United States General Accounting Office

GAO

Report to the Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate

April 1996

# AIRLINE DEREGULATION

## Changes in Airfares, Service, and Safety at Small, Medium-Sized, and Large Communities


GAO 75 years 1921 - 1996

GAO/RCED-96-79

GAO

**United States**
**General Accounting Office**
**Washington, D.C. 20548**

**Resources, Community, and**
**Economic Development Division**

B-265766

April 19, 1996

The Honorable Larry Pressler
Chairman, Committee on Commerce,
Science, and Transportation
United States Senate

Dear Mr. Chairman:

As you requested, this report examines the changes in (1) airfares and (2) the quantity, quality, and safety of air service since the deregulation of the airline industry in 1978. Specifically, the report compares data on these issues for airports serving small, medium-sized, and large communities.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. We will then send copies to the Secretary of Transportation; the Director, Office of Management and Budget; and other interested parties. We will also make copies available to others upon request.

If you have any questions, please call me at (202) 512-2834. Major contributors to this report are listed in appendix VIII.

Sincerely yours,

John H. Anderson, Jr.
Director, Transportation and
Telecommunications Issues

# Executive Summary

## Purpose

Nearly two decades have passed since the Congress began deregulating the U.S. airline industry. The Airline Deregulation Act of 1978 phased out the federal government's control over fares and service, relying instead on market forces to decide the price, quantity, and quality of domestic air service. In 1989, the then-Chairman, Senate Committee on Commerce, Science, and Transportation, concerned that people traveling to and from small and medium-sized communities might be paying higher fares as a result of deregulation, asked GAO to compare the trends in airfares at airports serving small and medium-sized communities with the trend at airports serving large communities. GAO reported that between 1979—the earliest year for which reliable data on fares are available—and 1988, the average fare per passenger mile, adjusted for inflation, declined by 9 percent at small-community airports, 10 percent at medium-sized-community airports, and 5 percent at large-community airports.[1] GAO also found that the largest decreases were at airports in the Southwest, regardless of the community's size. In June 1995, expressing concerns similar to those of his predecessor, the Committee's current Chairman asked GAO to (1) update its analysis of airfare trends and (2) compare changes in the quantity, quality, and safety of air service since deregulation at airports serving small, medium-sized, and large communities.

## Background

Before 1978, the Civil Aeronautics Board regulated airlines, controlling the fares they could charge and the routes they could fly. Legislatively mandated to promote the air transport system, the Board believed that passengers traveling shorter distances—more typical of travel from small and medium-sized communities—would not choose air travel if they had to pay the full cost of service. Thus, the Board set fares relatively lower in short-haul markets and higher in long-haul markets than would be warranted by costs. Concerned that such practices caused inefficiencies and inhibited the growth of air transportation, the Congress deregulated the industry. Deregulation was expected to result in (1) lower fares at large-community airports, from which many trips are long-distance, and somewhat higher fares at small- and medium-sized-community airports; (2) increased competition brought about by new airlines, commonly referred to as "new entrant" airlines; and (3) greater use of turboprop (propeller) aircraft by airlines in place of jets in smaller markets that could not economically support jet service.

[1] Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, Nov. 8, 1990).

## Results in Brief

The average fare per passenger mile, adjusted for inflation, has fallen since deregulation about as much at airports serving small and medium-sized communities as it has at airports serving large communities. In addition, the regional differences that GAO previously found in fare trends still exist. The largest decreases in fares since deregulation have occurred at airports located in the West and Southwest, regardless of the community's size. Conversely, the largest increases in fares have been at airports located in the Southeast and in the Appalachian region.

The quantity of air service, as measured by the number of both departures and available seats, has increased since deregulation for all three airport groups. The largest increases in service have been at large-community airports. Assessing trends in the overall quality of such service is difficult, on the other hand, because many factors contribute to service quality and combining them into a single objective measure is problematic. Judging service quality involves a subjective weighting of the relative importance of these factors, which include, among other things, the (1) number of destinations served by nonstop flights, (2) number of convenient one-stop connection possibilities, and (3) type of aircraft used. The changes in these factors since deregulation suggest a mixed record for small and medium-sized communities. While the number of one-stop connection possibilities has increased, the number of nonstop destinations and the percentage of departures involving jets have decreased. These trends are largely the result of the "hub-and-spoke" networks developed by airlines after deregulation. In these networks, airports serving small- and medium-sized communities serve as spokes, connected to hub airports by frequent service on turboprops. At large-community airports, on the other hand, air service has improved substantially, largely because of their central role in these networks.

Finally, for each airport group, the accident rate was lower in 1994 than in 1978. However, from year to year the rates fluctuate greatly. These sharp fluctuations occur because in a given year airports in a group might experience no accidents, while in the next year they might experience two or three accidents. As a result, GAO did not find any statistically significant differences between the trends in air safety for airports serving small, medium-sized, and large communities.

# Principal Findings

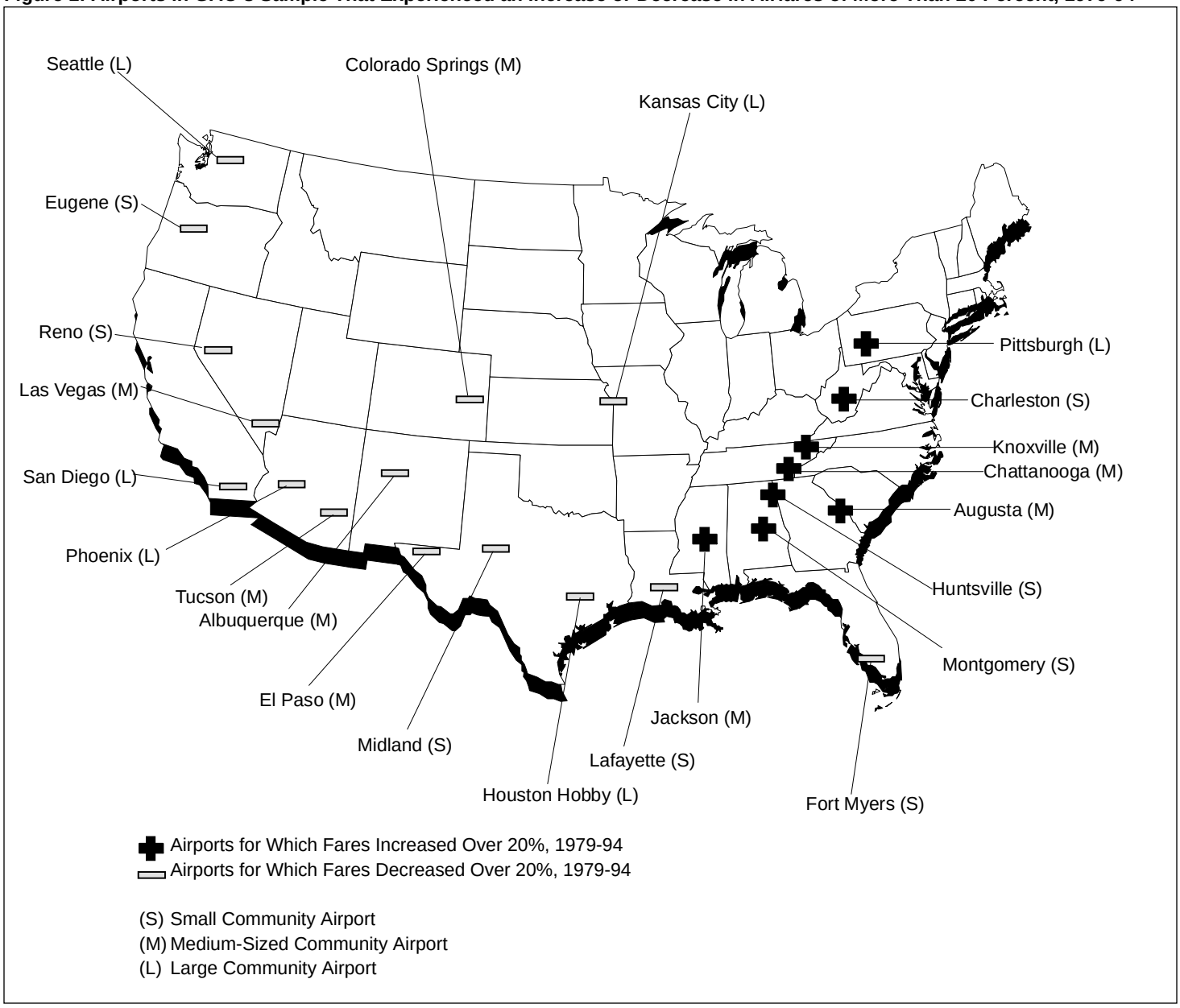
## Fares Have Fallen Overall but Have Risen Sharply at Some Airports

The average fare per passenger mile was about 9 percent lower in 1994 than in 1979 at small-community airports, 11 percent lower at medium-sized-community airports, and 8 percent lower at large-community airports.[2] Of the 112 airports that GAO reviewed, fares declined at 73 and increased at 33.[3] Fares declined at 36 of the 49 small-community airports, 19 of the 38 medium-sized-community airports, and 18 of the 25 large-community airports. As shown in figure 1, the largest decreases occurred at airports serving communities of various sizes in the West and Southwest. In contrast, as figure 1 also shows, the airports serving several communities—particularly small and medium-sized communities in the Southeast and Appalachian region—have experienced sharp increases in fares since deregulation.

[2]In 1994, the 112 airports in GAO's sample accounted for about two-thirds of the 7.1 million domestic airline departures and 481.7 million domestic passenger enplanements in the United States. They are the same airports examined in GAO's prior study.

[3]For six airports in its sample, GAO did not find a statistically significant increase or decrease in fares between 1979 and 1994. (See app. VII.)

**Figure 1: Airports in GAO's Sample That Experienced an Increase or Decrease in Airfares of More Than 20 Percent, 1979-94**




Source: Illustration based on GAO's analysis of data from the Department of Transportation.

Factors contributing to this geographic disparity in fare trends include the (1) intense competition at many western airports from low-cost, new entrant airlines, such as Southwest Airlines, and (2) dominance of one or two airlines with relatively high operating costs, such as Delta Air Lines and USAir, at several airports in the Southeast and in Appalachia. In nearly every case in which fares have fallen by more than 20 percent since deregulation, one or more low-cost new entrant airlines serve the airport. For example, in 1994 Southwest Airlines accounted for nearly half of the passenger enplanements at the airport serving Albuquerque, New Mexico, where fares have fallen by 32 percent since deregulation. In contrast, in every case in which fares have risen by more than 20 percent, one or two higher-cost airlines dominate service at the airport. For example, Delta and USAir accounted for 96 percent of the enplanements in 1994 at the airport serving Chattanooga, Tennessee, where fares have risen by 26 percent since deregulation.

## Most Airports Have More and Safer Service, but Quality Factors Are Mixed

In comparing the data on air service quantity for May 1978 and May 1995, GAO found that the number of scheduled departures increased by 50 percent at airports serving small communities, 57 percent at airports serving medium-sized communities, and 68 percent at airports serving large communities. Likewise, the number of available seats increased for all three groups. Not all the airports that GAO reviewed, however, shared in the general trend toward more air service. Some airports—particularly those serving small and medium-sized communities in the Upper Midwest—had less air service in 1995 than they did under regulation. Sioux Falls, South Dakota, for example, had 25 percent fewer departures and 31 percent fewer available seats in 1995. In addition, because of the increasing substitution of turboprops for larger jets, a number of other small and medium-sized communities experienced a decrease in the number of available seats even though the number of departures increased. Fargo, North Dakota, for example, had a 21-percent decrease in the number of seats, even though the number of departures increased by 25 percent.

Although the various measures of service quality indicate that large communities receive better air service today—in particular, with many more departures and available nonstop destinations—than they did in 1978, those measures show a mixed record for small and medium-sized communities. For example, for the small-community airports that GAO reviewed, the number of destinations served via one-stop flights has increased by 9 percent. On the other hand, the number of destinations

served via nonstop flights has declined by 7 percent, and the largest declines have occurred in the Southeast and Upper Midwest. In addition, the use of jets has declined from 66 to 39 percent of all departures. (App. I summarizes the changes in fares and service at the airports GAO reviewed).

In general, the long-term decline in the rate of accidents has continued since deregulation. Indeed, there are so few accidents each year that an increase of just one or two accidents in a given year can cause significant fluctuation in the rate for an airport group. While turboprops do not have as good a safety record as the larger jets they replaced in many markets serving small and medium-sized communities, this fluctuation in accident rates makes it difficult to discern any impact of the increasing use of turboprops on relative safety between airport groups.

## Agency Comments and GAO's Response

GAO provided a copy of a draft of this report to the Department of Transportation for its review and comment. GAO discussed the draft report with senior Department of Transportation officials, including the Director, Office of Aviation and International Economics. They agreed with GAO's findings concerning the trends in airfares, service, and safety; said that the report provides useful information; and suggested no revisions to the report. They also noted that the 112 airports in GAO's sample account for a sizable majority of the nation's air travelers. These officials commented, however, that the small-community airports in GAO's sample represented the larger "small" airports in the United States and therefore were not completely representative of the nation's smallest airports. They stated that they have recently completed a study, which they expect to issue soon, on the trends in fares and service at the smallest airports and that the conclusions of their study are consistent with GAO's findings. They noted that although the airports included in their study account for only about 3 percent of the total passenger enplanements in the United States, they believe that the study provides a valuable and necessary complement to GAO's report.

GAO agrees that the Department of Transportation's study could serve as a valuable complement to this report. Because GAO was interested in the trends in fares at individual airports, it was necessary to limit the airports examined to those that had a sufficient number of tickets to ensure that the results were statistically meaningful. GAO examined data on the same 112 airports that it examined in its prior report in order to provide consistent, comparable information in updating that report and to ensure that there were sufficient observations for statistical validity.

# Contents

## Tables



## Figures

## Abbreviations

| | |
|---|---|
| CAB | Civil Aeronautics Board |
| DOT | Department of Transportation |
| FAA | Federal Aviation Administration |
| GAO | General Accounting Office |
| NTSB | National Transportation Safety Board |
| OAG | Official Airline Guide |
| O&D | Origin and Destination Survey |

# Introduction

Before 1978, the U.S. airline industry was tightly regulated. The federal government controlled what fares airlines could charge and what cities they could serve. Concerned that government regulation had made the industry inefficient, inhibited its growth, and caused airfares to be too high in many heavily traveled markets involving the nation's largest communities, the Congress passed the Airline Deregulation Act of 1978. The act phased out the government's control of fares and service but did not change the government's role in regulating and overseeing air safety. Opponents of economic deregulation warned that relying on competitive market forces to determine the price, quantity, and quality of domestic air service could adversely affect safety and harm the economies of smaller communities. In 1990, both GAO and the Department of Transportation (DOT) reported that fares had fallen since deregulation at airports serving small and medium-sized communities as well as at airports serving large communities.[4] Studies by DOT and others have differed in their conclusions about deregulation's impact on airline service and safety.

## Deregulation of the Airline Industry

Between 1938 and 1978, the Civil Aeronautics Board (CAB) regulated the airline industry, controlling the fares airlines could charge and the markets they could enter. Legislatively mandated to promote and develop the air transportation system, CAB believed that passengers traveling shorter distances—more typical of travel from small and medium-sized communities—would not choose air travel if they had to pay the full cost of service. Thus, in keeping with its mandate, CAB set fares relatively lower in short-haul markets and higher in long-haul markets than would be warranted by costs.[5] In effect, long-distance travel subsidized short-distance markets. In addition, CAB did not allow new airlines to form and compete against the established carriers.

Concerned that these practices had, among other things, caused fares to be too high in many markets, the Congress passed the Airline Deregulation Act, which the President signed into law on October 24, 1978. The act phased out CAB's control of domestic air service and placed reliance on competitive market forces to decide fares and service levels. As a result, fares were expected to fall at airports serving large communities, from which many trips are long-distance over heavily traveled routes. However, without the cross-subsidy present under regulation, fares were expected

[4]Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, Nov. 8, 1990) and Secretary's Task Force on Competition in the U.S. Domestic Airline Industry, U.S. Department of Transportation (Washington, D.C.: Feb. 1990).

[5]By fares, we mean fares per passenger mile. This measure is also commonly referred to as "yield."

to increase somewhat at airports serving small and medium-sized communities. In addition, it was expected that airlines, free to make their own decisions concerning service, would stop flying to some smaller communities where they could not make a profit and replace jets with smaller turboprop (propeller) aircraft in others because those communities could not economically support jet service.

## Prior Studies by GAO, DOT, and Others Assessed the Impacts of Deregulation

In 1989, the then-Chairman, Senate Committee on Commerce, Science, and Transportation, concerned that people traveling to and from small and medium-sized communities could be paying higher fares as a result of airline deregulation, asked us to compare the trends in airfares at airports serving small and medium-sized communities with the trend for airports serving large communities. Contrary to the Chairman's expectation, however, we found that the real (adjusted for inflation) fare per passenger mile was 9 percent lower in 1988 than in 1979 at airports serving small communities, 10 percent lower at airports serving medium-sized communities, and about 5 percent lower at airports serving large communities.[6] Fares had declined at 76 of the 112 airports we reviewed (68 percent), including 38 of the 49 airports serving small communities (78 percent). Nevertheless, airports in several small, medium-sized, and large communities experienced increases in fares of over 20 percent. We noted that the greatest fare increases tended to be in the Southeast, while the largest fare decreases were in the Southwest. In addition to this study, we have reported on several other issues concerning airfares since deregulation, including the effects of market concentration and the industry's operating and marketing practices on fares. These reports are listed at the end of this report.

In 1990, DOT also reported that airfares were lower since deregulation at airports of all sizes and that small communities had experienced the greatest decline in fares. DOT attributed the overall lower fares to increased competition, noting that 55 percent of all passengers in 1988 traveled in city-pair markets served by three or more air carriers, up from 28 percent in 1979. Similarly, DOT held that the main reason for the second, less expected, finding was that competition had increased on routes from many smaller markets as a result of the "hub-and-spoke" networks

[6]We analyzed data on fares at 112 airports: 49 serving small communities, 38 serving medium-sized communities, and 25 serving large communities. All of the airports in our study were among the largest 175 in the nation. We defined small communities as those with a metropolitan statistical area population of 300,000 or less, medium-sized communities as those with a metropolitan statistical area population of 300,001 to 600,000, and large communities as those with a metropolitan statistical area population of 1.5 million or more.

developed by airlines after deregulation. In these networks, airports serving small and medium-sized communities serve as spokes, connected to large hub airports by frequent service on smaller turboprop aircraft. According to DOT, the hub-and-spoke system has increased competition and improved service for small and medium-sized communities by providing greater frequency of flights, convenience, and travel options to the public than was provided during regulation. DOT held that

> "Smaller cities have benefited from the shift to hub and spoke service. Most small cities receive more frequent service than previously, and many now receive service to connecting hubs from more than one major airline or their affiliates, thereby providing the traveler with a choice of airlines and routings to most destinations."[7]

Many other studies have been conducted of deregulation's impact on airfares and service. While generally concluding that fares overall have declined, the studies have reached different conclusions about the impact on the quantity and quality of service. For example, Morrison and Winston estimated that the lower fares since deregulation save passengers $12.4 billion annually.[8] They also estimated that because of the (1) increased number of flights, (2) efficiencies of the hub-and-spoke networks in connecting smaller communities to the overall aviation system, and (3) resulting savings in travel time, passengers save an additional $10.3 billion a year as a result of deregulation. While other studies generally agree that fares have decreased since deregulation, they point out that the lower fares may have been achieved at the cost of reduced service quantity and quality for many smaller and medium-sized communities and that therefore the overall net benefits of deregulation are less clear. Brenner, for example, concluded that service quality has declined for small and medium-sized communities, largely because his research showed that a number of very small communities have lost air service completely and that many small and medium-sized communities are served mostly or entirely by turboprops, as opposed to the jet service they had under regulation.[9]

[7]Secretary's Task Force on Competition in the U.S. Domestic Airline Industry, DOT, 1990.

[8]Steven A. Morrison and Clifford Winston, The Evolution of the Airline Industry (Washington, D.C.: The Brookings Institution, 1995).

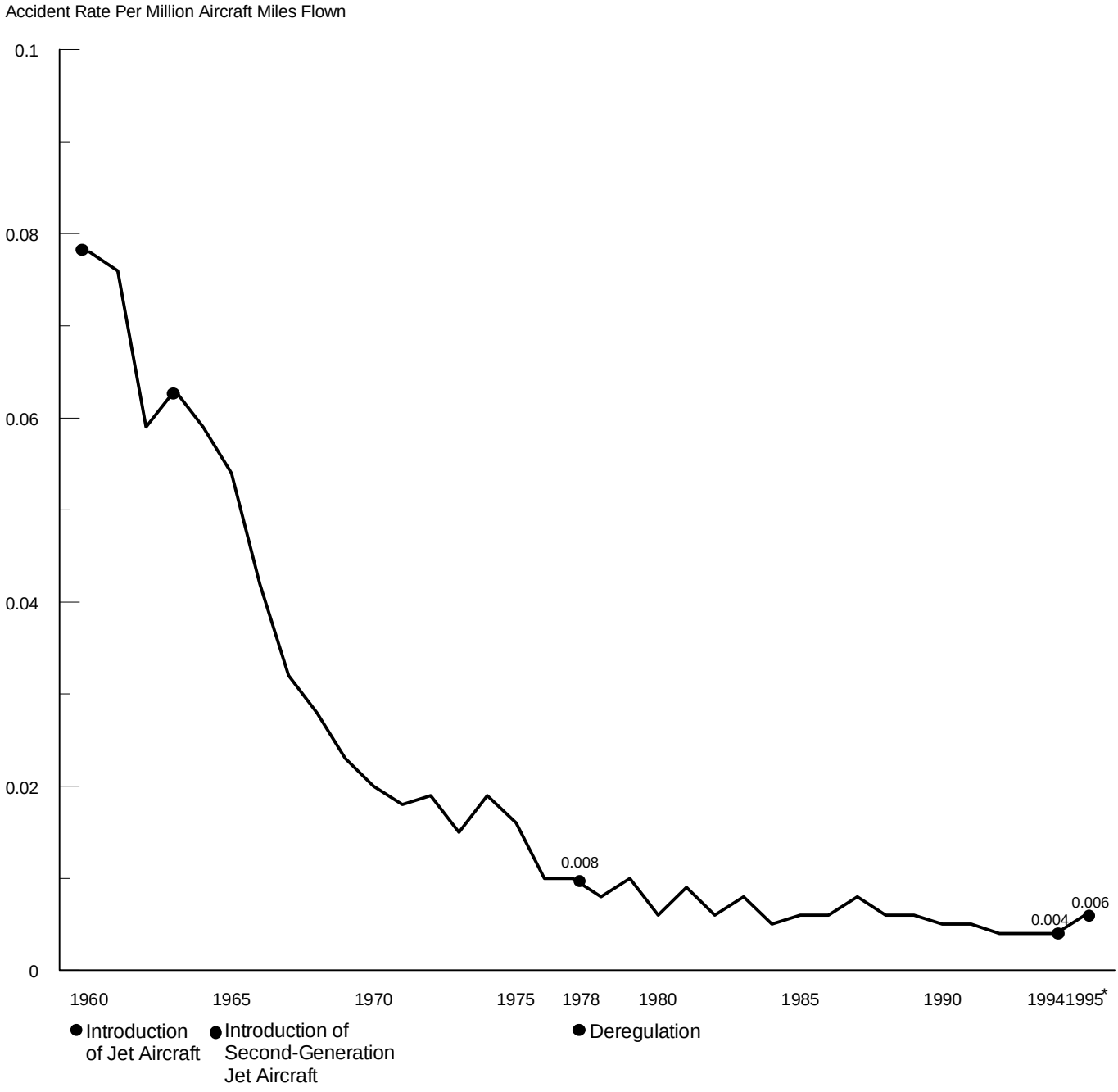
[9]Melvin A. Brenner, "Airline Deregulation: A Case Study in Public Policy Failure," Transportation Law Journal, Vol. 16, Issue 2, 1988.

