

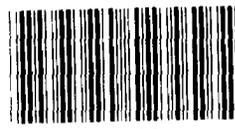
REPORT BY THE U.S.

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General Accounting Office

The Changing Airline Industry: A Status Report Through 1980

The airline passenger industry is changing, responding to greater freedoms provided by the Airline Deregulation Act of 1978. GAO's review of airline operations, since deregulation began through calendar year 1980, shows



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- increased traffic, but with significant 1978 and 1979 gains reduced by 1980 declines;
- lower rate of increase in fares than in airline costs;
- higher 1978 and 1979 industry rates of return on investment followed by a sharp decline in 1980;
- significant 1978 and 1979 productivity gains, severely eroded in 1980 by declining load factors;
- more weekly departures for all sizes of communities but fewer available seats for most communities; and
- no apparent adverse effect on safety.



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UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

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 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 1979," (CED-80-143, Sept. 12, 1980). 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. Unless you publicly announce its contents earlier, we plan no further distribution of this report until 5 days from the date of the report. 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 freedom provided by the Airline Deregulation Act of 1978. It is too early to judge the ultimate success or failure of deregulation because it is a gradual process which will not be completed until 1985. GAO's comparisons of air service reflect changes that have also been caused by circumstances other than airline deregulation.

An update

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 1979," (CED-80-143, September 12, 1980). That report, comparing conditions that existed in the airline industry before and in the first 2 years after deregulation, presented data indicating moderate airfare increases, substantial air passenger travel growth, broad-based gains in departures, available seats per week, and flight frequencies, among other things. This report compares the first 3 years after deregulation and tells a sharply different story. The airline industry, which is sensitive to general economic conditions, was buffeted in 1980 by the combined effects of a recession and rapidly rising fuel costs. These factors had a substantial impact on 1980 industry performance.

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 by declines in both revenue passenger-miles and the number of passengers. Despite the 1980 declines, the average annual increase in both indices since deregulation substantially exceeded gains before deregulation. (See pp. 3 and 4.)

Air fares have increased before and after deregulation but at a lower rate than airline costs. Since deregulation began air fares increased about 37 percent, while an index of airline costs increased by about 60 percent. (See pp. 5 and 8.)

The domestic industry's rate of return on investment exclusive of a single extraordinary gain fell to a 5-year low in 1980. By contrast, the industry had a decade high rate of return on investment in 1978 and an above average return in 1979. (See pp. 8 and 9.)

Two major factors that had contributed to moderating fare increases and increasing airline profitability in 1978-79, improved airline productivity and favorable economic conditions, changed considerably in 1980. 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 58 percent in 1980, severely eroding airline productivity gains of the past several years. (See p. 10.)

Using revenue ton-mile costs as an efficiency measure, a Civil Aeronautics Board index (1976 dollars) shows that airline costs, which had decreased significantly between 1970-79 rose in 1980 for only the second time in 11 years. Costs which had decreased at a 7.3-percent average annual rate in the first 2 years of deregulation rose 7.4 percent in 1980. (See pp. 10 and 11.)

AIR SERVICE PATTERNS

Weekly departures have increased at all domestic community sizes since deregulation, although available seats increased at only the largest communities. The growth in air service, however, masks two distinct periods--1977-79 marked by sharp gains, and 1979-80 marked by broad-based declines. These declines reduced earlier gains and, in some instances, reversed what had been gains to losses. (See pp. 14 and 15.)

Small community air service experienced a slight increase in weekly departures since deregulation, but strong gains in 1978 and 1979 were eroded by 1980 declines. Service

between small communities has declined markedly between October 1977 and October 1980, while service between large and small communities has only declined slightly. (See pp. 16 and 17.)

Changes in air service patterns have not affected all geographic areas equally. Nineteen States had an increase in weekly departures and available seats between 1977-80. The remaining 29 of the contiguous 48 States and the District of Columbia had a decrease in either departures or available seats. Only one State, Maryland, had an increase in departures and available seats between 1979-80. (See pp. 17 to 19.)

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

Through December 1980, 287 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 to 22.)

SAFETY

Safety does not appear to have been affected by deregulation. Air traffic safety statistics indicated that in 1980 the certificated carriers accident rate per 100,000 flight hours recorded fell to half the 1978 and 1979 rates. There was only one fatal accident among certificated carriers, involving a local service carrier, with 13 fatalities. (See pp. 23 and 24.)

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ABBREVIATIONS

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 and containing any CAB specifications on routes, points or areas to be served, and limitations and restrictions on such service.
Certificated airlines	A class of air carriers which hold CAB certificates of public convenience and necessity authorizing them to engage in air transportation, including certificated route airlines and supplemental airlines.
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 operate small aircraft (under 56 seats) and weekly conduct 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, including originating and stopover of online transfer passengers.
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 non-scheduled 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 of the United States.

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 service, 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 inter-airport 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 1979" (CED-80-143, Sept. 12, 1980). That report compared conditions that existed in the airline industry before and in the 2 years after enactment of the Airline Deregulation Act of 1978 (Public Law 95-504). Data presented in that report indicated, among other things, moderate air fare increases; substantial air passenger traffic growth; and broad-based gains in departures, available seats per week, and flight frequencies. This report compares the first 3 years after deregulation and tells a sharply different story.

