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Air Fares and Service at Concentrated Airports

Statement of
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Before the
Subcommittee on Aviation
Committee on Commerce, Science, and Transportation
United States Senate

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on our on-going work examining changes in the airline industry. At the request of Senator Danforth, Ranking Minority Member of the Committee on Commerce, Science and Transportation, and the Chairman of the House Subcommittee on Aviation, Committee on Public Works and Transportation, we have examined air fares at 15 concentrated airports--those where one or two airlines dominate the traffic--and compared them to fares at 38 unconcentrated airports. Our measure of fares is the yield, the fare paid per passenger mile of travel.[1] Our analysis covers fares paid by approximately 25 million travelers between 1985 and 1988. We also reviewed changes in service levels at the concentrated airports during the 1985-88 period.

In addition to this work, we are examining whether changes in airline operating and marketing practices have erected barriers to entry around concentrated airports and how such barriers might be reduced or eliminated. At the request of the Chairman and other members of the Committee on Commerce, Science and Transportation, we are also examining trends in fares at small and medium-sized communities.

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[1]Passenger miles are the straight line distances between the origin and destination, regardless of the route taken by the individual airlines.

Our work on fares and service to date shows that:

-- Yields at concentrated airports are higher than yields at unconcentrated airports. In 1988, the average yield for the concentrated airports was 27 percent higher than the yield at the comparison airports.

-- At 13 of the 15 concentrated airports, yields of the dominant carriers are higher than the yields of other airlines serving those airports.

-- Yields of the dominant carrier at concentrated airports usually rose following the establishment of the dominant position.

-- The number of destinations served directly from concentrated airports increased 10 percent and the number of daily departures increased 3 percent between May 1985 and May 1988, but these increases are comprised of large increases by dominant carriers, offset by large service reductions by the other carriers serving the concentrated airport.

-- The number of destinations served directly from concentrated airports by only one airline rose 25 percent,

while the number of destinations served by four or more airlines fell 52 percent.

BACKGROUND

Over the past few years, there has been a trend toward one or two airlines establishing a dominant position at many major airports. There are several reasons why airports become concentrated. In some cases, airlines serving an airport merge and the surviving firm inherits most of the traffic. A more common cause of concentration results when an airline decides to make a particular airport a hub for its operations. With a hub, an airline brings travelers from many points to a central location, and then transfers them to other flights to their final destinations. Such transfers are generally made in a relatively short period of time. Hubbing generates important operating efficiencies, but it can also lead to substantial market power for the airlines, which could lead to higher fares and reduced levels of service.

In a recent report, we examined fares and service at St. Louis before and after the merger of TWA and Ozark Air Lines.[2] Before the merger, TWA handled 56 percent of the enplanements, but after

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[2]Airline Competition: Fare and Service Changes at St. Louis Since the TWA-Ozark Merger (GAO/RCED-88-217BR).

the merger, TWA had 82 percent of the enplanements at St. Louis.[3] We found that TWA's fares for flights out of St. Louis rose substantially following the merger compared with fare changes elsewhere. We also found that the number of carriers competing for traffic at St. Louis declined. More routes were served by only a single carrier, usually TWA, and far fewer routes were served by four or more carriers. Our fare findings for St. Louis were later confirmed in an analysis by the Department of Transportation (DOT).[4]

For our on-going work, we extended our St. Louis analysis to include fares and service at 15 concentrated airports around the nation. We selected airports for analysis from among the 75 busiest on the basis of enplanements.[5] Our methodology is described in more detail in appendix I. All but one of these 15 airports (listed in appendix II) are hubs for one or more of the major airlines.[6]

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[3]Enplanements are passenger boardings at the airport, and include both originating and connecting traffic.

[4]U.S. Department of Transportation, A Comparison of Air Fares and Services at St. Louis Before and After Trans World Airlines Acquired Ozark Airlines (sic), Washington, D.C., January 1989.

[5]Because of their unusual geographic characteristics, we excluded airports in Alaska and Hawaii.

[6]Piedmont Airlines (now part of USAir) is the dominant carrier at Greensboro, NC, but Piedmont does not operate a hub there.

We examined fare changes from the first quarter 1985 through the fourth quarter 1988, the most recent quarter for which data are available. Service data are for the month of May of each year. Between 1985 and 1988, a number of important mergers were consummated and several hubs were established or built up.

We contrasted levels and trends in yields on routes from the 15 concentrated airports with yields on routes from a control group of 38 unconcentrated airports (listed in appendix III). The control airports are those in the top 75 airports in the contiguous 48 states that did not meet our definition of concentration and were not in multi-airport cities.[7] We also compared the yields received by the dominant airlines at the concentrated airports with the yields earned by the other airlines serving the airport in order to further isolate the effects of dominance.

YIELDS ARE HIGHER AT CONCENTRATED AIRPORTS

In 1988, the average yield at the 15 concentrated airports was 27 percent higher than the average yield at the comparison airports. At 14 of the 15 concentrated airports, the combined yield for all the airlines at each airport was higher than the average yield at the unconcentrated airports. The yields of the dominant airlines at the concentrated airports were consistently

[7]Some of the airports in our control group are hubs (e.g. Phoenix), but they are not concentrated by our definition.

higher than the average yield at the unconcentrated airports. At 13 of the 15 concentrated airports, the yields of the dominant airlines were higher than the other airlines serving the airport; at 10 of the airports the yields were considerably higher. Appendix IV provides the details of the results for each of the 15 airports.

On average, yields at the unconcentrated airports declined from 14.7 cents per passenger mile in the first quarter of 1985 to around 12.4 cents in the second quarter of 1986 and remained at about that level through the second quarter of 1987. After that, yields at the unconcentrated airports began to increase and reached 15.2 cents by the end of 1988.

Between 1985 and 1988, yields at most of the concentrated airports also fell, then recovered. However, rather than merely recovering to their initial levels, yields at the concentrated airports were often much higher in 1988 than they were in 1985. Comparing the fourth quarter of 1988 with the fourth quarter of 1985, yields were higher at all of the concentrated airports, with increases ranging from about 2 percent to about 35 percent.

Yields Rose After Dominance Was Established

At two of the airports we examined, airlines that were hubbing at the airport merged. TWA's acquisition of Ozark Air Lines

eliminated a hubbing competitor at St. Louis, and Northwest's takeover of Republic Airlines eliminated a hubbing competitor at Minneapolis-St. Paul. Both these mergers were proposed in early 1986 and occurred in late 1986 and yields increased in the year following the mergers. Between the first quarter 1986 and the first quarter 1988, Northwest's yields at Minneapolis-St. Paul rose 25 percent while TWA's yields at St. Louis rose 29 percent. Over this same time period, yields at the unconcentrated airports rose only 9 percent.

At airports where a carrier established a dominant position during the period we examined, yields rose following the increase in concentration. For example, American Airlines set up hubs at Nashville in the spring of 1986 and at Raleigh-Durham in the summer of 1987. In both cases, American's yields increased following the establishment of hub operations. American's yields had been more than 20 percent below those of other airlines serving Nashville and more than 30 percent lower than others serving Raleigh-Durham before the hubs were set up. After American became the dominant carrier, its yields rose much faster than those of the other carriers, and by the fourth quarter 1988, American's yields at Nashville were about 9 percent higher than other carriers, and had closed almost all the gap at Raleigh-Durham.

In setting up its hubs at Nashville and Raleigh-Durham, American greatly increased its number of short distance flights.

Between the fourth quarter 1985 and the fourth quarter 1988, the share of traffic in the 0 - 500 mile category increased from less than 1 percent to 18 percent in Nashville. Between the fourth quarter 1986 and the fourth quarter 1988, the share of traffic in the 0 - 500 mile category grew from 9 percent to 20 percent in Raleigh-Durham. Since short distance flights have higher yields, the change in traffic mix accounts for at least some of the increase in fares.

Already Dominant Airlines Maintained Higher Yields

In situations where the airport has always been dominated by a single carrier, there appears to be a positive relationship between concentration and yields. For example, yields at Delta Airlines' hub in Cincinnati and Piedmont Airlines' hub in Charlotte rose as the market shares of the dominant carrier increased. Between the fourth quarter 1985 and the fourth quarter 1988, Delta's share of enplanements at Cincinnati rose more than 35 percentage points and Delta's yields increased 32 percent at Cincinnati. Piedmont's (USAir) yields at Charlotte also rose 32 percent as its share of enplanements increased 15 percentage points. During the same period, yields at unconcentrated airports rose less than 13 percent. Western Airlines had its hub at Salt Lake City before it was taken over by Delta. Yields declined from the fourth quarter 1985 through the second quarter 1986. Delta proposed its purchase of Western in the third quarter 1986. Since

Delta took over the hub at Salt Lake in early 1987, yields have risen as Delta has increased the share of enplanements held by the dominant carrier.

At airports where concentration levels were high, but remained relatively unchanged during the period we examined, yields did not increase; nevertheless, they remained above yields at unconcentrated facilities. At Pittsburgh, USAir has had 80 percent or more of the enplanements during almost the entire period under review. Its yields declined somewhat over this period, but by the fourth quarter 1988 had returned to slightly above the initial level. The decline may have reflected changes in the distribution of USAir's traffic. The proportion of passenger miles flown in the lowest distance/highest yield category (0 - 500 miles) fell from 43 percent to 31 percent between the fourth quarter 1985 and the fourth quarter 1988.

Cities with Two Dominant Airlines Provide Additional Perspective

At the Atlanta and Denver airports, two airlines dominate the traffic. At Atlanta, Delta Airlines handled almost 60 percent of the enplaning passengers while more than one-third were handled by Eastern Airlines. Overall, the two-carrier concentration level was unchanged over the period we examined, although Delta had increased its share somewhat relative to Eastern. The increase in yields was relatively small. Also, as at most of the other

concentrated airports, fourth quarter 1988 yields at Atlanta for the dominant carriers were substantially higher than yields at the unconcentrated airports--57 percent for Eastern and 75 percent for Delta. Overall yields at Atlanta were higher than those at any of the other 15 concentrated airports. In addition, the yields for Delta, the larger carrier, were consistently higher than Eastern's.

