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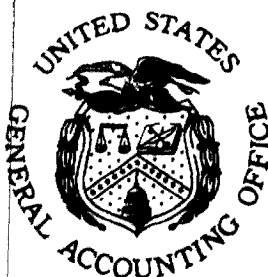
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The Changing Airline Industry: A Status Report Through 1981

Since passage of the Airline Deregulation Act of 1978, the passenger airline industry has experienced greater operating freedoms as well as changing economic conditions. GAO's review, which is essentially a snapshot of airline operations before and after deregulation through 1981, shows that

- traffic increased, but 1978 and 1979 gains were significantly reduced by 1980 and 1981 declines;
- fares increased at a lower rate than airline costs;
- higher 1978 and 1979 industry rates of return on investment declined in 1980 and 1981;
- significant 1978 and 1979 productivity gains were severely eroded in 1980 and 1981 by declining load factors;
- weekly departures for larger communities increased, but fewer seats were available for most communities; and
- safety was not adversely affected.



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UNITED STATES GENERAL ACCOUNTING OFFICE
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COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

B-197119

The Honorable James J. Howard
Chairman, Committee on Public
Works and Transportation
House of Representatives

The Honorable Norman Mineta
Chairman, Subcommittee on Aviation
Committee on Public Works and
Transportation
House of Representatives

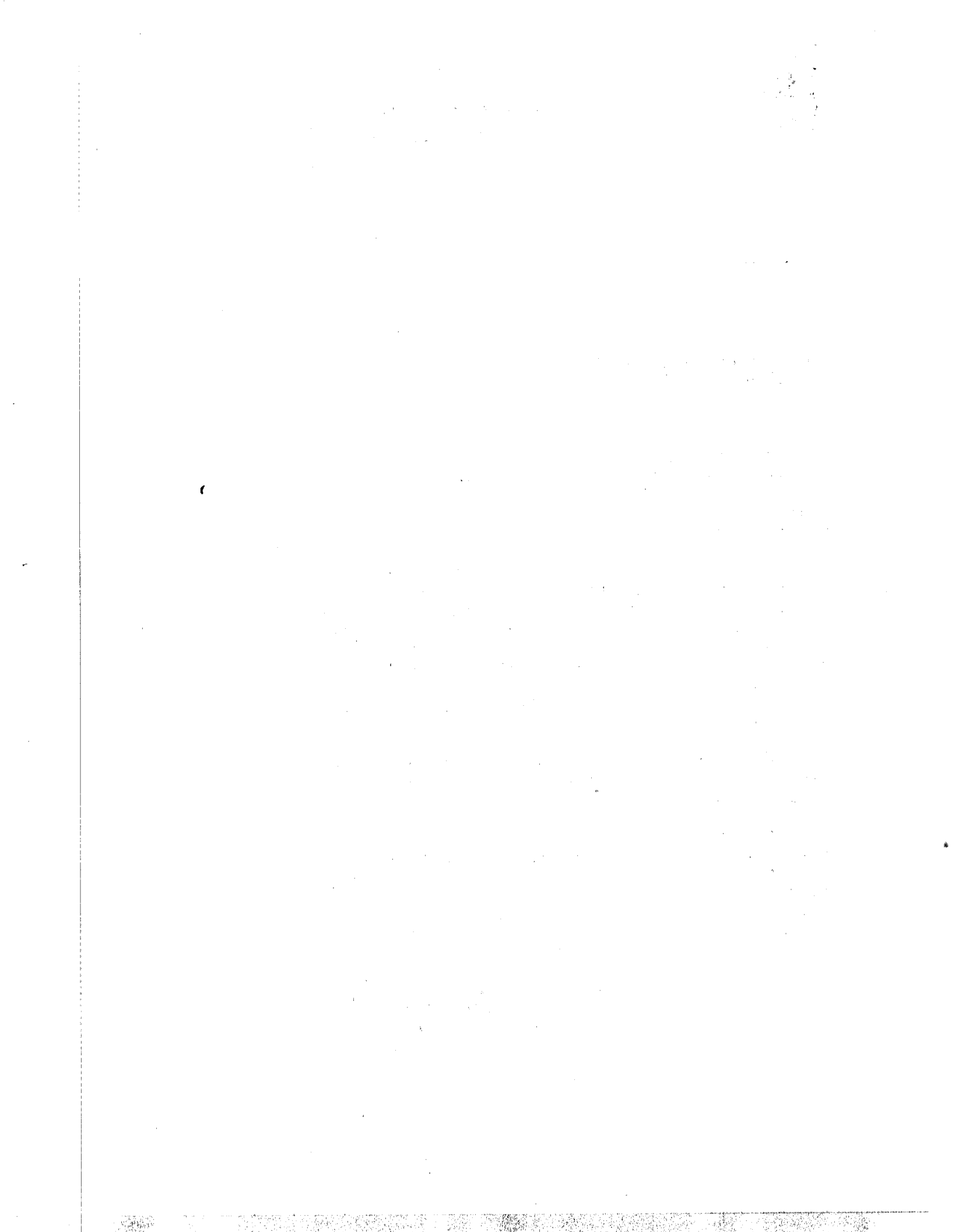
This report, prepared in response to your February 19, 1982, request, discusses changes in the airline industry since passage of the Airline Deregulation Act of 1978. It updates our earlier report entitled "The Changing Airline Industry: A Status Report Through 1980" (CED-81-103, June 1, 1981). The report discusses airline traffic; fares; profits; productivity; air service patterns, including service to small communities; and the safety records of domestic passenger airlines before and after the start of deregulation.

As requested we did not obtain agency comments on the matters discussed in this report. The information was discussed with the Civil Aeronautics Board.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days from its issue date. At that time, we will send copies of this report to the Director, Office of Management and Budget; the Chairman, Civil Aeronautics Board; the Secretary, Department of Transportation; interested congressional committees; and other interested parties.

A handwritten signature in cursive script that reads "Henry Eschwege".

Henry Eschwege
Director



D I G E S T

The airline industry is changing, responding to greater freedoms provided by the Airline Deregulation Act of 1978. This report is a snapshot of the airline industry before and after the act. It is not intended to be an assessment of deregulation's impact. Since deregulation the industry has encountered two recessions, rapidly rising fuel prices, and the air traffic controllers strike, making it difficult in GAO's opinion to judge deregulation's role in the industry's performance.

At the request of the Chairmen, House Committee on Public Works and Transportation and its Subcommittee on Aviation, GAO updated its earlier report entitled "The Changing Airline Industry: A Status Report Through 1980" (CED 81-103, June 1, 1981). That report, comparing conditions that existed in the airline industry before and in the first 3 years after deregulation, presented data indicating that gains made in 1978 and 1979, the first 2 years after deregulation, were eroded by 1980 declines. This report compares the first 4 years after deregulation and shows continued declines in 1981.

The airline industry, which is sensitive to general economic conditions, was adversely affected in 1980 by the combined effects of a recession and rapidly rising fuel costs and in 1981 by another recession and the air traffic controllers strike with its aftermath of restricted capacity at major airports. Information reported by the airlines for the first 3 months of calendar year 1982 shows that industry profitability is still declining.

INDUSTRY CHANGES

GAO analyzed four aspects of the industry's operations--traffic, fares, profitability, and productivity.

Since deregulation began, the airline traffic increases posted in 1978 and 1979 have been eroded in 1980 and 1981 by declines in both revenue passenger-miles and the number of passengers. As a result of the 1980 and 1981 declines, the average annual increase in passengers since deregulation was substantially below gains before deregulation. (See pp. 4 and 5.)

Air fares increased before and after deregulation but at a lower rate than airline costs. Since deregulation began, air fares have increased about 56 percent, while a Civil Aeronautics Board index of airline costs showed increases of about 85 percent. (See pp. 6 and 7.)