AIRLINE DEREGULATION ACT

Airline deregulation is a gradual process. The act provides for the phasing out of CAB and transferring of some of its functions to other agencies. On December 31, 1981, most of CAB's domestic route authority expires, 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 ceases 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 as well as price. In 1980, the third year of airline deregulation, the airline industry was faced with a recession, rapidly rising fuel costs, and rising air fares. Economic performance and service consequently suffered, and gains under the more favorable economic conditions existing between 1977 and 1979 were substantially eroded by 1980 developments as will be seen in the following chapters. Since this is the first time since deregulation that the airline industry was faced with both rapidly rising fuel prices and business recession, it is difficult in our opinion to judge the industry's performance under deregulation until it has had more operating experience.

OBJECTIVES, SCOPE, AND METHODOLOGY

This report is not intended to be an assessment of deregulation's impact. Rather, it 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 1980 with earlier years.

We conducted our review at Civil Aeronautics Board headquarters and Federal Aviation Administration (FAA) headquarters in Washington, D.C. The statistics we used in our review came from CAB records and airline service schedules on file at CAB. The financial statistical data is 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 is developed by CAB from the "Official Airline Guide." We used CAB data as provided, comparing 1980 data with that of earlier years and postderegulation with prederegulation data. This review deals with the entire domestic airline industry, including trunks, 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 pp. 13 and 14.)

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 reflect changes which have also occurred from 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 had increased sharply in 1978 and 1979, declined moderately in 1980. 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 below the 1970-77 deregulation average. Airline productivity gains through 1979 were severely eroded in 1980 by the effects of a business recession and inflation on the airline industry. Load factors, which in 1978 and 1979 were 61 and 63 percent, respectively, declined to 58 percent in 1980. 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 decreased significantly in 1978-79 but increased in 1980, largely in response to rapidly rising fuel costs and declining load factors.

TRAFFIC TRENDS

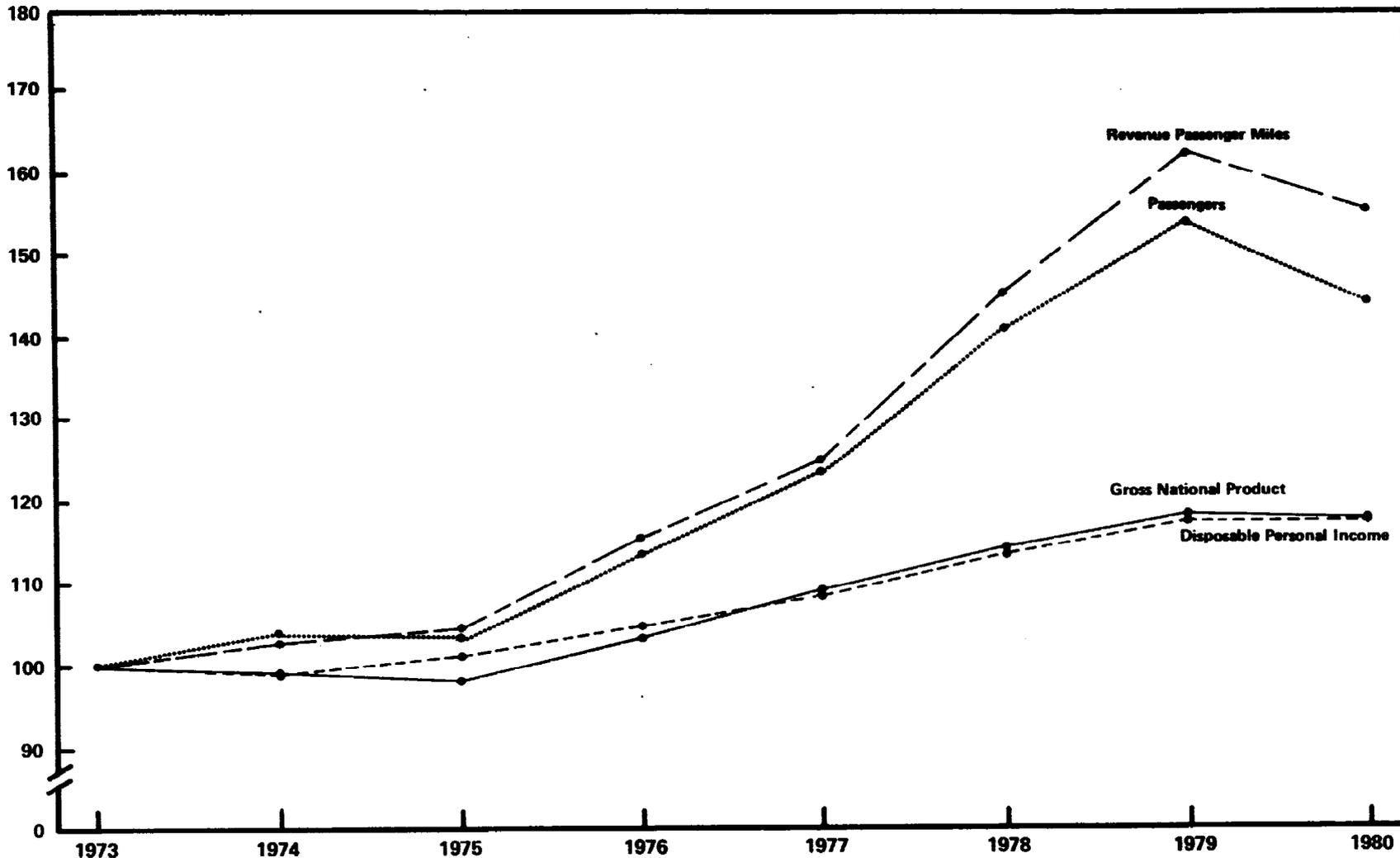
Using both revenue passenger-miles and total passengers as a measure, air passenger traffic during the period 1973-80 increased substantially. During the first 2 years of deregulation, 1978-79, revenue passenger-miles increased by an average of about 24 billion per year, but in the third year, 1980, revenue passenger-miles declined 8.7 billion from the 1979 level. The average annual increase for the 3 years 1978, 1979, and 1980 was 13 billion, while the average annual 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 and 1979 but declined by 18.5 million between 1979 and 1980. Passengers increased by an average of 14 million over the 3 years 1978, 1979, and 1980, 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 1977-79, 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. The pattern during the year, however, was uneven. The first quarter's 3.1-percent annual rate of growth in real gross national product was followed by a record 9.9-percent rate of decline in the second and then a 3.1-percent growth rate in the second half of the year.

