

AIRLINE DEREGULATION

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Preface

Prior to 1978 when Congress acted to deregulate domestic air passenger service, and 1979 when it eased regulation of international service, a widespread coalition of forces was working for change. These forces were sufficient to overcome the opposition of most airlines, labor unions and lenders.

The Airline Deregulation Act of 1978 (Pub. L. 95-504) was the result of a legislative package that contained widely supported measures together with more controversial actions. In the Act Congress created a schedule for phasing out CAB regulation of entry, rates, and mergers, for ending CAB local service subsidies, and for ending the CAB itself. Included in the package, however, were such sweeteners as labor protection and a new 10-year subsidy program for maintaining essential air service to certain communities faced with total loss of air service. Then, a year later, Congress passed the International Air Transportation Competition Act (P.L. 96-192) relative to U.S. Government control over international services.

Even though some 6 years have passed since airline deregulation, U.S. airlines still remain in transition from a highly regulated economic environment to one that is much less regulated. Deregulation has had the effect of spurring competition and providing more price-service options. Passenger fares have been reduced for some routes, but dramatically increased for others. There has been reduction in labor costs and continuing movement toward greater efficiency. In less visible ways, however, deregulation also has led to cost inefficiencies in some areas of airline operation. The airline industry has not reached an equilibrium point, and there remains much uncertainty and misunderstanding over the deregulatory impacts being experienced. This is true of U.S. international, as well as domestic, air transportation.

It is the Eno Foundation's intent that this book will remove some of the misconceptions surrounding airline deregulation. Despite the objective data and reasoning presented herein, deregulation is likely to remain controversial. Yet, it is hoped that the care taken by the authors in this monograph's development, and the extensive data base and analyses prepared on the impacts of airline deregulation, will facilitate a better understanding of what may still be in store, and what will ultimately become a state of equilibrium in the industry.

ROBERT S. HOLMES
President
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Acknowledgements

We wish, first, to thank the Eno Foundation for the opportunity to publish this study of air transportation in the era of deregulation.

Our manuscript was completed in late 1984, and we have attempted to use all relevant information available by that time. The air transport industry is so volatile and dynamic that, even by the date of publication, some of the detailed statistics and observations may have become out-of-date. However, we believe that this analysis presents a fair and reasonably full overview of major developments in the six years following the 1978 deregulation of domestic air service and the increased competition in the international arena.

We have concentrated on passenger air transportation. Developments in air cargo service would require a separate project, since there are many specialized aspects to that phase of air transportation, including major new enterprises and patterns of service.

Finally, we wish to thank the many people—too many to name—for all the help and time that they gave us. The final product is ours, with one exception, and although each of us took primary responsibility for preparing different portions, we each subscribe fully to the total study. That one exception is the chapter on air safety, which was prepared in its entirety by Jerome F. Lederer, the most honored expert on air safety in the United States.

The Authors

SUMMARY OF CONCLUSIONS

In 1978 Congress passed the Airline Deregulation Act ending, for domestic services, 40 years of air transportation regulation. At the same time, bilateral air transport agreements were entered into with a number of foreign governments, increasing competition in international air transportation. Congress largely endorsed this policy in the International Air Transportation Competition Act of 1979. The results to date in each area— domestic and international—require separate consideration.

After 6 years of deregulation, it still is not possible to render a final verdict on whether, on net balance, deregulation is producing a domestic air transport system better or worse than what previously existed. Similarly, the consequences of increased competition in international air transportation are by no means completely clear. It is, however, possible to point out a series of specific favorable and unfavorable developments.

This analysis finds that some of the more widely held impressions of what has been happening are ill-founded or, at the very least, only incomplete in their interpretation. (For example, the general impression that deregulation has meant lower domestic fares is only partially true—it is true on some routes, but on other routes fares have increased sharply.)

The main objective of reviewing what has happened thus far, is to achieve a better understanding of what may still be in store, and what the implications of deregulation may be for future private and public policy toward aviation. Throughout this analysis, an effort has been made to couple the factual

record with consideration of underlying trends and implications.

Principal conclusions are summarized below.

1. Deregulation has changed the air industry's structure far more drastically than was expected by most observers during the debate on deregulation. There are very few routes that have *not* experienced radical change in either the specific airlines providing service, or in the nature of the service.

2. Though the pace of change had slowed down somewhat by 1984, there still remains substantial fluidity in the industry's structure and operations. In broadest terms, the results of deregulation have been most favorable with respect to its impact on schedule convenience for the traveler. Its results have been much more mixed with respect to the impact on fare levels, with enormous disparities developing between different markets. And deregulation, overall, has had its most unfavorable impact on the financial results and outlook for the carriers that provide this vital service.

3. In terms of schedule convenience, more pas-

sengers are receiving better service under deregulation than those who are experiencing lowered service levels. Routes with the highest traffic density have generally experienced improved schedule frequency. The main routes where there has been loss of through-plane service are those where traffic was thin, and where the through-plane service that existed in the past was somewhat "token" in nature. In most such cases, the loss of one or two through-plane trips per day has been more than offset by the increased number and variety of connections available through greatly increased use of "hub-and-spoke" scheduling.

4. The main area of service deterioration has been for the very small communities and, to some degree, the medium-size communities. Some communities not only have been affected by outright service reduction, but also by service instability from year to year—a situation that can adversely affect long-term planning and the attraction of industry to individual communities. The expansion of commuter services has partially counteracted these trends, but has not been able to do so completely. Some service retention in the smallest communities is still tied to a subsidy program that, by law, is due to expire in 1988—and which has recently been proposed for termination in 1985. Considerable uncertainty remains as to what will happen to air service in these communities when the subsidy terminates.

5. The future outlook for service, especially for small communities, is also uncertain because of the airport/airway congestion and delay problem. This problem has been exacerbated by scheduling practices flowing from deregulation (including increased emphasis on hub-and-spoke scheduling). At this writing, no clear solution to the problem has been developed. With the present absence of any "public utility" obligation to maintain service, the constraints imposed by tight airway capacity are likely to have their greatest adverse impact on service for small communities, thin traffic markets, and short-haul routes.

6. In pricing, deregulation has resulted in wide disparity between markets. The more visible and publicized price wars on some routes have been offset by other routes, where prices have doubled or more than doubled in the past six years. Even in the

same basic market, there have been great disparities between the prices available at one airport within a metropolitan area vis-à-vis other airports. Moreover, there have been sharp swings in fares from season to season and year to year. The disparities in fares are primarily related to differences in competition and cannot be fully explained by differences in cost.

7. The overall average fare paid by domestic air travelers, on all routes combined, increased by about 50 percent during the first six years of deregulation. For most of this period, the rise in fares was less than what would have been warranted by cost increases incurred by the industry. While this lag of fare increase relative to operating cost increase served to keep ticket prices lower than they otherwise would have been, such below-cost pricing could not be regarded as a lasting "benefit" for the consumer, since it also produced enormous losses for the industry and could not be viably sustained. Significantly, between mid-1983 and mid-1984, fares started catching up with increased costs.

8. Generally, the U.S. airline industry was very unprofitable during the first five years of deregulation (including international, as well as domestic operations). Even though a few airlines did reasonably well, the great bulk of the industry's operations lost substantial amounts of money during that period. While this was partially due to external factors (such as the 1979 jump in fuel prices), the difficulties were exacerbated by factors associated with deregulation (including recurrent fare wars). From 1979 through 1983, the aggregate industry deficit (including interest payments and operating losses) was \$6.6 billion. Two major airlines, and many smaller ones, went bankrupt.

9. Improved domestic yields, starting in mid-1983, generated a dramatic financial turnaround for most carriers. For calendar 1984, operating profit (including international services) exceeded \$2 billion. By Summer 1984, however, a new round of fare cutting had started, raising a question as to the stability of the resumed profitability. It also has raised a more fundamental question of whether this industry can, over an extended period, maintain economic pricing in a free market.

In addition to public fare wars, the industry remains vulnerable to substantial hidden yield erosion,

in the form of discounts and rebates to large corporate travel accounts.

10. The airlines continue to show a tendency for over-capacity. Schedule rivalry continues to be a major form of competition, contrary to the predictions that the pricing freedom of deregulation would displace such rivalry, and hence reduce the past tendencies toward excess capacity. If anything, the competitive pressures in the free entry environment are likely to exacerbate the industry's chronic tendency to fly more schedules than are economically healthy.

11. While deregulation has made it possible for many new carriers to enter this industry, there has also been a high mortality rate for new entrants. Moreover, after some initial problems of adjusting to the new environment, the largest carriers have recently been displaying a more powerful market presence, and there is an increasing prospect that the airlines may eventually shakedown to a concentrated industry of a comparatively small number of large, strong survivors—supplemented by smaller “specialist” carriers.

12. For the future, the consumer's perception of deregulation will depend on how well it produces air transportation at a basic cost and efficiency level more favorable than that of the past. This cannot yet be judged categorically. Unquestionably, the deregulation environment has lowered labor costs and generally intensified pressure on management to operate at maximum efficiency. Yet there are various aspects of operations for which deregulation has unavoidably reduced efficiency. This includes fleet planning trends where post-deregulation market fragmentation has led to smaller planes, foregoing the seat-mile cost efficiency of large aircraft.

13. The intensified competition resulting from deregulation has accelerated changes in airline marketing strategies and techniques, particularly aimed at the higher-paying business traveler. Mileage bonus plans have proliferated, and have become a means of “buying” the brand loyalty of frequent flyers, by providing future free trips as the reward for accumulating trip mileage on one specific airline. This has been an especially valuable marketing tool for the larger carriers, whose extensive route structures enable them to offer the most attractive and varied desti-

nations for the eventual cashing-in of mileage bonus points. This has become one of the elements giving the larger carriers a special marketing “clout” in the deregulated environment.

14. The marketing power of travel agents has become greater under deregulation—partly because of the greater complexity of fare and schedule options, and the increased reliance on agents to find the most favorable choices for a given itinerary. In 1983, U.S. travel agents accounted for 74 percent of all domestic and international air travel sales made in the United States, as against 57 percent in 1978. In dollar volume their sales increased from \$10.8 billion to \$24.5 billion. The number of agency locations also increased substantially. In an effort to open up more channels for the marketing distribution of airline sales, the CAB eliminated the anti-trust exemption for the previous agreements defining airline/agent relations in 1984. It is not yet clear to what extent this action will fundamentally change the role of the travel agent. Thus far, all major airlines have indicated their intention to continue placing primary emphasis on the traditional agency network.

15. Airline efforts to capture business controlled by travel agents have taken many forms. One has been competition in the level of commission rates paid to agents—leading to an escalation of the reported average rate from 8.3 percent of the ticket price in 1978 to 9.9 percent in 1983, with additional unreported increases through overrides and other forms of compensation. Another (and highly controversial) effort was to “bias” the displays of schedules and fares of specific airlines, in the computerized reservation systems which have become an essential tool in the selling of airline service. Following an investigation, in 1984 the CAB issued rules designed to limit the most serious of the display abuses—but the subject remains one of considerable controversy.

16. The most volatile segment of the airline industry during this period has been in commuter (or regional) operations. Starting from a low base of traffic volume, this segment has registered the highest percentage growth. It has been going through a major equipment transition, moving from planes limited to 30-seat size a few years ago, to new, larger turbo-props, and in a few cases to jets of 80–100 seats. In this segment there have been a large num-

ber of new entrants, but also a large number of bankruptcies. Increasingly, commuter airlines have entered into affiliation arrangements wherein they become in effect feeder lines for individual large jet carriers, in exchange for various forms of sales, reservations, and facilities assistance provided by those larger carriers. This trend has raised concern as to whether commuter carriers will be able to remain truly independent in the face of the marketing advantages gained by those carriers entering into these affiliation arrangements.

17. Domestic deregulation has produced uncertainties that were not fully anticipated prior to deregulation. The air industry (and most other transportation modes) had originally been made subject to regulation in the belief that an unregulated environment would lead to “destructive” competition in the free marketplace. The behavioral pattern of the industry since 1978—particularly as evidenced by pressures for over-capacity and for fare wars—leaves open the very real possibility that this industry is indeed vulnerable in the long run to destructive competition.

A major reason is the tendency for airline competition to place heavy reliance on marginal-cost decisions with respect to both capacity additions and pricing.

18. In international air transportation, the “Open Skies” regime sought by the architects of domestic deregulation has been only partially realized, because of the resistance of most foreign governments. While a few countries saw advantages for their (usually single) national airlines in the concessions they could obtain by accepting more “liberal” bilateral agreements with the United States, most countries were unwilling to eliminate regulatory controls. On many routes, competition was increased by the authorization of new carriers; (e.g., between the United States and the United Kingdom), but most often this has been accomplished within a framework which still retained governmental veto over entry, fares, and even the levels of capacity operated.

Unlike its principal aviation trading partners, the U.S. government initially subordinated the maintenance of a strong U.S.-Flag air transport system to the consumer benefits that it perceived in increased competition. In so acting, however, it failed to recog-

nize that U.S. airlines face serious unfair competitive practices, discrimination and biases toward their operations abroad. More recently, partly as a result of Congressional pressure, the trend in bilateral air transport negotiations has been to seek more balanced exchanges of economic opportunities for the airlines.

19. The changes that can be attributed specifically to the “Open Skies” efforts have been relatively limited. Traffic volumes appear to have reacted more strongly to various external factors, than to changes in international air competition per se. Necessarily approached on a bilateral basis, the degree of “Open Sky” liberalization has varied between different countries and regions. There is no evidence of correlation between the degree of liberalization, and the amount of traffic growth.

20. Thus, the transatlantic market, by far the most competitive before and since 1978, was virtually stagnant in traffic level from 1979 to 1983. It then surged in 1984, but mainly because of improved economic conditions and increased American tourism resulting from the extraordinary strength of the dollar. In contrast, the U.S.-South America market (the least competitive of the long-haul markets) experienced very rapid growth—until the 1982–83 economic collapse in South America.

21. The sources of U.S. international travel, i.e., whether originating in the United States or abroad, have seemed almost entirely a function of relative currency values. As the dollar soared in 1983/1984, the long-term trend towards increasing alien participation was sharply reversed.

22. The U.S. airline market share—about 50 percent on a worldwide basis—has been relatively stable at 40 to 45 percent in the long-distance transatlantic, transpacific and South America markets. There has been some deterioration of the U.S.-Flag share in the U.S.-Far East market, as a result of increased foreign airline service.

23. One consequence of recent increases in foreign travel by U.S. citizens has been a serious balance-of-payments deficit in the transportation account. This reached \$3 billion in 1983, trending still higher for 1984.

24. The financial results of the U.S.-Flag international services have varied widely as between the various geographic regions. The Atlantic paralleled

most closely the domestic financial results—with heavy losses in the years immediately following 1978. However, the recovery started earlier for the U.S. Atlantic carriers than for domestic operations, and continued strongly in 1984 because of the traffic surge to Europe induced by the exchange rate of the dollar.

25. From a longer-term standpoint, U.S. international operations have not enjoyed a sustained success for any significant period of time. Over the 14-year period from 1972 through 1983, operating profit was almost \$200 million short of interest expense in trans-atlantic operations—and almost \$150 million short in South America. Only in the Pacific did operating profit exceed interest expense (by some \$105 million).

26. These poor financial results, and differences in the degree to which the U.S. and foreign governments support their airlines, have impaired the ability of the U.S. airlines to re-equip. By the end of 1983, there were 38 long-range four-engine intercontinental aircraft on order, of which only 4 had been ordered by a U.S. airline. Foreign airlines generally receive significant financial assistance from their governments, and are even assisted by U.S. Export-Import Bank loans not available to U.S. airlines. The greater aging of the U.S.-Flag fleets will weaken the future competitiveness of U.S. airlines.

27. In terms of service, there has been a substantial increase in the number of U.S. city “gateways” for nonstop international flights. Also, the spread of “hub-and-spoke” operations by U.S. carriers, made possible by domestic deregulation, greatly increased the number of U.S. cities with single-airline international service.

28. International fare levels generally have remained relatively low, but have become much more complicated. Fares have lagged behind the sharp

cost increases that began with the escalation of fuel prices in 1979. Fare undercutting and discounting are becoming more prevalent. These trends suggest future problems for the privately-owned U.S. airline system in competition with foreign government-owned and supported airlines.

29. International air transportation problems were reviewed in Congressional committee hearings held in 1981 and 1982, and reported on in mid-1983. The Committee was critical of prior policies that “negotiated hard rights for soft rights . . . in the interest of lower fares and new entrants.” It noted as a serious deficiency the “failure to respond forcefully to foreign discriminatory and unfair competitive practices.” And it expressed concern about the unequal competitive struggle in which the U.S. airlines are engaged, and urged that U.S. international policy make clear that there must be

. . . a fair and equitable market environment for international air travel that provides for profitability for our flag carriers, reasonable rates and quality service for our consumers, and a consistent and firm position to present to foreign governments and their carriers.

30. Following the Congressional report, the Administration put more effort into enforcing compliance with bilateral agreements than into expanding them. It is still too early, however, to tell whether these congressional policy objectives will, in fact, be attained on a long-term, consistent basis.

31. Of overriding importance for both domestic and international air transportation is the question of safety. There were initially grave concerns that cost and competitive pressures flowing from deregulation would compromise safety. This fear has not materialized. In fact, the airline safety record has improved.

Chapter 1

Introduction and Background

This chapter summarizes the economic regulatory scheme that, from 1938 to 1978, governed the development of U.S. commercial air transportation. The vast strides in quality, quantity, and efficiency of service over this period are overviewed, along with the industry's accompanying growth. The discussion then turns to the drive for deregulation, concluding with the Deregulation Acts of 1978 and 1979.

From time immemorial, man has dreamed of flying. Greek mythology tells the story of Daedalus who, to escape prison in Crete, made wings for himself and his son Icarus. Daedalus flew safely to Sicily, but Icarus was lost at sea when his wings melted from rising too close to the sun.

Many centuries passed before man finally did fly. It was only 200 years ago that the Montgolfier brothers invented the first practical balloon; and the first manned flight took place on the western outskirts of Paris on November 21, 1783.¹ The first air voyage in the United States took place almost 10 years later.² Another 110 years were to pass before the first flight in a power-drive machine. On December 18, 1903, at Kitty Hawk in North Carolina, Orville Wright was airborne for 12 seconds, and later that day his brother Wilbur was aloft for 59 seconds, for a distance of 852 feet.

During the 80 years that followed, the airplane and

air transportation have become routine and commonplace. While a few of us occasionally marvel at the technological advances, they are mostly taken for granted. Convenience, comfort, and cost have become our modern-day concerns.

Along the way, as has happened with other modes of public transportation, governments stepped in to regulate and control. The U.S. government experimented with a variety of approaches from 1918, when airmail service was inaugurated by Army pilots, to 1938, when the Civil Aeronautics Act became law. For the next 40 years the public utility type provisions and policies of that law, as administered by the Civil Aeronautics Board (with occasional intervention by the President of the United States in decisions affecting international air transportation) shaped the development of air transportation service and the air transport industry.

During those 40 years a veritable explosion of growth and service improvement ensued. But gradually, more and more academic economists began to question whether the public would be better served by a more competitive regime, and in 1976–77 the CAB itself began to ease its tight controls on entry

1. It was witnessed by Benjamin Franklin who, when asked what use it was, made the famous reply "What use is a newborn baby?"

2. The flight was made by Jean Pierre Blanchard (a Frenchman) from Philadelphia, Pennsylvania to Woodbury, New Jersey, on January 9, 1793. The balloon lifted up in the presence of President Washington.

and pricing. In the wake of a rapid build-up of Administration and Congressional fervor, the Airline Deregulation Act was passed in October 1978.

The underlying philosophy of the Deregulation Act was that "free-market forces" would better assure adequate and efficient air transport service for this now mature industry. Under the Act, on a phased basis, the various regulatory controls have been relaxed and eliminated; and the CAB itself was disbanded at the end of 1984. In terms of government economic intervention (as distinguished from government concern over safety), the domestic airline industry is now no more regulated than are shoe stores or computer manufacturers.

In the case of international air service, however, the United States shares authority with other governments, because (unlike international shipping rules) each sovereign has sole and complete jurisdiction over its own territory.³ Thus, no airline may board or deplane traffic at any airport without the sovereign's consent, and it must comply with the terms and conditions established by or agreed with that sovereign. As a result, a vast network of intergovernmental agreements, mostly bilateral, underlays all international service, and Congress understood that it could not effectively deregulate unilaterally. Further, Congress recognized that the "free" and "open" market that, assumedly, exists within the United States, assuredly does not exist outside. Foreign governments typically own and assist, or at least protect, their flag airlines, and often regulate and restrict the commercial opportunities of non-national competitors. As a result, the 1978 Deregulation Act dealt only peripherally with international air transportation. In early 1980, however, Congress passed the International Air Transportation Competition Act of 1979, which emphasized its desire for a more competitive international regime.

Even before Congress acted, there was a procompetitive drive that reached into the international arena. Although there were earlier spasmodic efforts, it was not until 1977 that the U.S. government initi-

ated a major campaign to induce other governments to ease their restrictive attitudes by offering them in exchange increased access to the huge U.S. marketplace. Despite widespread skepticism about U.S. aviation policy, a number of governments—primarily those that felt their national airlines had more to gain than to lose—moved partway towards the U.S. objective of "Open Skies."

The Deregulation Act of 1978, which dealt primarily with domestic air transportation, recognized the need for a period of adjustment to the new policies, and provided for gradual elimination of regulatory controls, with "sunset" of the CAB set six years in the future. Shortly after the Act's passage, however, studies on the "success" and "failure" of deregulation began to appear, with the less biased among them understandably concluding that it was too soon to tell—particularly in the light of such "external" factors as the intervening recession; the temporary grounding of the DC-10's; the air controllers' strike; and massive fuel cost increases in 1979. But now, some 6 years have passed; the CAB closed shop on December 31, 1984; and any distorting impact of the "external" factors has greatly moderated. It is certainly timely to assess the consequences of domestic deregulation and increased international competition.

This analysis reviews developments and trends of major importance to the public and airlines, as well as to the broader national interest. More specifically, it examines the following:

1. Changes in industry structure, including changes in the geographic scope of individual airlines and the entry of new carriers (and the demise of many of them);
2. Developments in airline cost and efficiency, including cost levels of both new and established airlines, with particular emphasis on labor cost and productivity, and on service rivalry costs;
3. Domestic pricing under deregulation, including a review of new and changing tactics and the repeated outbreaks of fare wars;
4. Airline financial results under deregulation, factors affecting such results and variations by carrier;
5. Marketing strategies in the new environment, particularly the increased role of the travel agent and

3. Article 1 of the 1944 Chicago Convention (ratified by some 150 nations) provides: "The contracting states recognize that every State has complete and exclusive sovereignty over the airspace above its territory."

the controversy relating to airline computer reservations systems;

6. Changes in airline scheduling, including increased "hub and spoke" operations and changed scheduling strategies;

7. Changes in frequency and convenience of domestic service, both qualitative and quantitative;

8. Consequences of the U.S. procompetitive policy in international air transportation, including impact on market growth and market shares, profitability, pricing, and related matters; and

9. The effect, if any, of deregulation on airline safety.

To better understand the implications of developments and trends evolving from the deregulated environment it is necessary to have a clear picture of what preceded. The following discussion summarizes the 40-year experience with the regulated system that has been discarded, and the principal developments during those four decades.

THE 40-YEAR REGULATORY SCHEME

After earlier floundering, a stable policy of air regulation began with economic regulatory provisions of the Civil Aeronautics Act of 1938. Four decades of experience under the Act set the stage for the current era of deregulation.

***The Civil Aeronautics Act of 1938*⁴**

Although this comprehensive statute was occasionally amended prior to deregulation (most importantly by the Federal Aviation Act of 1958,⁵ its basic economic regulatory scheme continued unchanged until 1978. At the heart of the Act was the Congressional Declaration of Policy:

Sec. 2. In the exercise and performance of its powers and duties under this Act, the Authority⁶ shall consider the following, among other things, as being

in the public interest, and in accordance with the public convenience and necessity—

(a) The encouragement and development of an air-transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the Postal Service, and of the national defense;

(b) The regulation of air transportation in such manner as to recognize and preserve the inherent advantages of, assure the highest degree of safety in, and foster sound economic conditions in, such transportation, and to improve the relations between, and coordinate transportation by, air carriers;

(c) The promotion of adequate, economical and efficient service by air carriers at reasonable charges, without unjust discriminations, undue preferences or advantages, or unfair or destructive competitive practices;

(d) Competition to the extent necessary to assure the sound development of an air-transportation system properly adapted to the needs of the foreign and domestic commerce of the United States, of the Postal Service, and of the national defense;

(e) The regulation of air commerce in such manner as to best promote its development and safety; and

(f) The encouragement and development of civil aeronautics.

The CAB itself consisted of five members (with no more than three from the same political party), appointed for 6-year terms by the President, by and with the advice and consent of the Senate. Each year, the President designated a Chairman and Vice Chairman from among the members. The broad language of the Declaration of Policy, with its somewhat conflicting objectives, left the CAB with considerable discretion in its administration of the Act. CAB's decisions were final, subject to court review, but even here the Act provided that the "findings of fact by the CAB, if supported by substantial evidence, shall be conclusive." This was a significant obstacle to efforts to overturn CAB decisions, particularly since the "findings" in most route and rate proceedings (which were at the heart of the regulatory scheme) were predictive or judgmental in character.

Whatever the complexities encountered in practice, the licensing system was simple in concept. No one could engage in the business of public air transportation unless authorized to do so by a "certificate

4. 52 Stat. 973. The name was subsequently changed to the Federal Aviation Act.

5. 72 Stat. 731.

6. By Reorganization Plan No. 4, effective June 30, 1940, the name of the Civil Aeronautics "Authority" was changed to the Civil Aeronautics "Board."

of public convenience and necessity" issued by CAB.⁷

To obtain such certificates, applicants were required to convince CAB that they were "fit, willing, and able" to perform the proposed transportation "properly," and that "such transportation is required by the public convenience and necessity."⁸ This, of course, led right back to the extremely general Congressional objectives set forth in the Declaration of Policy.

The CAB also had broad authority to attach to any certificate "such reasonable terms, conditions, and limitations as the public interest may require," and it exercised such authority. Certificates were often very detailed. They specified intermediate and junction points, and in some cases required or prohibited stops or through services. Often the carriage of traffic between certain pairs of cities named in a certificate, or even the carriage of certain categories of traffic, was prohibited.⁹ An important aspect of the regulatory system was that airlines could not lawfully suspend or abandon services without CAB approval.¹⁰

Regulation of international routes differed from domestic routes. Most importantly, CAB decisions with respect to international route applications of both U.S. and foreign airlines were subject to "the approval of the President."¹² The Supreme Court eventually held the President's decision to be unreviewable. Also, foreign air carrier applications were generally bottomed on pre-existing intergovernmental air transport agreements that granted route rights to the airline designated by the foreign govern-

ment.¹³ This alone was almost invariably considered sufficient to meet the statutory standard applicable to the grant of foreign airline route applications (that the proposed transportation "will be in the public interest.")

Passenger fares and cargo rates were also subject to strict regulation. Carriers were required to file formal tariffs, establishing prices charged and applicable terms and conditions. These tariffs had to be filed in advance of effectiveness and could be "rejected" (for technical reasons) or "suspended" (for perceived substantive problems). Fares and rates were to be "just and reasonable," and discrimination (with its panoply of related legal terms such as "undue or unreasonable preference or advantage," "unjust discrimination," and "undue or unreasonable prejudice or disadvantage") was prohibited. Once a given tariff became effective, it had to be observed: all forms of rebating were prohibited.

Standards for evaluating the reasonableness of fares and rates were as general as those for awarding routes. Thus, among other factors, the CAB was to consider:

The need in the public interest of adequate and efficient transportation of persons and property by air carriers at the lowest cost consistent with the furnishing of such service; and

The need of each air carrier for revenue sufficient to enable such air carrier, under honest, economical, and efficient management, to provide adequate and efficient air carrier service.

In practice, the CAB applied public utility "rate of return on investment" principles in its rate reviews and rate making, and all carriers generally were required to charge like amounts for like services.

As with its authority over international routes, the CAB had to share international rate authority with foreign governments. The obvious complexities were greatly ameliorated, in practice, by broad worldwide acceptance of the International Air Transport Association (IATA) as a forum for meetings and rate agreements among international airlines, subject to approval by interested governments.

7. The CAB had limited authority to grant U.S. (but not foreign) airlines "exemptions" from the certificate requirement, and from certain other requirements of the Act.

8. The Act did contain a "grandfather" provision to assure the award of certificates to existing air carrier for operations they were performing.

9. For example persons, property and/or mail.

10. However, the CAB did not have authority to restrict the right of airlines to change schedules or equipment.

11. The Act defined three geographic areas of transportation: interstate, overseas, and foreign. Interstate is generally referred to as "domestic." Overseas refers to transportation between any U.S. point and a U.S. territory (like Puerto Rico or Guam), as well as transportation within a territory. Foreign transportation is between any U.S. point (including U.S. territories) and any foreign point. The discussion of domestic air transportation is also generally applicable to overseas, the principal difference being that presidential authority related to overseas as well as foreign air transportation, but not to domestic.

12. Foreign airlines were not permitted to engage in domestic air transportation (carriage of traffic boarding in one U.S. city and deplaning in another).

13. Technically, foreign air carriers applied for and received "permits" rather than "certificates."

The CAB also established rates to be paid airlines by the Post Office Department for the carriage of U.S. mail, both domestic and international, and this was the mechanism for providing the subsidy that all air carriers initially required.¹⁴ Thus, while the mail rates were to be "fair and reasonable," one of the factors to be considered was:

... the need of each . . . carrier for compensation for the transportation of mail sufficient to insure the performance of such service, and, together with all other revenue of the air carrier, to enable such air carrier under honest, economical, and efficient management, to maintain and continue the development of air transportation to the extent and to the character and quality required for the commerce of the United States, the Postal Service, and the national defense.

As in its commercial rate making, the CAB based subsidy allowances on "rate of return on investment" analyses.

While route and rate regulation had the most direct and visible impact on public service, the CAB also exercised a broad range of other economic controls over the air transportation industry. Thus, it could (and did) prescribe in detail the accounts and records to be maintained by air carriers, and the reports to be submitted. Agreements between air carriers had to be filed with the CAB, whose approval was required for certain specified interlocking relationships, and for air transport related mergers, consolidations and acquisitions of control. At the same time, however, CAB approval of such agreements granted immunity from the general antitrust laws. The CAB also was authorized to investigate and terminate "unfair or deceptive practices or unfair methods of competition in air transportation."

One further provision of the Civil Aeronautics Act warrants mention in light of deregulation legislation and post deregulation developments. It relates to labor relations between the airlines and their em-

ployees. In recognition of the "public interest" characteristics of air transportation, air carriers were required to comply with the Railway Labor Act that prescribed an elaborate system for resolving disputes.

Principal Developments Prior to Deregulation

The period from 1938 to 1978 witnessed truly phenomenal growth in both domestic and international air transportation.¹⁵

Air service mushroomed. Over the years, U.S. airlines received many new route authorizations, domestic and international. Table 1 shows the number of certificated domestic route miles of the leading carriers and their growth during 40 years of regulation. The number of U.S. city pairs connected by convenient airline service grew in step with expanded route miles.

Internationally, limited service was provided in 1938 by a handful of scheduled U.S. airlines (principally Pan American Airways and its related companies) and a half dozen or so significant foreign-flag airlines. By 1978 these numbers had increased to 21 U.S.- and 73 foreign-flag airlines.¹⁶

Air passenger traffic grew at an astonishing rate. The number of passengers (domestic and international) carried by U.S. airlines increased from a little over one million in 1938 to almost 267 million in 1978. In addition, in 1978, foreign airlines carried some 16 million passengers to or from the United States.

With increases in average length of journey, there was an even greater growth in U.S. airline revenue

TABLE 1—GROWTH OF CERTIFICATED DOMESTIC ROUTE MILES

	1938	1978
American	6,826	43,755
Delta	1,091	50,380
Eastern	5,276	43,576
Northwest	2,507	30,927
TWA	5,749	29,127
United	5,321	48,709

14. The responsibility for actual payment of the subsidy (in practical effect, the task of getting the Congressional appropriation) was transferred from the Post Office to the CAB in 1953. Reorganization Plan No. 10 of 1953.

15. Most of the following data are taken from the CAB Report to Congress, Fiscal Year 1978.

16. A substantial number of U.S. and foreign charter airlines also operated internationally in 1978.

Introduction and Background

passenger miles, from 533 million in 1938 to 219 billion in 1978.¹⁷

The air transport industry thus grew to be one of the nation's major industries. Over the four-decade period, revenues increased from \$58 million to \$22.8 billion. Total airline assets rose from under \$100 million in 1938 to over \$17 billion in 1978.

The air transport industry also became a major employer. Total direct airline employment increased from about 13,000 to well over 300,000. In addition, hundreds of thousands of employees held jobs in the manufacturing of civil transport aircraft, engines, and accessories; at airports; in travel agencies; and in the vast range of other related service, supply and support activities.

Technological development was spectacular, not just in aircraft but in the air transport system infrastructure as well. Focusing just on aircraft, however, this 40-year period witnessed evolution from the propeller driven 21-passenger DC-3 to the 400-seat widebodied Boeing 747 jet that in addition to a full passenger load has cargo capacity equal to the full load-carrying ability of five DC-3's. Aircraft nonstop range, with full payload, grew to over 6,000 miles.

Accompanying these developments were quantum improvements in safety, speed, comfort, and overall convenience for the users of air service. A truly integrated "air transport system" was developed that enabled the public to buy tickets from virtually any airline (and from many thousands of travel agents) for travel on multiple airlines, and to check baggage at point of origin for delivery at destination regardless of how many airplane or airline changes were made enroute.

At the same time, technological advances joined with economies of scale to produce lower unit costs, helping to make it possible to hold the line on prices over this 40-year period. Despite consumer price inflation of almost 400 percent from 1938 to 1978, average fares per passenger mile remained remarkably stable as shown in Table 2.

The increase from 1968 to 1978 reflected not only particularly acute inflation, but also sharp fuel cost increases experienced following the 1973 oil embargo.

TABLE 2—AVERAGE YIELD PER REVENUE PASSENGER MILE (CENTS)

	All Route Carriers ^a	Domestic Trunk Operations	International Trunks
1938	5.50	5.12	8.34
1948	6.30	5.73	8.01
1958	5.80	5.58	6.46
1968	5.46	5.45	4.95
1978	8.35	8.14	7.50

a. Includes local service carriers, whose yields were higher than those of domestic trunk lines and international trunk operations.

The air transport industry also met the Congressional objective of assisting the "national defense." As reported by the CAB in its 1942 Annual Report to Congress:

Pearl Harbor brought real meaning and new force to the national defense standard so wisely written into the Civil Aeronautics Act during peacetime . . .

The airlines, domestic and international, went on wartime footing, and contributed significantly to the war effort. Subsequently, they helped break the Berlin blockade, provided important lift in the Korean and Vietnam wars, and furnished emergency and evacuation assistance in dozens of other critical situations around the globe. The formal Civil Reserve Air Fleet, available with crews for military callup at defined stages of national emergency, contained in 1978 some 298 commercial aircraft, of which 216 were large intercontinental units.

The U.S. air transport system, by far the largest in the world, was also the best in just about every respect. And this contributed, in no small measure, to the worldwide supremacy of the U.S. aerospace industry, exporting as it did many billions of dollars worth of aircraft, engines, components, and parts.

All of this was accomplished under private enterprise, with an early phaseout of government subsidy except to support limited special public interest types of service. Exact early figures do not exist, because the CAB did not identify the "compensatory" element in total mail pay until 1951. For fiscal 1951, slightly over \$75 million was paid in subsidy, equal to slightly over 7 percent of total industry revenues.

17. One passenger traveling one mile is equivalent to one revenue passenger mile.

In 1951, subsidy recipients by category were:

domestic trunks	\$18.9 million
local service	\$17.1 million
international, overseas and territorial	\$39.3 million
	\$75.3 million

For calendar year 1977, by coincidence, almost the same amount of subsidy (\$76.7 million) was distributed, but none went for domestic trunks or international services, which had long since been without government financial support. The recipient groups in 1977 were:

local service	\$72.2 million
Alaskan carriers	\$ 4.5 million
	\$76.7 million

Subsidy in 1977 was only 0.3 percent of total industry revenues.

Over the 40-year period of air regulation there was a steady increase in the number of operators on specific domestic routes. Few markets with significant traffic existed that were served by only one airline in 1978. And in international service there was a steady and substantial increase in the number of operators (U.S. and foreign flag) over virtually all commercially important routes.¹⁸

During this 40-year period there were also changes in the structure of the U.S. airline industry. A number of the original "grandfather" trunk-line carriers (5 of the original 16) merged with or were acquired by other airlines; there were no bankruptcies among them. During the same period, new categories of carriers, as well as new carriers, were licensed, including, 8 local service and 3 all cargo companies, and 10 charter airlines by 1978. This latter group played a significant role in offering lower priced transportation and developed a strong presence in certain markets, particularly for transatlantic flights.

Despite problems and inadequacies that existed, few could reasonably deny the brilliant success of the

1938 regulatory scheme. There was a high level of public satisfaction with U.S. airlines. A *U.S. News and World Report* survey revealed that out of 21 defined categories of U.S. industry, the airlines were rated the highest for "giving the customer good value for money."¹⁹

In only one respect did the airlines perform poorly. Compared with other broad industry groups, the airline business was not very remunerative. Coincidentally, 1978, the last year of regulation, was by a wide margin the most profitable year yet experienced by the industry.²⁰

Any review of airline profitability must also take into account the extremely cyclical nature of the business. It is highly leveraged, since the marginal cost of additional traffic (and the marginal savings from less traffic) at any given level of capacity is very low. As a result, the swings in profitability from recession to good times and back to recession can be very wide.²¹ This is well illustrated by how the 1970-71 and 1974-75 recessions affected airline financial performance (see Table 3).

It is interesting to note that CAB's rate of return on investment computations showed, for example, positive returns of 1.2 percent in 1970 when the industry reported a net loss of \$201 million, and 2.5 percent in 1975 when reported net loss was \$84 million.

Profit margin provides a meaningful financial yardstick.²² Based on ATA computations, airline profit

19. "Public Trust in Business: It's Increasing But—" *U.S. News and World Report* (June 27, 1977):28.

20. A word of caution about profitability analyses of air transport operations is in order. Published net profit figures of airline companies have often been significantly impacted by items unrelated to airline operations. Distorting factors, particularly in making year-to-year comparisons, include:

- (1) non-airline activities, such as hotels, real estate enterprises, services of various types, etc., sometimes performed by subsidiaries and sometimes by divisions of the airline itself;
- (2) profits on sale of non-airline businesses and assets;
- (3) tax and investment credits; and
- (4) profits on repurchase or rearrangement of debt at substantial discounts.