Extensive research has also been conducted on the impact of deregulation on air safety.[10] This body of work commonly acknowledges that since deregulation, the rate of accidents has continued its historic decline. Figure 1.1 shows the sharp decline in the number of airline accidents per million aircraft miles flown since 1960.[11] Although the rate of improvement has slowed in recent years as the number of accidents each year has grown very small, the accident rate for airlines in 1994 (0.004 accidents per million aircraft miles flown) was half the rate in 1978 (0.008 accidents per million aircraft miles flown). Preliminary data for 1995 indicate that the rate increased somewhat, although it remained below the rate in 1978.

[10]See for example Clinton V. Oster, Jr., John S. Strong, and C. Kurt Zorn, Why Airplanes Crash: Aviation Safety in a Changing World (Oxford University Press, 1992), and Winds of Change: Domestic Air Transport Since Deregulation, National Research Council, Committee for the Study of Air Passenger Service and Safety Since Deregulation, Transportation Research Board Special Report 230 (Washington, D.C., 1991).

[11]Aviation accident rates are generally calculated either per million aircraft miles or per 100,000 departures. Both measures show that accident rates have fallen substantially since 1960 and that this decline has continued, albeit gradually, since deregulation. In fig. 1.1, we use million aircraft miles because this measure provides a better gauge of overall accident risk, as flights are generally over longer distances today. In chapter 3, however, we calculate rates for the airports in our sample using the number of departures from those airports, primarily because airport-specific data on aircraft miles flown are not available.

**Figure 1.1: U.S. Airlines' Accident Rates, 1960-95**




(Figure notes on next page)

Note: Data for 1995 are preliminary.

Source: GAO's illustration based on information from the National Transportation Safety Board (NTSB) and Bureau of Transportation Statistics.

A study committee sponsored by the National Research Council concluded that the decline in the accident rate has largely been a result of the (1) introduction in the 1960s of more advanced, "second generation" jet aircraft into the U.S. fleet (such as the 727, 737-200, and DC-9) in place of the first generation of jets introduced in the late 1950s (such as the 707 and DC-8) and (2) subsequent advancements in aircraft technology, air traffic control procedures, and pilot training.[12] The committee found little evidence to support concerns that deregulation had negatively affected air safety in general or safety for travelers from small and medium-sized communities in particular.

Nevertheless, others have come to different conclusions, holding that deregulation has prevented further gains in safety because the increased competitive pressures brought by deregulation have forced airlines to limit spending on maintenance. Rose, for example, demonstrated some correlation between lower profitability and higher accident rates, particularly for smaller airlines.[13] Many of these researchers also believe that for smaller communities, air safety has decreased since deregulation because substituting commuter carriers and turboprops, which have higher accident rates, for larger airlines and jet aircraft at these airports has increased those communities' accident risk. Although the accident rate for commuter carriers fell by 93 percent between 1978 and 1995 (from 0.270 to 0.019 accidents per million aircraft miles flown), these researchers note that the accident rate for these carriers in 1995 was still more than three times higher than the rate for the larger airlines. Nevertheless, research has been inconclusive to date on whether the increased presence of commuter airlines and turboprops has resulted in more accidents at airports serving small communities.

## Objectives, Scope, and Methodology

Noting that several years had passed since our comparison of airfares at airports serving small, medium-sized, and large communities, the Chairman, Senate Committee on Commerce, Science, and Transportation,

[12]Winds of Change: Domestic Air Transport Since Deregulation, 1991.

[13]Nancy L. Rose, "Profitability and Product Quality: Economic Determinants of Airline Safety Performance," Journal of Political Economy, Vol. 98 (Oct. 1990).

asked us to update our work and to determine whether the regional differences in airfare trends that we previously observed still existed. In addition, expressing concern that deregulation may have adversely affected small and medium-sized communities to the extent that airlines eliminated service or replaced jets with turboprops and noting that opinions differed on this subject, the Chairman requested that we compare the changes in the quantity, quality, and safety of air service since deregulation for airports serving small, medium-sized, and large communities.

In updating our prior comparison of airfares, we analyzed data on fares for the same 112 airports that we had reported on previously. Specifically, we examined the trends in the average yields—fares per passenger mile—between 1979, 1984, 1988, 1991, 1994, and the first half of 1995 for travel out of 49 airports serving small communities, 38 airports serving medium-sized communities, and 25 airports serving large communities. In 1994, these airports accounted for 4.7 million (66 percent) of the 7.1 million domestic airline departures and 320.6 million (67 percent) of the 481.7 million domestic airline enplanements in the United States. In our prior report, we examined the trends using fare data for 1979, 1984, and 1988 for these communities. We updated these trends using data for 1991 and 1994 because (1) 1991 represented the mid-point between 1988 and 1994 and (2) the 1994 fare data were the most current full-year data available at the time of our review. The data for the first 6 months of 1995 provided us with the most current data available. To provide consistent, comparable information, we identified and used the same routes (origin and destination airport combinations) that we reviewed in our prior work. We also adjusted the fare data for inflation, using the consumer price index, so that the fares in each of the years reflect 1994 dollar values.

As in our previous study, we used DOT's "Passenger Origin-Destination Survey" (O&D Survey). The O&D Survey contains data reported quarterly to DOT by airlines from a 10-percent sample of all tickets sold. Because the estimate of the fare per passenger mile is developed from a statistical sample, it has a sampling error. The sampling error is the maximum amount by which the estimate obtained from the sample can be expected to differ from the actual fare per passenger mile if the entire universe of tickets were examined. Each sampling error was calculated at the 95-percent confidence level. This means the chances are 19 out of 20 that if we reviewed all tickets purchased, the results would differ from the estimate obtained from our sample by less than the sampling error. (App.

II provides estimates of fares, and app. III provides the sampling error for each of these estimates.)

To determine why regional differences in airfares may exist, we analyzed DOT's data on airline market shares at each of the 112 airports and discussed with DOT analysts and airline representatives how the presence of different carriers may affect fares. To determine the extent to which economic changes could explain any observed regional differences, we analyzed data provided by the Bureau of Economic Analysis on economic growth between 1979 and 1993, which was the latest year for which data were available, for each of the 112 communities served by the airports we reviewed. Appendix VII provides additional details on the scope and methodology of our analyses of airfares.

To compare changes in the quantity of air service since deregulation at airports serving small, medium-sized, and large communities, we analyzed data for our 112 airports for May 1978 and May 1995 from the Official Airline Guide (OAG), a privately published list of all scheduled commercial flights. Specifically, we documented changes in the total number of departures as well as the total number of available seats for each airport. We examined data from 1978 because they provided information on air service before deregulation and data from 1995 because they were the latest available at the time of our review. We chose May to avoid the typical seasonal airline schedule changes that occur in the winter and summer months. We used the OAG as our primary data source because DOT's database on total annual departures by airport contains only the data reported by the airlines that operate aircraft with more than 60 seats. As a result, DOT's data on airport operations do not provide information on departures by commuter carriers or air taxis. However, we analyzed DOT's data on annual departures by the larger airlines and the Federal Aviation Administration's (FAA) estimates of annual commuter and air taxi departures for each airport to confirm the results of our analyses of the OAG data.

To compare changes in the quality of air service since deregulation at airports serving small, medium-sized, and large communities, we analyzed the OAG data described above for the 112 airports in our sample. Specifically, for each airport we calculated the changes in a number of indicators of service quality, including the number of destinations served by nonstop and one-stop flights and the percentage of jet departures. We then summarized these calculations for the three airport groups and compared the trends in the various quality indicators to gain an overall

perspective on how service quality has changed. We did not, however, develop a formula that would weight these indicators and provide an overall "quality score" for each airport because developing such weights requires subjective judgments of the relative importance of each indicator.

To compare the trends in the safety of air service since deregulation at small, medium-sized, and large community airports, we analyzed National Transportation Safety Board (NTSB) data on airline, commuter, and air taxi accidents (1) that occurred at or near each of the airports in our sample and (2) for which the airport in our sample was the origin or destination of the flight. Using these data, we calculated accident rates per 100,000 departures for each airport from 1978 through 1994. We then calculated the overall rate for each of the three airport groups.

We discussed a draft of this report with senior DOT officials, including the Director, Office of Aviation and International Economics. They agreed with our findings concerning the trends in airfares, service, and safety since deregulation and suggested no revisions to the report. Additional details on their comments and our response are provided at the end of chapter 3. We conducted our review from August 1995 through March 1996 in accordance with generally accepted government auditing standards.

# Airfares Have Fallen Since Deregulation at Airports Serving Communities of All Sizes

Overall, airfares, adjusted for inflation, have declined since deregulation at airports serving small, medium-sized, and large communities. The largest reductions have occurred at airports located in the West and Southwest, regardless of the community's size. Increased competition, stimulated largely by the entry of low-cost, low-fare airlines at these airports, has been a key factor in the decline in fares. By contrast, some airports in our sample, particularly those serving small and medium-sized communities in the Southeast and Appalachia, have experienced large increases in fares since deregulation. At these airports, one or two larger, higher-cost carriers account for the vast majority of passenger enplanements. Until very recently, these airlines have faced relatively little competition, particularly from low-cost new entrant airlines. The geographic disparity in airfare trends also stems from several adverse factors, such as airport congestion and poor weather conditions, that contribute to higher costs and are more prevalent in the eastern United States.

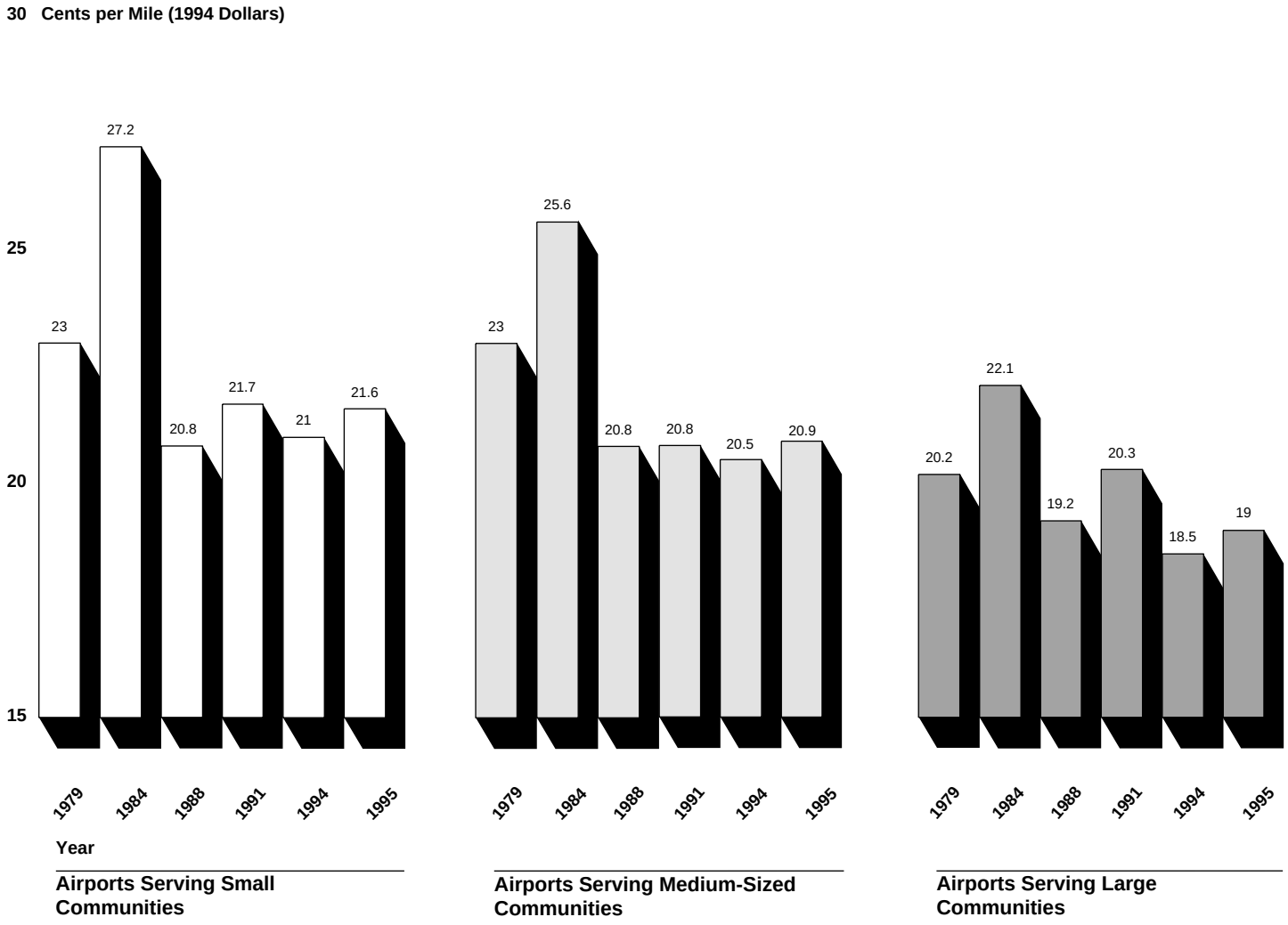
## Fares Are Lower Overall, but Some Airports Have Experienced Sizable Increases

Over 5 years ago, we reported that real airfares (adjusted for inflation) had fallen between 1979 and 1988 not only at airports serving large communities, as was expected, but also at airports serving small and medium-sized communities.[14] As figure 2.1 shows, real fares through the first 6 months of 1995 for all three airport groups remained lower than they were in 1979. When full-year data for 1979 and 1994 are compared, fares were 8.5 percent lower at airports serving small communities, 10.9 percent lower at airports serving medium-sized communities, and 8.3 percent lower at airports serving large communities.[15] However, as figure 2.1 also shows, since 1988 fares have risen slightly at airports serving small and medium-sized communities and fallen slightly at airports serving large communities.

[14]Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, Nov. 8, 1990).

[15]When the increase in fares that occurred between 1994 and the first half of 1995 is factored in, the fares since deregulation are 6.1 percent lower at airports serving small communities, 9.1 percent lower at airports serving medium-sized communities, and 5.9 percent lower at airports serving large communities. Because the data for 1995 cover only 6 months, however, we used primarily the latest available full-year data (for 1994) in analyzing the trends since deregulation.

**Figure 2.1: Comparison of Airfares at Airports Serving Small, Medium-Sized, and Large Communities for Selected Years**




Note: 1995 data are for the first 6 months of the year.

Source: Illustration based on GAO's analysis of DOT's O&D Survey.

As figure 2.1 also shows, despite the overall trend toward lower fares since deregulation, fares at small- and medium-sized-community airports have been consistently higher than fares at large-community airports. It is

generally accepted that fares tend to be lower at large-community airports because of the economies associated with traffic volume and trip distance. As the volume of traffic and average length of the trip increase, the average cost per passenger mile decreases, allowing for lower fares. Airports serving small and medium-sized communities tend to have fewer heavily traveled routes and shorter average trip distances, resulting in higher average costs and higher fares per passenger mile than those of large-community airports.

Nevertheless, fares fell following deregulation for most of the airports that we reviewed. (App. I provides a summary of the overall changes in both fares and service at the airports in our review, and app. II shows the specific fare trends at each airport.) Of the 112 airports in our sample, 73 airports experienced a decline in fares. Specifically, fares declined at 36 of the 49 airports serving small communities, 19 of the 38 airports serving medium-sized communities, and 18 of the 25 airports serving large communities.[16]

The general trend toward lower fares has largely resulted from increased competition. Between the onset of deregulation and 1994, the average number of large airlines competing at the small-community airports that we reviewed increased from 1.8 to 2.8, and the average number of commuter carriers increased from 2.5 to 4.5.[17] Similarly, the average number of large airlines competing at airports serving medium-sized communities increased from 2.8 to 4.3, and the average number of commuter carriers increased from 3.3 to 4.6. Finally, the average number of large airlines competing at the large-community airports that we reviewed increased from 9.0 to 11.2, although the number of commuter carriers decreased from 11.3 to 6.4.

In addition, the transition to hub-and-spoke systems since deregulation has increased competition at many airports serving small and medium-sized communities. By bringing passengers from multiple origins (the spokes) to a common point (the hub) and placing them on new flights

[16]For six airports in our sample, we were unable to determine the direction, if any, of the change in fares from 1979 to 1994. Because the data on fares are developed from a statistical sample of tickets, they have a measurable precision, or sampling error. For these airports, it was not possible to determine the direction of the change in fares due to sampling error. (See app. VII.)

[17]Large airlines operate aircraft with more than 60 seats and report traffic data to DOT on Form 41. Commuter carriers operate aircraft with 60 or fewer seats and report less-detailed traffic data to DOT on Form 298-C. To ensure that we only included large airlines that provided at least a minimum level of competition at an airport, we counted only those airlines that had at least 100 annual departures at that airport. Because DOT's data on commuter carriers do not provide such detail, we did not set such a minimum threshold for commuter carriers.

to their ultimate destinations, these systems provide for more frequent flights and more travel options than did the direct "point-to-point" systems that predominated before deregulation. Thus, instead of having a choice of a few direct flights between their community and a final destination, travelers departing from a small community might now choose from among many flights from several airlines through different hubs to that destination.

While real fares fell at the majority of airports, fares rose—in some cases substantially—for 33 of the 112 airports. Table 2.1 shows the five airports of those we reviewed that had the largest fare decreases and the five airports with the largest fare increases. As table 2.1 indicates, those airports experiencing the largest increases in fares serve small and medium-sized communities and have had a decrease or little change in the number of large airlines and commuter carriers. Conversely, the airports experiencing the largest decrease in fares since deregulation have had a substantial increase in the number of large airlines and, to a lesser extent, an increase in the number of commuter carriers.

**Table 2.1: Airports With Largest Increases and Decreases in Yield (Fare Per Passenger Mile), 1979-94**

1994 dollars

| Airport | Size | 1979 yield (cents) | 1994 yield (cents) | Percentage change in yield | Change in number of airlines | Change in number of commuters |
|---|---|---|---|---|---|---|
| **Yield decrease** | | | | | | |
| Phoenix, AZ | Large | 22.2 | 15.0 | - 32.4 | + 4 | + 3 |
| Albuquerque, NM | Medium | 24.4 | 16.5 | - 32.4 | + 5 | - 2 |
| Las Vegas, NV | Medium | 22.5 | 15.3 | - 32.2 | + 7 | - 2 |
| El Paso, TX | Medium | 24.3 | 16.6 | - 31.5 | + 3 | - 1 |
| Midland, TX | Small | 27.0 | 18.6 | - 31.1 | + 1 | + 2 |
| **Yield increase** | | | | | | |
| Augusta, GA | Medium | 23.5 | 29.7 | + 26.3 | 0 | - 4 |
| Chattanooga, TN | Medium | 25.6 | 32.3 | + 26.2 | - 1 | - 1 |
| Knoxville, TN | Medium | 25.0 | 31.3 | + 25.1 | + 1 | + 1 |
| Jackson, MS | Medium | 24.0 | 30.0 | + 25.1 | 0 | + 3 |
| Charleston, WV | Small | 26.0 | 32.4 | + 24.7 | + 1 | - 1 |

Source: GAO's analysis of DOT's data from the O&D Survey and Forms 41 and 298-C.

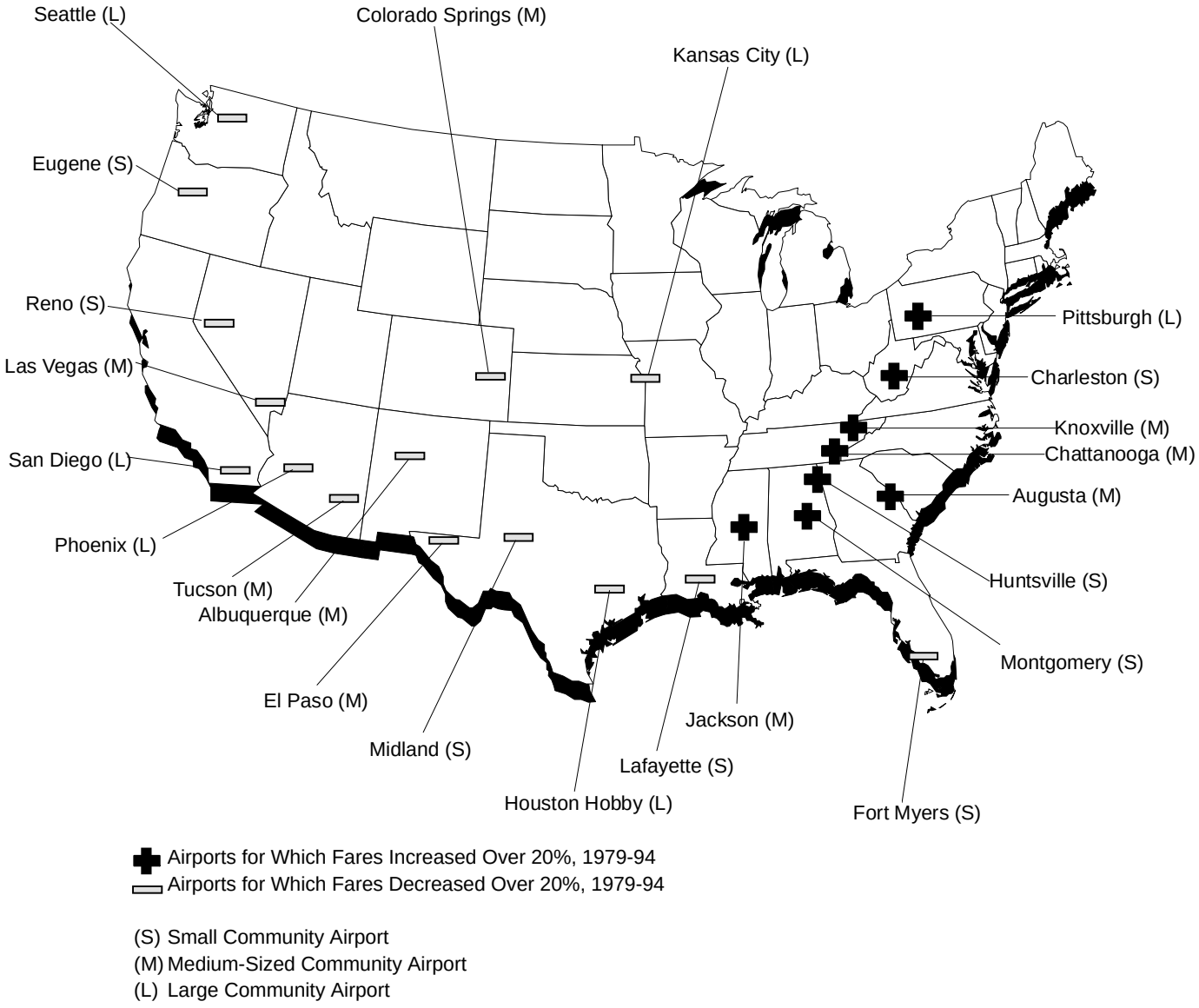
## Regional Differences in Fare Trends Are Caused Largely by the Entry of Low-Cost Airlines and More Competition in the West

Since deregulation, the largest decreases in fares have occurred at airports in the West and Southwest, and the largest increases in fares have occurred at airports in the Southeast and Appalachian region. In the West and Southwest, fares have declined largely because of increased competition caused by the entry of new airlines, particularly low-cost airlines such as Southwest and Reno Air. Over the last decade, high economic growth, relatively little airport congestion, and more favorable weather conditions have attracted these airlines to serve western airports. By contrast, competition at airports serving the Southeast and Appalachia has been more limited because (1) low-cost carriers have generally avoided the East because of its slower growth, airport congestion, and harsher weather and (2) one or two relatively high-cost carriers have dominated the routes to and from these airports. Although during 1994 one low-cost airline initiated operations in the East and subsequently failed, other low-cost airlines, such as Valujet, have emerged to compete with the higher-cost carriers in some eastern markets. However, data are not yet available to determine the extent to which these low-cost carriers have affected fare trends in the East.