Chart 1

**CHANGES IN TRAFFIC^{a/} AND ECONOMIC INDICATORS
CALENDAR YEARS 1973-1980**

**INDEX
(1973 = 100)**



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

Market shares

Although their percentage of the total market was decreased, trunk airlines still dominate the industry. Between 1977-80, their share of the market dropped from 87.6 to 83.6 percent. Local service airlines were the primary beneficiaries of this shift. Their market share increased about 27 percent to a 10.7-percent market share. (See app. II.)

FARES

During the past 11 years, air fares and airline costs have risen significantly. (See table 1.) In the years before deregulation (1970-77), air fares per passenger-mile increased by 42.4 percent, or about 5.2 percent compounded annually. During the same period airline costs went up 95.7 percent, or about 10.1 percent annually.

Table 1

Changes in Consumer and Airline Costs

	Before deregulation (1970-77)		After deregulation (1978-80)	
	<u>Total increase</u>	<u>Average annual compounded increase</u>	<u>Total increase</u>	<u>Average annual compounded increase</u>
	------(percent)-----			
Air fares	42.4	5.2	36.9	11.0
Airline costs index (note a)	95.7	10.1	59.6	16.9
Consumer Price Index	56.1	6.6	36.1	10.8

a/Based on an index of costs to the airlines--fuel, personnel, goods and services purchased, landing fees, rentals, and depreciation. This index compares prices paid by airlines in a given period to prices paid in the fourth quarter of 1976 for purchase of fourth quarter 1976 quantities.

In the 3-year period after deregulation began (1978-80), average fares per passenger-mile increased 36.9 percent, or about 11.0 percent compounded annually, reflecting a 29.2-percent increase in 1980 fares over 1979 levels. By contrast, fares increased at an average annual compound rate of 2.9 percent in the 2-year period 1978-79. During this 3-year period, airline costs rose 59.6 percent, or about 16.9 percent compounded. Costs rose 23.2 percent between 1979-80, reflecting a more than 50-percent increase in fuel costs. By comparison, in the 2-year period 1978-79 costs increased at an average annual compound rate of 14.3 percent.

While 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, if it is used as an approximate indicator of how consumer prices have increased, then air fare increases since deregulation slightly exceeded the overall rise in consumer prices between 1978-80, while in the 1978-79 period fare increases were far less than the overall consumer price rise. Before deregulation, average air fares increased at an average rate near but less than the Consumer Price Index.

Table 2 shows the actual average fare per passenger-mile for the past 11 years. As shown, air fares had been rising steadily. However, when the effects of inflation are eliminated, all but nonscheduled air fares had actually declined for the 10-year period ending in 1979 in terms of 1970 dollars. (See table 3.) In 1980 air fares increased in all categories in terms of 1970 dollars, climbing to their highest level since deregulation for all but first-class travelers.

Table 2

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

<u>Calendar</u> <u>year</u>	<u>All</u> <u>travelers</u>	<u>Travelers on scheduled service</u>			<u>Nonscheduled</u> <u>service</u> <u>travelers</u>
		<u>Combined</u>	<u>First class</u>	<u>Coach</u>	
		<u>(cents)</u>			
1970	5.9	6.0	8.3	5.5	2.6
1971	6.2	6.3	8.6	5.8	3.3
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

Table 3

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

<u>Calendar</u> <u>year</u>	<u>All</u> <u>travelers</u>	<u>Travelers on scheduled service</u>			<u>Nonscheduled</u> <u>service</u> <u>travelers</u>
		<u>Combined</u>	<u>First class</u>	<u>Coach</u>	
------(cents)-----					
1970	5.9	6.0	8.3	5.5	2.6
1971	6.0	6.1	8.2	5.6	3.2
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

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', i.e. stockholders', investment in the company.

Return on investment in 1980 was influenced by a \$294 million extraordinary gain on the sale of the Pan Am Building by Pan American World Airways. As a result of this gain, the industry's rate of return was 7.8 percent.

With the extraordinary gain excluded, the 1980 return on investment was 5.6 percent, the lowest rate of return since deregulation began and the lowest in the past 5 years. While the industry's domestic operations as a whole were profitable, some elements of the industry, particularly domestic trunks with the extraordinary

Pan Am gain excluded, reported losses. In the 11-year period, 1970-80, the average rate of return for U.S. airline domestic operations was 6.7 percent, or with the extraordinary Pan Am gain included, 6.9 percent. As shown in table 4, the rate of return on investment in the first 2 years of deregulation had been higher not only than the 11-year average but significantly higher than the 6.1-percent average for the 8 years before deregulation. In 1980, however, the rate of return on investment, exclusive of the Pan Am gain, fell to 5.6 percent, which was below the average rate of return for the 8 years before deregulation.