The domestic industry's rate of return on investment exclusive of a single, extraordinary gain from Pan American World Airways' sale of Intercontinental Hotels fell to a 6-year low in 1981. By contrast, the industry had a decade-high rate of return on investment in 1978 and an above-average return in 1979. In May 1982 one of the industry's major airlines, Braniff, declared bankruptcy. (See pp. 8 and 9.)

Improved airline productivity and favorable economic conditions, two major factors that contributed to moderating fare increases and increasing airline profitability in 1978 and 1979, changed considerably in 1980 and 1981. The Nation experienced a recession and inflation, which affected the airline industry. Air traffic declined from 1979 levels and load factors fell sharply from a high of 63 percent in 1979 to 57.5 percent in 1981, severely eroding airline productivity gains of the past several years. (See p. 10.)

A Civil Aeronautics Board index (1978 dollars) showed that airline costs, which had decreased significantly between 1972 and 1979, rose in 1980 and remained at that level in the first half of 1981. Indexed data for the remainder of 1981 was not available. (See pp. 10 and 11.)

AIR SERVICE PATTERNS

Weekly departures have increased at large and medium-sized communities since deregulation,

although available seats increased at only the large communities. The growth in air service, however, is marked by two distinct periods-- 1977 through 1979 brought sharp gains and 1979 through 1981 brought broad-based declines. These declines reduced earlier gains and, in some instances, reversed what had been gains to losses. (See pp. 14 and 15.)

Smaller community air service has experienced decreases in weekly departures since deregulation. Strong gains in 1978 and 1979 were erased by severe 1980 and 1981 declines. Service between smaller communities declined markedly between October 1977 and October 1981, while service between large and small communities declined to a lesser extent. (See pp. 14 and 17.)

Changes in air service patterns have not affected all geographic areas equally. Only nine States had an increase in weekly departures and available seats between 1977 and 1981. The remaining 39 of the contiguous 48 States and the District of Columbia had a decrease in departures and/or available seats. (See pp. 17 to 19.)

During the 10 years before the act was passed, 137 communities lost all certificated air service--service provided by airlines holding Board certificates of public convenience and necessity. After deregulation through May 1982, only three communities lost all certificated service, and that was only temporarily and with the communities' consent. (See pp. 17 and 20.)

Through December 1981, 356 communities, while not losing all air service, have been affected by some airline service terminations since deregulation, but almost half continue to receive air service by one or more certificated airlines. (See pp. 20 and 21.)

SAFETY

According to studies by the Secretary of Transportation, there was no evidence that deregulation had adversely affected air safety in 1979 and 1980. Air traffic safety statistics for 1981 indicated that the fatality rate for certificated carriers fell to one-fourth the 1980 level. In January 1982, however, certificated carriers experienced two fatal accidents. (See pp. 22 and 23.)

C o n t e n t s

	<u>Page</u>	
DIGEST	i	
CHAPTER		
1	INTRODUCTION	1
	Airline Deregulation Act	1
	The economy and the airline industry	1
	Objectives, scope, and methodology	2
2	CHANGES IN AIRLINE TRAFFIC, FARES, PROFITS, AND PRODUCTIVITY	4
	Traffic trends	4
	Fares	6
	Return on investment	8
	Productivity	10
3	CHANGES IN AIR SERVICE PATTERNS	13
	Methodology	13
	Systemwide service patterns	14
	Service terminations	17
4	DEREGULATION AND AIR SAFETY	22
APPENDIX		
I	Annual changes in revenue passenger-miles and number of passengers of domestic air services	24
II	Changes in market share of traffic, calendar years 1973-81	25
	<u>ABBREVIATIONS</u>	
CAB	Civil Aeronautics Board	
FAA	Federal Aviation Administration	
GAO	General Accounting Office	

GLOSSARY

Available seats	Installed seats in an aircraft, excluding any seats not offered for sale.
Available seat-miles	The aircraft-miles flown on each flight stage multiplied by the number of seats available for revenue use on that stage.
Certificate of public convenience and necessity	A certificate issued to an airline by the Civil Aeronautics Board (CAB) authorizing it to engage in air transportation.
Certificated airlines	A class of air carriers which holds CAB certificates of public convenience and necessity authorizing them to engage in air transportation.
Certificated point	A place authorized by CAB to receive scheduled air service by a certificated airline, including a place covering more than one community or served through more than one airport.
City pairs	The origin and destination cities of an air trip.
Commuter airlines	A class of noncertificated air carriers which operates small aircraft (under 60 seats) and weekly conducts at least five round trips between two or more points based on published flight schedules.
Competitive market	A pair of places served by more than one airline.
Departure	An aircraft takeoff from an airport.
Enplanements, passengers	The total number of passengers boarding aircraft.
Essential air transportation	The threshold number of departures linking a community to the nationwide air transport network. Two round trips per day, 5 days a week, or the level of service provided on the basis of calendar year 1977 air carrier schedule, whichever is less, is the statutory minimum service.
Flight, scheduled	Any air trip periodically operated between two places which is designated by a flight number or otherwise in the airline-published schedule.

Hub, air traffic	The cities and standard metropolitan statistical areas requiring aviation services. Communities fall into four classes as determined by each community's percentage of the total enplaned passengers in scheduled and nonscheduled service of the domestic certificate route airlines in the 50 States, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration. A large hub is a community which enplanes 1 percent or more of total enplaned passengers for all air services in the United States; a medium hub, from 0.25 to 0.99 percent; a small hub, from 0.05 to 0.24 percent; and a nonhub, less than 0.05 percent.
Hub-and-spoke network	A traffic system which feeds air traffic from small communities through larger communities to the traveler's destination via connections at the larger community.
Intrastate airlines	A class of noncertificated air carriers operating wholly within the same State.
Load factor	The proportion of aircraft seating capacity that is actually sold or used, determined by dividing revenue passenger-miles by available seat-miles.
Local service airlines	A class of air carriers which originally provided service to small and medium communities on low-density routes to large hubs and which were eligible for CAB subsidies to cover operating losses from such service. These carriers have since evolved from their "feeder" airlines origination into medium to large airlines with only certain of their operations eligible for subsidy.
Official Airline Guide	A bimonthly publication of the airlines' scheduled operations and services, showing service and fares to one city from all other cities where direct or simple connecting service is available. Information published in the Guide must be included in published schedules filed by the airlines with CAB.
Revenue passenger-mile	One paying passenger transported 1 mile in revenue service, computed by

multiplying aircraft-miles flown by the number of paying passengers for each interairport flight.

Revenue ton-mile

One ton of revenue traffic transported 1 statute mile. Revenue ton-miles are computed by multiplying tons of revenue traffic by the miles this traffic is flown.

Single-plane service

Air service between two cities using the same plane even though the flight involves one or more enroute stops.

Trunk airlines

A class of certificated route air carriers engaged in providing primarily domestic scheduled passenger service between medium and large hubs.

CHAPTER 1

INTRODUCTION

The Chairmen of the House Committee on Public Works and Transportation and its Subcommittee on Aviation asked us to update our earlier report entitled "The Changing Airline Industry: A Status Report Through 1980" (CED-81-103, June 1, 1981). That report compared conditions that existed in the airline industry before and in the 3 years after enactment of the Airline Deregulation Act of 1978 (Public Law 95-504). Data presented in that report showed, among other things, that since deregulation air fares have increased substantially but at a lower rate than airline costs. The report also showed that increases in airline traffic, weekly departures and available seats in 1978 and 1979 were eroded by reductions in 1980. This report describes the first 4 years after deregulation and continues the 1980 story of an airline industry affected by adverse conditions.

