Airline Deregulation—A Case Study in Public Policy Failure

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TABLE OF CONTENTS

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I. INTRODUCTION**

The years 1986-87 witnessed important new developments in the evolution of airline deregulation. These included sweeping structural changes, with a waive of mergers that has rarely been matched in any other industry. Fifteen of the carriers operating independently at the start of 1986 had become six carriers by the end of 1987. Of particular significance within this wave of mergers was the lost independence of the one carrier that had been almost the prototype of deregulated free entry—People Express.

Secondly, there emerged in 1987 severe public dissatisfaction with congestion, delays, and other aspects of weakened service quality—leading to a series of congressional hearings to consider possible legislative action. Meanwhile, the Department of Transportation has issued rules requiring, among other things, that carriers make available information on the degree of dependability of their operations. More generally, carriers by the latter half of 1987 were placing more emphasis on service quality—in some cases spending hundreds of millions of dollars to overcome service deficiencies.

In view of the sweeping nature of the structural changes of the past two years, and the recent re-focusing on service quality, it is still not possible to render a final verdict from the public's standpoint on the long term outcome of deregulation. However, it is possible to clarify certain aspects

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of the record to date. Because of the inherent disposition to resent government interference and to favor free markets, there has been a general tendency to overstate the favorable accomplishments of deregulation and to downplay its defects. This tendency has particularly shown up in the failure to compare trends since deregulation with previous trends—for example, to note that fare declines of recent years have been basically an extension of trends well established under regulation.

Furthermore, there is a tendency to forget the basis on which deregulation was justified to Congress and the extent to which subsequent reality has deviated from those original promises. Such deviation might be dismissed as having merely historical relevance were it not for one important point. Nine years of deregulation experience demonstrate that the widespread academic support for deregulation rested on a number of misconceptions as to the true dynamics of the airline marketplace. There is value in identifying the flawed premises of deregulation, to guard against future policies stemming from those same premises.

There have, of course, been benefits from deregulation. Probably the most important has been the removal of governmental second-guessing, and the consequent release of managerial initiative and creativity to function without hindrance. The opportunity for hub-and-spoke development, with associated benefits of increased frequencies for many city-pairs, has been another important benefit. The fuller development of secondary, "satellite" airports within major metropolitan areas is still another.

However, just as there is "no free lunch," these benefits did not come free. To date, there has been inadequate recognition of the penalties that have been involved, or which yet may develop. One of the paradoxes of this industry is that it publishes the most detailed statistical record of its operations and finances of any industry in our economy—and yet that record is rarely reviewed for the insights it can provide as to what makes this business "tick." Behavioral patterns of the industry (*e.g.*, its persistent problems of over-capacity and fare wars) seem irrational unless and until one recognizes the special dynamics of its marketplace. This article points to some of the insights derivable from the past and recent record, which particularly raise questions as to whether indeed the best long term result (for the public itself) can be assured by the totally unrestrained workings of the free market.

This does not mean that re-regulation is feasible to the full degree that existed before 1978. However, it does mean that possibilities for some middle ground may have to be considered—some compromise between the full—scale regulation of pre-1978 and the full-scale free market of today.

II. Recent Expressions of Concern

After nearly a decade of airline deregulation, growing signs of disenchantment with this new environment began to show up in 1986 and 1987. In December 1986, a cover story in *Business Week* was headlined: "Is Deregulation Working?"[1] The basic thrust of the article was that it is not. In January 1987, a study by the Transportation Center of Northwestern University concluded that deregulation "may have become merely a vehicle for transforming a publicly regulated oligopoly into a private oligopoly or cartel."[2] In May 1987, *Air Transport World* noted: "less than 10 years after airline deregulation in the U.S., the experiment appears in trouble with Congress. . . . The threat of limited re-regulation is real. . . ."[3] *Travel Weekly* reported: "Senate aviation leaders warned top [airline] officials . . . that they are in a mood to legislate better air service. . . . Chairman Ernest Hollings said the government is going to have to 'come in and do some reregulation.' "[4]

Deregulation has not performed in the manner promised by its sponsors. In particular, it has departed from those promises in the following respects:

- *Promise:* Deregulation would provide wide-open competition, with the free entry of new firms "policing" the market, and assuring adequate, reasonably-priced service.
  Fact: Bankruptcies, mergers, and acquisitions, have led to an industry more tightly concentrated into a few large carriers than was the case under regulation. There is little future prospect for any significant competitive challenge by a new entrant.
- *Promise:* Deregulation would bring substantial fare reductions.
  Fact: While there have been dramatic reductions in some individual markets, the average fare level has not improved significantly compared with trends under regulation.
- *Promise:* The benefits of deregulation would be equitably distributed—and markets that lacked their own direct competition would benefit from the constant threat of competition from new entrants.
  Fact: Considerable inequities have developed between fares in markets with limited competition vis-a-vis fares in more intensely competitive markets.
- *Promise:* Deregulation would provide the public with new price/service options, such as lower-fare, no-frills service.
  Fact: By early 1987, specialized no-frills carriers no longer occupied a significant market position.

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1. *Is Deregulation Working?*, Business Week, December 22, 1986, at 50.
2. F. Spencer & F. Cassell, Eight Years of U.S. Airline Deregulation 1 (1987) (published by the Transportation Center of Northwestern University).
3. *Consumer Revolt in Congress*, Air Transport World, May 1987, at 63.
4. *Airline Service Problems Warrant New Regulation*, Air Travel Weekly, May 4, 1987, at 1.

- *Promise:* Deregulation would lead to greater efficiency and lower cost.
  Fact: Deregulation did lead to lower labor costs—but this was substantially offset by hidden costs and inefficiencies in other factors of production (*e.g.*, congestion and delay costs due to intense hub-and-spoke scheduling; start-up and shut-down costs of unstable route structures; less-than-optimum seat-mile costs because of pressure for smaller planes).
- *Promise:* By providing freedom to compete in pricing, deregulation would obviate the previous need to compete in service, and would particularly eliminate scheduling pressure and resulting excess capacity.
  Fact: Carriers are still dependent on service and schedule rivalry in striving for competitive differentiation. Deregulation has actually increased the tendency for excess capacity.
- *Promise:* Even with free entry/free exit, the prior route network would continue to be served with little disruption.
  Fact: The turnover of routes has been massive.
- *Promise:* Deregulation would not create economic distress for the industry.
  Fact: Deregulation has been responsible for years of heavy industry losses and dozens of jet carrier bankruptcies, plus many more bankruptcies of commuter carriers.

As already indicated, these comments are not meant to imply that deregulation has been entirely negative in its impact. However, most of its benefits could have been obtained with judicious relaxation (instead of total abandonment) of regulation. Prior to 1978, the Civil Aeronautics Act and its amendments gave the CAB considerable latitude in route certification and pricing. Indeed, in the years immediately before 1978, the Board did liberalize policies in those areas, while still functioning under the original regulatory statute.

The decision to go beyond liberalization and completely scrap regulation can be attributed to a number of misconceptions regarding the dynamics of the air transport marketplace. Deregulators were confident that this industry satisfied the criteria for viable free market competition, without any need for moderation of free market forces. Nine years of actual experience indicate that there are instead special characteristics of this industry which make more suitable the partial "public utility" approach embodied in the original Civil Aeronautics Act.

It is clearly impossible to turn the clock back and reconstruct the framework of that statute. Equally clear, the congressional dissatisfaction displayed in 1987 may well lead to some degree of re-regulation. It is therefore relevant to consider how and why deregulation has deviated from its sponsors' expectations, if only to provide a reasoned platform for considering possible future modifications.

III. INDUSTRY CONCENTRATION

A. THE TIGHTER CONCENTRATION OF DEREGULATION

In 1978, the "certificated" scheduled airline industry consisted of eleven trunk lines and eight local service airlines. Deregulators criticized the CAB for having authorized so few carriers.[5] To encourage more competitors, the Airline Deregulation Act of 1978 included the following policy objectives: "the avoidance of unreasonable industry concentration, excessive market domination, and monopoly power" and "the encouragement of entry into air transportation markets by new carriers."[6]

Paradoxically, nine years of free market operation have moved the industry to a tighter concentration than existed before. The prospect is that it will shortly end up with only five or six major survivors. The path to this result has been strewn with bankruptcies and mergers. Figure 1 lists principal mergers and acquisitions. Figure 2 presents a partial list of bankruptcies or terminations of operations.

In 1978, the leading six carriers accounted for 71% of industry traffic. By 1987, mergers had increased the concentration of the six top carriers to 79% (Figure 3). Even the latter is an interim figure. Further concentration must be anticipated, because some of the remaining carriers are not likely to remain independent for long. For example, the departing president of Braniff admitted that "because of the many recent mergers in the industry. Braniff might need to be acquired in order to continue operating."[7] (More recently, in a twist on that prediction, Braniff itself sought to acquire Pan American in a proposed merger. The effect would still have been to reduce further the number of carriers remaining.)

The data in Figure 3 actually understate the *de facto* increase in concentration, because they deal only with *scheduled* airline traffic. In the past, scheduled airlines also had intense competition from nonscheduled, low-fare charter programs. In contrast, by 1987 the charter industry was a casualty of deregulation, with the original carriers either out of business or operationing greatly reduced schedules. Thus, not only is there greater concentration *within* scheduled service, but there is no longer vigorous competition from nonscheduled service.

This concentration is very much in line with the warnings of those who opposed deregulation. Thus, Secor Browne (former Chairman of the

5. For example: "There were sixteen carriers operating when the 1938 Act took effect, and there has not been a single new trunk line carrier certificated in the Board's history." Snow, *Aviation Regulation: A Time for Change*, 41 J. AIR L. & COM. 640 (1975) (Article by Deputy Under Secretary of Transportation).

6. Airline Deregulation Act of 1978, Pub. L. No. 95-504, § 102(7), (10), 92 Stat. 1705, 1706-07 (codified as amended at 49 U.S.C. §§ 1301-1552 (1982)).

7. N.Y. Times, June 1, 1987, at D2.

Figure 1

Carriers Merged or Acquired Since 1978

Carrier	Comments
Air Cal	into American
Air Florida*	into Midway
Braniff's Latin American Division	into Eastern, then Texas Air
Britt	into People Express, then Texas Air
Continental	into Texas Air
Eastern	into Texas Air
Empire	into Piedmont, then US Air
Frontier*	into People Express, then Texas Air
Henson	into Piedmont, then US Air
Hughes Air West	into Republic, then Northwest
Jet America	into Alaskan
National	into Pan American
New York Air	into Texas Air
North Central	into Republic, then Northwest
Ozark	into TWA
Pan Am's Pacific Division	into United
PBA	into People Express, then Texas Air
People Express	into Texas Air
Piedmont	into US Air
PSA	into US Air
Ransome	into Pan American
Southern	into Republic, then Northwest
Transtar	into Southwest
Western	into Delta

* In bankruptcy at time of acquisition

CAB) predicted: "strong carriers would ultimately push the weak ones off the cliff."[8] Another opponent warned of "irresistible pressure toward elimination of the smaller carrier as a competitor."[9]

Such warnings were ignored. Instead, the deregulators insisted that airline size did not affect competitive viability, and that there would remain unrestricted opportunity for new small firms to challenge the incumbents. Said the CAB staff: "There are no structural traits inherent in domestic air transportation which indicate superior performance by large-size firms; nor are there traits which would significantly inhibit the entry of new firms into the industry."[10] The Department of Transportation concurred: "The

8. Remarks of Secor Browne at Salomon Brothers Airline Symposium, New York City, Feb. 26, 1975, *reprinted in* STAFF OF CIVIL AERONAUTICS BOARD, REGULATORY REFORM 125 n.1 (staff report 1975) [hereinafter CAB STAFF REPORT].