Table 4

Rate of Return on Investment (note a)

Domestic Operations

<u>Year</u>	<u>Percent of return on investment</u>
1980	<u>b/</u> 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
1971	4.3
1970	2.0
1970-77 average	6.1
1970-80 average	6.7

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/Pan American World Airways had an 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 and the 1970-80 average is 6.9-percent.

PRODUCTIVITY

Airline productivity improved through 1979, as evidenced by higher load factors and lower airline costs per revenue ton-mile adjusted to 1976 dollars. Improved productivity had contributed to increased airline profitability without fares rising at the same rate as costs. Another important factor, however, probably had been favorable economic conditions. In 1980 a business recession 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 1976 dollars for only the second time in 11 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 available seat-miles rose while revenue passenger-miles declined, dropping the load factor to 58 percent. While still above the load factor in the 4 years before deregulation, it is 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 1980 over 1979 costs. When these costs are deflated and stated in 1976 dollars (using a CAB index), the airlines' costs had decreased significantly between 1970 and 1979 but rose in 1980 for only the second time in 11 years. Before deregulation they decreased at a 4.3-percent average annual rate; in the first 2 years of deregulation the average annual rate of decrease was 7.3 percent, but in 1980 they rose 7.4 percent above 1979 costs.

Table 5

Operation Costs Per Revenue Ton-Mile

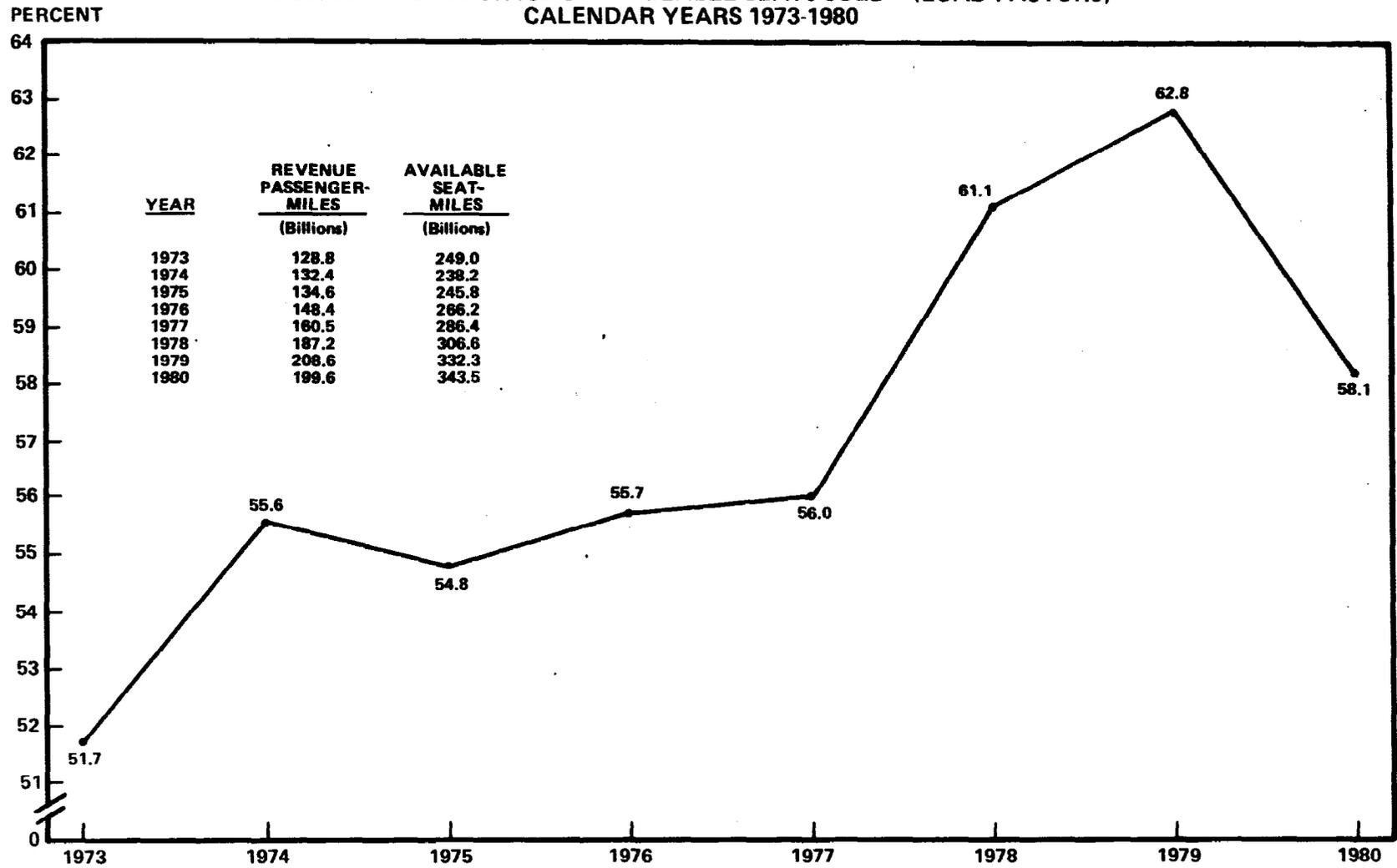
Domestic Airline Operations

<u>Year</u>	<u>Actual cost per ton-mile</u>	<u>Costs per ton-mile in 1976 dollars (note a)</u>	<u>Average percent of increase or decrease</u>
	----- (cents) -----		
1970	51.75	95.48	-
1971	53.01	95.06	-
1972	52.35	91.22	-
1973	55.07	83.47	-
1974	63.30	79.07	-
1975	69.73	79.09	-
1976	70.87	72.57	-
1977	74.50	70.25	-
1970-77	-	-	-4.3
1978	74.15	63.56	-
1979	83.66	60.42	-
1978-79	-	-	-7.3
1980	109.67	64.90	-
1979-80	-	-	7.4

a/Actual costs were adjusted to 1976 dollars using a CAB index. The actual and deflated 1976 costs differ because CAB's index uses the fourth quarter of 1976 as a base period. Had the base period been the entire year 1976, actual and deflated 1976 costs in this table would be the same.

