
New York	London	ba	174	7	747	452	3164
New York	London	ku	102	3	747	452	1356
New York	London	pa	102	7	747	452	3164
New York	London	pa	100	7	747	452	3164
New York	London	pa	2	7	747	452	3164
New York	London	pe	2	7	747	452	3164
New York	London	tw	704	7	747	452	3164
New York	London	tw	700	7	747	452	3164
New York	London	tw	708	6	L10	325	1950
New York	London	vs	2	5	747	452	2260
Philadelphia	London	ba	274	7	747	452	3164
Philadelphia	London	tw	710	7	72S	145	1015
San Francisco	London	ba	282	4	747	452	1808
San Francisco	London	ba	282	2	747	452	904
San Francisco	London	ba	286	1	747	452	452
San Francisco	London	pa	124	7	747	452	3164
San Francisco	London	tw	758	7	L10	325	2275
San Francisco	London	tw	760	6	L10	325	1950
Seattle	London	ba	286	1	747	452	452
Seattle	London	ba	88	1	747	452	452
Seattle	London	ba	88	1	747	452	452
Seattle	London	pa	120	2	747	452	904
St. Louis	London	tw	770	7	747	452	3164

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
Washington	London	ba	268	1	L10	325	325
Washington	London	ba	188	3	SSC	118	354
Washington	London	ba	276	7	L10	325	2275
Washington	London	pa	106	7	747	452	3164
Washington	London	wo	32	7	D10	315	2205
New York	Madrid	ib	956	1	747	452	452
New York	Madrid	ib	952	1	747	452	452
New York	Madrid	ib	952	4	D10	315	1260
New York	Madrid	ib	868	1	D10	315	315
New York	Madrid	ib	956	1	D10	315	315
New York	Madrid	tw	904	7	747	452	3164
New York	Milan	az	1601	1	74M	238	238
New York	Milan	az	601	4	74M	238	952
New York	Milan	tw	842	6	747	452	2712
New York	Munich	lh	409	7	D10	315	2205
New York	Munich	pa	76	7	747	452	3164
New York	Munich	tw	740	6	747	452	2712
New York	Oslo	nw	36	1	747	452	452
New York	Oslo	sk	902	3	D10	315	945
New York	Oslo	sk	902	4	74M	238	952
Boston	Paris	tw	810	6	L10	325	1950
Chicago	Paris	af	34	2	74M	238	476
Chicago	Paris	af	34	1	747	452	452
Houston	Paris	af	68	1	747	452	452
Houston	Paris	af	68	2	74M	238	476
Houston	Paris	tw	806	7	72S	145	1015
Los Angeles	Paris	pa	116	7	747	452	3164
Los Angeles	Paris	tw	810	6	L10	325	1950
Miami	Paris	am	450	4	D10	315	1260
New York	Paris	af	18	3	747	452	1356

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier Capacity
New York	Paris	af	2	7	SSC	118	826
New York	Paris	af	70	7	747	452	3164
New York	Paris	af	6149	1	747	452	452
New York	Paris	pa	114	7	747	452	3164
New York	Paris	pk	712	1	D10	315	315
New York	Paris	pk	704	1	D10	315	315
New York	Paris	tw	804	7	L10	325	2275
New York	Paris	tw	800	7	747	452	3164
Orlando	Paris	tw	808	7	72S	145	1015
Washington	Paris	af	18	2	747	452	904
Washington	Paris	tw	892	6	72S	145	870
Chicago	Rome	az	617	2	747	452	904
Chicago	Rome	az	617	1	74M	238	238
Los Angeles	Rome	az	617	2	747	452	904
Los Angeles	Rome	az	617	1	74M	238	238
Los Angeles	Rome	tw	840	7	747	452	3164
New York	Rome	az	1601	7	74M	238	1666
New York	Rome	az	611	7	747	452	3164
New York	Rome	pa	110	7	747	452	3164
New York	Rome	tw	840	7	747	452	3164
New York	Rome	tw	844	4	74L	430	1720
Boston	Shannon	nw	34	2	747	452	904
New York	Shannon	ei	104	1	74M	238	238
New York	Shannon	ei	104	2	747	452	904
New York	Shannon	ei	112	1	74M	238	238
New York	Shannon	ei	104	4	74M	238	952
New York	Shannon	nw	38	1	747	452	452
New York	Stockholm	nw	36	1	747	452	452
New York	Stockholm	nw	30	1	747	452	452
New York	Stockholm	sk	904	1	74M	238	238