Both United Airlines and Continental Airlines operate hubs at Denver. Before the third quarter 1986, Frontier Airlines also had a major presence at Denver and yields at Denver ranged from 9 to 26 percent below the average for the comparison group. After Continental took over Frontier, yields at Denver increased. By the fourth quarter 1988, yields at Denver were 8 percent above those of the comparison airports. Nonetheless, yields for Denver originating traffic were lower than those of any other concentrated airport except Detroit.

Several Factors Could Affect Yield Differences

There are factors, in addition to concentration and market power, that could account for the yield differences between concentrated and unconcentrated airports and between dominant and other airlines at the concentrated airport.

One factor that might account for the differences between the airports is length of haul. We compared yield levels and changes

at the 15 concentrated airports with yield changes at a subset of our control group of airports that excluded airports where average trip lengths were much longer than those of the concentrated airports. We excluded airports with longer average trip distances (greater than 900 miles) because yields are generally lower for longer trips. When we compared the 15 airports to this smaller control group of 22 airports, the difference in yields narrowed, but the change was not large and our findings were unchanged.

In preparing our testimony, we spoke with the dominant airlines. They noted that yields could be higher at the concentrated hub airports than at the unconcentrated ones because more of the traffic out of the concentrated airports was non-stop or direct, while traffic out of the unconcentrated airports often must connect at hubs. Non-stop or direct service is more desirable and could command higher fares than connecting service. While we did not control for this directly, we did compare the average number of coupons per traveler out of the concentrated airports with the average number at the comparison airports. For the fourth quarter 1988, the average number of coupons was 2.26 for the concentrated airports and 2.28 for the comparison airports. This suggests that the type of service was not different for the two groups of airports.

Regarding the difference between the dominant airline and the other airlines at the concentrated airports, traffic of the other

carriers may be connecting at other hubs while the dominant carrier provides non-stop or direct service. In addition, dominant airlines may have a higher proportion of higher yield, short haul traffic.

While we did not adjust for the proportion of traffic carried by the dominant and nondominant carriers in calculating the average yield, we did break down the yield data into mileage blocks using 500 mile increments. We found that for the shortest haul mileage category (0 -500 miles) the dominant airlines' yields were consistently higher than the comparison airports and that at 11 of the 15 airports the dominant airline was higher than the other airlines. In the longest mileage category, these differences persisted. This suggests that even though the dominant airlines may have a higher proportion of the short haul traffic, their higher share does not account for all of the difference in average yield. We will address these issues further in a subsequent analysis.

CONSUMERS HAVE FEWER CARRIERS TO CHOOSE FROM ON MANY ROUTES

To assess changes in service levels at concentrated airports, we compared service level data for the months of May 1985 to 1988 on three dimensions:

-- The number of cities that could be reached by direct service, i.e., without a change of plane.

-- The total number of daily flights to all places.

-- The amount of competition as measured by the number of markets served by one carrier, by two or three carriers, or by four or more carriers.

The quantity of service improved at places where airlines established or built up their hubs. Nashville, Cincinnati, Charlotte, Memphis, and Raleigh-Durham are all airports where hubs were established or built up during the 1985-88 period and all but one registered large increases in the number of places served directly.[8]

Overall, we found that the number of destinations served directly increased at 10 of the concentrated airports, declined at 3, and remained about the same at 2. There was a 10 percent increase in the number of places served directly from the 15 concentrated airports. The dominant carriers increased the number of destinations served directly at all 15 airports, but in many cases much of this increase was offset by reduced service from other carriers. There was nearly a one-third decline in the number

[8]Charlotte registered a 7 percent increase in places served, while the increases for the other airports ranged from 15 to 55 percent.

of destinations served by carriers other than the dominant airlines at the concentrated airports (see appendix V fig. V.1).

The number of daily flights at the 15 concentrated airports increased by 3 percent between May 1985 and May 1988, but again the results for the dominant and the nondominant firms differed dramatically. Total daily departures of the dominant carriers grew 50 percent, while those of the nondominant airlines fell 47 percent (see appendix V fig. V.2).

Finally, on many routes travelers' ability to chose among airlines has narrowed over time. From 1985 to 1988, there was an overall increase of 10 percent in the number of domestic destinations for the 15 concentrated airports. However, there was a 25 percent increase in the number of domestic destinations from the 15 concentrated airports that were served directly by only one carrier. In contrast, the number served by four or more carriers fell more than 50 percent (see appendix V fig. V.3).

CONCLUSIONS

Our review focused on trends in fares and services at 15 airports around the nation dominated by one or two carriers. We found that dominant airline yields at these concentrated airports were consistently higher than yields at a control group of unconcentrated airports, and that for two-thirds of the

concentrated airports the yields received by the dominant carrier were considerably higher than the yields earned by the nondominant carriers. In addition, yields increased as concentration increased even at airports that were already highly concentrated. Controlling for differences in average length of haul at unconcentrated airports did not alter our finding that yields were higher at concentrated airports.

With respect to service offerings, we found that there were some increases in the number of places served and in the number of daily flights, but in many cases much of the increase was offset by reduced offerings from nondominant carriers. In addition, many travelers have less choice among airlines as more markets are being controlled by a single airline.

Overall, deregulation has led to lower airline fares for most travelers and the establishment of hubs has allowed the airlines to realize important operating efficiencies. Over the past few years there have been numerous mergers and bankruptcies that have reduced the number of competing airlines. While there continues to be vigorous competition on the most heavily traveled routes, growing concentration, especially at hub airports, has led to less competition on many routes. The mergers and bankruptcies that led to increased concentration can not be easily undone. Thus, the issue before the Congress now is whether or not there are steps

that need to be taken to revitalize competition in markets where competition has been reduced.

Our focus is on airline concentration and how concentration in certain markets might lead to higher fares and to the erosion of the benefits of deregulation. In other work that we plan to complete later this year, we examine whether certain changes in airline operating and marketing practices have erected barriers to entry and how such barriers might be reduced or eliminated. We are concerned that, if competition can not be preserved, then the benefits of deregulation to the traveling public will be lost.

That concludes my testimony. I will be happy to answer any questions.

SCOPE AND METHODOLOGY

Our basic criterion for deciding that an airport was concentrated was that one airline handled at least 60 percent of the passengers enplaning at that airport. We chose enplanement share as the criterion, but others are possible, including the proportion of originating passengers handled by one or two carriers. Airlines almost always have a smaller proportion of originating traffic than enplanements at their hubs because of the relatively large volume of non-originating, connecting passengers. When we calculated enplanement shares, we grouped together airlines under common ownership, such as Eastern and Continental or Piedmont and USAir.

In order to include at least one airport dominated by each of the major airlines, we extended our analysis to airports where two airlines controlled at least 85 percent of the enplaning passengers. A total of 22 airports met this criterion. From the total number of concentrated airports, we excluded airports that met the concentration criteria, but were in metropolitan areas served by more than one major commercial airport. Therefore, airports in New York City, Los Angeles, Chicago, Houston, Washington, D.C., San Francisco, and Dallas were not candidates even though airports in some of these cities were hubs for major airlines and met the concentration criteria. We eliminated

airports in multi-airport cities because competition from carriers serving the other airport might offset, to some extent, the effects of concentration. We also eliminated one airport because it was outside the 48 contiguous states.

Because we are concerned with fares paid by travelers leaving the cities served by a concentrated airport, all of the yields calculated in this analysis are for traffic originating at the airport. To ensure that our analysis of trends in yields reflected changes in fares, as opposed to changes in the composition of the sample, we controlled for changes in the distribution of destinations, changes in the proportion of one-way and round-trip fares in the sample, and changes in the proportions of traffic on the dominant and the nondominant carriers. For each combination of fare types (one-way or round-trip), type of carrier (dominant or nondominant) and destination, we calculated the average yield for each quarter. We weighted the average yield for each combination according to the average amount of traffic for that combination over the 16 quarters.

There are other factors that might explain some of the differences in yields that are not accounted for in our analysis. For example, we did not control for the proportion of non-stop versus connecting flights offered by airlines at the concentrated and comparison airports. An airline may offer a higher proportion

of non-stop service from its hub than is offered at the comparison airports. If non-stop flights are a higher quality service, the airlines may be able to charge more. Also, we have not taken into account such factors as the value of frequent flyer benefits in evaluating airline yields. We are addressing these and other issues affecting airline fares in another GAO study that will be completed later this year.

In order to improve comparability between the concentrated airports and the control group, we created a subset of unconcentrated airports that excluded airports where average trip lengths were long. Yields tend to be lower for longer flights because fares increase less than proportionately with mileage flown. Some of the airports in the control group had longer average trips.

We used the Origin and Destination (O&D) data collected quarterly by DOT in its 10 percent sample of airline tickets to make our yield comparisons. The airlines report detailed information on every tenth ticket to DOT and, after processing the data, DOT makes the data available for public use.

Unfortunately, there are a variety of reporting errors. In particular, fares are occasionally misreported or miscoded. DOT had adopted a fare screen developed by the Civil Aeronautics Board

to eliminate fares that were obviously too high or too low. However, the screen had not been adjusted for many years. As a result, over time many valid fares were being excluded.[1] As part of our work on this project, we developed a new fare screen that DOT is currently applying to the latest submissions. The criteria we developed more accurately screen the O&D survey data. Table I-1 contrasts our new fare screen with DOT's original screen.

We tested to see whether the differences in yields were statistically significant. Specifically, we tested whether the average yield at each concentrated airport was higher than the average yield at the unconcentrated airports in 1988, and whether the difference between yields at the concentrated airports in 1985 and 1988 were significant. We found that all the differences were statistically significant at the .001 level except for the difference between the yield at Detroit and the comparison airports in 1988.

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[1]The Board's fare screen was used to develop SUMDOM, an internal data base. The data made available to the public and to data vendors are Databank 1A, which does not screen out incorrect fares. Users can make their own adjustments.

