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AIRLINE COMPETITION

Fare and Service Changes at St. Louis Since the TWA-Ozark Merger

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The Honorable John C. Danforth
Committee on Commerce, Science,
and Transportation
United States Senate

Dear Senator Danforth:

In response to your request that we analyze fare and service changes in St. Louis after the merger of Trans World Airlines (TWA) and Ozark Air Lines, we examined

-- changes in TWA's share of the air travel market at Lambert-St. Louis International Airport,

-- changes in the number of cities served and types of air service available to St. Louis air travelers, and

-- changes in air fares for travel to and from St. Louis.

After documenting the changes in fares and service offerings, we also assessed the prospects for increased competition at Lambert-St. Louis International Airport. On May 23, 1988, we briefed you on the results of our study. This briefing report presents the results of our work.

RESULTS IN BRIEF

With the acquisition of Ozark in 1986, TWA's share of passengers boarding at Lambert (enplanements) increased from 56 percent to 82 percent. Few major U.S. airports are as dependent on a single airline as St. Louis. TWA has increased the number of cities served directly from St. Louis, and more cities now receive jet service than before the merger. However, while the total share of enplanements of other carriers remained about the same as before the merger, many St. Louis routes are now served by fewer airlines and average air fares have risen. TWA's fares increased more than those of other carriers serving St. Louis, and TWA's St. Louis fares increased more than its fares for comparable service at Kansas City, a city where the merger had little impact on TWA's market share. TWA attributed the increase in its average fares on St. Louis

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the reorganization of the acquisition function in the military department headquarters mandated by Title V of the Goldwater-Nichols Department of Defense Reorganization Act. Our work, which was undertaken at the Subcommittee's request, focuses on how the military departments approached the reorganization and whether these efforts achieve the objectives of the legislation, particularly the goal of strengthening civilian control over the acquisition process.

BACKGROUND

Title V required the service Secretaries to establish a single office or other entity in the military department secretariat to conduct acquisition. The act sought to eliminate parallel or duplicate organizations that might have existed in the secretariat and military headquarters staffs. While the placement of the single offices in the service secretariats signified the desire to strengthen civilian control, the consolidation of these functions was not intended to exclude the service Chiefs of Staff from participating in the functions. Indeed, Title V directs the service secretaries to ensure that the single office or other entity provides the service Chiefs such staff support as each considers necessary to perform their duties and responsibilities. Further, the assignment of responsibility to a single office in the routes to several factors that caused TWA's and Ozark's fares to be unusually low in 1986--our base year--and other factors that increased TWA's average fares in 1987. Finally, recent developments in the airline industry may have made large-scale entry or expansion more difficult at airports like St. Louis, where one carrier has the predominant market share.

BACKGROUND

Prior to TWA's acquisition of Ozark in 1986, TWA handled more than 56 percent of the enplanements at Lambert, and Ozark accounted for 26 percent. No other airline had more than 3 percent of the market. The merger made TWA by far the dominant carrier in St. Louis and prompted concern that TWA might exploit its dominant position by raising fares and/or reducing service. In the months following the merger, reports circulated that TWA had greatly increased its fares for travel to and from St. Louis. (See sec. 1.)

CHANGES IN ROUTES SERVED AND NUMBER OF COMPETITORS

Although TWA increased the number of cities it provided with jet and other direct service from St. Louis, the opportunity for consumers to choose among competing airlines for many destinations narrowed. After the merger, TWA provided nonstop service to more cities than had TWA and Ozark together before the merger, and TWA offered direct service (that requiring no change of planes) to more cities. However, after the merger, the total number of cities with direct service declined from 124 to 121, and competition decreased in many markets. The number of routes served by two or more carriers fell from 64 to 36. (See sec. 2.)

FARE CHANGES

To determine whether TWA's fares for St. Louis travel had risen after the merger, we examined data on traffic and revenues the airlines submit each quarter to the U.S. Department of Transportation (DOT). We compared round-trip fares on 67 routes where TWA and/or Ozark offered nonstop service in 1986 with TWA's fares on these same routes after the merger. Because the TWA-Ozark merger took place in the final quarter of 1986, we compared average fares on these routes for each of the first three quarters in 1986 with average fares during each corresponding quarter in 1987.

For the 67 nonstop routes, we found that TWA's fares were 13 to 18 percent higher during the first three quarters of 1987 than they were in the corresponding quarters in 1986. To put TWA's fare increases in perspective, we compared them with changes in the airline fare component of the Consumer Price Index, an indicator of fares nationally, which rose by 5 to 6 percent over the same periods.

To further put TWA's fare increases in perspective, we identified 53 nonstop routes on which TWA competed with other carriers. We contrasted the changes in TWA's fares with changes in the fares of other carriers serving St. Louis on these routes. TWA's fare increases (13 to 19 percent) were similar to those recorded for the larger group of 67 routes. The fares of other carriers registered smaller increases (0 to 8 percent). We also compared TWA's fare changes for travel between St. Louis and these 53 cities with changes in fares to these same cities from Kansas City. We chose Kansas City because TWA's market share there was not affected appreciably by its acquisition of Ozark and because travel distances to other cities were similar to those from St. Louis. We found that TWA fare increases for Kansas City service (0 to 13 percent) were less than its increases at St. Louis. However, the fares of other carriers serving Kansas City generally fell (-6 to -8 percent) during this period. (See section 3.)

TWA attributes its fare increases to unusually low fares in 1986 and a more favorable mix of traffic in 1987. In 1986, TWA's flight attendants went on strike, and TWA was involved in a highly publicized terrorist attack. To regain passengers, TWA issued coupons worth 20 to 30 percent off its fares. At the same time, according to TWA officials, TWA was involved in fierce competition with Ozark, which depressed fares on some routes. TWA also pointed out that Ozark offered only coach service. After TWA acquired Ozark, it began offering first class service on routes where Ozark had offered only coach service. This led to an increase in business travelers, who generally pay higher fares.