9. Rasenberger, *Regulation and Local Airline Service—An Assessment of Risks*, 41 J. AIR L. & COM. 856 (1975).

10. CAB STAFF REPORT, *supra* note 8, at 271.

Figure 2

Carriers Going Bankrupt or Discontinuing Operations Since 1978

Air Atlanta	Freedom Airlines
Air Florida*	Frontier*
Air Illinois	Golden Gate Airlines
Air New England	Golden West Airlines
Air North	Imperial Airlines
Air One	Mackey International
Aeroamerica	McClain Airlines
Altair	Northeastern International
American Central	Oceanair
American International	Pacific East
Apollo Airways	Pacific Express
Arrow Airways	Pride Air
Braniff*	Southeast Airlines
Capitol	Swift Aire Lines
Cascade Airways	Transamerica
Cochise Airlines	Wien Alaska
Continental*	Wright
Emerald Air	World**

Note: Does not include all commuter carrier bankruptcies.
* Subsequently renewed operations, or was acquired, after bankruptcy.
** Discontinued scheduled passenger operations only.

evidence suggests very strongly that the optimal size of firms will be sufficiently small so that there will be room for a considerable number of competitive firms in the industry."[11]

This rejection of the oligopoly scenario was absolutely basic to the deregulation rationale. It is inconceivable that Congress would have enacted deregulation if it foresaw that the public would end up with *neither* the protection of regulation *nor* the protection of wide-open multi-carrier competition.

The deregulators' belief that airline size did not matter derived from a simplistic misinterpretation of available data. Before 1978, small carriers had enjoyed relatively good financial performance compared with larger lines. Without looking for possible extenuating circumstances, the deregulators eagerly seized upon these data as establishing the broad proposition that carrier size played no part in the airline marketplace.

In fact, carrier size has always had potential market impact, but this was kept latent by regulation. The effect of size was neutralized during regulation because of the following:

- While regulated, the financial results of the largest airlines were limited by the fact that their route systems contained the greatest amount of compe-

11. Snow, *supra* note 5, at 663.

Figure 3

Concentration of Traffic in Leading Air Carriers 1978 and 1987

Carrier	Percent of Industry Passenger Miles	
1978		
United	17.0%	
American	12.5	
TWA	11.7	
Eastern	10.9	
Delta	10.1	
Pan American	9.1	
Six-carrier total		71.3%
1987*		
Texas Air	19.4%	
United	16.2	
American	13.9	
Delta	11.6	
Northwest	10.0	
TWA	8.1	
Six-carrier total		79.2%

* Based on traffic carried in 1986, with carriers grouped in accordance with mergers completed or pending as of mid-1987:

Texas Air includes Eastern, People Express, New York Air, and Frontier
American includes Air Cal
Delta includes Western
Northwest includes Republic
TWA includes Ozark

Source: Derived from data of CAB and DOT.

tition. For example, the intense competition between United, American, and TWA on major transcontinental routes led to depressed load factors, and also to an above-average level of cost for in-flight service amenities.

- Conversely, the smallest carriers had the highest proportion of monopoly routes—receiving in some cases over 70% of their traffic in markets without any competition.[12]
- In an effort to achieve a more balanced industry structure, the CAB tended to favor the smaller carriers in the award of valuable new routes.
- The CAB enforced a form of inter-carrier subsidization by the large carriers of the smaller ones, through the formula for division of joint ticket revenues.

More generally, regulatory practice would have prevented airline marketing programs designed to exploit network size. It is highly doubt-

12. Salomon Brothers, AIRLINE REPORT, Dec. 1982.

ful, for example, that the CAB during most of its existence would have permitted a marketing device such as the Frequent Flyer program, which by its nature favors carriers with large network systems.

In short, the comparative success of small airlines pre-1978 was itself a consequence of regulation, which had neutralized size as a market factor. However, the deregulators looked only at the end result rather than the cause. They thus ignored the fact that the framework they were about to dismantle was the very thing that had enabled small carriers to hold their own against larger carriers.

Belatedly—eight years after the fact—Alfred Kahn conceded the importance of carrier size. In 1986, he referred to the "enormous competitive advantages enjoyed by the very biggest carriers, most prominently American and United."[13] He admitted that the industry was "evolving into an uncomfortably tight oligopoly," and listed factors he regarded as advantages of the largest carriers:

- "The ability that their vast networks gives those two giants to feed traffic onto their own flights at the hubs they dominate;"
- "the enormous competitive advantages they have achieved through the development and exploitation of their own computerized reservations systems. . . ;"
- "the superior attractiveness of their frequent flyer programs;"
- "the effectiveness with which they have learned to meet the uniform low fares of much lower-cost competitors like People, selectively, with even more deeply discounted fares restricted to seats that would otherwise go out empty;"
- "their superior ability to last out price wars."[14]

In effect, Mr. Kahn thus embraced the types of arguments that opponents of deregulation had advanced eight years earlier. However, by the time he made this concession, the die had been irreversibly cast in the direction of industry concentration.

Particularly revealing is the fact that the importance of size has not been felt only by small new entrants. Even larger, established carriers have not been secure against it. Delta, TWA, and Northwest—ranked fourth, fifth, and sixth in size in 1986—concluded that their size was inadequate. Hence, they acquired Western, Ozark, and Republic respectively, to come closer to a "critical mass."

Still another indication of the importance of size was the merger of British Airways and British Caledonian Airways, announced in July 1987. Officials of those airlines indicated that they had to position themselves "to meet increasing competition from the giant airlines which have

13. Speech by Alfred E. Kahn to the Regional Airline Association, *Airline Deregulation: the American Experience*, at 13-14 (May 1986) [hereinafter Kahn speech].

14. *Id.* at 14.

emerged over the last two years, especially in the U.S. . . . The prospects for medium-sized airlines, however good operationally, are very uncertain when ranged against the emerging power of the megacarriers, notably in the U.S."[15]

Thus, concern about the position of the largest U.S. carriers has spread to substantial airlines abroad. These developments underscore just how dim the outlook is for any small, new entrant attempting to make a significant dent in the U.S. market.

B. Potential Impact of Airline Concentration

Defenders of deregulation have recently tried to belittle the significance of the industry's concentration by pointing out that other industries also consist of a handful of large firms. For example, Alfred Kahn has stated, "In most major industries, there is at least some concentration. Look at soft drinks. You have Coca-Cola and Pepsi-Cola and yet you have lots of price competition."[16]

However, air transport differs in one important respect. Other industries, even when comprised of only a few large firms, do not usually end up with a one-supplier monopoly in specific local markets. But this can happen in air transportation.

Moreover, because of the nature of transportation, a local monopoly can do greater harm to a community than could a local monopoly in some other industry. This is because transportation is a basic part of the economic/social/cultural infrastructure, which affects the efficiency of all other business activities in a community and the quality of life of its residents. The ability of a city to retain existing industries, and attract new ones, is uniquely dependent upon the adequacy, convenience, and reasonable pricing of its airline service.

The concentration of air service has been especially pronounced in local routes to and from hubs. Figure 4 lists principal hub airports where just one or two carriers are dominant. At five of these airports, the one-carrier domination with recent mergers has come to exceed 75% of available passengers. At three other airports, there is two-carrier domination which approaches or exceeds 90% of the passengers. For perspective, Figure 4 also indicates the much lesser concentration at these same airports in 1979, at the start of deregulation. Most of the single-carrier hubs then had less than half of their traffic in the hands of the principal carrier. (The two main exceptions were Charlotte and Houston Hobby, and the

15. TRAVEL WEEKLY, July 23, 1987, at 1, 73.

16. *Frequent Flyers Take a Ride on the Downside*, FREQUENT FLYER MAGAZINE, Jan. 1987, at 72.

Figure 4

Dominance of Individual Carriers at Principal Hubs

Hub Airport	Dominant Carriers	1986 Percentage of Passengers on Dominant Carrier	1979 Percentage on Dominant Carrier
	A. Single Carrier Hubs		
St. Louis	TWA	83%	44%
Pittsburgh	US Air	82	51
Charlotte	Piedmont	79	73*
Minneapolis	Northwest	79	40
Salt Lake City	Delta	76	43*
Houston (IAH)	Texas Air	72	19
Houston (Hobby)	Southwest	69	82
Detroit	Northwest	68	20*
Newark	Texas Air	65	33*
Dayton	Piedmont	64	36*
Baltimore	Piedmont	59	25*
	B. Two-Carrier Hubs		
Atlanta	Delta	55	50
	Eastern	40	40
		95	90
Denver	Texas Air	47	23*
	United	42	27
		89	50
Dallas/Ft. Worth	American	63	32
	Delta	24	37*
		87	69
Chicago (O'Hare)	United	44	28
	American	28	21
		72	49

* Different carrier dominant than shown for 1986.

Note: Reflects mergers already implemented or pending. Percentages are based on 1986 traffic shares.

Source: AIRLINE ECONOMICS, INC., AIRLINE CONSOLIDATION (1987).

high percentages for those two reflected mainly their very small traffic base at the time.)

Figure 5 indicates specifically for one hub (Detroit) the destinations for which nonstop service is dominated or provided exclusively by Northwest Airlines. As of September 1987, there were fifty-one such destinations. Significantly, this type of concentration exists not in some very small city, but in the sixth largest metropolitan area in the country.

Figure 5

Detroit Nonstop Markets Dominated or Served Exclusively by Northwest or Northwest Commuter Carrier, September 1987

Destination	Percentage of Nonstops by NW or NW Commuter	Destination	Percentage of Nonstops by NW or NW Commuter
Akron	100%	Minneapolis	100%
Albany, N.Y.	100	Montreal	100
Allentown	100	Muskegon	100
Alpena	100	New York/Newark	67
Battle Creek	100	Pellston	100
Boston	100	Peoria	100
Buffalo	100	Phoenix	100
Cedar Rapids	100	Providence	100
Charleston, W.Va.	100	Rochester, N.Y.	100
Columbus, Ohio	100	Saginaw	100
Elkhart	100	San Diego	100
Erie	100	San Francisco	75
Flint	100	Sarasota	100
Ft. Wayne	100	Saulte Ste Marie	100
Grand Rapids	100	Seattle	100
Green Bay	100	South Bend	100
Hartford	100	Stevens Point	100
Kalamazoo	100	Syracuse	100
Lansing	100	Tampa	75
Las Vegas	100	Wausau	100
Los Angeles	100	Toledo	100
Louisville	100	Traverse City	100
Madison	100	Washington	75
Marquette	100	West Palm Beach	100
Memphis	100	White Plains	100
Milwaukee	100		

Source: Official Airline Guide

Admittedly, there were also monopoly/duopoly routes before 1978. But at that time, the framework of regulation was available to protect individual markets against loss of service or inequitable pricing. Since deregulation, the above-described communities have lost the protection of regulation without gaining the intensity of competition that had been promised.

IV. Pricing and Service Competition Under Deregulation

A. The Vulnerability of the New Price/Service Options

In the original deregulation debate, advocates argued the need for new price/service options. For example:

> The present system of regulation is seriously deficient. . . . [I]t causes air fares to be considerably higher than they would be otherwise; it discourages service innovations; it denies consumers the range of price and service options which they would prefer. . . .[17]

The concept of new price and service options envisioned that one level of amenities would be offered at one price, while a lesser level would be offered at a lower price. A Senate Committee concluded: "Air service can be made available to the American public at significantly lower prices. Increased competition is likely to bring about the provision of such service."[18]

For the first few years of deregulation, this expectation was fulfilled. New entrant carriers did indeed offer lower fare service, with fewer or no frills. By 1987, however, most of the new low-fare entrants had dropped out of the picture.