Table I-1: Comparison of GAO and DOT/CAB Origin-Destination Data Fare Screens

	DOT/CAB Screen		GAO Screen	
	Exclude if yield is		Exclude if yield is	
Mileage category	less than cents/mile	greater than cents/mile	less than cents/mile	greater than cents/mile
1-100	10.00	177.18	8	300
101-200	5.00	77.63	4	255
201-300	3.33	56.99	3	160
301-400	5.00	48.12	3	125
401-500	6.00	43.62	3	115
501-700	4.28	38.28	3	105
701-1000	5.00	32.93	3	80
1001-1300	4.61	29.67	3	65
1301-1600	5.00	27.75	3	55
1601-1900	4.30	26.40	3	50
1901-2200	4.54	25.34	3	40
2201-2500	4.40	24.63	3	40
>2500	4.28	23.51	3	40

To examine service levels and changes, we purchased data from the automated version of the Official Airline Guide from an airline data vendor, I. P. Sharp. Service levels include both the quantity of service available and the quality of service delivered. The quality of service delivered includes such things as the percentage

of late flights or lost baggage. However, we were unable to use such measures because the data were either unavailable for appropriate time periods or did not allow meaningful comparisons. We have limited our analysis to the quantity of service available and, more specifically, to the number of routes served directly and the number of competitors on routes out of the concentrated airports. Direct service includes both non-stop service and service with stops where the passenger does not change planes.

APPENDIX II

THE 15 CONCENTRATED AIRPORTS INCLUDED IN THE ANALYSIS

Atlanta

Charlotte

Cincinnati

Dayton

Denver

Detroit

Greensboro/High Point/Winston-Salem

Memphis

Minneapolis/St. Paul

Nashville

Pittsburgh

Raleigh/Durham

Salt Lake City

St.Louis

Syracuse

APPENDIX III

THE 38 UNCONCENTRATED AIRPORTS USED IN THE ANALYSIS

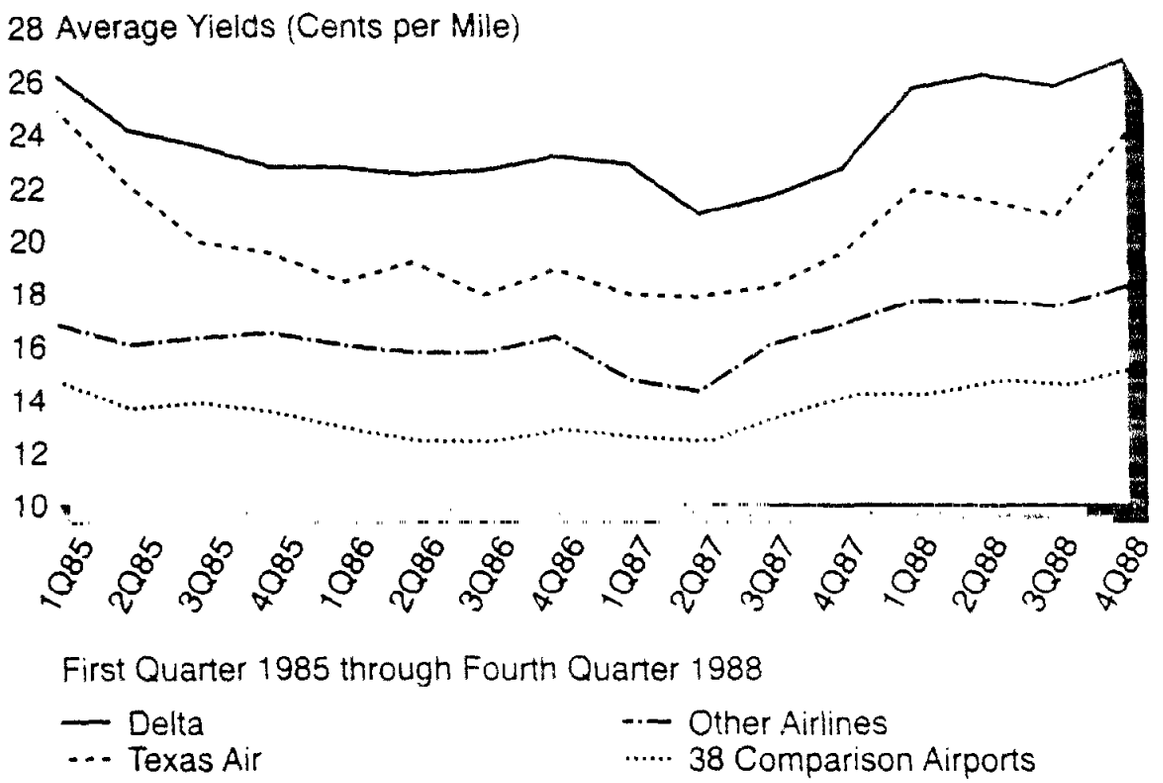
Albuquerque*
Austin*
Birmingham*
Boston
Buffalo*
Cleveland*
Columbus, OH*
El Paso*
Ft. Lauderdale
Ft. Myers
Hartford
Indianapolis*
Jacksonville*
Kansas City*
Las Vegas*
Little Rock*
Louisville*
Miami
Milwaukee
New Orleans*
Norfolk/Va. Beach*
Oklahoma City*
Omaha
Orlando
Philadelphia
Phoenix*
Portland, OR
Reno*
Richmond*
Rochester, NY*
Sacramento
San Antonio*
San Diego
Seattle
Tampa
Tucson
Tulsa*
West Palm Beach

* denotes airports in both total and smaller control groups.

APPENDIX IV

GAO

Atlanta: Hartsfield Atlanta International Airport



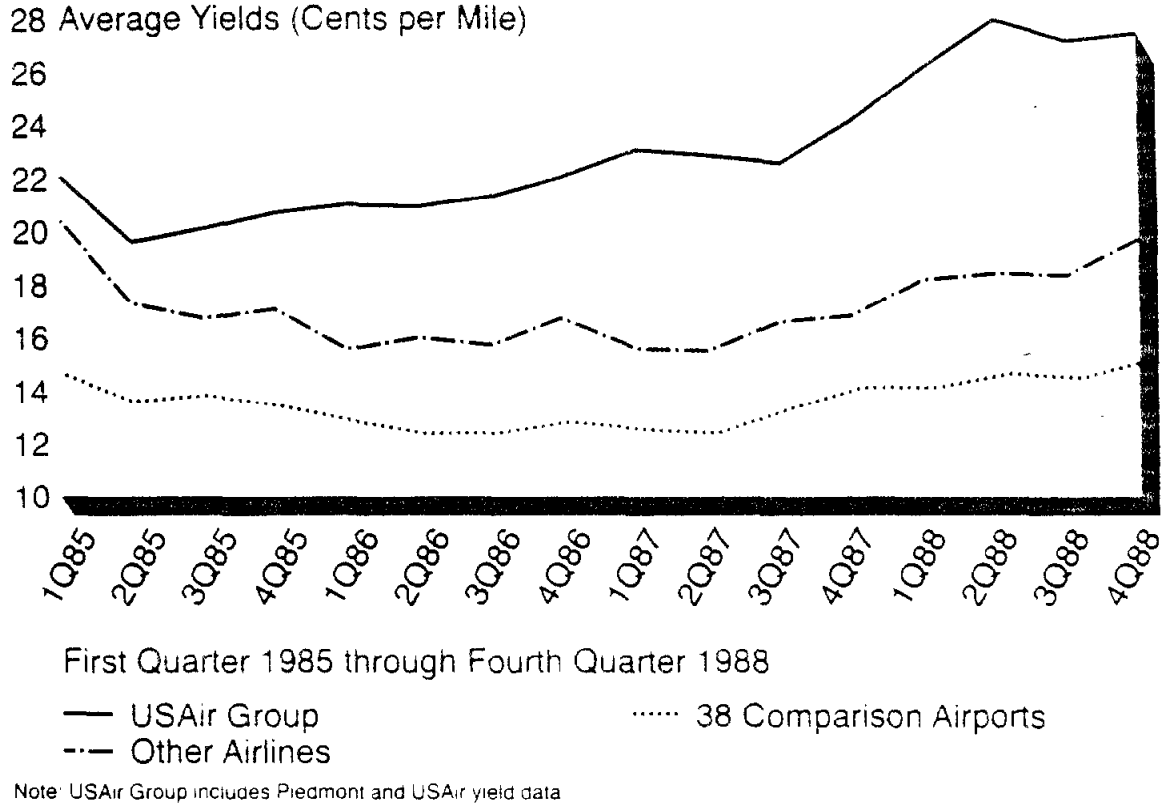
Note: Texas Air includes yield data for Eastern, Continental, and People Express