PROSPECTS FOR COMPETITION

Other airlines that attempt large-scale entry or expansion at Lambert will find it difficult to compete with TWA for a significant share of the St. Louis market. TWA has a long-term lease for exclusive use of almost three-fourths of the approximately 75 gates at Lambert-St. Louis International Airport. No other carrier controls more than three gates, and the airport cannot build more gates without additional bonding authority from local voters. Moreover, many industry analysts believe that recent changes in airline marketing and operating practices make it difficult for new carriers to enter or for existing carriers to expand at an airport where another carrier dominates the traffic. These analysts point to the establishment of hub-and-spoke systems, airline ownership of the computerized reservations systems used by travel agents, frequent flyer programs, and other changes in airline industry operations as factors that make incumbent carriers less vulnerable to new competition at their hub airports. TWA's market position in St. Louis may be further strengthened by these changes. TWA believes that if other carriers do not expand operations in St. Louis, it is because other carriers realize that St. Louis only generates enough local traffic to support one airline's hub. (See sec. 4.)

AGENCY COMMENTS

We provided copies of this report to DOT and to TWA. We discussed the contents of the report with officials of both organizations and have incorporated their comments where appropriate. TWA officials accepted our results but provided information about why they believe TWA's average fares increased at the rate they did and about competitive conditions in St. Louis. DOT officials believed that we should have also examined fare levels at St. Louis, but they acknowledged that doing so would have required a much more complex analysis than we employed.

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The objectives, scope of work, and methodology we used are described in appendix I. Detailed data on fare changes are shown in appendix II. Major contributors are listed in appendix III.

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 and other interested parties.

Sincerely yours,

Kenneth M. Mead
Associate Director

CONTENTS

ABBREVIATIONS

CPI	Consumer Price Index
CRS	Computerized reservation system
DOT	U.S. Department of Transportation
HHI	Herfindahl-Hirschman Index
TWA	Trans World Airlines

SECTION 1

INTRODUCTION

Senator John C. Danforth, Senate Committee on Commerce, Science, and Transportation, asked us to analyze fare and service changes at Lambert-St. Louis International Airport following the merger of Trans World Airlines (TWA) and Ozark Air Lines. We briefed the Senator on May 23, 1988, and this report summarizes our findings on

-- changes in TWA's share of the air travel market at Lambert,

-- changes in the number of cities served and type of air service available to St. Louis travelers, and

-- changes in air fares for travel to and from St. Louis.

We also examined the prospects for increased competition at Lambert. We did not address the question of whether fares were too high; rather, we focused on comparative fare changes following the merger. Officials from the Department of Transportation (DOT) who commented on a draft of our report believed that we should have examined fare levels. However, our objective was to examine fare changes since the merger. We could not have assessed the appropriateness or comparability of fare levels without taking into account airline cost and operating differences. We also did not examine whether the fares are remunerative because such a determination would be beyond the scope of this report.

BACKGROUND

For more than a decade, TWA and Ozark Air Lines were the principal carriers serving Lambert-St. Louis International Airport. During the late 1970s and early 1980s, the other principal carriers serving St. Louis (Eastern, Delta, and American Airlines) all lost market share. By the end of 1985, the year prior to TWA's acquisition of Ozark, TWA handled more than 56 percent of all passenger boardings (enplanements) at Lambert, while Ozark had 26 percent of the market. Lambert was the primary hub airport for both carriers.[1] After the merger, TWA's market share grew to 82 percent, while no other carrier serving St. Louis has had as much as 3 percent.

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[1]A hub airport is one at which an airline brings in passengers from a large number of origins (spokes) and places them on new flights to take them to their ultimate destinations. Hub-and-spoke operations afford the airline significant operating economies and provide travellers from smaller, nonhub cities a greater variety of destinations.

Table 1.1: Share of Enplanements at Lambert-St. Louis International Airport, 1985 and 1987

Percent

Airline	Enplanement share 1985	Enplanement share 1987[a]
TWA	56.6	82.3
Ozark	26.3	b
American	2.5	2.4
Delta	1.7	1.3
United	1.7	2.5
Republic	1.5	c
Britt	1.5	0.2
Southwest	1.5	2.6
Eastern	1.4	1.6
Frontier	1.0	d
Northwest	0.6	2.9
USAir	0.5	0.8
Continental	e	1.6
Others	3.2	1.8

[a]As of the end of the first quarter.

[b]Ozark is now part of TWA.

[c]Republic is now part of Northwest Airlines.

[d]Frontier is now part of Continental Airlines.

[e]Continental did not serve Lambert in 1985.

Source: Julius Maldutis, Airline Competition at the 50 Largest U.S. Airports Since Deregulation, Salomon Brothers, Inc. (Aug. 1987).

Between 1985 and 1987, DOT approved more than 20 airline mergers. These mergers, in addition to bankruptcies and changes in airline system operations, led to growing market concentration at the nation's airports. Concentration is the degree to which sales in an industry or market are accounted for by a small number of firms. A commonly used measure of market concentration, the Herfindahl-Hirschman Index (HHI),[2] rose 38 percent for the nation's 50 busiest airports between 1985 and 1987. Unlike market share, which shows the degree to which one firm's sales account for sales in a market, the HHI allows comparisons among markets with different numbers of competitors and varying market shares. High

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[2]The HHI is the sum of the squares of all firms' market shares, multiplied by 10,000.

values of HHI indicate high levels of concentration.[3] Conventional economic reasoning suggests that, all other things being equal, prices will be higher in more concentrated markets because firms do not face many competitors or a few large firms dominate the market.[4] The HHI for Lambert increased from 3971 in 1985 to 6821 in 1987, as Lambert grew from the tenth to the fifth most concentrated of the nation's 50 busiest airports. TWA's market share and the high level of concentration at Lambert prompted concern over TWA's ability to raise fares and cut service available to St. Louis passengers.

Certain issues complicate the use of the HHI or other measures of industry concentration in analyzing markets. For example, it is necessary to define the "relevant" market in using the HHI. With regard to the airline industry, it is not clear that airports are the relevant market to consider in analyzing the effects of increased concentration. For example, Love Field in Dallas is the most concentrated major airport in the nation. Only one carrier, Southwest Airlines, serves Love Field. However, Southwest must compete with other airlines that operate out of nearby Dallas/Fort Worth International Airport. Another factor to consider is that many individual routes out of some of the most concentrated airports are served by a number of competitors. Finally, any measure of concentration must be analyzed in the context of the particular market under consideration. That is, a variety of market conditions--such as ease of entry by new firms--would need to be examined to determine whether a high level of concentration in a market indicates noncompetitive conditions.