### Airfare Trends Since Deregulation Differ Between West and East

As figure 2.2 shows, the airports in our sample that experienced the largest fare decreases following deregulation are predominantly located in the West and Southwest. These substantial declines in real fares were experienced by airports serving large communities as well as by those serving small and medium-sized communities. Of the 15 airports in our sample for which fares declined by more than 20 percent between 1979 and 1994, 5 serve small communities, 5 serve medium-sized communities, and 5 serve large communities. By contrast, the largest fare increases occurred at airports that serve small and medium-sized communities in the Southeast and Appalachia (see fig. 2.2). Of the eight airports for which fares have increased by more than 20 percent since 1979, three serve small communities, four serve medium-sized communities, and one serves a large community.

**Figure 2.2: Airports for Which Fares Increased or Decreased by More Than 20 Percent, 1979-94**




Note: We only included those airports where the change in fares between 1979 and 1994 was greater than 20 percent regardless of the sampling error (i.e., the lower bound estimate of the percentage change was greater than plus or minus 20 percent).

Source: Illustration based on GAO's analysis of DOT's O&D Survey.

## Competitive Conditions Have Geographical Differences

Over the last 17 years, a number of new airlines with very low operating costs—including America West, American Trans Air, Markair, Morris Air, Reno Air, and Southwest—have begun interstate air service, primarily concentrating their operations in the West.[18] These low-cost airlines have focused on the West because of that region's higher economic growth rates, lesser airport congestion, and more favorable weather. Because of their style of service—high frequency between a limited number of city-pairs and few amenities—these airlines have operating costs that are about 30 percent lower than those of larger airlines such as American and United. As a result, these low-cost airlines are able to charge lower fares. Further downward pressure on fares is caused by the competitive responses of the larger carriers. To date, these responses have ranged from substantial fare cuts in the case of Northwest to the creation by United in late 1994 of a low-cost "airline within an airline"—called Shuttle by United—to compete with Southwest in key markets on the West Coast. We found the presence of low-cost carriers and the resulting increase in competition to be a common factor at the airports in our sample that have experienced the largest fare decreases since deregulation. In 1994, low-cost airlines accounted for at least 10 percent, and often much more, of the total enplanements at 14 of the 15 airports that experienced the largest decreases in fares (see table 2.2).

**Table 2.2: Airports for Which Fares Have Declined by More Than 20 Percent Since Deregulation and Market Share of Low-Cost Airlines at Those Airports in 1994**

| Community | Percentage decrease in fares, 1979-94 | Low-cost airlines | Percentage of 1994 enplanements |
|---|---|---|---|
| **Small** | | | |
| Midland, TX | –31.1 | Southwest | 74.2 |
| Lafayette, LA | –23.2 | None | 0.0 |
| Eugene, OR | –22.4 | Morris | 10.0 |
| | | Reno | 0.3 |
| Fort Myers, FL | –21.8 | American Trans Air | 9.4 |
| | | Spirit | 1.6 |
| | | Valujet | 1.5 |
| Reno, NV | –21.1 | Reno | 29.9 |
| | | Southwest | 25.2 |
| | | America West | 12.2 |
| | | Morris | 1.6 |
| | | Markair | 0.5 |
| **Medium** | | | |
| Albuquerque, NM | –32.4 | Southwest | 46.1 |
| | | America West | 7.8 |
| | | Frontier | 0.3 |

(continued)

[18]Before deregulation, Southwest provided intrastate air service within Texas.

| Community | Percentage decrease in fares, 1979-94 | Low-cost airlines | Percentage of 1994 enplanements |
|---|---|---|---|
| Las Vegas, NV | –32.2 | Southwest | 26.1 |
| | | America West | 22.6 |
| | | Reno | 2.0 |
| | | Morris | 1.5 |
| | | Markair | 0.9 |
| El Paso, TX | –31.5 | Southwest | 63.8 |
| | | America West | 7.1 |
| | | Frontier | 0.5 |
| Colorado Springs, CO | –23.6 | America West | 12.8 |
| | | Morris | 7.7 |
| | | Reno | 0.8 |
| Tucson, AZ | –22.7 | America West | 22.2 |
| | | Morris | 14.6 |
| | | Southwest | 4.5 |
| | | Reno | 4.2 |
| | | Frontier | 0.4 |
| **Large** | | | |
| Phoenix, AZ | –32.4 | America West | 37.9 |
| | | Southwest | 31.3 |
| | | Morris | 0.8 |
| | | Reno | 0.5 |
| | | Markair | 0.3 |
| Houston (Hobby), TX | –28.3 | Southwest | 77.8 |
| Seattle, WA | –27.1 | Reno | 3.0 |
| | | Morris | 2.8 |
| | | Markair | 2.8 |
| | | Southwest | 2.6 |
| Kansas City, MO | –25.1 | Southwest | 21.8 |
| | | America West | 4.3 |
| | | Markair | 1.5 |
| San Diego, CA | –24.1 | Southwest | 33.7 |
| | | America West | 5.4 |
| | | Reno | 5.0 |
| | | Morris | 1.7 |
| | | Markair | 0.9 |

Source: GAO's analysis of DOT's data from the O&D Survey and Form 41.

In part, these low-cost competitors have been attracted by the relatively strong economic growth at the communities these airports serve. Between 1979 and 1993, the average annual growth in population, personal income, and employment at these 15 communities substantially exceeded that for the other 97 communities in our sample (see table 2.3). In particular, low-cost airlines have been attracted to the area of strongest economic

growth: the Southwest. For example, in Phoenix, Arizona—where fares have fallen by 32 percent since deregulation—the average annual growth in population between 1979 and 1993 was 3.0 percent; in personal income, 3.7 percent; and in employment, 3.7 percent. Moreover, for rapidly growing Las Vegas, Nevada—where fares also fell by 32 percent—the average annual rate of growth exceeded 5.0 percent for all three measures.

**Table 2.3: Average Annual Growth Rates in Population, Personal Income, and Employment for Communities Experiencing Largest Declines in Fares Compared With All Other Communities in Our Sample, 1979-93**

| Category | Average annual percentage change in population, 1979-93 | Average annual percentage change in income, 1979-93 | Average annual percentage change in employment, 1979-93 |
|---|---|---|---|
| 15 communities whose airports had the largest fare decreases | 2.2 | 2.8 | 2.6 |
| All other airports in sample | 0.9 | 2.0 | 1.5 |

Source: GAO's analysis of Bureau of Economic Analysis's data.

By contrast, the largest fare increases occurred in the Southeast and Appalachia, where competition has been lacking and economic growth has been comparatively slower. At all eight airports where fares increased by more than 20 percent, Delta and USAir—airlines that have historically had among the highest operating costs in the industry—accounted for the overwhelming majority of enplanements in 1994 (see table 2.4).

**Table 2.4: Airports for Which Fares Have Increased by More Than 20 Percent Since Deregulation and Market Share of Higher-Cost Airlines at Those Airports in 1994**

| Community | Percentage increase in fares, 1979-94 | Higher-cost carrier | Percentage of 1994 enplanements |
|---|---|---|---|
| **Small** | | | |
| Charleston, WV | +24.7 | USAir | 72.4 |
| Montgomery, AL | +23.6 | Delta | 79.8 |
| Huntsville, AL | | Delta | 50.7 |
| | +22.5 | USAir | 10.9 |
| **Medium** | | | |
| Augusta, GA | | Delta | 73.5 |
| | +26.3 | USAir | 15.1 |
| Chattanooga,TN | | Delta | 76.1 |
| | +26.2 | USAir | 19.6 |
| Knoxville, TN | | Delta | 58.7 |
| | +25.1 | USAir | 14.9 |
| Jackson, MS | +25.1 | Delta | 86.8 |
| **Large**[a] | | | |
| Pittsburgh, PA | | USAir | 90.2 |
| | +21.4 | Delta | 2.4 |

[a]Like Pittsburgh, the six other large-community airports that experienced increases in fares are large hub airports dominated by one or two of the established carriers: Atlanta (Delta), Dallas (American and Delta), Detroit (Northwest), Minneapolis (Northwest), Chicago (American and United), and Philadelphia (USAir).

Source: GAO's analysis of DOT's data from the O&D Survey and Form 41.

In part, there has been little new entry at these eight airports because of the slower growth rates for the communities these airports serve. The average annual rates of growth during this period were only 0.1 percent for population, 1.3 percent for personal income, and 0.9 percent for employment.

## Fares Rose at More Eastern Airports in First Half of 1995, but Recent Entry of Low-Cost Airlines Could Reverse Trend

Overall, the average airfare rose slightly during the first 6 months of 1995 compared with 1994 at all three categories of airports. At small-community airports, real fares rose by 2.6 percent; at medium-sized-community airports, by 2.1 percent; and at large-community airports, by 2.5 percent. Despite these increases, 59 of the 112 airports in our sample continued to have lower real airfares than they had in 1979. Specifically, when the data on the first half of 1995 were factored in, real fares since deregulation were lower at 28 of the 49 small-community airports, 17 of the 38

medium-sized-community airports, and 14 of the 25 large-community airports.

The largest fare increases during the first 6 months of 1995 occurred in the East, primarily at small- and medium-sized communities in North Carolina and South Carolina. These fare increases occurred largely because of a loss of competition. In early 1994, Continental Airlines created a separate, low-cost service in the East similar to the operations of the low-cost carriers in the West and Southwest. Continental's service—commonly referred to as "Calite"—failed and was terminated in early 1995. As table 2.5 shows, all 10 airports that experienced the largest fare increases between 1994 and the first 6 months of 1995 were either served by Calite during 1994 or located near an airport served by Calite. According to DOT analysts and Continental representatives, the termination of Calite service at three airports—Greensboro/High Point, North Carolina; Charleston, South Carolina; and Greenville, South Carolina—greatly lessened overall price competition in the geographical area within about 100 miles of those airports. As a result of the higher fares caused by the loss of Calite service or nearby competition from Calite, the trend toward lower fares since deregulation was reversed at all but 1 of the 10 airports (see table 2.5).

**Table 2.5: The 10 Airports That Experienced the Largest Fare Increases in First 6 Months of 1995 Compared With 1994**

| Community | Size | Percentage change in fares, 1979-94 | Percentage change in fares, 1994-95 | Lost service by Calite? | Airport served by Calite that affected fares (within approximately 100 miles) |
|---|---|---|---|---|---|
| Asheville, NC | Small | - 18.4 | + 23.8 | No | Greenville, SC |
| Charleston, SC | Medium | - 4.9 | + 23.2 | Yes | None |
| Greenville, SC | Medium | - 0.4 | + 19.5 | Yes | None |
| Myrtle Beach, SC | Small | - 9.0 | + 19.1 | No | Charleston, SC |
| Roanoke, VA | Small | - 11.6 | + 19.0 | No | Greensboro, NC |
| Wilmington, NC | Small | - 9.5 | + 18.5 | No | Charleston, SC |
| Savannah, GA | Small | - 2.9 | + 14.3 | No | Charleston, SC |
| Cleveland, OH | Large | - 8.7 | + 13.3 | Yes | None |
| Columbia, SC | Medium | + 8.1 | + 13.3 | No | Charleston, SC |
| Newark, NJ | Large | - 14.9 | + 11.9 | Yes | None |

Note: The airport serving Wilmington, North Carolina, is about 150 miles from Charleston, South Carolina, but is approximately 60 miles from the airport serving Myrtle Beach, South Carolina, which was affected by the loss of competition from Calite in Charleston.

Source: GAO's analysis of DOT's O&D Survey.

According to Continental's representatives, Calite failed largely because the airline could not successfully compete against the dominant positions of Delta and USAir. Other airline representatives claimed that Calite overextended itself by growing too fast and by attempting to challenge Delta and USAir in too many markets. Since the demise of Calite, however, several other low-cost carriers, such as Valujet and Kiwi, have initiated service in the East. Some industry observers believe that these airlines might succeed because they have focused on a smaller number of markets than Calite did.

The most successful of these low-cost carriers to date has been Valujet. After starting service in late 1993 with two airplanes serving three routes, Valujet has grown to 41 aircraft, as of December 1995, serving 25 cities from Atlanta and 11 cities from Washington, D.C. In 1995, it had an operating profit of $107.8 million and an operating profit margin of 29 percent, compared with 9 percent for Delta and 6 percent for both American and United. However, Valujet has begun to experience some of the problems of operating in the East. For example, in late 1995 Valujet was unable to obtain take-off and landing slots at New York's congested LaGuardia Airport. As a result, it could not begin its planned low-cost, low-fare service between New York and Atlanta.[19]

Valujet's growth has sparked competitive responses from the dominant airlines in the East. Delta, for example, plans to create a separate, low-cost operation of its own in the East starting in mid- to late 1996. However, largely because (1) most of Valujet's growth occurred in the second half of 1995 and (2) the competitive responses of other airlines are only beginning to unfold, data are not yet available to determine the extent to which Valujet has affected fares in the East.

[19]Valujet is suing TWA and Delta claiming that TWA reneged on an agreement to sell Valujet 10 slots. Despite the agreement, according to Valujet, TWA sold the slots to Delta—the only airline with nonstop service between Atlanta and New York. Separately, DOT and the Department of Justice are currently investigating Valujet's allegations. Although still pursuing its lawsuit against TWA and Delta, Valujet in March 1996 obtained 10 different slots from Continental and plans to begin low-fare, nonstop service between Atlanta and New York in May 1996.

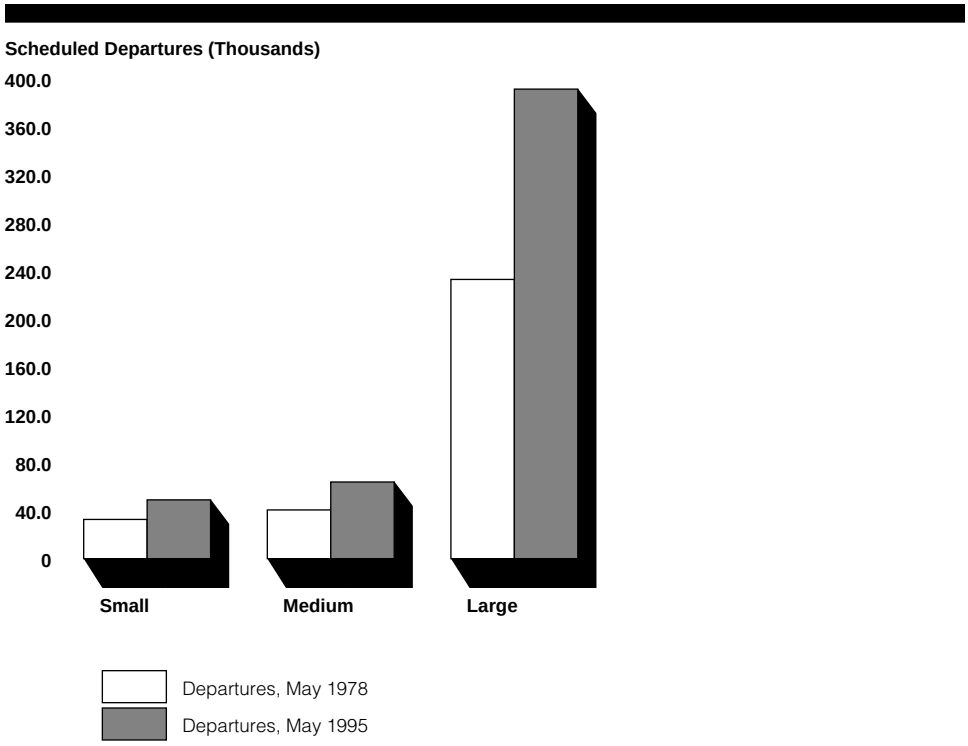
# The Quantity and Safety of Air Service Have Generally Increased, but Trends in Quality Indicators Are Mixed

Overall, the quantity of air service has increased since deregulation at small-, medium-sized, and large-community airports. The largest growth has occurred at large-community airports. Not all the airports that we reviewed, however, shared in this general trend toward more air service. Some airports—particularly those serving small and medium-sized communities in the Upper Midwest—have less air service today than they did under regulation. Measuring the overall quality of air service is more problematic because there are many dimensions of "quality" and not everyone agrees on the relative importance of each. In general, the factors that are usually considered to be the primary factors in service quality suggest that for small and medium-sized communities the results are mixed. For large communities, on the other hand, the trends are less ambiguous and quality has improved in almost every dimension. Finally, the safety of air service has generally improved since deregulation at all three categories of airports. Indeed, because so few accidents occur each year, an increase of just one or two accidents in a given year can cause significant fluctuation in the accident rate for any one airport group, making it difficult to reach conclusions about relative safety between the groups.

## The Number of Departures and Available Seats Have Increased at Most Airports Since Deregulation

The total number of scheduled commercial departures, which is an important measure of the amount of air service at an airport, has increased for all three airport groups in our sample (see fig. 3.1). Specifically, in May 1995 small-community airports as a group had 50 percent more scheduled commercial departures than they did in May 1978; medium-sized-community airports had 57 percent more departures; and large-community airports had 68 percent more departures.

**Figure 3.1: Total Scheduled Commercial Departures at Airports Serving Small, Medium-Sized, and Large Communities, May 1978-May 1995**



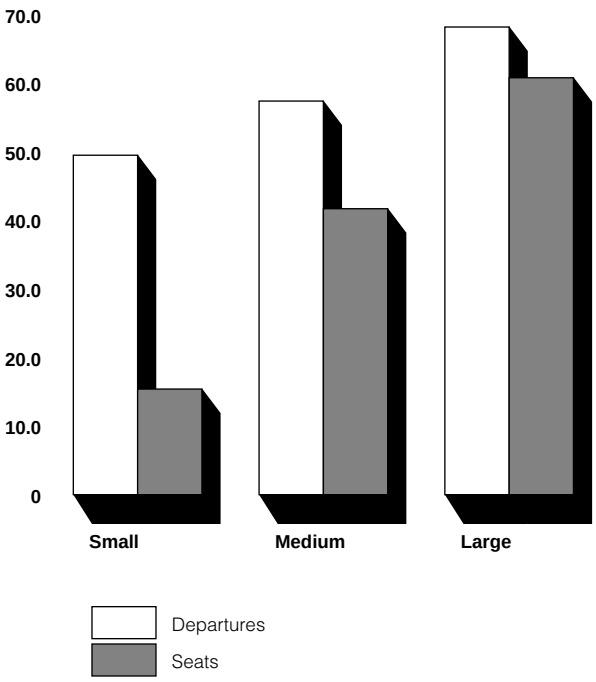

Note: Data include scheduled departures for large airlines, commuter carriers, and air taxis.

Source: Illustration based on GAO's analysis of data in the Official Airline Guide (OAG).

Within each of the three airport groups, a substantial majority of airports had more scheduled commercial departures in May 1995 than in May 1978. Seventy-eight percent of the small- and medium-sized-community airports had an increase in the number of departures, and every large-community airport in our sample had more departures.

A second measure of the quantity of air service—the number of available seats—has also increased since deregulation for all three airport groups. (App. IV provides data on departures and available seats for each airport.) However, because of the increased use of smaller, turboprop aircraft, the percentage change in available seats has been less than the percentage change in the number of departures, especially at small- and medium-sized-community airports. (See fig 3.2.)

**Figure 3.2: Comparison of Percentage Change in Number of Scheduled Departures and Available Seats at Airports Serving Small, Medium-Sized, and Large Communities, May 1978-May 1995**




Source: Illustration based on GAO's analysis of OAG data.

In addition, because of the substitution of turboprops for jets, many small- and medium-sized-community airports have experienced a decrease in the number of available seats even though the number of departures increased. For example, because the average aircraft size per departure at Fargo, North Dakota's airport decreased from 106 seats in 1978 to 67 seats in 1995, Fargo had 21 percent fewer available seats in May 1995 than in May 1978 even though the number of departures increased by 25 percent.

Nevertheless, as table 3.1 shows, when both measures are considered, a plurality of the small- and medium-sized-community airports and every large-community airport have experienced an increase in the quantity of air service they receive.

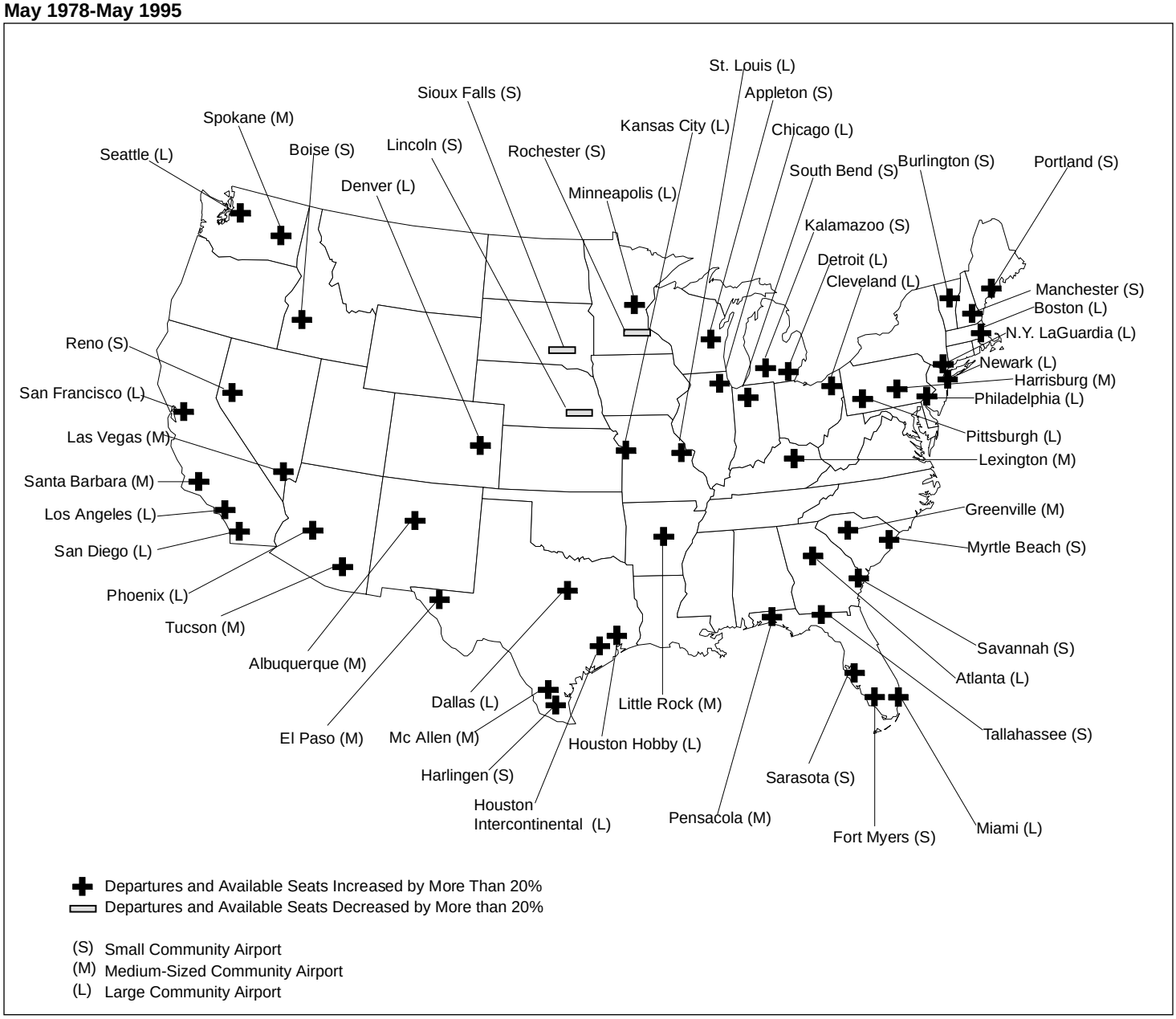
**Table 3.1: Breakdown of Airports by Changes in Number of Departures and Available Seats Within Each Airport Group, May 1978-May 1995**

| Size of community | Increase in departures and seats | Increase in departures and decrease in seats | Decrease in departures and seats | Decrease in departures and increase in seats | Total |
|---|---|---|---|---|---|
| Small | 20 | 17 | 10 | 2 | 49 |
| Medium | 18 | 13 | 7 | 0 | 38 |
| Large | 25 | 0 | 0 | 0 | 25 |
| Total | 63 | 30 | 17 | 2 | 112 |

Source: GAO's analysis of OAG data.