AIRLINE DEREGULATION ACT

Airline deregulation is a gradual process. The act provides for phasing out the Civil Aeronautics Board (CAB) and transferring some of its functions to other agencies. On December 31, 1981, most of CAB's domestic route authority expired, and on January 1, 1983, its authority over domestic fares expires. Also on that date, CAB's authority over domestic mergers and interlocking relationships will be transferred to the Department of Justice. On January 1, 1985, CAB will cease to exist unless the Congress has taken action to the contrary. At that time CAB's authority to provide subsidies for air transportation to small communities will be transferred to the Department of Transportation. The Department, together with the Department of State, will also have authority over foreign air transportation. Authority over airline agreements, mergers, and interlocking relationships involving domestic airlines with foreign airlines or persons will go to the Department of Justice. Determinations of domestic mail rates will be made by the U.S. Postal Service.

THE ECONOMY AND THE AIRLINE INDUSTRY

Air travel is sensitive to general economic conditions. In 1981, the fourth year of airline deregulation, the airline industry was faced with a second consecutive year of recession. Economic performance and service consequently suffered, and gains under the more favorable economic conditions existing between 1977 and 1979, already eroded by 1980 developments, were further eroded in 1981 as will be seen in the following chapters. In addition, the industry had to deal with the August 1981 Professional Air Traffic Controllers Organization strike, which occurred in the peak summer travel months, and its aftermath.

OBJECTIVES, SCOPE, AND METHODOLOGY

This report is not intended to be an assessment of deregulation's impact. Since deregulation, the industry has encountered two recessions, rapidly rising fuel prices, and the air traffic controllers strike, making it difficult in our opinion to judge deregulation's role in the industry's performance. Rather, the report is more of a snapshot of the airline industry before and after the act's passage. It compares, as requested, traffic trends; fares; profits; productivity; service patterns, particularly at small communities; and air safety in 1981 with earlier years.

In January 1981, CAB adopted newly defined airline groupings in place of the historical prederegulation airline categories. The new categories are majors, nationals, and large and medium regionals, which are based on airline size as measured by total operating revenue. They replace the former categories--trunks, locals, and various other groups. Under the new categories, for instance, all of the former trunk airlines plus two former local airlines (Republic and US Air) are now included under the majors group; while the remaining former local airlines (Frontier, Ozark, Piedmont, and Texas International) now come under the nationals group. Other airlines in the new nationals group include four former intrastate airlines (Air California, Air Florida, Pacific Southwest, and Southwest). The large and medium regionals groups primarily consist of former commuters.

Since our 1979 and 1980 analyses of airline performance were based on the prederegulation categories, we continue to use these categories in 1981 for comparability purposes. It should be noted, however, that because of the rapidly changing airline industry since deregulation, some airlines included in the prederegulation categories may no longer be providing the type of service traditionally identified with that category. For example, since deregulation, certain former intrastate and commuter airlines have become engaged in longer haul service, in addition to the more limited services associated with these categories.

We conducted our review at Civil Aeronautics Board headquarters and Federal Aviation Administration (FAA) headquarters in Washington, D.C., between February and May 1982. The statistics we used in our review come from CAB records and airline service schedules on file at CAB. The financial statistical data was developed by CAB from individual airline data on revenues, costs, passengers, and other business information which each airline must file with CAB. The service statistical data was developed by CAB from the Official Airline Guide. We used CAB data as provided, comparing 1981 data with that of earlier years and post-deregulation with prederegulation data. This review deals with the domestic airline industry, including trunk, local service, intrastate, commuter, and other airlines. A more detailed explanation about data sources and methodologies used appears in other sections of this report. (See p. 13.) The review was performed

in accordance with our current "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions."

Although the Airline Deregulation Act was not enacted until October 24, 1978, CAB began easing airline controls before that time. Since 1977, CAB has gradually lessened restraints on an airline's ability to enter and exit markets and has provided airlines increased fare flexibility. To reflect these changes in our comparisons, we arbitrarily considered calendar years before 1978 as being before deregulation and calendar years from 1978 to date as after deregulation. These comparisons, however, require a word of caution. They also reflect changes which have occurred for reasons other than airline deregulation, such as those attributable to changing economic conditions.

CHAPTER 2

CHANGES IN AIRLINE TRAFFIC,

FARES, PROFITS, AND PRODUCTIVITY

Air traffic, which increased sharply in 1978 and 1979 but declined moderately in 1980, continued to drop slightly in 1981. Air fares have increased but at a lesser rate than airline costs. Airline rate of return on investment, which in 1978 was an industry record for the decade, fell to its lowest level of the past 6 years in 1981.

Load factors, which in 1978 and 1979 were 61 and 63 percent, respectively, declined to 58 percent in 1980 and further declined to 57.5 percent in 1981. In the 4 years before deregulation the average load factor had been 55 percent. Although actual average costs per revenue ton-mile have been increasing, when the effects of inflation are removed, these costs declined from 1972 to 1979 but increased in 1980 and remained stable through the first half of 1981.

TRAFFIC TRENDS

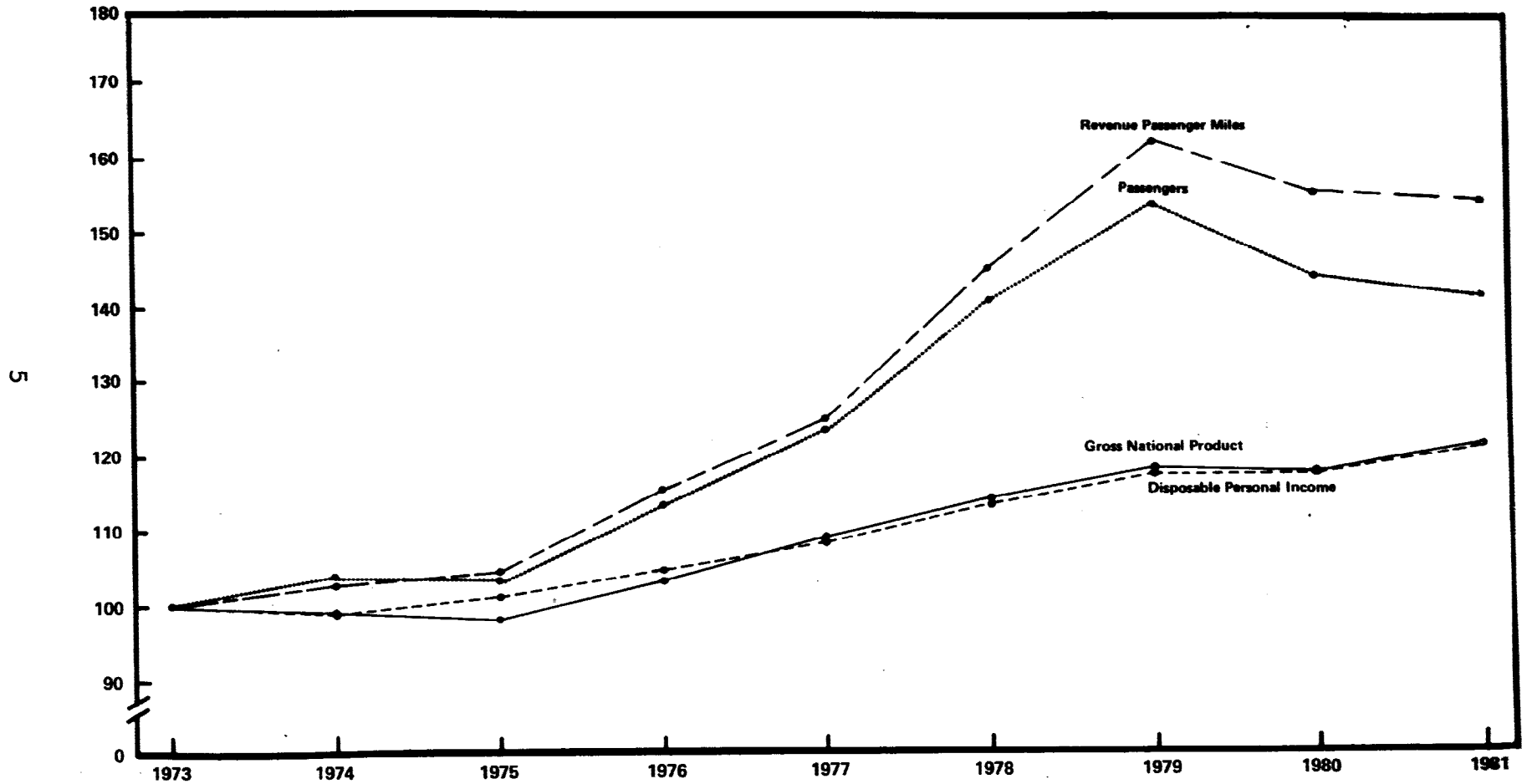
Using both revenue passenger-miles and total passengers as a measure, air passenger traffic during the period 1973-81 increased substantially. During the first 2 years of deregulation, 1978 and 1979, revenue passenger-miles increased by an average of about 24 billion per year, but in the third year, 1980, declined 8.7 billion from the 1979 level and showed a further decline of 1.4 billion in 1981. The average annual increase for the 4 years, 1978 through 1981, was 9.7 billion, while the average increase before 1978 was 8 billion. Similarly, the number of airline passengers increased by an average of about 30 million per year in the 2-year period 1978-79 but declined by 18.5 million between 1979 and 1980, and further declined by 7.6 million in 1981. Passengers increased by an average of 8.5 million over the 4-year period 1978-81, while increasing at an average of about 11.5 million before 1978. (See app. I.)

