2

Airline Competition at Hub Airports and Complaints of Unfair Conduct

High average fares in many of the city-pair markets involving the hub airports of major airlines have been a recurrent subject of public concern and policy debate during the past two decades. In recent years, these markets also have served as main entry points for many new, low-fare airlines. However, new entrants have reported highly aggressive responses by hubbing incumbents, prompting the Department of Transportation (DOT) to propose criteria for identifying and taking enforcement action against unfair, exclusionary practices. Trends in fares and competition at hub airports, the competitive concerns expressed by new entrants, and DOT's enforcement proposal are considered in this chapter.

COMPETITION IN CITY-PAIR MARKETS GENERALLY

Spread of Hub-and-Spoke Systems

Airlines compete for passengers at the city-pair level. There are thousands of combinations of origin and destination (O-D) points that constitute

the markets for air transportation; in these markets, rivalry and entry activity are most important. In some, such as Los Angeles–San Francisco, thousands of passengers travel each day in both directions. In others, only a handful fly each year. The densest city-pair markets can support multiple flights by large jet aircraft each day, with most travelers heading between the same points. For the most part, frequent point-to-point jet service is confined to large cities with substantial business traffic and to some popular tourist routes. In the majority of city-pair markets, travelers must connect to another flight at a transfer point, usually a hub airport. Except for passengers in the densest markets, which have sufficient traffic to support regular point-to-point service, most who fly nonstop are originating from or headed to a hub airport, accompanied on the flight by many other connecting passengers flying to and from dozens of connecting, or spoke, cities.

The spread of hub-and-spoke systems following deregulation greatly increased the frequency of flights in most city-pair markets (Morrison and Winston 1986). These systems allow an airline to use a single aircraft to seat travelers heading from a spoke city to several different final destinations, then consolidate these travelers at a central, hub airport with others from other spoke flights, and finally recombine traffic to various connecting points on departing flights. This process—almost always taking place "online," that is, through a single airline or its affiliated commuter carriers—allows for many nonstop flights at the hub airport. Travelers going to and from spoke cities to cities with hub airports, therefore, benefit from frequent nonstop service. Travelers headed between spoke cities also benefit because there are more flight options, even though they usually must transfer at a hub. Meanwhile, travelers who live in hub cities gain not only from frequent nonstop flights but also from the increased availability of nonstop service between scores of spoke cities. Many medium-size hub cities could not support as much nonstop service without the densities created by this connecting traffic.

A key finding described in *Winds of Change* was that the number of city-pairs with three or more effective competitors increased sharply between 1979 (immediately after deregulation) and the mid-1980s, but had diminished somewhat during the late 1980s. An important source of this initial increase in competition was the established, or incumbent, airlines realigning their routes and expanding their hub-and-spoke net-

works.[1] Added to that, the increased entry from startup airlines and the expanded operations by formerly intrastate and charter operators made many city-pair markets competitive battlegrounds. The largest increases in competition occurred in the long-haul markets. Hub-and-spoke systems multiplied the routing options for long-distance travelers, who could choose to fly using the hubs of several competing carriers to reach their final destinations. The late-1980s dip in competition, most evident in short-haul markets, was attributed to mergers and failures among airlines that had started service soon after deregulation.

Update of Competition Analyses

Any update of trends in competition in the airline industry will be affected by the specific time periods selected for comparison. The base year selected, 1992, was right after *Winds of Change* was released, as the airline industry was emerging from the effects of a national recession. The comparison year, 1997, was the last full year for which complete data were available when the analyses were conducted in early 1999. It is likely that comparisons using other years as beginning and end points would have yielded somewhat different outcomes. The results presented here, therefore, should be viewed as a snapshot comparison of competition levels.

Market Distance

An update of the analyses in *Winds of Change* reveals that the majority of travelers in long-distance markets continue to experience—and benefit from—the most competition. As shown in Table 2-1, about 35 percent of all travel occurred in city-pair markets with three or more effective competitors (as defined in Table 2-1). This percentage has declined somewhat since 1992, when the figure was 39 percent. However, of all air travelers in the longer-haul markets, slightly more than half had the

[1] Hub-and-spoke systems were difficult to construct when the Civil Aeronautics Board limited the ability of airlines to enter and exit routes. However, some airports, such as Chicago O'Hare and Atlanta Hartsfield operated as major hubs even before deregulation.

Table 2-1 Passenger Trips by Market Distance and Number of Effective Competitors, 1992 and 1997

Market Distance (miles, one way)	Competitors in Market 1992 One	Two	Three or More	1997 One	Two	Three or More
< 250						
Passengers	4,188,010	8,168,650	9,472,110	6,548,290	7,411,970	10,644,560
Percent	19	37	43	27	30	43
251 to 500						
Passengers	16,124,510	25,261,090	14,641,990	23,887,130	39,643,400	12,119,050
Percent	29	45	26	32	52	16
501 to 750						
Passengers	7,797,780	19,316,630	11,200,100	8,206,580	35,837,550	15,589,130
Percent	20	50	29	14	60	26
751 to 1000						
Passengers	5,496,280	17,448,370	12,625,720	9,301,150	26,935,660	14,774,580
Percent	15	49	35	18	53	29
1001 to 1500						
Passengers	3,544,970	19,252,140	21,795,340	6,124,600	23,691,110	31,685,210
Percent	8	43	49	10	39	52
1501 to 2000						
Passengers	3,487,630	9,460,030	9,500,020	5,309,720	9,653,090	15,685,210
Percent	16	42	42	17	31	51
2001 or more						
Passengers	2,485,400	5,353,550	15,852,040	2,591,510	9,498,690	17,658,870
Percent	10	23	67	9	32	59
All						
Passengers	43,124,581	104,262,454	95,087,320	61,968,980	152,671,470	118,156,580
Percent	18	43	39	19	46	35

NOTE: An "effective competitor" is any airline carrying 10 percent or more of local traffic in a city-pair market. Data and calculations by DOT per request of the committee based on the 10 percent ticket sample in Databank 1A.

benefit of choosing among three or more competitors in 1997—similar to the level in 1992.

Travelers in shorter-haul markets (under 1,000 miles) have had fewer competing airlines from which to choose. This should be expected, since the closer two points are geographically, the less economical or practical it is to offer connecting service. Few rival hubs are likely to be within sufficient proximity to offer practical transfer service, and few travelers are interested in paying the time penalty for making connections on shorter-haul trips. There has been a decline in competition in these markets, however. About 75 percent of short-haul travelers flew in markets with fewer than three competitors in 1997, compared with 68 percent in 1992.

Market Density

The *Winds of Change* study also examined market-level competition with respect to market traffic density. During the 1980s, high-volume markets experienced the most competition. More rivalry might be expected in dense city-pair markets, where the traffic volumes can support more and varied, competing services. The *Winds of Change* analyses combined data from airports in metropolitan areas to obtain a more complete picture of the competitive options available to travelers in a region. A similar examination of competition levels in 1997 reveals single-carrier markets accounted for only 14 percent of travel when market densities surpassed 500 passengers per day (Table 2-2). A comparable level (12 percent) was found in 1992. As might be expected, travelers in low-density markets (under 20 passengers per day) continued to experience the least competition; a slightly higher share (32 percent) of these travelers had only one carrier to choose from in 1997 than in 1992 (28 percent). Overall, the data presented in Table 2-2 show that a higher share of air travel was occurring in one- and two-carrier markets in 1997 than in 1992.

As shown in Table 2-3, travelers in the densest markets (more than 100 passengers per day) have experienced declining average fares in recent years irrespective of the number of competitors. Passengers in more lightly-traveled routes, by comparison, have experienced rising fares. Although there are likely to be some markets that have migrated upward in density during the time period simply because of growing aggregate

Table 2-2 Passenger Trips in Markets by Density and Number of Competitors, 1992 and 1997

		1992		1997	
Market Density	Competitors	Percent	Percent of Total Passengers	Percent	Percent of Total Passengers
20 or fewer	One	28	3.2	32	2.9
	Two	44	5.1	46	4.1
	Three or more	28	3.2	22	1.9
21 to 50	One	13	1.2	16	1.2
	Two	34	3.1	50	3.6
	Three or more	53	4.8	34	2.4
51 to 100	One	19	1.9	20	1.9
	Two	26	2.7	34	3.4
	Three or more	55	5.5	46	5.6
101 to 200	One	21	2.9	20	2.3
	Two	36	4.9	45	5.1
	Three or more	43	5.7	35	4.1
201 to 500	One	20	5.1	20	5.0
	Two	50	13.2	45	13.0
	Three or more	30	7.8	35	10.0
501 or more	One	12	3.5	14	4.9
	Two	47	14.0	49	17.0
	Three or more	41	12.0	37	12.7
			Total Passengers		Total Passengers
All	One	18	43,124,580	19	61,968,980
	Two	43	104,260,460	46	152,671,470
	Three or more	39	95,087,320	35	118,156,580
	Total	100	242,472,360	100	332,797,030

NOTES: Density measured by O-D passengers per day each way. City-pairs combine all airports in the metropolitan area. A competitor is any airline carrying 10 percent or more of O-D traffic in the city-pair market. See Table 2-1 for data sources and definitions.

travel demand, the observed differences may have other explanations as well. One possible reason is that Southwest Airlines and most other new low-fare challengers have entered only the densest city-pair markets. Offering mostly point-to-point service, these jet airlines are not well suited to more lightly-traveled routes.