In the free market, low-fare/low quality service turned out to lack competitive staying power. Deregulators had assumed that new carriers would establish a pricing niche below the fares the full-service lines could afford to charge. Thus, the CAB *Staff Report on Regulatory Reform* stated: "cost differences will permit new firms to price under existing airlines."[19]

However, this overlooked the fact that the incumbent carriers would not have to base their responsive pricing on their *average full* costs. The relevant yardstick would usually be a very much lower *marginal* cost. The reason is as follows.

The cost of operating an existing flight is affected to only a limited degree by the precise passenger load on that flight. Most of the large cost elements (*e.g.*, amortization of aircraft investment, maintenance of aircraft, crew pay, landing fees, and ground equipment) are incurred by the mere flying of the schedule itself and are virtually the same whether the flight is empty or full. The costs that do vary with the actual load (*e.g.*, cost of ticketing, meals, and sales commissions) account for roughly 20% of the overall cost of operating the flight.

Therefore, if an incumbent carrier is faced with the loss of passengers to a competitor's lower fare, the expenses saved with the loss of that

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17. Snow, *supra* note 5, at 638.

18. Summary Report of the Senate Subcommittee on Administrative Practice and Procedure, *reprinted in* 41 J. Air L. & Com. 633 (1975) [hereinafter Summary Report].

19. CAB Staff Report, *supra* note 8, at 112 n.1.

traffic will be minimal. Stated differently, the marginal cost of retaining that traffic will be equally small. Even if the incumbent carrier finds it necessary to discount its normal fare by 40% in order to avoid the traffic loss, the remaining 60% of its normal revenue would substantially exceed the small marginal cost of keeping the seat occupied rather than empty.

Thus, even when the new entrant had a clearly lower cost structure, the incumbent carrier usually concluded that it would *lose less* by matching the lower fare (and getting at least partial revenue from an occupied seat) than by maintaining its normal fare (and flying an empty seat). This is not, as sometimes alleged, a matter of predatory pricing. Rather it is a case of choosing the less harmful of two alternatives.

Once the established carriers started matching the low fares, they then had the unbeatable combination of virtual price parity coupled with their normal amenity advantages. A typical advertising theme was: "And Delta gets you there with all this." The copy of the ad then stressed that low fares were available on Delta, along with "Wide-Ride comfort on most of our nonstops between Newark and Atlanta," "Complimentary dining at mealtime," "Complimentary baggage checking," "Advance seat selection," "Free coffee and soft drinks on all flights," and "Free trips for Delta's Frequent Flyers."[20]

Each of the service items mentioned above was of course absent on People Express Flights, at which this ad was directed. This type of responsive strategy blunted the marketing effectiveness of the low fare specialists. Their low fares depended upon very high load factors, and it became impossible to sustain adequate load factors when facing full-service competition at similar fares. For example, in the first quarter of 1986, People Express' load factor of 62% looked good by normal airline standards, but it was nine percentage points short of the break-even level required by its low fares.

As the low-fare specialists found their penetration of the leisure market limited by the fare-matching strategy of the incumbent carriers, they started to look beyond that market, and sought access to the business travel market as well. This made it necessary to abandon the no-frills concept, and thus to move to a higher cost level. That further diluted their marketing message, and reduced their ability to find a survivable, separate niche.

These comments apply not only to new entrant carriers (like People Express, but also to former charter carriers (like World). The latter ran into the same competitive response when they tried to apply their low fares to scheduled service. By 1987, several of the former charter operators were bankrupt, and the others had discontinued scheduled service.

20. N.Y. Times, July 26, 1985, at A5.

Incidentally, charters illustrate the paradox that regulation can, in this industry, actually preserve some aspects of competition that the free market cannot. Under regulation, the CAB permitted scheduled carriers to discount their fares enough to be competitive—but did not let the discounts get deep enough to destroy the pricing niche of the charter carriers. Deregulation, on the other hand, has had no such floor to limit the depth of scheduled discounts. Without some regulated "spread" between charter fares and scheduled fares, charter operators could not sell the more restricted nature of their service, and could not survive in any significant degree.

Alfred Kahn has referred to the failure rate off new airlines as "frightening." Their inability thus far to find a sustainable low-fare niche bodes ill for their future. New entrants had their most favorable "window of opportunity" in the early years of deregulation—before the existing carriers brought labor costs into line, expanded their route networks, or consummated their various mergers. Conditions for new firms will never again be as favorable.

B. *Failure of the "Contestable Market" Theory*

Deregulators promised that no route would suffer for lack of active competition. The "contestable market" theory held that there were no effective barriers to entry, and therefore there would always be a sufficient threat of new competition to keep incumbent carriers from abusing a monopoly position. DOT expressed the principle as follows:

> The threat of potential competition will police carrier behavior and provide the needed incentive for carriers in existing markets to keep prices at a level low enough to forestall the entry of competitors. . . . Potential competition is a vitally important force in producing desirable market results, i.e., in assuring that firms are diligent in providing the type of service and price/quality options that the public desires.[21]

The theory that the mere *threat* of new competition would police the market could work only if such threat were perceived by incumbents as real and imminent. This has not been the case. Those who originally advanced this theory appear to have been influenced by several of the misconceptions already noted above. For example, they assumed that a new entrant would find its small size no competitive handicap against a larger, established incumbent, because of the already-noted belief that there was no economy of scale. It was also implicitly assumed that the new entrant, in lowering fares on the route, would have a sufficient period of price advantage so as to gain a foothold in the market. However, deregulation experience has shown that incumbents will normally match the

21. Snow, *supra* note 5, at 648.

lower fare immediately. Thereupon, the new carrier would have the difficult task of trying to achieve a viable market share against an equally-priced incumbent that would have such market advantages as established public identity, working relationships with local travel agents, and local residents enrolled in its frequent flyer club.

The combination of these factors has rendered the threat of significant new entrant competition more theoretical than real, and thus has invalidated the theory that market contestability would police those routes lacking competition. Moreover, the deregulators did not foresee the enormous development of hubs, and the special inhibition which hub strength would impose against new entrant competition. This is especially important because the main routes that have developed into single-carrier monopolies (and which therefore would be most affected by market "contestability") are the routes into powerful hubs. Yet it is on these routes that the market position of the incumbent carriers is most strongly entrenched against a would-be new entrant. With its myriad of connections, the hub incumbent can fill many (or most) of its seats with passengers traveling through and beyond the hub. This advantage cannot be matched by a new entrant seeking to challenge the incumbent on just the local route terminating in the hub.

C. *The Disparities of Deregulated Pricing*

Because the threat of potential competition has not had the effect promised, there has been widely disparate pricing between different city-pairs. Dr. Kahn has referred to "outrageous, or seemingly outrageous, examples of geographic price discrimination."[22]

Some city-pairs have enjoyed tremendous bargains, while others have had very steep price inflation. Pricing has been most favorable in city-pairs with the most competitors, particularly if one or more of the competitors has an incentive to offer low fares on the route. In such cases, other carriers on the route have been forced to match the price-cutting carrier. Because these lower fares are often below the full average cost of many carriers, they have found it necessary to compensate by raising fares substantially in less competitive markets.

Figure 6 illustrates the resulting disparities. In a cross-section sample, there were some routes where fares had actually declined between 1978 and 1984, while, at the other extreme, there were markets where fares had increased by over 180%. (All of the routes showing declines were served at the time by People Express.)

In May 1987, that analysis was updated for the more extreme cases, to see whether they continued to show such wide disparity (Figure 7).

22. Kahn Speech, *supra* note 13, at 5.

Figure 6

Variation in Fare Increase in Different Markets, 1978-1984

Percentage Fare Increase	Number of Markets	Percent of Markets
− 20% to − 1%	5	7%
0 to + 39%	13	19
+ 40% to + 79%	9	13
+ 80% to +119%	17	24
+120% to +139%	9	13
+140% to +179%	9	13
+180% and over	8	11
Total	70	100%

Source: BRENNER, LEET, SCHOTT, AIRLINE DEREGULATION (1985) (study published by ENO Foundation). Seventy-market sample represented a cross-section of different segment lengths and traffic volumes.

The original People Express markets had by then been taken over by Continental, and were no longer quite the same bargains as previously. However, they still maintained a considerable disparity vis-a-vis the high-increase markets. Between 1978 and May 1987, the price inflation for the low-increase sample averaged 93%, which was no longer favorable relative to the Consumer Price Index, but which nevertheless was less inflated than the high-increase sample, where the cumulative escalation now averaged over 200%.

The price differential on less competitive routes is further demonstrated by comparing the fares charged by Continental between Newark-Detroit versus Newark-Chicago. In January 1988, that carrier charged $210 as its one-way fare from Newark to Detroit, but charged either $90 or $135 (depending on departure time) from Newark to Chicago. The Newark-Chicago distance is 41% longer than that of Newark-Detroit—and yet the fare for the *longer* trip was 44%-53% *less* in absolute dollars. Presumably, this sharp disparity reflected the greater competition Continental faced on the Chicago route compared with the Detroit route. (Incidentally, the $210 Newark-Detroit fare represents an inflation of 200% over the 1978 fare on the same route.)

The lack of cost relationship in deregulated pricing is further indicated by the many other examples of short trips costing more (in absolute dollar amount) than much longer ones. A May 1987 sampling of Detroit fares indicated such disparities as the following:

- Northwest had an unrestricted one-way fare of $205 from Detroit to Los Angeles (1,988 miles), but charged $255 for the 771-mile trip to Ft. Smith, Ark.—thus charging 24% more for traveling 61% fewer miles.
- American charged $255 for the trip to Dallas (1,002 miles), but $215 to

Figure 7

1987 Updating of Fare Changes for Specified Markets

City-Pair Markets	Fare Change 1978 to 1984	Fare Change 1978 to 1987
A. Markets with Lowest Increases to 1984		
New York-Norfolk	−19%	+123%
New York-Portland (Me.)	−17	+ 85
New York-Columbus (Ohio)	− 8	+ 85
New York-West Palm Beach	− 8	+ 57
Syracuse-Norfolk	− 2	+ 97
New York-Syracuse	0	+111
Average	− 9%	+ 93%
B. Markets with Largest Increases to 1984		
St. Louis-Chattanoga	+236%	+207%
St. Louis-Cincinnati	+231	+329
Nashville-Atlanta	+198	+285
Salt Lake City-Billings	+195	+249
Syracuse-Philadelphia	+183	+202
Syracuse-Atlanta	+183	+ 93
Columbus-Omaha	+181	+221
Nashville-Birmingham	+181	+ 78
Average	+198%	+208%

Note: Markets are among those sampled in Figure 6. The markets specified above in "lowest increase" category are those city-pairs which had no increase, or actual decrease, between 1978 and 1984. The markets in "largest increase" category are those which had an increase of 180% or more in that study. As in the analysis in Figure 6, the 1987 fares were obtained by telephone calls to the airlines' reservations offices, requesting the lowest one-way coach fare available for travel during the following week.

Salt Lake City (1,489 miles), resulting in a 19% higher fare for a 33% shorter trip.

- TWA charged $195 for Detroit-Kansas City, but charged $10 more for the 39% shorter trip to St. Louis. In fact, TWA offered an even cheaper three-day advance purchase fare to Kansas City (not available to St. Louis), which made the longer trip $76 less expensive than the shorter one.