As previously noted, air travel is sensitive to economic conditions. Two Department of Commerce indexes are available to measure this relationship: gross national product and disposable personal income. Both reflect the general economic changes likely to influence both business and nonbusiness demand for air travel. As chart 1 shows, passenger traffic increased sharply between 1977 and 1979, considerably more than both economic indexes. In the 1980 recession, air traffic fell moderately as gross national product declined 0.3 percent over the four quarters of 1980. In 1981 air traffic fell slightly. Although real gross national product for all of 1981 was above the 1980 level, in the second, third, and fourth quarters of 1981 the gross national product expressed as an annual rate fell below the first quarter's.

Chart 1

CHANGES IN TRAFFIC^{a/} AND ECONOMIC INDICATORS
CALENDAR YEARS 1973-1981

INDEX
(1973 = 100)



^{a/} Covers domestic scheduled certified carriers, former intrastate carriers, and commuters.

Market shares

Although their percentage of the total market has decreased, trunk airlines still dominate the industry. Between 1977 and 1981 their share of the market dropped from 87.6 to 79.6 percent. Local service airlines picked up most of this shift. Their market share increased about 42 percent to 11.9 percent of the market. (See app. II.)

FARES

During the past 9 years, air fares and airline costs have risen significantly. (See table 1.) In the 5 years before deregulation (1972-77), air fares per passenger-mile increased by 33.3 percent, or about 5.9 percent compounded annually. During the same period airline costs went up 72.2 percent, or about 11.5 percent compounded annually, or about twice the air fare rate.

In the 4-year period after deregulation began (1978-81), average fares per passenger-mile increased 56 percent, or about 11.8 percent compounded annually. In 1981 average fares rose 13.9 percent over the 1980 level. During this 4-year period, airline costs rose 85.1 percent, or about 16.6 percent compounded annually. Costs rose 16.3 percent between 1980 and 1981, which was substantially lower than the 23-percent increase recorded between 1979 and 1980.

Table 1

Changes in Consumer and Airline Costs

	<u>Before deregulation</u> (1972-77)		<u>After deregulation</u> (1978-81)	
	<u>Total</u> <u>increase</u>	<u>Average annual</u> <u>compounded increase</u>	<u>Total</u> <u>increase</u>	<u>Average annual</u> <u>compounded increase</u>
	------(percent)-----			
Air fares	33.3	5.9	56.0	11.8
Airline costs index (note a)	72.2	11.5	85.1	16.6
Consumer Price Index	44.9	7.7	50.0	10.7

a/Based on a CAB index of costs to the airlines--fuel, personnel, goods and services purchased, and landing fees, but not capital charges such as depreciation, amortization, and interest. This index compares prices paid by the airlines in a given period to prices paid in 1978. CAB replaced an earlier index we had used in our previous reports with this one. Because the index is not available beyond the second quarter of 1981, all comparisons involve the average of the first and second quarters of each year to maintain consistency.

The Consumer Price Index is an indicator of a broad range of consumer price changes rather than an indicator of the change in costs affecting the airline industry. But if it is used as an approximate indicator of how consumer prices have increased, then air fare increases since deregulation have slightly exceeded the overall rise in consumer prices between 1978 and 1981, while in the 1978-79 period, fare increases were far less than the overall consumer price rise. In the 5 years before deregulation, average air fares increased at an average rate considerably below the Consumer Price Index.

Table 2 shows the actual average fare per passenger-mile for the past 10 years. As shown, air fares have been rising steadily. However, when the effects of inflation are eliminated, all air fares had actually declined for the 8-year period ending in 1979 in terms of 1970 dollars. (See table 3.) Since 1980, air fares have increased in all categories in terms of 1970 dollars, climbing to their highest level since deregulation.

Table 2
Average Fare Per Passenger-Mile
on Domestic Air Services
(actual dollars)

<u>Calendar year</u>	<u>All travelers</u>	<u>Travelers on scheduled service</u>			<u>Nonscheduled service travelers</u>
		<u>Combined</u>	<u>First class</u>	<u>Coach</u>	
------(cents)-----					
1972	6.3	6.4	8.7	5.9	3.3
1973	6.5	6.6	8.9	6.1	3.3
1974	7.4	7.5	9.9	6.9	3.7
1975	7.6	7.7	10.6	7.1	4.2
1976	8.0	8.2	11.5	7.5	4.1
1977	8.4	8.6	12.1	7.9	4.3
1978	8.4	8.5	12.0	7.8	4.8
1979	8.9	8.9	11.3	8.3	5.5
1980	11.5	11.6	15.3	10.8	7.4
1981	13.1	13.1	16.8	12.2	9.5

Table 3

Average Fare Per Passenger-Mile
on Domestic Air Services System
(1970 dollars)

Calendar year	All travelers	Travelers on scheduled service			Nonscheduled service travelers
		Combined	First class	Coach	
----- (cents) -----					
1972	5.9	5.9	8.1	5.5	3.0
1973	5.7	5.8	7.8	5.3	2.9
1974	5.8	5.9	7.8	5.5	2.9
1975	5.5	5.5	7.6	5.1	3.0
1976	5.5	5.6	7.8	5.1	2.8
1977	5.4	5.5	7.8	5.1	2.7
1978	5.0	5.1	7.1	4.7	2.8
1979	4.7	4.8	6.1	4.5	2.9
1980	5.4	5.5	7.2	5.1	3.5
1981	5.6	5.6	7.2	5.2	4.1

RETURN ON INVESTMENT

The rate of return on investment is developed by dividing the net income after taxes, plus interest expenses on debt, by the total investment in the carrier. It should not be confused with the return on stockholders' equity, which is developed by dividing the net income after taxes by the stockholders' equity. The former is a measure of the return on the investment, including debt, in the company. The latter is a measure of the return on the owners' (stockholders') investment in the company.

Return on investment in 1981 was influenced by a \$249.4 million extraordinary gain on the sale of Intercontinental Hotels by Pan American World Airways. As a result of this gain, the industry's rate of return was 6 percent.