1984 SCHEDULE DATA

Origin City	Destination City	Carrier Code	Flight Number	Frequency	Aircraft Type	Aircraft Capacity	Carrier	Capacity
New York	Stockholm	sk	902	2	D10	315	630	
New York	Stockholm	sk	902	3	74M	238	714	
New York	Stockholm	sk	904	1	D10	315	315	
New York	Tel Aviv	cl	220	2	D8S	259	518	
New York	Tel Aviv	ff	30	2	747	452	904	
New York	Tel Aviv	ly	1364	1	747	452	452	
New York	Tel Aviv	ly	4	1	747	452	452	
New York	Tel Aviv	ly	4	1	747	452	452	
New York	Tel Aviv	ly	8	1	747	452	452	
New York	Tel Aviv	ly	36	1	747	452	452	
New York	Tel Aviv	ly	10	2	747	452	452	
New York	Tel Aviv	tw	800	7	L10	325	904	
New York	Tel Aviv	tw	76	4	73S	123	2275	
New York	Vienna	pa	264	2	747	452	490	
New York	Vienna	rj	304	2	747	186	904	
New York	Vienna	ro	744	1	IL6	155	186	
New York	Vienna	tw	90	7	M80	452	1082	
Los Angeles	Zurich	pa	90	1	747	452	452	
Los Angeles	Zurich	pa	90	2	747	452	904	
New York	Zurich	pa	90	7	747	452	3164	
New York	Zurich	sr	101	7	747	452	3164	
New York	Zurich	sr	111	6	747	452	2712	
New York	Zurich	tw	804	6	L10	325	1950	

Appendix D

Data Used Regression Analysis in Chapter Three

Observation Number	Origin City	Destination City	(CAP) Capacity	(FREQ) Frequency	(HHI) HHI	(REV) Revenue*	(FARE) Fare	(DIST) Distance	(BERM) Agreement Dummy
1	Chicago	Amsterdam	5482	21	4281		810	4109	0
2	New York	Amsterdam	8049	23	4175		700	3639	0
3	New York	Athens	5987	18	5016		849	4927	1
4	New York	Barcelona	1803	9	5977		646	NA	1
5	New York	Brussels	5231	18	4259		NA	3662	0
6	New York	Cairo	2500	9	6230		962	5608	1
7	New York	Copenhagen	3895	10	6435		862	3849	1
8	Boston	Dublin	904	2	5000		666	3010	1
9	Atlanta	Frankfurt	3591	12	5075		848	4605	0
10	Baltimore	Frankfurt	2205	7	10000		852	4020	0
11	Boston	Frankfurt	2010	6	5050		773	3660	0
12	Chicago	Frankfurt	1743	7	10000		943	4332	0
13	Dallas	Frankfurt	3126	11	5346		897	5132	0
14	Honolulu	Frankfurt	2205	7	10000		1297	7443	0
15	Los Angeles	Frankfurt	6131	19	3391		1056	5794	0
16	Minneapolis	Frankfurt	452	1	10000		943	4381	0
17	New York	Frankfurt	15557	38	2836		778	3851	0
18	San Francisco	Frankfurt	5188	18	6515		1027	5685	0
19	Washington	Frankfurt	5250	28	3633		852	4065	0
20	New York	Geneva	3941	14	5119		731	3859	1
21	Boston	Glasgow	452	1	10000		NA	3036	0
22	New York	Glasgow	452	1	10000		696	3211	0
23	New York	Hamburg	2857	20	4441		NA	3875	0
24	New York	Lisbon	4180	14	5714		634	3366	0
25	Atlanta	London	4221	14	5010		NA	4212	0
26	Boston	London	7684	17	3702		NA	3265	0