COMPETITION IN HUB MARKETS

Concerns Over Hub Concentration

Competition in hub markets was a topic of interest in *Winds of Change.* Throughout the 1980s, it became apparent that operations at a dozen or

Table 2-3 Average Fares Paid by Passengers in Markets with 1, 2, and 3 or More Effective Competitors, 1992 to 1997 (adjusted to 1997 dollars)

Market Density	Competitors	Average Fare ($) 1992	Average Fare ($) 1997	Percentage Change 1992-1997
20 or fewer	One	211	217	+2.8
	Two	213	201	-5.6
	Three or more	197	216	+9.6
21 to 50	One	176	184	+4.5
	Two	191	169	-11.5
	Three or more	198	222	+13.1
51 to 100	One	185	218	+17.2
	Two	179	190	+6.1
	Three or more	200	186	-7.0
101 to 200	One	197	176	-10.7
	Two	201	160	-20.4
	Three or more	201	179	-10.9
201 to 500	One	176	167	-5.1
	Two	177	159	-10.2
	Three or more	176	161	-9.5
501 or more	One	182	154	-18.4
	Two	178	147	-17.4
	Three or more	171	157	-8.2

NOTE: See Table 2-1 for definitions and sources. Data and calculations by DOT per request of committee.

so of the country's largest hub airports were dominated by one or two airlines. Hub airlines accounted for increasing shares of the total flights and enplanements at their hubs as their networks and connecting traffic grew. In some instances, these dominant positions were enhanced by mergers between airlines that shared hubs (e.g., TWA-Ozark and Northwest-Republic).[2]

As enplanements increased, hub carriers also increased their share of local traffic—that is, of O-D travel. The high proportion of local traffic handled by hub airlines was in large measure the natural result of the superior service they could provide local travelers—particularly schedule-sensitive ones. Competing airlines not operating a hub in the market

[2] GAO 1988.

could not achieve the high traffic densities to schedule the frequent nonstop flights desired by local business travelers. This scheduling advantage, boosted by marketing innovations—such as offering commission overrides to local travel agents and frequent-flier programs, which build brand loyalty—tended to strengthen the carrier's hold on local traffic, particularly for business travel (Levine 1987; Borenstein 1989).

Concern over hub concentration has persisted. Anecdotal evidence of high fares at hubs has prompted many studies of the effect of hub-and-spoke systems on fares and service, including analyses of fare differentials—or "hub premia"—between hub and nonhub markets. Results from some of these earlier studies[3] were reviewed in *Winds of Change*, for which additional analyses also were conducted. The findings led the earlier committee to comment favorably on the overall benefits of hub-and-spoke systems, including consumer gains from increased competition in most connecting markets. At the same time, however, the committee observed higher average fares in city-pair hub markets in comparison with other markets, when applying controls for distance and traffic density.

For nearly two decades now, the literature consistently has shown higher fares in city-pair markets that include a concentrated hub as either the origin or destination point; this especially applies to short-haul markets in which one or two hubbing carriers handle most of the local traffic. Such findings, persisting over time, have prompted observers to question whether adequate conditions exist for free entry in many hub markets, particularly considering the many advantages hubbing carriers enjoy. Although some of these advantages exploit the preferences of travelers (e.g., frequent–flier programs), others seem unrelated to the efficiency or service of the carrier, such as the ability to offer commission overrides to local travel agents.[4] Moreover, *Winds of Change* commented extensively on the ability of hubbing airlines to benefit from longstanding financial agreements with hub airports and to affect entry by limiting the availability of critical infrastructure such as airport gates (as discussed in Chapter 3).

In response, incumbent airlines—which operate most of the major hubs—have long held that higher average fares in hub markets mainly

[3] GAO 1990; DOT 1990; Borenstein 1989.

[4] For an insightful review of these advantages, see Levine 1987.

are the result of differences in traveler preferences among hub and nonhub markets. They point out that hub airports are located in major business centers, which attract many more time-sensitive business travelers. The airlines claim that comparisons between hub and nonhub markets exaggerate fare differences, because many nonhub city-pairs include more leisure destinations.

Thus, two main reasons have been offered by airlines for why analyses of aggregate fare data consistently show that major hub markets tend to have higher fares, on average, than nonhub markets. Both stem from the notion that hubs have a disproportionate share of business travelers. The first reason, which is not especially controversial, is that few, if any, major hub cities are important tourist destinations; any aggregate comparisons of average fares at hub and nonhub markets are likely to include more leisure markets in the nonhub data. This alone could account for some of the fare differential at hubs, since leisure travelers tend to be less costly to serve than business travelers, who demand greater schedule frequency (as discussed in Chapter 1). Another possible reason is that most hub airports are in cities that are major centers of businesses, centrally located (e.g., Chicago), and attractive to large, travel-intensive businesses, in part because of the superb nonstop service.

To the extent that hubs serve a higher proportion of business travelers, higher average fares could be expected in hub markets because of the cost differences in serving time-sensitive travelers. By the same token, however, the higher proportion of price-inelastic business travelers in hub markets also provides greater opportunity for hubbing airlines to exercise their market power by price discriminating and possibly raising fares above the cost of efficiently providing the schedule-intensive service. As discussed in Chapter 1, fare differentials are necessary for airlines to pay for the frequent and convenient service desired by business travelers. The issue, which cannot be empirically assessed here, is whether higher fares at hubs are the result of major airlines exploiting market power in their hub markets.

Update of Hub Analyses

The *Winds of Change* study defined “concentrated hubs” as those large cities in which either a hubbing carrier accounted for more than 50

percent of all local traffic or two hubbing carriers together accounted for more than 75 percent.[5] The following 10 cities were classified as concentrated hubs: Atlanta, Charlotte, Cincinnati, Dayton, Denver,[6] Memphis, Minneapolis, Pittsburgh, Salt Lake City, and St. Louis. In addition, five other hub cities were defined as relatively unconcentrated, even though in each case a single hubbing carrier accounted for 40 to 50 percent of the local traffic. These were Dallas, Chicago, Detroit, Nashville, and Raleigh-Durham. Dallas and Chicago were deemed unconcentrated because the calculations included significant traffic from the two secondary airports, Midway and Love Field.

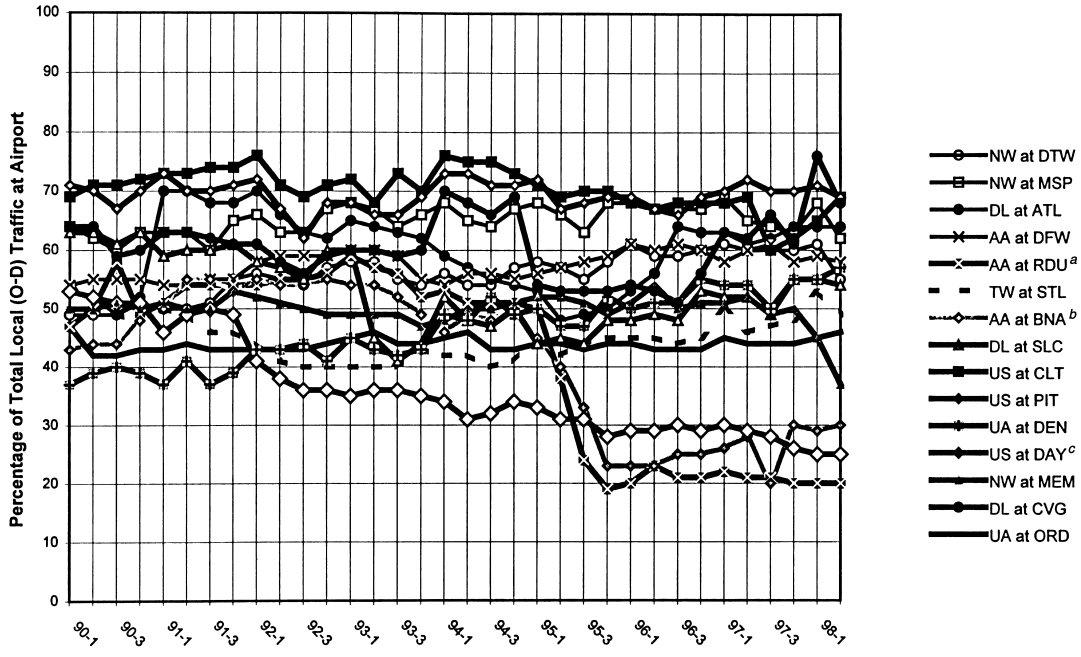
Comparisons of average fares in city-pair markets involving these ten concentrated and five unconcentrated hubs consistently found higher fares in the concentrated hubs, especially in short-haul markets (controlling for distance and density). Also, to control for the effects of price-sensitive leisure (i.e., tourist) markets, *Winds of Change* excluded from the city-pairs all O-D points involving California, Florida, Nevada, and Arizona. Nevertheless, average fares were higher in the concentrated hubs than in the other markets.