In their comments, DOT officials told us that they thought our use of the HHI based on airport enplanements was inappropriate for two reasons. First, they noted that we analyzed changes in fares and service for travelers starting or ending their trip in St. Louis. Enplanement data include passengers changing planes in St. Louis as well as those beginning their trips there. Second, they believe that individual routes--rather than airports--are the relevant airline markets for analysis. As noted above, we recognize that a careful analysis of airline competition must consider competition on individual routes, and sections 2 and 3 of this report contain route-based comparisons. However, we believe that the enplanement data are indicative of airport dominance even

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[3]The Justice Department states in its merger guidelines that it considers a market to be "highly" concentrated if the HHI is above 1800.

[4]There are alternative theories regarding the relationship between market concentration and price. One such theory, for example, known as contestability, suggests that market prices can be disciplined by potential competitors whose threatened entry forces competitive behavior on firms in even highly concentrated markets.

if TWA's share of passengers beginning or ending their travel in St. Louis is less than its share of enplanements. Any airline with 82 percent of enplanements at a major airport is likely to be the one offering a wide variety of flights and is likely to dominate the air travel choices of those who use that airport. With regard to choosing an airport instead of individual routes as the basis for analysis, our interest was in examining the carrier options for all air travel available to St. Louis residents. Finally, we used the HHI to compare the change in concentration at Lambert with that elsewhere rather than to draw conclusions about the level of the HHI for Lambert.

SECTION 2

CHANGES IN AIR PASSENGER SERVICE AT LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT

TWA's acquisition of Ozark prompted concern that TWA might use its increased market power to reduce service to St. Louis air travelers. We found that between June 1986 and June 1987, TWA increased the number of cities it served directly from St. Louis. TWA also offered jet service to more cities. While the total share of enplanements of other carriers remained about the same as before the merger, TWA's acquisition of Ozark and service cutbacks by some carriers resulted in more St. Louis routes served by only one carrier. Thus, while TWA has increased the overall scope of air service it offers to St. Louis travelers, the opportunity of consumers to choose among competing airlines narrowed.[1]

We measured changes in airline service available to St. Louis travelers by examining the number of cities that can be reached by nonstop, one-stop direct, or two-or-more-stop direct service.[2] We compared the number of cities provided each type of service by TWA and/or Ozark in June 1986 with the number served by TWA in June 1987. We also calculated the changes in the number of cities receiving each type of service from other carriers. Finally, we examined the number of cities receiving jet service as opposed to only turboprop or propeller plane service.

SERVICE CHANGES ON ST. LOUIS ROUTES

In 1987 TWA provided direct service from St. Louis to six more cities and nonstop service to four more cities than had TWA and/or Ozark in 1986.[3] In addition, TWA increased the number of cities it provided with direct jet service. However, other airlines serving St. Louis eliminated certain routes from their operations. Carriers other than TWA and Ozark provided direct service to 83 cities in 1986 but to only 66 in 1987. They provided nonstop service to seven fewer cities in 1987 than they had prior to the merger. The number of cities for which one-stop direct flights was

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[1]There are other measures of service quality, such as the percentage of late flights. However, we were unable to use such measures because the data were either unavailable for appropriate time periods or did not allow meaningful comparisons.

[2]If different service levels were provided, we considered only the highest, with nonstop and jet service treated as the highest.

[3]We examined changes in the number of places served, but we did not measure changes in the frequency of service to various destinations.

the highest level of service also decreased slightly (see table 2.1). However, most of the routes other airlines no longer served were those with turboprop or propeller-driven aircraft (see table 2.2).

Table 2.1: Routes With Nonstop or Other Direct Service From St. Louis

	June 1986	June 1987
Routes served by TWA and/or Ozark with		
Nonstop flights	80	84
One-stop flights	5	7
TOTAL TWA/OZARK ROUTES WITH DIRECT SERVICE	85	91
Routes served by other carriers with		
Nonstop flights	31	24
One-stop flights	42	38
Two-or-more-stop flights	10	4
TOTAL ROUTES OF OTHER CARRIERS WITH DIRECT SERVICE	83	66

Note: This table includes the flights of code-sharing commuter airlines (e.g., Trans World Express flights are included with TWA flights) and excludes service provided fewer than 5 days per week.

Source: DOT.

Table 2.2: Types of Aircraft Used for Direct Service From St. Louis

	June 1986	June 1987
Routes served by TWA and/or Ozark with		
Jet service	72	74
Other service only	13	17
TOTAL TWA/OZARK ROUTES WITH DIRECT SERVICE	85	91
Routes served by other carriers with		
Jet service	62	60
Other service only	21	6
TOTAL ROUTES OF OTHER CARRIERS WITH DIRECT SERVICE	83	66

Note: This table includes the flights of code-sharing commuter airlines (e.g., Trans World Express flights are included with TWA flights) and excludes service provided fewer than 5 days per week.

Source: DOT.

CONSUMERS HAVE LESS CHOICE AMONG COMPETING AIRLINES

While TWA increased the number of cities it provided with nonstop and other direct service after the merger, there was a slight decrease in the number of cities receiving direct service from all carriers and a large increase in the number of cities that were served by only one carrier, usually TWA. The number of cities receiving direct service from St. Louis fell from 124 to 121 between June 1986 and June 1987. Over the same period, the number of direct routes served by only one carrier increased by 42 percent, from 60 to 85. At the same time, the number of direct routes served by two or more carriers fell by 44 percent, and those served by four or more carriers fell 53 percent (see table 2.3).

Table 2.3: Competition Among Carriers Providing Direct Service From St. Louis

	June 1986	June 1987	Change (percent)
Number of routes served by			
Four or more carriers	15	7	-53
Three or more carriers	30	16	-47
Two or more carriers	64	36	-44
One carrier	60	85	42
TOTAL ROUTES WITH DIRECT SERVICE	124	121	-2

Note: This table includes the flights of code-sharing commuter airlines (e.g., Trans World Express flights are included with TWA flights) and excludes service provided fewer than 5 days per week. "Total Routes with Direct Service" is the sum of the number of routes served by only one carrier and the number of routes served by two or more carriers.

Source: DOT.

We also examined the changes in the number of markets in which either TWA or Ozark provided all or nearly all (at least 75 percent) of nonstop flights. In 1986 less than half of the 84 domestic nonstop routes out of St. Louis were dominated by TWA or Ozark. In 1987 the number of nonstop routes had grown to 89, but TWA offered at least three-fourths of the flights on 80 percent (71) of these routes and was the only nonstop carrier on 76 percent (68 routes). There were only three routes in 1987 on which another carrier was the sole provider of nonstop service (see table 2.4).