Observation Number	Origin City	Destination City	(CAP) Capacity	(FREQ) Frequency	(HHI) HHI	(REV) Revenue*	(FARE) Fare	(DIST) Distance	(BERM) Agreement Dummy
27	Chicago	London	6328	14	5000	944	944	3951	0
28	Dallas	London	4725	15	5556	NA	NA	4750	0
29	Detroit	London	7210	28	3891	884	884	3760	0
30	Honolulu	London	2205	7	10000	1380	1380	7256	0
31	Houston	London	5054	13	5318	NA	NA	4842	0
32	Los Angeles	London	22887	57	1561	NA	NA	5456	0
33	Miami	London	6446	15	5002	NA	NA	4425	0
34	Minneapolis	London	904	2	10000	NA	NA	4015	0
35	New York	London	34160	78	1947	696	696	3456	0
36	Philadelphia	London	4179	14	6322	769	769	3544	0
37	San Francisco	London	10553	27	3401	NA	NA	5366	0
38	Seattle	London	2260	5	5200	NA	NA	4799	0
39	St. Louis	London	3164	7	10000	NA	NA	4200	0
40	Washington	London	8323	25	3407	775	775	3672	0
41	New York	Madrid	5958	15	5019	636	636	3588	1
42	New York	Milan	3902	11	5761	734	734	4004	1
43	New York	Munich	8081	20	3404	NA	NA	4035	0
44	New York	Oslo	2349	8	6892	862	862	3675	1
45	Boston	Paris	1950	6	10000	802	802	3437	1
46	Chicago	Paris	928	3	10000	961	961	4140	1
47	Houston	Paris	1943	10	5010	1049	1049	5022	1
48	Los Angeles	Paris	5114	13	5262	1163	1163	5660	1
49	Miami	Paris	1260	4	10000	916	916	4634	1
50	New York	Paris	15031	41	3258	802	802	3628	1
51	Orlando	Paris	1015	7	10000	NA	NA	NA	1
52	Washington	Paris	1774	8	5002	NA	NA	3843	1

Observation Number	Origin City	Destination City	(CAP) Capacity	(FREQ) Frequency	(HHI) HHI	(REV) Revenue*	(FARE) Fare	(DIST) Distance	(BERM) Agreement Dummy
53	Chicago	Rome	1142	3	10000		855	NA	1
54	Los Angeles	Rome	4306	10	6103		1004	6348	1
55	New York	Rome	12878	32	3449		755	4280	1
56	Boston	Shannon	904	2	10000		655	2888	1
57	New York	Shannon	2784	9	7280		655	3079	1
58	New York	Stockholm	2801	9	5628		928	3917	1
59	New York	Tel Aviv	6861	18	3457		1409	5672	0
60	New York	Vienna	2662	14	3193		710	4232	1
61	Los Angeles	Zurich	1356	3	10000		NA	5933	1
62	New York	Zurich	10990	26	4002		731	3926	1

* Data for Revenue per passenger is confidential and cannot be provided here.

Appendix E

Alternative Model Specifications

SMPL 1 - 3 5 - 7 9 - 13
 15 - 15 17 - 18 20 - 20
 23 - 24 26 - 29 31 - 39
 42 - 50 55 - 60 62 - 62

46 Observations

LS // Dependent Variable is REV

```
=====
```

VARIABLE	COEFFICIENT	STD. ERROR	T-STAT.	2-TAIL SIG.
C	49.607436	61.481107	0.8068728	0.425
CAP	9.049D-05	0.0056217	0.0160966	0.987
FREQ	-0.1592457	2.6135330	-0.0609312	0.952
HHI	0.0019975	0.0044457	0.4493031	0.656
DIST	0.0718139	0.0094919	7.5657760	0.000
BERM	54.318616	14.552344	3.7326369	0.001

```
=====
```

R-squared	0.636213	Mean of dependent var	385.9130
Adjusted R-squared	0.590740	S.D. of dependent var	72.79616
S.E. of regression	46.57022	Sum of squared resid	86751.42
Durbin-Watson stat	1.821155	F-statistic	13.99089
Log likelihood	-238.7409		

```
=====
```



```

SMPL      1 -      4          6 -      20          22 -      22
          24 -      24          27 -      27          29 -      30
          35 -      36          40 -      42          44 -      50
          53 -      60          62 -      62

```

45 Observations

LS // Dependent Variable is FARE

```

=====
VARIABLE      COEFFICIENT      STD. ERROR      T-STAT.      2-TAIL SIG.
=====
          C          798.15712          173.75406          4.5936027          0.000
          CAP          0.0017169          0.0219890          0.0780789          0.938
          FREQ         -2.6805934          10.329964         -0.2594969          0.797
          HHI          0.0134152          0.0168422          0.7965231          0.431
          DIST          0.0217516          0.0144509          1.5052113          0.140
          BERM         -104.77990          56.984654         -1.8387388          0.074
=====
R-squared          0.160416      Mean of dependent var      864.3778
Adjusted R-squared 0.052777      S.D. of dependent var      184.5070
S.E. of regression 179.5721      Sum of squared resid      1257600.
Durbin-Watson stat 1.530903      F-statistic                  1.490316
Log likelihood      -294.2084
=====

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