The airports that have experienced an increase in the quantity of air service are located throughout the country. Large communities in particular have experienced an increase in service quantity, in part because of their relatively strong economic growth during this period. For example, between 1979 and 1993, the average annual income growth for the large communities was 2.2 percent, compared with 1.8 percent for both the small and medium-sized communities in our sample. On the other hand, the 17 airports that have experienced an decrease in both departures and seats are primarily small- and medium-sized-community airports located in the Upper Midwest, where economic growth has been slower. Figure 3.3 demonstrates the widespread increase in service quantity since deregulation and identifies where the sharpest decline in air service—a decline of at least 20 percent—has occurred. The three communities whose airports have experienced the sharpest declines—Sioux Falls, South Dakota; Lincoln, Nebraska; and Rochester, Minnesota—had relatively slow economic growth during this period. For these three communities, the average annual growth rate was only 0.4 percent in population, 1.3 percent in personal income, and 1.4 percent in employment.

**Figure 3.3: Airports for Which Number of Both Departures and Seats Increased or Decreased by 20 Percent, May 1978-May 1995**




Source: Illustration based on GAO's analysis of OAG data.

## The Quality of Air Service Has Improved for Large Communities, but Indicators Are Mixed for Small and Medium-Sized Communities

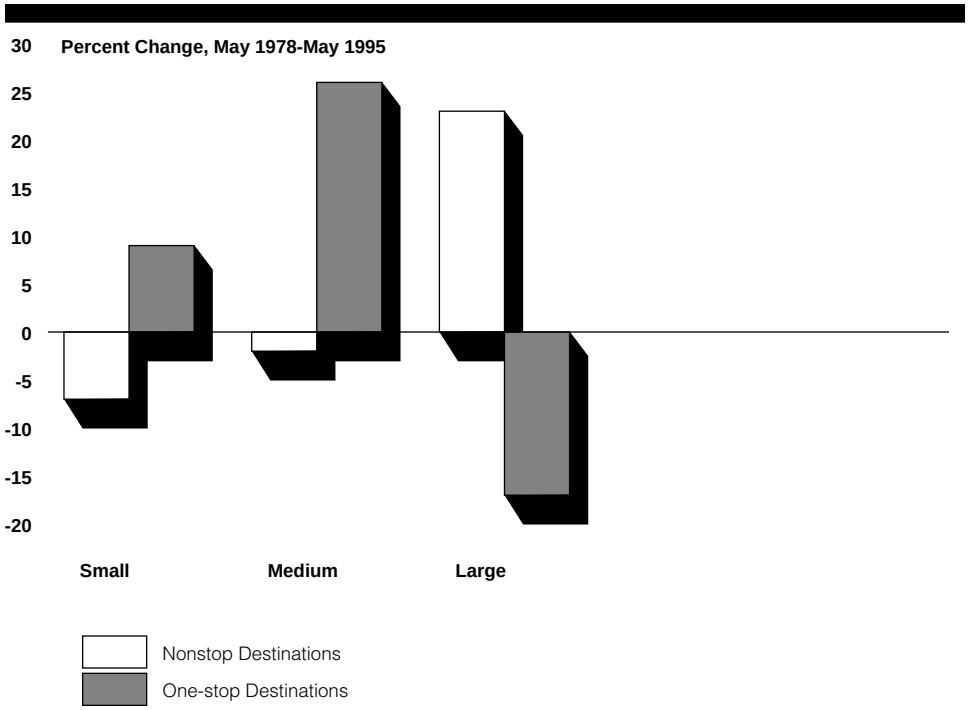
The quality of air service a community receives is generally measured by four variables: the number of (1) departures and available seats, (2) destinations served by nonstop flights, (3) destinations served by one-stop flights and the efficiency of the connecting service, and (4) jet departures compared with the number of turboprop departures. Largely because of their central role in hub-and-spoke networks, large-community airports have experienced a substantial increase in the number of departures and cities served via nonstop flights since deregulation, a corresponding decrease in the number of cities served by one-stop flights, and only a slight decline in the share of departures involving jets. For small- and medium-sized-community airports, hub-and-spoke networks have resulted in more departures and more and better one-stop service. However, because much of this service is to hubs via turboprops, small and medium-sized communities have fewer destinations served by nonstop flights and relatively less jet service. In light of this mixed record, it is difficult to judge the overall change in the quality of air service at airports serving small and medium-sized communities because such an assessment requires, among other things, a subjective weighting of the relative importance of the four variables.

### Because of Greater Reliance on Hubs, Small and Medium-Sized Communities Have Less Nonstop Service but Better One-Stop Service

As discussed earlier, the number of departures has increased since deregulation at airports serving small and medium-sized communities. However, airlines have generally directed these departures to hub airports, often eliminating nonstop service to other small and medium-sized communities. Overall, we found that the average number of cities served by nonstop flights has declined by 7 percent from small-community airports and by 2 percent from medium-sized community airports (see fig. 3.4). However, because more flights from these airports are destined for hubs, the number of destinations served on a one-stop basis has increased by 9 percent at small-community airports and by 26 percent at medium-sized-community airports.[20] As figure 3.4 also shows, large-community airports, many of which serve as hubs, have experienced a sizable increase since deregulation in the number of nonstop destinations. As a result, large communities' need for one-stop service has decreased.

[20]App. V provides the number of nonstop and one-stop destinations served from each airport as listed in the OAG for May 1978 and May 1995.

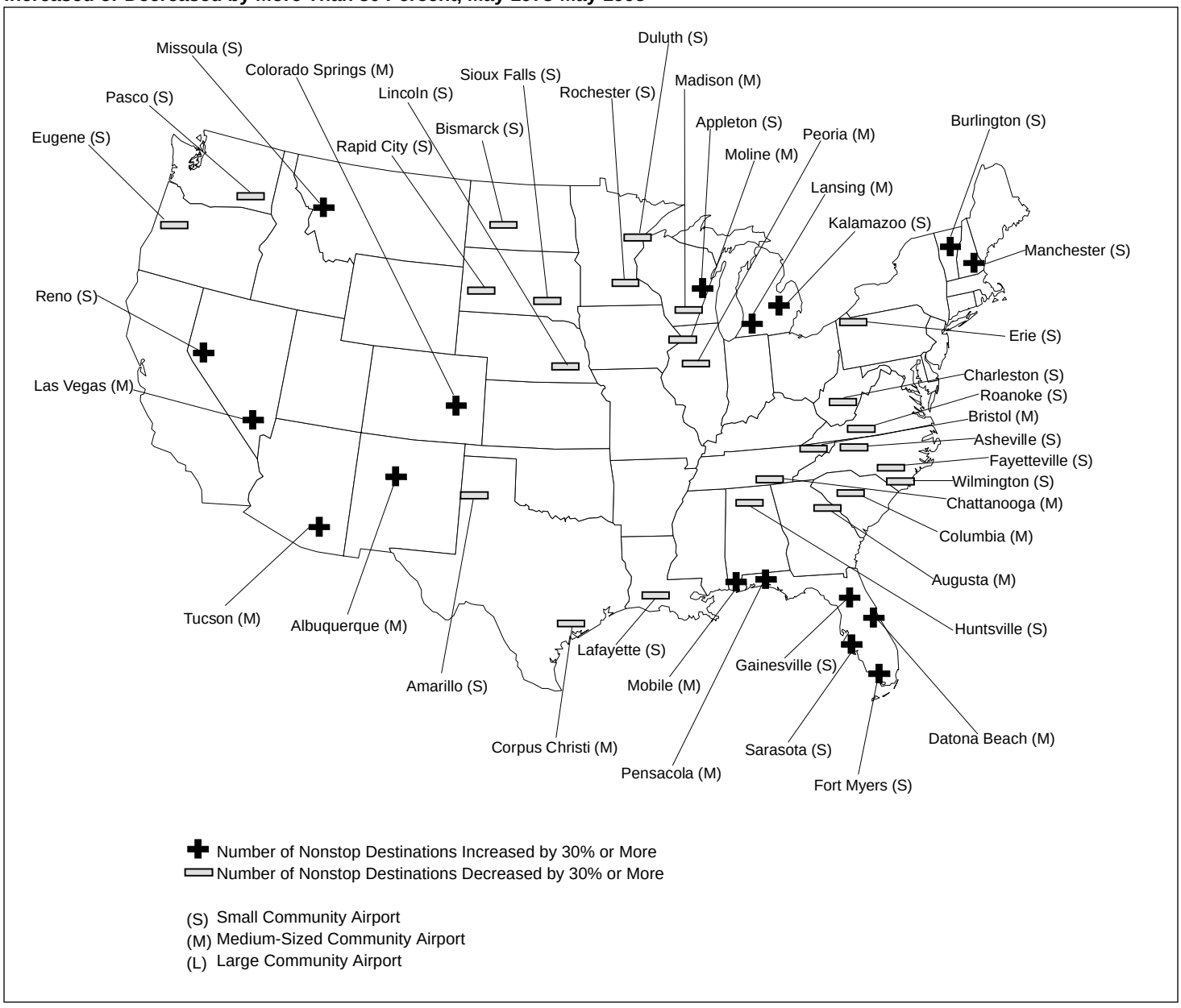
**Figure 3.4: Percentage Change in Number of Destinations Served by Nonstop and One-Stop Flights From Airports Serving Small, Medium-Sized, and Large Communities, May 1978-May 1995**




Source: Illustration based on GAO's analysis of OAG data.

The number of nonstop destinations has decreased at many airports serving small and medium-sized communities: 55 percent of the small-community airports and 42 percent of the medium-sized-community airports have experienced decreases. As figure 3.5 shows, the small- and medium-sized-community airports experiencing the sharpest decline in nonstop destinations were primarily located in the slower-growing Upper Midwest and Southeast. In some cases, the communities served by these airports have contracted. For example, Moline, Illinois' average annual change in population between 1979 and 1993 was –0.5 and Bristol, Tennessee's was –0.1. By contrast, those airports experiencing the largest increases in the number of nonstop destinations are located primarily in fast-growing cities in the Southwest and Florida as well as in Upper New England, such as Burlington, Vermont.

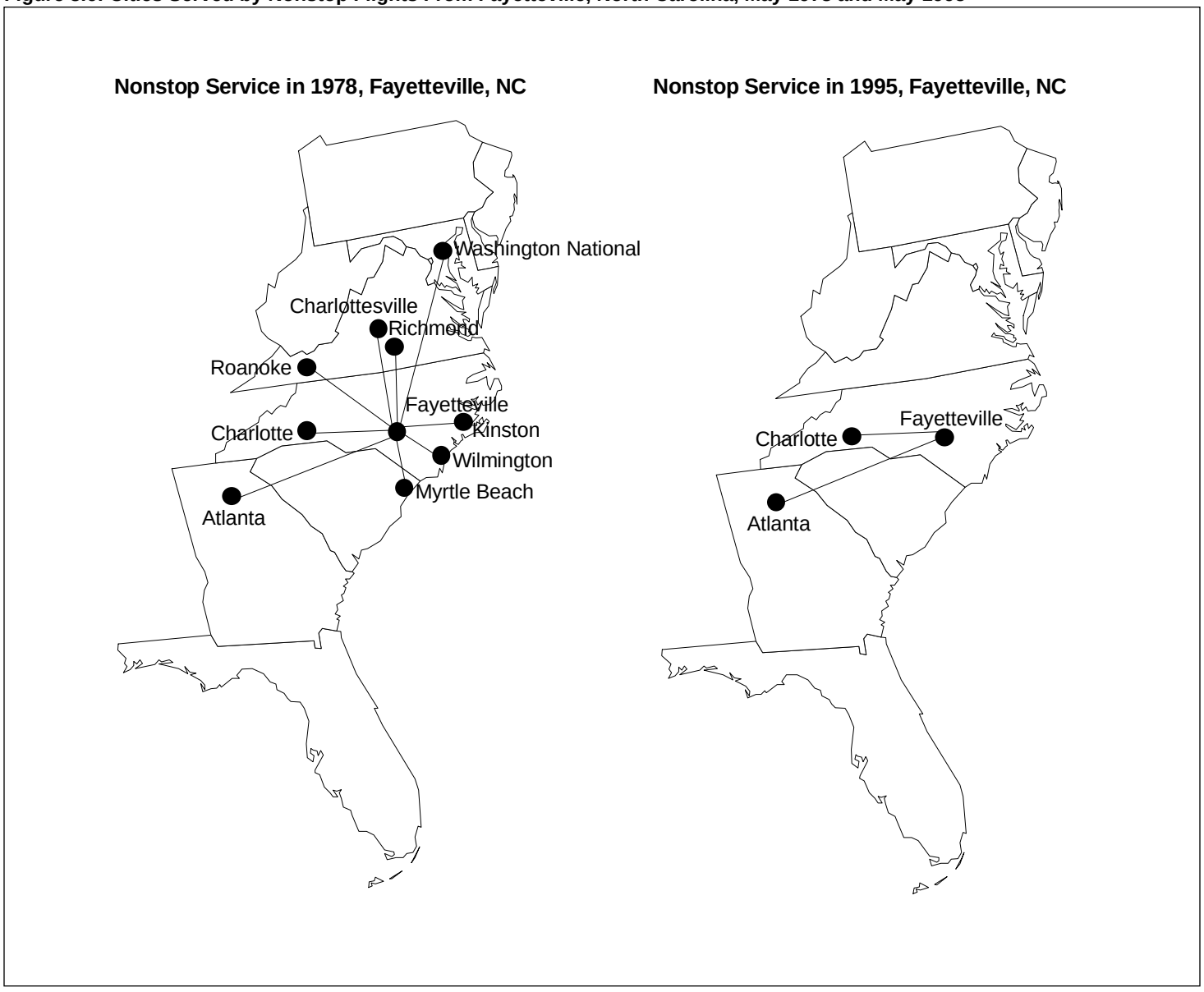
**Figure 3.5: Small- and Medium-Sized-Community Airports for Which the Number of Destinations Served by Nonstop Flights Increased or Decreased by More Than 30 Percent, May 1978-May 1995**




Source: Illustration based on GAO's analysis of OAG data.

For many small and medium-sized communities, the decline in nonstop service options has been substantial. For example, as shown in figure 3.6, the number of cities served nonstop from Fayetteville, North Carolina, decreased by 78 percent, from nine in May 1978 to two in May 1995.

**Figure 3.6: Cities Served by Nonstop Flights From Fayetteville, North Carolina, May 1978 and May 1995**




Source: Illustration based on GAO's analysis of OAG data.

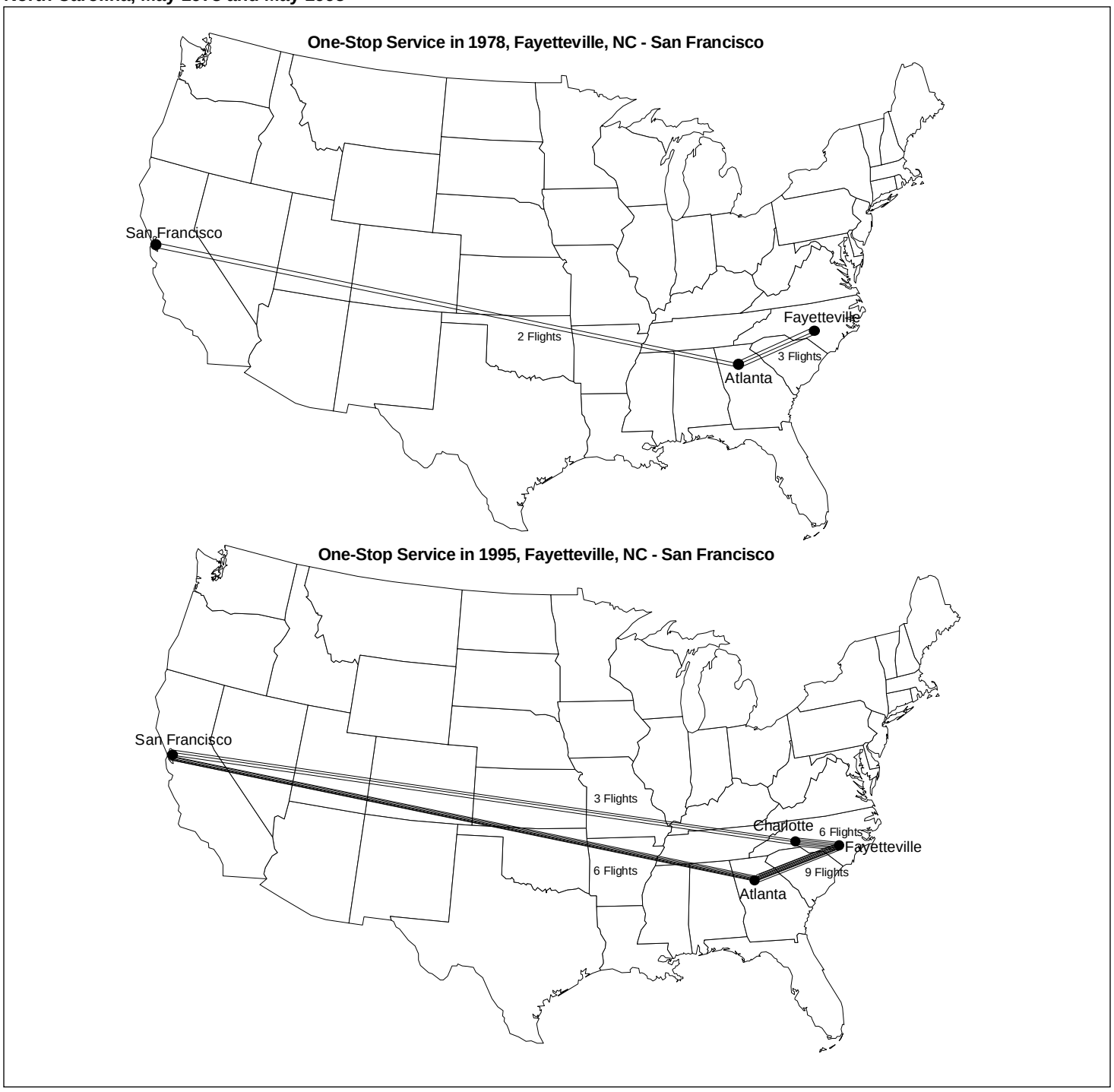
Nevertheless, most communities that experienced a decline in the number of nonstop destinations experienced an increase in the number of one-stop

destinations. This increase largely occurred because the remaining cities served on a nonstop basis are often hubs for the major airlines, thereby yielding a significant increase both in the number of connections possible and the efficiency of that service. For example, the two destinations served nonstop from Fayetteville in 1995—Atlanta and Charlotte—are hub airports for Delta and USAir, respectively. As a result, the number of destinations served on a one-stop basis from Fayetteville, as listed in the OAG, increased by 60 percent between May 1978 and May 1995.

Moreover, we found that passengers flying from places like Fayetteville were better connected to the entire domestic aviation system in 1995 than they were in 1978. For example, travelers from Fayetteville had an average of nine daily flights to Atlanta and six daily flights to Charlotte in May 1995, compared with three daily flights to Atlanta and one daily flight to Charlotte in May 1978. This increased frequency of service expands passengers' choices and reduces layover times between connections. As figure 3.7 illustrates, a traveler from Fayetteville wanting to fly to San Francisco in 1978 had no other choice but to fly through Atlanta. The passenger could take a morning, noon, or mid-afternoon flight from Fayetteville to Atlanta and then take one of two flights from Atlanta to San Francisco. However, because the first flight from Fayetteville to Atlanta did not arrive until 9:27 a.m. and both flights from Atlanta to San Francisco were in the morning (the first flight leaving at 8:46 a.m. and the second at 10:25 a.m.), the passenger had only one real connection option. Otherwise, the person had to spend the night in Atlanta to catch the next morning's flight to San Francisco at 8:46 a.m.

In 1995, that same traveler from Fayetteville could fly to San Francisco via either Atlanta or Charlotte. The passenger would have the choice of nine daily flights to Atlanta connecting to six daily flights to San Francisco or six daily flights to Charlotte connecting to three daily flights to San Francisco (see fig. 3.7). For example, the passenger could take a flight from Fayetteville to Atlanta that arrives at 7:25 a.m. and connect to a flight to San Francisco that leaves Atlanta at 8:20 a.m. Because of the increased service frequency, during any given day in May 1995 the passenger would have six real connection options at Atlanta, with an average layover time of 82 minutes. The passenger also had the option of taking one of two night flights from Fayetteville to Atlanta, spending the night in Atlanta, and catching the next morning's flight to San Francisco at 8:20 a.m.

**Figure 3.7: Comparison of One-Stop Connection Possibilities to San Francisco, California, for Travelers From Fayetteville, North Carolina, May 1978 and May 1995**




(Figure notes on next page)

Source: Illustration based on GAO's analysis of OAG data.

Finally, as figure 3.8 shows, Fayetteville's access to the domestic system has been expanded in terms of the geographic location of the cities accessible through one-stop service. For example, in 1978 Fayetteville had possible one-stop connecting service to six different cities in West Virginia but no such service to such larger cities as San Diego, California; Salt Lake City, Utah; and Seattle, Washington; or such preferred vacation locations as Honolulu, Hawaii, or St. Thomas, Virgin Islands. As a result of the hub-and-spoke system, Fayetteville in 1995 had one-stop service to those cities as well as one-stop service to four cities in West Virginia.

**Figure 3.8: Change in Number of Cities Accessible on a One-Stop Basis From Fayetteville, North Carolina, Between May 1978 and May 1995**


(Figure notes on next page)

Note: Shaded dots represent new one-stop cities.