Chart 2

CHANGES IN PERCENTAGE OF AVAILABLE SEATS SOLD^{a/} (LOAD FACTORS)^{b/}
CALENDAR YEARS 1973-1980



^{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 number of weekly departures has increased at all domestic communities' sizes, although available seats increased at only the largest communities. Airline competition between these communities has increased as has single-plane service which allows travelers to reach their destination without transferring planes. The growth in air service, however, masks two distinct periods--1977-79, marked by sharp gains and 1979-80, marked by broad-based declines. The 1979-80 declines, brought about by recession and inflation, reduced the earlier gains and, in some instances, reversed what had been gains to losses.

Air service between all city pair groups has declined since 1977, with declines in all groupings between 1979-80 reversing 1977-79 service gains in all but two groups. Service between larger and smaller communities experienced the smallest declines, while service between smaller communities had the greatest declines.

Although not all communities benefited equally, only two communities that had certificated air service in October 1978 lost all service since enactment of deregulation, and that was only temporary and with the communities' consent. During the 10 years before the act was passed, 137 communities lost air service, an average of about 14 a year. While not losing all air service, 287 domestic communities have been affected by airline service terminations since deregulation was enacted until December 1980; almost half continue to receive air service by one or more certificated airlines.

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, and 1980. 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. We did not verify the accuracy of CAB's statistics from the "Official Airline Guide," because (1) our analysis of the effect of adjustments we made to the data in last year's report indicated the adjustments only minimally affected the CAB data and (2) CAB personnel informed us that they had made refinements to their data that eliminated the need for some of the adjustments made last year.

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, and October 1, 1980. 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.

SYSTEMWIDE SERVICE PATTERNS

System service, which had experienced a dramatic increase in weekly departures between the week of October 1, 1977, and October 1, 1979, declined sharply between October 1, 1979, and October 1, 1980, resulting in lower gains for the first 3 years of deregulation (1977-80) than were posted for the first 2 years. Correspondingly, available seats were also affected by the declines registered between the week of October 1, 1979, and October 1, 1980. Overall, our comparison of weekly departures for the week of October 1, 1977, and October 1, 1980, shows that total weekly departures have increased by 5.6 percent and the number of available seats has increased by 2.6 percent at all hubs. As shown in table 6, each hub category has experienced increases in departures, but only large hubs had an increase in available seats. Between October 1, 1977, and October 1, 1979, total weekly departures had increased 14.3 percent but between October 1, 1979, and October 1, 1980, they had fallen 7.6 percent. Similarly, the total number of available seats rose 10.6 percent between 1977-79 but fell 7.2 percent between 1979-80. Each hub category experienced an increase in departures between 1977-80 and a decrease in departures between 1979-80. Only large hubs experienced an increase in available seats per week between 1977-80; each hub category experienced a decrease between 1979-80.

Table 6

Summary of Aircraft Departures and Available
Seats by Hub Category

	Market type				<u>Total</u>
	<u>Large hubs</u>	<u>Medium hubs</u>	<u>Small hubs</u>	<u>Non- hubs</u>	
Number of communities	24	36	71	528	659
Departures per week:					
Oct. 1, 1977	59,877	21,315	13,686	25,720	120,598
Oct. 1, 1979	68,415	24,529	15,524	29,375	137,843
Oct. 1, 1980	64,613	22,363	14,403	25,951	127,330
Percentage change:					
1977-80	7.9	4.9	5.2	.9	5.6
1977-79	14.3	15.1	13.4	14.2	14.3
1979-80	-5.6	-8.8	-7.2	-11.7	-7.6
Available seats per week:					
Oct. 1, 1977	6,760,367	2,120,114	1,157,428	940,433	10,978,342
Oct. 1, 1979	7,716,650	2,265,432	1,215,709	938,955	12,136,746
Oct. 1, 1980	7,249,534	2,036,635	1,137,123	837,112	11,260,404
Percentage change:					
1977-80	7.2	-3.9	-1.8	-11.0	2.6
1977-79	14.1	6.9	5.0	- 0.2	10.6
1979-80	-6.1	-10.1	-6.5	-10.8	-7.2

In addition to increased departures nationwide from 1977 to 1980, an increase has also occurred in single-plane service and new competitive markets which were formerly served by only one carrier. There were 1,874 new single-plane markets and 1,773 deletions for a net gain of 101. New competitive markets also increased by 166--468 new competitive markets and 302 deletions. As was the case with weekly departures, greater gains registered between 1977-79 were reduced in the 1977-80 period due to more recent events.

Perhaps a better gauge of air service is a comparison of service between various city pairs. 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 have decreased by 5.6-percent. As shown in table 7, declines varied considerably, depending on market type. Service between larger and smaller communities had the smallest declines. In contrast, between October 1, 1977, and October 1, 1979, all but two city pair groups experienced increased flight frequencies.

