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ECN 145 Lecture 8



Transportation Economics: The Deregulation of the Transportation Sector - Airlines

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Transportation Deregulations

- **Major overhaul of the regulatory framework for intercity transportation industry**
 - Railroads
 - Trucking
 - Airlines

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A Brief History of Airline Regulation

- **Readings for this topic**

- “Essays” chapter 14
- “The Changing Airline Industry,” by Daniel Kaplan
- “The Evolution of U.S. Airline Competition,” by Severin Borenstein

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A Brief History of Airline Regulation

- **The Beginning of Regulation**

- Early commercial application of aviation was in post and package express delivery
- U.S. Post Office played an important role in early regulation of the industry
- Interstate Commerce Commission took over this regulatory role in 1934
- ICC’s regulatory ineptitude nearly drove several carriers into bankruptcy, prompted Congress to establish the Civil Aeronautics Board (CAB) in 1938

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A Brief History of Airline Regulation

- **The CAB Era**

- CAB granted extensive authority over airlines providing interstate airline services, including mail delivery, passenger service, awarding of routes, regulation of fares, and regulation of safety
 - Safety regulation passed to Federal Aviation Administration (FAA) in 1958
 - CAB also given mandate to “encourage” the development of the air transport system
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A Brief History of Airline Regulation

- **“Market Pessimism”**

- CAB’s mandate, policies reflected the pervasive skepticism of the time regarding free market’s ability to function effectively
 - Widely believed that free competition would lead to fares below cost, choke orderly development of the industry
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A Brief History of Airline Regulation

- **Early growth of airline industry**

- Between 1949 and 1969, passenger traffic increased 13-fold, at an average annual rate of 14%
 - Average fare in 1969 was 2% lower than in 1949, while CPI had risen 50%
 - But carriers' costs had fallen 22% due to technological improvements in airplanes, especially replacement of propeller-driven aircraft with more powerful, faster jets
 - Intra-state carriers (not regulated by CAB) had fares that were as much as 45% lower than the levels permitted by CAB in the late 1960s
 - These price comparisons led to increasing doubt about efficacy of CAB regulation
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A Brief History of Airline Regulation

- **Overview of CAB's regulatory policies**

- Route authority of existing 16 airlines "grandfathered" in under CAB establishing legislation
 - CAB did not allow one new entrant into airline industry prior to Airline Deregulation Act
 - Mergers had actually reduced number of domestic competitors from 16 to 11
 - Even for existing carriers, very difficult to secure permission for new routes
 - Would-be entrants had to prove that the new entry was in the public interest and that *it would not harm existing carriers*
 - Board would sometimes award a route to strengthen a financially weak carrier rather than base its decision on carriers' service proposals
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A Brief History of Airline Regulation

- **Overview of CAB's regulatory policies**

- “Local service carriers” were allowed to enter and serve “small community markets,” often receiving subsidies in the process
 - Local service carriers were eventually allowed to serve major routes within their regions, but they were not allowed to become as large as the “trunk” carriers
 - Local service carriers evolved into regional airlines, became less and less the “small community specialists” they were created to be
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A Brief History of Airline Regulation

- **Overview of CAB's regulatory policies**

- CAB regulated fares; in doing so, its primary concern was carrier profitability
 - Fares were set across the board rather than on a market-by-market basis
 - CAB set fares on the basis of distance, though cost per passenger mile of air service declines with distance
 - CAB deliberately kept “long-haul” rates above costs, kept “short-haul” rates below costs in order to cross-subsidize the provision of service to thin short-haul markets
 - This means carriers were *not allowed* to compete on the basis of price!
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A Brief History of Airline Regulation

- **Industry response CAB's regulatory policies**

- Carriers not allowed to compete on basis of price, so offered passenger amenities, scheduled extra flights
 - Load factor declined, increasing costs; firms dissipated extra profits they were expected to earn
 - CAB allowed for limited experimentation with discount fares; this and increasing costs led to declining carrier profitability
 - In response, CAB instituted its first systematic analysis of fare policies – the Domestic Passenger Fare Investigation (DPFI)
 - DPFI continued price controls, followed by a moratorium on new routes
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The Transition to Deregulation