Figure IV.1

APPENDIX IV

GAO

Charlotte: Charlotte/Douglas International Airport



Note: USAir Group includes Piedmont and USAir yield data

Figure IV.2

APPENDIX IV

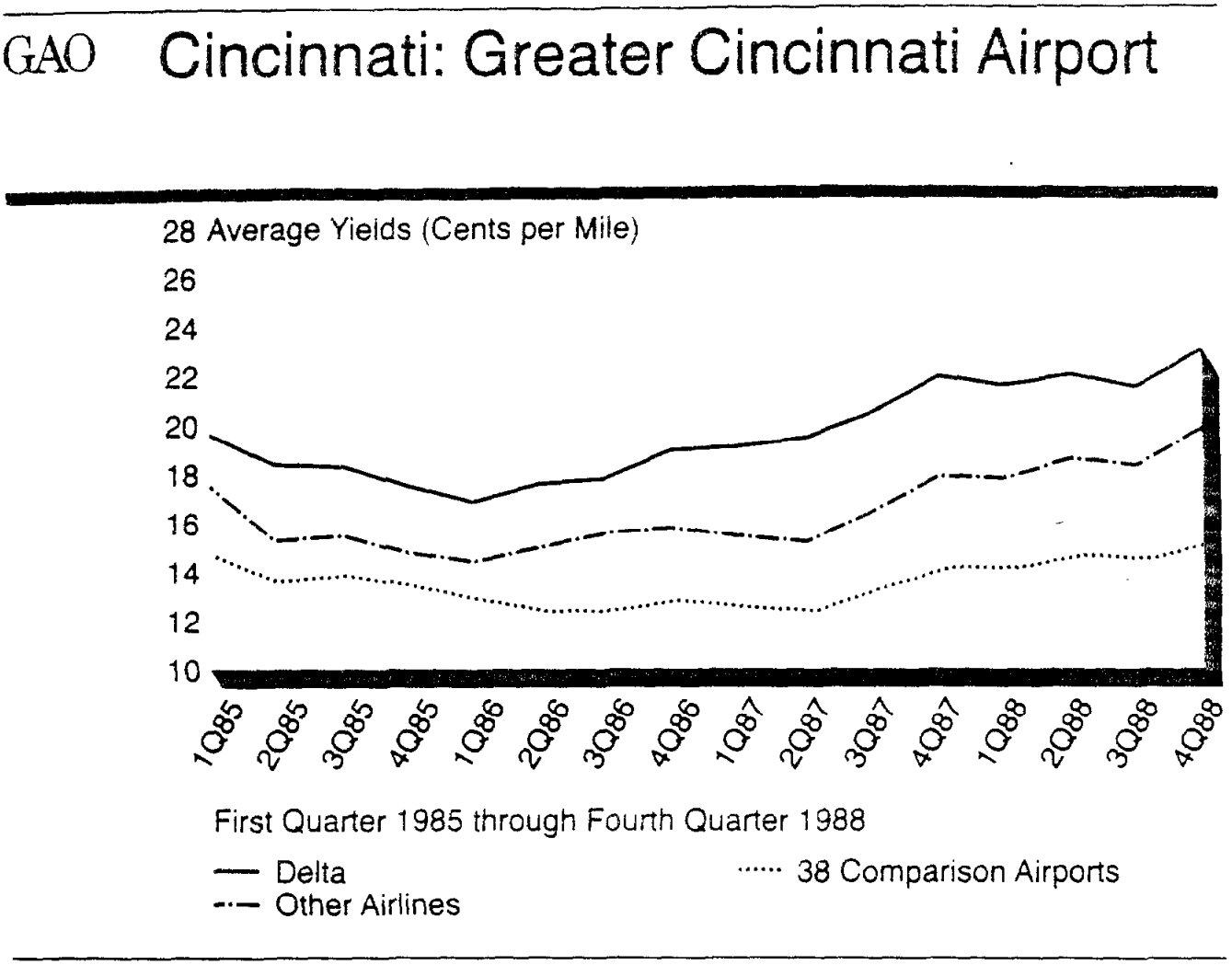
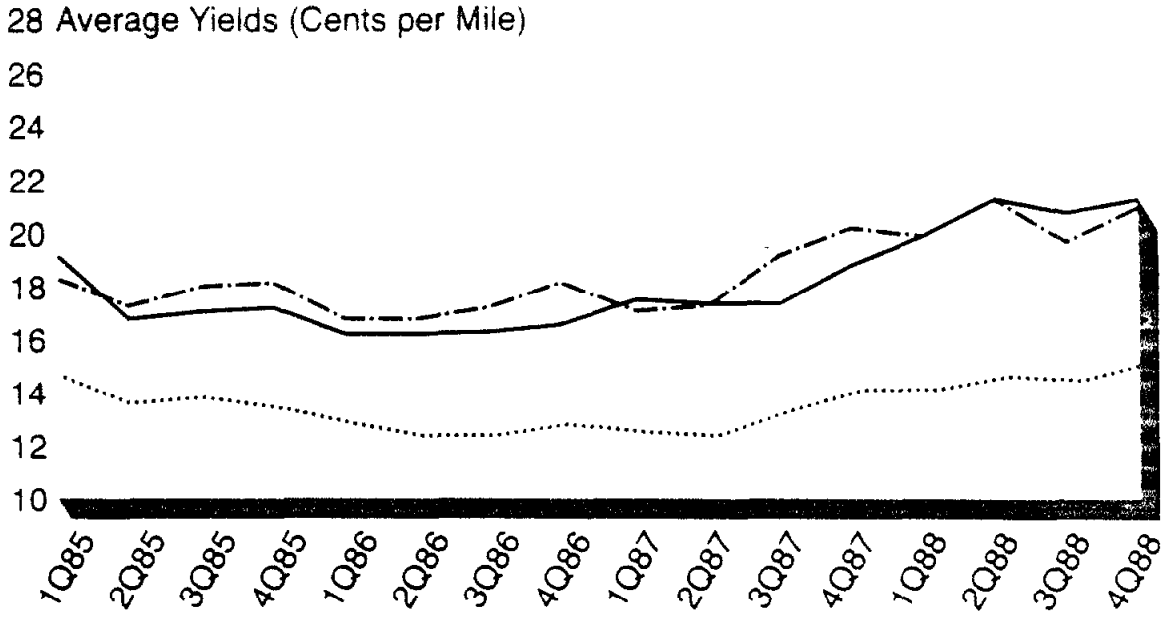


Figure IV.3

GAO Dayton: Dayton International Airport

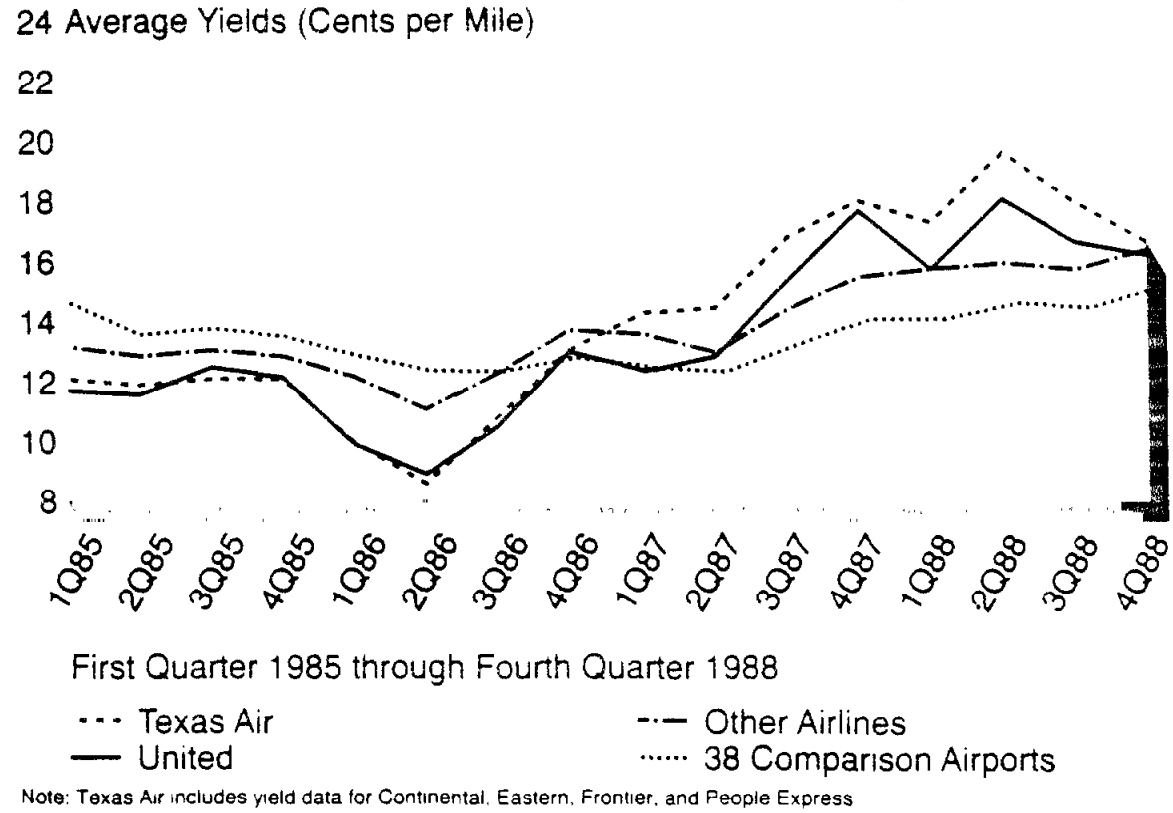


Note: USAir Group includes Piedmont and USAir yield data

Figure IV.4

APPENDIX IV

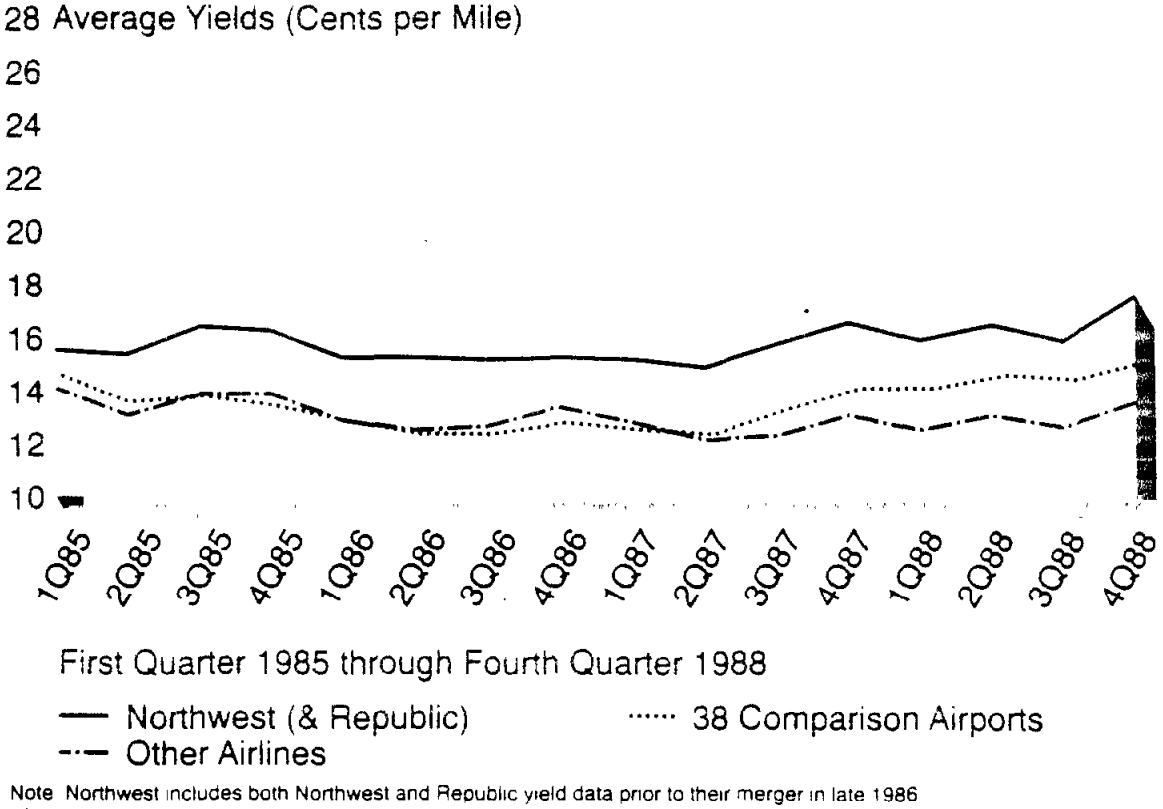
GAO Denver: Stapleton International Airport