These same examples are also revealing in their widely varying rate of inflation vis-a-vis 1978 levels. Thus:

Destination from Detroit	Percent Change From 1978
Los Angeles	+12%
Salt Lake City	+46
Kansas City (three-day advance purchase)	+61
Kansas City (without three-day advance purchase)	+143
Dallas	+136
Ft. Smith	+174
St. Louis	+220

The fare from Detroit to St. Louis had increased 220%, while the fare to Los Angeles had increased only 12%. These variations depend not so much on the market size of the destination, but rather on the amount and nature of competition. Detroit-Los Angeles, with competition from just about all major carriers via their respective hubs, has favorable fares. The competition from Detroit to St. Louis is less intense, and the fare escalation on that route is substantially larger. In short, some parts of the public get bargains, while other passengers are subsidizing those bargains by the steep escalation in their fares.

These comments do not imply that carriers have been deliberately exploiting the less competitive routes for their own enrichment. The fact is that no airline has enjoyed really high profits, by the normal standards of industry at large. Most airlines have had limited profits, or none at all. The fact that fares have been higher on less competitive routes appears to reflect primarily a balancing against depressed fares elsewhere—a balancing needed for financial survival.

D. Overall Change in Average Fares

The widespread impression is that deregulation has led to sharply reduced fares. That impression is incorrect. The preceding section has indicated the wide pricing disparities between individual markets. When the industry-wide average fare level is considered—reflecting the totality of travel on all types of routes—deregulated pricing has *not* shown major improvement compared with prior trends.

In constant dollars (*i.e.*, adjusted for inflation), the industry's yield per passenger mile declined by an average of 2.6% per year in the eight deregulated years between 1978 and 1986. This was not materially different than the average decline of 2.2% per year over the same period prior to deregulation (See Figure 8). Moreover, even this small difference overstates the effect of deregulation for several reasons:

- Deregulated scheduling involves greater mileage on many trips (because of the circuitous routing through hubs). The need to travel more miles to the same destination would statistically make the average fare-per-mile look lower, even if the fares themselves had not changed.

Figure 8

Yield Change in Eight-Year Periods Before and After Deregulation

Year	Yield (in Current Dollars)	Yield (in (Constant 1967 Dollars)
	A. Eight Years Before Deregulation	
1970	5.8¢	5.0¢
1978	8.3	4.2
Average annual change		−2.2%
	B. Eight Years After Deregulation	
1978	8.3¢	4.2¢
1986	11.0	3.4
Average annual change		−2.6%

* Source: Calculated from data of CAB and ATA.

- The 1986 data does not yet reflect the absence of People Express, the carrier which had the most widespread impact in the direction of reduced industry yields.
- The post-1978 yields lacked staying power, because they were not adequately related to costs and caused heavy losses or inadequate earnings. Thus, Alfred Kahn wrote in October 1986: "There is a strong likelihood that the deep, intense price competition will abate. Indeed it is not sustainable because the industry as a whole is losing money."[23]

In view of these qualifications to the deregulated yields, the fact that they show so little improvement over the trends of previous years becomes all the more significant.

V. Excess Capacity and Deteriorating Industry Economic Health

A. Effect of Deregulation on Traffic Generation

Associated with the impression that deregulation has sharply reduced fares is the impression that it has stimulated a large amount of new travel. This impression also is misleading.

Figure 9 indicates the increases in passenger miles before and since deregulation. For the eight years following 1978, traffic increased by an average of 6.2% per year. As indicated in the same table, this was actually less than the growth rate under regulation, which averaged 7.0% for the eight years leading to 1978.

23. N.Y. Times, Oct. 5, 1986, at E4, col. 3.

Figure 9

Traffic Growth in Eight-Year Periods Before and After Deregulation

Year	Passenger Miles (Billions)
1970	132
1978	227
1986	366
1970-1978 average annual change (percentage)	+7.0%
1978-1986 average annual change (percentage)	+6.2%

Source: Calculated from data of CAB and ATA.

The lack of dramatic market stimulation is partly the result of the manner in which deregulated fares have been discounted. The air travel market consists of several distinct segments, each with a different price elasticity. For maximum traffic stimulation, any discount should be pinpointed in its application to encourage trips that would not otherwise have been made.

However, under the pricing pressures of deregulation, many discounts have been available with little or no restriction. In 1986, some 90% of all passengers traveled on a discount. With such wholesale availability of discounts, large numbers of discounted passengers come from the less discretionary portions of the market and would have traveled regardless of the discount. Hence, the increase under deregulation in passenger miles, represented in Figure 9, fails to show the traffic response which massive price-discounting activity would normally be expected to generate.

B. Effect of Deregulation on Airline Economics

The eight years of deregulation comprise the worst financial period in airline history. The cumulative industry operations in those eight years generated a loss of over $7 billion, when interest payments are included with operating expenses. Figure 10 compares the financial results of these eight years with several eight-year periods before deregulation. The deregulation era is the first time that the industry as a whole has recorded a cumulative loss over an eight-year period.

Figure 10

Airline Industry Financial Results for Specified Eight-Year Periods Before and After Deregulation

Period	Operating Profit After Interest (Millions)	Profit as Percentage of Gross Revenue
	A. Before Deregulation	
1939-1946	$ 155	+ 7.0%
1947-1954	514	+10.0%
1955-1962	459	+ 2.3%
1963-1970	1,423	+ 4.7%
1971-1978	2,235	+ 1.8%
	B. After Deregulation	
1979-1986	(7,068)	(2.3)%

Source: Derived from data from CAB and ATA.

Initially, the deregulators blamed industry losses on factors other than deregulation—particularly the 1979 jump in fuel prices and the 1980-1982 recession. However, by 1986 those external factors were gone. The nation's economy was favorable, and fuel prices had tumbled sharply. Still the industry's overall financial results were weak. In 1986, industry operating profits remained inadequate to cover interest payments (Figure 11).

The principal cause of the poor financial results has been the tendency of airlines to engage in *destructive* competition in the absence of regulation—a tendency evident particularly in excess capacity and fare wars. In both scheduling and pricing, competitive pressures lead airlines to excessive reliance on marginal costs. Marginal cost decisions usually look rational to the individual firms making them. However, if unchecked, they build into a cumulative result that is uneconomic for the industry as a whole. By failing to cover fixed costs, marginal cost reliance jeopardizes the industry's long term viability.

C. *Competitive Pressure for Over-Capacity*

The pressure to over-schedule on the basis of marginal cost is inherent in air transport competition. This is because air transport is unique in the way that merely increasing the level of output enhances the competitive appeal of a firm. In this industry, increasing output means flying more schedules, and each schedule adds a distinctive new *qualitative* dimension to an airline's product catalogue. This dimension may be a new de-

Figure 11

Airline Industry Annual Operating Profit, After Interest Payments, Before and After Deregulation

Year	Profit/Loss (Millions)	Profit Margin
	Before Deregulation	
1971	$ (3)	(0.0)%
1972	277	2.5
1973	217	1.8
1974	306	2.1
1975	(274)	(1.8)
1976	351	2.0
1977	535	2.7
1978	826	3.6
Total	2,235	1.8%
	After Deregulation	
1979	$ (420)	(1.5)%
1980	(1,186)	(3.5)
1981	(1,717)	(4.7)
1982	(2,170)	(6.0)
1983	(1,147)	(2.9)
1984	520	1.2
1985	(181)	(0.4)
1986*	(767)	(1.6)
Total	(7,068)	(2.3)%

Source: Derived from data of CAB and ATA.

* For comparability with earlier years, Federal Express data are excluded from 1986.

parture time, a new choice of airports in a metropolitan area, or a new nonstop to replace connecting service.

This competitive pressure to increase output does not exist in most other industries. The consumer of cameras, autos, or TV sets, will not even be aware of the fact that one particular manufacturer has changed its production rate, and will not perceive any change in the appeal of that specific model because of such output change. Therefore, in other fields, the individual firm can base its production plans on its anticipated sales level, without an incentive to go beyond such level for competitive impact.

In contrast, the consumer of air transportation will find the frequency of schedules one of the most important aspects of convenience. The airline with ten daily flights in a market will have twice as much chance of satisfying a particular departure time desire as the airline with only five.

This creates pressure to add schedules for their competitive value, and often without regard to whether or not there is a quantitative need for the added seats.

To the individual airline considering a new schedule, the financial evaluation will usually rely much more heavily on the anticipated diversion of traffic from other carriers, than on anticipated new passengers brought into the market. This creates a built-in dichotomy between the micro-economics and the macro-economics of the scheduling decision. The carrier adding the flight can credit the diverted traffic as "new revenue" with which to offset the incremental cost of the flying. But diverted traffic, merely shifted between carriers, is obviously *not* new revenue from a macro industry standpoint. Therefore, the very same schedule that appears economically justified to the line adding it will often be just a step toward excess capacity for the market as a whole.

The competitive pressure for excess capacity was recognized by the deregulation advocates. Alfred Kahn observed in his 1971 text: "The airline with the most flights between any two points is the one to which customers will turn first in making their reservations." He then went on to state:

> The result, where competition is strong and particularly in markets where new entry threatens, is a *cumulative tendency to excess capacity*, with each company vying with the other by increasing the number of daily flights on its schedule. . . . But where scheduling is purely duplicative and the traffic actually generated could be carried on fewer flights, *the competition has produced only waste.*[24]

The tendency to over-schedule has been perennial in airline operations. For much of the pre-1978 experience, that tendency was obscured by periods of explosive growth in the 1950s and the 1906s, when sustained, double-digit traffic increases made it almost impossible to add seats too quickly. Significantly, decent profit margins have been concentrated in periods when traffic was growing at annual rates of 15% or more (Figure 12).

Obviously traffic cannot be expected to sustain growth rates of that level endlessly. In years when traffic has expanded more moderately (*i.e.*, the seventeen years when growth was under 10%), the after-interest profit margins have averaged close to zero—a reflection of the difficulty of controlling capacity when traffic is not actually booming.

Dr. Kahn and the other deregulators were fully aware of the airlines' competitive tendency to over-schedule, and deplored the waste of the resulting excess capacity. But they argued that regulation itself had been responsible for this, by denying carriers the freedom to compete in the

24. 2 A. KAHN, THE ECONOMICS OF REGULATION 211-12 (1971) (emphasis added).

Figure 12

Annual Passenger Mile Growth vs. Annual Profit Margin 1950-1986

Range of Passenger-Mile Growth	Number of Years With Indicated Traffic Growth	Average Profit Margin for Years in Growth Category
Under 5%	8	−1.6%
5%-9%	9	+0.3
10%-14%	6	+3.4
15% or more	14	+6.9

Note: Profit margin relates to operating profit, after allowance for interest payments.
Source: Derived from data of CAB and DOT.

alternative sphere of pricing. Thus Dr. Kahn stated: "[T]he answer to the fear of excessive capacity and low load factors, I am convinced, is to reverse the process that produces this kind of wasteful, cost-inflating service competition, by opening the door to price competition."[25]

This theory was based on a misconception of how the airline free market would function. The deregulators contemplated that, with pricing freedom, a carrier would be able to opt out of schedule competition by simply offering a lower fare for a less convenient schedule pattern. Thus it was argued that "in the absence of entry and price regulation, a new firm with a limited schedule could compete with incumbent carriers on the basis of a lower price."[26]

However, this theory failed the test of the marketplace. Under deregulation, carriers with more frequent service have not passively accepted the penalty of a noncompetitive fare. Instead, they normally have matched a competitor's lower fare while retaining schedule superiority. Therefore, scheduling rivalry—characterized by the deregulators as "wasteful" and "costly"—has continued undiminished under deregulation. A 1987 article describing American Airlines' expansion plans referred to "the prime need for service frequency in the competitive U.S. industry."[27]

Three years after the start of deregulation, one of its principal sponsors, Michael Levine, commented: "Excess capacity is the single most important threat in existence to the financial health of the airline industry."[28] Shortly thereafter, *Business Week* quoted an airline president as saying: "As empty as we're flying, there's an insane probability of

25. AVIATION WEEK, Mar. 20, 1978, at 41.
26. CAB STAFF REPORT, *supra* note 8, at 116, 117.
27. Kjelgaard, *Corporate Thinking at AMR*, AIR FIN. J., May 1987, at 11.
28. Letter from Michael Levine to Senator Robert Dole (May 10, 1982).

sharply increased capacity."[29] In early 1987, the First Boston Corporation commented: "Airlines have a chronic excess capacity problem."[30] The same source also expressed concern about "the large capacity additions that could outpace demand . . . in 1988."[31]

Deregulation not only has failed to achieve the promised goal of eliminating excess capacity; it has actually increased the pressures for such excess. It has done so because of the massive emphasis on hub-and-spoke scheduling. Each additional spoke, and each additional schedule frequency, adds geometrically to the permutations of connection possibilities in a hub. From a marketing standpoint, this pressure is virtually open-ended.