The CAB has traditionally evaluated profitability in terms of percentage rate of return on investment, but since it adds interest expense to net income in making the computation, positive rates of return have at times been reported despite actual net losses. The authors believe that airline operating profit reduced by interest expense provides a more meaningful, reliable and consistent measure, and will use that as their primary reference.

21. Sudden sharp increases in expense, (such as the 1974 fuel price increases), not offset by corresponding revenue increases, can also quickly destroy profitability.

22. Profit margin is the operating profit (operating revenues minus operating expenses) as percent of operating revenues.

18. Unlike most governments, which typically fielded and supported a single flag carrier, the U.S. had since the end of World War II gradually introduced competition between U.S. airlines on major international trade routes, where permitted to do so by foreign governments. It has also long supported charter services as a means of maintaining downward pressure on prices.

TABLE 3—U.S. SCHEDULED AIRLINES OPERATING REVENUES AND PROFITS, BEFORE AND AFTER INTEREST EXPENSE (MILLIONS OF DOLLARS)

	Operating Revenue	Operating Profit	Interest Expense	Operating Profit After Interest Expense
1968	\$ 7,753	\$ 505	\$222	\$283
1969	8,791	387	283	104
1970	9,290	43	318	(275)
1971	10,046	328	331	(3)
1972	11,163	584	307	277
1973	12,419	585	368	217
1974	14,699	726	420	306
1975	15,356	128	402	(274)
1976	17,506	723	372	351
1977	19,917	908	373	535
1978	22,884	1,365	539	826

Source: Air Transport Association (ATA). Annual publications occasionally make minor revisions to prior tabulations.

margin from 1967–1977 averaged only 1.7 percent versus 4.8 percent for U.S. manufacturing companies.²³

All of this would suggest that the airlines themselves would have wished for relief from regulation but, with few exceptions, they sought (unsuccessfully) to retain “the devil they knew.”

THE ADVENT OF DEREGULATION

Despite remarkable advances under the regulatory scheme established in 1938, and broad public satisfaction with the airline system, air regulation gradually came under increasing criticism, particularly from academic economists. This gained strong momentum in the mid-1970s and, between 1977 and 1979, a veritable revolution was accomplished in both domestic and international U.S. air transport policy.

The Drive for Deregulation

The infancy of the air transport industry, and then World War II, produced an initial period free from serious criticism, but the basic economic regulatory policies of the Federal Aviation Act eventually came under attack. The key issue, as might be expected, was the relative desirability of free competition in this industry, as compared with the tight government

control of entry, exit, pricing, and other competitive matters. As early as 1951, in a study entitled *Federal Control of Entry into Air Transportation*, Lucille Keyes questioned both the theoretical and empirical bases for the regulatory scheme.²⁴

In 1962, Richard E. Caves, in *Air Transport and Its Regulators*, engaged in an elaborate study from which he concluded that:

*... the air transport industry has characteristics of market structure that would bring market performance of reasonable quality without any economic regulation.*²⁵

Despite growing attacks and occasional Congressional grumbles that led to minor regulatory changes, it was not until 1975 that certain factors began combining for a successful push to deregulation. Traditional American distrust of government regulation in general became sharply focused on air transportation by a series of economic and regulatory developments.

Adversity struck the industry in 1970, when large increases in capacity, resulting from the advent of widebodied jet aircraft, coincided with a serious economic recession. This, in turn, led to widely criticized CAB regulatory policies, including a four-year moratorium on all new route cases, and approval of a series of agreements among airlines to limit capacity over certain major routes. At the same time, CAB pricing policies (which set industry-wide standards based on average industry costs) were increasingly viewed as fostering inefficiency, higher costs and higher prices.²⁶ Critics pointed to the experience of several intrastate carriers in California and Texas (not regulated by the CAB) that charged lower per mile fares for comparable distances²⁷ than the CAB regulated airlines, and operated more profitably.²⁷

The storm might have passed had it not been for the Arab oil embargo of 1973 and the ensuing massive increase in fuel cost. Airline operating costs

23. ATA annual review, “Air Transport 1978.”

24. Harvard University Press, Cambridge, MA, 1951.

25. Harvard University Press, Cambridge, MA, 1962.

26. A major target of attack was the tendency of some carriers to engage in schedule competition, which reduced load factors (occupancy rates).

27. The responding arguments noted that factors such as good weather, dense traffic, freedom from interlining costs, etc., accounted for the lower costs of the intrastate carriers.

soared, while traffic was again hurt by recession. One result was a series of fare increases.²⁸ But, with cost increases exceeding increases in yields, another period of poor airline earnings followed. This latter factor added to the list of arguments for regulatory reform the contention that the airlines themselves would be better off.

It was in this atmosphere that two influential reports were released. One was a special CAB staff study on regulatory reform, dated July 1975. It concluded:

*... protective entry control, exit control, and public utility-type price regulation under the Federal Aviation Act are not justified by the underlying cost and demand characteristics of commercial air transportation. The industry is naturally competitive, not monopolistic.*²⁹

The study recommended that protective entry, exit and public utility-type-price control in domestic air transportation be eliminated within three to five years by statutory amendment.³⁰

At about this same time, an influential report was released by the Subcommittee on Administrative Practice and Procedure of the U.S. Senate Judiciary Committee, headed by Senator Edward Kennedy. The report's repeated message was that prices should and would be lower with a more competitive system. The Board's practices, the Subcommittee report concluded, while effective in promoting industry growth, technological improvement, and reasonable industry profits, had not been effective in maintaining low prices. The report further stated that it was economically and technically possible to provide air service at significantly lower prices, bringing air travel within the reach of the average American citizen.³¹

With the sudden mushrooming of anti-regulation sentiment, in 1975 the Ford Administration spon-

sored the first deregulation bills. This started the legislative process that culminated in the Airline Deregulation Act of 1978.

But even before the Act's passage, the CAB had begun its own administrative journey on the road to deregulation. First, Chairman John E. Robson, who took office in 1975, gradually relaxed the scheduled service route moratorium of his predecessor. Supplemental (charter) airlines were given greater opportunities by expanding the scope of permissible charters. The CAB also permitted greater carrier flexibility to reduce fares. These first cautious moves gained enormous momentum under Chairman Alfred E. Kahn, appointed by President Carter in 1977. Under his vigorous leadership, the CAB soon began processing and approving applications for new operating authority, particularly where the applicants promised lower fares. To enforce compliance with such promises, awards were made for short terms, with renewal dependent on performance. The CAB also was much more receptive to route realignments and elimination of restrictions, as well as to exit from those markets where entry had been liberalized. During this same period, the Carter Administration was busy seeking agreements with foreign governments to permit more international competition, and stood ready to authorize as much international service by U.S. airlines as foreign governments would accept.

There was also far greater receptivity to fare reductions. Indeed, CAB Chairman Kahn carried it to the point of justifying dismissal of a complaint against illegal rebating by stating:

*The law prohibits departure from tariffs, but departures from tariffs are good for competition. Rebating as we see it is a consequence of non-competitive rate levels, and the best theoretical remedy is to reduce fares.*³²

The Administration's stance added support for deregulation, but the movement was also helped by improved industry profitability. Some attributed the industry's profitability to CAB's new pro-competitive policies.³³ Actually, however, from 1976 to 1978

28. Average domestic passenger mile yield increased from 5.50¢ in 1967 to 7.79¢ in 1976. Thirty-eight percent of that increase occurred in the single year 1973 to 1974. (CAB Report to Congress, 1977).

29. Reprinted in 41 *Journal of Air Law and Commerce* 601 (1975).

30. Note the specific reference to "domestic" air transportation. The last paragraph of the introductory portion of the Report stated: "Attention has been directed primarily to the 50-State nonspecialist industry. . . . The study has not focussed upon international air transportation, where the institutional and legal framework is of an entirely different nature."

31. Reprinted in 41 *Journal of Air Law and Commerce* 607 (1975).

32. *Business Week* (July 24, 1978): 128.

33. See, e.g., Sandall, "Deregulation—Has it Finally Arrived?" 44 *Journal of Air Law and Commerce*, 799, 808.

the industry was merely experiencing its traditional cyclical upturn after the sharp downturn in 1975.

There was, of course, substantial opposition from most airlines to any significant relaxation of regulation. Opposition also stemmed from airline labor unions, and financial institutions with investments in the industry. Their arguments covered a broad range of concerns, including:

- possible deterioration of the industry's excellent safety record;
- probable concentration of service on dense traffic routes, with a consequent deterioration of service on others, especially those serving small communities;
- impairment of the air transportation "system", with its conveniences of through baggage handling, interline ticketing, etc.;
- destructive and predatory price competition, resulting in earnings deterioration and, ultimately, increased industry concentration;
- reduced ability to re-equip and to finance other available technological advances; and
- adverse impact on airline employees.

These arguments failed to halt the drive for deregulation. Indeed, while what finally emerged as the 1978 Airline Deregulation Act was working its way through Congressional hearings and reports, and the bills themselves were undergoing various revisions, a mini-deregulation bill was passed by Congress with little fanfare or public notice. This was the deregulation of domestic all-cargo service, which became law in November 1977.³⁴ Actually, it entered the statute books under disguise as part of a package of changes attached to a bill dealing with war risk insurance matters.³⁵

The technique for all-cargo deregulation was simple and effective. Any airline that, under the authority of a certificate or exemption, had provided any scheduled domestic all-cargo service during 1977 could, within 45 days after passage of the law, apply for authority for any and all other domestic all-cargo service, and the CAB was directed to grant the appli-

cation promptly. At any time following one year after passage, anyone could apply for a domestic all-cargo certificate, which was to be granted within 180 days of application, unless the CAB found that the applicant was not "fit, willing and able." In addition, the CAB's authority to regulate domestic cargo rates, whether carried on combination or all-cargo aircraft, was limited to those cases where it found, after hearing, that the rates were discriminatory, preferential, prejudicial, or predatory. The pre-existing test of "unjust or unreasonable" was eliminated, and the CAB was specifically precluded from suspending proposed cargo rates pending a hearing.

In March 1978 another deregulation law dealing with cargo was passed. It gave supplemental airlines the same immediate opportunity to obtain certificates for scheduled all-cargo service that was made available to schedule carriers by the 1977 law.³⁶

The Deregulation Act of 1978

The 1978 Deregulation Act dealt primarily with domestic air transportation.³⁷ There was still substantial practical recognition of the fact that no one government could by itself deregulate international service. As a result, Congress established a new Declaration of Policy applicable only to domestic air transportation; the pre-existing policy statement continued to apply to international air transportation.

The overriding theme of the Act was competition. There was to be maximum reliance on competition to bring about the objectives of efficiency, innovation, low prices and price/service options, while still providing the needed air transportation system. "Competitive market forces" and "actual and potential competition" were "to encourage efficient and well-managed" carriers "to earn adequate profits and to attract capital." At the same time, however, Congress was responsive to small community needs and pressures, and called for . . .

maintenance of a comprehensive and convenient system of continuous scheduled interstate

34. All "interstate" all-cargo service was affected except to or from Alaska and Hawaii, as was all "overseas" all-cargo service. "Foreign" all-cargo service was not affected.

35. Federal Aviation Act of 1958—Insurance Risks, 91 Stat. 1278.

36. Federal Aviation Act of 1958—Cargo Air Service, 92 Stat. 156.

37. Airline Deregulation Act of 1978, 92 Stat. 1705.

and overseas airline services for small communities and for isolated areas in the United States, with direct Federal assistance where appropriate.

Restrictions on domestic service entry were to be gradually eliminated over the following several years, with complete elimination at the end of 1981 (subject to CAB determination that particular applicants were "fit, willing and able"). The standard for granting route applications was immediately changed from the pre-existing requirement that the proposed transportation "is required by the public convenience and necessity" to a finding that it "is consistent with" the public convenience and necessity. Further, the burden was put on opponents to prove lack of such consistency.

Several special provisions were made for the 3-year interim. First, any certificated airline (scheduled or charter) had the right of entry to one new route in each of the 3 years before complete open entry. Second, subject to certain limitations, carriers could lay claim to unused authority of other carriers. And third, the CAB was authorized to issue experimental certificates for temporary periods.

The new law contained other entry-related provisions that liberalized the pre-existing regime. These included:

1. *Domestic fill-up rights on international flights.*

For example, an international carrier operating from Los Angeles to Rome via New York could be given authority, even though not previously possessed, to carry domestic traffic between Los Angeles and New York, on at least one roundtrip flight a day.

2. *Removal of restrictions.* The Deregulation Act, eliminated all "closed door" restrictions contained in domestic certificates. Thus, if an airline were authorized to fly from City A to City B to City C, but prohibited from carrying traffic from B to C, that restriction was eliminated. Congress also ordered simplified and expedited procedures for deciding applications to remove other types of certificate restrictions, domestic or international.

3. *Suspension and reduction of service.* Provisions were adopted that greatly simplified the ability of carriers to reduce or eliminate service.

The CAB was also directed to establish simplified procedures for disposing of certificate applications

and requests for amendment or suspension of certificates, and was given relatively short deadlines for reaching decisions.

The ultimate liberalization of entry occurred, as scheduled, on December 31, 1981, when the sole barrier to unrestricted domestic entry was the requirement that the applicant be "fit, willing and able"—a finding that had already been made for all existing certificated airlines. For all practical purposes, all airlines (and virtually all would-be-airlines) are now free to serve, or to cease serving, any and all domestic routes and cities.

Congress did recognize the need to assure continued service to communities that might otherwise have been abandoned or provided an unacceptable service level under deregulation. The traditional subsidy program for local service carriers, which was directed more toward sustaining the carriers than to maintaining specific service to small communities, is to be phased out by the end of 1985, and a new program of subsidy to guarantee essential air transportation to specific communities was established. All cities named in any certificate are automatically eligible, and unless the city is served by at least two airlines, the CAB (or now, the Department of Transportation, to which this responsibility was transferred) was required to determine what and how much service is "essential." "Essential air transportation" at any given city is defined as scheduled service, at specific minimum frequency and at fair rates, to one or more other cities with which it has a community of interest. Whenever it is found that a city will not receive essential air transportation without subsidy inducement, applications to perform subsidized service must be sought, and an award made at an established rate of compensation. Under the Deregulation Act, this program is to continue until 1988, but under budget pressure the current Administration has proposed its termination in 1985.

There were also a number of other changes affecting CAB authority over operating rights. Among these were:

- Expanded authority to grant exemptions from economic regulatory provisions. The standard for granting exemptions was considerably eased, and, for the first time, exemptions could be granted to foreign airlines.

- Specific validation was given for certain liberalized charter rules that were under court challenge.
- Limitation of the President's authority to overrule the CAB in international route cases. Formerly, there were no statutory standards for Presidential review, and no deadlines for his action. Now, the President may only disapprove such decisions for foreign relations or national defense reasons.

The Deregulation Act also dealt with domestic fares. Pending almost complete deregulation at the end of 1982, the general criteria for CAB consideration in exercising its rate regulation functions were amended to give more weight to the desirability of low fares and increased pricing and service options. The Act also created a zone of reasonableness for domestic passenger fares geared to "standard industry fare levels," which in turn were based on July 1, 1977 fares, adjusted periodically for changes in average operating costs. Within this zone, the CAB could not suspend as unreasonable any fare as much as 50 percent lower or 5 percent higher than the "standard" fare.

There were also major changes in the antitrust area. Certain types of inter-airline agreements, transactions, and relationships were removed from CAB jurisdiction, and thus left subject to general antitrust laws. For those transactions still requiring CAB approval (such as mergers), the standard for approval was more closely conformed to general antitrust principles. In addition, the previous automatic immunity from antitrust laws for any transaction or agreement approved by the CAB was repealed. The CAB was given discretionary power to grant immunity when specifically requested.

Strong labor opposition to the Deregulation Act led to the inclusion of an employee protection program. This program was intended to provide preferential hiring and financial assistance to eligible protected airline employees who lose their jobs or suffer pay cuts because of bankruptcy or major contraction of a carrier, caused by the change in regulatory structure provided by the Act. Although the program is to be administered by the Secretary of Labor, the CAB was to determine the circumstances under which the protective provisions become operative. (The CAB never did find that any employees were entitled to protection under that statutory test, although several

investigations were pending in the latter part of 1984.)

Most dramatic of the Deregulation Act's provisions, was the CAB's demise ("sunset"). On January 1, 1985, the CAB ceased to exist altogether, and its authority over subsidy and foreign air transportation was transferred to the U.S. Department of Transportation. First, however, late in 1984, Congress made some changes to the 1978 Act, primarily to assure continued consumer protection and to transfer authority over mergers and agreements to the DOT rather than to the Department of Justice.

The International Air Transportation Competition Act of 1979

Since it is beyond the power of any one government to *deregulate* international air transport, U.S. Government emphasis was confined to a policy of increased competition. In early 1980 Congress passed, and the President approved, the International Air Transportation Competition Act of 1979.³⁸ In a very real sense, the legislation was anticlimactic; it was largely a ratification of Carter Administration pro-competitive policies, with Congress showing somewhat more concern for fair competition and the economic condition of the U.S. airlines.³⁹

These policies were greatly influenced by the United Kingdom's mid-1976 12-month notice of termination for the Bermuda Agreement (the bilateral that had governed air transportation relations between the two governments for 30 years). Her Majesty's government, strongly committed to the protection of its own airlines (particularly government-owned British Airways), believed that the Bermuda Agreement was inadequate to prevent the operation of excess capacity, and that the agreement was unbalanced in

38. International Air Transportation Competition Act of 1979, 94 Stat. 35.

39. Congress had long been concerned about unfair and discriminatory fees and practices of foreign governments like excessive (and often discriminatory) charges for use of airports, navigational and other foreign-government provided facilities; excessive fuel prices; excessive and discriminatory taxes; airport handling monopolies; restrictions on currency remittances; requirements favoring use of the national carrier; and a vast variety of techniques which denied U.S. airlines fair access to markets abroad. To help alleviate some of these problems, Congress passed the International Air Transportation Fair Competitive Practices Act of 1974, which authorized limited retaliatory action where it was not possible to resolve the problem by negotiation. While this has, on occasion, been a helpful negotiating lever, overall it did little to change the worldwide environment.

favor of U.S. airlines. In particular, the United Kingdom wished to reduce the authority of U.S. airlines to carry so-called "Fifth Freedom" traffic.⁴⁰ There were other grievances as well, including the manner in which the CAB exercised authority over rates and, although never made explicit, probably a high degree of irritation at U.S. public resistance to the proposed institution of supersonic Concorde service.

The negotiations were extremely difficult, particularly for the U.S. negotiating team, whose task was made more difficult by a change in Administrations (Ford to Carter) midway in the 12-month negotiating period. The British held firm to their basic position, and it was not until the very last minute that a new, and more restrictive, agreement was reached. Among other things, it limited the number of permissible scheduled carriers, enabled greater government control over capacity, and significantly reduced U.S. carrier "Fifth Freedom" traffic rights. The new agreement (Bermuda II) did grant additional U.S. city gateways.

This episode provided strong stimulus for the U.S. government to seek more "liberal" pro-competitive agreements with other governments.⁴¹ It strongly favored such agreements in their own right, wherever it could induce the other government to agree. And the U.S. government saw such agreements as a means of putting pressure on recalcitrant governments in the same general geographic area. Thus, under this "encirclement" theory, the United Kingdom was to be pressured by expansion of air service to and via Belgium and The Netherlands. Not too much later a new agreement with South Korea was intended to put pressure on Japan.⁴² This campaign for "Open Skies", as it was quickly dubbed,

was further stimulated by strong criticism within the United States of the restrictive terms of Bermuda II.

The next important negotiation following the new agreement with the United Kingdom was with Japan, whose government firmly believed in stringent regulation of competition, capacity, and fares. In a letter dated October 6, 1977, addressed to the head of the U.S. delegation, President Carter made clear his strong belief in an open and competitive system. This letter is a clear and concise statement of the international air transportation policy that prevailed during the Carter Administration.⁴³

As a result of this policy, and strenuous U.S. efforts to convince other governments that it was sound, a patchwork of more "liberal" bilateral agreements were reached by 1980. By and large, the traditional objective of a fair exchange of traffic rights, offering equal economic opportunities to the airlines of both governments, were ignored. The principal goal now was "consumer benefits." In a sense, however, this was a logical (although exaggerated) extension of traditional U.S. policy, which was less chauvinistic, and less protective of its international airlines, than other governments.

In the transatlantic area, new liberal agreements were achieved with Belgium, the Federal Republic of Germany, The Netherlands, and Israel. France, Italy, Scandinavia, and Spain could not be convinced. The United Kingdom remained a special case. However, with the flag airlines of so many nations already flying to the United States, and the large number of U.S. airlines already established in transatlantic service (Pan American and TWA as major scheduled airlines, plus several substantial charter carriers), the effect of these new agreements across the Atlantic was somewhat muted.

Across the Pacific, again, only those governments that perceived substantial advantages for their carriers or their own national interests (principally Singapore, South Korea, and the Republic of China) were willing to move more towards "Open Skies." Here, however, there had historically been less competition,

40. A 1944 international convention defined the five "Freedoms" of the air that could be granted by any government to any other as: (1) to overfly a government's territory; (2) to land for non-traffic purposes; (3) to carry traffic from another country; (4) to carry traffic to another; and (5)—the "Fifth Freedom"—carriage by an airline of one government between the territory of the other government and a point in a third country. Thus, carriage by a U.S. airline of traffic between London and Frankfurt is Fifth Freedom traffic.

41. The principal elements of a completely "liberal" agreement, as seen by the United States, were: (1) unrestricted entry by an unlimited number of carriers; (2) unlimited authority to carry Fifth Freedom traffic; (3) no government constraints on capacity; (4) carrier freedom in pricing, unless both governments disapproved; and (5) foreign government acceptance of U.S. charter regulations.

42. It was possible to reach pro-competitive agreements in all three cases because the foreign governments perceived that, through access to more U.S. cities, they were gaining much greater economic benefit for their airlines than they were giving up.

43. It was not until August 21, 1978 that a formal presidential policy statement (United States Policy for the Conduct of International Air Transportation Negotiations) was published, but this added little substance so far as basic policy was concerned.

CARTER LETTER TO DOT ON U.S.-JAPAN BILATERAL TALKS

THE WHITE HOUSE
WASHINGTON

October 6, 1977

To Secretary Brockman Adams

The work you are about to undertake in negotiating bilateral agreements with Japan is of great importance.

Two related problems face international aviation today: empty seats and high fares. Both problems can be resolved if we work to remove restrictions on low and innovative fares in both chartered and scheduled service. I am convinced that increased competition can make convenient, low-cost transportation available to many people who cannot now afford it, while at the same time bringing greater prosperity to the international aviation industry.

Our central goal in international aviation should be to move toward a truly competitive system. Market forces should be the main determiner of the variety, quality and price of air services.

We should seek international aviation agreements that permit low-fare innovations in scheduled service, expanded and liberalized charter operations, non-stop international service, and competition among multiple U.S. carriers in markets of sufficient size. We should also avoid government restrictions on airline capacity. While keeping in mind the importance of a healthy U.S. flag carrier industry, we should be bold in granting liberal and expanded access to foreign carriers in the United States in exchange for equally valuable benefits we receive from those countries. Our policy should be to trade opportunities rather than restrictions.

To achieve these goals will require close interagency cooperation and a firm negotiating posture. I am confident of the ability of you and your colleagues to achieve these objectives in our upcoming negotiations. I want you to keep me fully informed of your progress.

Sincerely,

Jimmy Carter

and the policy served primarily to assist the rapidly expanding airlines of these nations.

In Latin America, particularly South America, the Carter policy was rejected. There currently remains very little movement away from historic control of competition, capacity, and fares in this market.

Wherever agreements were reached permitting the entry of additional U.S. airlines, the CAB was quick to grant "permissive" authority to any and all applicants—a dozen or more U.S. airlines in the case of West Germany.

Fare reductions and fare competition were important CAB objectives during this period. It sought to accomplish these through a variety of approaches:

- Bilateral negotiations attempted to reduce the authority of governments to interfere in pricing.
- Charters, which typically offered lower prices, were made more accessible to the general public by easing restrictive charter regulations.
- In selecting U.S. carrier applicants to serve routes where foreign governments limited the number of U.S. carriers, there was a strong bias in favor of the applicant proposing the lowest fare package.
- In mid-1978, the CAB started an investigation into its continued approval of the very concept of IATA rate making, by proposing to withdraw antitrust immunity.

Although the International Air Transportation Competition Act expressed a pro-competitive policy, it made little immediate practical difference. A background summary in a 1983 Congressional report reviewing developments under the International Competition Act stated:

The first real attempt to make major structural changes in international air policy came with the Carter Administration's 'Open Skies' policy. In 1978, the CAB—after 33 years of approving IATA rates— issued an order directing IATA to 'show cause' why CAB should not rule that IATA tariff agreements are no longer in the public interest, and, therefore, should not be approved . . . As the other 'prong' of open skies for international air, the Administration negotiated a series of more liberal bilateral agreements with other countries which gave foreign govern-

*ments new access to interior gateways in the U.S. in exchange for flexible fares and the addition of new U.S. carriers.*⁴⁴

The barriers to establishing a world-wide regime of "Open Skies" were not in the United States but abroad.

In one sense, the legislation was more cautious and realistic than the Administration's policy. In extending the pro-competitive policy statement of the 1978 domestic Deregulation Act to international service, Congress recognized that the existence of a free and open international marketplace could not be assumed, and added new protective language. Thus, in placing "maximum reliance on competitive market forces" to provide the needed air transportation system and to encourage the financial well-being of efficient carriers, the Act went on to state, as a caveat:

. . . taking account, nevertheless of material differences, if any, which may exist between interstate and overseas air transportation, on the one hand, and foreign air transportation, on the other.

And the following was added to the domestic policy factors that the CAB was now to consider for international as well as domestic:

The strengthening of the competitive position of United States air carriers to at least assure equality with foreign air carriers, including the attainment of opportunities for United States air carriers to maintain and increase their profitability, in foreign air transportation.

The International Air Transportation Competition Act also enumerated, for the first time, "Goals for International Aviation Policy." While these goals supported increased service and competition, Congress also directed that the Executive Departments (and the CAB), in granting foreign carriers increased access to U.S. markets, require that such rights be . . .

44. Report of Subcommittee on Investigations and Oversight of the Committee on Public Works and Transportation, on the *Improvement Needed in the Implementation of the United States Aviation Policy*, August 1983 (page 3).

Introduction and Background

exchanged for benefits of similar magnitude for United States carriers or the traveling public with permanent linkage between rights granted and rights given away.

Again recognizing reality, Congress identified as a negotiating goal:

the elimination of discrimination and unfair competitive practices faced by United States airlines in foreign air transportation, including excessive landing and user fees, unreasonable ground handling requirements, prohibitions against change of gauge, and similar restrictive practices.

Consistent with its concern, Congress also broadened the protective and retaliatory authority provided by the Fair Competitive Practices Act of 1974.

The International Air Transportation Competition Act also extended to international fares the concept of a suspension-free zone, based on "standard foreign fare levels." These reflected historic fares, adjusted periodically for increases in operating expense, with the zone extending from minus 50 percent to plus 5 percent.⁴⁵

Clearly, the International Air Transportation Competition Act was less important in expanding competition and creating pressures for low fares in international air transportation than were the policies and efforts of the Carter Administration. Against this background, domestic and international, the following chapters review principal developments of the first six deregulated years.

45. The CAB was given an opportunity to contest the reasonableness of historic fares, which it did, but it subsequently concluded that they were not unreasonable.

Chapter 2

Changes in Industry Structure

Domestic deregulation has changed the air industry's structure far more than predicted. There are very few routes today that have the same mix of carriers or services as they had prior to deregulation. Post-1978 growth has varied greatly between carriers, changing market shares accordingly. However, while the degree of dominance of the former trunk lines has been reduced, considerable dominance by the few largest airlines still exists. This chapter discusses these changes and others, but first acquaints the reader with how deregulation has changed the main groupings of carriers.

Prior to 1978 deregulation, the airline industry's structure consisted of four main groups of carriers.

- Trunk lines—carriers serving the principal high-density routes, and in particular the long-haul routes.
- Local service lines—carriers serving only short-haul routes. While some of these routes had high traffic volume, most were of comparatively thin traffic volumes.
- Intrastate jet lines—carriers particularly operating within the states of California and Texas. By avoiding interstate routes, they were able to operate scheduled service without a CAB route certificate.
- Commuter airlines—carriers operating only short-haul routes with small piston or turbo-prop aircraft. By limiting themselves to aircraft of 30-seat size or less, these lines were exempted from the need for CAB route certification.

In addition, there were two specialized categories of carriers—one concentrating on charters, and one concentrating entirely on all-cargo operations. The charter group has largely shifted into scheduled service since deregulation.

By far the dominant group was that previously classified as "trunk." In 1978 this group of carriers accounted for approximately 90 percent of all industry scheduled passenger traffic. The trunk lines not only accounted for most of the traffic on the leading domestic airline routes; they also provided *all* of the scheduled service on U.S.-Flag international routes.

With free entry opened up by deregulation, a series of major changes occurred in the industry's structure. Since the routes of greatest traffic volume and financial appeal were those originally within the "trunk" system, this is naturally where most exploitation of the free-entry opportunity occurred. Trunk carriers themselves moved into one another's territories, entering markets they had previously desired but had been unable to obtain. For the trunk carriers as a *group*, the substantial amount of entering into one another's markets had largely a "stand-off" effect in the sense that, while all of these carriers were *gainers* of new opportunities, they were also *losers* as other carriers moved into their own previous territory. This explains why the trunks as a *group* showed the least net growth between 1978 and 1983.

For all other carrier groups, the new opportunities for free entry were clearly a net gain. The former local service carriers had far more to gain by access to the higher traffic density trunk line routes, than they had to lose from new competition on their own previous routes. And of course free entry was even more clearly a net gain for "new entrants"—carriers previously having no industry position whatever, who suddenly gained free access to even the best routes in the country.

The net result has been a significant shift in the market position of former trunk lines and other carrier groups. Table 4 shows the change in scheduled passenger-mile volume and overall market share for the carrier groups between 1978 and 1983.

From 1978 through 1983, overall industry scheduled passenger traffic grew by over 20 percent. However, trunk carriers, as a group, grew by only 7 percent. Meanwhile, the former local service lines were nearly doubling their volume, growing by 91 percent. Former intrastate lines more than doubled in volume.

In terms of market share, trunk lines dropped 10 percentage points—from 90.8 to 80.5 percent. Roughly one-third half of the trunk market share loss was picked up by former local service lines, which grew from 6.5 to 10.2 percent. The remaining market share shift was divided between former intrastate lines, former charter lines, and new entrants.

To keep these market share shifts in perspective, it must be recognized that the previous shares were so

TABLE 4—SYSTEM REVENUE PASSENGER MILES BY CARRIER (1978 AND 1983)

Carrier	Passenger Miles (Millions)		Percent Change	Share of Total	
	1978	1983		1978	1983
Former Trunks					
American	28,987	34,097	+17.6%	12.5%	12.2%
Braniff	9,604	—	NA	4.2	—
Continental ^a	10,187	9,282	-8.9	4.4	3.3
Delta	23,332	26,757	+14.7	10.1	9.6
Eastern	25,183	28,271	+12.3	10.9	10.1
Northwest ^b	7,018 ^b	17,712	+152.4 ^b	3.0 ^b	6.3
Pan American ^a	28,948	28,862	-0.3	12.5	10.3
TWA	26,967	27,261	+1.1	11.7	9.8
United	39,399	43,035	+9.2	17.0	15.4
Western	10,188	9,412	-7.6	4.4	3.4
Sub Total, Trunks	209,813	224,690	+7.1	90.8	80.5

TABLE 4 (Continued)

Carrier	Passenger Miles (Millions)		Percent Change	Share of Total	
	1978	1983		1978	1983
Former Local Service					
Frontier	2,378	3,931	+65.3	1.0	1.4
Ozark	1,488	2,621	+76.1	0.6	0.9
Piedmont	1,434	5,130	+257.7	0.6	1.8
Republic ^a	5,533	9,632	+74.1	2.4	3.4
U.S.Air	4,083	7,245	+77.4	1.8	2.6
Sub Total, Locals	14,916	28,558	+91.5	6.5	10.2
Former Intrastate					
Aircal	813	1,373	+68.8	0.4	0.5
Air Florida	180	1,806	+903.3	0.1	0.6
PSA	2,495	3,075	+23.2	1.1	1.1
Southwest	1,049	3,894	+271.2	0.5	1.4
Sub Total, Intrastate	4,537	10,148	+123.7	2.0	3.6
Alaska/Hawaii Carriers					
Alaska Airlines	783	1,547	+97.6	0.3	0.6
Aloha	364	289	-20.6	0.2	0.1
Hawaiian	482	343	-28.8	0.2	0.1
Wien Alaska	236	590	+150.0	0.1	0.2
Reeve Aleutian	46	43	-6.5	^e	^e
Sub Total, Alaska/ Hawaii Carriers	1,911	2,812	+47.1	0.8	1.0
Former Charter Carriers					
Capitol	NA	2,143	NA	NA	0.8
Transamerica	NA	322	NA	NA	0.1
World	NA	2,574	NA	NA	0.9
Sub Total, Charters	NA	5,039	NA	NA	1.8
Other Carriers ^c					
Air Midwest	21	76	+261.9	^e	^e
Air Wisconsin	NA	121	—	—	^e
America West	—	197	—	—	0.1
Empire	—	162	—	—	0.1
Jet America	—	611	—	—	0.2
Midway	—	648	—	—	0.2
Muse Air	—	651	—	—	0.2
New York Air	—	657	—	—	0.2
Northeastern International	—	498	—	—	0.2
Pacific East	—	598	—	—	0.2
People Express	—	3,666	—	—	1.3
Sunworld International	—	65	^d	—	^e
Sub Total, Other	21	7,950	^d	—	2.8
Total	231,198	279,197	+20.8%	100.0	100.0

a. Includes (in 1978) the combination of now-merged carriers (Continental and Texas International; Pan American and National; Air West and North Central and Southern).

b. Northwest 1978 data affected by strike.

c. Includes all carriers not otherwise classified for which data were reported in CAB's "Quarterly Financial Review" for the fourth Quarter of 1983. Because of continuous turnover in airline population, this CAB tabulation is not necessarily all inclusive; however, any omitted data would be negligible in overall totals.

d. Not meaningful.

e. Less than 0.05 percent.

NA = Not available.

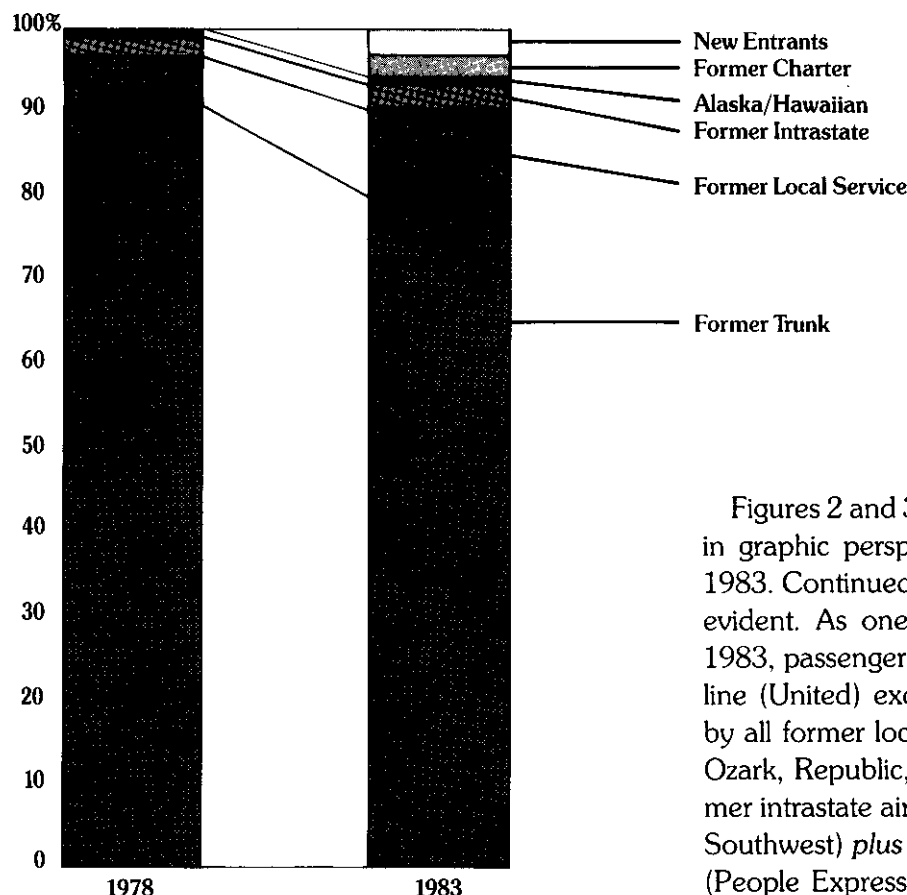


Figure 1. Percentage of Passenger Miles, By Carrier Group (1978 and 1983)

Source: Civil Aeronautics Board

dominated by trunk lines that even after the sharply disparate growth rates of deregulation, those lines still remain in a position of considerable dominance. Thus, the 1983 trunk market share of 80.5 percent is still a considerable measure of dominance by normal standards. Figure 1 shows graphically the change in market share by groups of carriers.

While it is convenient to discuss these changes by groupings of carriers, there has also been enormous variation *within* each group. For example, within the trunk group, several carriers had actual declines in traffic while others grew at rates of up to 17 percent (see Table 4). Within the former local service group, the most significant individual growth record was posted by Piedmont, which grew by 258 percent between 1978 and 1983—over three times the rate of other carriers in this group.

Figures 2 and 3 place the size of individual carriers in graphic perspective for the years of 1978 and 1983. Continued dominance by former trunk lines is evident. As one indication of that dominance, in 1983, passenger-mile traffic for the largest trunk airline (United) exceeded the combined total carried by all former local service airlines (USAir, Frontier, Ozark, Republic, and Piedmont) *plus* all of the former intrastate airlines (AirCal, Air Florida, PSA, and Southwest) *plus* the two largest of the new entrants (People Express and New York Air). And in early 1985 a proposal was announced for the transfer of Pan American's Pacific routes to United, which would significantly further increase the size of that carrier.

The continued prominence of the former trunk lines is significant because for a time—earlier in deregulation experience—there was a tendency to “write off” the established carriers as lacking the flexibility needed for the free market environment. The term “dinosaurs” was sometimes used in referring to the largest of the existing lines. That view was encouraged by the fact that for several years all of the former trunk lines were in financial trouble, and the only carriers to show a profit were the former local service lines, and some of the new entrants.

As will become clear later in this study, more recent experience has overcome that earlier impression. Some of the strongest financial results during 1984 were recorded by the largest carriers, and their equipment and route expansion programs indicate that they will retain and probably increase their dominance.