Note: Texas Air includes yield data for Continental, Eastern, Frontier, and People Express

Figure IV.5

GAO Detroit: Detroit Metropolitan Wayne County Airport



Note Northwest includes both Northwest and Republic yield data prior to their merger in late 1986

Figure IV.6

APPENDIX IV

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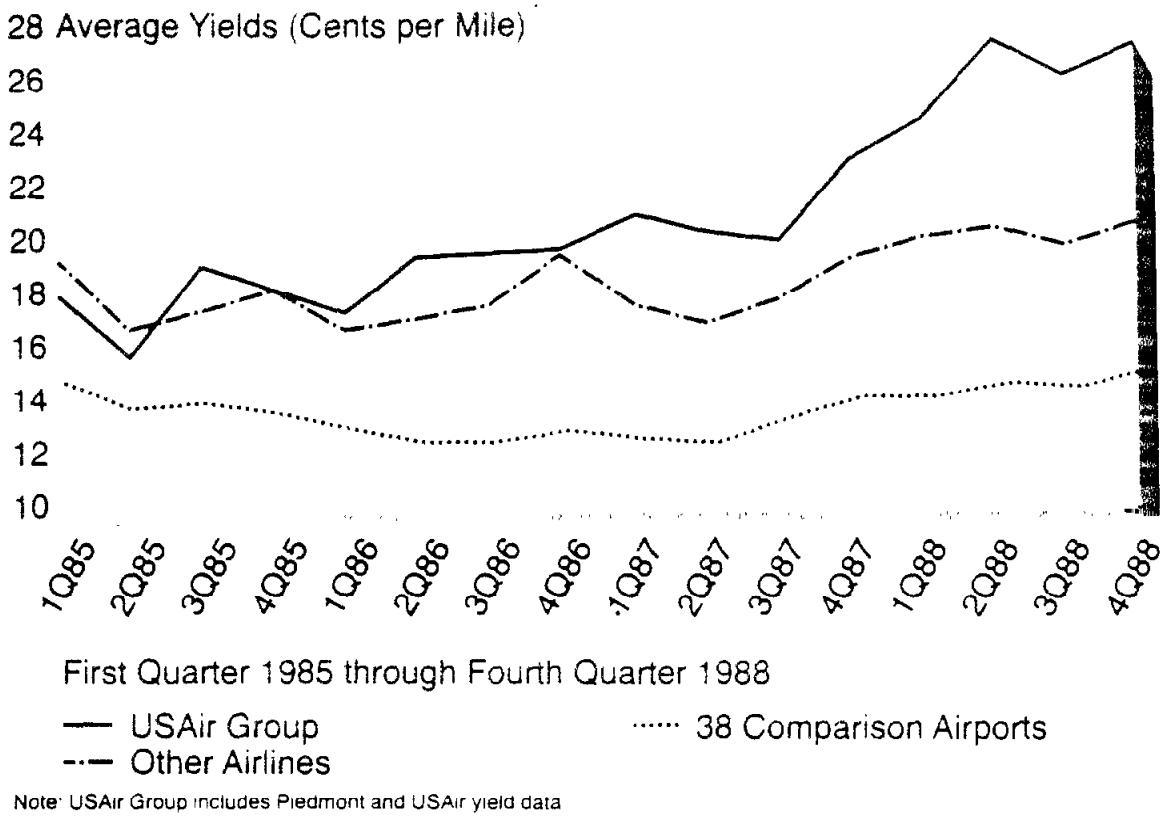
Greensboro-High Point/Winston-Salem: Piedmont Triad Int. Airport



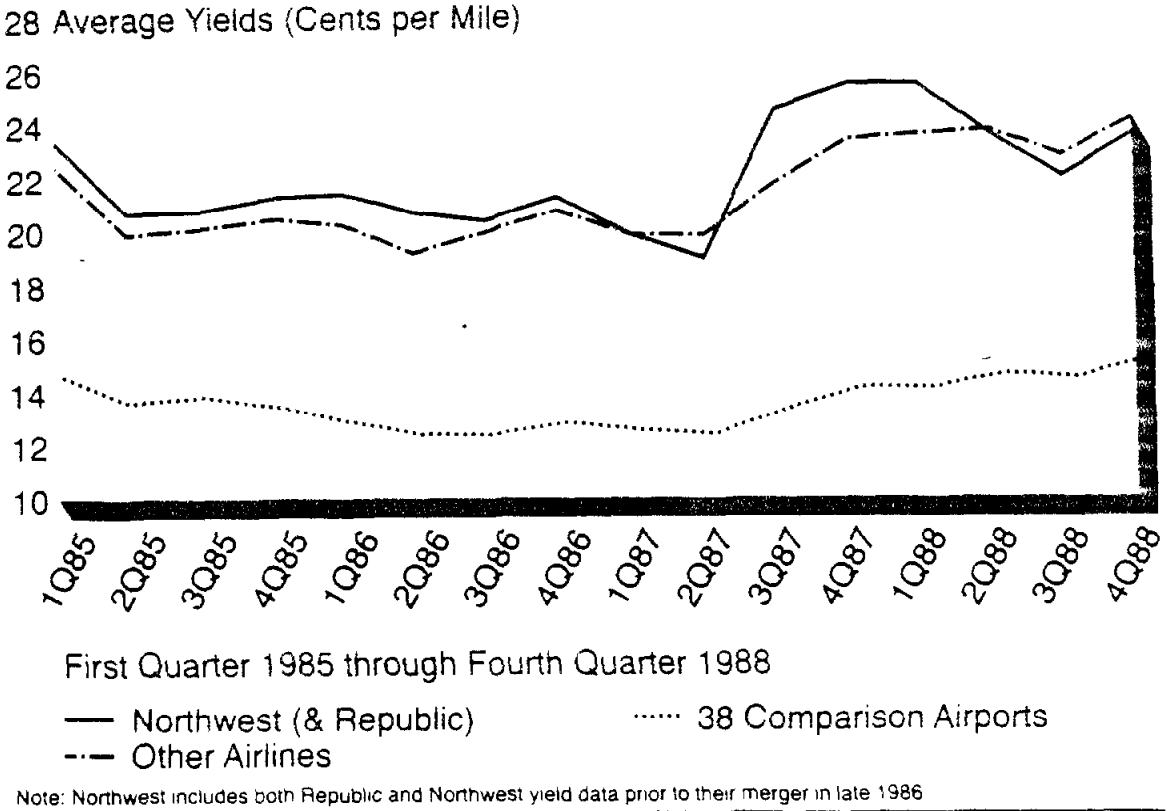
Note: USAir Group includes Piedmont and USAir yield data

Figure IV.7

APPENDIX IV

GAO

Memphis: Memphis International Airport



Note: Northwest includes both Republic and Northwest yield data prior to their merger in late 1986

Figure IV.8

APPENDIX IV

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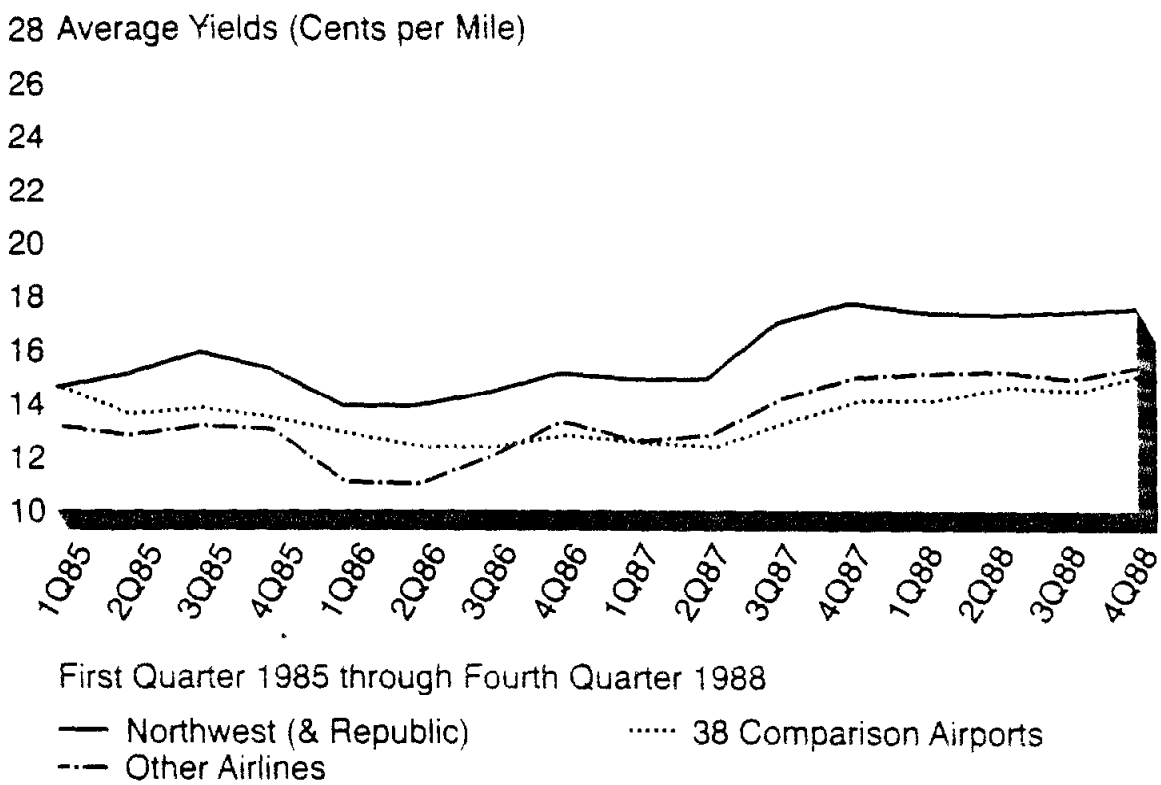
Minneapolis/St. Paul: Minneapolis/St. Paul International Airport



Note. Northwest includes both Northwest and Republic yield data prior to their merger in late 1986.