When past scheduling focused primarily on direct, point-to-point city-pair service, the risk of moving into an over-capacity situation was more visible. Within a given city-pair, it was possible to measure the relationship of one more incremental schedule relative to the traffic volume of that city-pair and the totality of capacity already on the route. The possibility of over-capacity could be measured (and better guarded against) within a discrete and self-contained geographic route boundary. In contrast, when schedule additions come mainly by adding new spokes to a carrier's hub (or opening entirely new hubs) a developing tendency toward excess capacity is much more geographically diffused, less directly measurable, and more difficult to guard against.

Other countries have long recognized the tendency for competition to create over-scheduling, and have attached capacity limitations to their bilateral agreements on air traffic rights.[32] For a brief period in the early 1970s, the U.S. government also recognized the pressure for over-scheduling, and encouraged airlines to work out inter-carrier agreements for mutual, reciprocal schedule reductions.[33] A few years later, the deregulation statute moved in the diametrically opposite direction, not only throwing open the entire route map to unlimited competition, but specifi-

29. BUSINESS WEEK, Jan. 10, 1983, at 38.

30. First Boston Corporation, AIRLINE REP., May 6, 1987, at 1.

31. First Boston Corporation, AIRLINE REP., April 1987.

32. The insistence of many governments upon capacity limitation provisions is so great that even the U.S. has had to accept such provisions in its bilateral agreements with other countries. In the Spring of 1987, an especially dramatic example of the application of such provisions occurred when the French government insisted on a maximum seat-capacity limitation for the new services being inaugurated to Paris by U.S. carriers.

33. The first capacity restraint agreement was approved by the CAB in 1971. This agreement was between American, United, and TWA, and covered the routes of New York-Los Angeles, New York-San Francisco, Chicago-San Francisco, and Washington-Los Angeles. A number of additional agreements were approved in 1973, following the fuel crisis caused by the Arab oil embargo. All such agreements were terminated by about 1975.

cally outlawing any future capacity restraint agreements.[34]

The preceding discussion regarding excess capacity may seem inconsistent with the fact that a higher percentage of seats is occupied now than before 1978. Deregulators sometimes point to this rise in load factor as a sign of improved efficiency.

However, load factor by itself has become almost meaningless in a marketplace where excess seats can be filled by virtually giving them away in price wars. (During one transcontinental price war, the president of one low-cost carrier indicated that he would lose money even if every seat were occupied, and that he would need a load factor of 139% just to break even.)[35]

In this environment, an index of sound capacity management cannot be found in load factor alone—but rather in the spread between actual vs. break-even load factor. The industry's actual load factor since deregulation began has averaged 60%, which is six percentage points above the 54% average for 1971-1978. However, the *break-even* meanwhile has jumped by nine percentage points—from a previous 53% to a deregulated 62%. Thus, actual load factor slipped from being one percentage point on the *right* side of break-even to being two points on the *wrong* side. With this industry's highly leveraged finances, that negative swing of three percentage points has been enough to create the losses noted above.

D. Competitive Pressure for Uneconomic Pricing

Throughout the period of deregulation, fare wars have repeatedly depressed airline earnings. As a result, the trend of average yields has failed to keep up with the industry's unit cost trend (Figure 13.) This accounts for the sharp increase in break-even load factors noted above.

The persistence of uneconomic pricing over a span of eight years precludes the presumption that such pricing merely reflects inept management. Rather it stems from inherent characteristics of the airline product and its marketing.

Airline seats are sold individually, but are produced in indivisible plane-load lots, generally of 100 or more seats. Any seats unsold at departure time are instantly perishable. In addition, as discussed earlier, the "marginal cost" of filling an otherwise empty seat is minimal (approximately 20% of full average cost).

With this combination of conditions, there is always the strong temptation to sharply discount the full fare in order to fill more seats. This

34. Airline Deregulation Act of 1978, Pub. L. No. 95-504, § 412(c)(2)(A)(iii), 92 Stat. 1705, 1729 (codified as amended at 49 U.S.C. §§ 1301-1552 (1982)).

35. Business Week, Jan. 24, 1983, at 26 (statement of the Chairman of Capital Airways).

Figure 13

Cumulative Changes in Average Seat-Mile Cost and Average Yield Since 1978

	Percent Increase from 1978		
Year	Seat-Mile Cost	Passenger-Mile Yield	Yield vs. Cost
1979	14.8%	4.8%	−10.0%
1980	38.1	32.5	−5.6
1981	55.2	48.2	−7.0
1982	50.3	42.2	−8.1
1983	47.6	39.8	−7.8
1984	43.3	45.8	+2.5
1985	45.9	41.0	−4.9
1986	34.9	31.3	−3.6

Note: Seat-mile costs are calculated on the basis of CAB methodology in which non-passenger traffic is assumed to operate at break-even. Therefore, the cost of handling non-passenger traffic is assumed to equal its revenue.
Source: Calculated from data of CAB, DOT, and ATA.

would be economically sound (from both a micro and a macro standpoint) if the passengers filling those extra seats represent newly generated traffic, which would not be traveling in the absence of the discounts. The revenue from such passengers would be clearly incremental, and even the discounted fares could more than cover the small incremental cost of filling empty seats.

The problem is that, once a discount is offered, it is difficult to limit its use to newly-generated passengers. To the extent that it is used by passengers who otherwise would have been paying full fare, the discounted fare becomes a source of revenue dilution, rather than revenue generation.

Airline promotional pricing has always faced the dilemma of trying to maximize the generative effect of new discount fares while minimizing the diversion of existing market. With regulation, the CAB forced a degree of discipline into this process by requiring that proposals for new discounts be accompanied by a written justification which would include documented analysis of the prospects for new traffic generation.

With deregulation, that discipline has been lost. In 1986, fully 90% of the traffic of the major airlines traveled on some form of discount.[36] Obviously, so high a percentage of the total traffic could not possibly all be "generated" by the discount. A large amount of fare downgrading necessarily must exist by passengers who would otherwise have been traveling at full fare.

36. Airline Economics Incorporated, AIRLINE Q., Spring 1987, at 131.

In the free market, there are several factors that encourage uneconomical levels of airline discounting. The principal one is that the same route can have differing financial implications to different carriers. Some carriers are able to view a specific route in strictly by-product terms and therefore are able to undercut the fully-costed pricing needed by other carriers on that same route. A prime example is a city-pair served nonstop by some carriers, but served only by one-stop or connecting flights by others. The latter carriers would not normally expect to carry any significant number of passengers in this market against the competition of the nonstop lines. If they offer a discount on this route, they need not worry about the possible downgrading of existing traffic—since such traffic would otherwise be flying on some other line. Thus, any traffic they divert with this discount is incremental to their flights, with virtually no downside risk of yield erosion. This tends to remove the balancing of risk-versus-benefit that should be part of prudent, economical business decision-making.

The vast proliferation of hub-and-spoke scheduling has given great impetus to precisely this by-product approach to pricing. Most of the major carriers now serve just about all significant medium-haul and long-haul city-pair markets, via their mid-continent hubs. Each hub provides connecting linkage for hundreds of city-pair combinations, and for most of those combinations the carrier does not have specific investment committed. For example, though TWA can serve the Boston-Salt Lake City market via a St. Louis connection, it has no aircraft, ground facility, or sales promotion investment specifically tied to that city-pair. The TWA planes that can connect passengers for a Boston-Salt Lake City trip are part of the St. Louis hub complex and thus are also available for hundreds of other city-pairs. In this situation, it has become increasingly common to discount on the basis of by-product costing—which, in the aggregate, leads to insufficient overall average yield.

VI. Service Levels Under Deregulation

A. *Massive Disruption of Route Structure*

Deregulation removed the traditional "public utility" obligation which required carriers to provide adequate service throughout their authorized route systems. Carriers could accept that obligation when they had the ability to cross-subsidize thin traffic routes with above-average profits from strong ones. But that in turn required that the profits on the strong routes be preserved by limiting competition on them.

Once the stronger routes were thrown open to "free entry," it became necessary simultaneously to authorize "free exit" from the weak routes. The deregulators sought to reassure communities concerned

about possible loss of service by denying that cross-subsidy had been a significant factor. Thus it was claimed that: "There is not any theoretical or empirical evidence showing the existence of cross-subsidy for the trunkline carriers."[37]

Relying on that belief, the deregulators further asserted that, even with free entry and exist, there would be only minor changes from previous route structures. The Kennedy Subcommittee went so far as to predict that trunk carriers might seek to discontinue service over routes "that at the very most account for one-half of one percent of revenue passenger-miles now flown."[38]

Figure 14 shows the wide chasm between such assurances and the eventual reality. By 1983, the original certificated lines had, on average, dropped 58% of the nonstop routes they had respectively served in 1978.

Figure 14

Number of Routes Served Nonstop by Carriers, July 1978 and July 1983

Carrier	Nonstop Markets Served 1978	Markets Dropped by 1983	Percent Dropped
American	378	259	69%
Braniff	205	*	*
Continental	288	206	72%
Delta	669	339	51%
Eastern	565	304	54%
Frontier	519	416	80%
Northwest	238	84	35%
Ozark	254	174	69%
Pan Am	176	131	74%
Piedmont	382	218	57%
Republic	658	365	55%
TWA	236	113	48%
United	642	408	64%
US Air	448	179	40%
Western	174	90	52%
Total	5,832	3,286	58%

* Bankrupt, and not operating as of July 1983

Note: In this same period, these carriers collectively added 3,514 new nonstop routes which they respectively had not operated in 1978.

Source: CAB, *Report to Congress on Implementation of Deregulation*, January 31, 1984, p. 29.

37. Snow, *supra* note 5, at 661.
38. SUMMARY REPORT, *supra* note 18, at 613.

Here again, the deregulators had looked at factual information, but had applied an incorrect interpretation to it. They noted that, prior to 1978, carriers had rarely sought CAB approval to abandon routes. This was interpreted as indicating that very few routes were actually money-losers: "[P]resumably most alleged 'losing' markets are in fact self-supporting and would not be abandoned if regulation were terminated."[39]

This theory failed to recognize that many routes were unprofitable (in failing to cover fully allocated cost) and yet more than covered their own direct, out-of-pocket costs. While not covering the full amount of overhead reasonably allocated to them, these routes did make a *partial* contribution to overhead. They needed cross-subsidy, since other routes had to pick up their shortfall in overhead coverage. Yet carriers were better off serving these routes than dropping them, since their elimination would mean losing even that partial contribution.