Hub City Analyses

To update some of these earlier analyses, the current committee tracked trends in the market shares of the largest carriers in those 15 hubs since 1990. The updated results in Figure 2-1 show that most of the hub carriers continue to handle 50 percent or more of the airport's local traffic, although there is no discernible upward trend in concentration. In three

[5] It is important to avoid using a carrier's share of total enplanements as the main measure of market share or to identify concentrated hubs. Carriers using an airport as a main transfer point can account for a large share of enplanements regardless of their share of local traffic. Delta, for instance, would still account for more than 35 percent of enplanements at Cincinnati even if it carried no local traffic. The share of local passenger traffic carried by the major carrier in a hub airport (or on an individual route) is a more informative measure.

[6] Denver was the only airport that was defined as a concentrated hub because it had two carriers (United and Continental) together accounting for more than 75 percent of local traffic.



[a] Beginning in 1995, the market share totals are for US Airways.
[b] Beginning in mid-1995, the market share totals are for Southwest Airlines.
[c] In 1992, US Airways abandoned its Dayton hub.

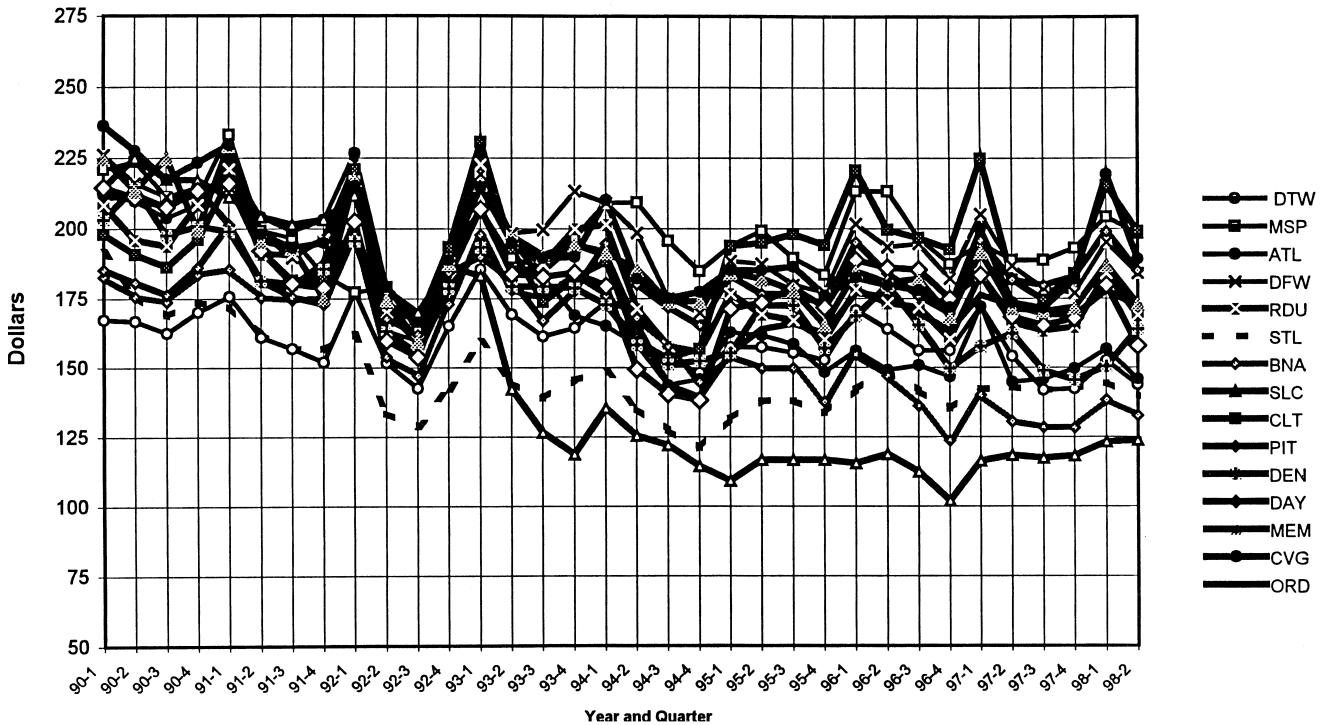
NOTES: These 15 airports were selected for reasons explained in the text. The analysis does not reflect traffic at DAL and MDW, which would lower AA's and UA's market shares in Dallas and Chicago, respectively. Airport codes are listed in Appendix D.

Figure 2-1 Market share of largest carrier at 15 current and former hubs, 1990 to 1998.

instances—Dayton, Nashville, and Raleigh-Durham—the hubs since have been abandoned by the incumbent carriers and no airline accounts for more than 35 percent of local traffic. In Salt Lake City, the dominance of Delta Airlines has declined somewhat as Southwest has gained a significant share of many city-pair markets. Charlotte and Pittsburgh, main hubs of US Airways, continue to be among the most concentrated airports. In this case, the figures shown for Chicago and Dallas do not reflect competition from airlines in the secondary airports, Midway and Love Field. It is important to note, however, that whereas American Airlines accounts for nearly 60 percent of local traffic at DFW, it accounts for less than 40 percent of Dallas-area traffic when Love Field is included. Likewise, United accounts for 45 percent of traffic at Chicago O'Hare but less than 35 percent of Chicago-area traffic when Midway is included.

Trends in average fares in these 12 current and 3 former hub airports, from 1990 to mid-1998, show a general decline when adjusted for inflation (Figure 2-2). Noteworthy, however, is that most of this decline occurred during the first half of the 1990s, before the general improvement in the economy. From the second quarter of 1995 to the second quarter of 1998, fares fell in only 5 of the 15 markets—Atlanta, Dayton, Detroit, Memphis, and Nashville. Two of these markets are former hubs (Dayton and Nashville) and the others have experienced significant low-fare new entry.

The updates reveal other notable changes. The sharpest fare declines over the entire period occurred in Salt Lake City (–40 percent) and Atlanta (–33 percent), probably because of entries by Morris Air and Southwest in Salt Lake City and by ValuJet and later by AirTran in Atlanta. When adjusted for inflation, average fares also have fallen by 20 percent or more in St. Louis (–24 percent) and Memphis (–22 percent), both served extensively by Southwest and some other low-fare airlines. Travelers in the three former hubs of Dayton, Raleigh-Durham, and Nashville also experienced average fares that were 20 percent lower; a decline that is at odds with the hypothesis that higher average fares at hubs reflect a naturally (and disproportionately) high percentage of business travel in hub cities. Meanwhile, in the highly concentrated hubs of Charlotte and Pittsburgh—neither a location for lasting, low-fare entry—average fares have declined by less than 5 percent.



NOTES: Average fares adjusted for inflation using the GDP price deflator. See note to Figure 2-1, and see Appendix D for airport codes.

Figure 2-2 Average fares at 15 current and former hubs, 1990 to 1998 (adjusted to 1998 dollars).

Hub City-Pair Analyses

More relevant are fare differentials in city-pair markets. A comparison of average fares in the most heavily traveled city-pair markets was made for the second quarter of 1998.[7] City-pairs that involved one or more of the 12 concentrated hubs were defined as hub markets and all other pairs were defined as nonhubs. Average fares were calculated for more than 800 of the country's busiest city-pair markets.

The results of this comparison, grouped by short-, medium-, and long-haul markets are shown in Figure 2-3. Each data point represents the average fare of a hub or nonhub city-pair market with distance indicated on the horizontal axis. In all three groupings, the hub markets tended to have higher fares than nonhub markets; the trend lines show the least–square fit.