With the extraordinary gain excluded, the 1981 return on investment was 4.3 percent, the lowest rate of return since deregulation began and the second lowest in a decade. The industry's domestic operations as a whole were unprofitable in 1981, with larger losses registered by the domestic trunks and some of the new airlines outweighing profits registered by other airlines. In the 10-year period 1972-81, the average rate of return for U.S. airline domestic operations was 7.2 percent, or with the extraordinary Pan Am gains included, 7.6 percent. As shown in table 4,

the rate of return on investment in the first 2 years of deregulation was considerably higher than the rate in the last 2 years. The 1980 and 1981 rates of return were among the lowest since 1972.

Information reported by the airlines for the first 3 months of calendar year 1982 shows that industry profitability is still declining. In May 1982 one of the industry's major airlines, Braniff, declared bankruptcy.

Table 4

Rate of Return on Investment (note a)
Domestic Operations

<u>Year</u>	<u>Percent of return on investment</u>
1981	b/ 4.3
1980	c/ 5.6
1979	7.1
1978	12.9
1977	9.7
1976	7.9
1975	3.2
1974	9.0
1973	6.3
1972	6.1
1972-77 average	7.0
1972-81 average	7.2

a/Based on CAB definition of airline rate of return. Basically, the figure represents net income and interest expense divided by the sum of airline debt and equity.

b/Excludes Pan American World Airways' extraordinary gain of \$249.4 million on the sale of Intercontinental Hotels in 1981. If the extraordinary gain is included, the 1981 return on investment is 6 percent and the 1972-81 average is 7.6 percent.

c/Excludes Pan American World Airways' extraordinary gain of \$294 million on the sale of the Pan Am Building in 1980. If the extraordinary gain is included, the 1980 return on investment is 7.8 percent.

PRODUCTIVITY

Airline productivity improved through 1979, as evidenced by higher load factors and lower airline costs per revenue ton-mile adjusted to 1978 dollars. Improved productivity contributed to increased airline profitability without fares rising at the same rate as costs. Another important factor, however, probably was favorable economic conditions. In 1980 and 1981 recessions and inflation affected the airline industry; traffic declined from 1979 levels; and load factors fell sharply from their highest levels in the past 8 years, severely eroding airline productivity gains of the past several years and producing an increase in airline costs per revenue ton-mile adjusted to 1978 dollars in 1980 and 1981 over earlier years.

Load factors

Along with the traffic boom which occurred in 1978 and 1979, airlines were able to significantly increase the percentage of available seats sold. As chart 2 indicates, load factors averaged about 55 percent for the 4 years before deregulation. However, during 1978 and 1979 the load factor increased to about 61 and 63 percent, respectively. In 1980 and 1981 available seat-miles rose while revenue passenger-miles declined, dropping the load factor to 58 and 57.5 percent, respectively. While still above the load factor in the 4 years before deregulation, it was a reversal of the load factor increases achieved in the first 2 years of deregulation.

Cost per revenue ton-mile

As table 5 shows, actual costs per revenue ton-mile have been increasing, with a sharp increase in 1981 over 1980 costs. When these costs were deflated and stated in 1978 dollars (using a CAB index), the airlines' costs had decreased significantly between 1972 and 1979 but rose in 1980 and remained at the 1980 level in the first half of 1981.

Table 5

Operation Costs Per Revenue Ton-Mile
Domestic Airline Operations

<u>Year</u>	<u>Actual cost</u> <u>per ton-mile</u>	<u>Cost per ton-mile</u> <u>in 1978 dollars (note a)</u>
	------(cents)-----	
1972	52.35	100.29
1973	55.07	98.52
1974	63.30	95.19
1975	69.73	94.10
1976	70.87	86.01
1977	74.50	81.24
1978	74.15	74.15
1979	83.66	71.02
1980	109.67	74.96
1981 (note b)	118.08	74.78

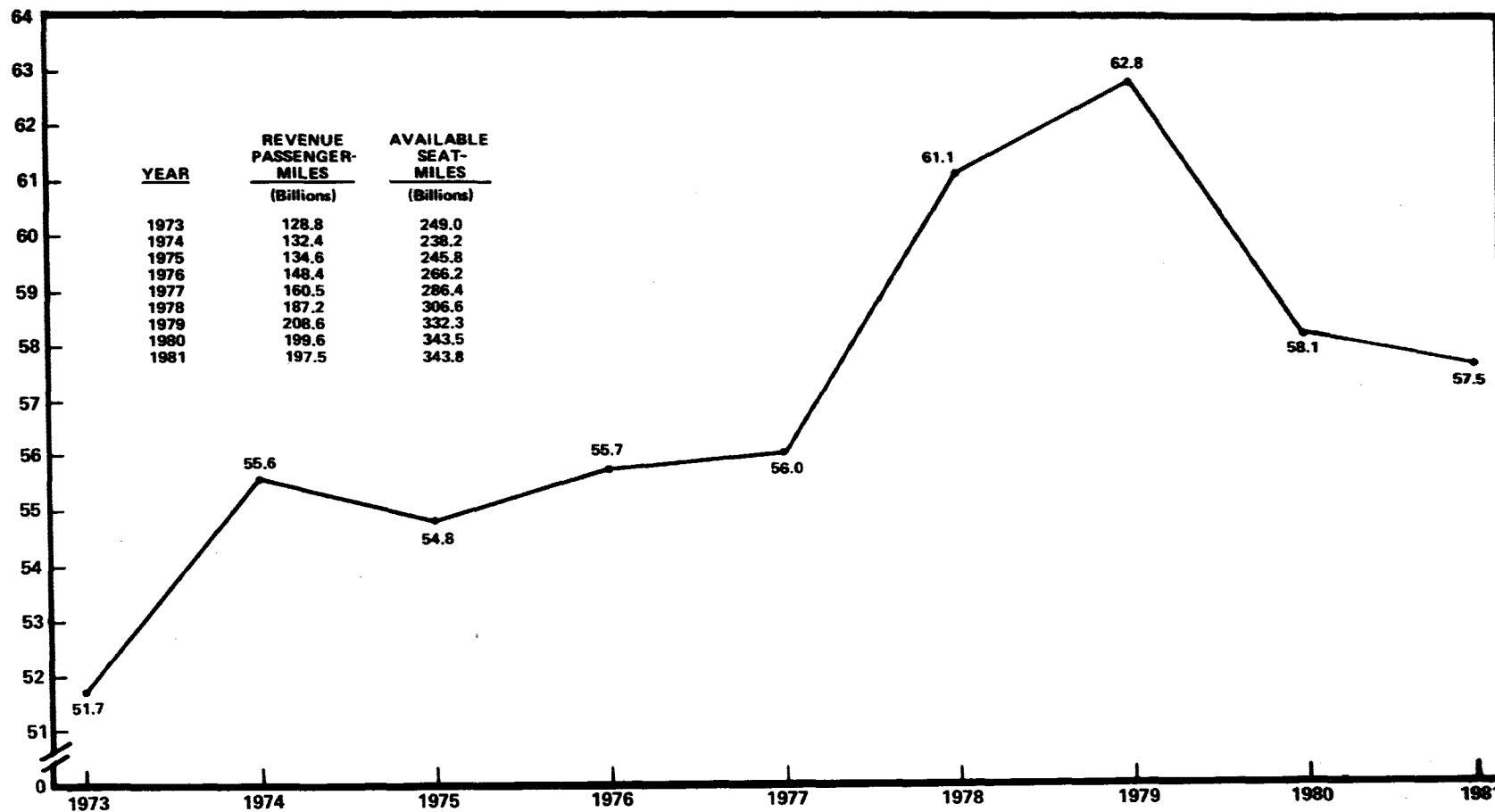
a/Actual costs were adjusted to 1978 dollars using a CAB index.
See note a, table 1, for more detail.

b/This data is for the 12 months ending June 30, 1981. The CAB index is not available beyond the second quarter 1981 so we had to limit the 1981 data to this figure in order to provide a cost per ton-mile in 1978 dollars. The actual 1981 cost per ton-mile was 125.01 cents.