- **Senate Judiciary Committee held hearings on CAB regulation**
 - **CAB formed an advisory task force to investigate regulatory reform**
 - **Both investigations concluded that “increased competition” was warranted**
 - **CAB began to adopt a more liberal regulatory stance**
 - **The role of economic analysis**
 - Studies by academic economists were significant force in early movement to reform
 - During transition, both Chairman and Vice-Chairman of CAB were economists!
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The Transition to Deregulation

- CAB relaxed operating requirements for charter service in 1976
 - Charters became a readily available, low-fare alternative to scheduled service
 - American Airlines applied for authority to make a limited number of seats available at fares up to 45% below coach with 30-day advance purchase, 7-day minimum stay requirement – the birth of the “Super Saver”
 - Super Saver fares generated 61% increase in traffic in NY-LA market, 41% increase in NY-SF market in 1977
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The Transition to Deregulation

- CAB continued to approve requests from carriers for discount service
 - In spring of '77, CAB took steps to give carriers greater discretion/freedom in setting routes
 - Airline industry seemed to prosper under more liberal regime, with large increases in air traffic, airline profitability
 - Growing public enthusiasm for deregulation led Congress to pass Airline Deregulation Act in October, 1978, *despite active opposition from most airlines*
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Airline Deregulation Act

- **Ended CAB's authority over routes effective December 1981, over fares effective January 1983**
- **Established in law the recently adopted more liberal approach to route awards**
- **Abolished CAB altogether effective end of 1984, transferred remaining regulatory authority (antitrust, international regulatory issues) to Department of Transportation**

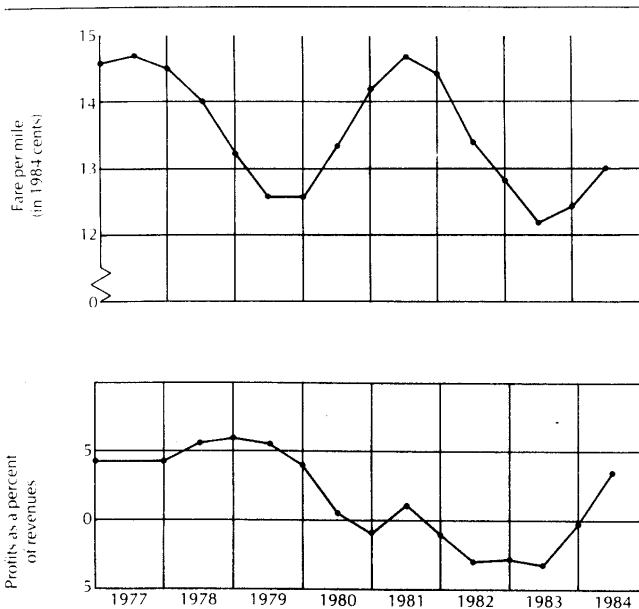
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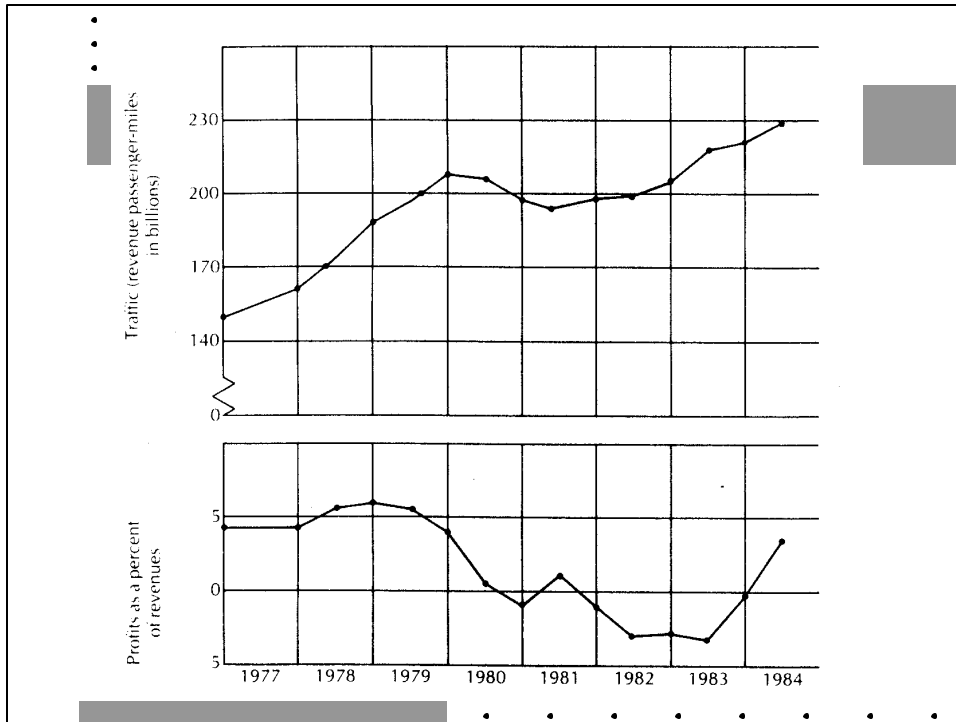
Immediate Aftermath of the ADA