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Nashville: Nashville Metropolitan Airport

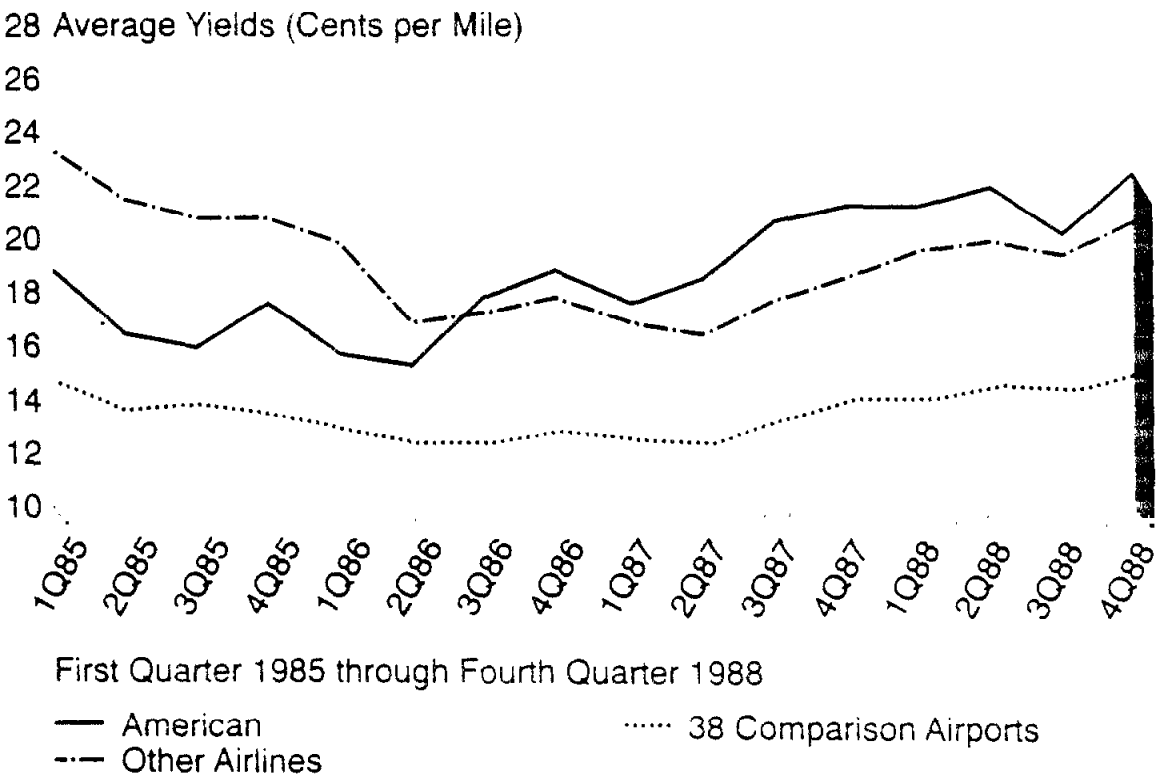
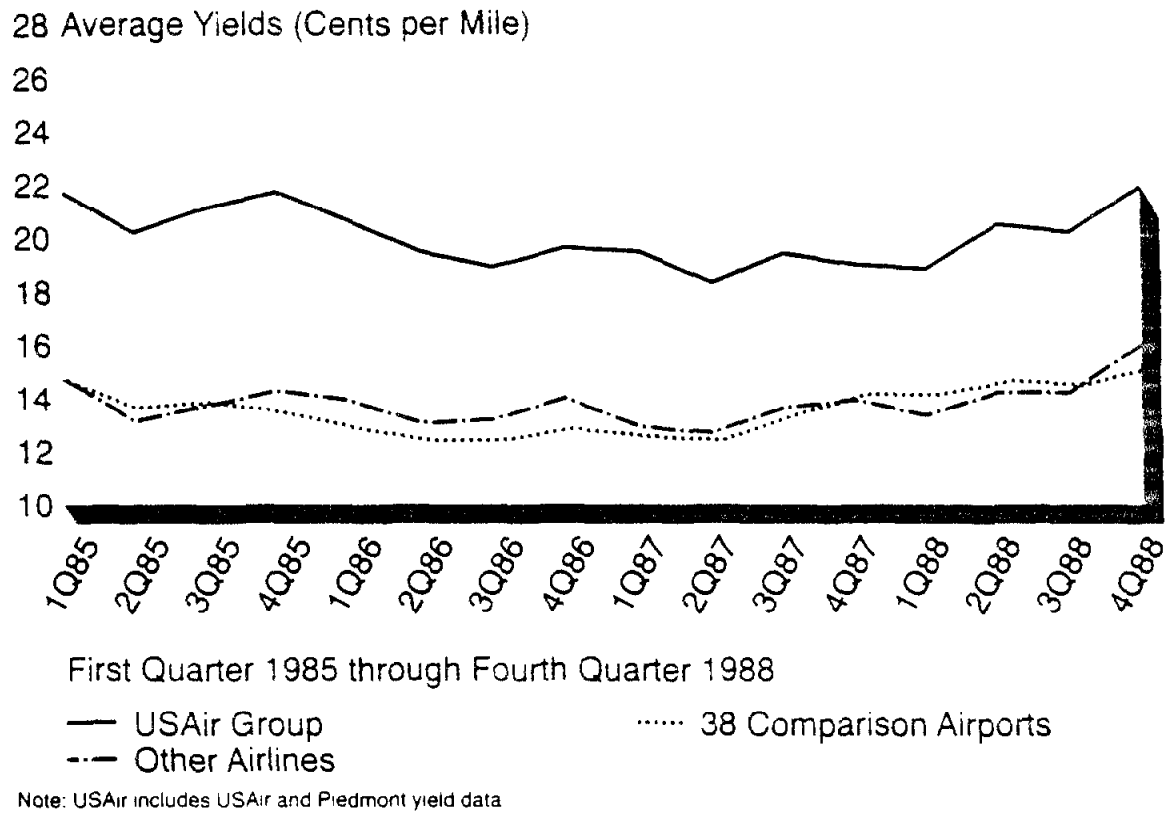


Figure IV.10

APPENDIX IV

GAO Pittsburgh: Greater Pittsburgh International Airport



Note: USAir includes USAir and Piedmont yield data

Figure IV.11

GAO

Raleigh-Durham: Raleigh-Durham Airport

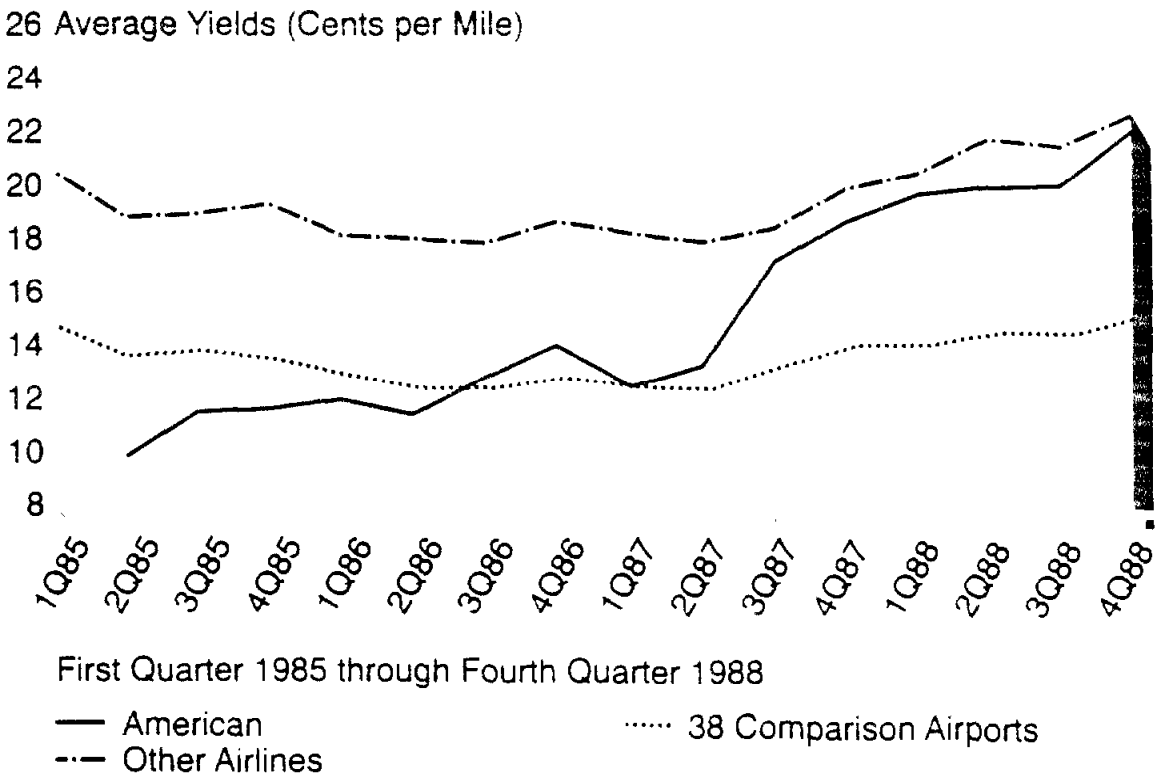
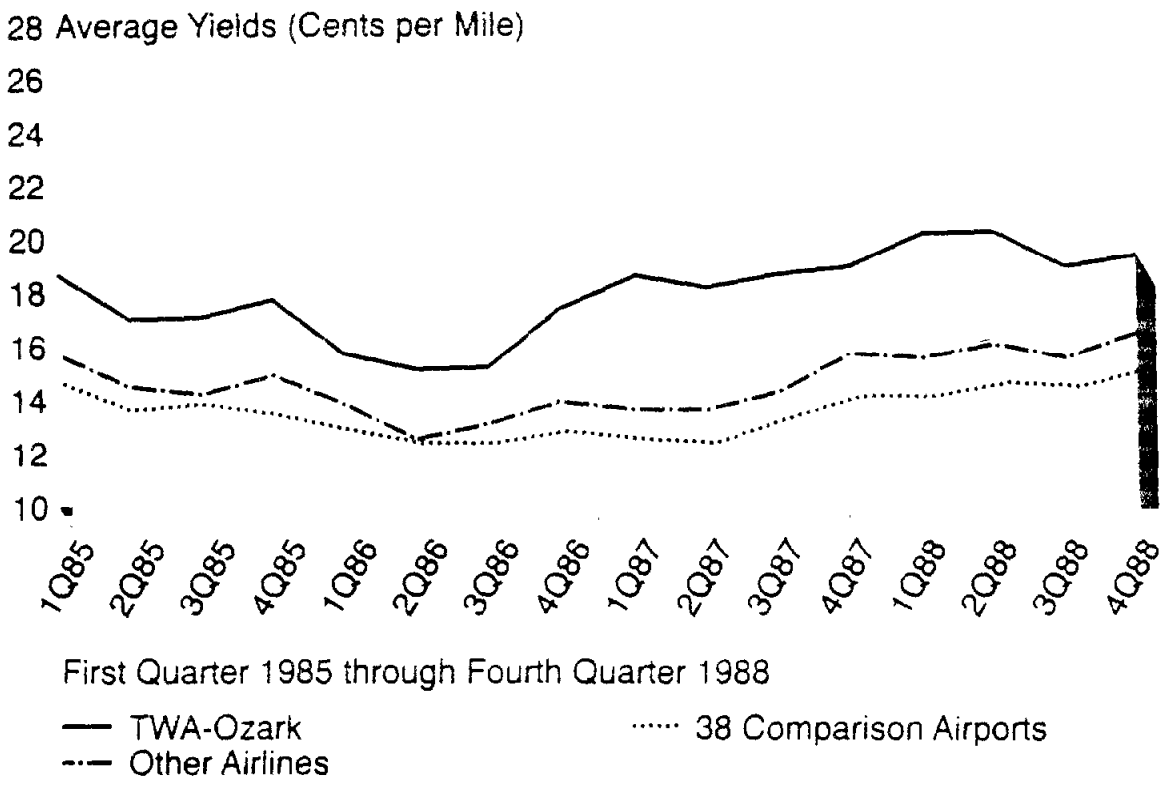