Chart 2

CHANGES IN PERCENTAGE OF AVAILABLE SEATS SOLD^{a/} (LOAD FACTORS)^{b/}
CALENDAR YEARS 1973-1981

PERCENT



^{a/} Covers domestic scheduled certificated carriers and former intrastate carriers. Data was not available for domestic commuters.

^{b/} Revenue passenger miles divided by available seat miles.

CHAPTER 3

CHANGES IN AIR SERVICE PATTERNS

Since 1977, the total number of weekly departures has increased slightly, while available seats were almost unchanged. Airline competition between communities has increased as has single-plane service, which allows travelers to reach their destination without changing planes. These overall changes were the net result of two sharply contrasting service patterns--strong gains between 1977 and 1979 and heavy offsetting losses between 1979 and 1981.

Not all communities have experienced uniform changes in air service since 1977. Only large and medium hub communities showed growth in departures, and only large hubs had increases in available seats. While all city pair groups experienced reductions in flights, flights between smaller communities had the heaviest percentage of reductions. CAB does not consider reductions in such small community flights undesirable since small community traffic generally flows better through larger connecting hubs.

Since 1977 three certificated communities temporarily lost certificated air service, but service was later restored. Also, 356 communities were affected by service terminations, but many continued to receive service by one or more certificated airlines, and others received commuter service.

METHODOLOGY

To analyze how air service has changed in terms of weekly departures and available seats, particularly at small communities, we analyzed air service patterns at the four FAA community size classifications. FAA classifies communities as either large hubs, medium hubs, small hubs, or nonhubs based on the percent of total U.S. passengers enplaned at each airport.

Using CAB data developed from the Official Airline Guide, we compared the changes that have occurred at each hub category as of October 1, 1977, 1979, 1980, and 1981. The data is limited to points in the 48 contiguous States and represents the scheduled, but not necessarily the actual, operations of the certificated, commuter, and intrastate airlines.

To minimize seasonal variations which occur in air travel, we compared the weekly departures of each point for the weeks of October 1, 1977, October 1, 1979, October 1, 1980, and October 1, 1981. In the United States, October is normally an average month for air traffic volume. October is also the anniversary month of the passage of the Airline Deregulation Act. It should be noted, however, that the Professional Air Traffic Controllers Organization strike of August 1981, and the subsequent controller dismissals, restricted operations at 22 major airports.

SYSTEMWIDE SERVICE PATTERNS

System service, which experienced a dramatic jump in weekly departures and available seats between the weeks of October 1, 1977, and October 1, 1979, fell sharply between October 1, 1979, and October 1, 1980, and continued to decline in 1981. The overall effect of these contrasting service patterns was a net gain in departures of only 1.7 percent between October 1, 1977, and October 1, 1981, with no change in available seats.

As shown in table 6, weekly departures increased by 14.3 percent between October 1, 1977, and October 1, 1979, with all hub groups recording significant increases. By October 1, 1981, these gains had dwindled to 1.7 percent as a result of an 11 percent decline in departures between 1979 and 1981. Similarly, a 10.6 percent increase in available seats between 1977 and 1979 was erased by offsetting losses between 1979 and 1981.

All hub groups were not equally affected by service changes between 1977 and 1981. As shown in table 6, moderate gains in departures were posted at large and medium hubs, but small hubs and nonhubs had losses. While there was a moderate gain in available seats at large hubs, resulting from carriers reducing the use of their smaller equipment in response to restricted operations in the wake of the air traffic controllers strike, the other three hub groups suffered varying losses, with nonhubs suffering the largest percentage loss.

Since 1977, competitive markets--those served by two or more carriers--have grown. Markets receiving single-plane service--service between two cities on the same plane without transfers--have also increased. Between 1977 and 1981, competitive markets showed a net gain of 268, with 530 markets showing gains and 262 recording losses. Markets receiving single-plane service increased by 50, with 2,011 markets gaining and 1,961 losing such service.

Flight frequencies between various city pairs--considered a more precise measure of service--fell 12.1 percent between 1977 and 1981. This analysis provides a more detailed look at service between the 10 possible market-type groups based on hub size. Using flight frequencies by market type as a measure, flights per week in all 10 market groups experienced declines in service. As shown in table 7, flights between smaller communities suffered the heaviest percentage of losses, while the medium-to-medium hub markets recorded the smallest losses.

Small community service

With the advent of airline deregulation, there was concern that smaller communities would suffer losses in air service because airlines would be free to shift service to higher density markets. As shown in table 6, only small and nonhub communities showed overall losses in departures between October 1, 1977, and

Table 6

Summary of Weekly Aircraft Departures and
Available Seats by Hub Category

	Hub market				<u>Total</u>
	<u>Large</u>	<u>Medium</u>	<u>Small</u>	<u>Nonhub</u>	
Number of communities	23	37	68	524	652
Number of departures per week (in thousands)					
Oct. 1, 1977	58.7	22.6	13.2	26.2	120.6
Oct. 1, 1979	66.8	26.3	14.7	30.0	137.8
Oct. 1, 1980	63.4	23.8	13.5	26.7	127.3
Oct. 1, 1981	61.5	23.6	12.6	24.9	122.7
Percentage change					
1977-81	4.8	4.5	-3.9	-4.9	1.7
1977-79	13.9	16.6	12.0	14.3	14.3
1979-81	-8.0	-10.4	-14.2	-16.8	-11.0
1980-81	-2.9	-0.8	-6.6	-6.6	-3.7
Number of available seats per week (in millions)					
Oct. 1, 1977	6.6	2.2	1.1	1.0	11.0
Oct. 1, 1979	7.6	2.4	1.2	1.0	12.1
Oct. 1, 1980	7.1	2.2	1.1	0.9	11.3
Oct. 1, 1981	7.0	2.2	1.0	0.8	11.0
Percentage change					
1977-81	6.0	-3.0	-9.9	-22.5	0.0
1977-79	13.9	8.2	4.0	0.7	10.6
1979-81	-6.9	-10.3	-13.4	-23.0	-9.5
1980-81	-1.4	1.1	-7.8	-13.1	-2.5

Note: Totals may not add due to rounding.

Table 7

Summary of Flight Frequencies by Hub Market
Oct. 1, 1977, and Oct. 1, 1981

<u>Hub market</u>	<u>Flights per week</u>			<u>Percent change (note b)</u>
	<u>10/1/77</u>	<u>10/1/81</u>	<u>Change (note a)</u>	
	----- (thousands) -----			
Large to large	46.3	40.5	-5.8	-12.6
Large to medium	44.9	40.8	-4.1	-9.2
Large to small	25.9	23.1	-2.8	-10.7
Large to nonhub	35.6	32.7	-2.9	-8.2
Medium to medium	9.0	8.6	-0.4	-4.9
Medium to small	10.8	9.1	-1.6	-15.2
Medium to nonhub	12.7	11.5	-1.2	-9.4
Small to small	3.6	2.8	-0.8	-21.3
Small to nonhub	10.2	7.7	-2.4	-24.1
Nonhub to nonhub	<u>17.4</u>	<u>13.3</u>	<u>-4.1</u>	-23.3
Total (note a)	<u>216.3</u>	<u>190.1</u>	<u>-26.2</u>	-12.1

a/Totals may not add due to rounding.

b/Difference in the percentage change in departures (table 6) and the market flight frequencies results from two factors. The first is that the data bases differ. The departure data includes foreign flag operations while the market data does not. Second, a compounding effect multiplies the number of city pairs resulting from a multistop itinerary. For example, consider a flight itinerary which serves A, B, C, and D. There are three aircraft departures--A, B, and C. There are, however, six city pairs: A-B, A-C, A-D, B-C, B-D, C-D. Since airlines have been reducing multistop flights since deregulation, city-pair flights would show greater decreases than departures.