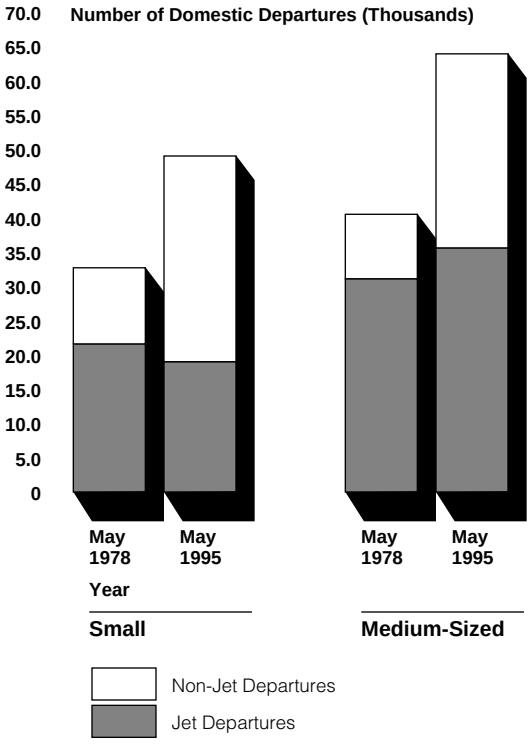
Source: Illustration based on GAO's analysis of OAG data.

## Proportion of Flights Involving Jets Has Decreased for Small and Medium-Sized Communities

While the number of jet departures has declined slightly at small-community airports and increased slightly at medium-sized-community airports, the proportion of departures involving jets has fallen substantially for both groups since deregulation, as shown in fig. 3.9. At small-community airports, the percentage of departures involving jets fell from 66 percent in May 1978 (21,632 of 32,744 total departures) to 39 percent in May 1995 (18,968 of 48,960 total departures). As a result, the growth in turboprop departures accounted for all of the growth in total departures since deregulation at the small-community airports that we reviewed. At airports serving medium-sized communities, the percentage of departures involving jets fell from 77 percent in May 1978 (31,126 of 40,561 total departures) to 56 percent in May 1995 (35,554 of 63,854 total departures). By comparison, at large-community airports, the number of jet departures increased by 47 percent, although with the growing use of turboprops the share of departures involving jets actually fell from 81 percent of all departures in May 1978 to 71 percent in May 1995.[21]

[21]App. VI provides the number of jet and turboprop departures from each airport in our sample in May 1978 and May 1995.

**Figure 3.9: Jet and Turboprop Departures at Airports Serving Small and Medium-Sized Communities, May 1978-May 1995**




Source: Illustration based on GAO's analysis of OAG data.

We found that the substantial growth in the use of turboprops since deregulation has occurred at airports serving small and medium-sized communities in all regions of the country. Two factors have caused this trend. First, large airlines have used turboprops to link small and medium-sized communities to their major hubs. Airlines would be unable to earn a profit on many of these routes if they deployed jets, which are larger and more costly to operate than turboprops. Second, since 1978 the commuter and air taxi segments of the industry have grown significantly.[22] Commuters, in particular, have emerged as (1) affiliates of the large airlines to "feed" traffic traveling from small and medium-sized communities to the airlines' hubs and (2) key providers of air service between small and medium-sized communities.

[22]As of November 1995, over 95 percent of the commuter fleet and 100 percent of the air taxi fleet was made up of turboprops.

DOT's data on total departures in 1978 and 1994 by large airlines at the airports in our sample and FAA's estimates of commuter and air taxi departures at those airports demonstrate the growth of the commuter and air taxi segments of the industry. Our analysis of these data shows that commuter carriers and air taxis accounted for 56 percent of departures at small-community airports in 1994, compared with 29 percent in 1978. At medium-sized-community airports, commuter carriers and air taxis accounted for 47 percent of departures in 1994, compared with 25 percent in 1978. Finally, at large-community airports, commuter carriers and air taxis accounted for 27 percent of departures in 1994, compared with 18 percent in 1978.

## Mixed Record Makes It Difficult to Judge Overall Changes in Service Quality for Small- and Medium-Sized Communities

In evaluating overall changes in the quality of air service to small and medium-sized communities since deregulation, the increased service frequency and one-stop options must be weighed against the decline in jet service and nonstop options. While the substantial gains in quantity and nonstop destinations for large-community airports clearly outweigh the corresponding decline in one-stop service and slight decrease in jet service relative to turboprops, weighting the changes experienced by small and medium-sized communities is more problematic for two reasons.

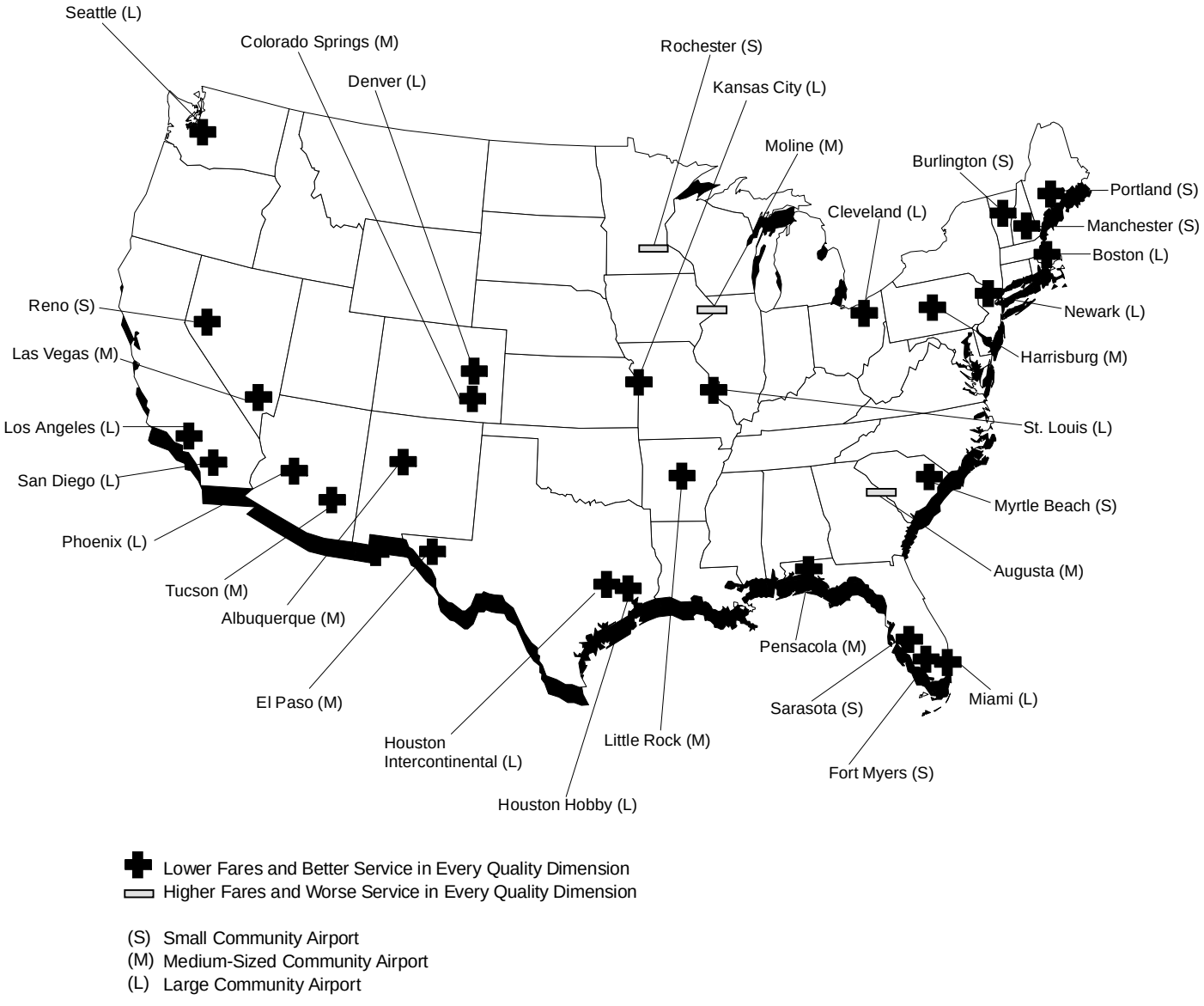
First, the value placed on each factor depends on a subjective determination that will vary by individual. For example, DOT analysts we interviewed stated that in their view the number of departures was the most important factor because the increase in flight frequency saves travelers time and increases their possible connections. These analysts noted that they believed that the type of aircraft was the least important factor, largely because the size and safety of turboprops and the service they provide have improved dramatically over the last 17 years. Thus, they believe that turboprops provide a level of service equivalent in many cases to that of jets. Other industry analysts that we interviewed, however, considered the loss of nonstop service to be the most important change.

Second, it is not possible to convert each factor into a common measure, such as total travel time. Although most of the factors can be measured in terms of travel time, one cannot: the perceived levels of amenities and comfort that travelers associate with the different types of turboprops and jets. As a result, developing a formula that combines the various factors to produce a single, objective "quality score" is problematic. The only such formula that we identified during our review was developed in the 1960s by the Civil Aeronautics Board (CAB). The CAB's formula was weighted

heavily toward changes in the number of departures and did not account for passengers' perceptions of the service quality associated with the various types of jets and turboprops. In providing us with this formula, DOT analysts emphasized that it has never been updated and should not be used to gauge changes in service quality since deregulation. We therefore declined to use it and did not attempt to develop a new formula during our review.

Nevertheless, when considering those airports in our sample that had either (1) lower fares and positive changes in every quality dimension or (2) higher fares and negative changes in every quality dimension, clear geographical differences emerge. In particular, as figure 3.10 shows, fast-growing communities of all sizes in the West, Southwest, Upper New England, and Florida have lower fares and better service. Nevertheless, as figure 3.10 also shows, some small and medium-sized communities in the Southeast and Upper Midwest are clearly worse off today. These pockets of higher fares and worse service stem largely from both a lack of competition and comparatively slow economic growth over the past two decades. (App. I provides an overall summary of the changes in fares and service at each airport in our sample.)

**Figure 3.10: Communities That Have Experienced Lower Fares and Better Service or Higher Fares and Worse Service Since Deregulation**



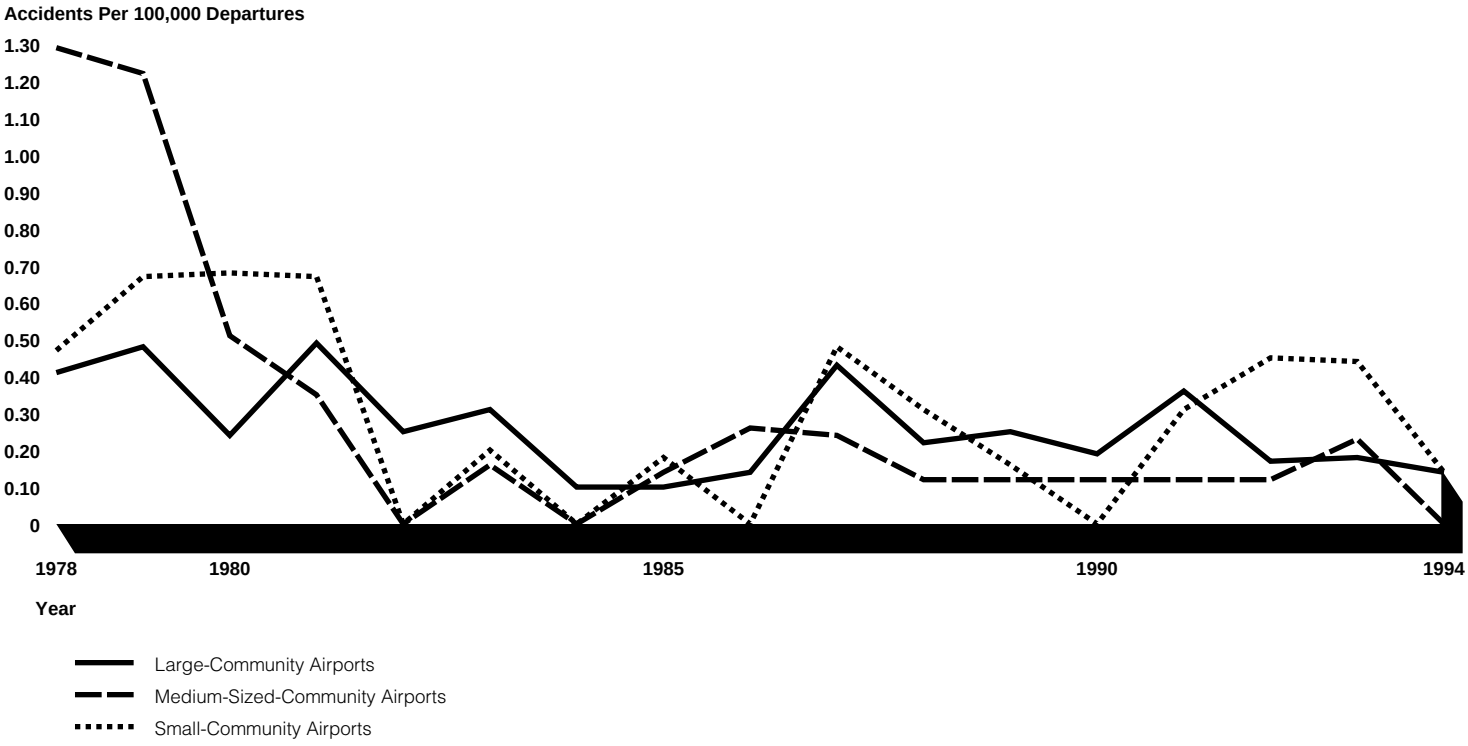

Note: We also included several large community airports that had lower fares and better service in all dimensions except one-stop service. We did this because in these cases the decline in the number of one-stop destinations corresponded to a gain in the number of nonstop destinations for that community.

Source: Illustration based on GAO's analysis of data from DOT's O&D Survey and OAG.

## Safety Has Improved Since Deregulation for Communities of All Sizes, but Comparisons Between Airport Groups Are Problematic

In general, the long-term decline in the rate of accidents has continued since deregulation. These safety gains are attributed to advances in aircraft technology and improved pilot training in the early and mid-1980s, especially for turboprops and commuter carriers. As noted in chapter 1, the overall accident rate for commuters has fallen by over 90 percent since deregulation. In our sample, the rate of accidents at the airports in each group was lower in 1994 than in 1978. At small-community airports, the rate fell from 0.47 accidents per 100,000 departures to 0.14 accidents per 100,000 departures in 1994. At medium-sized-community airports, the rate fell from 1.29 accidents per 100,000 departures in 1978 to 0.00 in 1994. At large-community airports, the rate fell from 0.41 accidents per 100,000 departures to 0.14 in 1994. However, because there are so few accidents each year, an increase of just one or two accidents in a given year can cause a significant fluctuation in the accident rates, as figure 3.11 shows.

**Figure 3.11: Accident Rates for Airports Serving Small, Medium-Sized, and Large Communities, 1978-94**




Note: Data for 1978 are fiscal-year data.

Source: Illustration based on GAO's analysis of NTSB and FAA data.

Attempts to discern trends between the airport groups by smoothing the data—employing, for example, such common practices as calculating a 3-year moving average—did not help to identify any trends. Our analysis of accidents on routes to and from the airports in our sample were similarly inconclusive. Thus, while commuter carriers and turboprops generally do not have as good a safety record as the larger jets they replaced in many markets serving small and medium-sized communities, it is difficult to discern the impact of the change on relative safety at the airports in our sample because of the small number of annual accidents and the consequent wide swing in rates from year to year.

## Agency Comments and Our Response

We discussed a draft of this report with senior DOT officials, including the Director, Office of Aviation and International Economics. They agreed with our findings concerning the trends in airfares, service, and safety and stated that the report provides useful information. They also noted that the 112 airports in our sample account for a sizable majority of the nation's air travelers. These officials commented, however, that the small-community airports in our sample represented the larger "small" airports in the United States and therefore were not completely representative of the nation's smallest airports. They stated that they have recently completed a study, which they expect to issue soon, on the trends in fares and service at the smallest airports and that the conclusions of their study are consistent with our findings. They noted that although the airports included in their study account for only about 3 percent of the total passenger enplanements in the United States, they believe that it provides a valuable and necessary complement to our report because it focuses on the very smallest airports.

We agree that DOT's study could serve as a valuable complement to our report. As we state in appendix VII, we examined data on the same 112 airports that we examined in our 1990 report in order to provide consistent, comparable information in updating that report. In selecting those airports, one of our criteria was that the airport had to be among the largest 175 in the nation. This criterion was necessary because as an airport's traffic level falls, the number of tickets from that airport listed in DOT's O&D Survey also declines. A smaller number of tickets increases the potential for sampling error, leaving the true change in fares uncertain. As a result, we excluded the airports serving the nation's smallest communities.

# Overall Changes in Fares and Service Since Deregulation at Airports Serving Small, Medium-Sized, and Large Communities, as of 1994

| | Lower fares | More departures | More seats | More nonstop options | More one-stops | More jets |
|---|---|---|---|---|---|---|
| **Small-community airports** | | | | | | |
| Amarillo (TX) | Yes | No | No | No | No | No |
| Appleton (WI) | No | Yes | Yes | Yes | Yes | Yes |
| Asheville (NC) | Yes | No | No | No | No | No |
| Kalamazoo County (MI) | Yes | Yes | Yes | Yes | No | Yes |
| Binghamton (NY) | Yes | No | Yes | No | Yes | Yes |
| Bangor (ME) | Yes | Yes | Yes | No | No | No |
| Billings (MT) | Yes | Yes | No | No | No | No |
| Bismarck (ND) | Yes | Yes | No | No | No | No |
| Boise (ID) | Yes | Yes | Yes | No | Yes | Yes |
| Burlington (VT) | Yes | Yes | Yes | Yes | Yes | Yes |
| Cedar Rapids (IA) | No | Yes | Yes | No | No | No |
| Champaign (IL) | Yes | Yes | No | Yes | Yes | No |
| Charleston (WV) | No | Yes | No | No | No | No |
| Duluth (MN) | Yes | No | No | No | No | No |
| Elmira/Corning (NY) | No | Yes | No | Yes | No | Yes |
| Erie (PA) | No | Yes | No | No | No | No |
| Eugene (OR) | Yes | Yes | Yes | No | No | No |
| Evansville (IN) | No | Yes | No | Yes | Yes | No |
| Fargo (ND) | Yes | Yes | No | No | Yes | No |
| Fayetteville (NC) | Yes | No | No | No | Yes | No |
| Sioux Falls (SD) | Yes | No | No | No | Yes | Yes |
| Grand Junction (CO) | Yes | Yes | No | No | No | No |
| Gainesville (FL) | No | Yes | No | Yes | Yes | No |
| Green Bay (WI) | No | No | No | No | Yes | No |
| Great Falls (MT) | Yes | Yes | No | Yes | No | No |
| Harlingen (TX) | Yes | Yes | Yes | No | Yes | Yes |
| Huntsville (AL) | No | Yes | Yes | No | Yes | No |
| Wilmington (NC) | Yes | Yes | No | No | Yes | Yes |
| Lubbock (TX) | Yes | Yes | No | No | No | No |
| Lafayette (LA) | Yes | No | No | No | No | No |
| Lincoln (NB) | Yes | No | No | No | No | No |
| Midland (TX) | Yes | Yes | Yes | No | No | No |
| Montgomery (AL) | No | Yes | No | No | No | No |
| Manchester (NH) | Yes | Yes | Yes | Yes | Yes | Yes |
| Missoula (MT) | Yes | Yes | Yes | Yes | No | No |
| Myrtle Beach (SC) | Yes | Yes | Yes | Yes | Yes | Yes |

(continued)

| | Lower fares | More departures | More seats | More nonstop options | More one-stops | More jets |
|---|---|---|---|---|---|---|
| Pasco (WA) | [a] | No | Yes | No | No | No |
| Portland (ME) | Yes | Yes | Yes | Yes | Yes | Yes |
| Rapid City (SD) | Yes | No | No | No | No | No |
| Reno (NV) | Yes | Yes | Yes | Yes | Yes | Yes |
| Roanoke (VA) | Yes | Yes | No | No | No | No |
| Rochester (MN) | No | No | No | No | No | No |
| Fort Myers (FL) | Yes | Yes | Yes | Yes | Yes | Yes |
| Savannah (GA) | Yes | Yes | Yes | No | No | Yes |
| South Bend (IN) | Yes | Yes | Yes | No | Yes | No |
| Springfield (MO) | Yes | Yes | No | No | Yes | No |
| Sarasota (FL) | Yes | Yes | Yes | Yes | Yes | Yes |
| Sioux City (IA) | Yes | Yes | No | No | No | No |
| Tallahassee (FL) | No | Yes | Yes | Yes | Yes | No |
| **Overall** | **Yes** | **Yes** | **Yes** | **No** | **Yes** | **No** |
| **Medium-sized-community airports** | | | | | | |
| Albuquerque (NM) | Yes | Yes | Yes | Yes | Yes | Yes |
| Augusta (GA) | No | No | No | No | No | No |
| Bakersfield (CA) | [a] | Yes | No | No | No | No |
| Baton Rouge (LA) | Yes | Yes | Yes | Yes | No | No |
| Columbia (SC) | No | No | No | No | No | Yes |
| Chattanooga (TN) | No | Yes | No | No | No | No |
| Charleston (SC) | Yes | No | No | No | No | No |
| Colorado Springs (CO) | Yes | Yes | Yes | Yes | Yes | Yes |
| Corpus Christi (TX) | Yes | Yes | Yes | No | No | No |
| Daytona Beach (FL) | Yes | Yes | No | Yes | No | No |
| Des Moines (IA) | No | Yes | No | No | Yes | No |
| El Paso (TX) | Yes | Yes | Yes | Yes | Yes | Yes |
| Fresno (CA) | Yes | Yes | No | Yes | No | No |
| Flint (MI) | No | Yes | No | No | No | No |
| Fort Wayne (IN) | No | Yes | Yes | Yes | Yes | No |
| Spokane (WA) | Yes | Yes | Yes | No | Yes | Yes |
| Greenville (SC) | [a] | Yes | Yes | No | Yes | Yes |
| Wichita (KS) | Yes | Yes | No | No | No | No |
| Jackson (MS) | No | Yes | No | No | No | No |
| Lansing (MI) | [a] | Yes | No | Yes | Yes | No |
| Las Vegas (NV) | Yes | Yes | Yes | Yes | Yes | Yes |
| Lexington (KY) | No | Yes | Yes | No | Yes | No |
| Little Rock (AR) | Yes | Yes | Yes | Yes | Yes | Yes |

(continued)

| | Lower fares | More departures | More seats | More nonstop options | More one-stops | More jets |
|---|---|---|---|---|---|---|
| Saginaw/Midland (MI) | No | Yes | No | No | Yes | No |
| Harrisburg (PA) | Yes | Yes | Yes | Yes | Yes | Yes |
| McAllen/Mission (TX) | Yes | Yes | Yes | No | Yes | Yes |
| Melbourne (FL) | Yes | Yes | Yes | Yes | Yes | No |
| Moline (IL) | No | No | No | No | No | No |
| Mobile (AL) | No | Yes | No | Yes | No | No |
| Monterey (CA) | No | Yes | No | No | Yes | No |
| Madison (WI) | [a] | No | No | No | No | No |
| Peoria (IL) | Yes | No | No | No | No | No |
| Pensacola (FL) | Yes | Yes | Yes | Yes | Yes | Yes |
| Santa Barbara (CA) | Yes | Yes | Yes | Yes | No | No |
| Shreveport (LA) | [a] | No | No | No | No | No |
| Bristol/Kingsport (TN) | No | Yes | No | No | No | No |
| Tucson (AZ) | Yes | Yes | Yes | Yes | Yes | Yes |
| Knoxville (TN) | No | Yes | Yes | No | No | No |
| **Overall** | **Yes** | **Yes** | **Yes** | **No** | **Yes** | **Yes** |
| **Large-community airports** | | | | | | |
| Atlanta (GA) | No | Yes | Yes | Yes | No | Yes |
| Boston (MA) | Yes | Yes | Yes | Yes | No | Yes |
| Cleveland (OH) | Yes | Yes | Yes | Yes | No | Yes |
| Washington National (D.C.) | Yes | Yes | Yes | No | No | Yes |
| Denver (CO) | Yes | Yes | Yes | Yes | No | Yes |
| Dallas/Fort Worth (TX) | No | Yes | Yes | Yes | No | Yes |
| Detroit (MI) | No | Yes | Yes | Yes | No | Yes |
| Newark (NJ) | Yes | Yes | Yes | Yes | No | Yes |
| Houston Hobby (TX) | Yes | Yes | Yes | Yes | Yes | Yes |
| Houston Intercontinental (TX) | Yes | Yes | Yes | Yes | No | Yes |
| New York JFK (NY) | Yes | Yes | Yes | No | No | No |
| Los Angeles (CA) | Yes | Yes | Yes | Yes | No | Yes |
| New York LaGuardia (NY) | Yes | Yes | Yes | No | No | Yes |
| Kansas City (MO) | Yes | Yes | Yes | Yes | Yes | Yes |
| Miami (FL) | Yes | Yes | Yes | Yes | No | Yes |
| Minneapolis (MN) | No | Yes | Yes | Yes | Yes | Yes |
| Chicago O'Hare (IL) | No | Yes | Yes | No | No | Yes |
| Philadelphia (PA) | No | Yes | Yes | Yes | No | Yes |
| Phoenix (AZ) | Yes | Yes | Yes | Yes | Yes | Yes |
| Pittsburgh (PA) | No | Yes | Yes | Yes | No | Yes |

(continued)

| | Lower fares | More departures | More seats | More nonstop options | More one-stops | More jets |
|---|---|---|---|---|---|---|
| San Diego (CA) | Yes | Yes | Yes | Yes | Yes | Yes |
| Seattle (WA) | Yes | Yes | Yes | Yes | Yes | Yes |
| San Francisco (CA) | Yes | Yes | Yes | No | No | Yes |
| St. Louis (MO) | Yes | Yes | Yes | Yes | No | Yes |
| Tampa (FL) | Yes | Yes | Yes | Yes | Yes | No |
| **Overall** | **Yes** | **Yes** | **Yes** | **Yes** | **No** | **Yes** |

[a]We did not find a statistically significant increase or decrease in fares from 1979 to 1994.