Table 2.4: Proportion of Nonstop Routes Dominated by a Single Carrier

	June 1986	June 1987
TOTAL NUMBER OF NONSTOP ROUTES	84	89
Percentage of nonstop routes where either TWA or Ozark offered		
75 percent of nonstop operations	44	80
100 percent of nonstop operations	39	76
Percentage of nonstop routes where a carrier other than TWA or Ozark offered		
75 percent of nonstop flights	6	3
100 percent of nonstop flights	6	3

Note: This table includes the flights of code-sharing commuter airlines (e.g., Trans World Express flights are included with TWA flights) and excludes service provided fewer than 5 days per week.

Source: I.P. Sharp Associates.

SECTION 3

CHANGES IN FARES ON ROUTES TO AND FROM LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT

We compared average round-trip fares during three quarters in 1986 with fares from corresponding periods in 1987 and found that TWA's fares on 67 major St. Louis routes[1] rose more than airline fares nationally. We also compared the changes in TWA's round-trip fares on 53 of these St. Louis routes with changes in its fares to the same cities from Kansas City,[2] where the TWA-Ozark merger did not appreciably affect TWA's market share,[3] and with changes in the fares of other carriers serving St. Louis and Kansas City. TWA's fare increases on the 53 St. Louis routes were higher than the fare changes of other carriers serving St. Louis or TWA's fare changes on the Kansas City routes. TWA believes that its fare increases were in large part due to factors that led to unusually low fares in 1986 and an improved traffic mix in 1987.

CHANGES IN TWA'S AVERAGE FARES FOR ST. LOUIS TRAVEL

TWA's round trip fares on 67 major routes were 13 to 18 percent higher in 1987 than in comparable periods in 1986 before the merger. During the first three quarters of 1987, the airline fare component of the Consumer Price Index (CPI) rose 5 to 6 percent over 1986 levels (see table 3.1). Although the method used to obtain the airline fare component of the CPI differs from our approach, the CPI measures changes in airline fares nationally and provides a context in which to evaluate TWA's fare changes. (See app. I for further explanation.)

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[1]See app. I for an explanation of how the routes for our fare comparison were selected.

[2]See app. I for more information about why we used fares for Kansas City routes in our comparisons.

[3]Market share measured in terms of passenger enplanements.

Table 3.1: Changes in Average Fares on TWA-Ozark's 67 Major St. Louis Routes, 1986-87

Percent

	First quarter 1986 v. 1987	Second quarter 1986 v. 1987	Third quarter 1986 v. 1987
St. Louis routes	18	13	13
Consumer Price Index airline fares	6	5	5

Sources: DOT, U.S. Department of Labor.

TWA'S ST. LOUIS FARES INCREASED MORE THAN FARES FOR SIMILAR TRAVEL

We compared changes in TWA's round-trip fares with changes in the fares other airlines charged for round-trip flights from St. Louis to 53 cities.[4] We also calculated changes in TWA-Ozark fares for similar travel between Kansas City[5] and the same 53 cities and in other airlines' fares for the Kansas City routes.

From the first quarter of 1986 through the first quarter of 1987, TWA's fares on the 53 St. Louis routes increased 19 percent, while the average fares of other airlines serving these markets showed no change. In the second and third quarters, fares of other airlines increased above their 1986 levels but at a little more than half the rate of TWA's increases.

TWA fares on its Kansas City routes also were higher in 1987 than in the first and third quarters of 1986, but they increased less than those on its St. Louis routes. The fares charged by competing airlines on the Kansas City routes fell. However, the difference between TWA's fare changes and those of the other carriers was generally the same in both the St. Louis markets and the Kansas City markets. In summary, TWA increased average fares

[4]Fares to 50, 51, and 49 of these cities were used in the first quarter, second quarter, and third quarter comparisons, respectively. The number of routes varied because, for each quarter, we deleted from our analysis any routes for which we did not have comparable data.

[5]Fares for Kansas City routes and other carriers were selected for comparability to TWA's St. Louis fares and may not reflect the fare changes for overall air travel in Kansas City or the overall fare changes of other airlines.

more on its St. Louis routes than on its Kansas City routes, and the relationship between TWA's and competitors' fare changes was similar in the two sets of markets. (See table 3.2).

Table 3.2: Changes in Average Fares on 53 St. Louis and Kansas City Routes, 1986-87

Percent

	First quarter 1986 v. 1987	Second quarter 1986 v. 1987	Third quarter 1986 v. 1987
TWA-Ozark at St. Louis	19	14	13
Other Airlines at St. Louis	0	8	7
TWA-Ozark at Kansas City	13	0	10
Other Airlines at Kansas City	-6	-6	-8

Note: Fares from six of the 53 routes were used in only one or two of the quarterly comparisons. See app. I for further explanation.

Source: DOT.

FARE CHANGES VARIED WITH CHANGE IN COMPETITIVE SITUATION

Conventional economic reasoning suggests that, all else equal, fares should have risen most on routes for where Ozark was TWA's only major competitor and least on those where the merger had no direct impact on the number of major competitors. Therefore, those routes on which TWA and Ozark were the only carriers offering nonstop service prior to the merger would be expected to experience the largest fare increases, followed by those markets in which both carriers and at least one other airline offered nonstop service. In this second group, the merger eliminated one competitor, but not all competition. Routes on which TWA or Ozark was the only carrier offering nonstop service would be expected to be less affected because a monopoly already existed in nonstop service and the basic market structure was not changed by the merger. Finally, fares would be expected to be least affected on routes for which either TWA or Ozark and at least one other carrier offered nonstop service.

On those routes that conventional economic reasoning suggested would be least sensitive to the merger, there were small decreases, rather than increases, in average fares. Also consistent with conventional economic reasoning, there were fare increases on the routes where either TWA or Ozark was the only nonstop carrier and larger increases on the routes for which TWA and Ozark and other carriers provided nonstop service prior to the merger. However, on those routes where the merger was expected to have the largest relative effect, there were only moderate increases in average fares (see table 3.3).

Table 3.3: Changes in Average Fares on TWA-Ozark's 67 Major St. Louis Routes, by Competitive Situation, 1986-87

Percent

Nonstop carriers in market	First quarter 1986 v. 1987	Second quarter 1986 v. 1987	Third quarter 1986 v. 1987
TWA and Ozark only	5	3	6
TWA, Ozark, and other carriers	28	18	20
TWA only or Ozark only	13	14	10
TWA or Ozark, and other carriers	-3	-1	-1

Source: DOT.