Figure IV.12

APPENDIX IV

GAO

St. Louis: Lambert-St. Louis International Airport

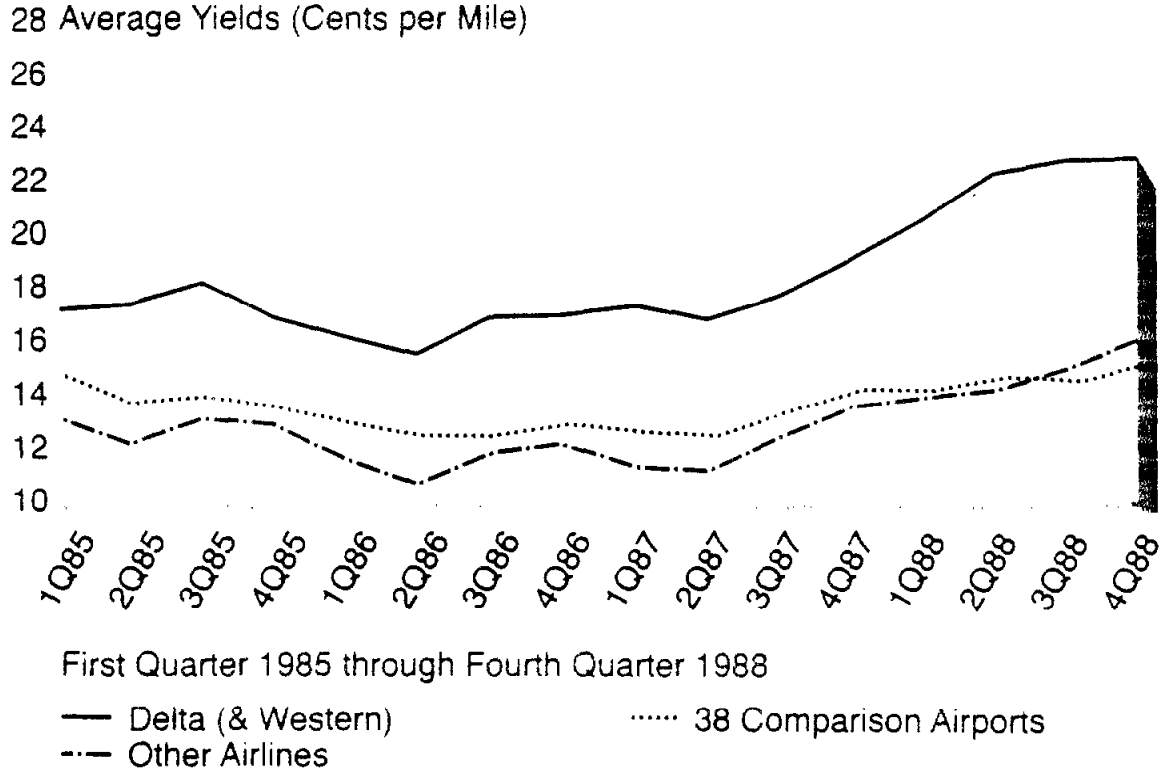


Note: TWA includes both TWA and Ozark yield data prior to their merger in late 1986

Figure IV.13

GAO

Salt Lake City: Salt Lake City International Airport



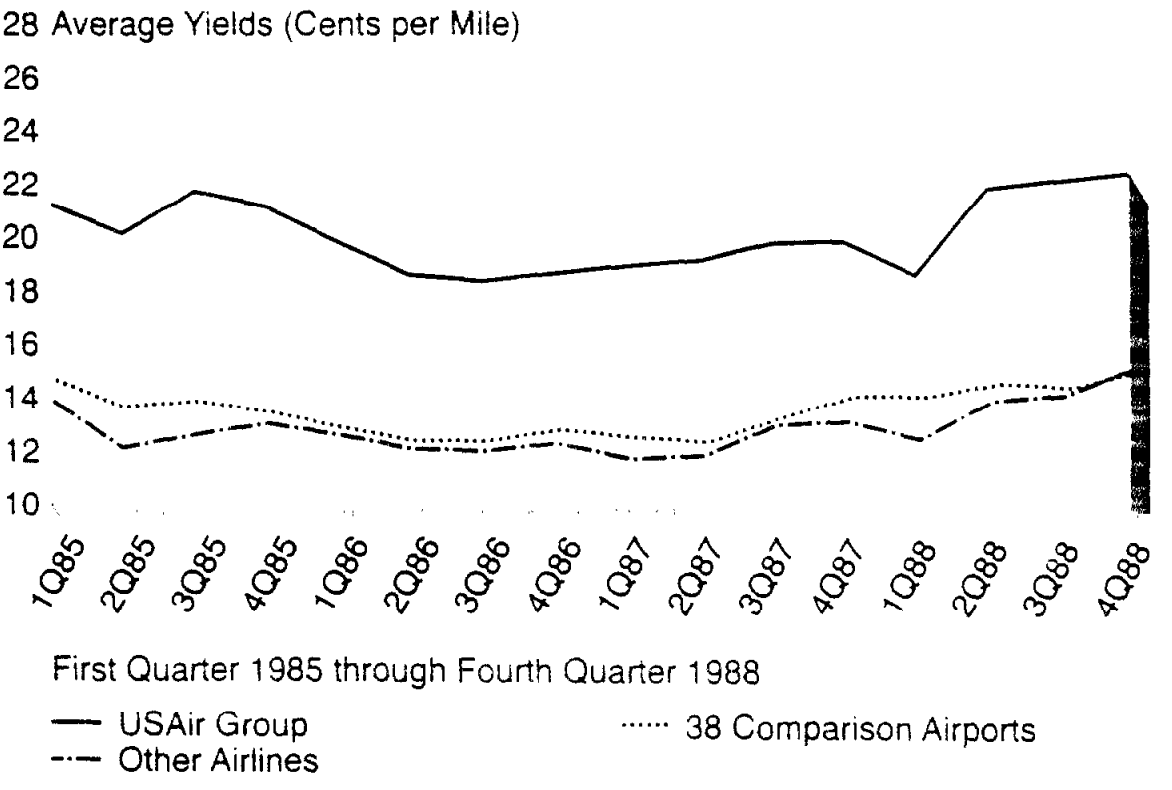
Note: Delta includes both Delta and Western yield data prior to their merger in early 1987