October 1, 1981, and they also experienced the heaviest percentage losses in available seats. This is a striking reversal of the 1977 to 1979 service pattern, which produced significant gains in departures at the smaller and larger communities, as well as gains in available seats. The severe declines in service suffered by smaller communities between 1979 and 1981, in addition to wiping out earlier gains, produced overall net losses in departures and available seats since deregulation.

Similarly, table 7 shows that the small and nonhub city-pair markets experienced significantly higher percentage declines in flights than the other larger city-pair markets. The reduction in flights between smaller communities reflects continued development of a hub-and-spoke network. CAB officials believe that a hub-and-spoke network facilitates the flow of air traffic from small communities via connections at a hub airport. While service between large and smaller communities also declined, that service was affected by the air traffic controllers strike. According to CAB, reduced service between both large and small and nonhubs has disrupted the hub-and-spoke systems that a number of carriers had been developing at large hubs.

Statewide service

Changes in air service patterns have not had the same impact on all areas of the Nation. Based on air service listed in the Official Airline Guide for the 48 contiguous States and the District of Columbia, only nine States recorded increases in both departures and available seats between October 1, 1977, and October 1, 1981. (See table 8.) The remaining 39 States and the District of Columbia suffered varying degrees of losses in departures and/or available seats in scheduled service. (See table 9.) In contrast, 19 States received increases in departures and available seats between October 1, 1977, and October 1, 1980, while the remaining 29 States and the District of Columbia had a decrease in departures and/or available seats in the same period. Correspondingly, between October 1, 1977, and October 1, 1979, 35 States and the District of Columbia recorded increases and only 13 States had reductions.

When CAB data is adjusted to include only those communities receiving certificated service prior to deregulation, different results are produced for most States, including some significant changes. For example, New Jersey, which showed a 61.8 percent increase in departures for all scheduled service, posted only a 24.5 percent increase at its certificated communities. In contrast, Kansas showed a 16.3 percent decline in departures for all scheduled service but only a 5.8 percent decrease for its certificated points.

SERVICE TERMINATIONS

Under the act, airlines are permitted to terminate air service at certificated communities. To protect small communities

Table 8

States with Increases in Weekly Departures
and Available Seats (note a)
October 1, 1977, vs October 1, 1981

<u>State (note b)</u>	<u>Percentage change in weekly</u>	
	<u>Departures</u>	<u>Available seats</u>
Nevada	42.9	34.3
Arizona	35.6	21.8
North Carolina	24.7	21.0
Florida	13.7	12.5
Colorado	12.5	26.0
Georgia	11.4	13.3
Texas	11.1	32.6
New York	9.0	5.5
Washington	8.1	15.0

a/Includes scheduled air service listed in the Official Airline Guide for the 48 contiguous States and the District of Columbia.

b/Listed in descending order based on percentage change of departures.

Table 9

States With Decreases in Departures and/or Available Seats
October 1, 1977, vs October 1, 1981

<u>State (note c)</u>	<u>All scheduled service</u> (note a)		<u>Certificated' service only</u> (note b)	
	<u>Percentage change in weekly</u> <u>Departures</u>	<u>Available seats</u>	<u>Percentage change in weekly</u> <u>Departures</u>	<u>Available seats</u>
New Jersey	61.8	-1.5	24.5	-11.0
Arkansas	29.7	-14.4	21.4	-17.0
Idaho	28.3	-11.0	26.9	-11.1
Montana	22.4	-2.7	22.4	-2.7
New Hampshire	16.3	-13.0	15.6	-14.1
Wyoming	15.9	-12.2	10.2	-17.7
Louisiana	13.2	-5.4	9.1	-5.9
North Dakota	11.4	-1.6	6.5	-2.6
South Carolina	10.8	-5.0	14.9	-4.5
Connecticut	10.2	-14.6	12.3	-16.4
Michigan	8.6	-9.9	9.0	-9.9
New Mexico	6.8	-26.0	21.4	-23.8
Ohio	3.2	-14.0	5.1	-14.1
Oklahoma	2.3	-21.0	2.3	-21.0
Virginia	1.7	-2.4	4.7	-2.2
Tennessee	-1.6	-9.9	-1.5	-10.0
Maine	-1.7	-0.5	-6.4	-3.0
Pennsylvania	-1.9	-13.6	-4.4	-14.4
Utah	-2.6	5.8	4.7	6.1
Vermont	-2.7	24.1	3.0	20.7
Indiana	-3.6	-7.0	12.8	-4.6
Massachusetts	-3.9	0.1	-4.6	0.0
South Dakota	-4.3	15.3	-4.3	15.3
West Virginia	-5.5	-26.7	-5.9	-27.1
Oregon	-5.8	-10.0	-0.2	-9.9
California	-7.1	-7.0	-2.6	-5.8
Minnesota	-7.7	-3.0	-5.2	-2.8
Missouri	-7.9	-3.7	-3.9	-3.3
Kentucky	-11.9	-17.6	-11.0	-17.6
District of Columbia	-14.2	-13.5	-14.2	-13.5
Nebraska	-15.0	-25.4	-15.0	-25.4
Kansas	-16.3	-5.8	-5.8	-4.0
Illinois	-16.3	-25.9	-15.8	-25.8
Wisconsin	-19.5	-12.5	-12.1	-8.7
Maryland	-20.5	3.1	-17.5	2.4
Mississippi	-21.5	-20.4	-19.4	-20.1
Iowa	-23.9	-34.1	-13.5	-33.2
Alabama	-25.1	-17.5	-24.8	-17.4
Rhode Island	-52.4	-26.4	-46.5	-25.5
Delaware (note d)	-100.0	-100.0	0.0	0.0

a/Includes all scheduled air service--both certificated and noncertificated--listed in the Official Airline Guide for the 48 contiguous States and the District of Columbia.

b/Includes scheduled air service listed in the Official Airline Guide for only certificated points in the 48 contiguous States and the District of Columbia which received air service on Oct. 24, 1978.

c/Listed in descending order based on percentage change in departures.

d/Delaware had no certificated points on Oct. 24, 1978, and therefore lost no certificated service.

receiving or eligible to receive air service on October 24, 1978, against deterioration or loss of service from such terminations, certificated communities are guaranteed essential air transportation for a period of 10 years from October 24, 1978, and airlines must notify CAB of intended service terminations. Where terminations would affect essential air transportation, as determined by CAB under the act, CAB must arrange for another airline to supply the necessary transportation and may require an existing airline to continue service (hold-in) until a replacement is found. Airlines may be paid subsidies where necessary to provide essential air transportation--including commuter airlines previously ineligible for subsidy.

According to CAB, since the act was passed three communities receiving certificated air service during October 1978 temporarily lost air service with their consent--Astoria, Oregon; Brunswick, Georgia; and Merced, California. Service to each community has been or will be restored with subsidy.

In contrast to the three communities which temporarily lost service since the act was passed, 137 communities lost certificated air service during the previous 10 years. As of December 1981, 15 of the 137 communities were receiving air service, mostly by commuter and all without subsidy.

To terminate service at a community, certificated airlines and subsidized commuters must give CAB at least 90 days' advance notice and nonsubsidized commuters, at least 30 days' notice. Since the act's passage through December 1981, carriers filed a total of 522 termination notices, affecting 356 certificated communities, as shown below.

<u>Hub category:</u>	<u>No. of communities</u>	<u>Notices</u>
Large	24	35
Medium	25	36
Small	47	73
Nonhub	<u>260</u>	<u>378</u>
Total	<u>356</u>	<u>522</u>

Carrier type:

Trunk	-	123
Local	-	232
Other	-	<u>167</u>
Total		<u>522</u>

Of the 356 communities affected by terminations as of April 1982, 151 were still being served by at least one certificated airline. In the remaining 205 communities, the only certificated airline had terminated service and service was being provided by commuters or former commuters. Of the 205 communities served by commuters, 79 were or soon would be receiving essential air transportation subsidies. Nine of the 205 communities had been served by two or more certificated airlines before deregulation and 125 by one. The other 71 communities had experienced suspension of certificated service before deregulation.