TWA VIEWS ON THE ST. LOUIS FARE INCREASES

TWA officials attributed the fare increases at St. Louis to certain atypical events in 1986 that depressed fares and to other changes in 1987 that caused average fares to increase. According to TWA officials, a strike by flight attendants beginning in March 1986 and the highly publicized hijacking of a TWA airliner by terrorists caused a large drop in TWA's passenger traffic. To win back passengers, TWA offered discount coupons worth 20 to 30 percent on TWA tickets. These coupons were used most heavily during the second quarter of 1986, but they did not expire until December 15, 1986. These officials also told us that TWA was in the midst of a competitive struggle with Ozark at St. Louis at the time of the merger and that both carriers had reduced fares on some routes. Thus, the effect of the strike on the quality of service, the negative publicity from the hijacking, and the competitive struggle with Ozark all combined to depress TWA's fares in 1986.

TWA officials also cited three factors that raised average fares in 1987. First, there was a decrease in TWA's service quality after the flight attendants went on strike. For example, hot meal service was suspended. Business travelers, who left TWA during 1986, returned when the quality of on-board service returned to normal. Second, TWA's expanded commuter network in 1987 brought in more high-yield traffic. Third, Ozark had offered only coach class service. TWA introduced first class service on flights previously offered by Ozark. TWA believes that many business travelers had chosen other airlines, because Ozark did not offer first class service. The addition of first class fares on former Ozark flights and the increase in the proportion of business travelers (who tend to pay higher fares) meant higher average fares for TWA in 1987. TWA believes that its 1987 yields (revenue per passenger mile) are comparable to those earned by other carriers flying similar routes.

TWA attributed the fare decreases for other carriers in Kansas City markets to an increase in flights by Braniff, a low-fare airline, and the financial problems of Eastern, which may have needed to keep fares down to attract more passengers.

SECTION 4

PROSPECTS FOR COMPETITION AT LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT

Although it might not be difficult for another airline to add a few flights at St. Louis, any carrier attempting to gain a substantial share of St. Louis passenger enplanements will face several difficulties. Some of these difficulties are specific to the situation at Lambert-St. Louis International Airport, while others stem from advantages that economists and industry analysts believe any airline would gain from establishing a hub operation. The combined effect of the difficulties facing any airline wishing to establish a major presence at Lambert makes it likely that TWA will continue to control a large majority of enplanements at Lambert for the foreseeable future. TWA believes that other carriers are unlikely to enter or expand operations at Lambert because St. Louis is large enough to support only one airline hub.

NEW FACILITIES WOULD BE NEEDED TO ACCOMMODATE MAJOR EXPANSION OF OPERATIONS

Any airline planning large-scale entry or significant expansion of its operations at Lambert would have difficulty obtaining the necessary facilities. Lambert has four concourses radiating out of the main terminal area and another small terminal at the eastern end of concourse D (see figure 4.1). TWA controls all but concourse A, from which most of the other carriers operate, and the east terminal, which houses Southwest Airlines and miscellaneous operations. Lambert has approximately 75 gates, and TWA has a long-term lease granting it exclusive use of almost three-fourths of them. No other carrier has more than three gates. The airport cannot build new gates without local voter approval for bonding authority. Furthermore, majority-in-interest clauses in TWA's lease guarantee TWA a major voice in any decision to proceed with expansions or improvements at the airport for which TWA would have to share in the cost. While TWA would not be required to help pay for facilities such as gates and ticket counters to be used exclusively by other airlines, a portion of the cost of new runways and other facilities needed to accommodate increased traffic would be included in TWA's landing fees or facilities rental fees.

TWA and DOT believe that carriers wishing to enter or expand could find the facilities they needed at Lambert. Information we obtained from Lambert airport and airline officials indicates that a carrier wishing to compete on a limited number of routes could obtain use of necessary facilities within a relatively short period of time. However, any carrier wishing to establish itself as a strong competitor to TWA on a broad spectrum of St. Louis routes would need many more gates than are now available at Lambert.

The most likely site for new accommodations is in a remote part of the airport that offers less convenient access to some traveler services. As it develops its new master plan over the next year, the airport's management will consider various options for expansion, but the current master plan would have new facilities built off the east terminal. Preliminary preparations have been made so that the east terminal could be expanded with minimal delay should more gates be needed and the necessary funding be obtained. The former Director of Airports in St. Louis told us that if additional bonding authority is approved the airport could probably set up temporary gates in about 6 months, and permanent gates in about 2 years, after financing agreements have been reached with the airline needing the gates.

An official of Southwest Airlines told us that although the east terminal offers certain benefits, such as less crowded conditions and close proximity of parking and baggage facilities to gates, its remote location leaves Southwest passengers far from rental car offices and other traveler services. A carrier with operations in concourse A or an airline carrying passengers who are connecting with the flights of other carriers could find the east terminal inconvenient for its passengers.[1] However, it is possible that a major expansion of the east terminal could bring other changes, such as more traveler service facilities, that would make it more convenient for passengers.

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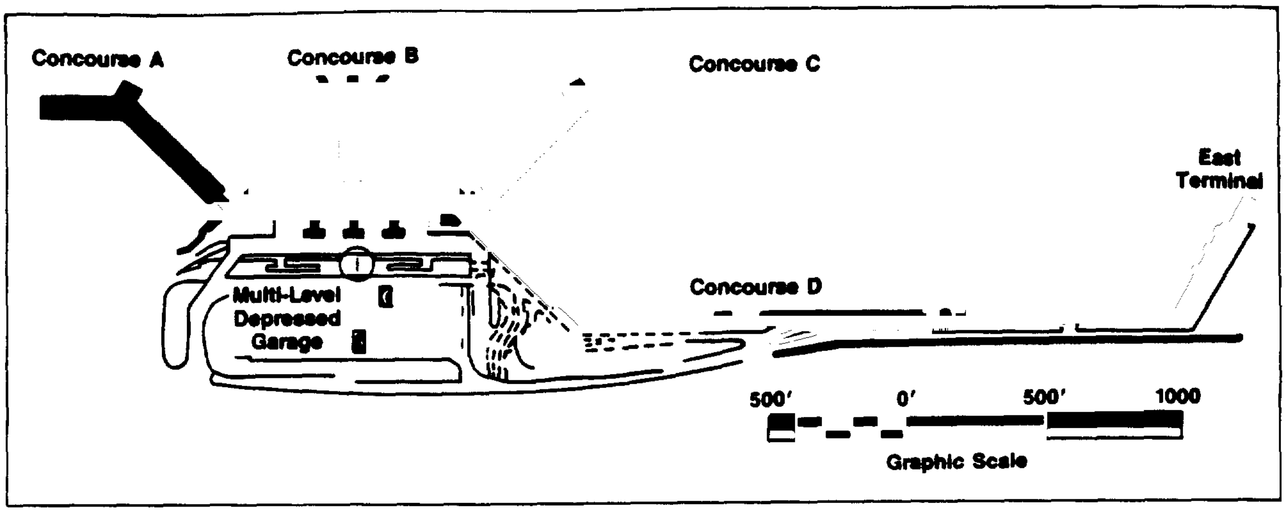
[1]The east terminal is approximately 1 mile from the end of concourse A. The airport now operates a shuttle and moving sidewalks to and from the east terminal, and the airport has considered other options for the future. Such terminal transportation aids may reduce the inconvenience for some passengers.