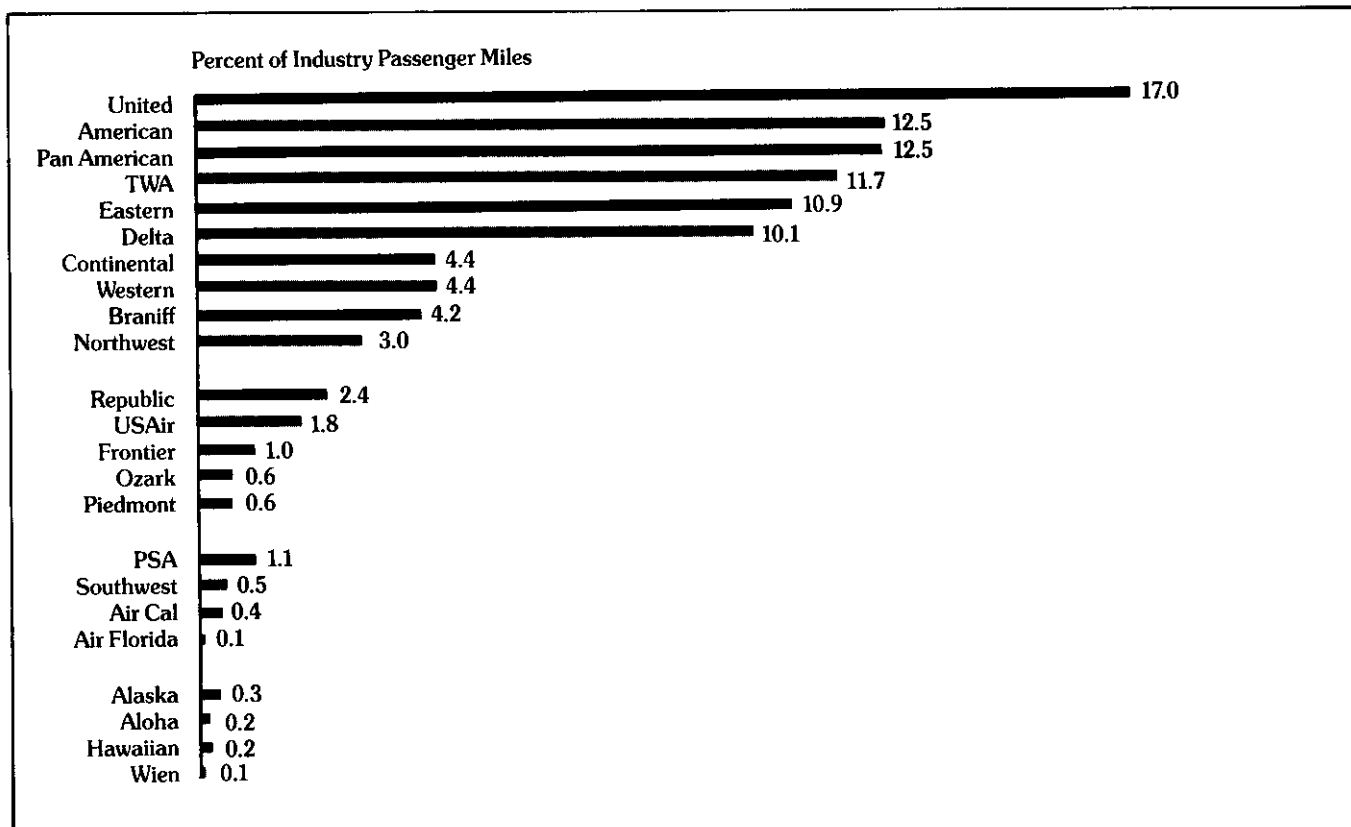


Figure 2. 1978 Individual Carrier Share of Passenger Miles

Source: Civil Aeronautics Board

The situation, however, remains fluid. The true dynamics of the structural changes cannot be accurately reflected by simply comparing one date with another. For example, the most aggressive of the new entrants (People Express) has displayed growth rates far out distancing those of all other carriers. This low fare, no frills carrier moved from a monthly level of 166 million passenger-miles at the end of 1982, to a monthly level of 426 million passenger-miles by the end of 1983, and then to 805 million by July 1984. Thus, People Express expanded nearly fivefold in 18 months.⁴⁶ And the aircraft acquisition program of People Express is premised on continued high future traffic growth.

Another aspect of the dynamics of the situation is the continuing turnover of carriers within the industry with new carriers starting up, while other lines are dropping out. The greatest volatility in this regard has been among commuter airlines; but there also has

been considerable turnover among jet carriers. As summarized by the President of American Airlines:

Between 1978 and the end of 1983, the number of scheduled interstate carriers in the United States increased from 36 to 123. Carriers certificated since 1978 now carry about 10 percent of all domestic airline passengers. During the same period, 34 carriers went bankrupt and another 69 airlines ceased operations. Of these totals, scheduled airlines of some substance accounted for 15 of the bankruptcies and 10 of the closures.⁴⁷

Most published data regarding airline industry operations are based on data reported to the CAB by the previously "certificated" airlines—i.e., those that held route certificates under Section 401 of the Civil Aeronautics Act. These data have not included the

46. Revenues for the third quarter of 1984 reached \$174.8 million, well over double the same period in 1983.

47. From a speech by Robert L. Crandall before the Wings Club, September 1, 1984.

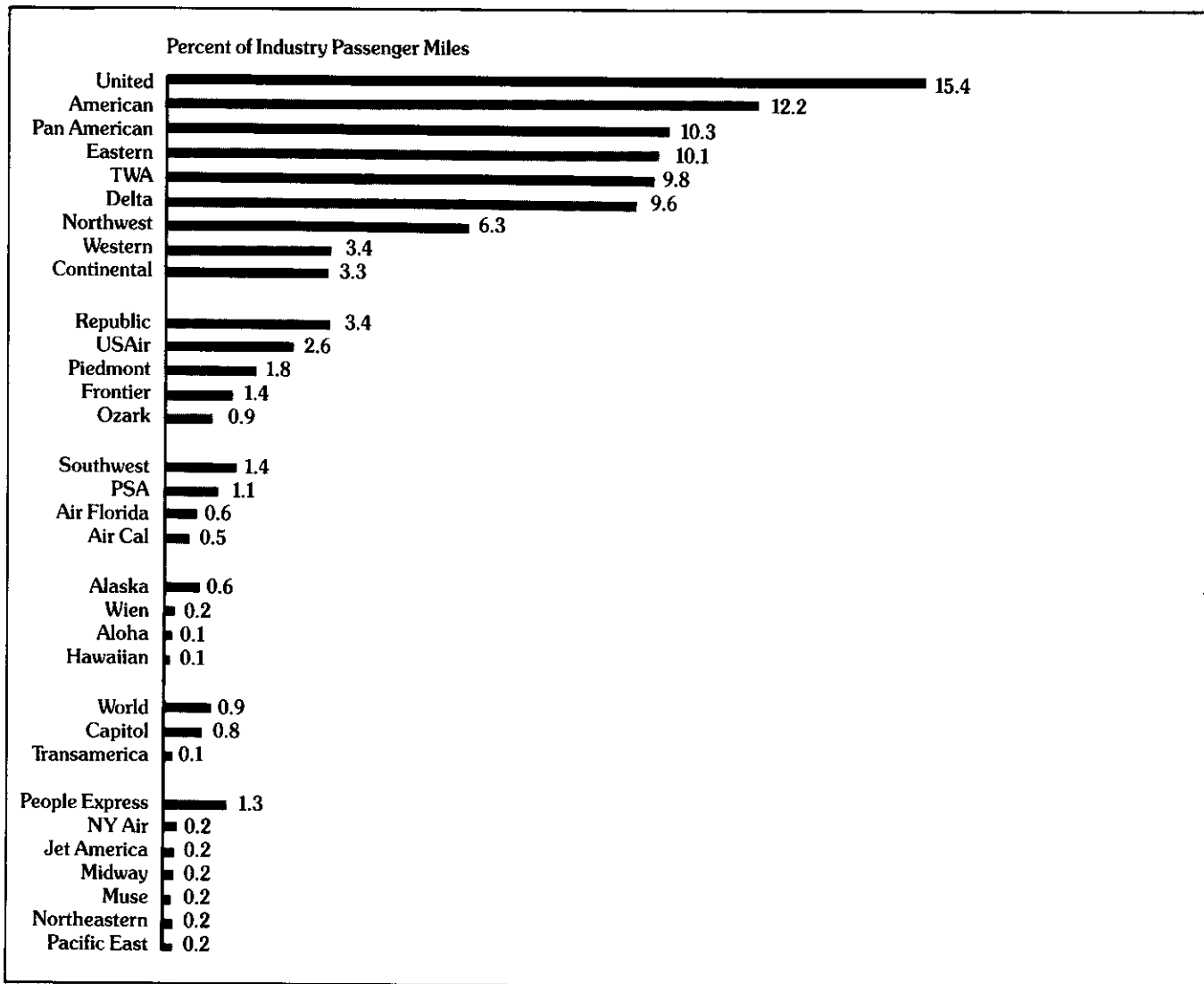


Figure 3. 1983 Individual Carrier Share of Passenger Miles

Source: Civil Aeronautics Board

operations of a large number of the commuter carriers, which did not require, and did not obtain such certificates. In 1983, there were nearly 200 such carriers providing passenger service in that year; those carriers enplaned 22 million passengers, and accounted for over 3 billion passenger miles. While in relative terms, this was only about 1 percent of the total passenger miles of the entire industry, it was a segment of the industry that had the greatest growth rate (e.g., 24 percent growth in 1983 over 1982), and that filled a very important niche in providing service to smaller communities, and thinner traffic markets.

CHANGES IN GEOGRAPHIC SCOPE OF INDIVIDUAL AIRLINES

Under regulation, the route structures specified by CAB certificates established clearly defined territories for each carrier. Service patterns at that time could be characterized as providing *intensive* coverage within *limited* geographic boundaries.

With the new freedoms of deregulation, this has changed to a more *extensive* coverage (on a "thinner" traffic basis) over much more expansive geographic areas. Among the former trunks, this

has meant abandoning or down-playing certain routes altogether, while at the same time opening up parts of the country not previously included within a given carrier's zone. Here are some examples of the substantial change of geographic scope:

- Under regulation, Western Airlines' northern routes did not come further east than Minneapolis, and Continental's stopped at Chicago. Now, both carrier systems extend into the Northeast.
- Previously, TWA served 38 cities within the United States; now it serves 60.
- Since deregulation, United Airlines has added to its system cities in 16 states which it did not previously serve—bringing it to the point where it now serves all 50 states in the country.

Apart from the addition of new cities, many carriers have made special efforts to shift the orientation of their operations. Eastern Airlines, for example, had previously been a north-south carrier, with comparatively little east-west operation. One of its early moves under deregulation was to make a major bid for full-scale participation in two of the most important coast-to-coast transcontinental routes (New York-Los Angeles and New York-San Francisco). Eastern found that this did not work out well, and subsequently backed away from that effort. But it has found another avenue for east-west operation, by opening up Kansas City as a new mid-continent hub with various spokes to give it an east-west outlet via hub-and-spoke connections.

In relative terms, former local service airlines made the most dramatic change in the geographic scope of their operations. For example, USAir, which (under its previous name of Allegheny) had operated primarily in the Northeast, became a coast-to-coast carrier, including long-haul, nonstop operations such as Pittsburgh-Los Angeles and Pittsburgh-San Francisco. Between 1978 and 1983, its average stage length per flight increased by 46 percent.

Even the designations of the various groups of carriers had to change in keeping with the radical changes in their scope. The terms "trunk" and "local service" were abandoned. In their place, new categories of carriers were based strictly on gross revenue,

and the new designations became "major," "national," and "regional."

Although not strictly a by-product of deregulation, during this period there was also considerable liberalization of international route certification. This led to significant change in the scope of operations beyond the country's borders. Thus, United became an international airline for the first time, with routes to the Orient. People Express, a new entrant, which initially operated just a few short-haul routes radiating out of Newark, was operating a Newark-London international route by 1983, and a transcontinental nonstop by 1984.

CORPORATE STRUCTURAL CHANGES

During the era of regulation, the airlines had shown a long-term trend toward mergers. Immediately following deregulation, there was some carry-over of that trend, with a number of significant mergers. Specifically, there were during that period the mergers of Air West, North Central, and Southern into Republic, the merger of National with Pan American, and the merger of Texas International with Continental.

Following those acquisitions, most merger activity for a time was concentrated among the smallest lines. More recently, however, there have been signs of renewed merger (and/or route transfer) activity among larger carriers. Domestically, the free entry of deregulation has of course reduced the previous incentives to merge merely to gain access to another carrier's routes—but there remain situations where the acquisition of a carrier's system and facilities can offer significant advantages.

Short of merger, a growing form of inter-carrier affiliation has been the cooperative relationship between individual long-haul jet lines and short haul commuter carriers. The concept is not new, extending back several decades to the arrangements first made by Allegheny Airlines with the "Allegheny Commuters."

However, with the new importance of hub operations, jet carriers have found it increasingly advantageous to "lock in" the traffic feed from specific com-

muter lines into their hubs, through various forms of inter-carrier linkage. Usually the commuter carriers in these arrangements retain their corporate independence, but they and the longer-haul carriers enter into agreements favoring one another for inter-line connecting sales. In return for this preferential selling, the commuter carrier receives assistance in reservations, ground handling, and other aspects of operation.

The mutual benefits of these affiliations are considerable. The long-haul carrier gets assured feed, without having to establish its own short-haul routes to do so. And the commuter carrier gets the sales and operational support of the larger airline.

The most controversial aspect of this growing pattern has been the identification of the commuter flights in the Official Airline Guide (and in computer reservations systems) with the code designator of the long-haul carrier. For example, a Chaparral Airlines turbo-prop flight would be designated with the "AA" code designation of American Airlines. This is a powerful sales boost for the commuter airline, since it gives the smaller carrier the benefit of the image and market identity of the larger carrier.

Some non-participating airlines have protested this practice, and asked the CAB to prohibit it. They argued that it misled the public as to the identity of the airline the traveler was booking on. They also expressed concern that, if continued, the practice would bring the end of independent commuter lines—since such lines would not be able to compete with the selling advantage of the affiliated carriers.

The CAB refused to outlaw this practice, and at the end of 1984 the practice is continuing to expand. An open question thus remains as to the degree of independence that will be possible in the future for the commuter-carrier portion of the industry.

A special aspect of corporate structural change has

arisen in connection with subsidiaries of established airlines, which have been able to overcome the high labor costs of the parent company. The first example of this was New York Air, which was set up as a partly-owned subsidiary of Texas International. The parent company was then fully unionized, but New York Air was set up on a non-union basis, enabling much lower labor costs.

Several years later, a similar approach was followed by Frontier, which established a wholly owned subsidiary called Frontier Horizons. Here again, the subsidiary started operations on a non-union labor basis, even though the parent company was fully unionized. As a result, the subsidiary was able to start operations on a lower cost basis and with lower fares. However, this particular venture did not succeed, and Frontier dropped its subsidiary.

INCREASED EMPLOYEE STOCK PARTICIPATION

Another development encouraged by deregulation has been employee equity ownership of airlines. Part of the explanation for People Express' success has been attributed to the fact that stock ownership is a requisite for employment, giving every employee an equity stake in the company.

Other airlines have also moved in this direction in varying degree, sometimes giving employees shares of stock in exchange for concessions granted by the unions on wage rates or working rules. Among the airlines that have granted equity participation to employees are Eastern, Pan American, and Western.

It is too early to predict how all of this will eventually evolve, and what effect employee ownership equity will have on management practices and management/labor relations.

Chapter 3

Airline Costs and Operating Efficiency

Commenting on the relationship of deregulation to airline efficiency, the CAB stated in its January 1984 report to Congress that: "As a result of these [deregulatory] changes, the airline industry is becoming more efficient as competition requires carriers to make the most productive use of their resources." This agrees with widely held views, and there is some basis for this conclusion. At the same time, there is an element of overstatement in attributing this short-term cost-reduction experience to the deregulated environment. Some of the less visible but nevertheless significant changes brought about by deregulation have affected costs and efficiency negatively. This chapter discusses airline costs and efficiency considerations that have been influenced to change by deregulation.

Between 1978 and 1983, average cost per seat-mile for the industry increased from 4.72¢ to 7.00¢—an increase of 48 percent (see Table 5). This was close to, but slightly below, the rise in the Consumer Price Index (reflecting the general inflation rate of the economy as a whole), which increased by 53 percent during the same 5-year period.⁴⁸ The fact that the airlines were able to keep their seat-mile cost increase *below* the level of general national inflation was a significant accomplishment, considering the special importance of fuel cost to airline operation and the extraordinary jump in fuel prices that started in 1979.

Between 1978 and 1983, the average price of airline fuel more than doubled (from 39¢ to 89¢ per gallon). The total fuel bill increased from \$4 billion in 1978 to \$8.6 billion in 1983 for the major and na-

tional airlines. As a percentage of total operating cost, fuel increased from 20 percent in 1978 to 25 percent by 1983.

In the face of the major jump in this cost element, the fact that the overall average seat-mile cost increased slightly *less* than general CPI inflation can be credited to a number of factors, including:

- Lower cost base for new entrant carriers,
- Pressure of these new entrants' costs on labor costs of the more established carriers—leading to wage and work-rule concessions by the unions of established carriers,
- In several cases, a lower cost base for some carriers after going through bankruptcy,
- Increased seating density in various fleets,
- Continuing modernization of fleets (with acquisition of more efficient planes such as Boeing 757's and MD-80's, and retirement of less efficient planes such as Boeing 707's),
- Personnel cutbacks and a general tightening of most carriers' operations in response to severe financial pressures, and

48. The Consumer Price Index is a statistical measure of the change in the price of goods and services in major expenditure items such as clothing, health, food, housing, recreation and transportation for all urban consumers is used here for broad perspective of overall inflation during this period.

**TABLE 5—CHANGES IN INDUSTRY COST PER SEAT MILE
(1978–1983)**

	1978	1983	Change
Available seat miles (millions)	368,751	463,376	+25.7%
Operating cost, passenger service (millions) ^a	\$ 17,441	\$ 32,434	+86.0%
Cost per seat mile	4.72¢	7.00¢	+48.3%

a. Represents portion of total operating cost attributable to passenger traffic. Derived by methodology originally developed by CAB. Cargo and other non-passenger traffic is presumed to operate at breakeven. Therefore, estimated cost of handling non-passenger traffic is treated as equal to the revenue from that traffic. This is then subtracted from total operating cost to obtain the estimated cost attributable to passengers.

Source: Derived from ATA data.

- Increased length of haul for most carriers. (Between 1978 and 1983, average passenger trip length increased from 826 miles to 885 miles.)⁴⁹

The clearest and most visible cost improvements have been those associated with labor costs. In other areas, cost changes have been mixed, and not always positive.

LABOR COSTS

Considerable public attention has focused on the differences in labor costs between new entrant carriers and established carriers. This labor cost difference resulted from several factors.

First, the new entrant airlines have had non-union employees and moreover were hiring these employees during a severe general recession, which created a "buyers' market" for labor. Consequently, wage scales have been substantially lower than those built up over decades of union contract negotiations for the larger, established airlines.

Second, as a partially related element, the employees of the new airlines have started out at "entry level" wage rates which have not had the year-after-year longevity wage increases obtained by the more senior personnel of the established airlines.

Third, new entrant airlines have not been burdened with restrictive work rules which had been

negotiated by unions over many years with the larger airlines.

These labor factors have combined to give new entrant airlines substantially lower labor costs than those experienced by older established airlines. This had made an important difference in the cost structure between the groups of airlines, since labor cost is the largest component of airline operating cost. (In 1983 labor cost amounted to over 35 percent of the total operating cost for the "major" and the "national" airlines.)

The dramatic differences in labor costs were highlighted in a recent article:

Last year the "majors" and the "nationals" paid each worker an average of \$42,000; by contrast a group of new entrants—Pacific Express, People Express, Muse, Midway, and Jet America—paid only \$22,000. The average People Express pilot gets under \$30,000 a year; his counterpart at TWA, with no more responsibility, gets about \$104,000.⁵⁰

The new entrants' labor cost advantage has forced the larger airlines to seek wage and work rule concessions from their organized employees. Some carriers have been especially successful in this direction. American, for example negotiated the first airline contract providing a lower wage base for new personnel, compared with personnel already employed. American also obtained considerable liberalization of work rules.

The significance of American's new contract was emphasized in a statement by its president, indicating that a newly hired B-727 captain would earn \$68.12 per hour, compared with \$140.46 for a captain previously on the rolls—a saving of 52 percent.⁵¹

For two carriers, labor cost reduction came about only after going through bankruptcy proceedings. One of these was Braniff, which actually ceased operations for nearly two years before resuming operations with sharply lower wage costs and more favorable work rules under new management. Continental Airlines went through a bankruptcy proceeding that

49. There is some element of cost understatement in this factor, resulting inadvertently from CAB report coverage. The CAB industry data do not normally include the operations of most "commuter" airlines. To the extent that the higher cost, shorter-haul routes have been shifted from jet carriers to commuter carriers, this high-cost route system has been removed from CAB "industry" data, and thus understate the total network average cost in the later periods.

50. *The Economist*, August 25, 1984, p. 5.

51. *New York Times*, March 1, 1984, p. D1.

did not totally discontinue operations but did lead to termination of the previous labor contracts, and permitted resumed operation with lower wage costs and liberalized work rules.

COST DIFFERENCES RELATED TO AIRCRAFT

Operations that started (and some that expanded) after 1978 obtained a cost advantage by acquiring planes at abnormally low prices. The recession, the slow-down of airline traffic, and the general over-capacity that the industry experienced in those years—all led to a temporary “buyer’s market” for used aircraft, which enabled some carriers to obtain planes at a fraction of their normal cost. The extreme example occurred after Braniff’s bankruptcy, when several carriers (including People Express) were able to acquire used Braniff aircraft on exceptionally favorable terms.

Obviously, this type of cost advantage is temporary and transitional; sooner or later all carriers will be faced with more normalized equipment acquisition costs.

New entrants have also benefitted from their ability to concentrate on aircraft types that are most suited to the marketing conditions they found in the deregulated free entry environment. Having no prior fleet ownership or commitments, they were able to make their equipment decisions in relation to the new competitive “ball game”—unlike the established carriers whose fleets had been acquired over decades of a totally different market environment.

In particular, the deregulated airline market placed a premium on small planes. With free entry, any route is subject to being subdivided among additional carriers virtually overnight. Smaller planes (needing a lesser number of passengers to cover their operating cost) provided the optimum flexibility to adjust to this exposure to market subdivision.

The new entrants were free to apply this new fleet-planning criterion to all of their acquisitions—while the older carriers could do so only in the more limited context of current and future additions to their established fleets.

In any case, it is important not to confuse the

deregulation-triggered benefit of small planes, with long-term inherent cost efficiency. It continues to be true that, for any given stage of technology, large planes can generate seat miles more efficiently than smaller ones. If a route needs 300 seats at a certain time of day, it is less costly to fly that volume in a single DC-10 flight, than in two flights with 150-seaters, or than in three flights with 100-seaters. If the traffic on that route could be consolidated sufficiently to provide an adequate load factor on the DC-10, this would be more cost effective than splitting the loads among several planes of smaller size.

There is, in other words, an “economy of scale” in aircraft size. But the market fragmentation of deregulation has made it more difficult to obtain the benefits of that scale. In this sense, deregulation has converted what would normally have been *less efficient* planes, into *seemingly* more efficient ones, simply because the smaller planes fit better into the new market subdivisions and uncertainties.

As carriers have applied these new realities to their future fleet planning, they have naturally found it necessary to “think small” in terms of aircraft size. This development is building a sub-optimum degree of aircraft cost effectiveness into the industry’s long-term future operation.

SERVICE RIVALRY COSTS

Deregulation has had a disappointingly mixed record with respect to the costs associated with so-called “service rivalry”. This refers to the cost of amenities and other aspects of service, including the costs of scheduling rivalry. Advocates of deregulation claimed that this new regime would substantially reduce the incentives for service rivalry, which was viewed as wasteful and costly. It was argued that, under regulation, carriers had been forced to look to non-price forms of competition because they could not compete in price. Here’s a typical statement:

Such non-price competition takes various forms, including costlier meals, ‘free’ drinks, expensive advertising, flashy interior and exterior color schemes, ‘VIP’ airport lounges, on-board lounges, pianos, bars, and the like. But much

more important, in terms of its ultimate cost to the consumer, is the scheduling form of non-price competition.⁵²

With deregulation, it was predicted, the freedom to compete in price would obviate the need to compete via service features and amenities. Deregulated competition has not in fact developed in line with that expectation. The reason is that price cuts by one carrier have usually been matched by other competitors on the route, so that price alone does not remain a clear and distinguishable basis for selecting one carrier over another. In most markets, price ends up almost as much of a neutralized factor for carrier selection as it was during the era of regulation. And hence airlines continue to find it useful to stress schedule frequency, in-flight amenities, and other service features, as the basis for attracting patronage. The prevailing ad theme has come to be: "We have the same low price as Airline X. But our airline gives more and better service features for that price."

The clearest examples of this aspect of deregulated competition came in response to the entry of People Express onto major routes in mid-1984. That carrier provided a no-frill service, at fares that were typically about one-third of the prior normal fares. Almost without exception, the response of the incumbent carriers on those routes was to match the fares wholly or partly—but without cutting back their service features—and then to advertise their superior service at the same price. Here are some examples of this common theme:

An August 1984 ad by New York Air (aimed at People Express) indicated that "nobody offers you lower fares to Detroit" . . . and "even though we're cutting our fares, we won't be cutting back our service." This ad then featured the following service aspects: "The most non-stops; complimentary wine of the month; extra legroom; 80 percent window and aisle seating; free baggage check-in; complimentary New York-style snacks on peak flights; complimentary New York Times on weekday mornings."

An August 1984 ad by Eastern (also aimed at People Express) featured its \$99 fare to Florida, and then listed its amenities: "Free meals or snacks; free beverages; free baggage handling; curbside baggage check-in; advance seat selection; advance boarding passes; wide-body flights; in-flight movies; more leg room comfort."

An April 1985 ad by Continental Airlines was even more blunt in specifically naming its target:

"Until now, some people who wanted to save a few dollars had to fly People Express and suffer. No more. Continental's \$65 fare is available on every off-peak flight every day to Denver and Houston, and it's actually lower than People's. But our standards are much higher. Continental's low fares include great food and the kind of personal attention you can only get from a major airline. We check your bags free, pre-reserve you a seat so you don't have to fight for one, and we even give you the extra legroom you need on a long flight . . . Plus, when you fly Continental you're not limited to flying out of Newark."

One result of these competitive patterns was to deter many new entrants from even attempting to rely on price alone as the basis for creating their market "niche." As noted by the CAB, in its report to Congress in January 1984: "Initially, all the new entrants stressed no frills and low fares. However, several carriers have had to change their operating strategies, as the established carriers increasingly tended to match their prices. Now a number of new entrants are offering more spacious seating and increased amenities than the formerly regulated carriers."

Incidentally, even People Express (which has consistently adhered to a no-frills policy in terms of amenities) has nonetheless found it necessary to engage in service rivalry with respect to schedule frequency. Second to price, the theme most stressed in People Express advertising is the number of nonstop flights it operates to its destinations.

The long term significance is that to date, deregulation

52. James C. Miller III, *Journal of Air Law and Commerce*, School of So. Methodist University, Autumn 1975, p. 685.

lation has not fulfilled the prediction that it would eliminate service rivalry, and that this would be a major factor in lowering the cost of airline competition.

OTHER COST FACTORS

There are a variety of other operations aspects in which the pressures of deregulated competition have tended to increase, rather than reduce, costs. The following sections describe these aspects.

Congestion and Flight Delays

By the summer of 1984, the scheduling volume and practices of deregulated free entry were contributing to a substantial increase in air traffic congestion and flight delays. As noted by the President of the Airport Operators Council: "Deregulation has caused a major part of the problem . . ." (This is discussed further in Chapter 7.) Apart from the inconvenience to passengers, delays increase operating cost. Delays have cost the airlines millions of dollars for extra fuel and crew time.

Pricing Chaos

The chaos of deregulated pricing has forced airlines to increase their staffing to keep up with the mass of daily fare changes (discussed in Chapter 4). For example, Delta Airlines found it necessary to assign 147 employees to keep track of fare changes, increasing its tariff department staff by five times the number of employees before deregulation.

Instability of Schedules and Routes

Chapter 7 addresses the great turnover of routes with the advent of free entry and free exit.

There are costs associated with constantly changing schedules and the locations of operations. These include the cost for transferring employees, laying off employees in one location and hiring personnel elsewhere, shifting equipment and parts, penalties for early termination of leases, and advertising and promotion costs for opening new routes.

Increased Reservation Cost

The complexity of deregulated pricing has increased the reservations workload. Reservation agents must explain to customers the myriad of fare variations and changing conditions. In addition to more telephone-transaction time required, reservation agents must deal with the many customers who are only "shopping around" between airlines to find the best bargain.

Increased Travel Agent Commissions

Because of the confusion regarding fares and schedules, passengers have been booking a higher percentage of their trips through travel agents. Furthermore, the intensified carrier competition (seeking favored treatment from travel agents) has led to increased commission rates. Greater use of travel agents and higher compensation rates caused the airline industry's commission costs to grow by 150 percent between 1978 and 1983—twice the rate of growth for airline passenger revenue.

Cost Effect of Hub-And-Spoke Operations

The massive increase in hub-and-spoke operations is discussed in Chapter 7. While hub-and-spoke operations have important competitive and traffic advantages, they entail distinct cost penalties. In particular, they require intensive peaking of operations at the hub stations—with large numbers of inbound flights arriving almost simultaneously followed by equally large numbers of outbound flights leaving also virtually simultaneously. Facilities, gates, and personnel must be geared-up for these highly peaked operations—with unavoidable periods of under-utilized time in between the "waves" of connections.

While it is impossible to pin down precisely the amount of cost increases which are specifically attributable to deregulation in these several areas, it is clear that deregulation has contributed to such cost increases, tending to offset part or all of the highly publicized improvements in labor costs.

COST VARIATION BETWEEN CARRIERS

Airline costs are affected by so many variables that it is impossible to judge efficiency among different airlines merely by comparing any generalized measure of unit cost. (For example, costs are heavily affected by length of haul, so that long-haul carriers would—other things being equal—normally have lower unit costs.)

Subject to this qualification, it is nevertheless interesting to note the general patterns of unit costs emerging from the various carriers. Table 6 indicates the cost per seat mile for individual carriers for 1983, along with each carrier's operational size that year (measured in seat miles), and its relative profitability (measured in operating profit margin).

These data do not show any clear correlation between unit cost and size. Nor do they show any

consistent cost relationship applicable to new entrant carriers versus the more established carriers. While some of the smaller lines (such as People Express and Southwest) had cost levels distinctly below the industry average, other small lines (such as New York Air) had costs above that average.

The former trunk lines had a comparatively consistent cost level (hovering around 7–8 cents per seat mile), and this placed them neither at the low, nor the high, end of the cost variation scale.

These data may seem inconsistent with the general impression that the newer small carriers have markedly lower costs than the more established lines. There are several explanations. First, by 1983, most of the established carriers had been able to adjust costs downward somewhat, through wage-rate concessions and other measures.

Second, the larger carriers have generally been favored by a longer length of haul, actually increased since deregulation by dropping off previous short-haul routes, and by the addition of new inter-continental routes.

Third, some of the new carriers had deliberately moved into a higher-cost pattern of operation by going after a market niche of upgraded service. (This is true of Midway and New York Air, for example.)

For this variety of reasons, the cost differences between the several groups of carriers has become somewhat "blurred."

At the same time, carriers like People Express and Southwest remain exceptions to this blurring tendency—and continue to have markedly lower seat-mile costs than *either* the more established carriers or the other small carriers. Because of their aggressive expansion programs, the low cost of these carriers has had an impact on general industry marketing and pricing that is disproportionate to their own specific size.

As is also evident from Table 6, variation in cost does not in itself have any necessary correlation with profitability. The key to airline profitability is the *relationship* between cost and fare, and some of the most profitable carriers in the industry have high seat-mile cost, but are able to charge a correspondingly high fare, because of the nature of their route structure, and the lesser competition they face.

TABLE 6—CARRIER COST PER SEAT MILE VS. CARRIER SIZE AND PROFITABILITY (1983)

Carrier (in Ascending Order of Seat-Mile Cost)	Cost Per Seat Mile	Size (Seat Miles in Billions)	Operating Profit as Percent of Revenue
Muse	5.34¢	1.3	+6.3%
People Express	5.52	4.9	+7.2
Southwest	6.00	6.3	+15.3
Western	7.20	16.7	-4.9
Northwest	7.21	29.5	+3.1
Pan American	7.38	46.2	+0.4
United	7.71	67.6	+2.9
Delta	7.95	49.5	-1.5
TWA	8.05	42.5	-2.0
American	8.17	52.4	+5.5
Continental	8.19	15.4	-15.0
Eastern	8.44	47.9	-2.5
Piedmont	8.52	9.5	+6.8
Midway	8.63	1.3	-11.9
Republic	8.68	17.8	-2.1
Ozark	9.12	4.7	+0.6
Frontier	9.20	6.6	-3.9
Alaska	9.26	2.7	+9.0
PSA	9.55	5.6	-2.3
New York Air	10.54	1.1	+6.7
USAir	10.66	12.2	+9.0
Empire	13.29	0.3	+9.2
Air Wisconsin	16.55	0.3	+13.8

Source: Cost per seat mile and number of seat miles from Oppenheimer & Co., *Airline Industry Report*, March 9, 1984. Operating Profit Margin from CAB Quarterly Financial Review.

SOME PERSPECTIVES ON COSTS

Airline costs do not lend themselves to generalizations. Since deregulation, the airline cost structure has been buffeted by enormous changes, such as increased fuel costs. This has been offset by the downward pressure on labor costs, triggered by non-unionized new entrants and the resulting labor concessions obtained by the larger airlines.

The trend toward smaller planes has been only an illusory cost efficiency, and in fact has actually resulted in higher seat-mile cost than would be possible with larger planes. Moreover, it has been indicated that there are a number of areas where the pressures of deregulation have increased cost (e.g. travel agent commissions, congestion delay cost, etc.).

At the start of this chapter, it was pointed out that the overall cost per seat mile increased for the industry by 48 percent between 1978 and 1983, which was 5 percentage points less than the general rate of

national inflation during this period. Thus, it does seem fair to say that the *net* effect of the several disparate cost trends has to date been favorable.

Yet, it is also important to keep in mind that the impact of deregulation on cost has not been totally favorable. This could be especially significant for the future. Insofar as the largest element of cost saving thus far has been in labor cost, the downward leverage of this cost element *could* dissipate over the long-term, as even the new entrants eventually face pressures for wage increases (if only for longevity), and as employees generally become less willing to grant concessions in a more favorable economic climate. If and when this occurs, it may well be found that the negative cost effects of deregulation (lower efficiency of smaller planes, for instance) have a more lasting structural effect, and will take on a more dominant role in the economic equation. Thus, it is premature to conclude that deregulation has meant lower long-term cost for this industry.

Chapter 4

Domestic Airline Pricing Under Deregulation

The widely-held public impression is that deregulation has lowered airline fares. However, that impression is only partially valid. The fact is that deregulated fares are lower on some routes, but higher on others as a result of deregulation. Fares have been in a continuing state of change since deregulation, often varying dramatically from one date to the next for the same trip. On some routes, fares have been reduced by deregulation to levels below those of 1978—but on other routes, fares have doubled or more in this same period. The following discussion of airline pricing examines the trends of industry aggregate pricing data and variations within those data.

Overall, deregulated airline pricing can be divided into three main periods: (1) the 4½ years from the start of deregulation through mid-1983; (2) the period from mid-1983 to mid-1984; and (3) the period from mid-1984 on. During the first period, airline fares in aggregate never caught up with the inflation of airline unit costs—because of fare wars and other forms of yield erosion.

Cost and yield trends are presented in Table 7 and Figure 4 for airline industry operations since 1978. In the first full year of deregulation (1979), fare increases lagged a substantial 10 percentage points below the fuel-triggered jump in costs. This yield gap narrowed in 1980, but then widened again, and remained at roughly 8 negative points through 1983, as fare wars prevented carriers from reflecting true operating costs.

From the standpoint of the consumer, the lag in fares through mid-1983 meant of course that fares were lower than would have been justified by costs. This has sometimes been pointed to as a consumer benefit. However, it must be recognized as at most a transient benefit, since below-cost pricing cannot be sustained indefinitely, except at peril to industry vi-

ability. (The adverse financial impact is discussed in Chapter 5.)

As indicated in Table 7, the relationship between fares and costs did in fact turn around in 1983, as fare wars abated. By the 12-month period ending September 30, 1984, the gap between yield and cost escalation had not only been eliminated, but yield increases actually moved ahead of cost inflation.

To observe more clearly the changes that were occurring within these recent 12-month periods, Table 8 shows data for individual calendar quarters, from the start of 1982 through the end of September 1984. Particularly noteworthy was the extreme impact of widespread fare wars in the first quarter of 1983. While costs in that quarter were 55 percent above 1978 levels, average yields were only 31 percent above 1978—so that the yield at that point lagged behind cost inflation by a staggering 24 negative percentage points.

Following the disastrous financial losses of the first quarter of 1983, fare wars abated, and yields started climbing. During each subsequent quarter in 1983, the gap narrowed, and was fully overcome by the fourth quarter of that year. In the first quarter of

Domestic Airline Pricing Under Deregulation

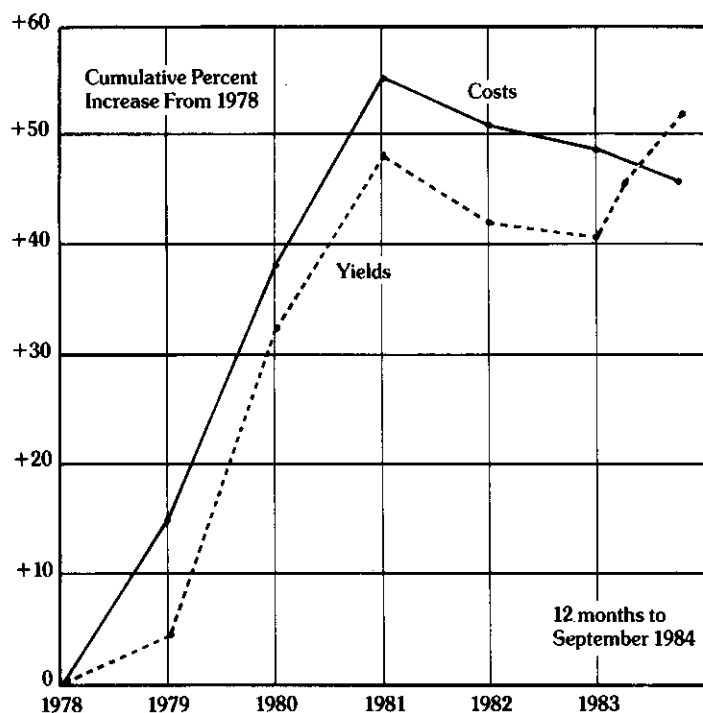


Figure 4. Trends in Average Yields and Seat-Mile cost (System Operations) Since 1978

TABLE 7—TREND OF AIRLINE YIELDS AND COSTS (1978–1984)

Year	Average Yield per Passenger Mile	Average Cost per Seat Mile ^a
1978	8.3¢	4.7¢
1979	8.7	5.4
1980	11.0	6.5
1981	12.3	7.3
1982	11.8	7.1
1983	11.7	7.0
12 months to September 30, 1984	12.3	6.9

Year	Cumulative % Change from 1978		Gap between Yield and Cost Increase
	Yield	Cost	
1978	—	—	—
1979	+ 4.8%	+14.9%	–10.1 pts.
1980	+32.5	+38.3	– 5.8
1981	+48.2	+55.3	– 7.1
1982	+42.2	+51.1	– 8.9
1983	+41.0	+48.9	– 7.9
12 months to September 30, 1984	+48.2	+46.8	+ 1.4

a. Derived in same manner as indicated in Table 5.