CHAPTER 4

DEREGULATION AND AIR SAFETY

The Airline Deregulation Act directs the Secretary of Transportation to report annually on the extent to which airline deregulation has affected air safety. In his first and second reports, both entitled "The Effect of the Airline Deregulation Act on the Level of Air Safety," issued in January 1980 and May 1981, respectively, the Secretary found no evidence that deregulation had adversely affected air safety in 1979 or 1980. The third report, which will cover calendar year 1981, was being reviewed as of April 22, 1982, but was not ready for release. We did obtain air traffic safety statistics for 1981, which are summarized below.

Although we did not review the detailed support for the Secretary's findings in the January 1980 and May 1981 reports, we examined the methodologies used to arrive at the reports' findings and discussed the planning and execution of the reports with staff involved. The methodology used appears reasonable. The same methodology is being used to prepare the third report.

While the Secretary's third report on air safety was not available as of April 1982, we obtained the statistics used in the draft report. According to these statistics:

- Certificated carriers had three fatal accidents in 1981, with only three fatalities. The accidents involved two domestic trunk airlines and one international territorial carrier. None of these accidents involved air crashes. They involved a ground crewman struck by an aircraft; a passenger's fatal fall from a loading ramp; and a flight attendant crushed by a galley elevator. Certificated carriers include domestic trunk, local service, Alaska and Hawaii, international territorial, and helicopter certificated route air carriers.
- While the number of certificated carriers' flight hours declined in 1981 from 1979 and 1980 levels, the accident and fatal accident rate rose over 1980 levels. The fatality rate per 100,000 flight hours recorded fell to one-fourth the 1980 level, reflecting the fact that only three fatalities occurred in 1981.
- Commuter air carriers experienced a slight increase in flight hours and a decline in the accident rate from the 1980 level. However, the fatal accident rate and the fatality rate increased sharply from the 1980 level but remained below the 1978 and 1979 levels. Nine fatal accidents occurred in 1981 with 33 fatalities.
- Air taxi operators experienced a decrease in flight hours between 1980 and 1981 and in fatal accidents and fatalities. The total number of accidents increased.

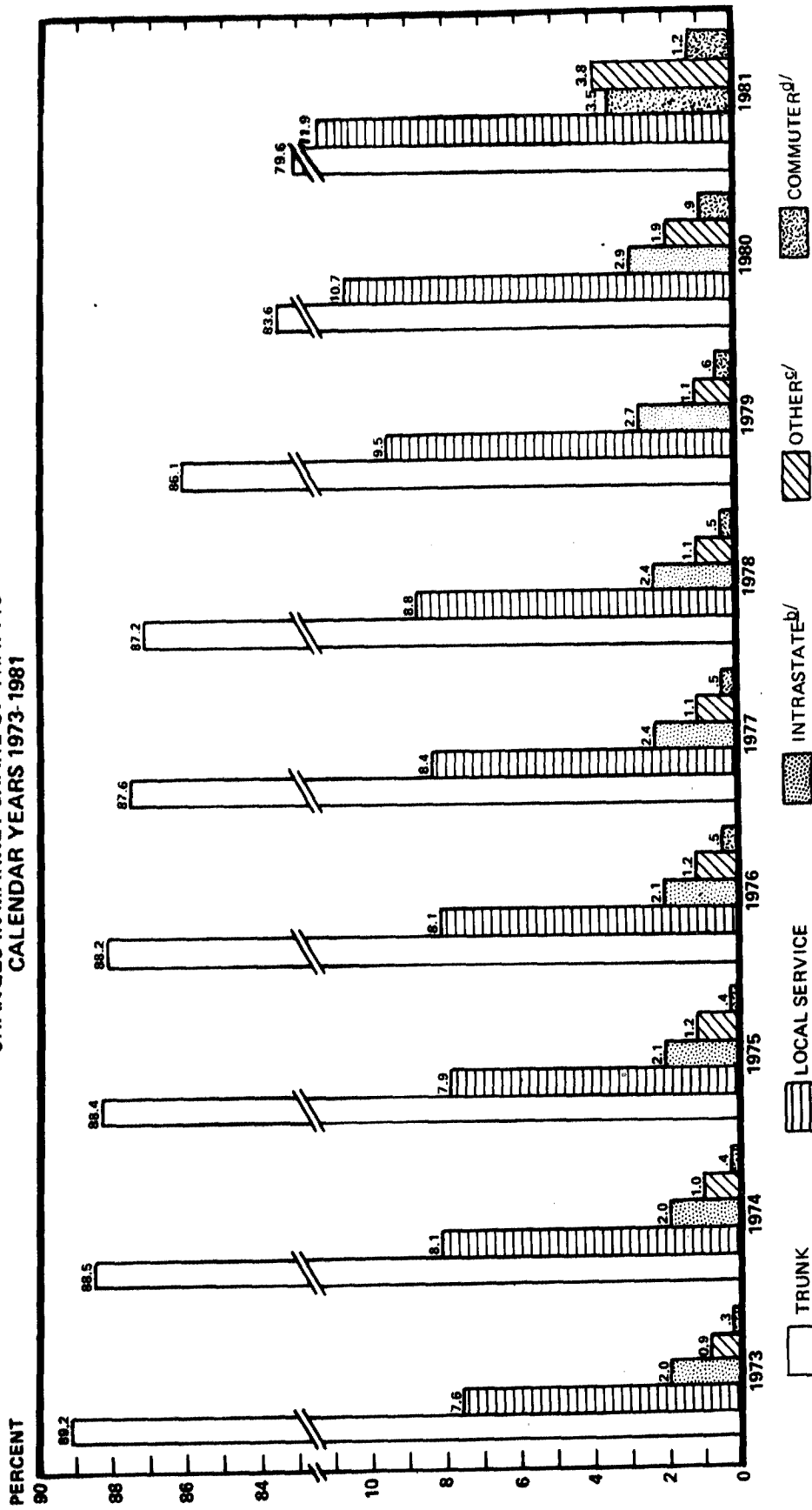
--Of all classes of operators in 1981, 192 accidents occurred, including 41 fatal accidents with 114 fatalities.

While no major accident involving a certificated carrier occurred in 1981, there were two fatal certificated carrier accidents in January 1982.

ANNUAL CHANGES IN REVENUE PASSENGER-MILES
AND NUMBER OF PASSENGERS OF DOMESTIC AIR SERVICES

<u>Year</u>	<u>Revenue passenger- miles</u>	<u>Annual changes</u>	<u>Number of passengers</u>	<u>Annual changes</u>
	----- (billions) -----		----- (millions) -----	
1981	199.9	-1.4	275.5	-7.6
1980	201.3	-8.7	283.1	-18.5
1979	209.9	21.7	301.6	24.8
1978	188.2	26.9	276.8	35.4
Average				
1978-81	-	9.7	-	8.5
1978-79	-	24.0	-	30.0
1977	161.3	12.2	241.4	19.3
1976	149.1	13.9	222.1	19.2
1975	135.2	2.2	202.9	-0.5
1974	133.0	3.7	203.4	7.8
1973	129.3	-	195.6	-
Average				
1973-77	-	8.0	-	11.5

CHANGES IN MARKET SHARE OF TRAFFIC^{a/}
CALENDAR YEARS 1973-1981



a/ Represents revenue passenger miles for domestic scheduled certificated and commuter carriers.

b/ Represents newly certificated former intrastate carriers.

c/ Includes all domestic scheduled certificated carriers other than trunks, locals, and certificated former intrastate and commuter carriers.

d/ Includes newly certificated former commuters.

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