Figure 4.1: Lambert-St. Louis International Airport, Passenger Terminals



Source: Lambert-St. Louis International Airport Authority.

NEW MARKETING TOOLS AND OPERATING PRACTICES MAY HELP REINFORCE STRENGTH OF CARRIERS AT THEIR HUBS

Many airline industry analysts believe that modern airline marketing tools and operating practices make it difficult for carriers to enter or expand at other carriers' hub airports. Today, many airlines that operate hub-and-spoke systems offer frequent flights to a wide variety of destinations from their hub airports. TWA is now the only airline with a hub at St. Louis and offers more flights from St. Louis to more destinations than all the other carriers combined. Some industry analysts believe that the marketing tools described below can be used by carriers to increase the advantages they receive from dominant positions at hub airports. Among these tools are frequent flyer programs, travel agent commission overrides, and computerized reservation systems (CRS). Although some of these tools promote efficiency or offer important benefits to consumers, they also can frustrate competition in the industry.

Frequent Flyer Programs

Frequent flyer programs are sponsored by airlines to encourage "brand loyalty" among their passengers. This is done by offering awards that can be claimed after the accumulation of certain mileage thresholds.[2] Mileage accumulated on one airline is thus more valuable than the same mileage accumulated on several

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[2]For example, an upgrade to first class is usually the most easily obtained benefit; however, a passenger may have to fly 10,000 miles to be eligible. As unused mileage accumulates, the traveler becomes eligible for a wider variety of awards, including free air travel.

airlines. Frequent flyers are often business travelers whose fares are paid by their firms. Therefore, these travelers may be less responsive to lower fares or service improvements offered by carriers trying to enter a market. This would make it harder for an entrant or other airline to use low fares or other inducements to draw passengers away from a dominant airline with an attractive frequent flyer program.

Like other frequent flyer programs, TWA's Frequent Flight Bonus Program offers free travel, service upgrades, and other benefits to passengers who have accumulated flight mileage on TWA. Other carriers in St. Louis offer frequent flier plans, but TWA offers travelers originating in St. Louis far more nonstop and direct flights to many more destinations than any other carrier.

Travel Agent Commission Overrides

Airlines often pay travel agents commission overrides, which are paid in addition to the standard commission. Commission overrides are designed to encourage travel agents to increase the number of passengers they book on the sponsoring airline. The airline might provide a higher commission on all bookings on its flights if the travel agency increases bookings by a predetermined number or percentage. Or, the airline might choose to pay the override commission only for bookings on a particular route. Because revenue from bookings on a dominant airline will usually far outweigh the revenue from bookings on other carriers, commission overrides offered by the dominant airline are likely to be worth more to the travel agent than even higher override rates from other airlines. Because of TWA's dominant position in the St. Louis air travel market, this may give local travel agents a greater incentive to book passengers on TWA.

Computerized Reservations Systems

There is a growing body of evidence that it is more difficult for an airline to enter a market in which the travel agents use a CRS provided by another carrier that has a large share of the local air travel market. Most travel agents use a CRS, which is provided by an airline vendor. PARS is the system owned jointly by TWA and Northwest Airlines. Approximately 77 percent of air travel revenues booked through CRSs in the St. Louis market are made through PARS, according to a recent DOT study. Federal regulations prohibit screen displays that give greater prominence to the flights of the airline owning the system. However, the airlines that own CRSs continue to get a larger share of the bookings from agents who use their systems than would be expected from the number of flights they offer. DOT estimated that TWA's share of airline revenues received from bookings through agents using PARS was about 16 percent greater than would have been expected had TWA not owned the CRS.[3]

OTHER AIRLINES UNLIKELY TO MATCH TWA'S FLIGHT OFFERINGS AT LAMBERT

While most of the other major airlines fly in and out of St. Louis, they also maintain or are developing their own Midwestern hubs. Routing enough traffic through St. Louis to build a competitive flight network to and from St. Louis might divert traffic from these airlines' primary hub(s). American Airline officials told us that this was the reason American reduced its operations at St. Louis. American reduced its operations such that its share of enplanements fell from 12 percent in 1980 to less than 3 percent in 1985.

TWA's dominance at Lambert does not prevent other airlines from competing with TWA on individual routes. In particular, competition with TWA is likely to continue on routes between St. Louis and airports at which other airlines maintain significant operations. Many of these are among TWA's most heavily traveled routes.

TWA officials told us that St. Louis does not generate enough of its own traffic to support profitable hub operations by two airlines and that, as a result, other carriers are unlikely to match the service TWA offers to St. Louis passengers. If other carriers agree with TWA's assessment, they are unlikely to make the substantial investment required to offer service to a wide variety of destinations from Lambert. It is doubtful that any carrier could offer strong competition to TWA on a large proportion of St. Louis routes without operating a hub at Lambert.

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[3]DOT's estimates of increased revenue shares gained by CRS owners ranged from 12 to 40 percent.

OBJECTIVES, SCOPE, AND METHODOLOGY

MARKET SHARE

To provide information on changes in TWA's market share at Lambert, we used data on passenger boardings (enplanements) from 1985 and 1987 developed by Salomon Brothers.[1] We did not use 1986 enplanement figures because they mixed TWA and Ozark enplanements for the post-merger portion of 1986. The Herfindahl-Hirschman Index (HHI)[2] figures were calculated from the same data, treating any airlines under common ownership as a single airline.