- **The second oil shock sent costs soaring in 1979**
- **Oil shock sent economy into a downturn in 1980**
- **Air traffic fell as a result of increased prices, recession; profits plummeted**
- **CAB effectively surrendered control over prices by giving carriers wide flexibility to raise rates in May 1980**

Immediate Aftermath of the ADA

- **The ADA's provisions for more liberal route awards had a rapid impact**
 - Carriers were able to begin serving a route within 60 days of application for authority
 - Carriers were given liberal provisions for exiting a route
 - Effectively allowed existing carriers to reshape networks, allowed intra-state and “de novo” carriers to offer interstate service
 - Midway Airlines, New York Air, and the famous People Express entered the industry





Immediate Aftermath of the ADA

- **The rise of competition and back-to-back recessions (1980, 1981-82) led to financial distress, bankruptcy for new and old carriers**
 - CAB did nothing to “rescue” insolvent carriers
 - Braniff Airlines filed for bankruptcy in 1982, returned to service in 1984
 - Continental Airlines filed for bankruptcy in 1983 but never stopped operating, abrogated its labor contracts, rehired former employees at lower wages and under more flexible terms, was profitable by end of 1984
 - The original “trunk” airlines lost market share

Table 1. Shares of Scheduled Domestic Passenger Service

	12 Months Ending September 1978		12 Months Ending June 1984	
	Market Share	Profit Margin	Market Share	Profit Margin
Former trunks				
United	19.6	7.9	18.7	8.7
American	13.9	3.9	13.7	9.2
Eastern	12.1	3.6	11.1	0.8
Delta	11.6	10.5	10.6	4.4
Trans World	9.2	1.7	6.2	-5.7
Continental ^a	5.2	7.6	3.2	-7.4
Western	4.7	7.3	3.7	-0.9
Pan American ^a	4.7	-0.1	2.7	-38.9
Northwest	4.6	10.9	4.1	4.6
Braniff	3.7	7.3	—	—
Total	89.3	5.5	74.0	3.2
Former local service carriers				
USAir	2.1	8.0	3.4	11.7
Republic ^a	2.6	7.7	3.7	6.2
Frontier	1.2	7.3	1.9	-1.1
Ozark	0.8	9.6	1.1	3.6
Piedmont	0.7	5.5	2.5	11.2
Total	7.4	7.6	12.6	9.2
Others				
Intrastates	2.4	—	4.0	—
Charters	—	—	1.2	—
New jet carriers	—	—	6.7	—
Regionals	1.0	—	1.5	—
Totals	3.4	—	13.4	—

The Changing Shape of the Airline Industry

- **Local service carriers increased their collective market share**
- **The smaller “trunk” carriers’ market share declined 40%**
- **Most of the trunks were not prepared for competition**
 - High labor costs
 - 1/3 of fleet were wide-bodied jets for dense long-haul markets, 25% of fleet was fuel inefficient
 - Dense markets attracted entry, which ate into trunks’ profits