Source: Civil Aeronautics Board and Air Transport Association.

1984, the positive spread between yield and cost peaked at 4 percentage points.

In the following quarters, new outbreaks of competitive price cutting caused yields to start to soften again, although not nearly to the degree evident in early 1983. The aggressive expansion of certain low-fare services (particularly by People Express) cut into yields on many major routes. However, at least through the fall of 1984, this had not developed into full-fledged fare wars.

The preceding discussion—dealing with overall industry-wide averages—presents only the “tip of the iceberg” with respect to deregulated airline pricing. Beneath these system averages, there has been a chaotic churning of individual fares, with widely disparate price levels between different markets.

Some passengers have been getting great bargains, while others are forced to bear substantial fare increases. Unfortunately, the volatility of deregulated airline pricing makes it difficult to present a detailed, fully accurate picture of all of the route-by-route variations; one can only present *illustrative* comparisons.

This volatility is so great that large airlines get massive computer runs each morning, to find out on which routes competitors changed their fares the day before, and to decide on what competitive response to take.

A front-page article in the *Wall Street Journal* (August 24, 1984) described the daily pricing chaos:

TABLE 8—QUARTERLY CHANGE IN YIELDS AND UNIT COSTS (SYSTEM OPERATIONS) 1982–1984

Period	Cumulative Percent Change from Calendar 1978		Yield Change vs. Cost Change
	Yield per Passenger Mile	Cost per Seat Mile	
1982 1st Quarter	+42%	+57%	–15 pts.
2nd Quarter	+41	+50	– 9
3rd Quarter	+42	+46	– 4
4th Quarter	+41	+53	–12
1983 1st Quarter	+31	+55	–24
2nd Quarter	+39	+49	–10
3rd Quarter	+43	+45	– 2
4th Quarter	+52	+49	+ 3
1984 1st Quarter	+52	+48	+ 4
2nd Quarter	+47	+46	+ 1
3rd Quarter	+42	+41	+ 1

Source: Derived from CAB data.

"Delta assigns 147 employees to track maze of prices . . . On a typical day, the tariff department compares at least 5,000 industry pricing changes against Delta's more than 70,000 fares . . . The day begins at 7 AM EDT, when a Delta computer begins disgorging a list, sometimes several hundred pages long, showing the new fares filed the prior day with the Air Tariff Publishing Co. On a recent Monday, the list showed United Airlines with 5,282 [changes], Republic Airlines with 2,946, and Eastern Airlines with 3,709."

In this environment, any comparison of fares developed at one point in time will be out-of-date within days, or at most weeks. The terms and conditions of fares also vary widely from market to market, further complicating comparison. One of the major variants in the current pricing equation is the amount of seat inventory that an airline chooses to make available for so-called "capacity controlled" discounts—a factor known only to the airline itself.

Factors such as these mean that comparisons of fares can be only approximate; nevertheless it is important to make at least some effort at portraying the degree of fare variation, as part of any discussion of the pricing impact of deregulation.

FARE VARIATION BETWEEN ROUTES

Table 9 depicts a sampling analysis of the fare variation between domestic routes. The methodology for deriving this sample is presented in Appendix A.

Every attempt was made to find a random cross section of markets that would provide a representative sampling of different stage lengths and market sizes. For each market in the sample, an attempt was then made to find the lowest "effective" one-way fare as of April 1984. These fares were compared to the lowest effective fares before deregulation (in April 1978).

In both periods, there were some lower fares available that required advance booking, roundtrip travel, and minimum trip duration. Since such conditions automatically excluded much of the market, it was felt that the most meaningful comparison would be in terms of fares that could be bought without advance arrangements and on a one-way basis.

The "lowest effective" fare this analysis sought to show is the fare that would actually be found by a substantial portion of passengers traveling on the given route. In some of these markets, there were other, lower fares available on carriers who were minor participants in the market (e.g., some special low fares available only on connecting schedules in markets where the bulk of the traffic moves on non-stop flights.) To show such special fare as the going rate for the given market would give a misleading picture, since so few passengers on the route would actually get this fare.

Therefore, this analysis has dealt only with fares offered by carriers deemed to be significant participants in the market.

**TABLE 9—COMPARISON OF ONE-WAY COACH FARES (APRIL 1984 VS. 1978)
SPECIFIED CITY PAIRS**

City Pairs	Distance (Miles)	Lowest Effective One-Way Fare		Percent Change	Fare per Mile	
		April 1978	April 1984		April 1978	April 1984
Syracuse-Albany	119	\$ 34	\$ 50 ^a	+ 47%	29c	42c
New York-Albany	136	32	67 ^a	+109	24	49
New York-Binghamton	146	39	86	+121	27	59
Salt Lake City-Pocatello	150	33	64	+ 94	22	43
Nashville-Birmingham	177	36	101	+181	20	57
Syracuse-New York	197	38	38	—	19	19
Miami-Tampa	205	38	44 ^a	+ 16	19	22
Nashville-Atlanta	214	40	119	+198	19	56
Syracuse-Philadelphia	228	41	116	+183	18	51
St. Louis-Kansas City	237	42	59 ^a	+ 41	18	25
Miami-Daytona Beach	239	51	59 ^a	+ 16	21	25
St. Louis-Chicago	258	44	79 ^a	+ 80	17	31

Continued

TABLE 9—(Continued)

City Pairs	Distance (Miles)	Lowest Effective One-Way Fare		Percent Change	Fare per Mile	
		April 1978	April 1984		April 1978	April 1984
Syracuse-Boston	264	\$ 54	\$ 98 ^a	+ 82	21¢	37¢
New York-Portland (ME)	269	46	38	- 17	17	14
New York-Norfolk	296	47	38	- 19	16	13
St. Louis-Cincinnati	307	49	162	+231	16	53
Columbus (OH)-Washington	321	49	70	+ 43	15	22
Nashville-Charlotte	328	53	107 ^a	+102	16	33
Columbus (OH)-Nashville	337	75	175	+133	22	52
Salt Lake City-Denver	380	56	70	+ 25	15	18
St. Louis-Chattanooga	383	56	188	+236	15	49
Salt Lake City-Billings	387	57	168	+195	15	43
Miami-Tallahassee	403	58	108 ^a	+ 86	14	27
Columbus (OH)-Philadelphia	404	59	149	+153	15	37
Syracuse-Norfolk	429	61	60	- 2	14	14
New York-Jacksonville (NC)	458	77	149	+ 94	17	33
New York-Columbus (OH)	476	65	60	- 8	14	13
Miami-Charleston (SC)	491	75	168	+124	15	34
Salt Lake City-Albuquerque	492	84	181	+116	17	37
Salt Lake City-Phoenix	507	74	129 ^a	+ 74	15	25
St. Louis-Dallas	550	72	139 ^a	+ 93	13	25
Salt Lake City-Los Angeles	590	74	200	+170	13	34
Nashville-Omaha	611	77	156 ^a	+103	13	26
St. Louis-Columbia (SC)	612	80	223	+179	13	36
New York-Augusta (GA)	678	81	204	+152	12	30
Nashville-Allentown	683	82	215	+162	12	32
Columbus (OH)-Omaha	687	84	236	+181	12	34
Nashville-New York	762	88	169 ^a	+ 92	12	22
Syracuse-Atlanta	793	90	255	+183	11	32
St. Louis-Philadelphia	810	92	135 ^a	+ 47	11	17
Salt Lake City-Oklahoma City	863	115	125 ^a	+ 9	13	15
Columbus (OH)-Oklahoma City	863	100	249	+149	12	29
St. Louis-West Palm Beach	1023	108	185 ^a	+ 71	11	18
New York-West Palm Beach	1036	108	99	- 8	10	10
Miami-Cleveland	1082	112	139 ^a	+ 24	10	13
Nashville-Albuquerque	1119	122	238 ^a	+ 95	11	21
Miami-Hartford	1196	120	304	+153	10	25
Miami-Boston	1259	125	149 ^a	+ 19	10	12
New York-Oklahoma City	1337	132	199 ^a	+ 51	10	15
Columbus (OH)-Albuquerque	1339	132	321	+143	10	24
Miami-Bangor	1460	140	339	+142	10	23
St. Louis-San Diego	1553	148	159 ^a	+ 7	10	10
New York-Amarillo	1555	148	350	+137	10	23
St. Louis-Reno	1569	157	350	+123	10	22
Salt Lake City-Atlanta	1583	153	353	+131	10	22
St. Louis-Los Angeles	1588	149	350	+135	9	22
Miami-Denver	1714	160	209 ^a	+ 31	9	12
St. Louis-San Francisco	1730	160	360 ^a	+125	9	21 [*]
Nashville-Ontario	1746	164	324 ^a	+ 98	9	19
New York-Albuquerque	1815	167	204 ^a	+ 22	9	11
Salt Lake City-New York	1975	179	195	+ 9	9	10
Salt Lake City-Hartford	2019	182	420	+131	9	21
Columbus (OH)-Portland (OR)	2028	183	373	+104	9	18
Syracuse-Phoenix	2040	184	385	+109	9	19
New York-Phoenix	2142	191	325 ^a	+ 70	9	15
Miami-Ontario	2291	204	283	+ 39	9	12
Syracuse-Los Angeles	2344	205	403	+ 97	9	17
New York-Ontario	2417	213	433	+103	9	18
Miami-San Francisco	2579	223	318 ^a	+ 43	9	12
Miami-Portland (OR)	2695	232	309 ^a	+ 33	9	12

a. Capacity control restrictions apply.

Source: See Appendix A for source and methodology.

Several observations can be drawn from an analysis of Table 9:

- In 1978, with fares regulated, the CAB's mileage formula resulted in a consistent pattern of fare-per-mile, with fares tapering gradually with increasing distance.
- In the deregulated airline market, on the other hand, there is no pattern to fare variation (see Figure 5). The Spring 1984 fare-per-mile varied widely, even for markets of similar stage length (e.g., the 13¢ per mile for New York-Norfolk compared to 53¢ per mile for St. Louis-Cincinnati, even though these two markets are within 11 miles of the same distance).
- Because of the wide variation in deregulated fares, there is a correspondingly wide variation in the amount of fare escalation since 1978. (The 1984 New York-Norfolk fare was 19 percent below 1978, whereas St. Louis-Cincinnati was 231 percent higher than 1978.)
- While the overall average fare paid by all airline passengers increased by about 50 percent between 1978 and the spring of 1984, there were many markets where passengers seeking a basic unrestricted fare had to pay more than a 120 percent increase over 1978 fares. Table 10 presents

a summary breakdown of the city pairs detailed in Table 9. As indicated, over one-third of the markets analyzed had fare increases of over 120 percent in six years—or an average fare escalation of over 20 percent per year.

- Under deregulation it is common for passengers to pay more in absolute dollars for a short trip than for a long one. (For example, the \$159 St. Louis-San Diego fare was \$29 less than the St. Louis-Chattanooga fare, even though the former trip is 1,553 miles, or four times longer than the latter mileage of 383 miles.)

The pricing disparities indicated in Table 9 do not represent some temporary aberration. The April 1984 period covered by this analysis was not one of extraordinary fare-war activity. In other periods (such as early 1983), the disparities would have been even greater.

Fare disparity has become an on-going phenomenon of deregulation. Some growing awareness of this has been evident in comments in the general press. For example, the *Wall Street Journal* of August 24, 1984 pointed out: "A traveler jetting between

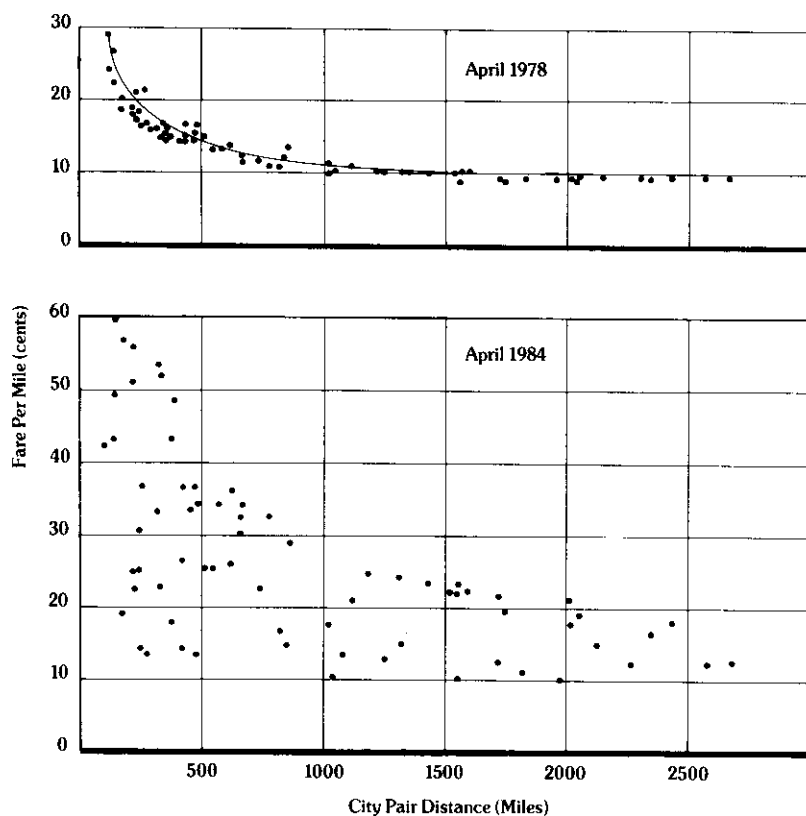


Figure 5. Fare Per Mile vs. City-Pair Distance (April 1978 and April 1984)

TABLE 10—BREAKDOWN OF FARE ANALYSIS SAMPLE, BY PERCENTAGE OF FARE INCREASE (1978–1984)

Fare Increase Percent	Number of City Pairs	Percent of all City Pairs in Sample
– 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: See Table 9

Atlanta and Charlotte, NC, for instance, currently pays the equivalent of 48.1¢ per mile, while another flying virtually the same distance between Dallas and Tulsa, can make the trip for just 11.7¢ a mile. A coast-to-coast flight can be cheaper than one crossing a single state line.” Similarly, *Time Magazine* stated in its October 8, 1984 issue: “A ticket from New York City to Los Angeles (2,475 miles) on People Express costs \$119, and at least five carriers offer seats on flights between Dallas and Houston (217 miles) for \$25. At the same time, though, prices on lightly traveled routes remain high. A one-way Frontier Airlines’ coach ticket from Denver to North Platte, Nebraska (207 miles) can cost as much as \$163.”

FACTORS CONTRIBUTING TO FARE VARIATION

The enormous variation in fares indicated in Table 9 can be understood only by first considering the nature of airline costs and competitive pressures, as they affect individual market fares.

It has sometimes been stated by the CAB and others that the wide pricing variations under deregulation have reflected variations in cost. For example, CAB’s 1984 report to Congress states: “Fare differences between markets are now more likely to be the result of cost differences.” However, such statements have never been supported with published analyses considering in detail the enormous fare variations between individual markets, or indicating how much of the pricing disparity could be specifically correlated with identifiable cost variances. The very con-

cept of airline costs is such a fluid and flexible one, as to create a very wide spectrum of costs within which individual airlines can rationalize their market fares. In actual practice, it is the varying intensity of competition that determines where, within the broad spectrum of “costs”, the precise fare will be established.

At the one extreme, where a carrier is considering how to price an otherwise empty seat, on a schedule that is already committed to be flown, the marginal cost of filling that empty seat is very close to zero. The basic cost of fuel, crew pay, landing fees, depreciation, and maintenance will not be affected by whether there are 101 passengers instead of 100 on a B-727. Thus, airlines will usually view the “empty seat” marginal cost as almost nil, and will regard almost any token revenue as preferable to the zero revenue from an empty seat.

At the next plateau of cost recovery, there is the variable cost of flying the plane (i.e., the cash out-of-pocket operating costs, excluding fixed and overhead system costs). In the short run, fixed and overhead costs are not likely to be affected by whether or not a given schedule or route is operated, and consequently pricing that is related only to variable operating costs is sometimes acceptable, particularly where a more stringent cost test would result in merely grounding the plane, and under-utilizing other resources.

Finally, there is the “fully allocated” cost basis for pricing. This is the one level of pricing that seeks full recovery of *all* costs, fixed as well as variable.

Prior to 1978, with regulation of fares, the CAB attempted to take all cost variables into account, disallowing those that appeared to reflect operational inefficiency. The CAB then averaged the allowable costs into one overall formula. This represented a consolidated industry cost level, intended to reflect efficient operation under existing technology. The formula was intended (in its average system impact) to cover fully allocated costs, including a fair return on investment—subject only to the exclusion of those costs specifically found by the CAB to represent inefficient management.

The CAB formula recognized that costs vary inversely with segment length and, therefore, the formula included a taper, so that fare per mile sloped

downward with increasing distance.⁵³ (This is evident in Table 9, which indicates that in 1978, fares for the sample city-pairs ranged from a high of 29¢ per mile for a 119-mile trip, down to 9¢ per mile for transcontinental trips.)

In setting this formula, the CAB acknowledged that there were many aspects of cost variation besides mileage, and that these were not all reflected in the formula. The CAB concluded however that the public would best be served with a mileage-related fare formula that gave trips of equal distance essentially an equal fare. This would of course mean *above-average* profits on some routes (those that have a low unit cost, relative to stage length), and *below-average* profits for other routes (those that have high unit costs relative to length).

However, the CAB felt that the public as a whole would benefit from this averaging of profitability—so long as the overall fare level did not produce excessive profits, and so long as elements of cost regarded as inefficient were disallowed. (Specifically, the CAB disallowed millions of dollars each year on the basis of load factors, utilization, and seat configuration levels that did not meet its standards.)

With deregulation, the concept of a mileage-related fare structure was replaced by the marketplace pragmatics of varying competitive pressures on different routes. Factors such as the following came into play to affect the fare levels in specific city pairs:

1. Carriers could newly enter into previously more profitable routes, and settle for a fare level that would provide a more moderate profit, or even just a "contribution" over variable cost. (To a newly entering carrier, any contribution over marginal cost was more than the zero participation it previously had obtained on this route.)

2. New entrant carriers (with lower labor costs, the lower aircraft ownership cost of used planes, and possibly the lower cost of lesser amenities) could offer a fare lower than the norm previously prevailing on the route.

3. Carriers with cash deficit problems sometimes cut fares in the hope of stimulating a sudden surge of

traffic, to generate quick cash, even though this fell short of covering full cost.

4. Carriers able to participate indirectly in a given market (i.e., via one-stop or connecting service in a market served primarily on non-stops) could rationalize a very low fare for such one-stop or connection routing on the basis that this carrier would otherwise not get any of this traffic—and that any small return would exceed the zero marginal cost of filling an empty seat.

5. A carrier might take an outright gamble on a very low fare, hoping that the very level of the fare would deter other carriers from matching—in which case the fare cutter could actually make out satisfactorily, by getting a disproportionately high load factor because of having the best bargain on the route. For example, if the normal industry load factor on a given route has been 55 percent, and if a fare-cutting carrier could get an 80 percent load factor by having an unmatched low fare, this load factor advantage could, in itself, pay for a 31 percent fare differential—even if all aspects of operating efficiency were identical for all carriers.

In some of these situations, the initiation of a fare reduction may have been related to the unusually favorable cost structure of the fare-cutting carriers, and in those cases the fully allocated cost of that carrier might be the basis for the fare action. In other cases, the fare-cutting carrier would be basing its action on some form of marginal cost pricing.

But, regardless of what level of cost recovery led to the initiation of a fare cut, the *response* to such action—by the *other* carriers on the route—has been nearly always a "marginal cost" decision. To the responding carrier, it is usually irrelevant whether the new, lower fare is adequate to cover its fully allocated cost. Even if the lower fare clearly falls below such full cost, the relevant issue at this point is whether the responding carrier will lose *more* by refraining from matching (and merely flying empty seats) or by matching (and at least covering the marginal costs of handling the retained traffic).

By and large, airlines have concluded that it is less costly to match. Depending on the size and perceived market power of the fare-cutting carrier, the degree of the matching by the responding carriers might be total, or it might be partial (i.e., only enough to keep the traffic loss contained). Sometimes the matching of lower fares has been accompanied by trip duration

53. The specific CAB formula, as it existed for January 1, 1983, was: Coach Fare = \$27.68 plus 15.14¢ for all miles up to 500; plus 11.55¢ for miles between 501 and 1,500; plus 11.10¢ for all miles beyond 1,500.

or other restrictive conditions. Very often, the matching has been on a "capacity-controlled" basis, where the responding carrier offers the lower fare on a selective basis for some portion of the seats on some flights—while still seeking to preserve a full-fare level on as much of its capacity as possible.

Sometimes, when the fare being matched was offered only at one airport within a metropolitan area (e.g., as with People Express operating only at Newark), responding carriers would get into very delicate balancing acts, in their attempt to find the optimum basis for responding adequately, without overreacting. This sometimes resulted in very substantial differences in the fares quoted for different airports within the New York metropolitan area.

For example, in January 1984, Eastern Airlines' reservations office quoted \$95 as the best one-way coach fare to Jacksonville out of Newark, \$159 (subject to seat availability) out of Kennedy, and \$241 out of LaGuardia.

When People Express entered the New York-Los Angeles market in the summer of 1984, with a \$159 one-way peak fare and a \$119 one-way off-peak fare, the main incumbent carriers decided that they had to match both fares, but with restrictions. The \$159 fare was matched at Kennedy with one set of travel restrictions (requiring minimum trip duration), and the \$119 fare was matched (for Newark departures) with a tighter set of travel restrictions.

In some situations, carriers have felt threatened enough by a low-fare competitor to make an unrestricted response. A prime example was Northwest Airlines' reaction to the entry of People Express into the New York-Minneapolis route. Previously, the basic, unrestricted one-way coach fare had been \$278. Immediately upon the entry of People Express, Northwest cut its fare to \$95—essentially the same level as that of the new carrier, even though this meant a 66 percent fare reduction. Moreover, Northwest applied this new low fare on all of its nonstop flights between these two cities, and not merely from Newark Airport where People Express operated.

The degree to which this Northwest fare was a competitively-triggered fare (and not one based on Northwest's costs), is evident in the fact that, while charging \$95 for the 1,208-mile New York-Minneapolis trip, Northwest's lowest fares between New

York and Detroit at that time ranged between \$96 and \$129—though the Detroit trip was less than half as long.⁵⁴

Given the nature of the competitive pressures, it was inevitable that fares would fall below fully allocated cost in the more competitive situations. There have been some fare-cutting situations where even 100 percent load factors could not cover cost (see box story on page 41).

In view of the below-cost, competitively-induced fares that have existed on some routes, carriers have had no choice but to attempt to offset this, as much as possible, with substantial fare increases on their less competitive routes.

In the fall of 1984, there were a number of public statements recognizing these disparate cross-currents of pricing—fares increasing on less competitive routes at the very same time that they were declining sharply on the more competitive ones. For example:

"Although the nation's major airlines are making a big noise in slashing prices on some of their heavily traveled routes, they are quietly raising prices on a number of other runs." (New York Times, September 21, 1984, p. D1.)

"Significantly, despite the great visibility in the press of the fare activity taking place in key markets, these markets account for roughly 25 percent of system traffic. The fact remains that the vast majority of 'invisible' markets in this country are not attacked by low-fare carriers. United's recent 3-5 percent fare hike bodes well for yields, since it will likely stick over half of the system." (First Boston Research, Airline Newsletter, September 20, 1984, p. 2.)

"Fare increases postponed from Sept. 22 by American Airlines, Delta Air Lines, United Airlines and several other carriers will take effect Oct. 6. . . . An American official said American

54. This was the Detroit fare when People Express first entered the Minneapolis route. Subsequently, in the summer of 1984, People Express also entered the Newark-Detroit market, and at that point, Northwest lowered its fare on that route as well. This merely provides an additional illustration of the competitively driven (rather than cost-driven) nature of current pricing. Significantly, in the fall of 1984, Northwest's weekday fare for Newark-Detroit was \$65, and its fare for Boston-Detroit was \$229—a fare-per-mile three times greater where there was not then low-fare competition.

ILLUSTRATIVE STATEMENTS REGARDING NON-COMPENSATORY NATURE OF FARE WARS

June 1981:

"During the summer of 1980, normal "coach" air travel prices in New York-California transcontinental markets declined to \$99 or about four cents per mile . . . It is clear that neither fare was sufficient to cover economic costs." (CAB Report on Airline Service, June 1981, pages 4, 12, and 13.)

March 1982:

"The fares generally available in the markets (the one-way fares at which most seats are sold) are for the most part in the \$94-\$142 range, net of taxes. To put this in perspective, the Standard Industry Fare Level (SIFL) for the New York-Los Angeles market is \$346.46 . . . It [World Airways] operates densely configured widebody aircraft that enjoy the lowest seat-mile cost in the industry. Yet it [World] can state unequivocally that a net fare producing an average of \$142 or less per passenger is a fare well below its costs." (Petition of World Airways to CAB, March 9, 1982, p. 7.)

April 1982:

"And the problem of excess capacity in major markets seems to spur the carriers to cut prices to the point where they would not cover fully allocated cost if their planes were full." (Speech by Chairman McKinnon of CAB, before New York Society of Security Analysis, April 23, 1982, p. 1.)

January 1983:

"Even though Capitol's operating costs are lower than those of bigger airlines, Batchelor says that with a \$99 ticket price Capitol would have to fly 119% full between New York and California just to cover cash costs, and 139% full to break even." (*Business Week*, January 24, 1983, p. 26.)

January 1984:

"Although fares in these dense long haul markets do not fully cover the cost of the aircraft and overhead, they do more than cover out-of-pocket costs for fuel, crew and landing fees." (CAB Report to Congress, January 31, 1984, p. 73.)

cannot implement the fare increases on routes where it is in direct competition with Braniff, which recently announced a low-fare structure. American will implement the increases on most routes, however. (*Aviation Week and Space Technology*, October 1, 1984, p. 36.)

What has evolved is virtually a "two-tier" pricing pattern—lower fares on the more intensely competi-

tive routes and higher fares on the less competitive ones. This explains the wide fare disparities with respect to the cross-section of markets in Table 9.

Wide fare disparity has sometimes encouraged circuitous routings, as passengers have sought ways to get the lowest fares. An example was reported in the October 8, 1984 issue of *Time Magazine*:

Rice University Historian Francis Loewenheim, who shuttles between Houston and his native Cincinnati, has found that he can save more than 50 percent by going via Newark, some 1,000 miles out of his way. People Express's Houston-Newark-Columbus fare runs from \$85 to \$109, compared with \$265 for a one-way, undiscounted coach ticket from Houston to Cincinnati on Delta. It does not matter to Loewenheim that he has to finish his trip with a two-hour bus ride (cost: \$18) from Columbus to Cincinnati. Loewenheim says it takes a little longer, and you have to put up with some extra hassles, but the savings makes the time and effort definitely worthwhile."

In view of shifting competitive pressures, wide variation of pricing has existed not only between different routes, but also from month to month on the very same route. Table 11 illustrates this aspect of price volatility by showing the average yields for New York-Los Angeles during specified calendar quarters.

In the first quarter of 1983, with the impact of \$99 fare wars, the average yield on this route dropped by 18 percent from the same period one year earlier. But as fare wars eased in the second quarter of 1983, the yield at that time jumped to a level 18 percent above the previous year.

**TABLE 11—AVERAGE REVENUE YIELD PER
PASSENGER MILE NEW YORK-LOS ANGELES
(SPECIFIED QUARTERS)**

Period	1982	1983	Change
1st Quarter	7.2¢	5.9¢	-18%
2nd Quarter	7.1¢	8.4¢	+18%
Change	-1%	+42%	

Source: CAB Origin and Destination Data Base 1A as analyzed by Boeing Aircraft Corp.

Note: These data reflect the average yield of all traffic moving between these cities during periods indicated.

This also meant that passengers traveling in the second quarter of 1983 on the average were paying 43 percent more than passengers who had made the very same trip just 3 months earlier!

CHANGING PRICING TACTICS

As already noted, the competitive response to a fare cut has usually been to match the fare cut. Responding carriers might have different and higher cost levels than the fare-cutting carrier, yet this does not deter fare matching; it is usually less costly for the responding carrier to match the fare and minimize its traffic loss, rather than preserve a "paper" fare and fly empty seats around. Contrary to some allegations, this below-cost pricing does not constitute "predatory" action on the part of responding carriers, insofar as their intent is merely to minimize their own losses, and not to force the other carrier out of business.

As the probability of competitive fare-matching became more clear, a number of carriers concluded that they had little hope of carving out an exclusive low-fare "niche." They shifted instead to a strategy of offering upgraded service standards at more normal coach prices. They rationalized this new strategy on the grounds that it was frequently more difficult for a larger incumbent carrier to match upgraded service standards on one specific route, than to match fare cuts on that specific route.

The two most significant carriers shifting from an initial low-fare approach to an upgraded service approach were Midway Airlines and New York Air. Other carriers, launching their operations in 1983/1984, decided to adopt an upgraded-service strategy from the start. This included carriers such as Air Atlanta and Air One.

When Braniff resumed operations after two years of bankruptcy, it similarly decided that it had a better chance of establishing a niche through service upgrading, rather than by fare cutting. This was especially significant, since the "new" Braniff was able to resume operations with a lower cost base gained from labor concessions and other cost reductions effected during its bankruptcy. The president of Braniff explained candidly that this lower cost base

would be used to help pay for upgraded service, rather than for lower fares, because "product differentiation is more difficult for competitors to match."⁵⁵

Subsequent developments indicate that the shift to higher quality service has been a mixed success. By the fall of 1984, Braniff had abandoned this approach and shifted to a low-fare approach, accompanied by a sharp reduction in its scope of operations. At about the same time, Air One went into bankruptcy and suspended operations. Midway, while not abandoning its service-quality approach on its original routes, took over some planes and routes from bankrupt Air Florida, and used a low-fare approach on those routes.

Throughout this period, carriers were in effect going through trial-and-error experimentation, in their efforts to find the optimum way to establish a marketing niche, sometimes trying low fares, sometimes upgraded service, and sometimes a mixture of the two. By late 1983, most lines had concluded that direct, frontal deep fare-cutting was futile, but a few low-cost lines did continue to place their primary marketing emphasis on low fares. Principal among these were People Express, Southwest, and the post-bankruptcy Continental.

More generally, by late 1983 and early 1984, the sheer financial impact of fare wars had become sufficiently plain, so that most carriers had become very cautious about actions that might precipitate such competitive battles. Even when it became necessary to match the lower fares of some other carrier, the responding carriers endeavored to limit their response as closely as possible to the specific city-pairs on which the lower fares had been initiated.

Thus, the following report appeared in *Aviation Daily* on February 21, 1984:

United, American and Western, Friday said they will match Continental's recently announced price cuts in only a few city-pairs, and all three airlines added that their new prices will be capacity-controlled in most cases. The "restrained" response, as one United spokesman called it,

55. *Aviation Daily*, March 13, 1984, p. 68.

should cool, at least for the time being, any concern about a possible nationwide fare war.

However, even while the industry was going through this lull in fare wars, there was a lack of assurance as to how long it would last. Some analysts continued to "keep their fingers crossed," noting the possibility of a fare war resumption.

For example, in a February 1984 newsletter, the airline analyst for Salomon Brothers stated: "We believe that domestic airline fares have reached their upper limits and that gradual erosion is now underway." And the airline analyst for First Boston Research indicated in a newsletter dated February 15, 1984: "A recession could push the airlines over the fine dividing line that currently exists between rational and irrational pricing."

Along the same lines, the July 30, 1984 issue of *Aviation Daily* commented: "Much of the operating deficit last year was attributed to fare wars, and industry officials see only a fragile truce preventing recurrence during the last six months when an expected growth slowdown could impact some carriers." Indeed, by the summer/fall of 1984, the pendulum did shift back toward fare cutting. In January 1985, Saloman Brothers commented, "... the airline industry fare structure is coming under increasing pressure, as fare discounting and special promotions have become prevalent."

MID-1984 RESUMPTION OF WIDESPREAD FARE CUTTING

Several developments in mid-1984 altered the "truce" in fare wars. First, People Express moved aggressively onto some of the country's most important routes, with sharply slashed fares. Second, Continental expanded its operations as a low-fare carrier. Third, in September 1984, Braniff concluded that it was not succeeding in its attempt to re-establish itself strictly on a service-competitive basis, and shifted to a fare-cutting strategy.

The most far-reaching of these developments was the expansion of People Express. Starting in the spring of 1984, and continuing through the summer, it moved into such major routes as: Newark-San

Francisco; Newark-Minneapolis; Newark-Los Angeles; Newark-Chicago; Newark-Miami; Newark-Detroit; and Newark-Cleveland. Its fare reductions from normal full coach fare were typically in the order of 65 percent.

These new initiatives by People Express differed from most of its past campaigns, in the sheer importance of the routes involved, and the fact that they were of primary importance to the largest carriers in the industry, including United and American. For example, in overall revenue importance, the New York-Los Angeles market ranks number 1 in the country; New York-Miami, number 4; New York-Chicago, number 8.

The sheer importance of these markets created a special dilemma for the incumbent carriers. On the one hand, they could not afford to let People Express establish too strong a foothold as the one carrier with the best "bargain." On the other hand, the size of the routes (and their relative importance within each carrier's traffic and financial structure) also meant that it was critical to resist any greater erosion of yield on these routes than absolutely necessary.

The responsive strategies varied. In the case of New York-Minneapolis, Northwest met People Express all the way, extending even beyond flights from Newark Airport. However, in the case of New York-Los Angeles and New York-Chicago, carriers like United and American tried to keep their response as controlled as possible. On New York-Los Angeles, they matched fares with round-trip restrictions.

On New York-Chicago (primarily a business travel market), incumbent carriers concluded that it would not be an adequate response to People Express to apply only a roundtrip type of discount. Since such discounts usually require a stay-over Saturday, or a stay of seven days, they would *not* be useable for the short-duration trips typical of most business travelers. Such a strategy would have left People Express with an unmatched fare bargain for business travelers. Consequently, the incumbent carriers adopted a two-fold response: (1) they matched the People Express fare, with round-trip conditions, for those passengers who could meet such conditions; and (2) they adopted special fares for one-way travel, applicable on selected departure times, and close to (but slightly above) the People Express level. The intent was to

continue charging the normal coach fare (or close to that) for any flight where such fares would continue to provide satisfactory loads, while still having one-way fares that approached the People Express level on some flights during the day, thus blunting the extent to which People Express could be perceived as having the only low one-way fares (see box).

An extraordinary aspect of this strategy was the variation that developed in fares for the same carrier's service, on the same route, from flight to flight. Based on telephone check calls made in August 1984, Table 12 shows the variation in American's pricing of its LaGuardia-Chicago schedules. The one-way fare ranged from a low of \$109 (at 8 PM) to a high of \$258 (at most hours of the day). The fare for the same service varied by as much as \$129 or (100 percent), by merely shifting departure time by one hour (from 2 PM to 3 PM).

When these variations are added to the carrier's fare variations available with roundtrip purchase, and still further variations between Newark and LaGuardia, the chaos of pricing in this environment becomes clear.

Incidentally, the type of flight-by-flight fare variation indicated by Table 12 should cast further doubt on the statements by the CAB that deregulated pricing has become more "cost-related." It is inconceivable that there would be a 100 percent cost dif-

**TABLE 12—ONE-WAY COACH
FARES QUOTED BY
AMERICAN AIRLINES FOR
ITS LAGUARDIA-CHICAGO
SCHEDULES (AUGUST 1984)**

Departure Time	One-Way Fare
7:00 AM	\$200
8:00 AM	258
9:00 AM	258
10:00 AM	258
11:00 AM	129
12:00 N	258
1:00 PM	258
2:00 PM	129
3:00 PM	258
4:00 PM	258
5:00 PM	258
6:00 PM	258
7:00 PM	200
8:00 PM	109

Source: Telephone inquiries to American Airlines' reservations office.

UNITED AND AMERICAN RESPONSE TO PEOPLE EXPRESS ENTRY INTO CHICAGO

(Reprinted from *Aviation Daily*, August 13, 1984, p. 235.)

United last week quickly adopted a two-tier fare structure in response to the People Express \$79 peak/\$59 off-peak restricted one-way fares to Chicago from Newark (DAILY, Aug. 10). The carrier matched People Express fares out of Newark and is also offering a \$109 peak/\$89 off-peak unrestricted super coach fare. All fares are capacity controlled, and easy saver fares, which match People Express levels, require a seven-day advance purchase and a first Sunday return or a 60-day maximum stay. American matched United's capacity-controlled fares.

United's new fares are targeted for both the business and leisure markets. Unrestricted super coach fare is \$30 higher than the People Express fares out of Newark and is designed for the business traveler, which United thinks is the People Express target due to the number of frequencies planned. "We put a premium on fares for the New York business traveler because we believe we have a superior product," he said. The carrier will match, however, the People Express \$79/\$59 fares for the discretionary traveler out of Newark and offers six daily flights in that market.

From LaGuardia and Kennedy, United will offer the super coach fares with a \$20 round-trip premium applicable to three of the carrier's 14 flights out of LaGuardia and all four flights from Kennedy. This fare is \$50 higher than People Express fares from Newark and \$20 higher than United's fare out of Newark. In addition, United will match the People Express fares with a \$20 round-trip premium from Islip, White Plains and Trenton airports and from all People Express hub markets, such as Boston, Washington, Baltimore and Pittsburgh.

"We do not think they will take that much traffic away from us, although if we did not introduce fare changes, they would have taken a lot," said Don Moonjian, VP-marketing management. "We have been successful with premiums as high as \$40 in the transcontinental market against World," he said. "We felt that \$30 (above the fares offered by People Express) was a conservative level to come in with and that may be adjusted further on down the line."