SERVICE CHANGE CALCULATIONS

To determine the changes in the number of cities served and the types of service available, we relied primarily on scheduling data provided by DOT and I.P. Sharp Associates for June 1986 and June 1987. We also examined changes in the type of aircraft serving the routes (i.e., jet, turboprop, or propeller). These were the only relevant measures of service change for which data were readily available for the periods before and after the merger.[3] We limited our analysis of service changes to those cities with scheduled service at least 5 days per week.

The scheduling data revealed changes in the number of carriers serving different destinations from St. Louis. Using DOT data, we calculated the number of airlines providing direct service on each route in 1986 and in 1987. Because that measure shows only whether an airline provides service and not the frequency of service, we used I.P. Sharp's Official Airline Guide[4] data base to compare the number of routes dominated by TWA or by Ozark in 1986 with the number dominated by TWA in 1987. For this, we used two measures:

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[1]The Salomon Brothers data are based on revenue passenger enplanements from all of 1985 and the first quarter of 1987.

[2]The sum of the squares of the market shares held by the firms in the market multiplied by 10,000. See section 1 for a more complete discussion of the HHI.

[3]For example, DOT required only very limited reporting of flight delay information during 1986. Most other such service indicators, likewise, were not available for the relevant periods or were not available at all.

[4]The Official Airline Guide provides extensive airline scheduling information, including itineraries by flight number, types of aircraft, number of stops, and types of service available.

75 and 100 percent of nonstop operations[5] on a route. We also examined the change in the number of routes flown primarily by different airlines.

FARE CHANGE CALCULATIONS

We used round-trip fare data from DOT's Origin-Destination Passenger (O&D) Survey to measure changes in fares. The O&D Survey is a nominal 10 percent sample of all airline tickets purchased for flights on domestic airlines. The data base we used was DOT's SUMDOM, a summary data base developed from the O&D Survey. It is easier to use than complete O&D Survey data and, to eliminate gross errors, it excludes any ticket with a fare below a certain minimum or above a certain maximum yield (revenue per passenger mile) or with an unusual itinerary (e.g., more than two connections in either direction). When a city was served by more than one airport, we treated all airports in that city as a single origin or destination.

We also used data from the airline fares component of the Bureau of Labor Statistics' Consumer Price Index (CPI). The CPI figures came from a two-stage sample of fares. Using the O&D Survey, a random sample was taken of approximately 500 tickets from 90 cities of origin. Each month, a computerized reservation system is used to obtain the fare currently charged for each of those tickets (based on such factors as itinerary, airline, and fare code). If an identical ticket is no longer available, the most comparable fare is substituted. Each year, 20 percent of the tickets are replaced by a new random sample, leading to an entirely new sample every 5 years.

The routes we included in our review of fare changes were the 67 routes on which TWA and/or Ozark offered nonstop service throughout the first three quarters of 1986 and 1987.[6] These were essentially the same routes cited by the Department of Justice in its brief opposing the TWA-Ozark merger.[7] Because we were asked to

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[5]A nonstop operation in this case is the departure of one nonstop flight.

[6]Nonstop service was used as the criterion for identification of major TWA/Ozark markets. However, the fares used in our analysis were for all types of service.

[7]When the Civil Aeronautics Board went out of existence in January 1985, merger authority was transferred to DOT. This authority is scheduled to be shifted to the Justice Department at the beginning of 1989.

examine changes affecting St. Louis passengers, we did not include in our analysis any tickets other than those with St. Louis as an endpoint (i.e., we did not examine "through fares"--those offered passengers who traveled through St. Louis on their way to other destinations). When we compared the changes in St. Louis fares with those in Kansas City (table 3.2), we used a subset of these routes. Routes without fare data for each year and each comparison group were excluded, leaving a total of 53 routes.[8] The relevant calculations in table 3.1 and all calculations in table 3.3 were made with fares from all 67 routes.

On each route, for each of three quarters, we calculated the percentage difference between average fares paid in 1986 and in 1987. When we calculated the change in fares over a group of routes--whether for all 67 routes, the routes in table 3.2, or each of the groups in table 3.3, we weighted the change in each route's average fare according to that route's share of the traffic on the group of routes. To reduce the distorting effects of shifts in travel patterns and sample distribution, we held all traffic constant at 1986 levels. For example, during the first quarter of 1986, the St. Louis-Chicago route accounted for about 12 percent of TWA-Ozark's traffic on the 67 major St. Louis routes. During the first quarter of 1987, however, the route accounted for about 10 percent of the traffic. We, therefore, weighted the changes in average fares on the 67 routes such that the fares on the St. Louis-Chicago route accounted for 12 percent of the overall change in fares. To avoid the effects of seasonal differences in fares, we compared fares from the same quarters in each year.

A variety of factors other than the merger could have affected fares and changes in fares. We have accounted for some of these factors in our comparisons. St. Louis and Kansas City are industrial cities in the same general geographic area and, with their surrounding communities, are among the nation's 30 most populous metropolitan areas. The fares used in our comparison are from the same routes in each case[9] and also have been adjusted in

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[8]Fares on 50, 51, and 49 of the 53 routes were used in the first quarter, second quarter, and third quarter comparisons, respectively. Of the 53 routes, 47 were used in all time periods and 6 were used in 1 or 2 quarterly comparisons each.

[9]While a route from St. Louis to another city is not in all respects identical to the route from Kansas City to the same destination, it is of similar distance and is likely to share some of the characteristics that influence fare changes. As noted in the text, the CPI fare changes are the only data we did not adjust for comparability.

our index so that the fare changes compared are for similar travel patterns. Because rates of change in fares have been compared, rather than fare levels, most other factors--such as variations in passenger mix among airlines--should not have had a major influence on our results, except to the extent that they differentially affected the rate of fare changes. The combined enplanement shares of TWA and Ozark in Kansas City were relatively small, so any effects of the merger on St. Louis fares should be negligible on Kansas City fares. Because our index was based on TWA's experience in St. Louis markets, it may not accurately reflect the typical experience of passengers on other airlines or in Kansas City markets.

The data used to calculate table 3.2 were from 53 routes, a subset of the 67 TWA-Ozark nonstop routes used for tables 3.1 and 3.3. To increase the comparability of the fares, we deleted from our analysis any routes for which we did not have fare data in both years for all comparison groups.