Small community service

Service to nonhubs has been of particular concern since the Airline Deregulation Act was passed. Some feared that service to these communities would be greatly reduced or eliminated in favor of higher density markets. Based on weekly departures, nonhubs and small hubs had a 1- and 5-percent increase, respectively, in departures between October 1, 1977, and October 1, 1980, with substantial 1977-79 gains in weekly departures reduced by a decline in departures between 1979-80, as indicated in table 6.

In terms of flight frequencies, the decrease in air service between nonhubs was the largest percentage decline among all city pairs. CAB officials consider nonhub-to-nonhub service the least useful form of small community service.

There is no previous empirical evidence by which to judge the effect of both a recession and rising fuel costs on the airline industry. In our opinion it will not be possible to judge the impact of deregulation on small communities until the industry has had more operating experience under deregulation.

Table 7

Summary of Flight Frequencies by Market Type
Oct. 1, 1977, and Oct 1, 1980

<u>Market type</u>	<u>Flights per Week</u>			<u>Percent change</u>
	<u>10/1/77</u>	<u>10/1/80</u>	<u>Change</u>	
			-----(decreases)---	
Large hub to large hub	48,445	45,361	3,084	6.4
Large hub to medium hub	43,752	42,421	1,331	3.0
Large hub to small hub	27,487	27,151	336	1.2
Large hub to nonhub	34,882	34,087	795	2.3
Medium hub to medium hub	8,056	6,977	1,079	13.4
Medium hub to small hub	10,389	9,387	1,002	9.6
Medium hub to nonhub	12,020	11,860	160	1.3
Small hub to small hub	3,941	3,530	411	10.4
Small hub to nonhub	10,261	9,122	1,139	11.1
Nonhub to nonhub	<u>17,101</u>	<u>14,272</u>	<u>2,829</u>	16.5
 Total (note a)	 <u>216,334</u>	 <u>204,168</u>	 <u>12,166</u>	 5.6

a/Differences in the percentage change in departures and the market flight frequencies result 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, there is a compounding effect which 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.

Statewide service

Even though air service has increased nationwide, not all areas have benefited equally. Based on air service listed in the "Official Airline Guide" for the 48 contiguous States and the District of Columbia, 19 States received increases in departures and available seats. (See table 8.) The remaining 29 States and the District of Columbia had a decrease in either departures or available seats. (See table 9.) In contrast, 35 States and the District of Columbia received increases in departures and available seats between October 1, 1977, and October 1, 1979, while the remaining 13 had a decrease in either departures or available seats. Only one State, Maryland, had an increase in departures and available seats between 1979-80.

A further analysis of service at these 29 States reveals that some of the decrease was not a result of airline deregulation. Because our comparisons include all scheduled air service offered, they necessarily include service to uncertificated communities and certificated points which were not served when the act was passed. Thus, to isolate airline deregulation's impact on air service at the 29 States with decreases, we adjusted the scheduled air service to include service offered only at certificated points which received air service on October 24, 1978.

Air service to some of these States showed dramatic changes. For example, Delaware's adjusted service shows that its certificated service has not changed. Unadjusted, it shows a 77.7-percent loss in departures and a 74.3-percent loss in available seats. The reason for this change is that when the act was enacted, Delaware had no certificated air service. The air service that was provided was discretionary and could be dropped without Federal approval.

Table 8

States with Increases in Weekly Departures
and Available Seats (note a)
October 1, 1977, vs October 1, 1980

<u>State (note b)</u>	<u>Percentage change in weekly</u>	
	<u>Departures</u>	<u>Available seats</u>
New Jersey	113.6	59.0
New Hampshire	96.1	58.0
Nevada	44.0	38.9
Arizona	43.4	22.7
North Dakota	20.3	6.5
North Carolina	17.6	5.4
South Dakota	17.6	35.7
Georgia	16.6	18.3
Pennsylvania	16.3	0
Colorado	13.5	18.4
Utah	11.1	16.3
Michigan	10.0	6.5
Washington	9.6	9.3
Missouri	9.5	5.1
Florida	8.7	15.2
New York	3.9	1.3
Louisiana	2.7	1.3
Maryland	1.2	13.5
Texas	1.0	13.2

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 a Decrease in Either
Departures or Available Seats
October 1, 1977, vs October 1, 1980