Midway plans to match fares on a capacity-controlled basis on the seven daily flights the carrier offers between Midway and Newark. Midway Chairman Art Bass said he is basing marketing strategy on what USAir and Piedmont have done in the past. "Those carriers matched People Express fares on a capacity-controlled basis and held their market share. The People Express fares increased activity at airports served by USAir and Piedmont and stimulated traffic. The result was that USAir and Piedmont traffic returned as soon as business travelers flew on People Express. The total impact was that USAir did better with more passengers, with a slightly diluted yield."

ference on the same airline, on the same route, between a flight leaving at 2 PM versus one leaving at 3 PM.

Naturally, this new outbreak of fare cutting created many new examples of fare disparity. Table 13 compares the lowest one-way fare available in the summer of 1984 on the New York-Chicago route versus certain other Chicago markets. Once again, some shorter trips have higher fares because they do not have the particular competitive pricing battle of the larger route. Thus, a Chicago-Omaha one-way passenger in August 1984 had to pay a 35 percent higher fare than the lowest one-way Chicago-New York fare, even though the Omaha trip was 43 percent *shorter* than the New York trip.

RESTRICTED VERSUS UNRESTRICTED FARES

Deregulation also has brought a radical change to the conditions surrounding fare discounts. In the past, under regulation, the basic unrestricted coach fare was established by the CAB's fare formula. However, the CAB frequently approved carrier proposals for promotional discounts below the basic formula fares. The objective of such discounts was to stimulate more travel in the price-sensitive discretionary market, to fill seats that would otherwise be empty. If passengers using these discounts were newly generated by the fare reduction, and *did* occupy seats that otherwise would have been empty, the low marginal cost of filling an empty seat made such promotional pricing highly beneficial to the carrier, as well as passenger.

To achieve this objective, it was critical that the passenger using such a discount be (as much as possible) one who would be stimulated to travel

because of the fare. To the extent that the discount was used by passengers who would have been traveling anyway, it became just a source of revenue dilution, and the economics would normally be unfavorable.

The terms and conditions that surrounded past promotional discounts were designed to maximize the prospects that passengers using such discounts would be part of the discretionary market and, therefore, most likely to be *new* traffic. This was the sole reason for such conditions as minimum stay, advance purchase, family plan, and tour-based fare.

With deregulation, there have been many situations wherein a carrier would find it competitively advantageous to initiate a fare cut without *any* restrictions (as in the case of a new entrant anxious to get the major promotional thrust of an unrestricted low fare as part of launching its new service).

Sometimes the responding carrier in such situations would attach restrictions to its responsive price reduction; sometimes it would make its responsive fares freely available. And, sometimes the responsive fare reduction was available without condition, but on a "capacity controlled" basis.

In concept, the capacity controlled-discount made a great deal of sense. Since air travel demand varies by hour-of-day, day-of-week, and season-of-year, the goal of capacity-controlled fares was to enable the airline to allot seats for the low fare only on flights and days when there would be the least normal-fare demand, and the most empty seats. In practice, however, there is some doubt that the concept has worked in this manner. So long as any carrier on a route is still offering low-fare seats for a given period of departure, other carriers feel competitively pressured to do likewise. The capacity-controlled aspect of these fares tends frequently to become ignored.

In repeated check calls to airline reservations offices

TABLE 13—ONE WAY FARES OF UNITED AIRLINES: CHICAGO-NEW YORK vs. OTHER SPECIFIED ROUTES (AUGUST 1984)

City Pair	Mileage	Lowest Quoted One-Way Fare	Fare Per Mile	
			Cents	Other Routes vs. Chicago-New York
Chicago-New York	725	\$109	15.0¢	—
Chicago-Omaha	416	147	35.3	+135%
Chicago-Atlanta	606	184	30.4	+103%

Source: Telephone inquiry to United Airlines' reservations office.

in the spring/summer of 1984, it was common practice for the reservation agents to warn that there were only a "limited number of seats" at the low fare—but very few of these calls indicated that the low-fare seats were actually all sold-out, thus suggesting that the "capacity control" was in fact a very loose one.

Further evidence along these lines is the extremely high percentage of passengers traveling at some form of discount. For the major airlines, the percentage reached a high point of nearly 90 percent in early 1983.⁵⁶ Even after subsiding from that high point, it was still over 82 percent in July 1984. On many routes the liberal availability of various discounts has converted the full "normal" fare into a largely "paper" price. This has reduced the ability of discounts to be targeted at just the price-sensitive market and has adversely affected the ability of the discount to stimulate traffic generation commensurate with the amount of fare cut.

RELATIONSHIP OF DEREGULATED PRICING TO DEMAND ELASTICITY

Traffic components of the airline market exhibit widely varying price sensitivity—with the least sensitivity for business/government travel, greater sensitivity for travel associated with personal/family business or schooling, and the greatest sensitivity of all for pleasure/vacation travel.

As fare discounts have become more freely available, without the conditions that previously sought to concentrate such discounts on personal/leisure travel, they have increased the prospect that such discounts would be used by business travelers or other passengers with limited price sensitivity. This in turn has meant a less "elastic" revenue response to these discounts.

Evidence on this point is provided by Table 14 which indicates the changes in yields, traffic, and total revenue during calendar quarters of 1982–1984. Included in this table are periods when widespread fare wars were severely eroding yields (e.g., in the first quarter of 1983)—and also periods when yields

TABLE 14—SPECIFIED TRAFFIC AND FINANCIAL INDICES FOR U.S. SCHEDULED AIRLINES

Calendar Quarter	Yield per Passenger Mile	Traffic (Millions of Passenger-Miles)	Passenger Revenue (Millions)
1982 1st Quarter	11.82¢	59,530	\$7,036
2nd Quarter	11.74	66,730	7,834
3rd Quarter	11.75	71,040	8,347
4th Quarter	11.71	61,560	7,209
1983 1st Quarter	10.84	65,940	7,148
2nd Quarter	11.47	71,530	8,204
3rd Quarter	11.87	76,960	9,135
4th Quarter	12.38	66,850	8,410
1984 1st Quarter	12.62	67,460	8,513
2nd Quarter	12.21	78,430	9,576
3rd Quarter	11.82	84,310	9,965
Percent Change from Prior Year			
1983 1st Quarter	- 8.3%	+10.8%	+ 1.6%
2nd Quarter	- 2.3	+ 7.2	+ 4.7
3rd Quarter	+ 1.0	+ 8.3	+ 9.4
4th Quarter	+ 7.4	+ 8.6	+16.7
1984 1st Quarter	+16.4	+ 2.3	+19.1
2nd Quarter	+ 6.5	+ 9.6	+16.7
3rd Quarter	- 0.4	+ 9.6	+ 9.1

Source: Derived from Civil Aeronautics Board data.

were substantially raised (e.g., first quarter of 1984, when yields were 16 percent above the year earlier.)

If the market response were price-elastic, one would expect the passenger revenue to respond most favorably when the yields were depressed, and least favorably when yields were up. But this is not the case. In the first quarter of 1983 (with the fare wars), total passenger revenue was flat with the year before. But in the first quarter of 1984 (when fare wars had abated), total passenger revenues were 19 percent above the year earlier.

This experience suggests that the air travel market (treated as a whole) is not "elastic" in the economist's meaning of that term—particularly in relation to the type of across-the-board unrestricted fare-cutting described above. As defined by the economist, price elasticity does not mean merely that a price reduction will have some traffic stimulative effect. Rather, it means that the stimulative effect will be sufficient so that the total amount of revenue, after the price reduction, will actually be greater than before the reduction.

In other words, the economist would not describe a market as "elastic" if a 50 percent price cut generated only a 10 percent traffic increase. In that case, though some stimulation could be attributed to the

56. Discount traffic as percent of total reached 87 percent in March 1983. (ATA data, as reported by Salomon Brothers, *Airline Newsletter*, September 24, 1984, p. 5).

fare cut, the total revenue after the price cut would be less than before.

In this context, the data shown in Table 14 displays the characteristics of an *inelastic* market.

Further indications supporting the same conclusion have often appeared in the trade press, following industry fare wars. Usually, in the aftermath of such fare wars, the reactions of carriers, press, and government officials, has been that the amount of traffic stimulation had not kept up with the amount of the fare cut. Examples of such conclusions are presented in the following:

"Airline industry officials say the fare cuts on the competitive New York-South Florida routes did not stimulate enough traffic to offset the revenue lost through lower ticket prices." (*Aviation Daily*, October 9, 1981, p. 223.)

"Despite low fares to Hawaii this summer and the devaluation of the peso, traffic is down between the mainland and both Hawaii and Mexico for most carriers." (*Aviation Daily*, August 16, 1982, p. 249.)

"Eastern's half-fare transcon coupon offer may have cost the airlines as much as \$80 million in revenues, according to airline officials. . . . According to a *Travel Weekly* survey, the coupons neither improved carriers' individual market share nor generate significant traffic." (*Aviation Daily*, June 26, 1981, pp. 3 and 318.)

"So far, the rate cutting has almost totally failed in its principal objective: filling up the planes with enough bargain-hungry passengers to return the carriers to profitability." (*Time Magazine*, March 22, 1982, p. 52.)

"The uneconomic fares, initiated by competitors, failed to generate enough additional passenger traffic to offset the sizeable discounts." (Chairman Frank Borman of Eastern Airlines, in *Aviation Daily*, July 28, 1982, p. 147.)

"Record airline losses for the first quarter of this year were blamed on unrestricted deep discount fares that generated little traffic . . . according to two Delta Airlines officials." (*Aviation Week*, July 26, 1982, p. 34.)

"Until last month, however, even lower fares did not generate much traffic." (CAB Chairman McKinnon, speaking before New York Society of Security Analysts, April 23, 1982.)

The preceding comments relate to unselective, across-the-board fare cutting that has been so widespread during deregulation. These comments would not apply equally to discounts of a selective nature that are targeted specifically on leisure travel passengers.

PEAK/OFF-PEAK PRICING

There has always been economic appeal to shifting as much air traffic as possible away from peak periods into non-peak periods. It improves efficiency and lowers cost by reducing the size of the "plant" required to handle the peak, and by gaining use of the plant through a more extended period of the day and the week.

Deregulated pricing has had a mixed effect on the goal of shifting traffic away from the peaks.

On the one hand, some of the new entrants (such as People Express) have followed a consistent practice of offering off-peak fares (for late evening and weekend flights) on all short/medium-haul routes they serve.

On the other hand, on the longer-haul routes (where off-peak night coach service had become well established long before deregulation) there has actually been a considerable reduction in the use of such pricing. The reason is related again to the largely unrestricted nature of discounts on such routes in recent years. If a passenger traveling from New York to Florida can get a low fare at any time of the day, there is obviously little incentive for that passenger to travel at a less convenient, night coach hour.

The consequent reduction of night coach service in various long-haul markets is indicated in Table 15. From New York to California, there had been (in the summer of 1978) 6 nightly nonstops leaving in the night coach period of 9 PM or later; by the summer of 1984, there were only 2 such flights. From New York to Miami/Ft. Lauderdale, there were 14 nightly departures after 9 PM in 1978; by the summer of 1984, there were only 5 such departures.

INDIRECT FARE DISCOUNTING

The preceding sections have discussed the principal pricing developments since deregulation, in terms of open, direct price competition.

But there has also been significant development in the form of less open, more indirect forms of discounting.

Of particular importance has been the widespread proliferation of "frequent traveler" bonus programs.

TABLE 15—REDUCTION OF LONG-HAUL NIGHT COACH SERVICE SINCE DEREGULATION

Routes	Nonstops—9 PM or Later-August 1978		Nonstops—9 PM or Later-August 1984	
New York-Los Angeles	TWA	9:00 PM (JFK)	United	10:30 PM (EWR)
	American	9:00 PM (JFK)	People Express	2:05 AM (EWR)
	United	9:30 PM (JFK)		
New York-San Francisco	American	9:30 PM (JFK)	None	
	United	9:30 PM (JFK)		
	TWA	9:30 PM (JFK)		
New York-Miami	Eastern	9:10 PM (EWR)	Eastern	9:00 PM (JFK)
	National	9:10 PM (EWR)	Northeastern Intl.	10:30 PM (JFK)
	Delta	9:10 PM (JFK)		
	Eastern	9:10 PM (LGA)		
	National	9:10 PM (JFK)		
	Eastern	9:10 PM (JFK)		
	National	9:10 PM (LGA)		
New York-Ft. Lauderdale	Delta	9:05 PM (EWR)	Delta	9:00 PM (JFK)
	Eastern	9:05 PM (EWR)	Delta	9:05 PM (LGA)
	National	9:05 PM (LGA)	Eastern	9:55 PM (LGA)
	Eastern	9:05 PM (LGA)		
	Delta	9:05 PM (LGA)		
	Delta	9:05 PM (JFK)		
	Eastern	9:05 PM (JFK)		

Source: Official Airlines Guide.

Under these programs, frequent travelers enroll in the programs of one or more individual airlines and become eligible to "earn" future free or reduced-fare travel in proportion to the amount of mileage they build up on trips with those carriers.

From the airline's standpoint, the objective of course is to build a form of "brand loyalty," since the passenger develops a strong personal incentive to arrange his trips on the airline for which he is building up mileage credits, so that he can reach the levels where he becomes eligible for the free trips.

The mileage credit formulas vary in the different airline programs—but in general they probably constitute an average discount of about 5 percent, when the total amount of free travel is related to the total business travel volume.

At any point in time, the majority of the mileage credit is in the form of a contingent liability for the future. Therefore, the erosion of yield represented by these programs is not yet fully reflected in actual yield data to date.

Pan American blamed this latent source of yield erosion for a significant part of its losses in the second quarter of 1984. The airline claimed its second quarter deficit of \$49.8 million was largely due to redemp-

tion of bonus tickets in its frequent flyer program. Eleven percent of Pan American's traffic in the period was non-revenue, a figure that rose to 14 percent in the month of June alone. During June, 21 percent of the carrier's domestic passengers flew on free frequent flyer tickets, as did 11 percent of its transatlantic passengers, 16 percent of its transpacific passengers, and less than 8 percent of its South American and Caribbean passengers.⁵⁷

Another form of indirect, hidden price erosion relates to discounts given large government or corporate accounts. As of mid-1984, the main impact of this had been in the government's GSA contracts. The GSA invites airlines to submit bids on the amount of discount each line would offer on specified routes in exchange for being awarded preferential shares in the subsequent distribution of government travel on those routes.

By October 1984, the GSA expected to have about 600 city-pairs covered by this program. And the amount of the discounts ranged mainly 30 percent to 60 percent below the lowest unrestricted coach fares on the route in question (Travel Weekly, Sep-

57. *Travel Weekly*, August 16, 1984, p. 1.

tember 3, 1984, p. 41.) As one measure of the cost to the airlines of these discounts, the GSA stated early in this program (in 1981, when only 134 city pairs were covered) that the discounts then had an annual value of \$34 million. Obviously, with the expansion of the program to 600 city pairs, the cost of these discounts would now be substantially greater.

The tendency for this practice to escalate is indicated by the recent announcement that six airlines had extended these discounts beyond government employees *per se*, to include the employees of private firms holding cost-reimbursable government contracts as well. This would include, for example, the employees of aerospace manufacturers working on defense contracts.

There is the potential for the same type of competitive discounting to develop in connection with corporate business travel generally. Various statements from airline executives indicate deep concern that once this practice gets seriously under way, it could be a "Pandora's box" that could open the way to widespread and extensive discounting.

Because of that concern, carriers have thus far moved cautiously in this area—but there have been increasing indications that the practice is developing. In 1984, Delta and General Electric entered into a contract in which 30 percent discounts were given in exchange for a GE commitment to buy at least \$3 million in air travel annually from Delta. More recently, there was acknowledgement of a similar deal between Eastern and the Harris Corporation. On March 25, 1985, *Travel Weekly* reported a growing number of other corporate contracts being sought or negotiated.

The real danger in this area stems from the "nearly zero" marginal cost of filling an empty seat. If the choice is between granting a large corporation a very deep discount or losing that corporation's traffic to another line willing to provide such discount, there's almost no floor to the discount that can be given, rather than ending up with more empty seats on planes that would be flying the route anyway. The economics of the "empty seat" thus leaves the airlines unusually vulnerable to being whipsawed by large purchasers of transportation who can play one line off against another to get the deepest discount.

The paradox of this type of discounting is that it

goes directly counter to the economic rationale that normally has justified fare discounts—to stimulate increased travel by broadening the price-sensitive discretionary market. The very nature of government and corporate travel is such that they are *not* likely to expand total traffic volume as the result of obtaining discounts from the airlines. These discounts will affect the airline used, but not the total amount of travel performed.

Thus, discounts given for government or corporate travel (however they may affect the market share of individual airlines) are bound to have a negative impact on the overall economics of the industry. As of 1984, this development had become a reality mainly for government travel; but corporate discounts remain a potent threat for the future.

THE THEORY OF "CONTESTABLE" MARKETS

The removal of fare regulation was premised on the expectation that competition in the free marketplace would assure *all* routes of reasonably cost-related fares. It was recognized that not all routes would have the same intensity of competition; but, it was argued, even routes that did not have active competition would have their fares protected by the ever-present "threat" of competition. In other words, if a carrier serving a route non-competitively raised fares disproportionately, this would be perceived as an opportunity for some other carrier to move onto the route, reduce the fare to a more reasonable level, and bring the earnings of the route down to a "normal" level. This reasoning comes under the heading of what economists term "contestable" markets—markets where the entry of new firms is sufficiently feasible so that incumbent firms are forced (by the very *threat* of competition) to price their product as if there were *in fact* competition.

In deregulated air transportation, it does not appear that this theory of contestable markets has worked as promised. The difference in fares between the more competitive routes and the less competitive ones (as indicated in Table 9) is so great that it cannot be concluded that the threat of competition is giving all routes the pricing benefits of actual competition.

The reason is that the prospect of new-entry competition is more theoretical than real for most of the thinner routes. There is enormous variation between the ability of routes to support competition on a financially viable basis. Furthermore, a carrier considering entering a new route is faced with the inflexibility of having to inject capacity in plane-load lots. And it is not unusual to have a route that provides a monopoly carrier with above-average profitability, but which would be converted to a loss for *both* carriers with the inflexible capacity addition of a second carrier. This, of course, would be especially true if the entry of the second carrier were accompanied by a reduction of fares from the previous level.

Thus, while free entry (and the mobility of aircraft) make all routes theoretically "contestable," many are not so in practice. This explains the enormous fare disparity between routes actually experiencing intense competition vis-à-vis routes relying only on the "threat" of new competition.

SUMMARY COMMENTS ON PRICING TRENDS

Deregulated pricing to date has been characterized by certain patterns.

- Fares on some routes have been held down sharply by intense competition, fare wars, and the entry of low-cost carriers.
- On less competitive routes, fares have increased greatly—often by over twice the overall *average* fare inflation. This has not been a case of deliberate "gouging" of passengers on less competitive

routes; these increases have been necessary for carrier survival, in the effort to balance the competitively driven, below-cost fares on other routes.

- There is no evidence that fare disparity relates to true cost differences between various routes.
- Even with high fare increases on non-competitive routes, the net effect of fare wars occurring on the larger routes has for sustained periods held overall average yields below the level needed to fully cover all costs.

It seems unlikely that the disparity in pricing between different routes will, over time, be eliminated in the airline free market. As for fare wars, and their debilitating impact on profitability, one can only speculate on the future outlook. For a time in 1983/1984, it appeared that the industry had learned a sufficiently painful lesson on this score, to produce a welcome lull in fare wars. The mid-1984 resumption of yield erosion, however, again raises the possibility that there are fundamental pressures in this industry that lead to recurrent uneconomic pricing in the free market.

It is possible that such pressures are inherent, stemming from the fragmented nature of the airline market, and the consequent fact that there is always some opportunity for some individual carrier to benefit financially (if only marginally) by pricing that produces inadequate profitability for the market as a whole.

Only the passage of additional time can definitively answer the question of whether the airline industry has this type of inherent on-going pressure toward uneconomic pricing, when operating in a free market environment.

Chapter 5

Deregulated Airline Financial Performance

Airline financial performance since deregulation has varied. For most of this period, industry earnings have been depressed. Higher fuel prices and a period of economic recession during the first years of deregulation have contributed to the industry's poor financial results. Thus far, the deregulated environment has also been characterized by destructive fare-war competition, contributing to yield erosion and operating losses. For all carriers, the financial picture is constantly changing and full of future uncertainty. This chapter provides a broad perspective of the airline industry's financial performance under deregulation, and examines variations between carriers.

During the nearly three decades between 1950 and the start of deregulation, the airline industry realized operating profits each year, though some years were very thin. Table 16 and Figure 6 place deregulated airline financial results in perspective, indicating their relation to industry results since 1950. The first 5 years of deregulation (through 1983) presented a financial picture drastically worse than ever before experienced. The average profit/loss margin was -0.5 percent, with 3 of the 5 years showing losses and the remaining 2 years yielding a profit of under 1 percent. The financial picture began to grow brighter in the latter part of 1983. For the 12 months ending September 30, 1984, the industry achieved an operating profit of over \$2 billion, representing a profit margin of +4.8 percent.

Airline earnings are normally discussed in terms of "operating profit"—the measurement used in Table 16. Operating profit, however, provides only a partial view of the financial picture because it does not include the effect of interest expense—a factor of increased importance in recent years due to high interest rates. Table 17 and Figure 7 illustrates the

effect of interest payments, showing the profit or loss after allowing for interest expense. Interest payments for the industry first reached \$100 million annually in 1962, then gradually escalated to over the \$200 million level by 1968, \$300 million by 1970, and to over \$500 million by 1978. By 1981, interest payments exceeded \$1 billion annually and by 1984 they approached \$1.7 billion.

When interest payments are taken into account, operating profit/loss became negative in scattered past years of regulation (1961, 1970, 1971 and 1975). But the results have been *strongly* negative for each year from 1979 through 1983, with an aggregate shortfall of \$6.6 billion for those first 5 years of deregulation. This cumulative 5-year deficit of \$6.6 billion exceeds by \$1 billion the total profit (after interest) accumulated by the industry in the nearly three decades between 1950 and 1978.

With these adverse results, the industry's balance sheet has weakened considerably in recent years. As indicated in Table 18, long-term debt increased by 111 percent between 1978 and 1984, while equity increased by only 29 percent. The industry's debt/

Deregulated Airline Financial Performance

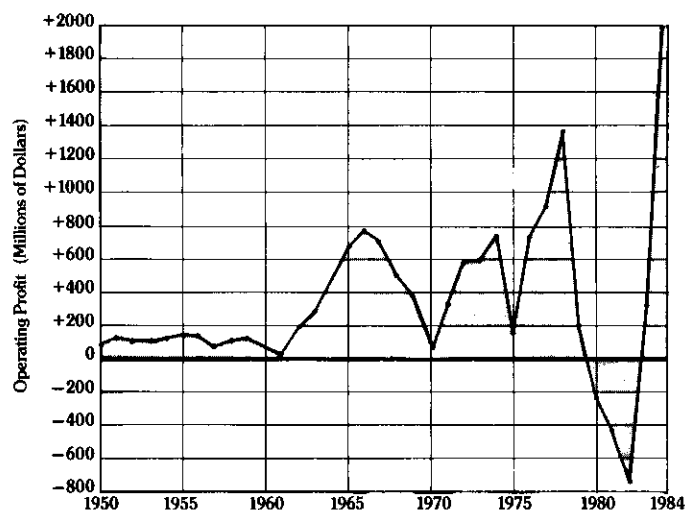


Figure 6. U.S. Scheduled Airlines Operating Profit 1950-1984

equity ratio increased from 0.62 to 1.02. And, the relationship of current assets to current liabilities declined from a positive \$268 million to a negative \$1,766 million.

FACTORS AFFECTING FINANCIAL PERFORMANCE

The extent to which the poor financial results of 1979-1983 can be attributed to deregulation or external factors has generated considerable debate. Certainly there were a number of important external factors present during this period, starting with the jump in fuel prices in 1979, followed by economic recession, and extremely high interest rates. It is impossible to dissect the results, and arrive at any precise mathematical breakdown of the degree of contribution of each element to the overall airline result. A reasonable conclusion is that the external factors played their part—along with deregulation. At the very least, deregulation led to certain responses (such as fare wars) to the external factors, that have exacerbated and prolonged the financial stress.

To assist in reviewing these trends, Table 19 traces the primary elements of the airline financial equation: passenger traffic (as represented by passenger miles); capacity (reflected in seat miles); load factor (percentage of seat occupancy); yield per passenger mile; cost per seat mile; and the breakeven load factor. The following comments are relevant.

TABLE 16—OPERATING PROFIT AND PROFIT MARGIN, U.S. SCHEDULED AIRLINES (1950-1984)

Year	Operating Profit/Loss (Millions)	Profit/Loss as Percent of Revenue	Average Profit/Loss Margin
1950	\$+ 76	+ 9.0%	+ 9.0%
1951	+ 128	+12.5	
1952	+ 105	+ 9.0	
1953	+ 106	+ 8.1	
1954	+ 124	+ 8.6	
1955	+ 143	+ 8.7	+ 3.6
1956	+ 135	+ 7.1	
1957	+ 65	+ 3.1	
1958	+ 108	+ 4.8	
1959	+ 122	+ 4.7	
1960	+ 78	+ 2.7	+10.4
1961	+ 20	+ 0.7	
1962	+ 190	+ 5.5	
1963	+ 280	+ 7.4	
1964	+ 470	+11.1	
1965	+ 672	+13.6	+ 3.9
1966	+ 775	+13.5	
1967	+ 708	+10.3	
1968	+ 505	+ 6.5	
1969	+ 387	+ 4.4	
1970	+ 43	+ 0.5	
1971	+ 328	+ 3.3	
1972	+ 584	+ 5.2	
1973	+ 585	+ 4.7	
1974	+ 726	+ 4.9	
1975	+ 128	+ 0.8	
1976	+ 723	+ 4.1	
1977	+ 908	+ 4.6	
1978	+1365	+ 6.0	
Post Deregulation:			
1979	+ 199	+ 0.7	+ 0.8
1980	- 225	- 0.7	
1981	- 425	- 1.2	
1982	- 739	- 2.0	
1983	+ 335	+ 0.9	
12 months to 9/30/84	+2066	+ 4.8	

Source: Derived from Civil Aeronautics Board data.

1. Despite the recession, the industry's problem was not a decline in traffic. Passenger miles did drop slightly in 1980 and 1981, but only by a few percentage points from the (then) all-time peak of 1979. Throughout the recession, airline traffic remained considerably above the profitable 1978 level. (For example, the heavy loss year of 1982 had 14 percent more traffic than the high profit year of 1978.)

2. A serious contributor to the airline industry's financial woes has been the lag between increased yields and the escalation of seat-mile costs. This lag began in 1979 when fares rose by only 5 percent, while costs inflated by 15 percent. Through 1983, yields failed to increase enough to make up for that initial lag. The average 1983 fare level was 41 percent above 1978, but average costs had increased 49 percent above those of 1978.

TABLE 17—OPERATING PROFIT AFTER INTEREST EXPENSES, U.S. SCHEDULED AIRLINES (1950–1984)

Year	Operating Profit or Loss (Millions)	Interest Expense (Millions)	Operating Profit/Loss After Interest (Millions)
1950	\$+ 76	\$ 8	\$+ 68
1951	+ 128	8	+ 120
1952	+ 105	8	+ 97
1953	+ 106	11	+ 95
1954	+ 124	12	+ 112
1955	+ 143	11	+ 132
1956	+ 135	15	+ 120
1957	+ 65	24	+ 41
1958	+ 108	34	+ 74
1959	+ 122	46	+ 76
1960	+ 78	66	+ 12
1961	+ 20	94	- 74
1962	+ 190	111	+ 79
1963	+ 280	107	+ 173
1964	+ 470	104	+ 366
1965	+ 672	112	+ 560
1966	+ 775	127	+ 648
1967	+ 708	150	+ 558
1968	+ 505	222	+ 283
1969	+ 387	283	+ 104
1970	+ 43	318	- 275
1971	+ 328	331	- 3
1972	+ 584	307	+ 277
1973	+ 585	368	+ 217
1974	+ 726	420	+ 306
1975	+ 128	402	- 274
1976	+ 723	372	+ 351
1977	+ 908	373	+ 535
1978	+1365	539	+ 826
<i>Post Deregulation</i>			
1979	+ 199	619	- 420
1980	- 225	961	-1186
1981	- 425	1292	-1717
1982	- 739	1431	-2170
1983	+ 335	1482	-1147
12 months to 9/30/84	+2066	1700 (est.)	+ 366 (est.)

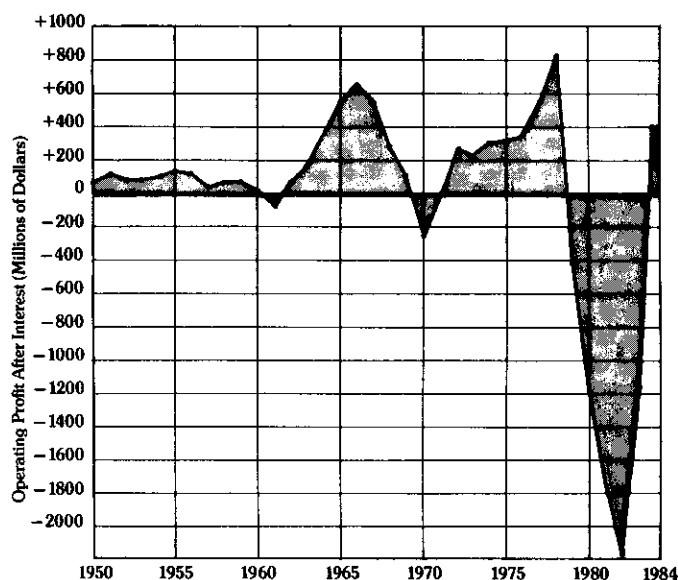
Source: Civil Aeronautics Board and Air Transport Association.

TABLE 18—SIGNIFICANT BALANCE SHEET CHANGES, U.S. SCHEDULED AIRLINES (1978–1984)

	1978 (Millions)	12 Months to June 30, 1984 (Millions)	Change
Long-Term Debt	\$4,283	\$9,031	+111%
Equity	6,877	8,848	+ 29
Ratio, Debt to Equity	0.62	1.02	NA
Current Assets	5,548	10,601	+ 91
Current Liabilities	5,280	12,367	+134
Current Assets vs. Liabilities	\$+268	\$-1,766	NA

NA = Not applicable.

Source: Derived from Civil Aeronautics Board data.

**Figure 7. U.S. Scheduled Airlines' Operating Profit After Interest Payments 1950–1984**

3. The lag between fares and costs made it necessary to fill a higher percentage of available seats to cover cost. The breakeven load factor (which had been 57 percent in 1978) has increased to 59 percent or more each year from 1979 through 1983.

4. Even though actual load factors were generally high during this period, (3–5 percentage points higher than the load factor "standard" of 55 percent established by the CAB in the Passenger Fare Investigation), they failed to keep up with the even higher breakeven load factor. The gap below breakeven was 0.5 percentage point in 1980, 0.7 of a percentage point in 1981, and 1.5 points in 1982.

5. A high degree of financial leverage in this industry is evident in these data. The large losses of 1980–1982 were related to a load factor shortfall of less than one or two percentage points relative to the breakeven level.

The financial turnaround that started in mid-1983 was driven by yield improvements that finally started closing the cost escalation gap. Table 20 indicates quarter-by-quarter data for various key financial indicators for the years 1982 and 1983.

For each calendar quarter in 1983, most factors were improved over 1982. Traffic was higher in each quarter. Load factor was also higher. And cost per seat mile in each quarter was more favorable. Yet, financial results were actually worse for the first two quarters; they started to improve in the third quarter,

**TABLE 19—SPECIFIED TRAFFIC AND FINANCIAL FACTORS, U.S. SCHEDULED AIRLINES
(1978–1984)**

Year	Passenger Miles (Billions)	Seat Miles (Billions)	Load Factor	Yield per Passenger Mile	Cost per Seat Mile ^a	Breakeven Load Factor	Actual LF vs. Breakeven
1978	227	369	61.5%	8.3¢	4.7¢	57.0%	+4.5 pts.
1979	262	416	63.0	8.7	5.4	62.4	+0.6
1980	254	433	59.0	11.0	6.5	59.5	-0.5
1981	243	425	58.6	12.3	7.3	59.3	-0.7
1982	259	439	59.0	11.8	7.1	60.5	-1.5
1983	281	463	60.6	11.7	7.0	60.0	+0.6
12 months to 9/30/84	297	501	59.3	12.3	6.9	56.0	+3.3
Index (1978 = 100)							
1978	100	100	100	100	100	100	NA
1979	115	113	102	105	115	109	NA
1980	112	117	96	133	138	104	NA
1981	107	115	95	148	155	104	NA
1982	114	119	96	142	151	106	NA
1983	124	125	99	141	149	105	NA
12 months to 9/30/84	131	136	96	148	147	98	NA

a. Derived as indicated in Table 5.

NA = Not applicable.

Source: Derived from CAB data.

**TABLE 20—TRAFFIC AND FINANCIAL FACTORS, U.S. SCHEDULED AIRLINES
BY CALENDAR QUARTER (1982 AND 1983)**

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year
Passenger Miles (millions)					
1982	59,530	66,730	70,780	61,560	258,920
1983	65,870	71,010	77,340	66,850	281,070
Percent change	+10.7%	+6.4%	+9.3%	+8.6%	+8.6%
Passenger Load Factor					
1982	57.3%	61.1%	60.8%	56.7%	59.0%
1983	61.6	61.6	61.8	57.6	60.6
Change	+4.3 pts.	+0.5 pts.	+1.0 pts.	+0.9 pts.	+1.6 pts.
Yield per Passenger Mile					
1982	11.82¢	11.74¢	11.77¢	11.71¢	11.75¢
1983	10.84	11.51	11.85	12.58	11.70
Change	-8.3%	-2.0%	+0.7%	+7.4%	-0.4%
Seat-Mile Cost					
1982	7.40¢	7.07¢	6.86¢	7.18¢	7.11¢
1983	7.29	7.00	6.82	7.01	7.02
Change	-1.5%	-1.0%	-0.6%	-2.4%	-1.3%
Breakeven Passenger Load Factor					
1982	62.6%	60.2%	58.3%	61.3%	60.5%
1983	67.3	60.8	57.6	55.7	60.0
Change	+4.7 pts.	+0.6 pts.	-0.7 pts.	-5.6 pts.	-0.5 pts.
Operating Profit (millions)					
1982	\$-643	\$+126	\$+351	\$-594	\$-760
1983	-654	+101	+612	+276	+335
Change	- 11	- 25	+261	+870	+1,095

Source: Derived from CAB Data

and improved dramatically in the fourth quarter. The explanation is that it was in the third quarter that yield stopped deteriorating compared with 1982, and in the fourth quarter, yield increased appreciably—by 7.4 percent. Accompanying that rise in yield was the first important reduction in breakeven load factor—a drop of over 5 points; this was the major factor contributing to the industry's financial turnaround.

Throughout the recent years of industry losses, there was widespread reference to fare wars as a prime cause. The data in Table 20 confirm the crucial importance of yield in determining the industry's bottom line. When, in the latter part of 1983, fare wars abated and yields started to overcome their lag vis-à-vis costs, the industry earnings quickly turned around.

A critical question, which cannot be answered conclusively at this time, is whether the costly yield erosion of recent years is now a thing of the past—something which was part of the “learning curve” of adjusting to the unregulated environment—or whether there is something basic in the competitive dynamics of this industry which will reassert this same phenomenon in the future.

VARIATION BY CARRIER

The preceding discussion has provided a broad overview of the industry's overall financial trends. However, these macro results obscure an enormous variation between individual carriers. At one extreme, there have been a few carriers that have consistently done very well during this entire period of deregulation (e.g., Southwest, USAir, Piedmont). At the other extreme, there have been a number of carriers whose losses pushed them into bankruptcy. A list of the carriers going bankrupt since the start of deregulation is presented in Table 21.

Then there have been carriers experiencing periods of loss, followed by favorable turnarounds (e.g., American, United, New York Air). And, there have been carriers that have continued to be in a precarious position (e.g., Pan America, Eastern).

Table 22 shows the operating profit/loss and operating profit/loss margin for 1978, 1982, and 1984 for

TABLE 21—AIRLINE BANKRUPTCIES SINCE DEREGULATION, BY YEAR

1979	
Aeroamerica	American Central
Mackey International	New York Airways
1980	
Florida Airlines	Indiana Airways
1981	
Air Bahia	Apollo Airways
Coral Air	Golden Gate Airlines
Lanica	Mountain West Airlines
Tejas Airlines	
1982	
Aero Virgin Islands	AeroSun International
Air Pennsylvania	Air South
Altair Airlines	Astec Air East
Braniff International	Cochise Airlines
North American Airlines	Silver State Airlines
Swift Aire Lines	Will's Airlines
1983	
Continental Airlines	Golden West Airlines
Inland Empire Airlines	National Florida Airlines
State Airlines	
1984	
Air Florida	Air Illinois
Air North	Air One
Air Vermont	American International
Atlantic Gulf	Capitol Air
Combs Airways	Connectair Airlines
Dolphin Airways	Emerald
Excellair	Hammonds Commuter Air
New York Helicopter	Oceanair Line
Pacific East Air	Pacific Express
Wien Air Alaska	Wright Air Lines

Source: Air Transport Association, as Reported in *Travel Weekly*, January 10, 1985, p. 33.

individual carriers and groupings of carriers. (The year 1978 is given as the last year of regulation; 1982 is shown as the low point for most carriers; and 1984 is shown as the year of significant turnaround for many.)