Source: GAO's analysis of data from DOT and OAG.

# Fare Per Passenger Mile at Airports Serving Small, Medium-Sized, and Large Communities for 1979, 1984, 1988, 1991, and 1994

| | Cents per passenger mile in 1994 dollars | | | | | Percentage change, | Sampling |
|---|---|---|---|---|---|---|---|
| | 1979 | 1984 | 1988 | 1991 | 1994 | 1979-94 | error (+ or -) |
| **Small-community airports** | | | | | | | |
| Amarillo (TX) | 23.3 | 24.0 | 21.8 | 19.5 | 19.9 | **- 14.8** | **1.1** |
| Appleton (WI) | 27.6 | 35.0 | 28.9 | 30.0 | 28.4 | **3.0** | **2.3** |
| Asheville (NC) | 27.9 | 34.8 | 26.4 | 28.1 | 22.7 | **- 18.4** | **1.4** |
| Kalamazoo County (MI) | 25.9 | 30.7 | 24.3 | 24.6 | 24.9 | **- 3.6** | **1.4** |
| Binghamton (NY) | 21.6 | 27.8 | 19.2 | 21.3 | 20.1 | **- 7.0** | **1.9** |
| Bangor (ME) | 21.2 | 24.8 | 21.8 | 20.6 | 18.8 | **- 11.4** | **1.3** |
| Billings (MT) | 23.5 | 27.5 | 20.9 | 20.7 | 20.4 | **- 13.0** | **1.1** |
| Bismarck (ND) | 24.3 | 26.5 | 20.1 | 20.3 | 19.4 | **- 20.4** | **1.6** |
| Boise (ID) | 20.8 | 26.3 | 20.1 | 21.5 | 19.0 | **- 9.0** | **1.1** |
| Burlington (VT) | 21.7 | 23.9 | 17.2 | 18.9 | 18.9 | **- 13.2** | **1.2** |
| Cedar Rapids (IA) | 20.9 | 25.5 | 20.4 | 19.3 | 21.8 | **4.3** | **1.2** |
| Champaign (IL) | 26.5 | 26.8 | 23.0 | 22.9 | 25.3 | **- 4.2** | **2.0** |
| Charleston (WV) | 26.0 | 33.9 | 27.5 | 30.0 | 32.4 | **24.7** | **1.9** |
| Duluth (MN) | 24.3 | 27.4 | 19.8 | 22.3 | 20.9 | **- 14.0** | **1.7** |
| Elmira/Corning (NY) | 23.9 | 30.7 | 23.6 | 27.0 | 28.7 | **20.3** | **2.9** |
| Erie (PA) | 24.3 | 33.0 | 22.9 | 25.2 | 26.5 | **9.1** | **1.8** |
| Eugene (OR) | 20.4 | 21.5 | 16.6 | 18.7 | 15.8 | **- 22.4** | **1.7** |
| Evansville (IN) | 25.4 | 36.4 | 24.6 | 29.3 | 28.6 | **12.8** | **1.9** |
| Fargo (ND) | 23.0 | 26.8 | 20.1 | 21.7 | 19.1 | **- 16.7** | **1.1** |
| Fayetteville (NC) | 25.3 | 26.0 | 23.2 | 21.7 | 24.3 | **- 4.0** | **1.5** |
| Sioux Falls (SD) | 23.0 | 24.4 | 20.6 | 21.6 | 20.3 | **- 11.7** | **1.1** |
| Grand Junction (CO) | 25.5 | 27.9 | 22.3 | 24.7 | 24.9 | **- 2.4** | **2.3** |
| Gainesville (FL) | 23.4 | 31.5 | 23.1 | 25.6 | 25.9 | **10.8** | **5.4** |
| Green Bay (WI) | 22.7 | 28.4 | 21.1 | 22.7 | 23.5 | **3.6** | **1.6** |
| Great Falls (MT) | 21.7 | 24.1 | 17.7 | 18.1 | 18.5 | **- 14.7** | **1.6** |
| Harlingen (TX) | 21.2 | 19.1 | 20.6 | 16.8 | 16.9 | **- 20.1** | **3.8** |
| Huntsville (AL) | 24.8 | 35.7 | 29.6 | 28.2 | 30.4 | **22.5** | **1.5** |
| Wilmington (NC) | 29.7 | 28.5 | 25.1 | 28.1 | 26.9 | **- 9.5** | **1.9** |
| Lubbock (TX) | 26.2 | 24.2 | 17.3 | 18.0 | 20.7 | **- 21.2** | **2.4** |
| Lafayette (LA) | 25.4 | 24.9 | 19.9 | 20.3 | 19.5 | **- 23.2** | **1.3** |
| Lincoln (NB) | 20.9 | 24.0 | 18.6 | 20.0 | 19.1 | **- 8.5** | **1.3** |
| Midland (TX) | 27.0 | 21.7 | 17.6 | 18.0 | 18.6 | **- 31.1** | **1.5** |
| Montgomery (AL) | 24.0 | 35.4 | 30.2 | 28.5 | 29.7 | **23.6** | **1.5** |
| Manchester (NH) | 24.3 | 31.5 | 20.8 | 21.9 | 22.8 | **- 6.4** | **2.0** |
| Missoula (MT) | 23.1 | 24.4 | 18.4 | 17.9 | 20.1 | **- 13.1** | **2.5** |

(continued)

| | Cents per passenger mile in 1994 dollars | | | | | Percentage change, | Sampling |
|---|---|---|---|---|---|---|---|
| | 1979 | 1984 | 1988 | 1991 | 1994 | 1979-94 | error (+ or -) |
| Myrtle Beach (SC) | 28.6 | 32.9 | 27.5 | 27.6 | 26.0 | **- 9.0** | **2.5** |
| Pasco (WA) | 24.4 | 25.8 | 22.2 | 24.9 | 24.8 | **1.5** | **3.8** |
| Portland (ME) | 21.0 | 24.8 | 18.6 | 20.2 | 19.8 | **- 5.8** | **1.0** |
| Rapid City (SD) | 24.8 | 28.4 | 22.2 | 21.2 | 21.6 | **- 12.8** | **1.8** |
| Reno (NV) | 19.5 | 23.4 | 19.7 | 18.1 | 15.4 | **- 21.1** | **0.9** |
| Roanoke (VA) | 26.3 | 31.8 | 24.9 | 27.5 | 23.3 | **- 11.6** | **1.4** |
| Rochester (MN) | 22.5 | 28.1 | 20.0 | 25.7 | 23.6 | **4.9** | **2.2** |
| Fort Myers (FL) | 20.1 | 26.0 | 16.1 | 17.9 | 15.7 | **- 21.8** | **0.8** |
| Savannah (GA) | 23.7 | 32.0 | 25.3 | 25.6 | 23.0 | **- 2.9** | **1.2** |
| South Bend (IN) | 21.8 | 28.5 | 20.9 | 21.5 | 21.1 | **- 3.4** | **1.3** |
| Springfield (MO) | 23.2 | 25.2 | 20.6 | 22.5 | 20.6 | **- 11.2** | **1.2** |
| Sarasota (FL) | 20.6 | 26.4 | 17.3 | 19.1 | 16.6 | **- 19.3** | **0.9** |
| Sioux City (IA) | 22.8 | 24.0 | 18.1 | 20.5 | 20.1 | **- 11.8** | **2.4** |
| Tallahassee (FL) | 26.9 | 36.7 | 28.1 | 29.6 | 27.8 | **3.6** | **1.1** |
| **Overall** | **23.0** | **27.2** | **20.8** | **21.7** | **21.0** | **- 8.5** | **0.2** |
| **Medium-sized-community airports** | | | | | | | |
| Albuquerque (NM) | 24.4 | 18.9 | 16.9 | 16.7 | 16.5 | **- 32.4** | **0.4** |
| Augusta (GA) | 23.5 | 33.3 | 29.9 | 28.1 | 29.7 | **26.3** | **1.6** |
| Bakersfield (CA) | 20.9 | 24.4 | 20.4 | 20.6 | 20.9 | **0.3** | **3.3** |
| Baton Rouge (LA) | 24.2 | 28.1 | 23.5 | 22.8 | 21.6 | **- 10.7** | **0.9** |
| Columbia (SC) | 23.6 | 34.1 | 26.9 | 26.7 | 25.5 | **8.1** | **1.0** |
| Chattanooga (TN) | 25.6 | 37.1 | 32.4 | 32.5 | 32.3 | **26.2** | **1.4** |
| Charleston (SC) | 23.4 | 32.8 | 24.7 | 25.9 | 22.3 | **- 4.9** | **0.9** |
| Colorado Springs (CO) | 25.7 | 19.3 | 19.3 | 19.8 | 19.6 | **- 23.6** | **0.9** |
| Corpus Christi (TX) | 23.5 | 21.8 | 21.2 | 17.9 | 18.7 | **- 20.3** | **0.8** |
| Daytona Beach (FL) | 21.2 | 28.0 | 18.8 | 20.8 | 18.7 | **- 11.7** | **1.3** |
| Des Moines (IA) | 20.9 | 24.3 | 20.0 | 19.5 | 22.8 | **9.3** | **0.9** |
| El Paso (TX) | 24.3 | 19.9 | 17.9 | 16.1 | 16.6 | **- 31.5** | **0.6** |
| Fresno (CA) | 19.6 | 23.2 | 20.7 | 19.2 | 17.4 | **- 11.4** | **1.2** |
| Flint (MI) | 21.1 | 23.4 | 17.7 | 19.2 | 22.9 | **8.1** | **2.1** |
| Fort Wayne (IN) | 21.9 | 29.9 | 23.7 | 24.6 | 22.8 | **4.2** | **1.1** |
| Spokane (WA) | 19.4 | 22.2 | 17.0 | 17.1 | 15.4 | **- 20.6** | **1.0** |
| Greenville (SC) | 25.9 | 35.9 | 29.1 | 29.9 | 25.7 | **- 0.4** | **0.9** |
| Wichita (KS) | 23.9 | 25.6 | 20.4 | 21.8 | 21.9 | **- 8.4** | **0.9** |
| Jackson (MS) | 24.0 | 32.6 | 26.9 | 27.3 | 30.0 | **25.1** | **1.1** |
| Lansing (MI) | 21.4 | 27.1 | 19.2 | 20.2 | 21.1 | **- 1.1** | **1.3** |
| Las Vegas (NV) | 22.5 | 21.3 | 16.8 | 16.3 | 15.3 | **- 32.2** | **0.4** |

(continued)

| | Cents per passenger mile in 1994 dollars | | | | | Percentage change, | Sampling |
|---|---|---|---|---|---|---|---|
| | 1979 | 1984 | 1988 | 1991 | 1994 | 1979-94 | error (+ or -) |
| Lexington (KY) | 24.6 | 34.6 | 27.6 | 28.9 | 28.7 | **16.6** | **1.2** |
| Little Rock (AR) | 25.4 | 32.3 | 25.7 | 23.4 | 22.1 | **- 12.8** | **0.6** |
| Saginaw/Midland (MI) | 20.3 | 31.2 | 22.2 | 22.6 | 22.3 | **9.5** | **1.4** |
| Harrisburg (PA) | 22.3 | 28.4 | 21.8 | 23.2 | 21.4 | **- 4.0** | **1.0** |
| McAllen/Mission (TX) | 22.4 | 19.1 | 18.1 | 18.4 | 19.6 | **- 12.8** | **2.0** |
| Melbourne (FL) | 21.2 | 27.2 | 19.2 | 20.0 | 18.0 | **- 14.8** | **1.3** |
| Moline (IL) | 20.9 | 26.1 | 20.6 | 20.0 | 21.3 | **2.3** | **1.1** |
| Mobile (AL) | 23.8 | 32.4 | 23.6 | 25.3 | 26.4 | **10.9** | **1.4** |
| Monterey (CA) | 19.3 | 25.8 | 22.3 | 21.0 | 21.2 | **9.9** | **2.4** |
| Madison (WI) | 21.9 | 25.4 | 20.9 | 21.3 | 21.7 | **- 0.8** | **1.0** |
| Peoria (IL) | 23.8 | 27.3 | 21.8 | 20.5 | 22.2 | **- 6.9** | **1.3** |
| Pensacola (FL) | 23.3 | 31.1 | 23.5 | 21.4 | 22.0 | **- 5.6** | **1.1** |
| Santa Barbara (CA) | 19.2 | 23.6 | 18.6 | 18.9 | 18.7 | **- 2.7** | **2.3** |
| Shreveport (LA) | 23.6 | 33.5 | 24.5 | 24.3 | 23.7 | **0.5** | **1.1** |
| Bristol/Kingsport (TN) | 27.1 | 34.8 | 29.6 | 30.3 | 30.6 | **12.9** | **1.7** |
| Tucson (AZ) | 21.4 | 21.0 | 16.0 | 17.8 | 16.5 | **- 22.7** | **0.6** |
| Knoxville (TN) | 25.0 | 36.3 | 28.6 | 31.5 | 31.3 | **25.1** | **1.1** |
| **Overall** | **23.0** | **25.6** | **20.8** | **20.8** | **20.5** | **- 10.9** | **0.2** |
| **Large-community airports** | | | | | | | |
| Atlanta (GA) | 23.7 | 34.7 | 30.2 | 31.6 | 25.0 | **5.6** | **0.3** |
| Boston (MA) | 19.6 | 21.3 | 18.7 | 20.1 | 18.7 | **- 4.4** | **0.2** |
| Cleveland (OH) | 20.0 | 26.3 | 19.9 | 23.4 | 18.3 | **- 8.7** | **0.3** |
| Washington National (D.C.) | 24.3 | 26.1 | 23.4 | 25.0 | 23.6 | **- 2.8** | **0.4** |
| Denver (CO) | 21.1 | 19.8 | 21.3 | 23.4 | 20.3 | **- 3.9** | **0.4** |
| Dallas/Fort Worth (TX) | 22.7 | 25.0 | 24.4 | 25.2 | 25.0 | **10.1** | **0.3** |
| Detroit (MI) | 20.2 | 23.4 | 18.1 | 20.8 | 21.3 | **5.3** | **0.3** |
| Newark (NJ) | 20.5 | 20.0 | 18.5 | 21.6 | 17.5 | **- 14.9** | **0.3** |
| Houston Hobby (TX) | 22.3 | 19.3 | 19.6 | 17.9 | 16.0 | **- 28.3** | **1.8** |
| Houston Intercontinental (TX) | 22.2 | 20.1 | 21.9 | 23.3 | 21.1 | **- 4.7** | **0.3** |
| New York JFK (NY) | 15.6 | 17.9 | 14.3 | 13.4 | 12.7 | **- 18.7** | **0.4** |
| Los Angeles (CA) | 17.4 | 18.1 | 15.1 | 14.6 | 14.0 | **- 19.2** | **0.3** |
| New York LaGuardia (NY) | 22.7 | 23.6 | 21.9 | 24.4 | 21.4 | **- 5.8** | **0.3** |
| Kansas City (MO) | 22.0 | 21.5 | 16.5 | 18.3 | 16.5 | **- 25.1** | **0.3** |
| Miami (FL) | 18.0 | 20.0 | 16.1 | 16.9 | 15.9 | **- 11.7** | **0.4** |
| Minneapolis (MN) | 21.3 | 24.2 | 21.3 | 24.5 | 25.0 | **17.4** | **0.4** |
| Chicago O'Hare (IL) | 20.8 | 26.9 | 22.7 | 23.3 | 21.1 | **1.2** | **0.3** |
| Philadelphia (PA) | 20.2 | 23.7 | 20.9 | 22.0 | 20.4 | **1.0** | **0.3** |

(continued)

| | Cents per passenger mile in 1994 dollars | | | | | Percentage change, 1979-94 | Sampling error (+ or -) |
|---|---|---|---|---|---|---|---|
| | 1979 | 1984 | 1988 | 1991 | 1994 | | |
| Phoenix (AZ) | 22.3 | 18.5 | 14.6 | 14.6 | 15.0 | **- 32.4** | **0.2** |
| Pittsburgh (PA) | 21.2 | 28.4 | 22.1 | 26.1 | 25.7 | **21.4** | **0.5** |
| San Diego (CA) | 18.6 | 18.0 | 14.9 | 14.6 | 14.1 | **- 24.1** | **0.5** |
| Seattle (WA) | 18.2 | 18.8 | 14.9 | 15.5 | 13.3 | **- 27.1** | **0.3** |
| San Francisco (CA) | 17.1 | 18.8 | 15.7 | 15.2 | 14.3 | **- 16.0** | **0.4** |
| St. Louis (MO) | 22.7 | 27.7 | 23.3 | 21.8 | 19.7 | **- 13.2** | **0.3** |
| Tampa (FL) | 19.9 | 22.7 | 19.0 | 20.3 | 16.6 | **- 16.5** | **0.4** |
| **Overall** | **20.2** | **22.1** | **19.2** | **20.3** | **18.5** | **- 8.3** | **0.1** |

Note: App. III provides the sampling error for each specific fare estimate.

Source: GAO's analysis of DOT's O&D Survey.

# Sampling Errors for Estimates of Fares Per Passenger Mile for 1979, 1984, 1988, 1991, and 1994

| | Cents per passenger mile in 1994 dollars | | | | |
|---|---|---|---|---|---|
| | 1979 (+ or -) | 1984 (+ or -) | 1988 (+ or -) | 1991 (+ or -) | 1994 (+ or -) |
| **Small-community airports** | | | | | |
| Amarillo (TX) | 0.15 | 0.17 | 0.16 | 0.19 | 0.21 |
| Appleton (WI) | 0.49 | 0.51 | 0.54 | 0.35 | 0.37 |
| Asheville (NC) | 0.34 | 0.43 | 0.42 | 0.34 | 0.27 |
| Kalamazoo County (MI) | 0.21 | 0.42 | 0.32 | 0.26 | 0.30 |
| Binghamton (NY) | 0.23 | 0.36 | 0.31 | 0.36 | 0.34 |
| Bangor (ME) | 0.21 | 0.25 | 0.34 | 0.34 | 0.21 |
| Billings (MT) | 0.18 | 0.22 | 0.25 | 0.26 | 0.23 |
| Bismarck (ND) | 0.35 | 0.25 | 0.28 | 0.31 | 0.29 |
| Boise (ID) | 0.17 | 0.22 | 0.23 | 0.37 | 0.17 |
| Burlington (VT) | 0.20 | 0.37 | 0.16 | 0.18 | 0.20 |
| Cedar Rapids (IA) | 0.18 | 0.23 | 0.21 | 0.16 | 0.18 |
| Champaign (IL) | 0.28 | 0.27 | 0.33 | 0.28 | 0.47 |
| Charleston (WV) | 0.19 | 0.31 | 0.38 | 0.38 | 0.44 |
| Duluth (MN) | 0.23 | 0.33 | 0.35 | 0.35 | 0.35 |
| Elmira/Corning (NY) | 0.31 | 0.39 | 0.51 | 0.48 | 0.58 |
| Erie (PA) | 0.20 | 0.42 | 0.40 | 0.33 | 0.38 |
| Eugene (OR) | 0.39 | 0.21 | 0.24 | 0.25 | 0.22 |
| Evansville (IN) | 0.16 | 0.52 | 0.36 | 0.37 | 0.44 |
| Fargo (ND) | 0.20 | 0.22 | 0.24 | 0.27 | 0.21 |
| Fayetteville (NC) | 0.27 | 0.29 | 0.34 | 0.24 | 0.27 |
| Sioux Falls (SD) | 0.19 | 0.18 | 0.24 | 0.24 | 0.22 |
| Grand Junction (CO) | 0.44 | 0.39 | 0.38 | 0.43 | 0.43 |
| Gainesville (FL) | 0.20 | 0.36 | 0.35 | 0.39 | 1.25 |
| Green Bay (WI) | 0.26 | 0.24 | 0.30 | 0.24 | 0.26 |
| Great Falls (MT) | 0.25 | 0.28 | 0.30 | 0.27 | 0.27 |
| Harlingen (TX) | 0.96 | 0.23 | 0.18 | 0.19 | 0.21 |
| Huntsville (AL) | 0.24 | 0.21 | 0.28 | 0.21 | 0.24 |
| Wilmington (NC) | 0.46 | 0.45 | 0.48 | 0.43 | 0.38 |
| Lubbock (TX) | 0.27 | 0.48 | 0.14 | 0.37 | 0.60 |
| Lafayette (LA) | 0.30 | 0.35 | 0.35 | 0.31 | 0.25 |
| Lincoln (NB) | 0.23 | 0.29 | 0.19 | 0.26 | 0.21 |
| Midland (TX) | 0.33 | 0.35 | 0.15 | 0.29 | 0.33 |
| Montgomery (AL) | 0.15 | 0.28 | 0.41 | 0.34 | 0.32 |
| Manchester (NH) | 0.43 | 0.87 | 0.31 | 0.22 | 0.27 |
| Missoula (MT) | 0.39 | 0.31 | 0.32 | 0.32 | 0.48 |
| Myrtle Beach (SC) | 0.62 | 0.55 | 0.61 | 0.46 | 0.43 |