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Industry Trends Under Deregulation

- **Substantial new entry in early 1980s followed by industry consolidation, increasing concentration**
 - **Growth of hub and spoke networks**
 - **Rise of “loyalty-inducing” devices like frequent flyer programs and TACOs**
 - **Airport Access and Pricing**
 - **Continuing firm-level cost heterogeneity**
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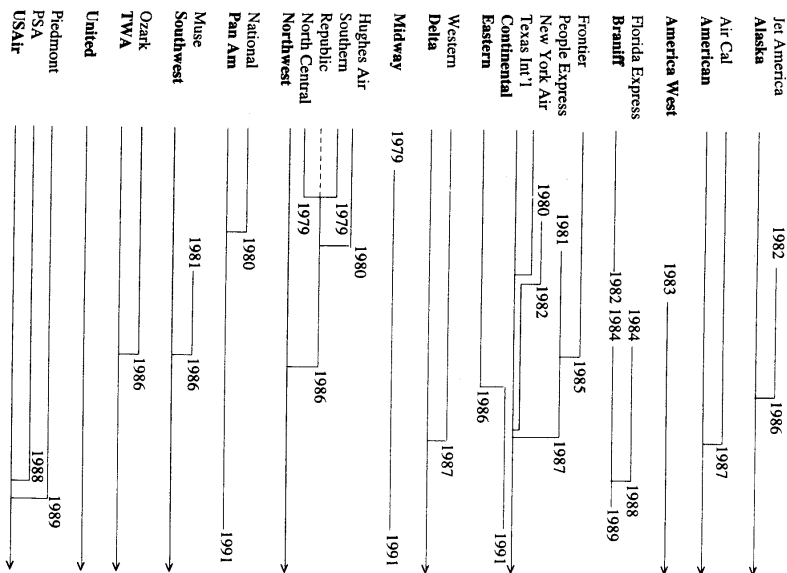
Industry Trends Under Deregulation

- **The impact of new entry**
 - New “no-frills” carriers like Southwest Airlines and People Express aggressively sought business on high-volume, price-elastic routes
 - Charged low fares, with no amenities
 - Centered operations at underutilized airports
 - Had lower labor costs due to more flexible contracts
 - Initially attracted substantial business
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Industry Trends Under Deregulation

- **The impact of new entry**
 - However, established incumbents quickly responded by matching entrants prices
 - Incumbents also increased capacity on price-elastic routes to pre-empt entry
 - Entry slowed, many new entrants ran into financial problems and exited or were absorbed by larger airlines

Figure 1. Chronology of Large U.S. Airlines Since Deregulation



Source: Kaplan (1986) and *Wall Street Journal*, various issues

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Industry Trends Since Deregulation

- **Concentration in the industry at the national level has increased**
- **However, concentration in terms of individual city-pair markets remains lower than before deregulation**
- **Nevertheless, some cities with “hub” airports are dominated by a single airline**

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Table 1. Measures of Domestic Airline Industry Concentration Since Deregulation

	1977	1982	1987	1990
4-firm Concentration Ratio	56.2%	54.2%	64.8%	61.5%
8-firm Concentration Ratio	81.1%	80.4%	86.5%	90.5%
Herfindahl Index	0.106	0.093	0.123	0.121

Source: U.S.D.O.T. Air Carrier Traffic Statistics, Revenue Passenger-Miles.

Note: The 4- and 8-firm concentration ratios are the sums of the market shares of the 4 and 8 largest firms, respectively. The Herfindahl index, the sum of the squared market shares of all firms, ranges between 0 and 1.

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Table 2. Average City-Pair Herfindahl Indexes

Year	<i>Market Distance in Miles</i>					
	0-200	201-500	501-1000	1001-1500	1500+	ALL
	All Trips					
1984	0.600	0.588	0.537	0.479	0.415	0.531
1987	0.689	0.616	0.498	0.444	0.363	0.512
1990	0.618	0.614	0.518	0.424	0.357	0.506
	Direct Trips Only					
1984	0.601	0.598	0.601	0.581	0.536	0.590
1987	0.691	0.648	0.612	0.587	0.532	0.620
1990	0.612	0.641	0.672	0.625	0.536	0.632

Source: U.S.D.O.T. Databank IA.