To control more precisely for the effects of distance and other possible variables affecting average fares, several multiple regression analyses were performed for the 1,000 top airport-pair markets.[8] For a full year ending in the second quarter of 1998, average fares were regressed on distance, population, and income variables (in logarithmic and linear forms). As shown in Table 2-4, the highest-fare markets—irrespective of regression form—consistently involved hub or slot–controlled airports as either origin or destination points. The 12 concentrated hub airports were involved in 54 of the 75 highest-fare markets.[9] Of the 75, 29 involved at least one of the four slot-controlled airports (see Chapter 3). Airports repeatedly in the high-fare markets were LaGuardia (19 percent of city pairs), Philadelphia (15 percent), Detroit (15 percent), Newark (13 percent), Atlanta (12 percent), Chicago O'Hare (12 percent), and Boston (11 percent). Seven other airports—Dallas–Ft. Worth, Minneapolis, St. Louis, Washington (Reagan National), Charlotte, Baltimore, and Cincinnati—also appeared in 5 to 10 percent of the 75 highest-fare markets.

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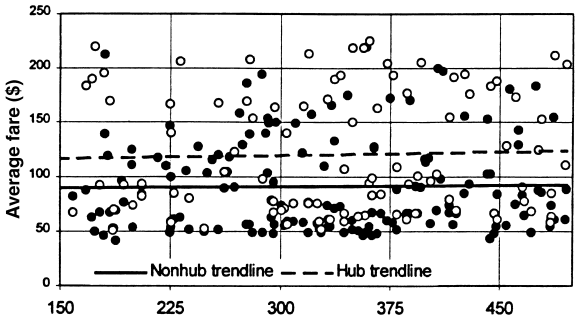
[7] These were the most recent data available for the analyses.

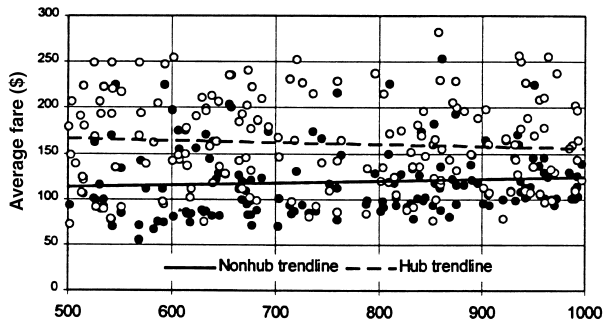
[8] To save time, the committee tasked DOT to run the regressions in accord with the committee's instructions.

[9] Newark and Philadelphia, which are important but unconcentrated hubs for Continental and US Airways (respectively), also were involved in a large number of high-fare city-pair markets.

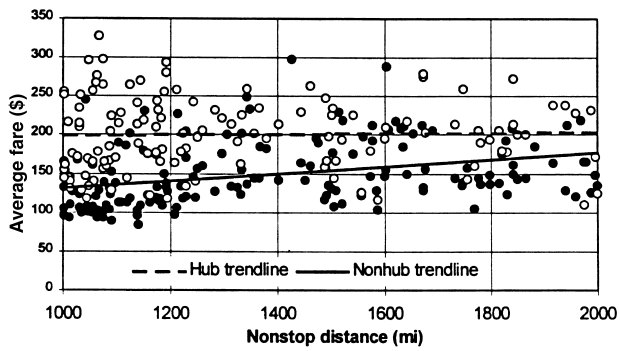
Average fares in 249 densest city-pair markets of less than 500 miles: 97 hub and 152 nonhub markets



Average fares in 322 densest city-pair markets of 500 to 999 miles: 165 hub and 157 nonhub markets



Average fares in 290 markets of 1000 to 1,999 miles: 125 hub and 165 nonhub markets



● = Nonhub city-pair market o = Hub city-pair market

NOTES: See text for definitions. 1 mile = 1.61 kilometer.

Figure 2-3 Average fares in the densest hub and nonhub city-pair markets, 2nd quarter, 1998.

Table 2-4 Seventy-five Highest- and Lowest-Fare Markets Among Densest 1,000 in 1997, Controlling for Effects of Population, Income, and Distance

Highest-Fare Markets	Concentrated Hub	Slot Controls	Lowest-Fare Markets	Concentrated Hub	Slot Controls
1. CLE DTW	X		1. SLC SMF		
2. DTW PIT	X		2. SFO SNA		
3. ATL TYS	X		3. RNO SNA		
4. ATL BNA	X		4. MCI MDW		
5. DTW MKE	X		5. LAS MAF		
6. CVG ORD	X	X	6. LIT SDF		
7. ATL GSO	X		7. IND SRQ		
8. MSP ORD	X	X	8. OAK SNA		
9. ATL CVG	X		9. IND PIE		
10. DSM ORD	X	X	10. BWI CLE		
11. BWI EWR			11. CMH LAS		
12. CLE PHL			12. ACY FLL		
13. DFW LGA	X	X	13. DAL LIT		
14. GSO IAD			14. GEG SMF		
15. DTW MSP	X		15. RNO TUS		
16. DTW IND	X		16. MCI STL	X	
17. CVG PHL	X		17. SJC SNA		
18. CLT PHL	X		18. DAL MAF		
19. JFK PHL		X	19. OKC STL	X	
20. DCA DTW	X	X	20. CLE MDW		
21. ORD PIT	X	X	21. PHX PVD		
22. MKE MSP	X		22. DAL LBB		
23. CLE EWR			23. LAX SLC	X	
24. BWI DTW	X		24. MCO MSY		
25. DCA RDU		X	25. LAS SMF		
26. DTW EWR	X		26. ELP PHX		
27. CLT EWR	X		27. MCI SFO		
28. DTW PHL	X		28. GEG SEA		
29. DCA EWR		X	29. MCO SAT		
30. CLT LGA	X	X	30. PDX SJC		
31. CLT ORD	X	X	31. MCI SDF		
32. IAH LGA		X	32. AMA LAS		
33. LGA MSP	X	X	33. MCO PVD		
34. ATL CLT	X		34. IND LAS		
35. DTW LGA	X	X	35. OAK PDX		
36. HPN ORD	X	X	36. LAS SAT		
37. BOS DTW	X		37. SEA SMF		
38. CVG EWR	X		38. SEA SLC	X	
39. BOS EWR			39. LAS MDW		
40. ATL DCA	X	X	40. FLL MCO		
41. EWR MSP	X		41. MDW SDF		
42. PHL STL	X		42. ABQ PHX		
43. CLT STL	X		43. HOU LAS		
44. LGA RIC		X	44. BOI SEA		
45. IAH PHL			45. SAN SLC	X	
46. IAD ORD	X	X	46. AUS LAS		
47. MEM ORD	X	X	47. RNO SAN		
48. BOS MSP	X		48. GEG SJC		
49. BOS DCA		X	49. LAX OAK		
50. ATL LGA	X	X	50. LGB PHX		
51. CLE LGA		X	51. BNA MCI		
52. LGA PIT	X	X	52. FLL TPA		
53. ATL RIC	X		53. LAS PDX		
54. CVG LGA	X	X	54. BOI SLC	X	
55. DFW SJC	X		55. SAN SJC		
56. BWI MHT			56. ONT SJC		
57. LGA STL	X	X	57. BWI SLC	X	
58. PHL RDU	X		58. LAS OMA		
59. BOS PHL			59. GEG OAK		
60. BOS STL	X		60. MDW OMA		
61. BOS IAH			61. OAK SLC	X	
62. DEN LGA	X	X	62. LAS SJC		
63. GSO LGA		X	63. RNO SJC		
64. BOS DFW	X		64. LAX SMF		
65. CMH EWR			65. BNA CLE		
66. DFW MEM	X		66. LAS SEA		
67. DFW SNA	X		67. AMA DAL		
68. EWR IAH			68. OAK ONT		
69. CMH PHL			69. OAK SEA		
70. DFW LAX	X		70. BOI GEG		
71. MSP PHL	X		71. OAK SAN		
72. ATL CHS	X		72. BOI GEG		
73. BWI LGA		X	73. OAK SAN		
74. DFW SFO	X		74. PHX SAN		
75. BDL ORD	X	X	75. BNA MSY		

NOTE: See Appendix D for airport codes.

These results illustrate the magnitude of the fare differentials at hubs, which have spurred so much public concern. Of course, many of the highest-fare markets in Table 2-4 are among the nation's most popular for business travel; thus many of the unexplained fare residuals might be related not only to market power and the low price elasticity for business travelers, but also to the higher costs of meeting service-oriented demand.

Also evident from the analyses is that many of the high-fare markets involve airports in the East and Midwest, where airway and airport capacity constraints contribute to costly traffic congestion, and consequently higher fares. Consistently missing from the highest-fare markets are western cities, including some city pairs (e.g., Los Angeles–San Francisco) that might be expected to generate a significant amount of business traffic. Presumably, the influence of business traffic on average fares should be manifest through higher average fares in some markets outside the East and Midwest. The geographic concentration of high-fare city-pair markets in the Midwest and East raises questions about the causes.