The initial financial impact of deregulation was uniformly adverse for the former trunk lines, and uniformly favorable for the former local service lines. For example, in 1982 all of the former trunks had a loss, while each of the local service carriers had a reasonable profit. The sharp contrast between the two groups of carriers can be explained by the fact that the routes of greatest importance to the trunk system were also (because of their traffic density and length of haul) the most immediately attractive for

TABLE 22—OPERATING PROFIT/LOSS BY CARRIER, SPECIFIED YEARS

	Operating Profit/Loss (Millions)			Operating Profit as Percent of Revenue		
	1978	1982	12 Months ended 9/30/84	1978	1982	12 Months ended 9/30/84
Former Trunk Lines						
American	\$+ 97	\$- 18	\$+ 426	+3.6%	- 0.5%	+ 8.5%
Braniff	+ 77	- 67	- 70 ^b	+7.9	-18.7	-47.1 ^b
Continental*	+ 60	- 62	+ 59	+6.2	- 5.3	+ 5.8
Delta	+ 216	- 86	+ 268	+9.6	- 2.4	+ 6.0
Eastern	+ 97	- 19	+ 74	+4.1	- 0.5	+ 1.8
Northwest	+ 68	- 8	+ 118	+8.6	- 0.4	+ 4.8
Pan American*	+ 173	-373	- 99	+5.9	-10.7	- 2.9
TWA	+ 49	-104	+ 70	+2.0	- 3.2	+ 1.9
United	+ 289	- 69	+ 521	+8.2	- 1.5	+ 8.5
Western	+ 51	- 31	- 13	+6.1	- 2.9	- 1.1
Sub-total	+1,177	-837	+1,354	+5.9	- 3.1	+ 4.3
Former Local Service Lines						
Frontier	+ 13	+ 7	*	+4.6	+1.3	- 0.1
Ozark	+ 20	+ 18	+ 21	+8.8	+4.4	+ 4.5
Piedmont	+ 6	+ 22	+121	+2.8	+3.3	+11.3
Republic*	+ 55	+ 37	+118	+6.8	+2.4	+ 7.5
USAir	+ 34	+ 79	+198	+6.0	+6.2	+12.3
Sub-total	+128	+164	+458	+6.1	+3.7	+ 8.6
Former Intrastate Lines						
AirCal	NA	-21	+ 27	NA	- 9.6	+ 9.4
Air Florida	NA	-34	NA	NA	-12.1	NA
PSA	NA	-17	+ 16	NA	- 4.6	+ 3.2
Southwest	NA	+39	+ 70	NA	+11.8	+13.3
Sub-total	NA	-33	+113	NA	- 2.7	+ 8.7
Former Charter Lines						
Capitol	NA	-13	-12	NA	- 4.9	- 7.6
Transamerica	NA	+26	+36	NA	+11.0	+12.9
World	NA	-29	+14	NA	-10.8	+ 5.0
Sub-total	NA	-16	+38	NA	- 2.1	+ 5.2
Alaska Hawaiian Carriers						
Alaska	+ 7	+21	+21	+7.8	+9.0	+6.0
Aloha	+ 3	—	*	+5.1	—	-0.1
Hawaiian	+ 1	- 7	+ 9	+1.2	-6.6	+7.5
Wien	+ 4	+ 6	-13	+5.6	+3.4	-7.6
Reeve	+ 1	+ 2	- 2	+5.8	+7.0	-8.6
Sub-total	+16	+22	+15	+5.1	+3.6	+2.0
Other Airlines						
Air Atlanta	NA	NA	-13 ^b	NA	NA	-88.9 ^b
Air Midwest	NA	+ 3	+ 6	NA	+12.5	+14.6
Air Wisconsin	NA	+ 9	+11	NA	+17.2	+14.8
American West	NA	NA	-11	NA	NA	-10.9
Empire	NA	- 1	+ 5	NA	- 2.0	+ 7.7
Florida Express	NA	NA	- 2 ^b	NA	NA	-13.0 ^b
Frontier-Horizon	NA	NA	- 2 ^b	NA	NA	- 3.9 ^b
Jet America	NA	- 8	+ 7	NA	-27.7	+ 8.2
Midway	NA	+ 4	-13	NA	+ 4.7	- 9.9
Midwest Express	NA	NA	- 1 ^b	NA	NA	-36.6 ^b
Muse	NA	- 5	*	NA	-14.3	+ 0.3
New York Air	NA	-12	+ 2	NA	-13.0	+ 1.1
Northeastern Int'l	NA	- 1	- 7	NA	-14.4	- 5.1
People Express	NA	+11	+38	NA	+ 7.6	+ 7.3
South Pacific	NA	NA	+ 9	NA	NA	+26.8
Sunworld	NA	NA	- 1	NA	NA	- 4.0
Tower	NA	NA	+ 1 ^b	NA	NA	+ 2.6 ^b
Sub-total	NA	—	+29	NA	—	+ 1.8
Grand total ^c	\$+1,365	\$-739	\$+2,066	+6.0%	-2.0%	+4.8%

*Less than .05 million.

NA = Not available or not applicable.

a. 1978 data for these carriers include the data for the other carriers that subsequently merged into the named carriers.

b. Includes only part-year operation in the 12 months ending September 30, 1984.

c. The grand totals are those reported by the CAB for the entire certificated airline industry. The specific detail in this table does not add to these totals because the carriers here specified are those for which data were provided for the most recent period, in the CAB *Quarterly Financial Review*. The industry total data includes some carriers not reported separately in this source.

Source: Civil Aeronautics Board.

added competition. Consequently, the trunk lines found their previous sources of financial strength eroded by the injection of excess capacity, and the fare wars stemming therefrom.

The former local service lines, on the other hand, were benefiting from their ability to move into routes better than the ones they had previously been confined to.

When the industry turned around in 1984, the carriers showing the greatest improvement were the trunk lines. Having been hardest hit by the fare wars, they had the most to gain when fare wars eased. For example, United Airlines improved from a \$69 million operating loss in 1982 to a \$521 million profit in the 12-month period ended September 1984. The one main element of this improvement was a 12 percent increase in its average yield. When coupled with a 3 percent improvement in cost, this reduced United's breakeven load factor from 66 percent in 1982 to 56 percent in 1984. And even though its actual load factor had dropped slightly, the very large drop in breakeven more than made up for that, and put United solidly in the black.

By 1984, though most of the former trunk lines were back in a profit position, there were still several with continuing losses.

Within both the trunk and the local service carrier groupings, there were a number of significant changes in *relative* profit position when comparing 1984 with the last year of regulation. In 1978, Braniff and Western had two of the highest profit margins in the industry; by 1984, Braniff had gone through bankruptcy and Western was losing money. At the other extreme, in 1978, Piedmont had close to the lowest profit margin; by 1984, it was close to the highest. Likewise, USAir's profit margin moved from just an average position, to one of the best.

Among the smaller carriers, Southwest and Air Wisconsin have been consistently profitable; People Express also was profitable, but more moderately and for a less sustained period. Apart from People Express, most of the other new entrant jet carriers have had only marginal profitability, or outright losses. As indicated in Table 21, a number of the small new entrant carriers have gone bankrupt.

The picture that is emerging is one of much greater financial disparity than that which existed in the era of regulation. Within each group of carriers there is now more diversity between the extremes of profit/loss results. There now is more of a prospect that the industry may "shake down" within a few years to a relatively small number of strong survivors, supplemented by a group of smaller and more specialized carriers (such as the commuters).

In this emerging picture, the prospect is diminishing that new entrant carriers will be able to seriously challenge the dominant position of the larger major airlines. With the possible exception of Southwest and People Express, the new entrant carriers are finding it difficult to establish themselves with low fare tactics, because generally such fares are quickly matched in price by the larger airlines. (Results in late 1984 were beginning to soften for People Express as well, and that line appeared to be heading into some of the same problems as the others.)

As mentioned earlier, the attempts to carve out special marketing roles via upgraded service quality have not thus far been conspicuously successful. Presumably it has been too difficult to establish sufficient credibility as to the superiority of the service offering in the face of the established market identity and image of the larger carriers. In addition, the large carriers have the benefit of strong "frequent flyer" programs and, in several cases, the special advantage of their computer reservations systems.

Table 23 presents a number of the key traffic and financial statistics of the major and national carriers, with the lines arrayed in descending order of their operating profit margin in 1984. It is evident that the degree of profitability cannot be explained by any one factor such as cost or load factor. Rather, it depends on each carrier's ability to get the optimum *relationship* between the several elements. Thus, one of the most profitable carriers (USAir) had one of the highest seat-mile costs, but this was balanced by also having one of the highest yields. As a result, it had the very favorable breakeven load factor of only 50 percent. At the other end of the spectrum, Pan American had one of the least profitable results, despite a very favorable unit cost, and a good load factor. In its

TABLE 23—SELECTED FINANCIAL FACTORS, MAJOR AND NATIONAL CARRIERS
(12 Months Ended September 30, 1984)

Carriers ^a (In Descending Order of Profit Margin)	Operating Profit Margin	Cost per Seat Mile ^b	Yield per Passenger Mile	Breakeven Load Factor	Actual Load Factor	Spread, Actual vs. Breakeven
Southwest	+13.3%	5.63c	11.08c	50.8%	59.9%	+9.1 pts.
USAir	+12.3	9.44	18.80	50.2	58.1	+7.9
Piedmont	+11.3	7.92	17.03	46.5	53.0	+6.5
AirCal	+ 9.4	8.71	17.31	50.3	55.7	+5.4
United	+ 8.5	6.57	11.71	56.1	60.8	+4.7
American	+ 8.5	7.30	12.12	60.2	62.6	+2.4
Republic	+ 7.5	7.69	16.58	46.4	50.1	+3.7
People Express	+ 7.3	4.80	7.29	65.8	71.2	+5.4
Delta	+ 6.0	7.54	15.30	49.3	52.5	+3.2
Continental	+ 5.8	6.07	9.62	63.1	64.1	+1.0
Ozark	+ 4.5	8.43	15.88	53.1	55.0	+1.9
PSA	+ 3.2	7.83	14.91	52.5	53.8	+1.3
TWA	+ 1.9	6.87	11.08	62.0	61.4	-0.6
Eastern	+ 1.8	7.55	13.32	56.7	57.1	+0.4
New York Air	+ 1.1	10.36	19.23	53.9	54.5	+0.6
Frontier	- 0.1	8.35	12.82	65.1	63.4	-1.7
Western	- 1.1	6.63	11.38	58.3	55.5	-2.8
Pan American	- 2.9	6.94	10.22	67.9	64.3	-3.6
Midway	- 9.9	10.30	18.52	55.6	50.3	-5.3

a. Includes all major and national Carriers for which CAB reported breakeven load factor in reports for 3rd quarter 1984.

b. Derived from CAB data by multiplying yield per passenger mile by reported breakeven load factor.

Source: CAB Quarterly Financial Review for 3rd quarter 1984

case, its average yield was so low as to generate the very high breakeven requirement of 67.9 percent, so that even its high actual load factor proved insufficient to cover its needs.

THE VICIOUS CYCLE OF AIRLINE FINANCIAL STRESS

The several major bankruptcies (particularly of Braniff and Air Florida) have highlighted a very special problem that exists in the very nature of the airline industry, in which the very *threat* of bankruptcy takes on the aspect of a self-fulfilling prophecy, and intensifies the prospect of *actual* bankruptcy.

The nature of this problem was highlighted in a news story in *Travel Weekly* on July 16, 1984 regarding the Air Florida episode:

Agents' caution in booking Air Florida in the weeks prior to its collapse apparently minimized their out-of-pocket losses. . . . Most agents contacted said they sold Air Florida tickets only on request and usually with an admonition to

clients about financial problems and the possibility of failure to operate scheduled flights.

In other words, once Air Florida was perceived as having financial difficulties, travel agents started shifting their clients away from this carrier, thereby exacerbating the very difficulties that were initially perceived.

There were similar indications that travel agent fears had contributed to the 1982 bankruptcy of Braniff.

The dilemma represented by this situation is unique to the airline industry. The reason stems from certain inherent aspects of the purchase of air transportation. Air transport is an intangible service and cannot be transferred to the consumer until the very instant it is being used. Unlike most other intangible services, it is usually paid for in advance (and indeed, some of the more favorable price discounts *require* advance purchase). This combination of circumstances creates the risk that, in the event of bankruptcy, the customer will already have paid for the transportation but will have received nothing in return.

Another unique factor is the extraordinary degree to which air travel is arranged and sold by middlemen (i.e., travel agents). Depending on the specific market, travel agents can account for as much as 75-80

percent of all business. The travel agent's clients are the passengers. No conscientious travel agent would willingly expose a client to the possibility of having paid for transportation that cannot be received. Understandably, travel agents are likely to shift clients away from potentially bankrupt airlines, as soon as they learn that this possibility exists. And then, this very process of "selling away" from the threatened carrier can make the threat a reality, and produce the very bankruptcy which initially was only a possibility.

FUTURE IMPLICATIONS

In retrospect, it appears that the initial tendency to blame post-deregulation financial problems on external factors (such as the jump in fuel prices, and the recession) were oversimplistic. It now seems evident that the larger contributing factor was the way in which the industry responded to these external factors, and particularly the degree to which it engaged in uneconomic pricing strategies. It is also significant that, even after fuel prices had declined appreciably and after the economic recession had ended, there remained considerable pockets of financial difficulty within the industry.

When regulation was first established for this industry, over four decades ago, it was in the belief that

the industry would display characteristics of "destructive competition" if left unregulated. At this writing, the industry's experience under deregulation cannot yet flatly confirm or deny that initial presumption. There have thus far been five very poor years followed by one year of significant turnaround. It is too early to conclude whether the turnaround of 1984 represents the beginning of a period of on-going sustained profitability, or whether it is just a temporary respite from the patterns of over-capacity and uneconomic pricing that preceded it. Certainly the industry at this point is a long way from a position of stable equilibrium in terms of the competitive pressures between the carriers. Much will depend on whether those carriers still in a weak position will be able to find market niches in which they can hold their own viably, without resorting to desperate marketing and pricing tactics.

A particular tendency which this industry has shown, and which must be noted as a potential source of difficulty for the future, is the pressure to expand routes and capacity on the basis of marginally costed economics. (This is discussed further in Chapter 7.) To the degree that this tendency continues to assert itself in the future, it could be the trigger that recurrently pushes capacity and pricing decisions to uneconomic levels.

Chapter 6

Changes In Marketing Strategies Since Deregulation

Today's deregulated, highly competitive environment is having a profound impact on air travel marketing. Marketing strategy emphasis is changing to take advantage of new opportunities offered by deregulation. The changing role of the travel agent under new industry rules may significantly change the traditional airline-agent relationship. Dominance by two major airlines of the computer reservations systems placed in travel agencies nationwide has become a major issue. Opportunities that have emerged, such as the carriers' freedom to establish price, provide mileage bonus plans to frequent travelers and special monetary incentives to travel agents, as well as their ability to inaugurate or discontinue service, would not have been possible under regulation. Some of the most significant marketing changes are examined in this chapter.

Deregulation has brought marketing freedom to the airline industry. This new freedom has helped to create a situation where the travel agent has become the airline's primary means of selling air transportation. Increased competition among carriers has enabled these agents to demand and receive much higher commission and other incentives than was possible under a regulated environment.

Frequent changes to a complex system of airline fares, flight schedules and ticketing procedures has encouraged and made necessary computerized reservations and ticketing systems. This has become an effective means of marketing air travel whose future is uncertain because of much controversy and anti-trust litigation.

INCREASED IMPORTANCE OF TRAVEL AGENTS

The number of travel agents and outlets, as well as commission rates, were strictly controlled for many years by the Air Traffic Conference (an arm of the Air Transport Association). Agent numbers and outlets were originally limited on the basis of need, but the CAB eliminated this ATC control in 1960 and relaxed others. The number of travel agents increased from 9,202 in 1973 to 14,804 in 1978 to 23,059 in 1983. In 1984 the number increased to approximately 25,000 (see Table 24).

At the same time, the average commission paid to

**TABLE 24—AREA BANK SETTLEMENT PLAN
TRAVEL AGENCY SALES REPORTED**
(Sales and Commission in Thousands of Dollars)

Year	Sales ^a	Agency Locations	Commissions ^b	Commission %
1968	1,748,000	6,021	Not separated	—
1973	4,404,000	9,202	Not separated	—
1977	8,798,000	13,454	732,000	8.3
1978	10,842,000	14,804	895,000	8.3
1983	24,454,000	23,059	2,428,000	9.9
1984 (May)		23,948		
1984 (Summer)		25,000 ^c		

a. Includes sales in United States of foreign flag carriers.

b. As reported to the area bank settlement plan.

c. Speech by Dan McKinnon, Chairman of CAB to Business Travel Seminar, Sept. 8, 1984.

Source: Air Transport Association

travel agents also had risen substantially—from 8.3 percent in 1978 to 9.9 percent in 1983. Some individual carriers paid as much as 20 percent (Regent Air) in overrides or incentives.

Concurrent with deregulation, several carriers accelerated the establishment of sophisticated computer reservations and ticketing systems for travel agents. Carriers extended their own computer systems into the offices of travel agents, improving the agents' ability to serve the public.

Recently the U.S. government has begun to contract with travel agents to handle government travel.

These developments helped to boost the U.S. travel agent's share of total domestic and international air travel sales from 47 percent in 1973 to 57 percent in 1978 to 74 percent in 1983. As would be expected, the total commissions paid in absolute dollars has increased enormously from \$732 million in 1977 to \$2.4 billion in 1983 (see Table 24). Table 25 shows that as a percent of total airline operating expense, travel agent commissions have increased sharply (3.5 percent in 1972, 4.8 percent in 1978, 6.9 percent in 1983). While many airline executives bemoan these increased commission dollars, the travel agents feel that they have earned them. Constantly and rapidly changing fares, and enormous range of fares for the same journey, combined with unprecedented changes in available service, have increased the complexity of the travel agent's job manifold. It has made the agency/client relationship tenuous if the agent is not consistently on top of the latest "bargains."

There also has been an increasing trend among

travel agents to merge and become larger travel agencies, or to join into cooperative agency groups, sometimes called "networking." Usually the primary incentive for networking and agency consolidation is to control substantial blocks of commercial account business, and to gain a stronger position to negotiate for higher remuneration (whether as a straight percentage, an override, or a discount from price). This applies not just to airlines but also to hotels, car hire companies and others represented by the travel agent group. The largest cooperative groups are shown in Table 26. The large single-entity agencies, such as American Express, Ask Mr. Foster, Gelco, AAA, Thomas Cook-U.S.A., Liberty Travel, IVI, are in the same position as the cooperatives to negotiate with commercial accounts for business. Unless an agent or cooperative has extensive geographical coverage and controls substantial blocks of travel business, it is

TABLE 25—TRAVEL AGENT COMMISSION ANALYSIS

Year	\$ Millions ^a	Cost Per Revenue Passenger Mile (Cents)	Cost Index (1972 = 100)	% of Total Cash Operating Expenses
1972	328	0.211	100.0	3.5
1974	469	0.281	132.8	3.7
1976	692	0.376	178.0	4.5
1978	950	0.421	199.1	4.8
1980	1643	0.662	313.6	5.3
1982	2099	0.856	405.3	6.2
1983	2392	0.909	430.2	6.9

a. Total commissions paid by U.S. carriers, both domestic and international, including incentives normally paid outside area bank settlement plan, as reported to the ATA and identified as commissions. However, it is believed that some incentive and override payments are not included.

Source: Air Transport Association.

TABLE 26—PRINCIPAL COOPERATIVE AGENCY GROUPS

Agency Association	1984 Estimated Volume ^a (Millions)	General Comments
Associated Travel Nationwide	\$1,250	39 members, 400 offices, 54 inplant locations, 66% commercial
Corp-Net	\$300	22 members, 60 offices, 75% commercial
Giants (Greater Independent Association of National Travel Service)	N.A.	no information available
Hickory Associates	\$2,000	500 locations, 60% commercial
National In-Plant Travel Travel Agencies	\$1,000+	35 members, 300 locations, each member has 10 to 120 in-plant locations
Nova Associates	\$600	100 members, 250 locations, 60% commercial
Travel Agents Computer Society	—	300 members, 25,000 CRTs, dollar volume \$2 to \$100 million per member, primarily a source of information for automated agents
Travel Trust International	\$800	50 members, 200 locations, 70% commercial
Woodside Management	\$2,500	59 members, 689 offices

a. It is difficult to validate the volume of business of each cooperative group, as the separate units are generally independently owned and operated, and report sales separately.

Source: Travel Agency Guide to Business and Group Travel, *Travel Weekly*, Spring 1984.

N.A.—Not Available

increasingly difficult to provide commercial accounts with the level of service (including consolidated nationwide travel expense reports) and the discounted prices, that are now being demanded. It appears likely that travel agency consolidation will continue, along with the expansion of agency outlets under the new ATC rules.

DEREGULATION OF THE COMPETITIVE MARKETING SYSTEM

Shortly after the Deregulation Act passage, the CAB began considering necessary regulatory changes in the marketing of air transportation to conform with the pro-competitive nature of the Act. The CAB was particularly concerned about the antitrust immunity covering the travel agency accreditation system, the area settlement plan for settling accounts between agents and air carriers, and certain International Air Transport Association (IATA) agreements.

After lengthy and extensive hearings, the CAB Law Judge decided that, for the most part, the agreements under investigation should continue to be approved, and should continue to enjoy antitrust immunity. The CAB itself, however, did not wholly agree with that conclusion. In late 1982 the CAB reached the following decision:⁵⁸

1. It disapproved those provisions (the so-called "exclusivity" provisions) that prevented airlines from using and compensating persons other than agents accredited by their trade association for selling air transportation.

2. However, it delayed until December 31, 1984, the effectiveness of that disapproval to the extent that the exclusivity provisions precluded the use and compensation of non-accredited agents for the sale of interline transportation.

3. It continued antitrust immunity for the agreements as approved (including the related clearing-house arrangements) until December 31, 1984, providing a period for transition.

58. Order No. 82-12-85 (Dec. 16, 1982).

With potentially thousands of agents adversely affected by the "opening up" of the agency business, this decision created a storm of protest. Strong efforts were made to overrule it by legislation, but as the December 31, 1984 deadline approached, it became clear that they were not succeeding. In the meantime, it was necessary for the airlines to reach agreement on a new system that would not require antitrust immunity.

In the latter part of 1984, ATA finally agreed on a new liberalized system that did not change the basic foundation of the airline/travel agency relationship. The new scheme has since been implemented under the auspices of the Airline Reporting Corporation (ARC).

The new system establishes a non-profit Delaware Corporation that absorbs the Air Traffic Conference staff and assumes responsibility for the travel agency accreditation program and ticket settlement system.

Annual costs are estimated to be approximately \$47 million and are to be shared by the participating airlines. Travel agents are assessed an annual fee of \$150 per location.

Agents continue to report weekly through the area settlement plan unless they make a special arrangement to remit money directly to the carrier. This new plan is called Direct Form of Payments (DFOP) and, though sales reports will be processed through the new area settlement plan, the airline will bill the agency directly on an agreed schedule. This allows strong agents considerable flexibility in remitting monies—a considerable benefit over the former weekly payment schedule.

Two types of retail outlets can be designated/approved by the Delaware Corporation: industry agents and "other persons." Existing agents that sign new contracts with the Corporation and newly accredited agencies will be called *Industry Agents*. They operate under rules similar to those previously in effect under the Air Traffic Conference Scheme, though somewhat more liberal. The new standards allow individual carriers to establish more stringent requirements for travel agents who represent them.

"*Other Persons*" is a new category of non-accredited sales outlet that requires at least one airline's appointment. These outlets must use the individual carrier ticket stock; it can also sell interline tickets,

NEW AGENCY CORPORATIONS APPROVED BY IATA EXECUTIVE COMMITTEE

(Reprinted from *Aviation Daily*, October 30, 1984, p. 314.)

IATA Executive Committee last weekend approved the establishment of two corporations to take over for the existing agency and cargo programs that will lose antitrust immunity in the U.S. on January 1, 1984. The corporations, however, will not be set up in time to meet the January 1 deadline, so IATA is preparing to ask CAB for a six-month delay of the lifting of antitrust immunity from the existing programs. An IATA spokesman said the corporations, the Passenger Network Services Corp. (PNS) and the Cargo Network Services Corp. (CNS), should be operational by mid-year.

The corporations will be non-profit, wholly owned subsidiaries of IATA, incorporated in Delaware and run out of IATA's Montreal office. Existing IATA agency staff will run the new corporations, whose main function will be to compile data about agents and circulate it to airline members. "Each airline will decide who it wants to appoint," the spokesman said. The "reference manual" will contain "various profiles of agents," the spokesman said. PNS might issue a seal of approval for those agents that meet certain criteria, but airlines would be free to appoint agents that do not have the seal. IATA has not yet determined what, if any, criteria, agents would have to meet to be included in the manual.

Unlike the Airlines Reporting Corp., which was recently set up by Air Transport Association members, the PNS board will contain four travel agent members. IATA decided that "it wanted to try to work with the agents" one source said. The corporation will also set up an advisory council that will be made up of "a cross section of users." The corporation's services will be available to third parties.

IATA staff will meet Thursday in Montreal to take care of some remaining issues and prepare the incorporation papers for the two corporations. The spokesman said it should take about two weeks for the incorporation process, once the papers are filed. Once incorporated, board members will be selected, the spokesman said. Two events could throw the establishment of PNS and CNS "off balance," the spokesman said. The Association of Retail Travel Agents' suit against ARC could be successful, or the U.S. "could change its position under pressure" and reverse the CAB decision to lift antitrust immunity from existing programs. IATA, however, "has had no indication that the U.S. will back off," he said.

if all carriers involved have agreed. Tickets can be reported and sales remitted through the area settlement plan. This new outlet category could include business travel departments or other types of retail outlets such as department stores.

The new plan has received mixed reaction from various agency groups, including a law suit by the Association of Retail Travel Agents who propose that the ARC be under the joint control of travel agents and airlines.

IATA also took action, although delayed, as summarized in the accompanying box story.

AIRLINE COMPUTER RESERVATIONS SYSTEMS (CRS)

The growth and increasing complexity of the air travel market, combined with the increasing use of travel agents, has fostered two developments. First, antedating deregulation, airlines and others were working to develop computerized reservations systems for installation in agency locations, as well as in their own sales outlets. And then, as an aspect of the intensified competition following deregulation, the two largest airlines (American and United) were widely accused of improper use of their dominance to bias, in their favor, the displays of available services and fares.

The potential for CRS abuse is considerable. Computer reservation capability has become by far the most important tool available for airlines and travel agents to handle bookings, airline fares and schedules made vastly more complex by deregulation.

A travel agent using a CRS (which generally includes a television-like screen, processing equipment, and a telecommunications link) can "call up" a screen display of schedules, fares and seat availabilities on flights offered by different air carriers. The agent can then use the system to book reservations. The booking information is routed automatically to the central data base of the CRS vendor and, if necessary, to the computer of the air carrier on which a seat is being booked. These requests by agents for availability and sales confirmation are communicated to the selling airline either through ARINC (a centralized airline communications switching center) or by means of a "direct link" (a dedicated communications link between a CRS vendor and the selling airline).

The system removes the need for travel agents to telephone carriers, thereby saving resources for both

the travel agency and the carrier. After completing a booking, the agent can automatically print a ticket and a boarding pass for the passenger. Through most CRSs, the travel agent also can make hotel and car rental reservations. More advanced CRS vendors also provide automated data processing packages to travel agents for their own accounting and record keeping requirements. Without such an automated system, travel agents would be lost in a disastrous morass of paperwork and frustrated by attempts to call airlines for reservations, compute the correct fare, and manually prepare the ticket.

There were several early efforts to provide automation to travel agents by independent contractors or airlines. The first major effort occurred in 1964 as a joint project by the ATC and outside interests. After the expenditure of considerable time and money, however, this effort failed, primarily due to lack of continued financing and the inability of the airlines to agree. There were several other "false starts" in the 1960s. One that had considerable promise was the ATARS program (Automatic Travel Agency Reservations System). It was the first attempt to provide a common computerized reservations system jointly sponsored by airlines and travel agents. However, it triggered a CAB investigation into the competitive ramifications of an industry-wide single system, and the program was dropped.

In 1976, another joint industry effort came to an end when United Airlines launched a major effort to install its APOLLO system in travel agencies throughout the country. This was quickly followed by American Airlines with its SABRE system, TWA with PARS, and later by Eastern and Delta with their own systems. In addition, the American Society of Travel Agents together with a number of airlines launched a final effort to develop an industry-wide system that they called MAARS (Multi-Access Agent Reservation System.) While initially failing, this became Tymshare's MARS, the only currently used independent CRS not owned by an airline.

As of the latter part of 1984, it was estimated that 90 percent of the travel agents used one of the computer reservation systems to book and ticket airline passengers.⁵⁹ As this group included most large

59. It was estimated that there were approximately 88,000 individual agency CRS sets in use.

travel agents, they accounted for well over 90 percent of all airline bookings made through travel agents. Since approximately 65 percent of all domestic airline bookings were handled by travel agents, and 90 percent of all travel agents' bookings were automated, it follows that about 60 percent of all the airlines' domestic passenger business were handled by the automated reservations systems in travel agencies.⁶⁰ It was also widely believed that the use of CRSs would continue to grow. This development has dramatically changed the method of distributing and handling airline travel sales.

Much controversy surrounds the concentration of the airline Computer Reservations Systems. United (APOLLO) and American (SABRE) control nearly 70 percent of the CRSs in travel agents' locations, and derive 80 percent of the domestic travel revenues sold by these CRS locations as shown in Tables 27 and 28.

Eighty-eight percent of domestic revenues were generated by 65 percent of the travel agency locations with CRSs (Table 27). Table 28 shows the distribution of CRSs and revenues when the unautomated locations are excluded.

The power concentration in the APOLLO and SABRE systems is further indicated by Table 29, which lists urban markets that sold \$100 million or more of domestic air transportation, and in which the CRS of a single airline had more than a 40 percent share.

There was similar concentration in the smaller urban markets (less than \$100 million of airline sales) where one airline's CRS has more than 50 percent share of the market.

While CRS marketing power concentration, by itself, might well have triggered distrust and complaints, there were also widespread accusations of bias in the manner in which the larger airlines displayed their competitors' services and prices. Busy agents are influenced by what appears on the screen quickest and clearest—and the airline owner of the CRS controlled what went on the screen and how it was displayed. All of this led to Congressional hearings and interest on the part of the Department of

TABLE 27—SHARES OF COMPUTER RESERVATIONS SYSTEMS IN ALL TRAVEL AGENCIES

CRS	Number	%	Domestic Revenues (Thousands of Dollars)	%
APOLLO (United)	3,865	18	\$ 4,040,856	27
DATAS II (Delta)	688	3	259,774	2
MARS PLUS (Tymshare)	344	2	281,933	2
PARS (TWA)	2,159	10	1,561,123	10
SABRE (American)	5,692	27	6,376,289	43
SODA (Eastern)	1,075	5	605,346	4
UNAUTOMATED	7,546	35	1,822,512	12
Totals	21,369	100	\$14,947,833	100

Source: Prepared by the Department of Justice for CAB Investigation in Docket 41686. The data were based on ATC reports and cover the 12 months ending June 30, 1983.

TABLE 28—PERCENTAGE OF TOTAL CRS REVENUE CONTROLLED BY THE VARIOUS AIRLINE SYSTEMS

CRS	Number	%	Domestic Revenues (Thousands of Dollars)	%
APOLLO (United)	3,865	28	\$ 4,040,856	31
DATAS II (Delta)	688	5	259,774	2
MARS PLUS (Tymshare)	344	2	281,933	2
PARS (TWA)	2,159	16	1,561,123	12
SABRE (American)	5,692	41	6,376,289	49
SODA (Eastern)	1,075	8	605,346	5
Totals	13,822	100	\$13,125,321	100

Source: See Table 27.

TABLE 29—URBAN MARKET WITH AIR TRAVEL MARKET OF \$100 MILLION OR MORE WHERE A CRS HAD MORE THAN A 40% SHARE OF MARKET

SABRE		APOLLO		PARS	
Anchorage	92%	Denver	72%	Kansas City	71%
Dallas-Ft. Worth	88%	Portland	66%	St. Louis	57%
Cincinnati	84%	Cleveland	64%	Columbus	51%
Phoenix	69%	Milwaukee	57%	Pittsburg	41%
Boston	69%	Sacramento	52%		
Rochester	69% ^a	Salt Lake City	52%		
Houston	68%	Seattle	48%		
San Diego	54%	Honolulu	47%		
Detroit	53%	Buffalo	44%		
Washington DC	51% ^a	Chicago	42%		
New York	50%				
Miami	49%				
Minneapolis-St. Paul	49%				
Hartford	45%				
Los Angeles	43%				
Salt Lake City ^a	42%				
Chicago ^a	41%				

60. It was also estimated that travel agents handled over 80 percent of all international air travel originating in the United States.

a. Cities where two CRSs each had more than 40% market share. In San Francisco, Apollo had 39% and SABRE had 36%.

Justice. As a result the CAB decided to investigate the CRS controversy.

The issues were sharply drawn. On the one hand, American and United argued that they had invested very large sums of money in their systems, and that they were doing nothing illegal or improper under the new competitive environment. On the other side, the Department of Justice and a number of airlines contended that the CRS concentration of marketing power permitted rival carriers to be penalized through display bias, and selective manipulation and suppression of schedule, pricing and carrier information. It also was argued that important marketing information concerning their competitors' business was collected from the CRS records for the exclusive benefit of the CRS operator. The smaller CRS owners (Delta, Eastern, and TWA) generally supported the adoption of anti-discrimination rules.

As a result of its investigation, in mid-1984 the CAB adopted rules intended to limit bias without impairing the usefulness of the CRS system.⁶¹ It is most unlikely, however, that the controversy is over. American's subsequent announcement of the fees that it planned to charge other airlines, and the terms and conditions of service, raised a storm of protest. As 1984 neared an end, many "non-dominant" airlines (including some foreign airlines serving the United States) were searching for relief and protection—whether through government intervention or the development of other alternatives. A number of U.S. carriers banded together in an antitrust suit against American and United.

One thing appears certain. Regardless of who manages and controls, and under what ground rules, the computer reservation systems are here to stay and will grow in capability and use.

61. There can be no question that the CRS provides great efficiency and economy. Despite the vast increase in volume and complexity (rapidly changing and wide range of air fares and services, as well as new supplementary functions, such as hotel and car reservations, etc.), an internal American Airlines' study showed that in its own reservations offices with the same number of employees, 8 percent more calls were being handled, and they were being answered faster and took less time per call in 1983 than in 1978.

CAB MOVES AHEAD WITH RULES TO ADDRESS COMPUTER BIAS

(Reprinted from *Aviation Daily*, June 1984.)

The Board said it tried to strike a balance between preventing competitive and consumer abuses and allowing the CRS market to function. "Our ability to forecast the future of the CRS industry is far from perfect," the Board said. "We cannot measure precisely the extent or duration of the market power or the limitations on it. . . . Our proposed rules should be sufficient to alleviate the major problems that we have identified, but still give CRS owners great latitude in the design and marketing of their systems." Specifically, the rules state:

- All systems must offer comprehensive displays showing the services of all carriers. Thus, a CRS owner cannot exclude any carrier and all displays must be free from bias. Carrier identity cannot be considered in the selection and ranking of flights.
- CRS owners cannot unjustly discriminate in the setting of fees. This rule, however, would not necessarily require that CRS owners charge equal prices to all users, the Board said. Price differentials based on cost differences would be permitted so that carriers could have incentives to reduce fees. Without such incentives, the CRS owner's cost could be higher, which would in turn result in higher fees for all participating carriers.
- CRS owners may retain exclusive use of service enhancements such as automated boarding passes, but they must offer them to all other carriers on non-discriminatory terms once they are offered to one. This prevents enhancements from being used as a weapon to injure competition.
- CRS owners cannot require the purchase of services as a condition for participation. To date, this problem of "tying" came to the Board's attention in the context of interline fees and CRS participation, the Board said. Vendors have been requiring reciprocal fees for the processing of interline tickets as a condition for participation in the CRS.
- Travel agents must be able to use multiple systems and also to switch systems. CRS contracts would be limited to five years. The existing contracts insulate CRS owners from competition and increase the difficulty of entering into the market, the Board said.
- CRS owners must offer any booking and sales data that they choose to generate to other carriers. Non-discriminatory fees may be charged to other carriers for such data.

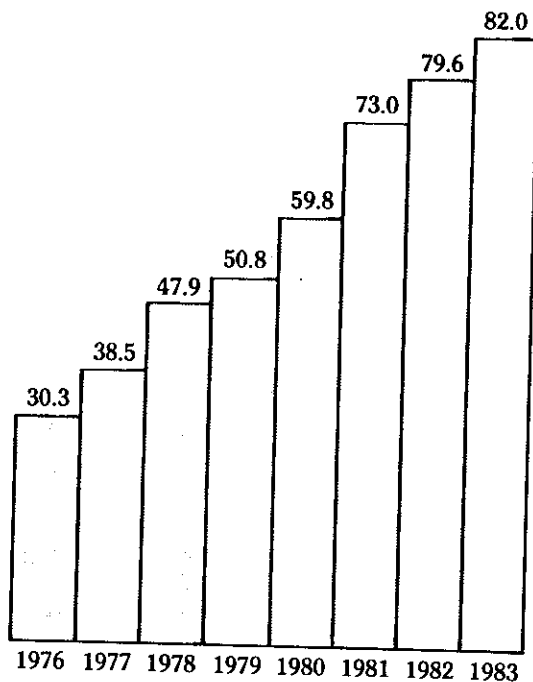


Figure 8. Discount Revenue Passenger Miles as Percent of Total

Source: Data from ATA.

LOYALTY AND YIELD MAINTENANCE PROGRAMS

With intensified competition and recurring fare wars, airlines are attempting to maintain yield, despite an ever increasing percentage of discount fares and to build and maintain brand loyalty. Figure 8 illustrates the discount travel problem. In 1976, before the informal CAB relaxation that preceded deregulation, about 30 percent of the domestic trunkline revenue passenger miles were flown at discount fares—with discounts approximating 30 percent. These percentages grew, year by year, until by 1983, 82 percent of the domestic revenue passenger miles of the major airlines were flown at average discounts of 48 percent. As a result yields were drastically depressed.

By the end of 1983's first quarter, only about 10 percent of the revenue passenger miles involved "normal" fares. In the second quarter, spearheaded by American Airlines, carriers began to place tighter restrictions on discount fares, such as "Super Savers," and a correction course began. As a result, in the last quarter of 1983, normal fare traffic had increased to approximately 25 percent of the revenue passengers miles flown by the major carriers.⁶²

62. However, as also discussed in Chapter 4, the fare wars resumed in mid-1984. By August, only 18 percent of the RPMS were at full normal fares and the average discount was up to 53 percent.

THE AMERICAN AAdvantage PLAN

The American AAdvantage plan, introduced in the fall of 1981, has been explained as follows by American:

For years the industry has struggled to find a mechanism to establish true brand loyalty among the frequent business travelers that make up in excess of 50 percent of our gross revenues domestically. After a good deal of research, we determined that the only fruitful approach would be to find a way to reward the individual traveler for patronage of American. Thus, the concept of AAdvantage was born and the program development initiated in late 1980. It was likewise very clear to us that we had to execute the program in such a way that the record keeping would be automatic in order to appeal to the traveler and maintain some efficiencies on our side. Fundamentally, we built some software within SABRE that hands off the itinerary portion of the traveler's PNR on a segment basis to an off-line system that calculates the segment mileage and credits the traveler's account. From this off-line system a monthly statement is generated for each traveler. Our studies indicate that the hoped for brand loyalty has been achieved and the AAdvantage program produces a willingness on the part of the traveler to arrange his or her schedule to optimize the utilization of American.

The details of American's program are shown on Table 30.

Business travelers became a prime marketing target, since they normally travel on first or business class fares that are less restrictive. In keeping with this objective, and led by American Airlines, the industry developed a series of "frequent flyer" programs.