(continued)

| | Cents per passenger mile in 1994 dollars | | | | |
|---|---|---|---|---|---|
| | 1979 (+ or -) | 1984 (+ or -) | 1988 (+ or -) | 1991 (+ or -) | 1994 (+ or -) |
| Pasco (WA) | 0.29 | 0.34 | 0.45 | 0.70 | 0.92 |
| Portland (ME) | 0.16 | 0.38 | 0.15 | 0.15 | 0.15 |
| Rapid City (SD) | 0.26 | 0.30 | 0.31 | 0.35 | 0.40 |
| Reno (NV) | 0.17 | 0.12 | 0.14 | 0.12 | 0.10 |
| Roanoke (VA) | 0.29 | 0.31 | 0.34 | 0.29 | 0.26 |
| Rochester (MN) | 0.26 | 0.41 | 0.35 | 0.43 | 0.41 |
| Fort Myers (FL) | 0.15 | 0.24 | 0.11 | 0.11 | 0.11 |
| Savannah (GA) | 0.17 | 0.24 | 0.30 | 0.24 | 0.22 |
| South Bend (IN) | 0.19 | 0.24 | 0.23 | 0.18 | 0.23 |
| Springfield (MO) | 0.24 | 0.24 | 0.27 | 0.28 | 0.20 |
| Sarasota (FL) | 0.15 | 0.23 | 0.13 | 0.14 | 0.14 |
| Sioux City (IA) | 0.36 | 0.71 | 0.28 | 0.44 | 0.46 |
| Tallahassee (FL) | 0.15 | 0.27 | 0.29 | 0.22 | 0.26 |
| **Overall** | **0.04** | **0.05** | **0.04** | **0.04** | **0.04** |
| **Medium-sized-community airports** | | | | | |
| Albuquerque (NM) | 0.11 | 0.06 | 0.06 | 0.08 | 0.06 |
| Augusta (GA) | 0.18 | 0.26 | 0.43 | 0.30 | 0.31 |
| Bakersfield (CA) | 0.37 | 0.61 | 0.43 | 0.30 | 0.59 |
| Baton Rouge (LA) | 0.14 | 0.19 | 0.23 | 0.18 | 0.17 |
| Columbia (SC) | 0.14 | 0.20 | 0.26 | 0.20 | 0.19 |
| Chattanooga (TN) | 0.15 | 0.27 | 0.41 | 0.31 | 0.30 |
| Charleston (SC) | 0.14 | 0.20 | 0.25 | 0.20 | 0.16 |
| Colorado Springs (CO) | 0.26 | 0.13 | 0.12 | 0.14 | 0.13 |
| Corpus Christi (TX) | 0.15 | 0.15 | 0.18 | 0.17 | 0.16 |
| Daytona Beach (FL) | 0.19 | 0.37 | 0.22 | 0.23 | 0.21 |
| Des Moines (IA) | 0.12 | 0.10 | 0.13 | 0.13 | 0.15 |
| El Paso (TX) | 0.17 | 0.13 | 0.07 | 0.07 | 0.07 |
| Fresno (CA) | 0.19 | 0.21 | 0.23 | 0.18 | 0.19 |
| Flint (MI) | 0.26 | 0.37 | 0.29 | 0.28 | 0.36 |
| Fort Wayne (IN) | 0.14 | 0.22 | 0.29 | 0.23 | 0.21 |
| Spokane (WA) | 0.14 | 0.15 | 0.15 | 0.17 | 0.16 |
| Greenville (SC) | 0.15 | 0.22 | 0.28 | 0.22 | 0.18 |
| Wichita (KS) | 0.18 | 0.12 | 0.14 | 0.16 | 0.15 |
| Jackson (MS) | 0.12 | 0.18 | 0.26 | 0.23 | 0.23 |
| Lansing (MI) | 0.17 | 0.29 | 0.25 | 0.20 | 0.21 |
| Las Vegas (NV) | 0.10 | 0.07 | 0.06 | 0.06 | 0.07 |
| Lexington (KY) | 0.14 | 0.21 | 0.30 | 0.24 | 0.25 |
| Little Rock (AK) | 0.11 | 0.15 | 0.16 | 0.15 | 0.12 |

(continued)

| | Cents per passenger mile in 1994 dollars | | | | |
|---|---|---|---|---|---|
| | 1979 (+ or -) | 1984 (+ or -) | 1988 (+ or -) | 1991 (+ or -) | 1994 (+ or -) |
| Saginaw/Midland (MI) | 0.16 | 0.27 | 0.33 | 0.27 | 0.24 |
| Harrisburg (PA) | 0.13 | 0.24 | 0.22 | 0.18 | 0.19 |
| McAllen/Mission (TX) | 0.46 | 0.24 | 0.23 | 0.24 | 0.22 |
| Melbourne (FL) | 0.19 | 0.31 | 0.23 | 0.24 | 0.23 |
| Moline (IL) | 0.13 | 0.21 | 0.23 | 0.18 | 0.18 |
| Mobile (AL) | 0.16 | 0.24 | 0.27 | 0.24 | 0.29 |
| Monterey (CA) | 0.27 | 0.26 | 0.43 | 0.27 | 0.39 |
| Madison (WI) | 0.14 | 0.14 | 0.19 | 0.23 | 0.16 |
| Peoria (IL) | 0.20 | 0.20 | 0.28 | 0.21 | 0.26 |
| Pensacola (FL) | 0.16 | 0.25 | 0.25 | 0.18 | 0.21 |
| Santa Barbara (CA) | 0.31 | 0.28 | 0.25 | 0.25 | 0.34 |
| Shreveport (LA) | 0.12 | 0.21 | 0.25 | 0.25 | 0.23 |
| Bristol/Kingsport (TN) | 0.27 | 0.39 | 0.47 | 0.36 | 0.34 |
| Tucson (AZ) | 0.11 | 0.09 | 0.09 | 0.10 | 0.09 |
| Knoxville (TN) | 0.13 | 0.27 | 0.27 | 0.21 | 0.21 |
| **Overall** | **0.03** | **0.03** | **0.03** | **0.03** | **0.03** |
| **Large-community airports** | | | | | |
| Atlanta (GA) | 0.04 | 0.06 | 0.08 | 0.06 | 0.05 |
| Boston (MA) | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 |
| Cleveland (OH) | 0.05 | 0.07 | 0.07 | 0.07 | 0.05 |
| Washington National (D.C.) | 0.07 | 0.06 | 0.07 | 0.06 | 0.06 |
| Denver (CO) | 0.05 | 0.04 | 0.05 | 0.09 | 0.06 |
| Dallas/Fort Worth (TX) | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 |
| Detroit (MI) | 0.04 | 0.08 | 0.05 | 0.05 | 0.05 |
| Newark (NJ) | 0.06 | 0.04 | 0.04 | 0.04 | 0.03 |
| Houston Hobby (TX) | 0.51 | 0.42 | 0.08 | 0.12 | 0.17 |
| Houston Intercontinental (TX) | 0.04 | 0.04 | 0.07 | 0.07 | 0.06 |
| New York JFK (NY) | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 |
| Los Angeles (CA) | 0.04 | 0.05 | 0.03 | 0.03 | 0.03 |
| New York LaGuardia (NY) | 0.06 | 0.04 | 0.05 | 0.05 | 0.04 |
| Kansas City (MO) | 0.05 | 0.05 | 0.05 | 0.10 | 0.05 |
| Miami (FL) | 0.04 | 0.05 | 0.05 | 0.05 | 0.06 |
| Minneapolis (MN) | 0.04 | 0.05 | 0.06 | 0.07 | 0.06 |
| Chicago O'Hare (IL) | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 |
| Philadelphia (PA) | 0.04 | 0.04 | 0.06 | 0.05 | 0.04 |
| Phoenix (AZ) | 0.06 | 0.04 | 0.03 | 0.04 | 0.04 |
| Pittsburgh (PA) | 0.04 | 0.07 | 0.08 | 0.08 | 0.08 |
| San Diego (CA) | 0.10 | 0.05 | 0.04 | 0.05 | 0.05 |

(continued)

| | Cents per passenger mile in 1994 dollars | | | | |
|---|---|---|---|---|---|
| | 1979 (+ or -) | 1984 (+ or -) | 1988 (+ or -) | 1991 (+ or -) | 1994 (+ or -) |
| Seattle (WA) | 0.06 | 0.05 | 0.05 | 0.08 | 0.05 |
| San Francisco (CA) | 0.05 | 0.04 | 0.04 | 0.05 | 0.04 |
| St. Louis (MO) | 0.05 | 0.07 | 0.08 | 0.07 | 0.05 |
| Tampa (FL) | 0.07 | 0.07 | 0.07 | 0.06 | 0.05 |
| **Overall** | **0.01** | **0.01** | **0.01** | **0.01** | **0.01** |

# Number of Scheduled Departures and Seats at Sampled Airports Serving Small-, Medium-Sized, and Large Communities, May 1978-May 1995

| | Total departures, May 1978 | Total departures, May 1995 | Total seats, May 1978 | Total seats, May 1995 | Percentage change in departures | Percentage change in seats |
|---|---|---|---|---|---|---|
| **Small-community airports** | | | | | | |
| Amarillo (TX) | 705 | 633 | 72,113 | 58,432 | **- 10.2** | **- 19.0** |
| Appleton (WI) | 482 | 801 | 9,158 | 36,128 | **66.2** | **294.5** |
| Asheville (NC) | 774 | 732 | 62,184 | 43,917 | **- 5.4** | **- 29.4** |
| Kalamazoo County (MI) | 480 | 908 | 36,277 | 52,049 | **89.2** | **43.5** |
| Binghamton (NY) | 1,051 | 1,013 | 29,527 | 38,226 | **- 3.6** | **29.5** |
| Bangor (ME) | 579 | 926 | 33,800 | 39,431 | **59.9** | **16.7** |
| Billings (MT) | 836 | 982 | 78,386 | 69,298 | **17.5** | **- 11.6** |
| Bismarck (ND) | 461 | 711 | 44,043 | 33,759 | **54.2** | **- 23.3** |
| Boise (ID) | 978 | 2,360 | 90,470 | 171,384 | **141.3** | **89.4** |
| Burlington (VT) | 700 | 1,890 | 37,982 | 77,878 | **170.0** | **105.0** |
| Cedar Rapids (IA) | 716 | 1,224 | 65,283 | 69,123 | **70.9** | **5.9** |
| Champaign (IL) | 422 | 858 | 33,860 | 26,382 | **103.3** | **- 22.1** |
| Charleston (WV) | 871 | 1,021 | 68,712 | 50,482 | **17.2** | **- 26.5** |
| Duluth (MN) | 457 | 379 | 44,384 | 20,515 | **- 17.1** | **- 53.8** |
| Elmira (NY) | 371 | 392 | 18,821 | 18,042 | **5.7** | **- 4.1** |
| Erie (PA) | 321 | 347 | 28,393 | 23,164 | **8.1** | **- 18.4** |
| Eugene (OR) | 587 | 942 | 41,245 | 46,657 | **60.5** | **13.1** |
| Evansville (IN) | 592 | 1,423 | 48,739 | 44,972 | **140.4** | **- 7.7** |
| Fargo (ND) | 514 | 645 | 54,488 | 43,036 | **25.5** | **- 21.0** |
| Fayetteville (NC) | 488 | 463 | 51,051 | 25,140 | **- 5.1** | **- 50.7** |
| Sioux Falls (SD) | 908 | 678 | 66,762 | 45,804 | **- 25.3** | **- 31.4** |
| Grand Junction (CO) | 360 | 679 | 24,166 | 20,916 | **88.6** | **- 13.4** |
| Gainesville (FL) | 328 | 692 | 28,856 | 28,321 | **111.0** | **- 1.8** |
| Green Bay (WI) | 987 | 926 | 86,360 | 50,514 | **- 6.2** | **- 41.5** |
| Great Falls (MT) | 395 | 483 | 43,004 | 39,213 | **22.3** | **- 8.8** |
| Harlingen (TX) | 318 | 681 | 31,436 | 70,386 | **114.2** | **123.9** |
| Huntsville (AL) | 712 | 860 | 65,033 | 77,065 | **20.8** | **18.5** |
| Wilmington (NC) | 391 | 563 | 31,711 | 28,936 | **44.0** | **- 8.7** |
| Lubbock (TX) | 1,082 | 1,099 | 107,235 | 95,229 | **1.6** | **- 11.2** |
| Lafayette (LA) | 610 | 592 | 29,136 | 21,672 | **- 3.0** | **- 25.6** |
| Lincoln (NB) | 967 | 695 | 78,326 | 39,876 | **- 28.1** | **- 49.1** |
| Midland (TX) | 909 | 980 | 94,077 | 96,339 | **7.8** | **2.4** |
| Montgomery (AL) | 531 | 766 | 52,121 | 48,244 | **44.3** | **- 7.4** |
| Manchester (NH) | 619 | 1,289 | 19,146 | 80,840 | **108.2** | **322.2** |
| Missoula (MT) | 248 | 510 | 29,698 | 34,964 | **105.6** | **17.7** |

(continued)

| | Total departures, May 1978 | Total departures, May 1995 | Total seats, May 1978 | Total seats, May 1995 | Percentage change in departures | Percentage change in seats |
|---|---|---|---|---|---|---|
| Myrtle Beach (SC) | 410 | 870 | 27,701 | 60,012 | **112.2** | **116.6** |
| Pasco (WA) | 846 | 838 | 32,778 | 33,795 | **- 0.9** | **3.1** |
| Portland (ME) | 861 | 1,675 | 52,248 | 96,650 | **94.5** | **85.0** |
| Rapid City (SD) | 457 | 437 | 43,349 | 26,616 | **- 4.4** | **- 38.6** |
| Reno (NV) | 1,681 | 3,354 | 160,709 | 382,783 | **99.5** | **138.2** |
| Roanoke (VA) | 1,255 | 1,423 | 111,098 | 63,755 | **13.4** | **- 42.6** |
| Rochester (MN) | 739 | 300 | 68,063 | 29,778 | **- 59.4** | **- 56.2** |
| Fort Myers (FL) | 507 | 2,210 | 48,429 | 213,255 | **335.9** | **340.3** |
| Savannah (GA) | 616 | 762 | 66,650 | 82,382 | **23.7** | **23.6** |
| South Bend (IN) | 1,006 | 1,368 | 54,173 | 73,009 | **36.0** | **34.8** |
| Springfield (MO) | 569 | 1,216 | 54,934 | 54,774 | **113.7** | **- 0.3** |
| Sarasota (FL) | 778 | 1,437 | 78,830 | 115,510 | **84.7** | **46.5** |
| Sioux City (IA) | 616 | 1,009 | 47,304 | 26,615 | **63.8** | **- 43.7** |
| Tallahassee (FL) | 653 | 1,918 | 56,840 | 103,616 | **193.7** | **82.3** |
| **Overall** | **32,744** | **48,960** | **2,639,089** | **3,046,502** | **49.5** | **15.4** |
| **Medium-sized-community airports** | | | | | | |
| Albuquerque (NM) | 2,168 | 4,630 | 200,058 | 447,538 | **113.6** | **123.7** |
| Augusta (GA) | 627 | 589 | 62,507 | 39,641 | **- 6.1** | **- 36.6** |
| Bakersfield (CA) | 398 | 991 | 30,571 | 25,238 | **149.0** | **- 17.4** |
| Baton Rouge (LA) | 711 | 1,135 | 67,079 | 77,533 | **59.6** | **15.6** |
| Columbia (SC) | 1,558 | 955 | 106,355 | 101,621 | **- 38.7** | **- 4.4** |
| Chattanooga (TN) | 763 | 830 | 80,509 | 47,870 | **8.8** | **- 40.5** |
| Charleston (SC) | 1,120 | 941 | 112,485 | 108,072 | **- 16.0** | **- 3.9** |
| Colorado Springs (CO) | 1,065 | 1,226 | 73,277 | 130,358 | **15.1** | **77.9** |
| Corpus Christi (TX) | 838 | 1,029 | 59,072 | 70,562 | **22.8** | **19.4** |
| Daytona Beach (FL) | 635 | 715 | 76,357 | 63,268 | **12.6** | **- 17.1** |
| Des Moines (IA) | 1,520 | 1,560 | 147,194 | 111,403 | **2.6** | **- 24.3** |
| El Paso (TX) | 1,587 | 2,567 | 169,580 | 322,520 | **61.7** | **90.2** |
| Fresno (CA) | 1,114 | 2,613 | 93,867 | 79,858 | **134.6** | **- 14.9** |
| Flint (MI) | 441 | 607 | 39,272 | 17,328 | **37.6** | **- 55.9** |
| Fort Wayne (IN) | 800 | 1,192 | 62,971 | 65,041 | **49.0** | **3.3** |
| Spokane (WA) | 1,687 | 3,130 | 148,598 | 220,671 | **85.5** | **48.5** |
| Greenville (SC) | 724 | 1,449 | 69,483 | 110,106 | **100.1** | **58.5** |
| Wichita (KS) | 1,347 | 1,598 | 131,413 | 111,905 | **18.6** | **- 14.8** |
| Jackson (MS) | 1,215 | 1,442 | 113,010 | 93,707 | **18.7** | **- 17.1** |
| Lansing (MI) | 728 | 1,164 | 66,351 | 56,352 | **59.9** | **- 15.1** |
| Las Vegas (NV) | 4,781 | 12,025 | 504,280 | 1,521,663 | **151.5** | **201.7** |

(continued)

| | Total departures, May 1978 | Total departures, May 1995 | Total seats, May 1978 | Total seats, May 1995 | Percentage change in departures | Percentage change in seats |
|---|---|---|---|---|---|---|
| Lexington (KY) | 709 | 1,324 | 72,153 | 90,537 | **87.0** | **25.5** |
| Little Rock (AR) | 1,466 | 2,359 | 132,555 | 213,086 | **60.9** | **60.8** |
| Saginaw (MI) | 503 | 593 | 49,878 | 44,027 | **17.9** | **- 11.7** |
| Harrisburg (PA) | 1,217 | 1,566 | 56,397 | 120,818 | **28.6** | **114.2** |
| McAllen (TX) | 178 | 467 | 16,020 | 42,188 | **162.4** | **163.3** |
| Melbourne (FL) | 372 | 692 | 44,082 | 44,904 | **86.0** | **1.9** |
| Moline (IL) | 983 | 878 | 88,926 | 59,576 | **- 10.7** | **- 33.0** |
| Mobile (AL) | 852 | 859 | 84,355 | 76,825 | **0.8** | **- 8.9** |
| Monterey (CA) | 405 | 1,165 | 41,343 | 38,671 | **187.6** | **- 6.5** |
| Madison (WI) | 1,234 | 1,205 | 117,461 | 84,046 | **- 2.3** | **- 28.4** |
| Peoria (IL) | 863 | 858 | 77,697 | 39,996 | **- 0.6** | **- 48.5** |
| Pensacola (FL) | 364 | 1,883 | 43,955 | 110,479 | **417.3** | **151.3** |
| Santa Barbara (CA) | 782 | 1,694 | 36,912 | 57,873 | **116.6** | **56.8** |
| Shreveport (LA) | 1,399 | 1,348 | 135,214 | 75,464 | **- 3.6** | **- 44.2** |
| Bristol (TN) | 778 | 823 | 65,104 | 41,065 | **5.8** | **- 36.9** |
| Tucson (AZ) | 1,630 | 1,986 | 167,022 | 224,521 | **21.8** | **34.4** |
| Knoxville (TN) | 999 | 1,456 | 100,017 | 111,286 | **45.7** | **11.3** |
| **Overall** | **40,561** | **63,854** | **3,754,122** | **5,318,123** | **57.4** | **41.7** |
| **Large-community airports** | | | | | | |
| Atlanta (GA) | 20,397 | 28,512 | 2,572,539 | 3,450,058 | **39.8** | **34.1** |
| Boston (MA) | 10,023 | 16,037 | 915,009 | 1,388,962 | **60.0** | **51.8** |
| Cleveland (OH) | 5,253 | 8,288 | 562,089 | 762,207 | **57.8** | **35.6** |
| Washington National (D.C.) | 10,524 | 10,758 | 989,939 | 1,198,268 | **2.2** | **21.0** |
| Denver (CO) | 12,105 | 17,806 | 1,237,883 | 1,915,697 | **47.1** | **54.8** |
| Dallas (TX) | 15,117 | 33,285 | 1,628,184 | 3,617,888 | **120.2** | **122.2** |
| Detroit (MI) | 7,088 | 16,599 | 848,386 | 1,743,176 | **134.2** | **105.5** |
| Newark (NJ) | 5,889 | 14,236 | 672,297 | 1,599,474 | **141.7** | **137.9** |
| Houston Hobby (TX) | 1,457 | 5,434 | 135,080 | 646,109 | **273.0** | **378.3** |
| Houston Intercontinental (TX) | 7,772 | 13,763 | 819,662 | 1,527,948 | **77.1** | **86.4** |
| New York JFK (NY) | 6,445 | 8,407 | 911,941 | 918,821 | **30.4** | **0.7** |
| Los Angeles (CA) | 15,467 | 26,437 | 2,123,927 | 2,742,623 | **70.9** | **29.1** |
| New York LaGuardia (NY) | 10,495 | 13,229 | 1,098,284 | 1,446,462 | **26.1** | **32.0** |
| Kansas City (MO) | 5,976 | 7,411 | 531,124 | 704,843 | **24.0** | **32.7** |
| Miami (FL) | 6,620 | 11,500 | 851,673 | 1,249,289 | **73.7** | **46.7** |
| Minneapolis (MN) | 5,944 | 16,147 | 690,937 | 1,623,772 | **171.6** | **135.0** |
| Chicago O'Hare (IL) | 26,772 | 32,871 | 3,163,510 | 3,854,441 | **22.8** | **21.8** |

(continued)

| | Total departures, May 1978 | Total departures, May 1995 | Total seats, May 1978 | Total seats, May 1995 | Percentage change in departures | Percentage change in seats |
|---|---|---|---|---|---|---|
| Philadelphia (PA) | 9,782 | 13,294 | 810,920 | 1,230,700 | **35.9** | **51.8** |
| Phoenix (AZ) | 4,217 | 15,832 | 470,034 | 1,923,889 | **275.4** | **309.3** |
| Pittsburgh (PA) | 10,260 | 16,560 | 830,352 | 1,459,255 | **61.4** | **75.7** |
| San Diego (CA) | 3,699 | 8,457 | 479,575 | 891,236 | **128.6** | **85.8** |
| Seattle (WA) | 5,931 | 13,283 | 641,926 | 1,391,609 | **124.0** | **116.9** |
| San Francisco (CA) | 10,804 | 15,411 | 1,423,889 | 1,836,621 | **42.6** | **29.0** |
| St. Louis (MO) | 8,855 | 19,766 | 875,540 | 1,931,205 | **123.2** | **120.6** |
| Tampa (FL) | 5,803 | 7,959 | 673,911 | 692,993 | **37.2** | **2.8** |
| **Overall** | 232,695 | 391,282 | 25,958,611 | 41,747,546 | **68.2** | **60.8** |

Source: GAO's analysis of OAG data.