The presence of Southwest and other low-fare airlines in many western markets is cited frequently to explain this geographic pattern. More interesting, however, are the underlying factors that attract discount airlines to these markets. Less airport congestion and fewer air traffic delays are possible reasons. Another possibility is the differing demand characteristics among eastern and western travelers—perhaps because the longer distances between population centers in the West can make flying the preferred mode for leisure travelers, leisure-oriented airlines can be more viable. Whatever the reasons for this pattern, they merit further exploration in future studies.

ALLEGATIONS OF UNFAIR COMPETITIVE RESPONSES TO NEW ENTRY

Growing concern over higher fares at hub airports was tempered somewhat with the emergence of many low-fare carriers during the early 1990s and by the continued expansion of Southwest Airlines. As noted in Chapter 1, many start–up airlines began service at hub airports or at secondary airports in hub cities. The new entrants would schedule a

few flights per day on dense routes, operating point-to-point service to achieve high load factors on narrow-body aircraft designed for short-haul, high-volume markets. Although not the only markets selected by the startups, nonstop routes from major hubs such as Chicago O'Hare, Dallas–Fort Worth, Denver, and Atlanta were targets of much new entry.

To fill planes without feed traffic from connecting flights, the new entrants offered fares below those of the hubbing airlines. The idea was to stimulate pent-up demand not being met by the hubbing airlines with their restricted offerings of discount fares, although diversion from incumbents also was anticipated. Whatever the particular strategy, the effect of new entry in reducing fares and increasing leisure traffic in many hub markets quickly became evident, not only to incumbents but also to DOT, which began to promote the entry of low-fare airlines to challenge the dominant positions of hub carriers.

In its April 1996 report, *The Low–Cost Airlines Service Revolution*, DOT characterized the resurgence of low-fare airlines as a "watershed development in domestic aviation" that was having "a profound effect on efficiency, competition, consumers, and industry structure" (DOT 1996, 1). The report estimated annual consumer savings of $6 billion from new airlines that had based their operations in hub airports and focused on service in city-pair routes having above-average fares. Complaints by these new entrants pointed to highly aggressive responses by incumbents, prompting DOT to consider whether the larger carriers were trying to drive out their smaller rivals and exclude them from markets. In its 1996 report, DOT announced its intention to review carefully allegations of anticompetitive conduct and to cooperate with the Department of Justice (DOJ) to enforce violations of antitrust law. In addition, DOT noted its own statutory authority to prohibit unfair methods of competition (49 U.S.C. §41712), stating that it would consider proceeding independently to deter conduct that could be characterized as anticompetitive under antitrust principles.

DOT's Proposed Enforcement Policy Against Unfair, Exclusionary Practices

In the April 10, 1998, *Federal Register*, DOT published a proposed "Enforcement Policy Regarding Unfair Exclusionary Behavior in the

Air Transport Industry."[10] The statement, contained in Appendix A, described DOT's perception of the problem, as well as its authority and its means to address it. In a preface, DOT maintained that its main interest was to discourage incumbents (referred to as "major carriers") from engaging in unfair conduct designed to exclude new entrants from competing in hub markets. Although DOT acknowledged that "unfair exclusionary conduct" might encompass various tactics airlines employ to suppress competition in other kinds of markets, its policy statement focused on the pricing and capacity responses by incumbents when challenged by new entrants in hub markets. It is in these markets that DOT indicated it had received the most complaints about aggressive price-cutting responses by incumbents.

DOT singled out new entrants—which it defined as independent airlines starting jet service during the past 10 years—as the most likely and susceptible targets for exclusionary conduct, since these new entrants frequently operated from hubs and had limited resources and staying power to withstand a prolonged offensive. DOT noted that the established low-fare airlines, namely Southwest Airlines, were seldom the targets for aggressive price-cutting responses in markets in which they competed against hubbing carriers.

DOT stated that its informal investigations of complaints revealed that incumbent airlines had both the opportunity and the motive to engage in exclusionary conduct. The opportunity was provided by the availability of comprehensive and "real time" information on competitor prices (obtained through computer reservation systems [CRSs]) and by their ability to change prices quickly and to shift aircraft and seats among city-pair markets, without incurring significant, additional fixed or overhead costs. According to DOT, the incumbent's motive was to protect its dominant position in the hub market and its long-term ability to charge higher fares to price-inelastic business travelers.

DOT identified three pricing and capacity responses to screen out potentially exclusionary conduct by an incumbent; if any of the following actions resulted in lower local revenue to the incumbent than would a "reasonable alternative response," DOT would investigate:

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[10] See *Federal Register*. 1998. Vol. 63, No. 9, (April 10) pp. 17919–17922.

1. The incumbent added capacity and sold a large number of seats at very low fares;
2. The number of local passengers that the incumbent carried at the new entrant's low fares—or at fares substantially below its own previous pricing—exceeded the new entrant's total seat capacity; or
3. The number of local passengers that the incumbent carried at the new entrant's low fares—or at fares substantially below its own previous pricing—exceeded the number of low-fare passengers carried by the new entrant.

DOT explained that a reasonable alternative response could be the incumbent matching the low-fare offerings of its new competitor on a restricted basis—for instance, without greatly increasing the number of low-fare seats made available. This presumes that the incumbent responding in such a restrained manner could retain much of its high-fare, business traffic because of its service and marketing advantages. In DOT's view, incumbent airlines were protecting and strengthening their ability, gained through market power, to set prices well above cost when they responded to low-fare entry in the unreasonable manner of sharply reducing fares and increasing the number of unrestricted low-fare seats available.

Using these three criteria to guide its investigations, DOT warned it would pursue cases that strongly suggested exclusionary behavior, through hearings before administrative law judges. It concluded its proposed policy statement by noting that in addition to examining questionable pricing and capacity responses, it also would consider other indicators of unfair competition by airlines, such as actions reducing opportunities for—or raising the cost of—entry and competition. Reports of incumbent carriers hoarding gate space, using their contractual agreements with hub airports to bar access by rivals or to increase the price of airport services, and offering travel agents extra commissions to discourage bookings on new entrants also were identified as actions that would prompt further inquiry.

Rationale for DOT's Criteria

In its proposed criteria, DOT's focus was on responses to new entry by major airlines involving pricing and capacity assignments that it be-

lieved could reasonably be construed as having predatory aims. There is no universally accepted theory about what constitutes predation or how best to detect and prove its occurrence. The fundamental concern is that the dominant firm will reduce prices specifically to drive out rivals or to discourage future entry or reentry, expecting to recoup any losses incurred by subsequently raising and keeping its prices above competitive levels.[11] In general, predation is believed to have occurred when a firm with dominant market position has priced its products below marginal cost, so that the additional revenue generated from the sale of one more unit would be less than the incremental cost of making the sale.[12] It is presumed that a rational firm would not incur such avoidable losses for very long—for instance, by continuing to add capacity—unless it had some other aim such as strengthening its market power and its potential to raise fares charged to price-inelastic travelers in the future.

The traditional view is that such losses may be an investment intended to generate higher future returns in those markets. Recent economic theories, however, point to the possibility that predation also has other recoupment objectives. For instance, a dominant firm might engage in predatory behavior to send a signal to current and prospective rivals that its costs are low and the potential for profitable entry is slight.[13] The purpose of predation also might be to develop the firm's reputation as a tough competitor and to suggest that entry will spur prolonged and costly price cutting.[14] The price-cutting incumbent also might be trying to build a larger wall to deter entry into the business generally—for instance by compelling prospective competitors to amass more credit or cash reserves to remain solvent until achieving profitability. According

[11] Joskow, P.L., and A.K. Klevorick. 1979. A Framework for Analyzing Predatory Pricing Policy. *Yale Law Journal*, Vol. 89, No. 2, Dec.

[12] Exceptions include instances in which the firm cuts prices for promotional reasons, such as introducing a new product, and other reasons that bring benefits, such as an increase in the sale of a complementary product.

[13] Milgrom, P., and J. Roberts. 1990. New Theories on Predatory Pricing. In *Industrial Structure in the New Industrial Economics*, Clarendon Press, Oxford.

[14] See Kreps, D., and R. Wilson. 1982. Reputation and Imperfect Information. *Journal of Economic Theory*, Vol. 27, pp. 253–79. Also, Comanor, W.S., and H.E. Frech. 1993. Predatory Pricing and the Meaning of Intent. *Antitrust Bulletin.* Vol. 38, No. 2, Summer, pp. 293–308.

to these theories, a single act of predation can have effects that transcend the specific market in which the price cutting has occurred.