Note: Excludes interline tickets and markets with less than 10 passengers per day. The numbers shown are unweighted averages across routes. The sign and approximate magnitudes of these changes are the same if routes are weighted by either passengers or passenger-miles. All data are for the second quarter of the given year.

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Industry Trends Since Deregulation

- **The growth of hub and spoke networks**
 - Allows for increases in load factor, resulting in cost savings which can be passed on to consumers
 - Prevents passengers from having to change airlines as well as planes
 - Some routes that were formerly “nonstop” are no longer nonstop, but little significant access has been lost
 - May provide “locally dominant” airlines with considerable market power
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Table 3. Hubbing and Airport Concentration at the 30 Largest U.S. Airports

Airport	Percent Changing Planes	Airport Herfindahl	Airport Fare Premium	Rank by Size
Charlotte	75.7%	0.579	18.8%	20
Atlanta	69.0%	0.347	17.2%	3
Memphis	67.7%	0.355	27.4%	29
Dallas/Ft. Worth	65.8%	0.386	20.5%	2
Pittsburgh	62.1%	0.529	15.9%	16
Salt Lake City	61.3%	0.430	19.1%	28
St. Louis	56.2%	0.354	-4.0%	13
Chicago-O'Hare	55.7%	0.270	14.8%	1
Denver	54.1%	0.272	15.3%	7
Minneapolis	51.0%	0.418	31.5%	15
Houston-Intercontinental	49.5%	0.423	15.6%	19
New York-Kennedy	47.3%	0.202	2.9%	6
Detroit	43.6%	0.296	-0.7%	11
Baltimore	40.5%	0.299	9.1%	26
Phoenix	33.1%	0.205	-28.4%	9
Miami	31.0%	0.171	-14.3%	14
Seattle	27.3%	0.145	8.7%	24
San Francisco	25.3%	0.145	-1.5%	5
Los Angeles	25.2%	0.110	-5.3%	4
Philadelphia	24.9%	0.217	11.2%	22
Honolulu	22.4%	0.199	-20.8%	17
Newark	19.6%	0.292	11.5%	12
Las Vegas	18.9%	0.177	-27.8%	23
Houston-Hobby	17.5%	0.481	-23.4%	30
Orlando	16.8%	0.180	-15.6%	21
Boston	13.8%	0.120	9.0%	10
Washington D.C.-National	11.1%	0.125	10.7%	18
Tampa	11.0%	0.181	-12.4%	27
San Diego	6.6%	0.138	-18.1%	25
New York-La Guardia	6.2%	0.118	9.5%	8

Source: U. S. D. O.T. Databank IA, second quarter, 1990

Industry Trends Since Deregulation

- **Hubs, spokes, and market power**

- There is a robust empirical relationship between ticket prices and the degree to which an airport is effectively dominated by a single airline
 - May be partially driven by success of locally dominant airline in routing traffic to itself through frequent flyer programs and TACOs
- Several airline mergers in the 1980s increased the “hubness” of key airports, and led to price increases
- Vertical mergers or “codesharing arrangements” with local commuter airlines may have also led to increased market power
- Dominant airlines can influence airport access

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Industry Trends Since Deregulation

- **Loyalty-inducing devices**

- TACOs (Travel Agent Commission Override Programs)
 - Provide high commissions to agents that book a high percentage of their customers with a certain airline
 - May distort travel agents choices
 - Frequent flyer programs clearly benefit passengers, but how much?
 - Would you take those trips if they weren't free?
 - What's the value of an upgrade?
 - The principal-agent problem for business travellers
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Industry Trends Since Deregulation

- **Airport access and pricing**

- Airline landing rights (slots) still not charged a market price
 - At a few airports where they've been traded, they went for as much as \$2 million
 - New slots have to be awarded by consensus of existing airlines – who often seek to prevent access of new entrants
 - Availability of discounted tickets roughly approximates peak-load pricing for airlines, but airports are not allowed to practice peak-load pricing or congestion pricing
 - More economically rational allocation of slots, congestion pricing will continue to be an issue
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Industry Trends Since Deregulation