Other carriers quickly followed with their own plans that differed in some respects, but had as their basis the accumulation of points towards free or reduced price transportation. This particular means of keeping frequent traveler loyalty has proven popular with the public. Its success with major carriers has spawned interline arrangements whereby travel on more than one carrier counts for bonus awards, as shown in Table 30. In addition, tie-ins with hotels, car rental firms, and cruise lines have become an integral part of everyone's program, as shown.

For example, TWA, which had matched American domestically within the United States, was the first

TABLE 30—FREQUENT FLYER AWARDS—SPRING 1984

Travel Award Mileage Levels	Airline Travel Award	Foreign Airline Travel Award
American		
	12,000 miles	Upgrade
20,000 miles	25% discount	Upgrade from first class to Concorde on British Airways
30,000 miles	50% discount	
40,000 miles	75% discount; or free companion roundtrip ticket to London when coach ticket purchased; or upgrade to business class to London	Free companion roundtrip ticket on British Airways to London when tourist class ticket purchased; or upgrade to London; or free companion roundtrip ticket on KLM to Amsterdam when economy ticket purchased; or upgrade to Amsterdam
50,000 miles	Free first class roundtrip ticket on American; or free roundtrip ticket on Frontier; or 2 free coach roundtrip tickets on American	
60,000 miles	2 free coach roundtrip tickets to London; or free business class roundtrip ticket to London	2 free economy roundtrip British Airways tickets to London or free club or super club roundtrip tickets to London; or 2 free economy roundtrip KLM tickets to Amsterdam or 1 free business class roundtrip
75,000 miles	2 free first class roundtrip tickets on American; or 2 free roundtrip tickets on Frontier	
100,000 miles	Same as 75,000 miles; or 2 free business class roundtrip tickets to London	2 free club or super club tickets to London; or 2 free business class roundtrip KLM tickets to Amsterdam
125,000 miles	Same as 75,000 miles	
150,000 miles	Same as 75,000 miles	
Pan Am		
10,000 miles	Upgrade	
20,000 miles	Free companion ticket with purchase of clipper class or cabin class ticket in North America; or upgrade—other destinations	
30,000 miles	Free companion ticket with purchase of first class ticket in North America; or free companion ticket with purchase of clipper	

TABLE 30—(Continued)

Travel Award Mileage Levels	Airline Travel Award	Foreign Airline Travel Award
Pan Am		
	class or cabin class tickets to Europe; or upgrade—other destinations	
40,000 miles	2 cabin class tickets in North America; or free companion ticket with purchase of first class U.S.-Europe; or free companion ticket with purchase of clipper class or cabin class to all other points	
50,000 miles	2 first class tickets in North America; or 1 clipper class ticket plus companion upgrade to Europe; or free companion ticket with purchase of first class ticket to all other points	
60,000 miles	3 cabin class roundtrip tickets in North America; or 2 cabin class roundtrip tickets to Europe; or 1 clipper class roundtrip ticket and companion upgrade to all other destinations	
70,000 miles	4 cabin class tickets in North America; or 1 first class ticket and companion upgrade to Europe; or 2 cabin class tickets to all other destinations	
80,000 miles	2 clipper class tickets to Europe; or 1 first class ticket plus companion upgrade to all other points	
90,000 miles	2 first class tickets to Europe; or 2 clipper class tickets to all other destinations	
100,000 miles	2 first class tickets to any point	
USA 30	30 days of unlimited travel in the U.S. (can be used at levels between 80,000–125,000 miles)	
WorldPass 30	30 days of unlimited international travel (can be used at levels between 100,000–175,000 miles)	

Source: *Travel Weekly*, Spring 1984.

TABLE 31—FREQUENT FLYER TIE-INS, SPRING 1984

Airline	Program	Domestic Connection	Foreign Connection	Car Rental	Hotel	Cruise Line	Regional Airlines
Air Florida	Frequent Flyer						
Alaska	Golden Travel						
American	AAdvantage	Frontier Frontier Horizon	British Airways KLM	Avis	Sheraton Inter- Continental	Holland America	
Braniff	Mileage Plus	United	Air France Air New Zealand Lufthansa SAS	Hertz Budget	Westin	Royal Viking Line	
Continental	TravelBank	New York Air					Continental Commuter, Royale
Delta	Frequent Flyer			National Alamo	Marriott Preferred Hotels		Air North, Air Wisconsin, Atlantic Southeast, Britt, DashAir, Horizon, Midstate, Pacific Coast, Ransome, Rio, Royale, Trans- Central, Wright, Skyways, Sun West
Eastern	Frequent Traveler Bonus Program	TWA	British Caledonian SAS TWA	Hertz General	Marriott		Air Midwest, Atlantis, Bar Harbor, Command, Eastern Metro Express, Newair, Provincetown- Boston, Pilgrim, Precision, Prinair, Wheeler
Midway Metrolink	FlyersFirst						
New York Air	TravelBank	Continental					
Northwest	Free Flight Plan						Midstate
Ozark	Executive		British Caledonian	Budget		Carnival Cruise Lines	Britt
Pan Am	Dividend WorldPass	Air Atlanta		Hertz	Sheraton Inter- Continental		Empire
Republic	Frequent Flyer			National			AAA, Air Midwest, Air Wisconsin, American Central, Bemidji, Britt, Cascade, Comair, Hammonds, Havasu, Imperial, Mesaba, Midstate, MVA, San Juan, SFO Helicopter, Simmons, SkyWest, Skyways, Sun Aire, Sunbelt, Wings West
TWA	Frequent Flight Bonus	Eastern	Qantas	Hertz	Hilton Int'l Marriott Vista Int'l		Air Midwest, Air Nevada, Air North, Britt, DashAir, Jetstream International, MVA, Newair, New York Helicopter, Resort Air, Skyways
United	Mileage Plus	Braniff	Air France Air New Zealand Lufthansa SAS	Budget Hertz	Westin	Royal Viking Line	Air Wisconsin, Aloha, Aspen, Horizon, Imperial, MVA, Rocky Mountain
Western	Travel Pass II			Budget	Sheraton		Alaska Aeronautical Industries, Markair, Skywest, South Central

Source: *Travel Weekly*, Spring 1984.

U.S. carrier to expand their frequent flyer program to international routes. TWA's only international routes were the North Atlantic. When Pan Am responded to TWA in the latter part of 1982, it leapfrogged ahead because its international routes covered the world, not just the Atlantic. Almost anywhere the U.S. businessperson would travel, bonus points could be earned on Pan Am. It is interesting to note that Pan Am established a deadline of June 30, 1984 for the award redemption of certain accumulated free-travel credits. This administrative miscalculation cost them dearly in their second quarter 1984 earnings, as described in the accompanying boxed news story. The details of Pan Am's WorldPass program are shown on Table 31.

TWA now found itself with a less attractive offering and entered into arrangements with Eastern (Latin America) and Qantas (South Pacific) to try and present a more extensive "worldwide" offer. Foreign carriers also were impacted first by the TWA program and then by Pan Am. Many joined forces with a U.S. domestic carrier to offer combined domestic plus international coverage.

Bonus awards have been the cause of some disagreement between corporate travel departments and the corporate employees. Both feel that travel bonuses are theirs to use as they see fit. Carriers prefer to see bonus travel points accumulated by individuals rather than corporations, preserving the loyal traveler relationship. While bonus travel schemes add to yield erosion, carriers generally regard them as a successful, although somewhat expensive marketing tool.

BUSINESS CLASS SERVICE

In 1979 Pan American initiated Business Class Service aimed primarily at the international business traveler to overcome the regulatory restraints on increasing normal economy (coach) fares in long-haul international markets. Initially the service consisted of not much more than a few onboard amenities, free drinks, movies, etc. It has since become a major element of most airline marketing on international routes, where corporations frequently prohibit, or severely limit, employees traveling at first class fares. Most international carriers have now progressed to

PAN AM LOSS LINKED TO DISCOUNTS

Pan American World Airways, hurt by an unusually high amount of free or discounted travel, yesterday reported a loss of \$49.8 million in the second quarter, in contrast to earnings of \$10.4 million, or 13 cents a share, in the second quarter of 1983.

Pan Am said revenues, which slipped 2.9 percent to \$918.3 million in the quarter ended June 30, from \$945.6 million a year ago, suffered because of a high redemption rate of awards from the carrier's WorldPass program in which passengers accumulated free-travel credits for mileage flown.

"In carrying these free or reduced fare passengers, Pan Am is replacing revenue-producing customers," said Candace Browning, an airline analyst at Oppenheimer & Company.

'Building Passenger Loyalty'

"The WorldPass program, which was instituted in July of 1982, has been hugely successful in building passenger loyalty, especially among higher-paying passengers," Miss Browning added. "Where Pan Am made its mistake was setting June 30, 1984, as the deadline for award redemption, thus severely impacting second-quarter results."

She added that most other airlines, which offer similar programs, have not set such stringent redemption deadlines.

Pan Am conceded that the deadline of June 30 for the use of travel credits earned in previous years resulted in a high proportion of free travel in the second quarter and was the key reason for a 5.4 percent decline in second-quarter revenue per passenger mile, to 9.83 cents, from 10.39 cents.

Free Travel Off in July

But Pan Am said in its July traffic report that the proportion of free travel had declined significantly—from about 11 percent in the second quarter (14 percent in June), to about 3 percent in July.

The continued strength of the dollar overseas also was a negative factor, Pan Am said. The company reported an increase in foreign-exchange losses to \$11.5 million in the last three months, from \$4.3 million in the second quarter last year.

In addition, second-quarter charter revenues fell \$15.3 million from a year ago because the company is getting out of the charter business.

Source: Phillip H. Wiggins, *The New York Times*, Wednesday, August 8, 1984

eight abreast seating in business class on a 747, compared to the normal ten in economy, and several carriers have extended the concept to six abreast seating. Most of these seats are as comfortable and with as much legroom as travelers were used to in

previous first class domestic flight arrangements. At the same time, first class has often been improved by providing "sleeperettes" with legrests. The price level of business class on international routes has generally been in the range of 10 to 25 percent above economy fares. Thus far, with the shorter distances involved, business class has not become a major factor in the domestic market, but rather a by-product of some carriers' internationally configured aircraft flying certain domestic sectors. Nevertheless, as carriers attempt to limit the amount of traffic moving at discount fares, some form of business traffic segregation and pricing must remain one of their options.

THE ROLE OF ADVERTISING AND SALES PROMOTION

Clever advertising and sales promotion material, extolling the service virtues of one carrier over others, tended to be the prime basis of most advertising prior to deregulation. Schedule, frequency, and equipment ads also were used often. The principal difference between carriers however, was the level and standard of service on the ground and in the air. Pricing was a secondary feature under the relatively tight rein of regulation. Today, most airline advertising has changed considerably. The emphasis has shifted from service to a combination of price, destination, and frequency.

Despite the more competitive situation, there has not been a significant change in advertising's share of corporate cash operating expense: 2.6 percent in 1972; 1.7 percent in 1978; 2.1 percent in 1982; and 2.2 percent in 1983. This relatively stable pattern of expenditure is in marked contrast to the commission expense trend, which increased year after year from 3.5 percent in 1972 to 6.9 percent in 1983.

OTHER NEW CONCEPTS AND DEVELOPMENTS

Some airline marketing strategies involve operational changes. Expansion of hub and spoke operations, for example, represents a prime marketing

strategy which has been expanded and employed effectively since deregulation. The freedom to expand or create new hubs without regulation is of substantial benefit to established carriers to counter the lower overall cost structure of new entrants. Furthermore, if the hub becomes well established and the carrier exercises substantial control over a hub's major markets, pricing pressures can be easier to deal with.

Route strategies of domestic/international carriers (primarily Pan American and TWA) involve a reduction of point-to-point domestic service, unless the flight provides a connection at a hub to a bank of international flights and, conversely, inauguration of service to new points not previously served, to provide desired hub connection. (TWA's St. Louis hub would appear to be an exception as well as Pan Am's New York-Florida and intrastate Florida service.) This strategy provides: single carrier service to a large number of international and domestic locations; an opportunity to eliminate expensive divisions of revenue with other carriers; low frequency access to new markets, both domestic and foreign; and a means of strengthening most spokes of domestic/international hubs. By such means these carriers seek to attract new customers and retain the loyalty of old ones.

Implicit in this strategy is a high degree of "trial and error" mobility. In the last few years, for example, Pan American inaugurated passenger service to about 50 new cities (in the United States and abroad) and discontinued service to about 25. This would not have been possible in the regulated environment.

Other efforts to retain or attract business are typified by the low simple fare policies of People Express. Some new carriers however have switched from the low fare approach. New York Air, for example, started by offering low fares but did not succeed, and changed to what it calls first class service at coach fares. The new Braniff began by offering luxury service at coach prices but, in a desperate effort to survive, shifted in the fall of 1984 to cutting prices and reducing the quality of service. New York Air has also reduced prices on some routes.

At the other end of the spectrum are the carriers which offer super-deluxe service at premium fares.

Regent Air reconfigured B727s into accommodations for less than 30 passengers (with suites, secretaries, and hairdressers), and offered New York-California service at about \$1,500 one way—well above first class fares. They did not do well, and

resorted to two-for-ones and other pricing gimmickry.

In short, there can be little doubt that at least one objective of deregulation—the encouragement of experimentation and new concepts—has indeed been accomplished.

Chapter 7

Changes in Domestic Airline Scheduling

Deregulation has led to radical changes in the routes served by each carrier. A main focal point for these changes has been the greatly increased emphasis on hub-and-spoke scheduling. All carriers have sought to build up previous hubs, and in many cases have created new ones. As part of this strategy, carriers have generally downplayed or abandoned many of their prior routes that did not intergrade into their hub airports. This chapter examines the impact of deregulation on airline scheduling practices.

INCREASED HUB-AND-SPOKE OPERATIONS

Deregulation did much more than merely open the door to the "free entry" re-deployment of airline resources between different routes. It also radically changed the economic viability of various types of airline scheduling.

In the past, there was constant pressure (from communities and from the CAB) for more and more direct, point-to-point nonstops. If a carrier did not exercise its franchise of nonstop operation in a particular market, it stood in constant danger that the community would induce another airline to seek the unused authority from the CAB. This concept of nonstop obligation was carried right into the Airline Deregulation Act, which classified "dormant authority" as any route segment not then actually served nonstop and, as the first step toward liberalized route grants, provided for the transfer of dormant authority to other carriers.

Many city-pair markets, however could not support nonstop service in terms of their own origin/

destination traffic. Economic viability frequently depended on adding "traffic flows" from back-up markets on either end of a nonstop route. In CAB route cases, cities often were added to a carrier's route system specifically for the purpose of providing enough traffic to make nonstop service viable. Because of the protection afforded by a regulated route franchise system, the back-up markets for some nonstop routes could be expected to remain relatively stable over long periods of time.

In this framework, the airline route structure evolved gradually into many "linear" patterns, in which one city would mainly serve as back-up to some specific route segment, while other cities would back up other routes, etc. There were of course some hub-and-spoke connecting operations, but their scope was limited by the route franchises then in effect.

With deregulation, several important changes took place. First, carriers could no longer regard their back-up traffic markets as stable or "secure." For example, the traffic from Dayton to Los Angeles had previously helped TWA support nonstop service from Indianapolis to Los Angeles. Now, however, the

Dayton-Los Angeles traffic can be readily tapped by a number of other carriers, who can divert that traffic flow to move over to their own respective hubs—and indeed one other carrier has started operating nonstop from Dayton to Los Angeles, further reducing its back-up strength for any one-stop routing.

Second, traffic that was previously fed to trunk nonstops by local service lines, is now increasingly retained by those lines, all the way to destination, since those carriers have themselves extended their own routes over the longer hauls.

Third, with pricing freedom, traffic can now be diverted from long-haul nonstops, by carriers who serve the same city-pairs on a one-stop or connecting basis, and who can offer “fill-up” discounts below the normal nonstop fares.

Fourth, as a “mirror image” of the preceding point, the effort to combat the diversionary effect of the one-stop discounts sometimes has led the nonstop carriers to come close to matching those discounts on their nonstop flights. While this has retained the traffic, it does so at a lesser revenue yield, and thus still ends up impairing the viability of the long-haul service.

The combination of these factors has forced all carriers to shift their primary emphasis from point-to-point nonstop service to hub-and-spoke patterns. By merging as many spokes as possible into a hub, and thereby exchanging traffic on a connecting basis between a wide variety of origins and a wide variety of destinations, carriers are no longer so vulnerable to the diversion that might occur on one particular traffic flow routing.

The shift to hub-and-spoke format has been of explosive nature. The degree of the change can best be demonstrated by reference to several specific examples. The intensified hub operation by TWA at St. Louis is demonstrated in Table 32 and Figure 9. These data contrast the nonstop route segments TWA operated into its St. Louis hub in 1978, vis-à-vis the segments it operated into that hub 5 years later, in the winter of 1983. Whereas there were only 27 cities linked by TWA with nonstop flights into St. Louis in 1978, this number had increased to 48 by 1983. The total number of TWA daily nonstop flights into St. Louis increased from 95 to 161. In percentage terms, the cities linked to St. Louis increased by 78 percent and the flight frequency by 69 percent.

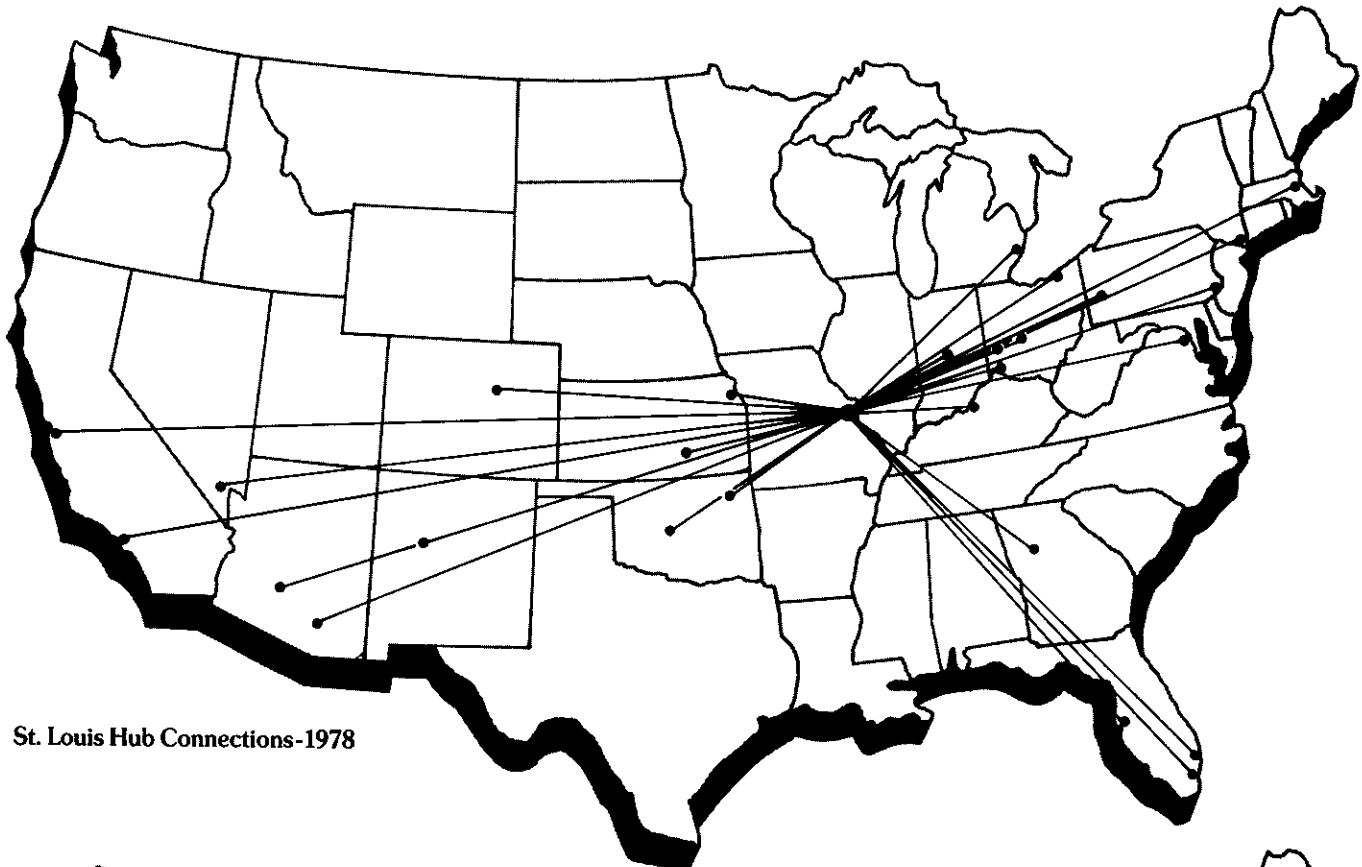
TABLE 32—TWA NONSTOP ROUTES INTO ST. LOUIS HUB BEFORE AND AFTER DEREGULATION

Between St. Louis and:	TWA Daily Nonstops		Change
	Winter 1978	Winter 1983	
Albuquerque	1	3	+ 2
Atlanta	2	—	- 2
Baltimore	—	3	+ 3
Boston	2	4	+ 2
Chicago	—	7	+ 7
Cincinnati	5	3	- 2
Cleveland	3	4	+ 1
Colorado Springs	—	2	+ 2
Columbus (OH)	2	4	+ 2
Dayton	4	5	+ 1
Denver	4	3	- 1
Des Moines	—	2	+ 2
Detroit	4	4	NC
Ft. Lauderdale	1	1	NC
Harrisburg	—	1	+1
Hartford	—	2	+ 2
Houston	—	4	+ 4
Indianapolis	5	5	NC
Kansas City	14	6	- 8
Las Vegas	3	3	NC
Little Rock	—	3	+ 3
Los Angeles	4	6	+ 2
Louisville	3	4	+ 1
Miami	2	2	NC
Nashville	—	3	+ 3
New York	8	12	+ 4
Oklahoma City	1	4	+ 3
Omaha	—	4	+ 4
Ontario	—	2	+ 2
Orlando	—	1	+ 1
Palm Springs	—	1	+ 1
Peoria	—	2	+ 2
Philadelphia	2	5	+ 3
Phoenix	4	4	NC
Pittsburgh	3	4	+ 1
Portland (OR)	—	1	+ 1
Salt Lake City	—	2	+ 2
San Antonio	—	2	+ 2
San Diego	—	2	+ 2
San Francisco	3	5	+ 2
San Jose	—	1	+ 1
Seattle	—	3	+ 3
Syracuse	—	1	+ 1
Tampa	2	2	NC
Toledo	—	2	+ 2
Tucson	1	2	+ 1
Tulsa	4	4	NC
Washington	6	7	+ 1
Wichita	2	4	+ 2
Total Nonstop Flights	95	161	+66
Total Nonstop Routes	27	48	+21

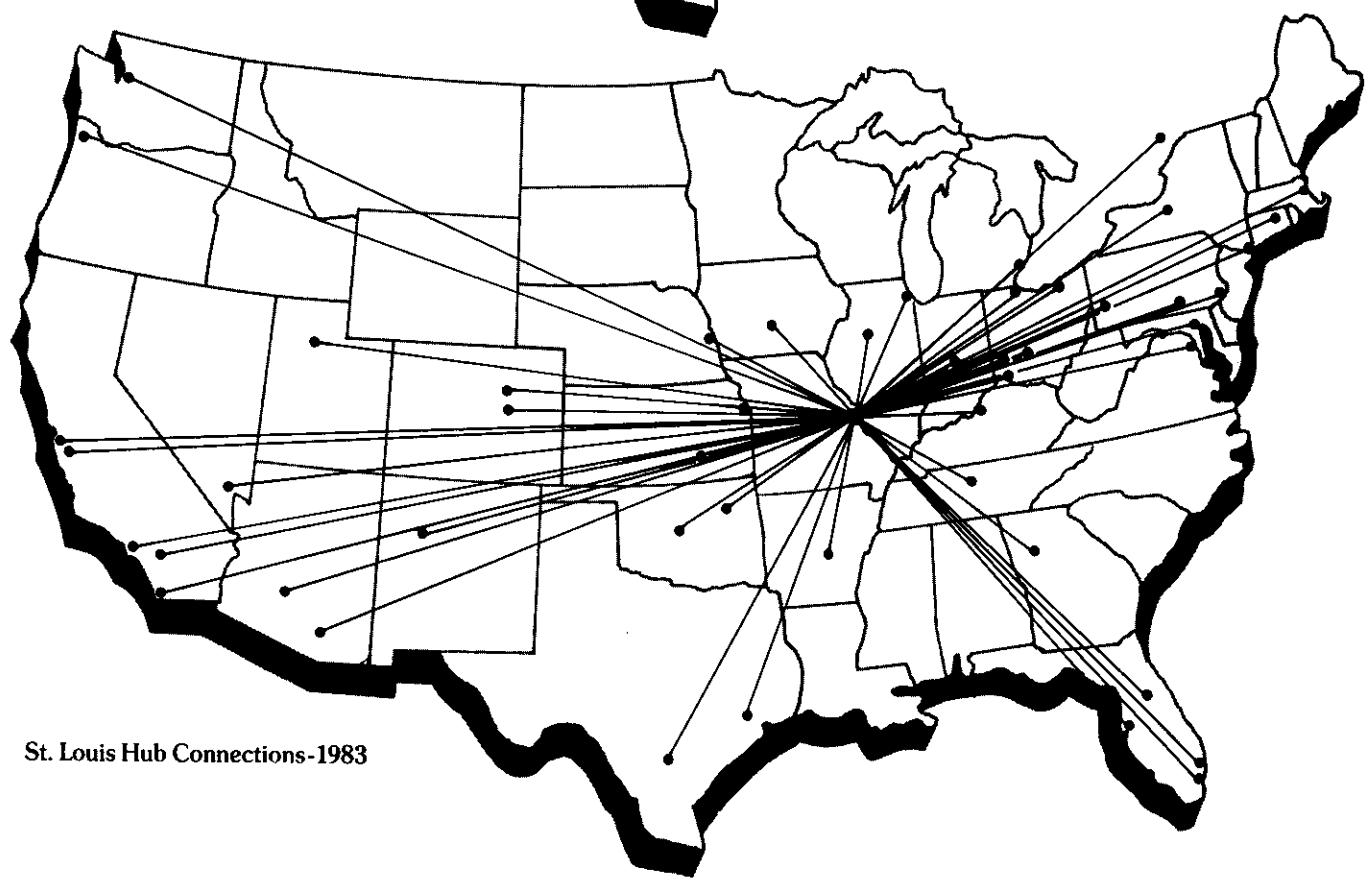
NC = No change.

Source: Official Airline Guide

Similar information for the American Airlines' hub at Dallas is presented in Table 33 and Figure 10. In this case, the number of spokes increased from 32



St. Louis Hub Connections-1978



St. Louis Hub Connections-1983

Figure 9. TWA Nonstop Routes into St. Louis Hub Before and After Deregulation

TABLE 33—AMERICAN AIRLINES NONSTOP ROUTES INTO DALLAS HUB BEFORE AND AFTER DEREGULATION

Between Dallas and:	American Airline Daily Nonstops		Change
	Winter 1978	Winter 1983	
Acapulco	2	2	NC
Albuquerque	—	5	+ 5
Amarillo	—	4	+ 4
Atlanta	—	5	+ 5
Austin	—	9	+ 9
Baltimore	3	4	+ 1
Baton Rouge	—	2	+ 2
Birmingham	—	3	+ 3
Boston	1	4	+ 3
Burbank	—	2	+ 2
Chicago	8	10	+ 2
Cincinnati	2	2	NC
Cleveland	1	2	+ 1
Columbus (OH)	1	2	+ 1
Corpus Christi	—	3	+ 3
Cozumel	—	2	+ 2
Dayton	2	—	- 2
Denver	—	5	+ 5
Des Moines	—	1	+ 1
Detroit	1	4	+ 3
El Paso	6	5	- 1
Ft. Lauderdale	—	1	+ 1
Guadalajara	—	1	+ 1
Harlingen	—	3	+ 3
Hartford	—	1	+ 1
Honolulu	—	1	+ 1
Houston	—	12	+ 12
Indianapolis	3	3	NC
Jackson (MS)	—	2	+ 2
Jacksonville (FL)	—	3	+ 3
Kansas City	—	5	+ 5
Las Vegas	—	5	+ 5
Little Rock	5	4	- 1
Long Beach	—	2	+ 2
Los Angeles	8	7	- 1
London	—	1	+ 1
Lubbock	—	3	+ 3
Louisville	3	—	- 3
Memphis	4	5	+ 1

TABLE 33—(Continued)

Between Dallas and:	American Airline Daily Nonstops		Change
	Winter 1978	Winter 1983	
Mexico City	2	3	+ 1
Miami	—	4	+ 4
Midland	—	4	+ 4
Minneapolis	—	3	+ 3
Nashville	5	5	NC
New Orleans	—	5	+ 5
New York	9	11	+ 2
Oklahoma City	2	7	+ 5
Omaha	—	2	+ 2
Ontario	3	4	+ 1
Orange County	—	4	+ 4
Orlando	—	3	+ 3
Palm Springs	1	1	NC
Philadelphia	4	4	NC
Phoenix	4	5	+ 1
Pittsburgh	2	3	+ 1
Portland (OR)	—	1	+ 1
Puerto Vallarta	—	1	+ 1
Reno	—	2	+ 2
Sacramento	—	3	+ 3
St. Louis	4	5	+ 1
Salt Lake City	—	3	+ 3
San Antonio	1	11	+ 10
San Diego	4	4	NC
San Francisco	7	9	+ 2
San Jose	3	2	- 1
San Juan	—	1	+ 1
Seattle	—	4	+ 4
Shreveport	—	3	+ 3
Tampa	—	4	+ 4
Toronto	—	2	+ 2
Tucson	4	3	- 1
Tulsa	3	7	+ 4
Washington	3	5	+ 2
West Palm Beach	—	2	+ 2
Wichita	—	3	+ 3
Total Nonstop Flights	111	278	+167
Total Nonstop Routes	32	73	+ 41

NC = No change.

Source: Official Airline Guide.

in 1978 to 73 in 1983—an increase of 128 percent. And the number of flights had increased from 111 to 278, for an increase of 150 percent.

The increased emphasis on hub operations has not been just an overlay on top of the general pattern of operations previously in existence. Rather, it has represented a major re-deployment from non-hub routes to hub routes.

For example, Table 34 shows the sharp reduction of TWA's non-hub schedules at cities that used to be very important stations for that carrier (i.e., Pittsburgh

and Phoenix). In 1978, TWA linked 15 cities to Pittsburgh with nonstop service, and operated 50 daily nonstops into that city. In 1983, there were only two cities served by TWA nonstops to Pittsburgh, with a daily total of 5 trips. In the case of Phoenix, the cities linked by TWA dropped from 12 to 4; and the number of flights dropped from 30 to 7.

Every carrier's route system would be found to have undergone similarly radical changes. One other example can be drawn from American Airlines with its almost total withdrawal from short-haul services

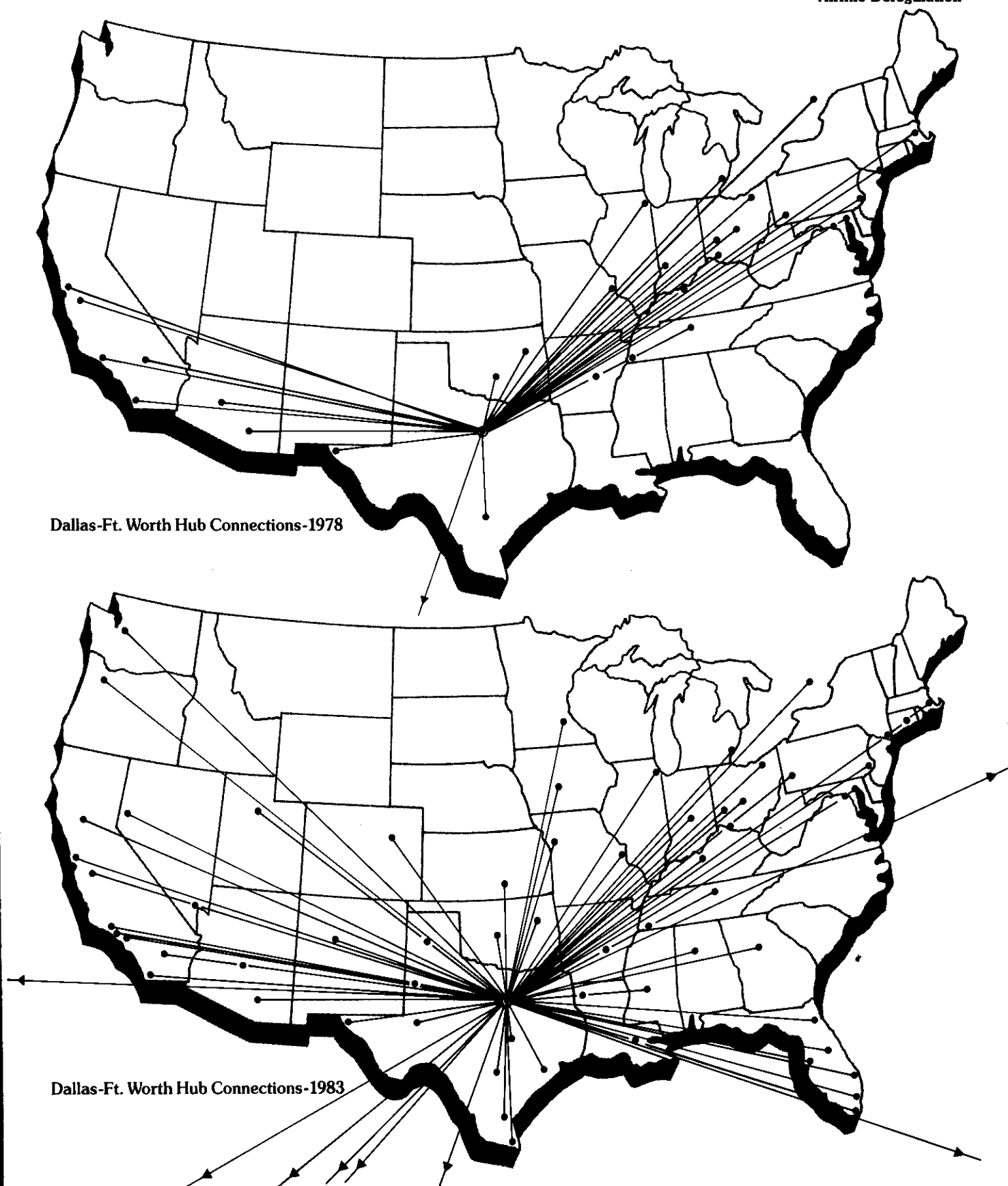


Figure 10. American Airlines' Nonstop Routes into Dallas-Ft. Worth Hub Before and After Deregulation

TABLE 34—CHANGES IN TWA SCHEDULES AT SPECIFIED CITIES BETWEEN 1978 AND 1983

Base City	Cities Linked With TWA Nonstops Winter 1978		Cities Linked With TWA Nonstops Winter 1983	
	City	Number of Nonstops	City	Number of Nonstops
Pittsburgh	Boston	4	New York	1
	Chicago	5	St. Louis	4
	Cincinnati	3	Total	5
	Columbus (OH)	3		
	Dayton	2		
	Denver	1		
	Hartford	1		
	Indianapolis	3		
	Kansas City	1		
	Los Angeles	3		
	New York	14		
	Philadelphia	5		
	Phoenix	1		
	St. Louis	3		
	San Francisco	1		
	Total	50		
Phoenix	Albuquerque	2	Kansas City	1
	Chicago	6	New York	1
	Indianapolis	1	St. Louis	4
	Kansas City	3	Tucson	1
	Los Angeles	3	Total	7
	New York	2		
	Oklahoma City	1		
	Pittsburgh	1		
	St. Louis	4		
	San Francisco	3		
	Tucson	3		
	Washington	1		
	Total	30		

Source: Official Airline Guide.

out of New York City, as it shifted its emphasis to its Dallas and Chicago hubs, and to some degree to longer-haul nonstops. Table 35 shows the prominence of short-haul New York services this carrier operated in 1978, and its extensive withdrawal by 1984.

Another example is Frontier Airlines. Its radical changes in route structure were reported in an Official Airline Guide Frequent Flyer feature article in October 1984:

On October 1, hometown-based Frontier will radically alter its (Denver) operation. . . . Frontier will drop service to 20 of its current 77 destinations, launch service to Minneapolis/St. Paul and Milwaukee, and increase flight frequencies on all its remaining routes. . . . Since

TABLE 35—CHANGES IN AMERICAN AIRLINES SHORT HAUL NEW YORK SERVICES 1978 TO 1984

Short-Haul Destination From New York City	Number of American Airlines Daily Nonstops	
	August 1978	August 1984
Boston	11	1
Buffalo	7	0
Cincinnati	4	0
Cleveland	6	0
Rochester (NY)	6	0
Syracuse	4	0
Washington	9	0

Source: Official Airline Guide.

regulatory reins were cut in 1978, Frontier has already dropped service to 39 (mostly smaller) communities while adding 29 new (mostly major) destinations.

Of special significance is the fact that in the fall of 1984—6 years after the start of deregulation—the route situation was still so fluid as to lead at that time to the type of further restructuring indicated above.

More generally the degree of increased emphasis on hub operation is indicated in Table 36. In 1978, only 6 carriers had more than 15 percent of their domestic departures at principal hubs; by 1983, 13 carriers exceeded that percentage. In 1978 the highest amount of hub concentration was 18.3 percent; by 1983 three carriers had a hub concentration level of 33 percent or more.

Even these data fail to give the full picture of increased hub operations importance. They refer only to aircraft departures, and generally departing flights from carriers' hubs have higher load factors than non-hub services. Thus, the importance of hubs, in terms of traffic and revenue, is actually greater than indicated in Table 36. For example, in September 1983, 85 percent of Ozark's total system passenger miles were carried on nonstop flights into and out of its St. Louis hub.

The new importance of hub operations has gone beyond the enlargement of stations that already had some previous status as connecting hubs. In a number of cases, airlines have created hubs at stations that previously had virtually no connecting significance. A prime example is Piedmont's development of Charlotte, N.C. into an important hub. The radically expanded scope of Piedmont's operation at that city is shown in Table 37.

TABLE 36—CONCENTRATION OF CARRIER OPERATIONS AT THEIR PRINCIPAL HUBS 1978 AND 1983

Carrier	Hub	Percent of Carrier's Total Domestic Departures Flown from Specified Hub	
		1978 (2nd Quarter)	1983 (2nd Quarter)
American	Dallas	11.2%	28.6%
USAir	Pittsburgh	16.0	23.2
Continental ^a	Houston	12.8	22.9
Delta	Atlanta	18.3	21.4
Eastern	Atlanta	18.3	21.0
Frontier	Denver	18.0	33.8
Northwest	Minneapolis	16.1	20.7
Ozark	St. Louis	15.5	35.6
Pan American ^a	New York	12.3	24.0
Piedmont	Charlotte	3.7	19.6
Republic ^a	Minneapolis	3.4	7.7
TWA	St. Louis	11.9	33.0
United	Chicago	13.8	18.9
Western	Salt Lake City	10.3	16.9

a. Reflects combined data for then-independent carriers which later merged into these carrier systems.