<u>State (note c)</u>	<u>All scheduled service (note a)</u>		<u>Adjusted scheduled service (note b)</u>	
	<u>Percentage change in weekly Departures</u>	<u>Available Seats</u>	<u>Percentage change in weekly Departures</u>	<u>Available Seats</u>
Idaho	54.7	- 3.6	53.9	- 3.7
Arkansas	29.7	- 9.2	23.0	- 8.9
Montana	14.0	- 9.2	14.0	- 9.2
Oregon	13.8	-10.1	19.0	-10.2
Connecticut	10.9	- 6.0	15.5	- 7.0
Virginia	9.4	- 2.5	12.4	- 2.3
California	6.7	- 1.5	10.5	- 4.1
Illinois	3.0	- 8.2	2.9	- 8.3
Maine	1.6	- 2.5	- 2.2	- 4.9
Ohio	0.5	-14.4	2.1	-14.3
Massachusetts	- 0.9	0.2	- 1.7	- 0.2
Minnesota	- 2.8	2.6	- 2.7	2.6
Oklahoma	- 2.8	-30.0	- 4.6	-30.2
Tennessee	- 4.3	- 7.8	- 4.2	- 7.8
New Mexico	- 5.1	-17.7	8.5	-17.2
Kentucky	- 5.2	-12.2	- 1.6	-11.7
District of Columbia	- 6.8	- 9.0	- 6.8	- 9.0
Indiana	- 7.9	- 7.7	- 3.8	- 6.9
Kansas	- 9.3	- .7	2.4	1.3
South Carolina	- 9.9	-10.9	- 4.0	-10.1
Nebraska	-10.6	-25.7	-10.6	-25.7
Iowa	-11.0	-17.8	- 0.9	-16.1
West Virginia	-11.0	-27.0	-11.5	-27.4
Wisconsin	-12.5	6.3	- 2.7	9.8
Wyoming	-14.2	-14.7	-17.4	-17.4
Alabama	-22.1	- 6.3	-21.3	- 6.2
Rhode Island	-23.6	-13.3	-17.3	-13.5
Mississippi	-27.4	-11.0	-25.6	-10.6
Vermont (note d)	-34.1	-10.5	-17.8	20.1
Delaware	-77.7	-74.3	0	0

a/Includes scheduled air service 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/The decline in Vermont departures is due in part to a shift in service from White River Junction, Vermont, to Lebanon, New Hampshire. In 1977 service to Lebanon was provided through White River Junction; in 1980 the reverse was true. If Lebanon 1980 departures and available seats are added to Vermont's totals, Vermont's departures would decline 12.6 percent but available seats would increase 13.8 percent. New Hampshire would still register an increase in both departures (60.6 percent) and available seats (7.6 percent) if Lebanon 1977 departures and available seats are removed from the State total.

SERVICE TERMINATIONS

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

Since the act was passed, two communities receiving certificated air service during October 1978 have temporarily lost essential air transportation--Astoria, Oregon, and Brunswick, Georgia. Astoria's air service was lost December 29, 1978, with the community's consent, but was restored, with subsidy, on July 29, 1980. Brunswick lost its air service September 20, 1980, also with the community's consent. Service will be resumed, with subsidy, on June 1, 1981.

In contrast to the two communities which temporarily lost service since the act was passed, 137 communities lost certificated air service during the previous 10 years. As of December 1980, 25 of the 137 communities were receiving air service, mostly by commuters 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 non-subsidized commuters at least 30 days notice. Since the act's passage through December 1980, carriers filed a total of 398 termination notices, affecting 287 certificated communities, as shown below.

<u>Hub category</u>	<u>No. of communities</u>	<u>Notices</u>
Large	16	26
Medium	18	27
Small	36	54
Nonhub	<u>217</u>	<u>291</u>
Total	<u>287</u>	<u>398</u>

<u>Carrier type</u>	<u>Notices</u>
Trunk	99
Local	187
Other	<u>112</u>
Total	<u>398</u>

Of the 287 communities affected by terminations, 139 were still left with at least one certificated airline. The remaining 148 communities experienced terminations by the only certificated airline, bringing about a potential loss of essential air transportation.

As shown on page 22, of the 148 communities experiencing terminations by the only certificated airline, 77 had already been receiving service by existing commuters without subsidy, including 69 communities where certificated service had been suspended before deregulation. In 64 communities, the only certificated airline was replaced by a commuter (or former commuter) while in the remaining 7 communities, CAB forced the only certificated airline to continue service (hold-in) until replacement service could be arranged.

Of the 287 communities affected by terminations, a total of 44 communities were or soon would be receiving subsidies under section 419. These include: 22 communities where new commuters replaced certificated airlines, 19 communities where existing commuters had already served before deregulation without subsidy, and 3 communities where new commuters replaced certificated or existing commuter airlines, in certain markets only.

Communities affected by terminations through December 1980				Status of air service
<u>Without subsidy</u>	<u>With subsidy</u>	<u>Held- in</u>	<u>Total</u>	
70	-	<u>a/ 1</u>	71	Two or more certificated airlines still remain
<u>b/ 65</u>	<u>c/ 3</u>	<u>-</u>	<u>68</u>	One certificated airline still remains
<u>135</u>	<u>3</u>	<u>1</u>	<u>139</u>	Total
<u>d/ 40</u>	22	2	64	New commuter replaced certificated airline
4	11	-	15	New commuter replaced existing commuter
44	8	10	62	Existing commuter continu- ing service
-	-	7	7	Only certificated airline being held-in
<u>88</u>	<u>41</u>	<u>19</u>	<u>148</u>	Total

a/Commuter serving certain market is being held-in.

b/Includes four communities where new commuters replaced certifi-
cated airlines in certain markets only.

c/New commuters replaced certificated or existing commuter airlines
in certain markets only.

d/Includes an FAA station in Alaska served by FAA aircraft.

CHAPTER 4

DEREGULATION AND AIR SAFETY

The Airline Deregulation Act directs the Secretary of Transportation to report annually on the extent airline deregulation has affected air safety. In his first report entitled "The Effect of the Airline Deregulation Act on the Level of Air Safety," January 1980, the Secretary found no evidence that deregulation has caused an increase in the accident rates of airlines for 1979. The second report, which will cover the fourth quarter of 1979 and calendar year 1980, was being reviewed as of April 7, 1981, but was not ready for release. We did obtain air traffic safety statistics for 1979-80, which are summarized below.

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

AIR TRAFFIC SAFETY IN 1980

While the Secretary's second report on air safety was not available as of April 1981, we have obtained the statistics that are used in the draft report. These statistics indicate the following information.