- **Continuing firm-level cost heterogeneity**
 - Many airlines significantly increased productivity, cost-effectiveness of service after deregulation
 - Low-cost airlines are still able to deliver same service at substantially lower cost than high-cost airlines
 - Large role for managerial skill and sophistication

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Improvements in Productivity

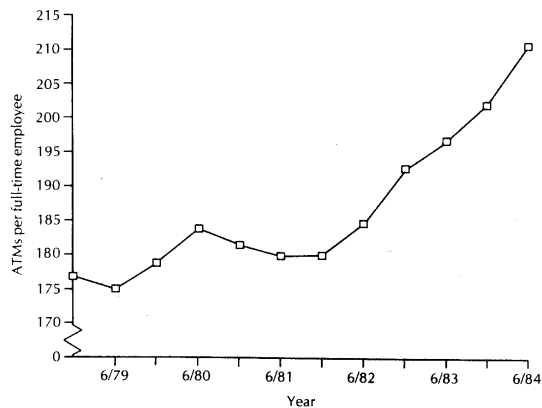


Figure 2. System Majors Employee Productivity (12 Months Ended)

Table 4. Cost of Major U.S. Airlines, 1990

Airline	Average Cost per Passenger-Mile	Average Cost per Seat-Mile	Average Flight Distance
Southwest	0.111	0.067	376
America West	0.122	0.075	544
Eastern	0.128	0.078	606
Midway	0.144	0.084	636
American	0.144	0.088	776
United	0.145	0.093	809
Continental	0.150	0.087	743
Northwest	0.150	0.094	665
TWA	0.151	0.089	719
Delta	0.155	0.090	626
Pan Am	0.168	0.101	693
USAir	0.189	0.112	463

Source: U.S.D.O.T. Air Carrier Traffic and Financial Statistics.

Airline Safety under Deregulation

Table 5. Fatalities in Scheduled Passenger Service (1975-1984)

Year	Operators of Jet Equipment				Commuter Air Carriers			
	Fatal Accidents	Fatalities	Fatal Accident Rates		Fatal Accidents	Fatalities	Fatal Accident Rates	
			Per 100,000 Aircraft Hours	Per 100,000 Departures			Per 100,000 Aircraft Hours	Per 100,000 Departures
1975	2	122	0.037	0.043	12	28	1.28	0.82
1976	2	38	0.036	0.041	9	27	0.93	0.59
1977	1	70	0.017	0.020	9	32	0.78	0.52
1978	4	159	0.066	0.080	14	48	1.08	0.70
1979	2	347	0.030	0.037	16	67	1.37	0.85
1980	0	0	0.0	0.0	8	37	0.68	0.45
1981	0	0	0.0	0.0	9	34	0.73	0.49
1982	3	233	0.047	0.060	5	14	0.38	0.25
1983	1	1	0.015	0.020	3	21	0.20	0.13
1984	0	0	0.0	0.0	7	45	0.40	0.26

Source: National Traffic Safety Board. Published fatality statistics for carriers operating under fourteen CFR 121 (airlines) have been adjusted to remove accidents that involved all-cargo operations, helicopter operations, and only airline employee fatalities. There were ten such accidents. Two accidents involving commuter carriers operating under fourteen CFR 121 have been reclassified as air commuter aircraft operators and reported with fourteen CFR 135 (commuter air carrier) statistics.

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The Verdict on Deregulation

- **Substantial declines in price of service along many routes**
- **Dramatic increase in discounted, free travel**
- **Large increase in total air traffic**
- **No evident decline in safety**
- **On average, cost savings passed on to consumers**
- **Airlines still concentrated, some still possess “local” market power**

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The Verdict on Deregulation

- **American example has some international effects**
 - Japan, other nations deregulating airline industry in order to receive benefits of competition
 - Mergers, code-sharing arrangements between domestic and foreign airlines have blurred distinction between foreign, domestic carriers