Figure IV.14

APPENDIX IV

GAO

Syracuse: Hancock International Airport



Note: USAir Group includes yield data for Piedmont, USAir, and Empire

Figure IV.15

APPENDIX IV

GAO Average Yield for 15 Airports

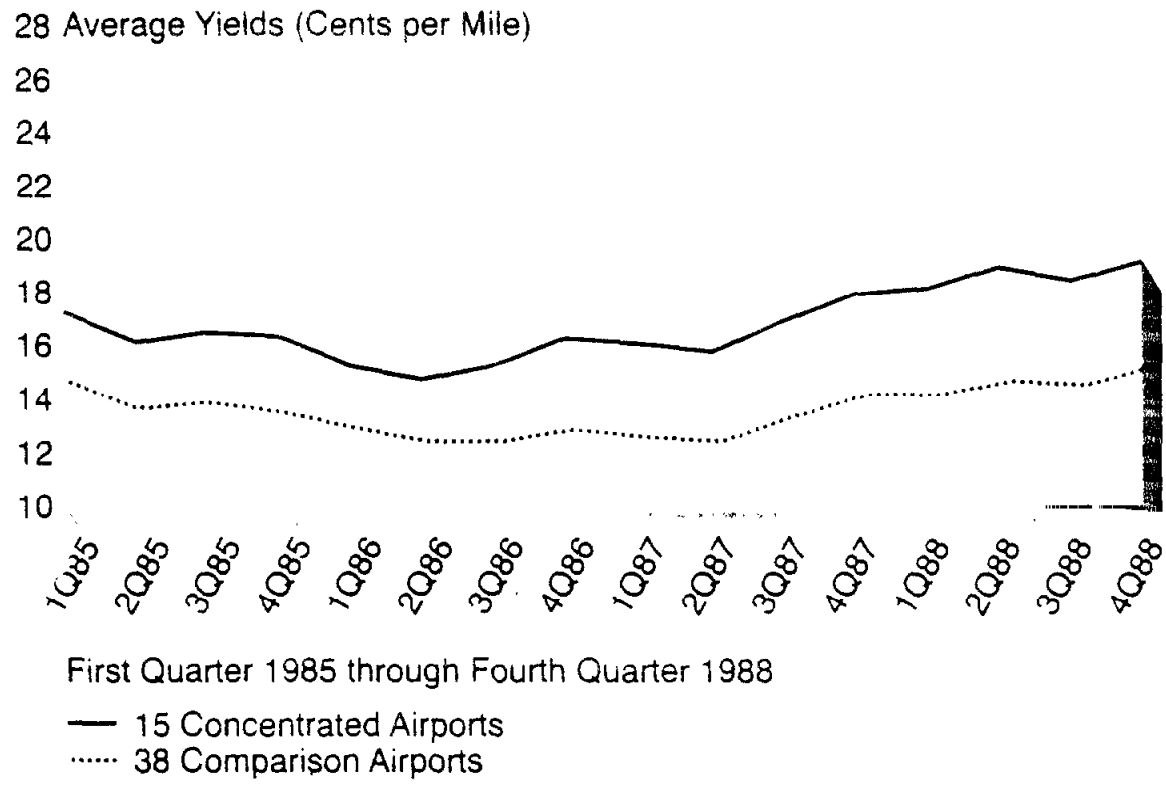


Figure IV.16

GAO

Average Yield for 12 Airports Where Concentration Increased

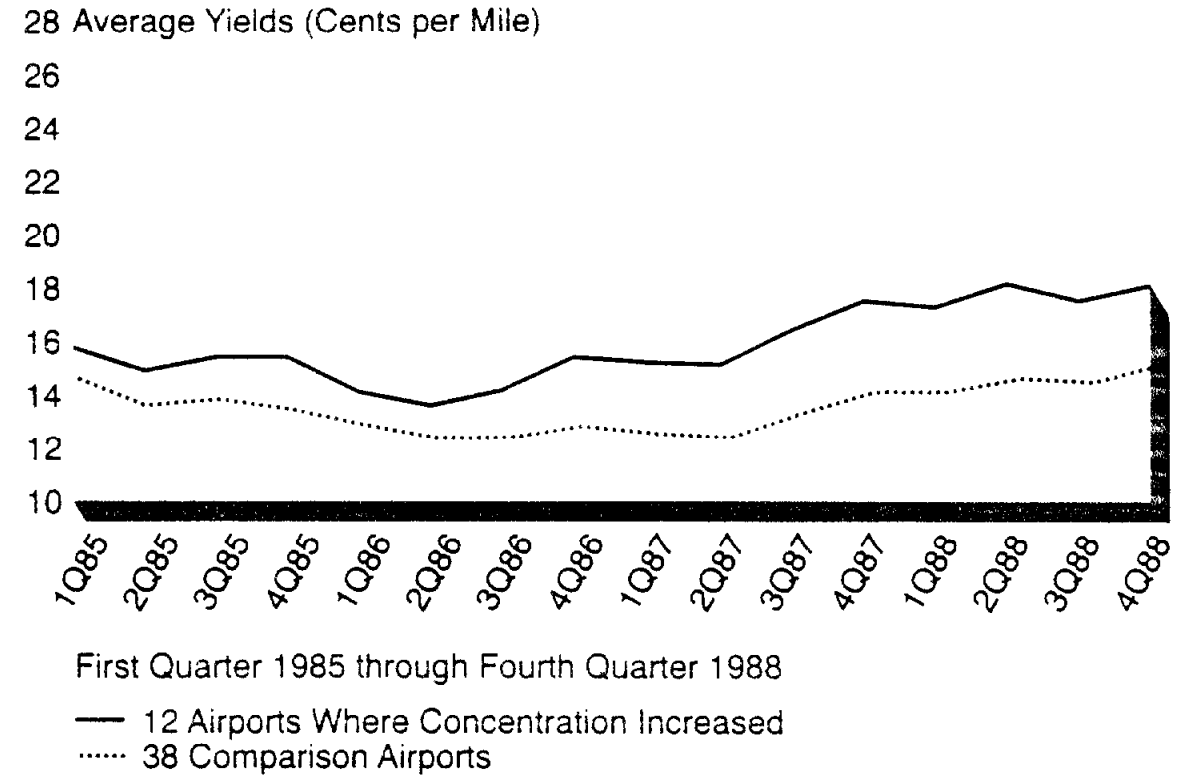


Figure IV.17

APPENDIX IV

GAO

Average Yield for 22 and 38 Unconcentrated Airports

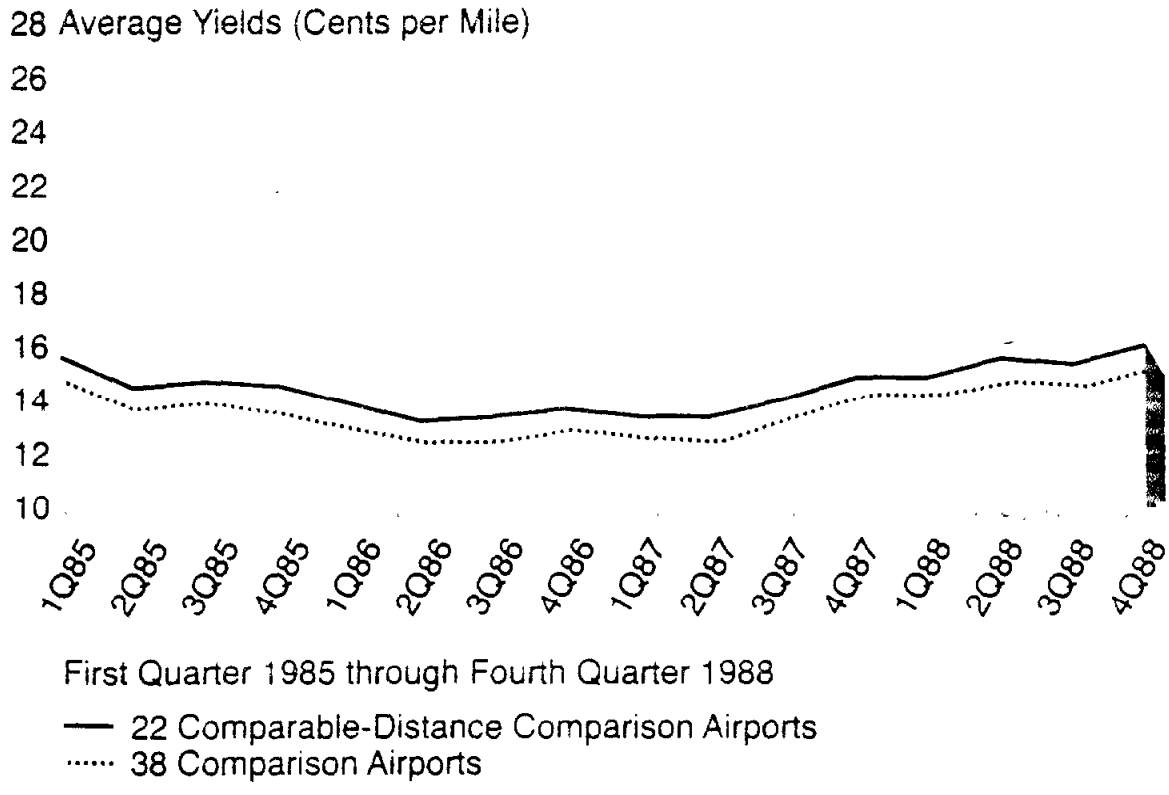


Figure IV.18

APPENDIX V

GAO Change in Number of Direct Routes from Concentrated Airports

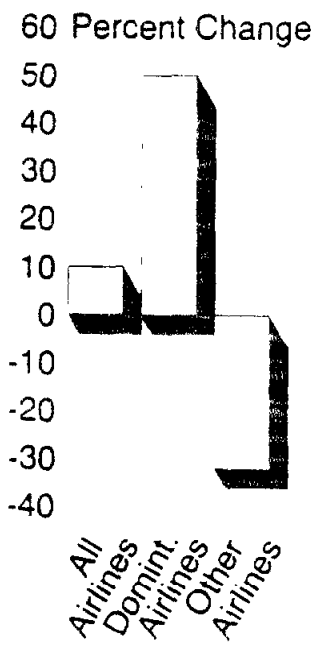


Figure V.1

APPENDIX V

GAO

Change in Daily Departures at 15 Concentrated Airports

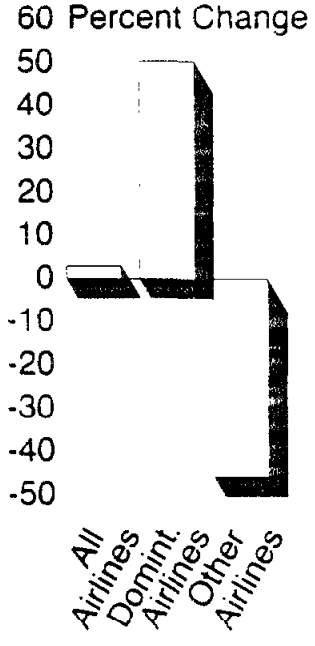


Figure V.2

APPENDIX V

GAO

Percent Change in Competition on Routes at Concentrated Airports

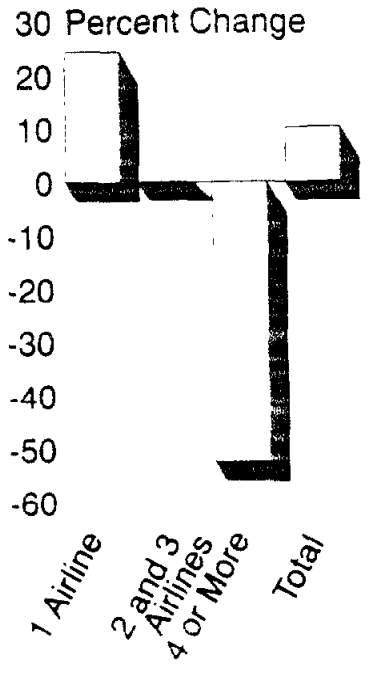


Figure V.3