It was in the carriers' interest to continue serving such routes as long as the regulated route structure limited the other options for deploying the aircraft. Operating within a defined route franchise, the carriers' choice at that time was either to continue serving these routes or simply to ground the aircraft. *Some* contribution toward overhead was preferable to zero contribution from an idle plane.

That situation totally changed once all routes were thrown open to free entry. At that point, any route that had been providing only a partial contribution to overhead became a candidate for abandonment, if the carrier could find some other route which offered a prospect for somewhat greater contribution. Hence the massive turnover of routes indicated in Figure 14.

This substantial change of the route network has had a widely varying impact on communities of different size. A disproportionate share of the schedule increases since 1978 have gone to the hubs located in large and medium sized cities, whereas the smallest communities (designated by the FAA as "nonhubs") have experienced a slight decline in departure and greater declines in seat capacity. The share of the country's weekly flight departures scheduled at large and medium hubs increased from 66% in June 1978 to 74% in June 1987. (See Figure 15.) Meanwhile, the nonhub departures declined from 23% of the national total to 16%. In this same period, the total domestic seat capacity of scheduled flights increased by 55%, but the seat capacity at nonhub airports *declined* by 17% (Figure 15). This decline in seat capacity has resulted from downgrading at many of the smaller communities from jet service to commuter airline turboprop service, and this has meant a qualitative reduction of comfort as well as the quantitative reduction of seats.

39. Miller, *A Perspective on Airline Regulatory Reform*, 41 J. AIR L. & COM. 679, 694 (1975).

Figure 15

Change in Airline Service, June 1987 vs. June 1978, by Airport Size Category

	Weekly Departures			Percent of Total	
Airport Category	6/1978	6/1987	% Change	6/78	6/87
Large hub	63,484	103,063	+62%	50%	57%
Medium hub	19,731	30,712	+56	16	17
Small hub	13,256	18,806	+42	11	10
Non-hub	29,543	29,271	(1)	23	16
Total	126,014	181,852	+44%	100%	100%
	Weekly Seats (000)			Percent of Total	
Airport Category	6/1978	6/1987	% Change	6/78	6/87
Large hub	7,104	12,132	+71%	63%	69%
Medium hub	1,953	3,031	+55	17	17
Small hub	1,112	1,405	+26	10	8
Non-hub	1,175	971	(17)	10	6
Total	11,345	17,539	+55%	100%	100%

Source: Unpublished analysis by Department of Transportation, obtained by phone, July 1987

For many of the smaller communities, the loss of jet service has been partly compensated by the availability of a wider array of destinations offered via hub connections. In the past, jet service at small communities was often of a token nature, with few destinations and limited choices of departure times. In such cases, service may actually have improved with the substitution of a rounded pattern of commuter flights to a hub, where connections could be obtained to destinations throughout the country. (This comment relates only to the availability of schedules; it does *not* relate to the pricing of such service. The wide disparity of deregulated fares has been previously noted, and small communities have generally experienced heavy escalation of their fares.)

In any event, the future continuity of service to the smallest communities remains uncertain. Thus far, the continuation of service to these communities has been partially immunized from the workings of the free market. Previously, certificated small communities were granted such immunity, through subsidy and service "lock-in" provisions which were supposed to be temporary, with a 1988 expiration date.[40] Those provisions have now been extended. If at any time these small communities

40. Airline Deregulation Act of 1978, Pub. L. No. 95-504, § 419, 92 Stat. 1705, 1731 (codified as amended at 49 U.S.C. § 1301-1552 (1982)).

are left to the full, undiluted effects of deregulation, it is not clear how many will continue to receive air service.

Moreover, small community service will be impacted by the congestion and delays at the large hubs to which they are now linked. An increasing number of such hubs are likely to become subject to "slot" allocation. As that happens, carriers will be under economic pressure to maximize the profit potential of their limited slots. Without the obligation to continue operating on any route, the service from hubs to smaller communities is likely to suffer.

The important point is that the removal of the public utility obligation was based on a flawed theory that cross-subsidy did not exist and that removal of the statutory service obligation would not jeopardize continued service to small communities. In fact, the distribution of air service since deregulation has disproportionately favored the larger markets, and the future level and nature of service to small communities is vulnerable because of factors discussed above.

B. Congestion and Delay Problems

By 1987, the airlines were under considerable criticism regarding congestion and delays. At the country's twenty-two busiest airports, delays increased 25% in 1986 over 1985.[41] In the first three months of 1987, delays at those same airports increased by an additional 13%.[42] It has been estimated that U.S. airlines incur an average of 2,000 hours of delay daily, and that the value of the time lost by passengers is equivalent to about $1 billion per year.[43]

Congressional hearings were held in 1987 to consider, among other things, the need for legislation to require changes in scheduling practices to assure greater dependability. In the fall of 1987, the Department of Transportation adopted rules requiring carriers to disclose information concerning their on-time records in order to provide passengers with a basis for making comparative judgments on this aspect of service quality.

Beyond this, the carriers themselves devoted special effort to changes in scheduling and other practices to reduce delays. As a long term solution, the carriers and the FAA stressed the need for greater expenditures on airports and airways to increase the capacity for handling traffic expansion.

While there appeared to be some improvement after the peak summer season of 1987, this issue is likely to intensify again in the peak seasons of coming years.

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41. *Delayed Again*, FREQUENT FLYER, June 1987, at 50.
42. Koepp, *High Anxiety and Rage*, TIME, July 20, 1987, at 52, 53.
43. Airline Economics Incorporated, *supra* note 36, at 54.

In the meantime, it is important to place the issue of congestion in a broader context. Given the lag in airport and airway improvement expenditures, part of this congestion was bound to happen with or without deregulation. As pointed out previously, the rate of passenger traffic growth under deregulation has *not* been greater than the rate prior to 1978. Therefore, the long term trend of traffic growth was itself on a collision course with a relatively static airport/airway capacity. However, certain changes associated with deregulation have intensified the congestion problem. One in particular is the quantum development of hub-and-spoke scheduling. A major hub necessarily requires a bunching of closely-spaced arrivals and departures in order to maximize the permutation of connections.

The very nature of a hub creates a multiplier incentive to bring in as many flights from as many spokes as possible. "Every new spoke generates exponential numbers of origin-destination possibilities."[44] This type of multiplier arithmetic has led all airlines to push their hubs to the very limits of the airports' physical capacity, or beyond it. The FAA has criticized carriers for scheduling more flights for simultaneous departure or arrival than the facilities could reasonably handle.[45]

An example of the intensity of hub scheduling is presented in Figure 16, comparing the volume of arrivals at the Atlanta hub in 1978 and in Spring 1987. In this period, total arrivals at that airport increased by 54%. In 1978, there were only five hours during the day with fifty or more scheduled arrivals. By 1987, all sixteen hours between 7 a.m. and 11 p.m. exceeded that level of activity. With this type of day-long, sustained peak there is little "catch-up" time to absorb off-schedule operations. The hub becomes vulnerable to a snow-balling of delays.

Moreover, with the dominance of hubs, any delays experienced at those locations quickly spill over to the rest of carriers' route networks. For example, in the case of TWA's Summer 1987 schedule, 79% of its domestic flights operated to, from, or through its St. Louis hub. The risk of a systemwide chain reaction of delays is obvious.

As previously mentioned, hub development has had its positive aspects, in terms of the permutations of new and increased patterns of connection service. Unfortunately, however, the pressure to build hubs to the limits of airport tolerance has also created the negative factor of congestion.

Some of the proposed solutions to congestion seem oriented more to past scheduling practices than to the present characteristic of hubs. This applies particularly to proposals to raise landing fees in peak hours, and

44. Kjelgaard, *supra* note 27, at 11.
45. FREQUENT FLYER MAGAZINE, July 1987, at 48.

thus spread out airport utilization. This solution might be effective in some non-hub situations. However, as indicated by Figure 16, the typical major hub has developed wave after wave of connection banks throughout the day, with the result that the "peak" is sustained through the day, rather than limited to just a few hours. It is not clear, therefore, how an attempt at hourly variation of landing fees would relieve this typical pattern of major hub congestion.

There is another, partly related way in which deregulation has contributed to congestion: the pressure it placed on airlines to shift to smaller planes. In the past, as airlines modernized their fleets, they kept moving to planes with larger seating capacity so that the number of departures did not have to increase in proportion to market growth. Deregulation, with its emphasis on frequency into hubs, replaced previous fleet planning policies with a new emphasis on smaller aircraft.

In the eight years 1970-1978, average plane size increased by 33%; whereas in the eight deregulated years 1978-1986, the increase was only 12% (Figure 17). Moreover, even the latter increase was inflated by deliveries in the initial years of deregulation of aircraft ordered before 1978. In the four-year period ending in 1986, there was *no* net increase in aircraft size. Based on new aircraft orders outstanding as of mid-1986, it appears that the lack of growth in average plane size may continue for several more years.[46]

Deregulation's discouragement of larger aircraft is evident in an increase in the required level of departures. Between 1970 and 1978, industry departures actually declined.[47] In contrast, between 1978 and 1987, departures *increased* by 44%, as indicated in Figure 15. Moreover, as also indicated in Figure 15, the departure increase has been concentrated at large and medium hubs, where increases have averaged 62% and 56% respectively.

Still another way in which deregulation has intensified congestion is by its discouragement of night-coach service, a type of off-peak operation which in the past reduced the load during daytime hours. Night coach was effective before 1978, because of the pricing inducement it offered to compensate for inconvenient departure/arrival times. However, under deregulation, indiscriminate, deep fare discounting at all hours of the day has reduced any incentive to travel late at night. To illustrate, Figure 18

46. *See* AVIATION INFORMATION SERVICE, LTD, TURBINE AIRLINER FLEET SURVEY (July 1, 1986). This analysis indicated that the average seat capacity of planes operated by U.S. carriers on that date was approximately 161 seats, while the average size of the planes then on order for future delivery was 157 seats.

47. *Compare* AIR TRANSPORT ASSOCIATION, AIRLINE FACTS AND FIGURES (1970) *with* AIR TRANSPORT ASSOCIATION, AIRLINE FACTS AND FIGURES (1978). In 1970 there were 5,120,000 departures. This number had declined to 5,013,000 by 1978.

Figure 16

Summary of Arrivals at Atlanta Airport, by Hour 1978 vs. 1987

	Scheduled Arrivals		
Hour	Dec. 1978	March 1987	Change
5:00 AM	20	9	− 11
6:00 AM	0	7	+ 7
7:00 AM	1	52	+ 51
8:00 AM	33	58	+ 25
9:00 AM	75	73	− 2
10:00 AM	12	54	+ 42
11:00 AM	56	75	+ 19
12:00 N	29	56	+ 27
1:00 PM	35	57	+ 22
2:00 PM	42	66	+ 24
3:00 PM	48	81	+ 33
4:00 PM	39	88	+ 49
5:00 PM	61	60	− 1
6:00 PM	25	70	+ 45
7:00 PM	78	66	− 12
8:00 PM	6	60	+ 54
9:00 PM	43	54	+ 11
10:00 PM	6	68	+ 62
11:00 PM	70	0	− 70
Midnight or later	7	3	− 4
Total	686	1057	+371
Number of hours, with 50 or more arrivals	5	16	

Source: Official Airline Guide.

compares the proportion of night coach flights on specified long haul routes in 1978 versus 1987.