One significant difficulty in proving predation is determining when and how the firm is likely to recoup its investment in predatory losses. Theories about predatory tactics suggest a variety of possibilities, including many that would be formidable to quantify—such as the effect of predation in deterring entry in other markets or the industry generally. Moreover, a firm's marginal cost function may not be evident. Because of the many practical difficulties of quantifying marginal costs, the federal courts in recent years have adopted the short-run average variable cost (AVC) as a proxy.[15] AVC is an accounting measure of the avoidable (i.e., nonfixed) costs of producing output during a period—such as expenses for labor, fuel, and material. These variable costs are totaled and divided by the output during the period to calculate the AVC.

Economists, however, also view opportunity costs as an appropriate component of marginal cost. More profitable opportunities forgone by deploying resources in a particular way constitute a true cost. A firm that neglects opportunities for more profitable uses of its resources, and that has the information to ascertain these opportunities, is presumably acting against its own interest. Thus, to the extent that AVC mainly reflects the direct expenses incurred in production, it is an unsatisfactory proxy for marginal cost—since it does not account for more profitable opportunities forgone.

By emphasizing revenue "self diversion," DOT seemingly was trying to incorporate opportunity costs into its method of detecting predation. DOT's three screening criteria presumed that an incumbent that was substantially reducing fares and adding seating capacity to a route in response to new entry was sacrificing higher-fare sales in that market and possibly in other markets by diverting seats from connecting passengers or redeploying aircraft from other routes. DOT seemed to be implying that the profits sacrificed from these other possible uses should be included in calculations of marginal cost, since they represented opportunity costs.

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[15] The average variable cost measure, adopted by the federal courts to test for predation, was first proposed by Areeda, P.E., and D.F. Turner. 1975. Predatory Pricing and Related Practices Under Section 2 of the Sherman Act, *Harvard Law Review*, Vol. 88, pp. 697–733. The test is commonly referred to as the Areeda-Turner Test.

One of the difficulties with DOT's approach for detecting predation, however, is ascertaining opportunity costs. In the airline industry, a major airline can operate in thousands of markets that vary widely in profitability at any given time; it is likely, therefore, that the airline has excess or idle capacity somewhere in its system. Determining retrospectively if and where this capacity could have been employed more profitably can be speculative and hypothetical. Dynamic analyses of response options also might suggest many reasonable alternatives. An incumbent airline, challenged by a low-fare entrant, might find it unprofitable to continue its discriminatory pricing—for instance, by continuing to charge high fares to time-sensitive travelers while matching the new entrant's low fares on a limited basis. One reason is that time-sensitive business travelers might find the discounted—and often unrestricted—fares of the new entrant to be sufficiently low to be appealing, despite the sacrifice of frequent flier benefits and schedule intensity. In this regard, the incumbent may not have a realistic option—at least in the short-term—of continuing to offer higher unrestricted fares, as DOT presumes.

Because of the complexities of airline pricing and network operations, distinguishing between legitimate and questionable competitive responses poses significant challenges, and raises the possibility of false charges of predation, and the risk that some genuine predatory conduct will go undetected. While particular theories of predation that are more or less relevant to the airline industry could not be judged in this study (with its broader charge), the committee did consider specific complaints of exclusionary practices received by DOT and some of the risks and challenges involved in trying to spot and prohibit such conduct in the airline industry.

Reports of Exclusionary Conduct

DOT submitted to the committee a total of more than 40 complaints from new entrants alleging exclusionary or anticompetitive conduct by incumbents between March 1993 and May 1999; these are listed in Appendix C. A few of the complaints were not relevant. Some, for instance, concerned nonpassenger services. In addition, there were also multiple complaints by the same carrier against another. The first type was disregarded, while the repeated complaints were combined into single cases. In the end, there were 32 individual and combined cases. DOT believed this list was not comprehensive, and that other similar—but unreported—occurrences were likely.

Though possibly incomplete, the 32 complaints, summarized in Table 2-5, illustrate the various kinds of conduct that have prompted concern. Half of the complaints dealt with incumbents exploiting both their contractual relationships with airports and their marketing and distribution advantages. The complaints involving contractual relationships pointed to questionable shortages in hub airport gates for leasing or subleasing, excessive subleasing rents charged by incumbents, the required use of an incumbent's ground-support service (e.g., baggage handling)

Table 2-5 Nature of Informal Complaints About Unfair Practices Received by DOT, 1993 to 1999[a]

	Year and Number							
Complaint	1999	1998	1997	1996	1995	1994	1993	**Total**
Unfair pricing and capacity responses[b]	2	2	3	3	3	0	3	**16**
Impediments to gate access and other airport facilities or services[c]	1	4	3	0	2	0	0	**10**
Other[d]	0	1	0	0	2	0	3	**6**
Total	3	7	6	3	7	0	6	**32**

[a] All 32 reports presented to the committee by DOT are provided in Appendix C, along with the case numbers that are referenced in the notes below. Reports were combined into single reports (cases) if they involved the same carriers and time periods. Five were excluded because they were not relevant (these complaints, however, are presented at the end of Appendix C). DOT also provided the committee with a second set of complaints (not shown in Appendix C) about competitive practices of airlines and airports submitted by members of Congress and state and local public officials. The general problems identified are discussed in Chapters 2, 3, and 5—many concern fare and service levels in small- and medium-size communities. A third set of complaints, mainly from travel agents and major airlines, concerned travel agent commissions and computer reservation systems. Some of these issues are discussed in Chapter 3. In addition to these complaints, DOT has identified other cases in which it believes unfair or exclusionary pricing and capacity responses have occurred, on the basis of its own review of fare and traffic data; several of these were also presented to the committee and some are examined in Table 2-6. Finally, DOT observes that the complaints listed in Appendix C are not comprehensive and that other similar, but unreported, cases are likely.

[b] All 16 of these complaints allege sharp fare cuts and large increases in seating capacity by incumbents. Four (#9, 10, 13, 16) allege that incumbents added flights to routes they did not previously serve, including nonstop flights that bypass the incumbents' respective hubs. Cases #27 and 28 (categorized as "Other") also involve complaints of unfair pricing and capacity responses.

[c] These 10 complaints vary, although most concern impediments to airport gate access. Four contend that gates were not made available (#17, 22, 23, 26) due to hoarding by incumbents. Three complain of excessively high lease charges or other unusually high airport or ground-handling fees (such as landing fees) for nonsignatory carriers (#20, 21, 24). Two complain of the reluctance of incumbents to sell available slots at fair market value (#19, 25). One (#22) involves frequent shifting of the gate locations offered to the new entrant. One asserts unfair rules restricting use of an airport (Love Field) that favors an incumbent hubbing airline (#18).

[d] Most of these six complaints consist of assertions that incumbents used their marketing advantages in an unfair and highly selective manner to suppress competition by new entrants. Two contend that travel agents were offered higher commissions for booking flights on incumbents only on those routes challenged by the new entrant (#27, 28). Four claimed incumbents were unwilling to make arrangements for interlining and for joint ticketing and baggage handling services (#27, 29, 31, 32). One (#30) complained of an airport (Pittsburgh) being closed for operations in favor of a new airport that favored the main incumbent airline.

at excessive rates, and the frequent shifting of the gates available to new entrants. In two cases, new entrants complained that incumbents were unwilling to sell airport slots at fair market value.

There were six complaints focusing on incumbents' use of marketing and distribution advantages. Two claimed that incumbents offered travel agents higher commission overrides for booking flights in markets challenged by new entrants. Three complained that incumbent-affiliated CRSs listed new entrant flights in a biased manner. Others claimed that incumbents were unwilling to participate in joint ticketing and baggage transfer arrangements for passengers interested in interlining (i.e., transferring between the two airlines for connecting service).

Because of the limited information, it was not possible for the committee to assess the validity of all these complaints. Certainly the vague and informal nature of some complaints weakened their credibility. Nevertheless, the committee recognized that incumbents could use all of these tactics—limiting access to airports by restricting the availability of slots and gates; influencing CRS listings; and offering special travel agent incentives—to the detriment of smaller rivals, possibly denying them the opportunity to compete fully on the basis of relative costs and the attractiveness of their offerings. Recommendations for correcting these particular matters are offered in Chapters 3 and 4.

The committee reviewed more closely the complaints that involved incumbents sharply reducing fares and increasing flights and seating capacity on specific routes challenged by new entrants. Such actions were the main target of DOT's proposed enforcement policy. About half of the forwarded complaints involved this general kind of response; however, the committee could examine only seven. DOT also forwarded to the committee several additional examples of pricing and capacity responses by incumbents that appeared suspicious based on its informal application of the proposed enforcement criteria. The committee reviewed five of these cases in detail; making a total of 12 cases examined, as listed in Table 2-6. The review was by no means intended to be systematic or conclusive, but to provide insight into the kinds of problems that have caused concern.