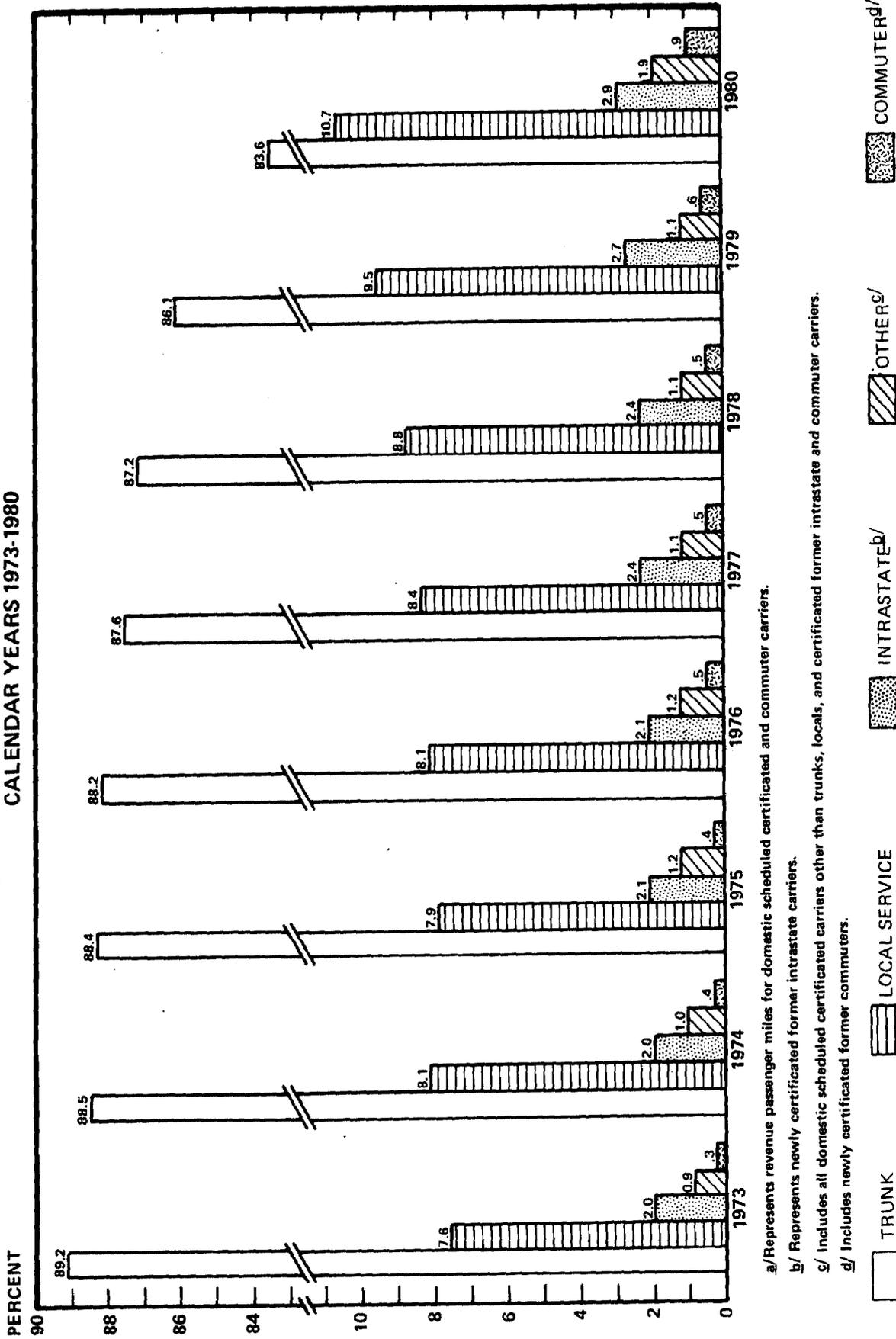
- There was only one fatal accident in 1980, involving 13 fatalities, for certificated carriers. This accident involved a local service carrier. Certificated carriers include domestic trunk, local service, Alaska and Hawaii, and international territorial and helicopter certificated route air carriers.
- While the number of certificated carriers and flight hours increased in 1980 over 1978 and 1979, the number of accidents declined sharply to half the accident rate per 100,000 flight hours recorded in 1978 and 1979. The 1980 fatal accident rate and fatality rate also fell sharply from the 1978 and 1979 rates.
- Commuter air carriers experienced a large increase in flight hours and a decline in both the accident and fatal accident rate from the 1978 and 1979 rates. There were five fatal accidents involving commuter air carriers in 1980 with 21 fatalities.
- Air taxi operators experienced a decrease in flight hours between 1979 and 1980 but an increase in both fatal accidents and fatalities. There was a decline in the total number of accidents.

--Of all classes of operators in 1980 there were 187 accidents, including 44 fatal accidents with 135 fatalities.

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

<u>Year</u>	<u>Revenue passenger- miles</u>	<u>Annual increase</u>	<u>Number of passengers</u>	<u>Annual increase</u>
	----- (billions) -----		----- (millions) -----	
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				
1978-80	-	13	-	14
1978-79	-	24	-	30
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	-	11.5

CHANGES IN MARKET SHARE OF TRAFFIC^{a/}
CALENDAR YEARS 1973-1980



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.

- TRUNK
- LOCAL SERVICE
- INTRASTATE^{b/}
- OTHER^{c/}
- COMMUTER^{d/}

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