C. *Other Service Problems*

While delays have represented the most serious service problem, there have also been consumer complaints about various other aspects of service. During the first five months of 1987, complaints to the Department of Transportation increased by 81% over the same period of 1986.[48] In May 1987, the Secretary of Transportation wrote to the airlines, calling upon them to "reduce the level of passenger dissatisfaction." Among the areas cited as needing attention were questionable practices involving refunds for canceled flights, compensation for lost baggage, refunds on discounted tickets, and inadequate availability of no-

48. Koepp, *supra* note 42, at 53.

Figure 17

Change in Average Aircraft Size, Before and After Deregulation

Year	Average Seats per Mile Flown
1970	110
1971	118
1972	121
1973	127
1974	132
1975	135
1976	139
1977	143
1978	146
1979	149
1980	153
1981	157
1982	163
1983	166
1984	165
1985	166
1986	163

Change in size from 1970 to 1978: +33%
Change in size from 1978 to 1986: +12%

Source Derived from data of Air Transport Association

smoking seats. The Secretary warned that if improvements were not made, "we will not hesitate to refer a matter to our enforcement officer for action."[49] By the summer of 1987, concerns about airline service had further escalated. A *Newsweek* article commented: "The skies of America are seriously troubled. Close calls are soaring, delays horrendous, maintenance shoddy, customer service bad and getting worse."[50]

It is not suggested that the airlines have been deliberately downgrading the quality of their service out of cavalier disregard for consumer reaction. Rather, this deterioration reflects the economic pressures on the airlines, stemming from the "destructive competition" referred to earlier. Much of airline operating cost is beyond the short-run control of airline management (e.g., fuel prices, landing fees, aircraft acquisition). When faced with inadequate financial margins, the main area in which an airline can seek relief is labor cost. Hence, when financial margins narrow, airlines have little choice but to tighten up on manning standards wherever possible. This necessarily shows up in deterioration of service quality.

49. N.Y. Times, May 21, 1987, at A23, col. 5.
50. Morganthau, *Year of the Near Miss*, NEWSWEEK, July 27, 1987, at 20.

Airline service was an area in transition in 1987. In addition to the increased public reporting of service factors required by the DOT, the carriers themselves have increasingly addressed service problems. Indeed, toward the end of 1987, airline marketing was increasingly focused on service quality claims.

This of course is a welcome development for passengers. At the same time, it must be noted that the increased emphasis on service has an impact on cost. Thus, if service standards are in a state of transition to higher levels, unit cost levels may be expected to shift upward as well.

VII. THE MIXED EFFECT OF DEREGULATION ON EFFICIENCY AND COST

Deregulation clearly brought pressure to reduce labor costs. New entrants had the cost advantage of non-unionized employees, which meant more flexible work rules as well as lower wages. This forced the more established airlines to seek, and their unions to yield, concessions to at least partly equalize labor costs.

The highly visible gains in this factor have created the impression that deregulation has resulted in lower costs generally. However, there have been a number of areas in which deregulation has *increased* cost. Two of the more significant involve different versions of curtailed "economy of scale." One is the loss of "scale" in aircraft size, as deregulation has forced a shift to smaller planes. The other is a loss of scale in station size, as deregulation has forced airlines to extend their systems to a large number of low-activity stations. Each is discussed separately below.

A. EMPHASIS ON SMALLER PLANES

Reference has been made above to the pressure under deregulation for smaller planes. Michael Levine has pointed out that: "[The surviving airlines] have acquired large fleets of smaller narrow-bodied DC-9's and Boeing 737's, sold their large 747's, and substituted narrow-bodied aircraft or smaller Boeing 767's for larger wide-bodied aircraft on many non-hub long haul flights."[51] A principal reason for this shift has been the proliferation of hub-and-spoke scheduling, and the need to maximize spoke routes (and their frequencies) in order to have as many flights as possible feeding into the successive waves of connections. Since this meant a subdivision of traffic volume among more frequencies, smaller planes became necessary in order to obtain adequate load factors.

However, there has been a hidden cost in this shift to smaller planes.

51. Levine, *Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy*, 4 YALE J. ON REG. 407 (1987).

52. Alfred E. Kahn, William A. Patterson Transportation Lecture, Northwestern University, at 13 (April 28, 1982).

Figure 18

Examples of Reduced Late Night Schedules Since Deregulation

	Percent of Nonstops After 9 PM		
Route	1978	1987	Change
New York-Miami:	27%	4%	−23 pts.
New York-Los Angeles:	18	0	−18
New York-San Francisco	21	8	−13
New York-Atlanta	20	3	−17
Average	22%	3%	−19 pts.

Source: Official Airline Guide

For any given "state-of-the-art" level of technology, the operating cost per seat-mile is normally higher for small aircraft than for larger aircraft. As noted by Dr. Kahn, "there are enormous economies associated with the size of plane, up to the limit of the biggest planes available."[52] The shift away from large planes has thus meant foregoing these "enormous economies." This sub-optimization of aircraft size is particularly significant because of the long-term nature of fleet planning decisions. Once acquired, airline fleets have had useful lives of twenty years or more, so that the aircraft decisions made in recent years will affect airline operating cost and efficiency for several decades.

Moreover, fleet planning decisions will affect cost in indirect as well as direct ways. Smaller planes will require more departures to handle any given level of future traffic. This will translate into a need for more airport runway capacity, more gates, more ramp equipment—all of which will end up in the airline cost structure.

B. Impact of Low-Activity Stations

Deregulation has forced airlines to develop routes on a geographically *extensive* rather than *intensive* basis. Each airline has found it competitively necessary to add large numbers of new stations to its system, many of which are served only to and from the carrier's principal hub. As a result, there are many stations with only a few daily departures for any given carrier—a level of activity that does not permit efficient spread of rentals, supervisory costs, or other fixed and overhead station expenses.

Figure 19 shows how the pattern of station activity has changed for TWA between 1977 and 1987. Though that carrier's total domestic departures increased by only 11% in that period, the 1987 departures were spread over more than twice as many stations. In 1977, only 22% of the

cities served by TWA had fewer than five daily departures. By 1987, 44% of its cities were in this low-activity category.

Figure 19

Domestic Cities Served by TWA, Classified by Departure Volume
Summer 1977 and 1987

	Number of Cities		Percent of Cities	
Daily Departures	1977	1987	1977	1987
Fewer than 5	7	33	22%	44%
5-9	5	28	15	38
10-19	6	10	19	13
20 and over	14	4	44	5
Total	32	75	100%	100%

Source: TWA timetables

Note: Nine of the cities with under five departures in 1987 had been added to the TWA system with the acquisiton of Ozark Airlines. If consideration is given only to cities served by TWA in 1986 just before the Ozark additions, there were twenty-five cities with under five daily departures, 38% of TWA's domestic cities at that time.

This development has been a direct result of the "free entry" of deregulation. Carriers found that they could no longer rely on interline connections to provide traffic "feed" from cities they did not themselves serve. The only way a carrier could depend on participating in a specific city-pair's traffic was to have its own on-line access to both the origin and destination (except where it could achieve a similar result via a code-sharing, affiliated commuter). As a result, all major carriers have had to extend their routes, not only to virtually all large cities, but to many secondary and tertiary ones as well.

On the positive side, this has meant that passengers now have a greater prospect of making on-line instead of interline connections, and this indeed has been cited as one of the benefits of deregulation. However, the negative side is the cost involved in this geographically dispersed route structure—the reduced efficiency associated with many low-activity stations.

C. *Other Factors*

Other hidden costs of deregulation include:

- *Hub Congestion.* The Air Transport Association has estimated that delays cost the industry $2 billion in 1986.[53] Because of its contribution to congestion and delays, some part of this cost must be charged against deregulation.

53. Airline Economics Incorporated, AIRLINE Q., Spring 1987, at 54.

- *Lack of Stability in Operations.* Costs are involved in the constant changes in routes, schedules, and pricing which have characterized deregulation.
- *Travel Agent Commissions.* The confusion in fares has increased the proportion of passengers dealing through travel agents, with a consequent increase in commission costs. Between 1978 and 1986, the average commission cost per passenger-mile increased by 2½ times.[54]

D. General Comment

The emphasis herein on the hidden costs of deregulation is not meant to suggest that on balance, there has been an actual net *increase* in the overall cost of airline operations. Rather, the main point is that the widespread impression of sharply *reduced* costs is by no means clearly established. The largest factor contributing to that impression is the reduction of labor cost, and admittedly that is a large component of the airline cost structure. However, as discussed above, there are various other areas where costs have increased. Furthermore, the improvements in labor costs are not necessarily permanent. A recent comment by First Boston Corporation is relevant:

> As new hires being paid "B" scales make up a greater percentage of the work force, they're demanding—and getting—higher rates of pay. With the new entrants dead and the industry more concentrated, it is tougher to convince labor of the need to reduce labor costs. And as labor integration takes place following a merger, labor costs rise.[55]

The point is sometimes made that airline productivity (*e.g.*, as measured by revenue ton miles generated per employee) has improved since 1978, and that this is evidence of increased efficiency triggered by deregulation. However, as with other trends discussed previously, the post-1978 change is not entirely meaningful when viewed by itself (i.e., when it is not related to the industry trends already existing *before* deregulation.) Figure 20 places the recent experience into perspective, by comparing the productivity trend for the eight years after deregulation, with the same period of time before deregulation. The gain in productivity was actually greater in the *earlier* period, thus casting further doubt on the general impression that deregulation has had a net overall benefit for airline efficiency.

Furthermore, by mid-1987 there were signs that costs would start increasing because of a renewed emphasis on service rivalry. For example, Continental (a carrier with a low cost reputation) announced in September 1987 a broad campaign to spend significant sums to improve its service. Among other things, it reduced aircraft utilization by setting aside

54. Airline Economics Incorporated, AIRLINE Q., Summer 1987, at 34.
55. First Boston Corporation, OUTLOOK FOR AIRLINE STOCKS, September 22, 1987, at 2.

Figure 20

Change in Revenue Ton Miles per Employee, Eight Years Before Deregulation vs. Eight Years After Deregulation

Year	Revenue Ton Miles (Millions)	Employees	Ton Miles per Employee
	Before Deregulation		
1970	20,186	297,374	67,881
1971	20,906	292,185	71,551
1972	22,805	301,127	75,732
1973	23,928	311,499	76,816
1974	23,900	307,318	77,770
1975	23,534	289,926	81,172
1976	25,709	303,006	84,847
1977	27,583	308,068	89,535
1978	31,095	329,303	94,427
	Eight-year change (percent)		+39%
	After Deregulation		
1979	34,539	340,696	101,378
1980	33,566	360,517	93,105
1981	33,923	349,864	96,961
1982	34,915	330,495	105,645
1983	38,011	328,648	115,659
1984	41,105	345,079	119,118
1985	43,974	355,113	123,831
1986	48,828	421,686	115,792
	Eight-year change (percent)		+23%

Source: Calculated from data of Air Transport Association

eleven planes and crews at hub airports, with four always ready as spares.[56] In full page ads, it stated: "Service doesn't come cheap. But we're not skimping on its cost. In fact, we're investing over $1.25 billion during 1987 alone as part of our commitment to the air traveler."[57]

Here again, as with labor costs, some of the "austerity" measures taken by airlines when deregulation began were not necessarily permanent changes in the industry cost structure. On the other hand, some of the cost-increasing aspects of the deregulated industry (e.g., the emphasis on small planes in recent fleet programs) are built into industry costs on a much more structural and long-term basis. In short, there is reason to question the degree to which deregulation has had a net favorable impact on airline costs.