All 12 involved a short- to medium-haul market (less than 1,000 mi) and a major carrier's hub at one or both ends. All of the alleged aggressors were incumbent airlines and all of the alleged victims were airlines formed during the past 10 years, also characterized by DOT as low-fare

Table 2-6 Some Possible and Asserted Cases of Unfair Pricing and Capacity Responses by Incumbents to New Entry

	Entry YR-QTR	City-Pair		Quarter Before Entry: Average Fare	Seats Available	Flights	Avg. Load Factor
		Complaints received by DOT					
1	96-2	DTW-BOS	Incumbent	$ 257	227,400	648	57%
			New Entrant	-	-	-	-
2	96-1	ATL-MOB	Incumbent	$ 186	202,900	700	73%
			New Entrant	-	-	-	-
3	95-4	DTW-PHL	Incumbent 1	$ 165	150,100	523	67%
			Incumbent 2	$ 179	48,800	242	56%
			New Entrant	-	-	-	-
4	95-3	PIT-BOS	Incumbent	$ 130	209,400	856	72%
			New Entrant	-	-	-	-
5	95-2	MSP-MCI	Incumbent	$ 201	92,800	407	52%
			New Entrant	-	-	-	-
6	95-2	DFW-ICT	Incumbent 1	$ 111	27,300	430	46%
			Incumbent 2	$ 126	22,100	482	32%
			New Entrant	-	-	-	-
7	94-4	DFW-MCI	Incumbent 1	$ 111	99,500	732	70%
			Incumbent 2	$ 114	60,200	537	57%
			New Entrant	-	-	-	-
		Other suspect cases identified by DOT using screening criteria					
8	97-2	ATL-CLT	Incumbent 1	$ 205	192,800	686	56%
			Incumbent 2	$ 190	136,200	574	54%
			New Entrant	-	-	-	-
9	96-4	ATL-MCI	Incumbent	$ 119	183,700	638	80%
			New Entrant	-	-	-	-
10	96-1	ATL-PIT	Incumbent 1	$ 168	153,600	538	59%
			Incumbent 2	$ 161	90,300	434	59%
			New Entrant	-	-	-	-
11	95-1	ATL-DTW	Incumbent 1	$ 184	165,600	493	67%
			Incumbent 2	$ 177	131,900	527	57%
			New Entrant	-	-	-	-
12	94-3	ATL-DFW	Incumbent 1	$ 185	213,000	779	59%
			Incumbent 2	$ 217	425,000	1100	68%
			New Entrant	-	-	-	-

NA= Information is not available due to lack of reporting.

[a] Most recent quarter if 8 quarters have not elapsed.

[b] New entrant (ValuJet) permanently exited market following suspension of operations in 2nd quarter 1996.

NOTE: See Appendix D for airport codes.

Table 2-6 *continued*

Second Quarter After Entry				Eighth Quarter After Entry[a]				
Average Fare	Seats Available	Flights	Avg. Load Factor	Average Fare	Seats Available	Flights	Avg. Load Factor	Status of New Entrant
$ 99	306,700	832	82%	$ 232	273,800	675	71%	
$ 70	12,400	71	27%	-	-	-	-	exited
$ 112	207,000	725	70%	$ 88	209,800	712	70%	
$ 42	17,000	75	51%	$ 54	45,000	205	34%	competing
$ 221	133,400	491	57%	$ 189	153,700	516	52%	
$ 233	42,200	210	46%	$ 206	81,500	394	53%	
$ 55	15,100	76	71%	-	-	-	-	exited
$ 135	228,400	788	69%	$ 177	202,800	824	74%	
$ 84	NA	NA	NA	-	-	-	-	exited
$ 69	141,700	603	70%	$ 78	150,300	676	75%	
$ 43	11,300	30	NA	$ 60	43,000	160	55%	competing
$ 65	47,900	820	58%	$ 89	54,200	673	68%	
$ 126	18,200	510	41%	$ 100	15,700	525	66%	
$ 44	24,300	189	60%	-	-	-	-	exited
$ 91	99,500	779	79%	$ 88	139,400	1087	79%	
$ 68	20,000	176	53%	-	-	-	-	
$ 50	18,300	146	58%	$ 63	21,700	173	70%	competing
in its proposed guidelines								
$ 227	203,800	717	70%	$ 162	228,600	805	68%	
$ 87	129,000	592	67%	$ 153	126,300	572	56%	
$ 55	50,800	221	37%	-	-	-	-	exited
$ 111	175,200	626	81%	$ 141	186,300	642	78%	
$ 79	39,700	155	43%	$ 129	65,000	269	82%	competing
$ 93	147,000	544	77%	$ 217	144,100	530	58%	
$ 86	121,100	520	61%	$ 203	87,800	395	58%	
$ 79	40,900	181	50%	-	-	-	-	exited[b]
$ 108	204,209	515	64%	$ 111	238,400	630	75%	
$ 93	172,600	694	68%	$ 95	173,900	697	71%	
$ 86	53,000	237	50%	$ 99	31,100	143	55%	competing
$ 104	188,400	799	78%	$ 100	346,800	1283	64%	
$ 158	471,500	1166	65%	$ 115	545,500	1491	72%	
$ 86	74,400	329	64%	$ 97	77,000	333	44%	competing

carriers. The committee reviewed the chronology of average fares, passenger traffic, load factors, flights, and exit and entry activity.

By the second quarter after the lower-priced entry,

- In 10 of the 12 cases, the new entrant's average fares in the market were at least 50 percent lower than the average fare of the incumbent with the highest market share during the quarter preceding entry.

- In 9 of these cases, average fares for one or more of the incumbents in each market fell by one-third or more.
- In 4 cases the incumbents' total seats in the market increased by one-third or more.
- As might be expected, the sharply lower fares resulted in higher load factors for the incumbents, as demand was spurred.

Eight quarters after the entry,

- The new entrant had exited in half the cases, although in one case because of an unrelated circumstance (ValuJet's exit following the suspension of its operations in the summer of 1996).
- In the other 6 cases, the new entrant and incumbent were still competing.
- In 5 of these cases, average fares for both the incumbent and new entrant were much lower than they were during the quarter before new entry.

It would thus appear that travelers in these 12 markets benefited, at least initially, from the low-fare new entry and subsequent price-cutting by incumbents. Of the five cases in which the new entrant exited within two years (excluding the ValuJet case), at least two involved the incumbent sharply reducing fares and increasing capacity during the entrant's challenge and then returning to much higher fares shortly after the entrant had exited. In these cases, the fare savings to travelers appear to have been fleeting.

Though limited, this sample offers some insight into the problems likely to arise in detecting predation. For instance, it would have been difficult to predict in which of the 12 markets competition would have been driven out and fares restored to previous levels and in which markets competition would have continued to the lasting benefit of consumers.

Among all 32 complaints, the most difficult to reconcile with normal competition occurred when incumbents "overlaid" the routes of new entrants, particularly by introducing new nonstop jet flights. Four of the complaints forwarded by DOT involved such responses, as noted in Table 2-5. Some involved the incumbent (see complaints 10 and 16 in Appendix C), or its commuter affiliate, introducing point-to-point ser-

vice in a market by bypassing its own hub-and-spoke system. For instance, in March 1996, Air South complained that both Continental's and Delta's commuter affiliates had attempted to overlay its new service in three markets: Charleston–Newark, Columbia–Newark, and Myrtle Beach–Newark. Three years earlier, DOT had questioned the motives of Northwest Airlines when it announced plans for nonstop service between Reno and Seattle, Los Angeles, and San Diego. These plans were unveiled shortly after Reno Air began service from Reno to Minneapolis, which is Northwest's main hub. Since point-to-point service is unusual for a hubbing carrier in moderate-density markets, the introduction of this service, coupled with low fares, certainly suggests exclusionary intentions and deserves further review by antitrust enforcers.[16]

Agency Enforcement Roles

The nation's antitrust laws consist mainly of the Sherman Act—the first federal antitrust law—and the Federal Trade Commission (FTC) and Clayton Acts. Predatory pricing is most commonly analyzed under Section 2 of the Sherman Act, which makes it unlawful for a business to "monopolize, or attempt to monopolize" trade or commerce. As this law has been interpreted, it is violated only if a firm tries to maintain or acquire a monopoly position through unreasonable methods. For a court, a key factor in determining what is unreasonable is whether the practice has a legitimate business justification. DOJ, FTC, state attorneys general, and private plaintiffs can bring suit under the Sherman Act. Civil rather than criminal suits have been the norm for suspected predation violations. The act allows treble damage awards for civil violations, penalties that are generally considered to be a significant deterrent to unlawful conduct. Antitrust litigation, whether public or private, can take many years to pursue and at significant legal expense.