To further increase the comparability of the data in table 3.2, we constructed an index that weighted fares such that the distribution of traffic was held constant. If the changes in the distribution of traffic are not controlled for, then changes in the average fare paid might reflect changes in the types of travel consumers purchased, rather than changes in fares charged. Therefore, we developed a fare index that allowed us to "correct" for changes in the types of trips people took. In effect, we estimated the fares travelers would have paid in 1987 had they taken the same types of trips in the same proportions as they took in 1986. Our index used the distribution of passenger traffic experienced by TWA and Ozark on their nonstop St. Louis routes during each of the first three quarters of 1986. We obtained our indexed fare changes by applying our fixed distribution of traffic to the fares in each of the comparison groups. The DOT officials who commented on our report were concerned that this approach might introduce some distortions because it does not fully reflect the relationship between pricing policies and different route structures in the comparison groups. They suggested that we hold traffic patterns constant over time but not across markets. We believe, however, that our index accurately reflects changes in the fares paid by passengers in the comparison groups for the same kind of travel experienced by TWA's St. Louis passengers. Furthermore, we compared our results with those obtained from the methodology DOT suggested and obtained results that were not fundamentally different.

We also compared the fare changes on groups of routes that we expected would be affected differently if the merger allowed TWA to alter its response to market forces. Relying on conventional economic reasoning and the briefs opposing the merger submitted by the U.S. Department of Justice, we divided the 67 TWA-Ozark nonstop routes into four groups. Both TWA and Ozark provided nonstop service on the routes in two of these groups, but only one of them provided nonstop service on the routes in the other two groups.

The first group contained the routes we thought most likely to experience fare increases. Because TWA and Ozark were the two carriers providing nonstop service on the routes in this group, the merger gave TWA a monopoly in nonstop service on these routes. The second group was made up of the routes we thought next most likely to experience fare increases. TWA, Ozark, and at least one other carrier offered nonstop service on these routes, so the merger reduced by one the number of nonstop carriers but did not affect TWA's other nonstop competitors on the routes.

The third group was made up of routes on which either TWA or Ozark was the only nonstop carrier, and the fourth group contained routes where either TWA or Ozark and at least one other carrier provided nonstop service. None of the routes in the third and fourth groups lost a competitor as a direct result of the merger. However, to the extent that potential competition from a carrier with a major presence at one endpoint of a route effectively keeps fares down, fares on the routes in these groups may have been affected by the merger. We expected that any effects of the loss of potential competition would be stronger on the routes in the third group. The routes in the fourth group were those we expected to be least affected by the merger--they lost no nonstop competitors as a direct result of the merger and each had at least one airline providing actual competition for TWA in nonstop service.

PROSPECTS FOR COMPETITION

To assess the prospects for changes in competition among airlines at St. Louis, we reviewed economics literature, relevant federal publications, and the Department of Justice's submissions opposing the merger; spoke with industry analysts and with airline officials, including representatives of TWA; interviewed airport officials and travel agents in St. Louis; and reviewed the results of the calculations described above.

CHANGES IN AVERAGE TWA-OZARK FARES ON 67 NONSTOP ST. LOUIS ROUTES, FIRST THREE QUARTERS, 1986-87

Table II.1: St. Louis Routes Where the Two Carriers Offering Nonstop Service in March 1986 Were TWA and Ozark

Percent

St. Louis route	Change in fares
Baltimore	-5
Cleveland	-7
Des Moines	24
Ft. Lauderdale	6
Indianapolis	10
Las Vegas	27
Louisville	13
Milwaukee	11
Nashville	20
Oklahoma City	-11
Omaha	4
Orlando	-1
Peoria[a]	16
San Antonio	-9
San Diego	34
Tampa	-1
Washington (DC)	-2

Note: Data from the first three quarters of each year were combined because, for a given quarter, small numbers of tickets on some routes would decrease the reliability of fare change estimates on those routes.

[a]Fewer than 30 tickets from 1986 and/or 1987 were used in our calculations for this route.

Source: DOT.

Table II.2: St. Louis Routes Where at Least Three Carriers, Including Both TWA and Ozark, Provided Nonstop Service in March 1986

Percent

St. Louis route	Change in fares
Atlanta	20
Chicago	28
Dallas-Ft. Worth	10
Denver	36
Detroit	-18
Houston	-3
Kansas City	17
Miami	6
Minneapolis/St. Paul	2
New Orleans	24
New York	39
Tulsa	3

Note: Data from the first three quarters of each year were combined because, for a given quarter, small numbers of tickets on some routes would decrease the reliability of fare change estimates on those routes.

Source: DOT.

Table II.3: St. Louis Routes Where the Only Nonstop Service in March 1986 Was Provided by Either TWA or Ozark

Percent

St. Louis route	Change in fares
Albuquerque	31
Austin	-18
Boston	2
Cedar Rapids	16
Colorado Springs	32
Columbus (OH)	7
Dayton	18
Ft. Myers	0
Harrisburg	-5
Hartford	24
Lincoln	20
Los Angeles	29
Madison	27
Moline	3
Palm Springs	7
Philadelphia	0
Phoenix	14
Portland (OR)	-6
Rochester (MN)	-19
San Francisco	10
San Jose	5
Sarasota/Bradenton	-6
Seattle	12
Sioux Falls	15
Springfield (MO)	20
Syracuse[a]	9
Toledo[a]	1
Tucson	7
Waterloo[a]	-17
W. Palm Beach	-7
Wichita	10

Note: Data from the first three quarters of each year were combined because, for a given quarter, small numbers of tickets on some routes would decrease the reliability of fare change estimates on those routes.

[a]Fewer than 30 tickets from 1986 and/or 1987 were used in our calculations for this route.

Source: DOT.

Table II.4: St. Louis Routes Where Either TWA or Ozark, and at Least One Other Carrier, Offered Nonstop Service in March 1986

Percent

St. Louis route	Change in fares
Champaign[a]	-8
Charlotte	-10
Cincinnati	11
Little Rock	-7
Memphis[a]	-16
Pittsburgh	5
Salt Lake City	12

Note: Data from the first three quarters of each year were combined because, for a given quarter, small numbers of tickets on some routes would decrease the reliability of fare change estimates on those routes.

[a]Fewer than 30 tickets from 1986 and/or 1987 were used in our calculations for this route.

Source: DOT.

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