56. N.Y. Times, Sept. 23, 1987, at A27.
57. TRAVEL WEEKLY, Oct. 5, 1987, at 31.

VIII. COMMENTS ON CLAIMED BENEFITS OF DEREGULATION

This article has pointed out various ways in which deregulation has failed to perform in the manner promised by its sponsors. Yet it is much more common to hear highly favorable appraisals of deregulation. Most are in the nature of editorial assertions, without specific evidentiary support. However, a study released in 1986 *did* attempt to measure tangibly the effects of deregulation, and concluded that it had benefitted the traveling public to the extent of about $6 billion per year, and had benefitted the industry by a profit improvement of about $2.5 billion per year. This study was prepared by Steven Morrison and Clifford Winston and was published by the Brookings Institution.[58]

This study has been widely quoted. Since these claimed benefits are so at variance with the conclusions of this article, it is relevant to discuss the derivation of those claims. The following sections discuss the main components of the claimed benefits and raise serious doubts concerning their credibility.

A. BENEFITS CLAIMED FOR TRAVELERS

Of the $6 billion in annual savings estimated for the traveling public, about 80% is claimed for business travelers rather than personal/pleasure travelers. The study states, "the benefits from deregulation largely accrue to business travelers because of improved service convenience attributable to the accelerated development of hub-and-spoke operations and to frequency improvements in low-density markets."[59] The study places a dollar value on the reduced time between departures resulting from increased frequency of service. The claimed increase in productive business time is then assigned a monetary value equivalent to about one and a half times the average hourly wage of business travelers. This leads to a calculated total benefit from increased frequency of about $4 billion annually.

The basic premise—that the reduced time between departures translates into increased productive time for the business traveler—has general validity, but needs far more qualification than has apparently been given to it in this study. If a new schedule is added at mid-day on a route which previously had only morning and evening schedules, there would surely be a potential gain in business traveler productivity. But if, on the other hand, a new schedule is added at 3 p.m. on a route which already had a 5 p.m. nonstop, it is not clear that this would translate into a meaningful gain in a business traveler's productive time. (This new departure

58. S. Morrison & C. Winston, THE ECONOMIC EFFECTS OF AIRLINE DEREGULATION (1986) (study published by the Brookings Institution).

59. *Id.* at 33.

option, while reducing the business time available at the origin city, would provide an arrival too late to add meaningfully to the business day at the arrival city.) More generally, for trips outbound from the traveler's place of business, the traveler usually has some ability to plan his office workday around the departure time of available flights, so that the time interval between departures does not end up as a total loss of productive time.

In any case, there is a more serious drawback to the premise of the Brookings study. The very increase in hub-and-spoke frequencies which played so large a part in the study's calculations has been an important contributor to the congestion and delays which by 1987 had become a matter of widespread concern. While reducing the time interval between *published* departure times, the increased hub-and-spoke frequencies have increased the actual *delay* time at the gate, and in runway queues—a form of lost time that is especially costly to business traveler productivity.

In this connection, a 1987 survey of frequent flyers indicated that negative responses on the matter of deregulated service convenience outweighed favorable responses by a ratio of over three to one. The survey covered 15,000 frequent flyers.[60] When asked to rate the effect of deregulation on service convenience, 68% of the respondents indicated that they found deregulated air service "less convenient and enjoyable." Only 19% found deregulated air service to be more convenient and enjoyable. (The remaining 13% indicated they found no difference or had no opinion.) These results are diametrically opposite to the finding of the Brookings study that business travelers have derived a large benefit (worth $4 billion per year) from "improved service convenience."

The remaining component of the claimed benefit for travelers (roughly $2 billion of the $6 billion total) was attributed to savings in fares. This estimate was arrived at by using fares through 1983 as a base for retroactively calculating what fares might have been back in 1977, if deregulation had then been in place. These hypothetical 1977 fares were then compared with the actual fares of that year to arrive at the claimed savings.

This approach treated the fares up to 1983 as representing a sustainable level. It thus failed to consider the widespread impact of "fare wars" which reflected below-cost pricing. Sections IV and V of this article have indicated the extent to which fares through 1983 lagged behind cost increases, and cited recent indications of a catch-up in fare escalation. In other words, the base which the Brookings study used to represent deregulated pricing was abnormally depressed, and therefore the use of that

60. FREQUENT FLYER MAGAZINE, Sept. 1987, at 48.

base over-stated the fare savings that could be counted upon as an ongoing benefit.

B. *Financial Benefits Claimed for the Airline Industry*

The Brookings study claimed that deregulation increased airline profits by at least $2.5 billion per year. This is sharply at variance with the actual financial results of the industry, as summarized above in Figures 10 and 11. In the first eight years of deregulation, the industry had a cumulative after-interest loss of over $6.7 billion, compared with a *profit* of $2.2 billion for the same period just before deregulation. Figure 10 also indicates that the eight years since deregulation have been far worse financially than any other eight-year period in airline history.

The Brookings study concedes that its finding of large financial improvement "might appear somewhat surprising in view of the fact that the industry actually lost money."[61] But it attempts to overcome that surprise by blaming the poor financial performance of the early 1980s on external factors—largely "fuel price increases and a recession."[62] However, these two factors do not provide adequate explanation for the diametrically opposite directions of actual vs. claimed financial effects. Significantly, the two factors of fuel prices and recession had disappeared by the time the Brookings study was published. By 1986, fuel prices had dropped sharply from their 1981 peak[63] and the recession had been over for several years. Yet the industry in 1986 still did not achieve earnings sufficient to cover its interest payments. The after-interest profit margin—which had been 2.7% in 1977—was *negative* 0.7% in 1986.[64]

In its effort to find *external* explanations for the carriers' poor financial results since deregulation, the Brookings study totally ignored the adverse financial impact of the below-cost pricing mentioned above. The CAB in its final report to Congress stated: "The carriers' losses indicate that fares throughout this period did not fully cover costs (including the capital costs of the aircraft.)"[65] As noted in Section IV above, Alfred Kahn has referred to the relationship between "deep, intense price competition" and the fact that carriers have been losing money.

Surely fare wars have been a by-product of deregulation. (Indeed, a primary purpose of the prior regulatory framework was to prevent uneco-

61. S. Morrison & C. Winston, *supra* note 58, at 40.

62. *Id.* at 2.

63. Airline Economics Incorporated, AIRLINE Q., Spring 1987, at 45. The fuel price per gallon for the major national carriers dropped from an average of $1.04 per gallon in 1981 to 55¢ per gallon for 1986. By the fourth quarter of 1986, the price had dropped to 43¢ per gallon.

64. *See* Figure 11, *supra* p. 323.

65. CIVIL AERONAUTICS BOARD, IMPLEMENTATION OF THE PROVISIONS OF THE AIRLINE DEREGULATION ACT OF 1978, at 20 (1984).

nomic pricing.) In opening the door to fare war pricing, deregulation contributed directly to the poor financial results of the carriers since 1978. Yet the Brookings study ignored this, persisted in claiming that deregulation had *improved* industry earnings, and sought to blame actual losses on external factors which were already on their way out of the picture. In short, the study's claims of large benefits to travelers and to the industry are totally lacking in credibility, for the reasons discussed above.

IX. Future Implications of Airline Deregulation

It is impossible at this writing to predict with assurance the eventual financial and public service consequences of deregulation. The industry is moving into totally uncharted territory, as it becomes an oligopoly of five or six major carriers, operating free of regulation.

It is probable that the average level of fares will increase. The CAB's 1975 report on Regulatory Reform warned: "Without the continuous threat of new entry in all markets, market structure becomes quite static. Incumbent carriers quickly discover, as the regulated carriers have, that any price reduction leads to retaliation."[66] More recently, Alfred Kahn commented: "When you have the same six carriers meeting each other in market after market, there is danger of softer competition. It's not in their interest to insult one another excessively."[67]

Indeed, by September 1987, the New York Times referred to "climbing air fares," and stated:

> These actions are raising concerns among Government officials, analysts and other experts that the top eight carriers are beginning to act like a price-setting oligopoly—an outcome opposite from what was envisioned when the airline industry was deregulated in 1978 in an attempt to foster competition and cheaper fares."[68]

Whatever the future level of average fares, there is in any event the continued prospect for wide disparities in pricing between individual routes. Long haul fares will probably continue to reflect the pressure of competition, since those routes have multiple-carrier service via the various hub routings. However, if downward pricing pressure continues to push fares in those markets below full costs, then some subsidization by abnormally high fares in the less competitive local routes will remain necessary.

One possible pricing development with seriously adverse consequences would be "discount wars" seeking the preferred patronage of large corporations. The Government is already applying the bargaining

66. CAB Staff Report, *supra* note 8, at 126-27.
67. Business Week, Dec. 22, 1986, at 52.
68. N.Y. Times, Sept. 9, 1987, at A1.

"muscle" of its large travel budget, by giving preferential contracts to whichever carrier grants the most generous discount on specified routes. If a similar practice becomes widespread for the patronage of large corporations, it will open up a new dimension of price war, conducted on a wholesale, rather than retail, level. Since corporate and government travel is not significantly price-elastic, any discounting for this market is basically a source of yield erosion which will have to be compensated for by charging individuals (and smaller businesses) more than their fair share of the industry's cost.

The pressure for over-capacity will probably persist, despite the more concentrated industry. Even with a handful of carriers, there will remain the marginal-cost temptation to gain market share by increasing flight frequencies. Over-capacity pressure may, therefore, keep industry earnings below a fully adequate level. Alternatively, excess capacity may lead to overall fare levels higher than otherwise necessary, as the carriers pass along the cost of surplus capacity through fare increases.

One thing can be said with certainty: the nature of the deregulated industry is radically different from that forecast by the deregulators. It is *not* the market of open, continual free entry by new entrepreneurs which was predicted. The public does *not* have the safeguard of "contestability" to replace the safeguards it had under regulation. Even some of the principal sponsors of deregulation have by now conceded that the concept of contestability in this particular industry was flawed.[69]

It is possible that air service and its pricing may become satisfactory for the public as a whole. However, there cannot be any assurance that this will be the case, and there is no longer a governmental structure to rectify inadequacies or inequities that may negatively impact the traveling public. Some individual communities will remain particularly at risk of deteriorating service and/or inequitable pricing.

During 1987, the word "re-regulation" was beginning to appear. As noted at the beginning of this article, there is no realistic outlook for rebuilding the framework of regulation that was dismantled in 1978. However, there are certain forms of more limited regulation which are feasible and which could serve the public interest.

In the area of pricing, for example, there could be re-established a proscription against preferential pricing—and this could help guard against corporate-travel discount wars, which would erode yields and force a disproportionate pricing burden onto the individual traveler.

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69. *See, e.g.*, Levine, *supra* note 51, at 480; *see also* N.Y. Times,, *supra* note 68, at A1 ("The large airlines have come to control pricing in major markets in a way that few foresaw when the industry was deregulated, said Elizabeth E. Bailey, dean of Carnegie-Mellon University's Graduate School of Industrial Administration and a former vice chairman of the Civil Aeronautics Board.").

In the area of scheduling, authorization could be renewed for airlines to rationalize capacity levels through joint, interline agreements—subject to DOT approval, after public negotiations. This could help reduce the waste of excess capacity, ease airport/airway congestion and delays, conserve fuel, and improve the long term economics of the carriers.

The matter of price disparity between different city-pair markets would be more difficult to deal with. It may nevertheless have to be addressed, through some form of legislation that would restore the principle that the public as a whole should get the benefit of favorable pricing and not merely the public in selected markets.

It will not be easy to find the middle ground which will overcome the more serious problem areas of deregulation, while leaving ample latitude for the exercise of management initiative and creativity. This makes it all the more important that the results of the past eight years be studied fully and objectively, in order to understand better the dynamics that actually govern the air transport marketplace, and to recognize the extent to which those dynamics diverge from deregulation theories.