To further deter anticompetitive conduct, FTC was established by Congress. FTC is a consumer protection agency with two basic mandates

[16] For economic reasons, major carriers tend to add flights only through their hubs, because the additional flights will connect traffic and raise load factors on other flights. New service that bypasses the hub will divert some passengers from hub flights, reducing load factors. The addition of bypass service, therefore, is unusual, and deserves scrutiny when coincidental with new entry.

under the FTC Act: to guard the marketplace from unfair methods of competition, and to prevent unfair or deceptive acts or practices that harm consumers. FTC can file cases both in federal court and in a special administrative forum. Section 5 of the FTC Act outlaws "unfair methods of competition" but does not define "unfair." The Supreme Court has ruled that violations of the Sherman Act also are violations of Section 5, which also can cover some practices that are beyond the scope of the Sherman Act. Section 5 empowers FTC to prevent unfair methods of competition and business practices that restrain competition. FTC also shares with DOJ (along with private plaintiffs and states) responsibility for enforcing Section 7 of the Clayton Act, which prohibits mergers and acquisitions when the effect "may be substantially to lessen competition, or to tend to create a monopoly." The two federal enforcement agencies therefore work together on many matters, for instance in developing guidelines for horizontal mergers and in enforcing Section 7A of the Clayton Act (called the Hart-Scott-Rodino Act of 1976), which requires that firms give both agencies prior notification of planned mergers.

It is important to note that the airline industry is not subject to FTC oversight under Section 5 of the FTC Act. The Civil Aeronautics and Federal Aviation Acts gave comparable competition and consumer protection authorities to the Civil Aeronautics Board (CAB). These authorities later were transferred to DOT in 1984, when CAB was abolished. Specifically, the law (49 U.S.C 41712) now states that DOT, on its own initiative or after receiving a complaint, can investigate and decide whether an air carrier or ticket agent has been or is engaged in an unfair or deceptive practice or an unfair method of competition. If DOT, after notice and an opportunity for a hearing, finds that an air carrier is engaged in an unfair or deceptive practice or unfair method of competition, it can order a stop to the practice or method.

An issue that underlies the current debate over predation in the airline industry is whether enforcement should be handled primarily by DOJ under the Sherman Act. The controversy hinges in part on whether the actions targeted by DOT can and should be forbidden through administrative procedures. As discussed in Chapter 3, DOT has used its administrative authorities to prohibit unfair methods of competition by regulating the listing of competing fare and service offerings on CRSs. DOT has defined as unfair and illegal certain CRS information displays that favor particular carriers. DOT's proposed criteria for spotting potential

predatory conduct, however, differ from this usual regulatory approach. The incumbent pricing and capacity responses that the criteria focus on are not types of behavior that are prohibited per se. They are instead described by DOT as screening criteria for triggering further inquiry.

A concern that many major airlines have is that these criteria will evolve into, or have the practical effect of, regulatory standards, causing the pricing and capacity responses they describe to become the definitions of unfair methods of competition, possibly inhibiting some truly competitive pricing and capacity responses. Underlying this concern is a sense that administrative rules tend to become increasingly restrictive and rigid over time, in part because of the agency's well-intended efforts to be objective and evenhanded in applying the rules and to provide the industry and public officials with guidance about acceptable conduct. A related concern is that such bureaucratic specifications might not distinguish sufficiently among different marketplace circumstances; also that those applying the rules might lose sight of their broader purpose and pursue other, narrower goals—for instance, protecting individual competitors rather than the competitive process.

Consideration was not given in this study to FTC's possible role in predation enforcement, since this option falls outside the current framework; however, DOJ's involvement was considered. DOJ's Antitrust Division employs hundreds of lawyers, economists, and industry experts to identify, investigate, and prosecute monopoly practices and other antitrust violations. Because of the breadth of its coverage, it is also expected—and compelled—to remain distant from the day-to-day issues and policy concerns of individual industries and sectors of the economy.[17] This detachment is generally viewed as beneficial, reducing the chances that the agency will become too close to the industries it watches over, and making it less susceptible to pressures for favorable treatment from industry constituencies.

The involvement of industry- or sector-specific agencies—such as DOT—in antitrust matters is controversial in part because of this concern over industry influences. These agencies are immersed in the most routine industry matters, charged not only with regulation but often with dispersing federal aid, operating vital infrastructure, and sometimes with promoting the general welfare of the industry. While this closeness has

[17] However, it can participate in regulatory hearings advising agencies on the antitrust implications of their proposed actions.

the benefit of allowing agency personnel to develop expertise in industry operations, a concern is that this same attribute, over time, will cause the agency to become overly deferential to industry viewpoints.

The extent to which these risks might apply to DOT's proposed involvement in developing and enforcing prohibitions against predation is a matter of judgment. As explained in the Executive Summary, all of the committee members recognized the risks but differed in assessing them.

SUMMARY

Domestic airlines compete for travelers in thousands of city-pair markets across the United States. The expansion of hub-and-spoke systems since deregulation has led to more competition in more city-pair markets, especially in longer-haul markets. Because of the traffic densities created by hub networks, however, airlines have been able to dominate local traffic on many of the short-haul, nonstop routes, or spokes, emanating from their hubs. It is not unusual for hub-based, nonstop markets to account for two-thirds or more of an airline's total passengers. To be sure, various efficiencies and service advantages are usually the main reasons hubbing airlines have attained dominant positions. Nevertheless, other factors, such as marketing and ticket distribution advantages, as well as preferential contracts with airport operators, also have contributed.

The possibility that incumbent carriers are exploiting their dominant positions at hubs and charging monopoly fares has been a concern of policy makers for nearly two decades. Higher average fares in concentrated hub markets compared with unconcentrated hub and nonhub markets have been observed in several studies, including some simplified comparisons made here. Whether the fare differential is related more or less to inherent differences in market characteristics and costs or to dominant carriers exploiting market power cannot be conclusively determined from the data. Nevertheless, the consistency with which hub markets appear among the highest-fare markets is noteworthy and raises the possibility that hub carriers are exploiting market power in ways that would not be sustained if they were subject to more effective competition.

The reemergence of low-fare carriers early in the 1990s—and their targeting of high-fare hub markets—seemed to offer a timely check on this problem. Hub markets subjected to significant and lasting low-fare

entry have experienced large reductions in fares during the past 10 years. DOT officials, concerned about high fares at hub airports, have viewed low-fare entry as an antidote to hub dominance, and have therefore expressed alarm about incumbent behavior that might suppress or inhibit entry. This concern motivated DOT to propose a means of spotting predatory conduct in the airline industry.

The committee could not conduct a thorough review of the complaints and evidence regarding anticompetitive conduct, although a cursory review revealed some actions that were difficult to reconcile with fair and efficient competition. Particularly difficult to reconcile were cases in which incumbent carriers added nonstop service in low- to moderate-density markets they had not previously served directly, coincident with a new entry. In some of these cases, the incumbent bypassed its own hub to initiate the service, a strategy seldom employed outside of high-density markets. The logical inference is that such responses are probably temporary—possibly calculated to protect the incumbent's hub traffic and to dissuade similar challenges elsewhere—and would seem to warrant additional scrutiny.

Incumbents also have been charged with using frequent-flier programs, travel agent incentives, and other marketing advantages to target and disadvantage new entrants. Other complaints cited incumbents for using their preferential contracts with airports to restrict or withhold gates from challengers and to make airport operations otherwise expensive and burdensome. Some also have suggested that incumbents have manipulated CRS listings to put new entrants at a disadvantage in marketing and distributing their fare and service offerings. Although the committee was unable to assess the details and validity of these specific complaints, it believes they merit further investigation by DOT.

In otherwise exercising its statutory authority to prevent unfair competition with regard to predation, DOT must be mindful of the challenges involved in identifying and proving predation and of the risk that its enforcement efforts might become increasingly regulatory and protective of individual competitors rather than of the competitive process. With respect to these risks, the committee is concerned that DOT's present enforcement proposal contains flaws. These include the arbitrary definitions of the specific types of new entrants that deserve special attention or scrutiny; moreover, DOT's empirical means of detecting or

testing for predation depend too much on hypothetical scenarios and speculation about alternative responses. Although consideration of opportunity cost is important in testing for predation, the difficulty of developing such tests should not be underestimated.

Committee members' differing opinions on the seriousness of these risks and challenges, and the best enforcement role for DOT, are explained in the Executive Summary. Notwithstanding these differences, the committee unanimously believes DOT's strategic role should be positive, fostering marketplace conditions that are conducive to entry and more competition. Chapter 3 identifies several such opportunities and recommends actions to exploit them.

REFERENCES

ABBREVIATIONS

DOT	Department of Transportation
GAO	General Accounting Office

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