# Number of Destinations Served by Nonstop and One-Stop Flights at Sampled Airports Serving Small, Medium-Sized, and Large Communities, May 1978-May 1995

| | Nonstops, May 1978 | Nonstops, May 1995 | One-stops, May 1978 | One-stops, May 1995 |
|---|---|---|---|---|
| **Small-community airports** | | | | |
| Amarillo (TX) | 10 | 5 | 10 | 8 |
| Appleton (WI) | 2 | 7 | 0 | 8 |
| Asheville (NC) | 13 | 6 | 10 | 10 |
| Kalamazoo County (MI) | 4 | 7 | 6 | 6 |
| Binghamton (NY) | 14 | 14 | 6 | 11 |
| Bangor (ME) | 6 | 5 | 9 | 5 |
| Billings (MT) | 16 | 14 | 16 | 16 |
| Bismarck (ND) | 8 | 5 | 10 | 6 |
| Boise (ID) | 16 | 16 | 15 | 19 |
| Burlington (VT) | 12 | 17 | 13 | 18 |
| Cedar Rapids (IA) | 11 | 8 | 13 | 13 |
| Champaign (IL) | 6 | 8 | 4 | 6 |
| Charleston (WV) | 15 | 9 | 15 | 9 |
| Duluth (MN) | 6 | 4 | 8 | 7 |
| Elmira/Corning (NY) | 5 | 6 | 8 | 5 |
| Erie (PA) | 6 | 3 | 5 | 4 |
| Eugene (OR) | 8 | 5 | 8 | 8 |
| Evansville (IN) | 10 | 13 | 9 | 15 |
| Fargo (ND) | 6 | 5 | 7 | 8 |
| Fayetteville (NC) | 9 | 2 | 5 | 8 |
| Sioux Falls (SD) | 16 | 10 | 14 | 16 |
| Grand Junction (CO) | 7 | 6 | 8 | 2 |
| Gainesville (FL) | 4 | 7 | 4 | 6 |
| Green Bay (WI) | 11 | 8 | 11 | 13 |
| Great Falls (MT) | 5 | 6 | 8 | 5 |
| Harlingen (TX) | 5 | 5 | 3 | 5 |
| Huntsville (AL) | 13 | 7 | 11 | 14 |
| Wilmington (NC) | 7 | 3 | 6 | 7 |
| Lubbock (TX) | 11 | 8 | 10 | 9 |
| Lafayette (LA) | 7 | 4 | 5 | 1 |
| Lincoln (NB) | 12 | 8 | 13 | 10 |
| Midland (TX) | 9 | 8 | 9 | 9 |
| Montgomery (AL) | 8 | 8 | 13 | 4 |
| Manchester (NH) | 6 | 11 | 3 | 17 |
| Missoula (MT) | 6 | 8 | 6 | 5 |
| Myrtle Beach (SC) | 7 | 9 | 6 | 10 |

(continued)

| | Nonstops, May 1978 | Nonstops, May 1995 | One-stops, May 1978 | One-stops, May 1995 |
|---|---|---|---|---|
| Pasco (WA) | 12 | 5 | 10 | 2 |
| Portland (ME) | 9 | 11 | 11 | 19 |
| Rapid City (SD) | 8 | 4 | 8 | 1 |
| Reno (NV) | 14 | 21 | 16 | 19 |
| Roanoke (VA) | 19 | 13 | 15 | 15 |
| Rochester (MN) | 8 | 3 | 10 | 5 |
| Fort Myers (FL) | 4 | 25 | 9 | 25 |
| Savannah (GA) | 6 | 6 | 10 | 9 |
| South Bend (IN) | 11 | 9 | 9 | 13 |
| Springfield (MO) | 9 | 9 | 8 | 9 |
| Sarasota (FL) | 7 | 14 | 11 | 17 |
| Sioux City (IA) | 10 | 9 | 8 | 6 |
| Tallahassee (FL) | 9 | 10 | 11 | 15 |
| **Average for small-community airports** | **9.0** | **8.4** | **9.0** | **9.8** |
| **Medium-sized-community airports** | | | | |
| Albuquerque (NM) | 24 | 32 | 23 | 50 |
| Augusta (GA) | 6 | 4 | 7 | 5 |
| Bakersfield (CA) | 7 | 6 | 4 | 1 |
| Baton Rouge (LA) | 10 | 11 | 10 | 5 |
| Columbia (SC) | 18 | 7 | 15 | 13 |
| Chattanooga (TN) | 9 | 5 | 10 | 8 |
| Charleston (SC) | 10 | 8 | 16 | 16 |
| Colorado Springs (CO) | 6 | 10 | 5 | 26 |
| Corpus Christi (TX) | 6 | 4 | 10 | 7 |
| Daytona Beach (FL) | 6 | 8 | 11 | 9 |
| Des Moines (IA) | 14 | 14 | 17 | 23 |
| El Paso (TX) | 14 | 15 | 16 | 27 |
| Fresno (CA) | 12 | 15 | 9 | 9 |
| Flint (MI) | 6 | 6 | 6 | 4 |
| Fort Wayne (IN) | 8 | 9 | 7 | 11 |
| Spokane (WA) | 21 | 20 | 24 | 28 |
| Greenville (SC) | 11 | 11 | 10 | 19 |
| Wichita (KS) | 15 | 11 | 25 | 20 |
| Jackson (MS) | 14 | 13 | 19 | 7 |
| Lansing (MI) | 7 | 13 | 10 | 13 |
| Las Vegas (NV) | 42 | 59 | 40 | 51 |
| Lexington (KY) | 11 | 11 | 10 | 14 |
| Little Rock (AK) | 15 | 17 | 18 | 28 |

(continued)

| | Nonstops, May 1978 | Nonstops, May 1995 | One-stops, May 1978 | One-stops, May 1995 |
|---|---|---|---|---|
| Saginaw/Midland (MI) | 8 | 6 | 6 | 15 |
| Harrisburg (PA) | 11 | 13 | 3 | 20 |
| McAllen/Mission (TX) | 3 | 3 | 3 | 10 |
| Melbourne (FL) | 4 | 5 | 9 | 10 |
| Moline (IL) | 15 | 6 | 13 | 4 |
| Mobile (AL) | 7 | 10 | 12 | 6 |
| Monterey (CA) | 3 | 3 | 6 | 7 |
| Madison (WI) | 14 | 8 | 15 | 14 |
| Peoria (IL) | 12 | 5 | 8 | 1 |
| Pensacola (FL) | 6 | 12 | 8 | 20 |
| Santa Barbara (CA) | 6 | 7 | 9 | 6 |
| Shreveport (LA) | 18 | 10 | 19 | 7 |
| Bristol/Kingsport (TN) | 15 | 7 | 13 | 9 |
| Tucson (AZ) | 11 | 15 | 25 | 32 |
| Knoxville (TN) | 18 | 15 | 15 | 15 |
| **Average for medium-sized-community airports** | **11.7** | **11.5** | **11.9** | **15.0** |
| **Large-community airports** | | | | |
| Atlanta (GA) | 106 | 119 | 99 | 84 |
| Boston (MA) | 64 | 71 | 77 | 65 |
| Cleveland (OH) | 49 | 52 | 49 | 45 |
| Washington National (D.C.) | 71 | 58 | 90 | 52 |
| Denver (CO) | 96 | 107 | 105 | 76 |
| Dallas (TX) | 83 | 112 | 88 | 82 |
| Detroit (MI) | 59 | 95 | 73 | 54 |
| Newark (NJ) | 46 | 72 | 63 | 60 |
| Houston Hobby (TX) | 8 | 24 | 4 | 37 |
| Houston Intercontinental (TX) | 48 | 71 | 53 | 54 |
| New York JFK (NY) | 55 | 42 | 57 | 21 |
| Los Angeles (CA) | 70 | 72 | 96 | 64 |
| New York LaGuardia (NY) | 74 | 64 | 90 | 62 |
| Kansas City (MO) | 46 | 51 | 58 | 66 |
| Miami (FL) | 43 | 50 | 61 | 48 |
| Minneapolis/St. Paul (MN) | 54 | 109 | 68 | 76 |
| Chicago O'Hare (IL) | 135 | 129 | 155 | 72 |
| Philadelphia (PA) | 62 | 82 | 59 | 56 |
| Phoenix (AZ) | 32 | 67 | 48 | 62 |
| Pittsburgh (PA) | 68 | 112 | 53 | 35 |
| San Diego (CA) | 26 | 36 | 40 | 46 |

(continued)

| | Nonstops, May 1978 | Nonstops, May 1995 | One-stops, May 1978 | One-stops, May 1995 |
|---|---|---|---|---|
| Seattle (WA) | 38 | 55 | 54 | 59 |
| San Francisco (CA) | 68 | 63 | 77 | 43 |
| St. Louis (MO) | 67 | 96 | 73 | 67 |
| Tampa (FL) | 41 | 50 | 38 | 51 |
| **Average for large-community airports** | **60.3** | **74.3** | **69.5** | **57.5** |

Source: GAO's analysis of OAG data.

# Number of Scheduled Jet and Non-Jet Departures at Sampled Airports Serving Small, Medium-Sized, and Large Communities, May 1978-May 1995

| | Jet departures, May 1978 | Jet departures, May 1995 | Non-jet departures, May 1978 | Non-jet departures, May 1995 |
|---|---|---|---|---|
| **Small-community airports** | | | | |
| Amarillo (TX) | 643 | 358 | 62 | 275 |
| Appleton (WI) | 0 | 234 | 482 | 567 |
| Asheville (NC) | 461 | 242 | 313 | 490 |
| Kalamazoo County (MI) | 217 | 221 | 263 | 687 |
| Binghamton (NY) | 93 | 122 | 958 | 891 |
| Bangor (ME) | 240 | 119 | 339 | 807 |
| Billings (MT) | 620 | 455 | 216 | 527 |
| Bismarck (ND) | 309 | 209 | 152 | 502 |
| Boise (ID) | 806 | 1,536 | 172 | 824 |
| Burlington (VT) | 302 | 339 | 398 | 1,551 |
| Cedar Rapids (IA) | 627 | 452 | 89 | 772 |
| Champaign (IL) | 302 | 0 | 120 | 858 |
| Charleston (WV) | 542 | 289 | 329 | 732 |
| Duluth (MN) | 368 | 155 | 89 | 224 |
| Elmira/Corning (NY) | 62 | 120 | 309 | 272 |
| Erie (PA) | 275 | 122 | 46 | 225 |
| Eugene (OR) | 403 | 279 | 184 | 663 |
| Evansville (IN) | 519 | 89 | 73 | 1,334 |
| Fargo (ND) | 398 | 294 | 116 | 351 |
| Fayetteville (NC) | 426 | 151 | 62 | 312 |
| Sioux Falls (SD) | 393 | 456 | 515 | 222 |
| Grand Junction (CO) | 140 | 0 | 220 | 679 |
| Gainesville (FL) | 236 | 120 | 92 | 572 |
| Green Bay (WI) | 670 | 236 | 317 | 690 |
| Great Falls (MT) | 372 | 275 | 23 | 208 |
| Harlingen (TX) | 318 | 530 | 0 | 151 |
| Huntsville (AL) | 712 | 640 | 0 | 220 |
| Wilmington (NC) | 182 | 185 | 209 | 378 |
| Lubbock (TX) | 974 | 549 | 108 | 550 |
| Lafayette (LA) | 271 | 0 | 339 | 592 |
| Lincoln (NB) | 600 | 331 | 367 | 364 |
| Midland (TX) | 836 | 647 | 73 | 333 |
| Montgomery (AL) | 531 | 212 | 0 | 554 |
| Manchester (NH) | 178 | 522 | 441 | 767 |
| Missoula (MT) | 248 | 247 | 0 | 263 |

(continued)

| | Jet departures, May 1978 | Jet departures, May 1995 | Non-jet departures, May 1978 | Non-jet departures, May 1995 |
|---|---|---|---|---|
| Myrtle Beach (SC) | 155 | 390 | 255 | 480 |
| Pasco (WA) | 248 | 122 | 598 | 716 |
| Portland (ME) | 333 | 474 | 528 | 1,201 |
| Rapid City (SD) | 372 | 217 | 85 | 220 |
| Reno (NV) | 1,619 | 2,659 | 62 | 695 |
| Roanoke (VA) | 732 | 298 | 523 | 1,125 |
| Rochester (MN) | 561 | 300 | 178 | 0 |
| Fort Myers (FL) | 341 | 1,407 | 166 | 803 |
| Savannah (GA) | 461 | 592 | 155 | 170 |
| South Bend (IN) | 403 | 292 | 603 | 1,076 |
| Springfield (MO) | 538 | 182 | 31 | 1,034 |
| Sarasota (FL) | 620 | 703 | 158 | 734 |
| Sioux City (IA) | 368 | 62 | 248 | 947 |
| Tallahassee (FL) | 607 | 534 | 46 | 1,384 |
| **Overall** | **21,632** | **18,968** | **11,112** | **29,992** |
| **Medium-sized-community airports** | | | | |
| Albuquerque (NM) | 1,666 | 3,322 | 502 | 1,308 |
| Augusta (GA) | 407 | 210 | 220 | 379 |
| Bakersfield (CA) | 279 | 31 | 119 | 960 |
| Baton Rouge (LA) | 596 | 393 | 115 | 742 |
| Columbia (SC) | 744 | 761 | 814 | 194 |
| Chattanooga (TN) | 763 | 299 | 0 | 531 |
| Charleston (SC) | 848 | 773 | 272 | 168 |
| Colorado Springs (C0) | 453 | 1,064 | 612 | 162 |
| Corpus Christi (TX) | 503 | 356 | 335 | 673 |
| Daytona Beach (FL) | 635 | 409 | 0 | 306 |
| Des Moines (IA) | 1,354 | 871 | 166 | 689 |
| El Paso (TX) | 1,367 | 2,513 | 220 | 54 |
| Fresno (CA) | 625 | 184 | 489 | 2,429 |
| Flint (MI) | 310 | 12 | 131 | 595 |
| Fort Wayne (IN) | 527 | 292 | 273 | 900 |
| Spokane (WA) | 1,240 | 1,803 | 447 | 1,327 |
| Greenville (SC) | 631 | 777 | 93 | 672 |
| Wichita (KS) | 1,015 | 835 | 332 | 763 |
| Jackson (MS) | 1,038 | 428 | 177 | 1,014 |
| Lansing (MI) | 523 | 217 | 205 | 947 |
| Las Vegas (NV) | 4,030 | 10,619 | 751 | 1,406 |

(continued)

| | Jet departures, May 1978 | Jet departures, May 1995 | Non-jet departures, May 1978 | Non-jet departures, May 1995 |
|---|---|---|---|---|
| Lexington (KY) | 620 | 599 | 89 | 725 |
| Little Rock (AK) | 1,084 | 1,577 | 382 | 782 |
| Saginaw/Midland (MI) | 430 | 331 | 73 | 262 |
| Harrisburg (PA) | 360 | 781 | 857 | 785 |
| McAllen/Mission (TX) | 178 | 363 | 0 | 104 |
| Melbourne (FL) | 372 | 250 | 0 | 442 |
| Moline (IL) | 805 | 395 | 178 | 483 |
| Mobile (AL) | 852 | 445 | 0 | 414 |
| Monterey (CA) | 405 | 119 | 0 | 1,046 |
| Madison (WI) | 1,037 | 595 | 197 | 610 |
| Peoria (IL) | 770 | 62 | 93 | 796 |
| Pensacola (FL) | 364 | 574 | 0 | 1,309 |
| Santa Barbara (CA) | 275 | 181 | 507 | 1,513 |
| Shreveport (LA) | 1,185 | 390 | 214 | 958 |
| Bristol/Kingsport(TN) | 507 | 254 | 271 | 569 |
| Tucson (AZ) | 1,453 | 1,658 | 177 | 328 |
| Knoxville (TN) | 875 | 811 | 124 | 645 |
| **Overall** | **31,126** | **35,554** | **9,435** | **28,300** |
| **Large-community airports** | | | | |
| Atlanta (GA) | 19,209 | 23,052 | 1,188 | 5,460 |
| Boston (MA) | 6,600 | 8,280 | 3,423 | 7,757 |
| Cleveland (OH) | 4,891 | 5,706 | 362 | 2,582 |
| Washington National (D.C.) | 7,952 | 8,052 | 2,572 | 2,706 |
| Denver (CO) | 8,951 | 12,996 | 3,154 | 4,810 |
| Dallas (TX) | 12,274 | 22,984 | 2,843 | 10,301 |
| Detroit (MI) | 5,843 | 12,757 | 1,245 | 3,842 |
| Newark (NJ) | 4,712 | 9,947 | 1,177 | 4,289 |
| Houston Hobby (TX) | 1,345 | 4,966 | 112 | 468 |
| Houston Intercontinental (TX) | 5,992 | 10,771 | 1,780 | 2,992 |
| New York JFK (NY) | 5,302 | 4,242 | 1,143 | 4,165 |
| Los Angeles (CA) | 12,607 | 15,827 | 2,860 | 10,610 |
| New York LaGuardia (NY) | 9,114 | 9,893 | 1,381 | 3,336 |
| Kansas City (MO) | 4,069 | 5,228 | 1,907 | 2,183 |
| Miami (FL) | 6,198 | 6,772 | 422 | 4,728 |
| Minneapolis (MN) | 5,014 | 11,744 | 930 | 4,403 |
| Chicago O'Hare (IL) | 22,343 | 25,529 | 4,429 | 7,342 |
| Philadelphia (PA) | 5,585 | 8,430 | 4,197 | 4,864 |

(continued)

| | Jet departures, May 1978 | Jet departures, May 1995 | Non-jet departures, May 1978 | Non-jet departures, May 1995 |
|---|---|---|---|---|
| Phoenix (AZ) | 3,754 | 13,775 | 463 | 2,057 |
| Pittsburgh (PA) | 7,408 | 11,069 | 2,852 | 5,491 |
| San Diego (CA) | 3,288 | 5,957 | 411 | 2,500 |
| Seattle (WA) | 4,126 | 8,857 | 1,805 | 4,426 |
| San Francisco (CA) | 9,309 | 11,270 | 1,495 | 4,141 |
| St. Louis (MO) | 7,354 | 14,771 | 1,501 | 4,995 |
| Tampa (FL) | 5,374 | 4,231 | 429 | 3,728 |
| **Overall** | **188,614** | **277,106** | **44,081** | **114,176** |

Source: GAO's analysis of OAG data.

# Additional Details on Our Scope and Methodology

To provide consistent, comparable information in updating our prior report on trends in airfares since deregulation at airports serving small, medium-sized, and large communities, we reviewed fare data on the same 112 airports that we examined in the prior report.[23] For further consistency, we also analyzed air service and safety data for the same airports. We selected the 49 small-community airports, 38 medium-sized-community airports, and 25 large community airports using the following criteria:

- Small communities were those with populations in a metropolitan statistical area of 300,000 or less, medium-sized communities were in an area of 300,001 to 600,000, and large communities were in an area of 1.5 million or more.[24] In the prior report, we used 1984 U.S. Census data to provide information on community size midway between the years reviewed (1979, 1984, and 1988) for each airport location. While keeping the same sample of airports for this report, we reviewed U.S. Census and Bureau of Economic Analysis data to identify changes in community population as well as income and employment. We did this to examine economic trends that may explain the changes in fares, service quantity, and service quality that we observed.
- All of the airports were among the largest 175 in the nation. This criterion was necessary because as an airport's rank falls, the number of tickets from that airport in the Department of Transportation's "Passenger Origin-Destination Survey" (O&D Survey) declines. A smaller number of tickets per route increases the potential for sampling error and may result in calculations that are not representative of the airport's overall traffic.
- All of the airports were located within the 48 contiguous states because airports outside the contiguous states are often special cases. Travel from airports located in Alaska, Hawaii, Puerto Rico, and the Virgin Islands is often for very short distances (between islands) and very long distances (between Alaska or Hawaii and the contiguous states) or may take the place of ground transportation (between cities in Alaska).

In updating the airfare trends for each airport, we converted the data in the previous report into 1994 dollars and then identified and used the same routes (origin and destination airport combinations) that we used in the previous report. To verify the reliability and validity of our results, we conducted a number of checks on the fare data. For example, to check the extent to which our results may have been affected by routes that we

[23]GAO/RCED-91-13, Nov. 8, 1990.

[24]Since our reviews focused on small and medium-sized communities, we did not examine data on airports serving metropolitan statistical areas of between 600,000 and 1.5 million people.

examined in our prior report but which are no longer served by airlines, we re-ran the data in the previous report (1979, 1984, and 1988) using only those routes that were served in 1994. We found virtually no differences in fare levels or trends. In addition, we used a fare screen to eliminate inaccurate fare data from the O&D Survey. The fare screen, based on data in the OAG, eliminated records from the O&D Survey showing yields (fares per passenger mile) outside of allowable minimum and maximum yields, such as a 0.0 cent yield for a trip between Los Angeles and New York.

Because the number of passengers traveling on the various routes can change over time, examining fares at two different times could reflect differences in the number of travelers going to various destinations rather than fare changes. Therefore, as we did in the prior report, we held the distribution of passengers between routes constant at the 1988 level to take this possibility into account. Finally, because we analyzed data that were drawn from a statistical sample of tickets purchased, each estimate developed from the sample has a measurable precision, or sampling error. The sampling error is the maximum amount by which the estimate obtained from a statistical sample can be expected to differ from the true universe value. Sampling errors are usually stated at a certain confidence level—in this case, at a 95-percent level. This means the chances are 19 out of 20 that if we reviewed all tickets purchased, the results would differ from the estimates obtained from our sample by less than the sampling errors of such estimates.

# Major Contributors to This Report

## Resources, Community, and Economic Development Division, Washington, D.C.

Gerald L. Dillingham, Associate Director
Francis P. Mulvey, Assistant Director
Timothy F. Hannegan
Lynne L. Goldfarb
Steven C. Martin
Sara Ann W. Moessbauer
Daniel G. Williams
J. Annette Wright

# Related GAO Products

Airline Competition: Higher Fares and Less Competition Continue at Concentrated Airports (GAO/RCED-93-171, July 15, 1993).

Computer Reservation Systems: Action Needed to Better Monitor the CRS Industry and Eliminate CRS Biases (GAO/RCED-92-130, Mar. 20, 1992).

Airline Competition: Effects of Airline Market Concentration and Barriers to Entry on Airfares (GAO/RCED-91-101, Apr. 26, 1991).

Airline Competition: Weak Financial Structure Threatens Competition (GAO/RCED-91-110, Apr. 15, 1991).

Airline Competition: Fares and Concentration at Small-City Airports (GAO/RCED-91-51, Jan. 18, 1991).

Airline Deregulation: Trends in Airfares at Airports in Small and Medium-Sized Communities (GAO/RCED-91-13, Nov. 8, 1990).

Airline Competition: Industry Operating and Marketing Practices Limit Market Entry (GAO/RCED-90-147, Aug. 29, 1990).

Airline Competition: Higher Fares and Reduced Competition at Concentrated Airports (GAO/RCED-90-102, July 11, 1990).

Airline Competition: DOT's Implementation of Airline Regulatory Authority (GAO/RCED-89-93, June 28, 1989).

Airline Service: Changes at Major Montana Airports Since Deregulation (GAO/RCED-89-141FS, May 24, 1989).

Airline Competition: Fare and Service Changes at St. Louis Since the TWA-Ozark Merger (GAO/RCED-88-217BR, Sept. 21, 1988).

Competition in the Airline Computerized Reservation Systems (GAO/T-RCED-88-62, Sept. 14, 1988).

Airline Competition: Impact of Computerized Reservation Systems (GAO/RCED-86-74, May 9, 1986).

**Ordering Information**

**The first copy of each GAO report and testimony is free. Additional copies are $2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. VISA and MasterCard credit cards are accepted, also. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.**

**Orders by mail:**

**U.S. General Accounting Office**
**P.O. Box 6015**
**Gaithersburg, MD 20884-6015**

**or visit:**

**Room 1100**
**700 4th St. NW (corner of 4th and G Sts. NW)**
**U.S. General Accounting Office**
**Washington, DC**

**Orders may also be placed by calling (202) 512-6000 or by using fax number (301) 258-4066, or TDD (301) 413-0006.**

**Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.**

**For information on how to access GAO reports on the INTERNET, send an e-mail message with "info" in the body to:**

**info@www.gao.gov**

PRINTED ON RECYCLED PAPER

United States
General Accounting Office
Washington, D.C. 20548-0001

Bulk Rate
Postage & Fees Paid
GAO
Permit No. G100

Official Business
Penalty for Private Use $300

Address Correction Requested