Source: Civil Aeronautics Board Report to Congress on Implementation of Deregulation, January 31, 1984, p. 11.

In 1978, Piedmont had token service to 12 cities from Charlotte, with a total of only 18 daily flights. By 1983, it was serving 44 cities from Charlotte with 133 flights. Further expansion occurred in 1984, including extension of nonstop service from Charlotte to California.

Piedmont also demonstrated another phenomenon of deregulation: the successive development of additional hubs by the same carrier, when it felt it had pushed its first hub to its limit. After "creating" the hub at Charlotte, Piedmont then created secondary hubs at Dayton and Baltimore. These latter examples are especially significant, because in each of those cases, Piedmont previously had very limited service—and the creation of a mini-hub was an integral part of immediately establishing a substantial market presence in those cities.

Another example of a new hub being literally "created" from scratch is Salt Lake City in the case of Western Airlines. Western found that its prior route structure gave it no logical hub, and that this was a serious limitation in the age of deregulation. So, like the examples noted for Piedmont, it created a hub at Salt Lake City.

Eastern's operation at Kansas City provides still another example of a newly created hub. In 1983, Eastern entered into major operations at Kansas City,

TABLE 37—PIEDMONT'S NONSTOP SERVICES INTO CHARLOTTE 1978 AND 1983

Between Charlotte and:	Piedmont Daily Nonstops		Change
	Winter 1978	Winter 1983	
	Former Routes		
Asheville	1	4	+ 3
Columbia	1	2	+ 1
Fayetteville (NC)	1	4	+ 3
Greensboro	3	5	+ 2
Greenville	1	2	+ 1
Knoxville	2	—	- 2
Louisville	2	1	- 1
Myrtle Beach	1	3	+ 2
Nashville	2	4	+ 2
Norfolk	1	5	+ 4
Raleigh/Durham	1	5	+ 4
Richmond	2	4	+ 2
New Routes			
Atlanta	—	4	+ 4
Augusta (GA)	—	2	+ 2
Baltimore	—	4	+ 4
Boston	—	2	+ 2
Charleston (SC)	—	2	+ 2
Charleston (WV)	—	2	+ 2
Charlottesville	—	1	+ 1
Chattanooga	—	2	+ 2
Chicago	—	5	+ 5
Cincinnati	—	2	+ 2
Cleveland	—	2	+ 2
Dallas	—	4	+ 4
Daytona Beach	—	1	+ 1
Denver	—	1	+ 1
Detroit	—	2	+ 2
Houston	—	3	+ 3
Huntington	—	2	+ 2
Jacksonville (FL)	—	3	+ 3
Jacksonville (NC)	—	3	+ 3
Kinston	—	2	+ 2
Lynchburg	—	2	+ 2
Memphis	—	2	+ 2
Miami	—	3	+ 3
New Orleans	—	2	+ 2
New York	—	6	+ 6
Orlando	—	4	+ 4
Philadelphia	—	3	+ 3
Pittsburgh	—	3	+ 3
Roanoke	—	4	+ 4
Tampa	—	5	+ 5
Tri-City	—	4	+ 4
Washington	—	5	+ 5
Wilmington (NC)	—	2	+ 2
Total Nonstop Flights	18	133	+115
Total Nonstop Routes	12	44	+ 32

Source: Official Airline Guide.

with spokes from such large cities as New York, Washington, Boston, Philadelphia, Cleveland, Los Angeles, San Francisco, and others. This became Eastern's new approach to entering east-west trans-

continental routes, serving them on a connecting basis via its new Kansas City hub, instead of on direct nonstop flights.

UNIQUE ASPECTS OF HUB-AND-SPOKE OPERATIONS

The airlines' rapid expansion of hub-and-spoke operations is without parallel in any other transportation mode. There has, of course, always been some amount of connecting operation in surface transportation. A city like Chicago, for example, was a major connecting "hub" for rail passengers long before air transportation came on the scene.

But in surface transportation, hubs were strictly a matter of the historical/geographic relationships of major population centers and/or topographical conditions. Chicago became a rail hub because it was the dominant mid-west terminus for many independent railroads, and intercarrier transfer was a necessity for any passenger moving from points east of that city to points west.

There was neither the occasion nor the opportunity for surface carriers to unilaterally decide that they would take a small city and create a hub at that location. The fixed trackage investment in the case of railroads would have prevented that. Moreover, for both railroads and buses, there was not the relative volume of long-haul to short-haul traffic, to make viable an operation that depended on the connecting traffic more than on the short-haul local traffic.

EFFICIENCIES AND INEFFICIENCIES OF HUB-AND-SPOKE OPERATION

The main advantage of the highly developed airline hub-and-spoke operation is that it provides an enormous "multiplier" effect as to the number of city-pairs an airline can serve with a given amount of flight mileage. This is demonstrated in Figure 9. The top portion of that chart shows 10 hypothetical cities, linked in pairs with direct nonstop service. The number of city pairs receiving air service in this pattern is five. The bottom portion of this chart shows what happens if, with approximately the same amount of mileage flown, each city is linked to a centrally-located hub.

With the permutation of routings possible via the hub, there would now be a total of 35 city pairs served (the 25 city pairs obtained by the connection linkage of *each* of the 5 eastern cities with *each* of the 5 western cities, plus the linkage of the 5 eastern and 5 western cities to the hub city itself.) Obviously, this multiplication of traffic greatly increases chances for obtaining strong load factors.

There are, however, also some negative aspects of hub-and-spoke operation. The very objective of getting as many inter-connections as possible forces highly peaked, and potentially highly congested, waves of nearly simultaneous arrivals and departures of dozens of flights. Table 38 and Figure 12 indicate the peaking of arrival operations at one time of day at Atlanta.

Within a span of 21 minutes, between 8:20 AM and 8:40 AM, Delta had 41 flights scheduled to arrive (an average of 2 arrivals per minute). During the same 21-minute period, other airlines serving Atlanta scheduled an additional 33 arrivals, for a total of 74 arrivals in 21 minutes, or an average of 3½ arrivals per minute.

This type of peaking obviously involves certain costs and operational inefficiencies. Facilities and personnel must be geared to handle this type of intense peaking. Moreover, congestion and delays become inevitable, with a potential "snowballing" of delays during periods of bad weather.

The full impact of such peaking on the nation's air transport system was for a while obscured by the FAA-imposed limitations on operations, following the PATCO air controllers' strike in 1981. However, by 1984, those FAA ceilings were largely removed, and thereupon the unconstrained scheduling at hub airports started generating serious congestion and delays.

In July 1984, the New York Times reported:

The frequency of delays at the nation's airports is mounting, and Federal aviation officials say no quick solution to the congestion is in sight. Delays for the first four months of the year were up 55 percent over the same period in 1983. . . . And because the situation grew worse in May and June, delays were up 75 percent over the same period last year. Top FAA officials attrib-

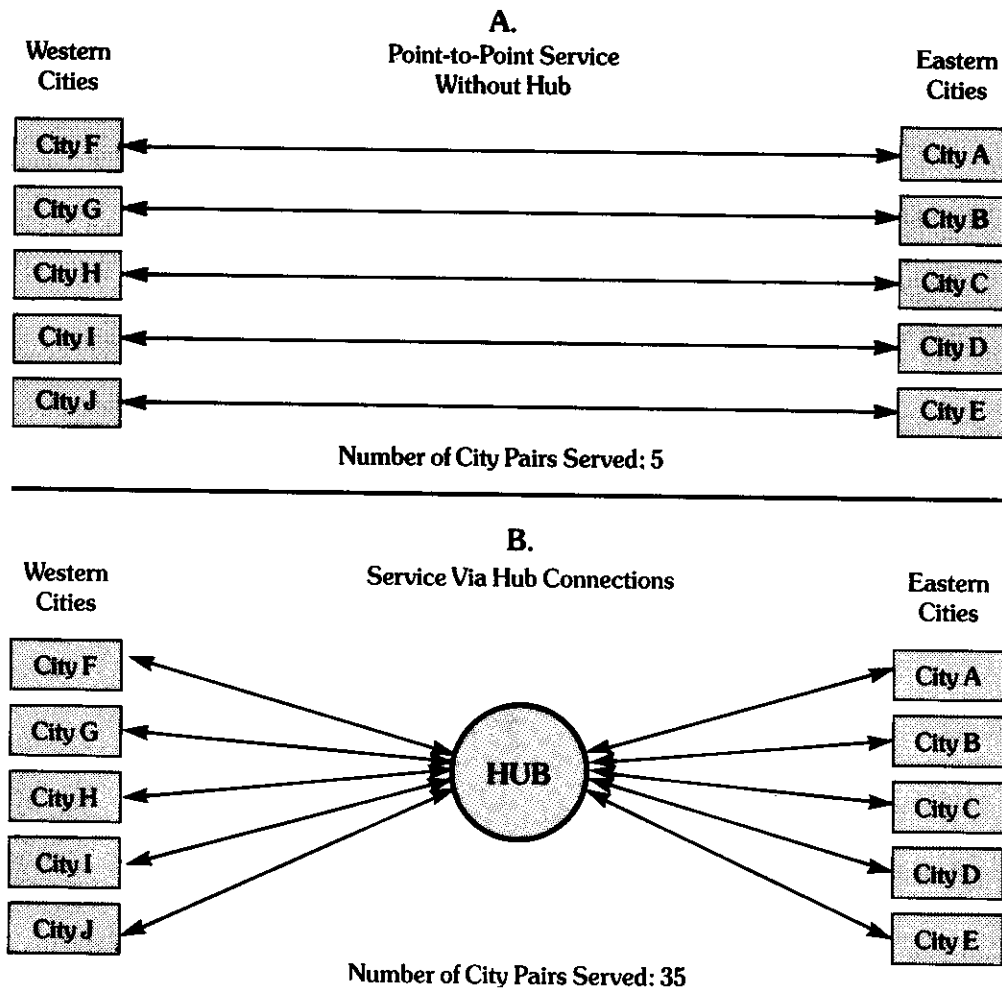


Figure 11. Demonstration of Leverage of Hub Connections

...the situation to deregulation of the airlines, a resurgent economy, and a lack of restraint by airlines and charter and private operations. . . . Agency officials say the operators are trying to put too many planes into the air at peak periods and the system cannot accommodate the demand. There are isolated cases in certain periods at particular airports, the agency says, when many more take-offs and landings are scheduled than could possibly be handled by the most experienced control force.

To date, carriers have obviously found on net balance that the marketing benefits gained with a strong hub more than outweigh the potential costs and problems of peaking and congestion. However, the effects of hub-and-spoke have not all been positive.

COMPETITIVE ASPECTS OF HUB-AND-SPOKE OPERATIONS

Expanded hub-and-spoke operations have had a mixed effect on airline competitiveness. Generally, it has reduced the amount of competition to and from the hubs themselves. Once a carrier establishes itself with a solid network of spokes at a particular hub, it becomes difficult for any other carrier to challenge it competitively, unless the other carrier has resources to undertake a similar feed network. To attempt to compete on just one or two of the individual segments into that hub becomes difficult, because the challenging carrier in this situation must rely mainly on just the local O&D traffic on those few segments, while the hub operator can support a much better pattern of service with the support of all of the "feed" traffic.

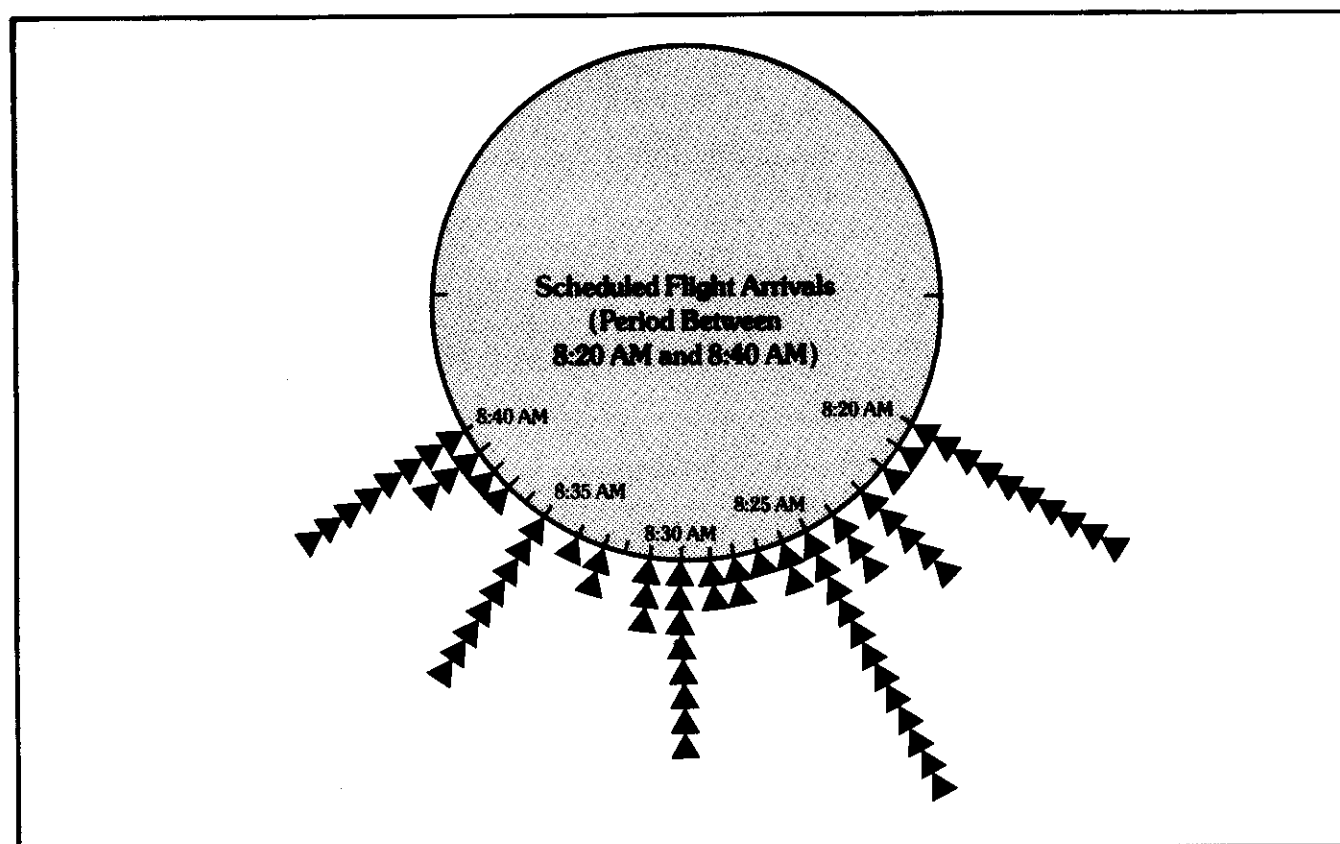


Figure 12. Example of Peaking of Arrivals in Morning at Atlanta Hub (February 1984)

TABLE 38—PEAKING OF ARRIVALS IN MORNING
CONNECTING COMPLEX AT ATLANTA (FEBRUARY 1984)

Scheduled Arrival Time (AM)	Number of Scheduled Arrivals		
	Delta	Other Airlines	Total
8:20	4	6	10
8:21	1	—	1
8:22	—	1	1
8:23	3	2	5
8:24	1	2	3
8:25	3	9	12
8:26	2	—	2
8:27	—	1	1
8:28	—	2	2
8:29	2	—	2
8:30	4	4	8
8:31	3	—	3
8:32	—	—	—
8:33	2	—	2
8:34	1	—	1
8:35	4	4	8
8:36	—	—	—
8:37	1	—	1
8:38	1	—	1
8:39	3	—	3
8:40	6	2	8
Totals	41	33	74

Source: Official Airline Guide.

The changed competitive viability of nonstop service at hub locations is illustrated in Table 39. This indicates, for representative hub points, carriers providing nonstop service to various destinations in 1978 (before the full development of individual carrier hub strength) versus 1984. In some cases (e.g., St. Louis-Phoenix) one of the carriers previously providing competitive nonstop service has found it necessary to withdraw and leave the market entirely to the hub carrier. In other cases, there has been a complete turn over of service, with all previous nonstop carriers dropping out, while the hub carrier moved in with its own new nonstop service (e.g., Pittsburgh-Los Angeles).

The role of hub-and-spoke in reducing competition at hub locations was depicted in the August 24, 1984 issue of the First Boston Corporation's *Aviation Newsletter*.

To begin with, hub-and-spoke systems, consisting mostly of dozens of thin feeder markets,

TABLE 39—EXAMPLES OF CHANGED SCHEDULING AT MAJOR HUBS

Hub City	Destination from Hub	Nonstop Flights to Destination, Summer 1978		Nonstop Flights to Destination, Summer 1984	
		By Hub Carrier	By Non-Hub Carrier	By Hub Carrier	By Non-Hub Carrier
St. Louis	Phoenix	TWA-4	AAL-2	TWA-4	—
St. Louis	Detroit	TWA-4	AAL-2	TWA-4	—
				OZ-3	—
St. Louis	San Diego	—	AAL-1	TWA-3	—
				OZ-1	—
Pittsburgh	Los Angeles	—	TWA-3	USAir-3	—
Pittsburgh	San Francisco	—	TWA-1	USAir-3	—
Salt Lake City	New York	—	UAL-1	WAL-2	—

Source: Official Airline Guide

have clearly become the bread-and-butter of airline operations. Since the bulk of an airline's profitability will be generated by these complexes, managements will do everything possible in the future to fortify their positions against possible competitive intrusions. . . . Over time, each 'major' hub will most likely be dominated by no more than two strong carriers and each 'secondary' hub controlled by one strong one.

The power of hub-and-spoke scheduling has become a dominant factor in determining the viability of competitive nonstop service in many markets. Overall, this has reduced the amount of competition on those route segments that are the spokes into important hubs.

On the other hand, the proliferation of hubs has greatly increased the amount of competition for the longer-haul city-pairs that can support only limited nonstop service, and for which there now are a large number of competitive routings via intermediate "hub" connections. Table 40 provides an example of this increased competition for the New York-Portland market. This market did not receive nonstop service in either 1978 or 1984—so the effective competition consists of one-stop or connection service. In 1978, there were only two airlines (United and Northwest) that provided on-line, single carrier service between these cities. In 1984, there were ten airlines providing such service.

"DIMINISHING RETURNS" ASPECT OF HUB TRAFFIC FLOWS

To some degree, the proliferation of hub-and-spoke operations contains the seeds of its own economic dilution. The more a given traffic flow is shared by every carrier, the less it can mean to any carrier. And to some degree that is the tendency that has been developing as more and more traffic flows are linked up through more and more alternative gateways.

It is quite possible that fractionated access to a dozen different traffic flows can be less economically valuable than exclusive or semi-exclusive access to one or two less divided traffic flows. The New York-Portland example illustrates the point. The traffic flow significance *per carrier* of New York-Portland traffic has obviously diminished, as the number of participating carriers has jumped from two to ten. This has been a net gain for the eight participants who did not have direct one-carrier access before. But for most of those new participants, the gain in this traffic flow situation has been offset by the losses they incur in other city pairs, where they were the prior carriers, and now new carriers have moved in against them. Inherent in the situation is the risk that a lot of new stations have been opened up by many carriers, and a lot of congestion has been incurred by the peaking of hub-and-spoke—and yet with the gains and the losses sustained by individual carriers largely netting out to a stand-off.

**TABLE 40—CARRIERS PROVIDING ON-LINE SINGLE CARRIER SERVICE
BETWEEN NEW YORK AND PORTLAND, OREGON (1978 AND 1984)**

Winter 1978			Summer 1984		
Carrier	Best Service	Via	Carrier	Best Service	Via
United	1-stop, through plane	Denver	United	1-stop, through plane	Chicago
Northwest	3-stop, connection	Minneapolis	Northwest	1-stop, through plane	Minneapolis
			TWA	1-stop, through plane	St. Louis
			Republic	1-stop, connection	Minneapolis
			American	1-stop, connection	Chicago
			Western	1-stop, connection	Salt Lake City
			Continental	1-stop, connection	Denver
			Delta	1-stop, connection	Dallas
			Eastern	1-stop, connection	Kansas City
			Frontier	1-stop, connection	Denver

Source: Official Airline Guide.

Obviously, there have been some true net gainers on the bottom line—particularly those carriers who were limited in their scope previously, or who are totally *new* entrants, and for whom all of this new access is a gain, without any offsetting loss elsewhere. Nevertheless, from a broad industry standpoint, the point should be noted that hub and spoke is not as much of a clear “plus” as some of the popular literature would suggest.

There is another special risk in the proliferation of hub-and-spoke traffic-flow routings. Again using the New York-Portland illustration as an example, there are now ten airlines that can offer one-carrier through or connecting service between these cities. For almost all of these carriers, there is no flight mileage operated *specifically* to serve the New York-Portland market. Instead, service between New York and Portland is strictly a by-product of the fact that separate flights operate out of New York into some hub, and out of that hub into Portland. The New York-Portland traffic component on those flights is merely one part of the myriad of traffic flow elements that would be carried on those flight legs into and out of the intermediate hub.

What this has done, therefore, is to create a large amount of the industry's traffic which individual carriers can regard as strictly “by-product,” rather than “primary product.” This has increased the percentage of the industry's overall traffic that can be viewed in strictly marginal cost terms. And in air transport economics, the marginal cost of filling an otherwise empty seat is close to zero. Thus, there is ever-present in this situation the encouragement of a pricing level

that is less than compensatory in relation to fully allocated cost.

SCHEDULING STRATEGIES OF “NEW ENTRANT” CARRIERS

The primary focus of “new entrant” airlines has evolved in a different fashion than had been anticipated prior to deregulation. Prior to 1978, the main opportunity for new carriers was in the field of charters, and that necessarily concentrated on long-haul, leisure-travel markets. The main pressure for new scheduled, certificated authority naturally came from this same group of carriers, as represented for example by the long campaign by World Airways for scheduled routes from New York to California.

When free entry became a reality, some new long-haul routes were opened by World, Capitol, and others; but the much larger thrust of new entrants turned out to be on short-to-medium routes. Carriers like People Express, New York Air, and Midway have had a much more significant impact on the deregulated scene than have the long-haul, former charter carriers like World.

There are two principal reasons for this development. First, the potential for long-haul nonstop services by new entrants was adversely affected by some of the very same factors discussed above with respect to long-haul services generally. Second, it has been generally easier for new entrants to start operations on a low-risk, minimal-investment basis with the types of planes (such as DC-9's, B737's and B727's) that

are more suited for short/medium routes than to undertake operations with the wide-body aircraft mainly required for long-haul nonstops.

Strategies of the short/medium haul new entrants have fallen into several patterns:

1. Competition with established carriers on the basis of low-cost, no-frills service, taking advantage of the new entrant's non-union, lower wage scales. (Examples include People Express and Muse Air.)
2. Competition on the basis of fares comparable to the coach level of established carriers, but with service more nearly at first class levels in terms of seat spacing and amenities. (Examples include Midway, Air One, New York Air, and Air Atlanta.)
3. Within each of these main alternative strategies, the new entrants have taken frequent advantage of a service vacuum at one particular airport in a metropolitan area. (Examples include Newark, in the case of People Express; Midway, in the case of Midway Airlines.)

There also has been considerable trial-and-error adjustment of new carrier strategies. Both New York Air and Midway started out as low-fare, no-frills carriers; however, both found that this strategy did not work effectively in the primarily business-travel markets they were serving, and both airlines shifted to the strategy of providing upgraded service, at fares close to coach.

SCHEDULING STRATEGIES OF "COMMUTER" AIRLINES

Deregulation has opened major opportunities for the group of airlines originally designated as "commuter" airlines, and more recently re-designated as "regional" airlines. Prior to 1978, this group of carriers was free to operate without a route franchise, provided that they flew planes of 30-seat size or smaller. This freedom of entry, however, was more academic than real on most routes of any traffic consequence because trunk and local service jet carriers were required by their own route franchises to maintain service on those routes. In most cases, a 19- or 30-seat turbo-prop was no competitive match for jet service.

Deregulation not only eliminated the size restric-

tion as to the type of commuter plane that could be operated on a free entry basis, but even more importantly, it led to redeployment of planes by the jet carriers, in the course of which they vacated many short-haul routes of traffic size which (though modest by the standards of the jet carriers) was often quite large relative to what the commuter carriers had previously been accustomed to.

With this new ability to move into larger traffic routes, commuter carriers gradually evolved to larger, more modern planes, as well as an expanded scope of operations. This shows up, for example, in the general "mix" of planes in the commuter fleet. In 1978, all commuter carrier planes were necessarily of 30-seat size or smaller. By 1983, the commuter fleet was operating with 40 percent of the carriers' seating capacity in aircraft of more than 30-seat size. Several of the larger commuter carriers had by 1983 moved into the operation of small jets to supplement turbo-prop planes.

Table 41 presents a list of the top 50 commuter airlines based 1983 passenger volume.

Pushed by the growing importance of regional airlines, a number of manufacturers developed newer technology turbo-prop planes, of larger size, more advanced propulsion, and improved comfort features.

In their turbo-prop operation, which continues to account for the overwhelming bulk of the commuter service, the commuter airlines have not attempted to compete with the larger jet carriers on any route where the latter carriers provide fully rounded patterns. However, they have been able to move into routes where jet schedules have been either totally eliminated or curtailed to token service. With turbo-prop aircraft, these lines have been able to operate fuller patterns of schedules throughout the day. On short-haul routes, the advantage of frequency can outweigh the difference between jet and turbo-prop equipment, and thus enable the commuter carriers to hold their own competitively despite a few token jet trips on the route.

An example of this competitive ability was demonstrated on the White Plains-Boston route. This route has been developed with frequent service by a commuter airline (Command) using Shorts 330 aircraft. In 1983, Air Florida introduced jet service on a morn-

**TABLE 41—TOP FIFTY U.S. REGIONAL AIRLINES
RANKED BY ENPLANED PASSENGERS, 1983**

1. Mid Pacific	1,247,900
2. Britt Airways	949,237
3. PBA (Provincetown Boston & Naples)	931,751
4. Air Wisconsin	802,997
5. Empire Airlines	716,629
6. Henson Aviation	669,437
7. Metro Airlines	612,736
8. MVA (Mississippi Valley Airlines)	585,613
9. PRINAIR (Puerto Rico International Airlines)	576,378
10. Ransome Airlines	540,758
11. Horizon Airlines	452,925
12. Rio Airways	405,000
13. Pennsylvania Airlines	403,561
14. Wright Airlines	402,812
15. Rocky Mountain Airways	398,624
16. Air Midwest	388,835
17. Aspen Airways	366,365
18. Atlantic Southeast Airlines	358,000
19. Cascade Airways	349,776
20. Imperial Airlines	343,680
21. SunAir Line	330,000
22. Comair	304,629
23. Suburban Airlines	290,807
24. Pilgrim Airlines	284,308
25. Air Virginia	274,991
26. Emerald Airlines	274,905
27. Bar Harbor Airlines	269,618
28. Air Illinois	262,465
29. Wings West Airlines	253,040
30. Midstate Airlines	227,181
31. Royale Airlines	224,067
32. Scheduled Skyways	222,330
33. Simmons Airlines	213,907
34. Royal Hawaiian Air Service	212,173
35. Command Airways	210,553
36. OceanAir	190,231
37. Dolphin	187,246
38. Chautauqua Airlines	186,288
39. Golden West	177,595
40. Crown Airways	169,825
41. Fischer Brothers Aviation	168,719
42. Skywest Airlines	163,160
43. Air North	155,375
44. Chaparral Airlines	127,019
45. South Jersey Airways	126,080
46. Westair	125,000
47. NewAir	125,000
48. Pocono Airlines	120,419
49. Precision Airlines	119,908
50. NY Helicopter	115,315
Total 50 Carriers	17,645,168
Industry Total	21,820,000

Source: Regional Airline Association; 1984 Survey of U.S. Regional Airlines

ing and evening departure schedule. Even though the departures were well-timed, the two-per-day limited frequency could not compete with Command's more frequent service, and within a few months Air Florida withdrew. (Since then, Command has further increased frequency to virtually hourly departures.)

On a limited scale thus far, a new factor has been emerging, with the shift of some commuter lines to small jets, such as the F-28 and the BAE 146. This is blurring the distinction between commuter and other carrier types, and has enabled commuter lines to move more aggressively into direct competition on longer and/or denser routes. A prime example is Empire Airlines, with its more aggressive scheduling of services between New York City and such upstate New York points as Syracuse.

One final factor should be noted with respect to the evolving pattern of commuter scheduling. Initially, there was little direct head-to-head competitive scheduling between commuters on the same routes. Since routes originally served by these carriers were extremely thin in traffic, the first carrier to start service tended to effectively "preempt" the market against others.

However, this has changed with deregulation, as markets of more significant traffic volume have become part of the commuter network. It is now common for commuter airlines to compete side-by-side on the same route.

This may pose future problems. In the past, commuter airlines could operate planes which gave them the best balance of operating cost and passenger appeal for a given market. If the plane for the best economic results was unpressurized, or if it had a cramped, "tube-like" effect in its cabin—this was not a critical factor—since this was the *only* service on the route. However, as commuter routes become more competitive, carriers will find it increasingly important that their planes offer competitive passenger comfort—and this will in some cases force a size (or newness) of plane that would increase the operating cost compared with the past "norms" for this type of operation.

SUMMARY OF SCHEDULING TRENDS

The net result of the various scheduling tendencies discussed above has been to totally revolutionize the patterns of service and of competition as they had existed prior to 1978. There are few routes in the country where the competing carriers, and their patterns of service, are the same as before deregulation. And even the changes that have occurred have themselves fluctuated over time.

One indication of the scope of change is provided in Table 42, which indicates how many of the city pairs served nonstop by individual airlines in July 1978 were still served by those same airlines in July 1983. Overall, only about 40 percent of the nonstop city pairs were still being served by the same airline. And in the extreme case, Frontier was serving only about 20 percent of the nonstop city pairs it had served five years earlier.

It is impossible to convey a full picture of these radical changes in any statistical summary. To appreciate the nature of the changes, it is necessary to examine individual routes—and this, of course, can only be done on a sample basis. Appendix B presents a cross-section sample of various high-traffic routes,

selected to illustrate the diversity of changes that occurred between the summer of 1978 and the summer of 1984.

Among the types of scheduling changes on individual routes, the following are worth noting from Appendix B.

1. *New York-Los Angeles.* The three prior incumbent carriers still served this route, plus addition of another former trunk, two former charter carriers, and one new entrant. The number of nonstop carriers increased from three to seven; the number of nonstop flights increased from 18 to 26.

2. *New York-San Francisco.* The prior three carriers were still operating, with the addition of one former trunk and one former charter carrier. The number of carriers increased from three to five, with the level of total schedule frequency unchanged.

3. *New York-Miami.* One of the former three carriers was no longer in market, was replaced by four other carriers. Even though the number of carriers increased from three to six, total flights actually declined, from 27 to 22.

4. *New York-Ft. Lauderdale.* One of the prior carriers has been replaced by a new carrier. The total number of carriers remained unchanged; total flight frequency declined from 24 to 16.

5. *New York-Chicago.* One of prior three carriers

**TABLE 42—NUMBER OF CITY PAIRS SERVED NONSTOP BY CARRIERS
(JULY 1978 AND JULY 1983)**

Carrier	Total Nonstop City Pairs July 1978	Still Served in July 1983	Dropped by July 1983	New Ones Added by July 1983	Total July 1983	Retained City Pairs as Percent of Original Total
American	378	119	259	304	423	31.5%
Braniff	205	^a	205	^a	^a	^a
Continental ^b	288	82	206	335	417	28.5
Delta	669	330	339	304	634	49.3
Eastern	565	261	304	201	462	46.2
Frontier	519	103	416	219	322	19.8
Northwest	238	154	84	121	275	64.7
Ozark	254	80	174	144	224	31.5
Pan Am ^b	176	45	131	54	99	25.6
Piedmont	382	164	218	230	394	42.9
Republic ^b	658	293	365	607	900	44.5
TWA	236	123	113	135	258	52.1
United	642	234	408	375	609	36.4
USAir	448	269	179	306	575	60.0
Western	174	84	90	179	263	48.3
Total	5,832	2,341	3,491	3,514	5,855	40.1%

a. Not relevant due to discontinuance of service.

b. Includes merged carriers in 1978 and 1983 data.

Source: Civil Aeronautics Board, Report to Congress on Implementation of Deregulation, January 31, 1984, p. 29.

had sharply reduced frequency, and was replaced as a major participant by a new entrant (Midway). Total frequency increased from 57 to 70. (Note: these data precede entry of People Express onto this route. By September 1984, total nonstop frequency had increased further to 79).

6. *Dallas-Houston*. The three prior carriers were still operating—but with one of these three (Southwest) having greatly increased its position, while the other two sharply declined. Six new carriers entered this route, including former trunks and new entrants. Total frequency was up from 52 to 95.

7. *New York-West Palm Beach*. There was a large increase in both carriers and schedule frequencies. Previously there were only two nonstop carriers operating a total of 5 flights. By 1984 there were six carriers, with a total of 23 flights. New entrant People Express shared the lead position with Eastern, with 8 flights each.

8. *Chicago-Los Angeles*. This is one of the leading long-haul markets. Two of the prior four carriers had dropped out, being replaced with one new entrant and one former charter carrier. Total frequency changed slightly from 23 to 26.

9. *New York-Buffalo*. One of the prior two carriers had dropped out, and was replaced with four other carriers. The new entrant People Express had moved into a leading position with 15 daily flights, sharing the market with USAir's 14 daily flights. Total segment frequency more than doubled, from 16 to 37.

10. *Los Angeles-San Francisco*. In 1978, principal service was by three carriers (United, Western, and PSA). In 1984, there were still three dominating carriers, but Western had been replaced in this position by AirCal. Total segment frequency went up from 84 to 138.

11. *Phoenix-Los Angeles*. This route still had a total of five carriers, but only two of the original group were still serving in 1984. The leading position had been taken over by new entrant, America West, with Southwest close behind. Total frequency was up from 20 to 44.

The examples presented in Appendix B, and discussed above, are taken from the leading city-pair routes, in terms of overall passenger volume. Different patterns of change show up in smaller markets. A sample of smaller markets is presented in Appendix C, with some highlights noted below.

1. *Dallas-San Diego*. There had been little change in this route. The same two carriers operated with little change in frequency.

2. *Chicago-San Antonio*. Two carriers instead of one—but with no change in total frequency.

3. *Cleveland-Tampa*. One of two prior carriers had dropped out. Frequency was down from three to two daily flights.

4. *Baltimore-New Orleans*. There were two carriers instead of one, but the combined schedule frequency remained at the same level as before.

5. *Kansas City-Las Vegas*. Still had two carriers, but they were different than the original carriers (Eastern and Ozark had replaced United and TWA).

6. *Minneapolis-Omaha*. This route still had two carriers and the same total schedule frequency, but with one of the two prior carriers replaced with a new one.

7. *Atlanta-Greensboro*. The prior carrier was still operating with about the same level of frequency—but a new carrier had entered with the same level of service frequency, doubling the number of daily flights on this route from 6 to 12.

8. *Houston-Washington*. Both of the prior carriers have dropped out, and had been replaced by Continental, who provided the same level of frequency previously provided by the two former carriers.

9. *Boston-Detroit*. One of the prior two carriers had dropped out, replaced by two other carriers, including new entrant New York Air. Total frequency was up from 7 trips to 13.

10. *New York-Albany*. This route had a mixture of jet and turbo-prop service in 1978, with USAir a primary participant, along with several commuter carriers. By 1984, the route had become almost entirely commuter. There was a total of seven carriers in 1983 compared to four in 1978. Total frequency was up from 17 trips to 34.

Reference was made earlier to the reduced emphasis on long-haul nonstop services, accompanied by increased hub-and-spoke emphasis. Examples presented in Appendix B cover two transcontinental markets (New York-Los Angeles and New York-San Francisco). One of these has had a significant increase in total frequency, the other has had no change in frequency. Other transcontinental markets of less traffic volume reflect a general pattern of decreased frequency in the first 5 years of deregulation. Examples are presented in Table 43.

Whether these trends will continue in the future can only be speculation. In the past, the pressure for increasing long-haul, nonstop service was a natural competitive effort to attract passengers from less con-

**TABLE 43—EXAMPLES OF SERVICE CHANGES IN
SECONDARY TRANSCONTINENTAL MARKETS**

Market	Number of Nonstop Schedules		Change
	Summer 1978	Summer 1984	
Boston-Los Angeles	4	3	- 1
Boston-San Francisco	3	2	- 1
Philadelphia-Los Angeles	5	3	- 2
Philadelphia-San Francisco	2	—	- 2
Washington/Baltimore-Los Angeles	9	6	- 3
Washington/Baltimore-San Francisco	6	3	- 3
New York-Seattle	3	3	NC
New York-San Diego	1	1	NC
Total	33	21	- 12

Source: Official Airline Guide.

venient one-stop or connecting flights. As soon as a long-haul market reached a traffic level wherein a carrier saw the prospect that a nonstop flight would attract enough passengers from competitors to more than cover the incremental cost of flying it, the competitive pressure induced the start of nonstop service.

And certainly there will be some of the same type of competitive pressure in the future. However, there is one important distinction compared with past experience. Under regulation, carriers authorized by their certificates to operate nonstop service were usually the same carriers operating between the same pairs of points on a one-stop or connecting basis. They neither had the incentive nor the freedom to undercut the viability of the long-haul nonstop, by offering discounts on one-stop or connecting service.

Under deregulation, there are usually many carriers operating one-stop or connecting service, who have no desire to engage in the long-haul nonstop market. There is no regulatory restraint to prevent these carriers from offering discounts below the nonstop fare. As a result, the competitive pressure for resumed emphasis on long-haul nonstops is likely to be blunted by the fare under-cutting of marginally costed, "fill-up" fares on one-stop or connecting service.

This substantial change in the relative importance of long-haul nonstop services has had a profound impact on the type of aircraft needed, and the type of aircraft being planned for the future. When the emphasis was on flying coast-to-coast nonstop, this led to the acquisition of wide-body planes, specifically geared for that type of route. With the diminishing

importance of that type of scheduling, wide-body equipment has become a hindrance rather than an asset, and the ordering of such planes for the future has dropped sharply.

IMPACT OF DEREGULATED SCHEDULING ON AIRLINE CAPACITY MANAGEMENT

Even when the industry was regulated, there was never direct government regulation of scheduling or of the capacity volume operated. Throughout its history, the industry has been plagued with the problem of over-capacity. This tendency has arisen because of the sheer competitive importance of schedule frequency. It has usually been possible for airlines to rationalize the addition of increased schedules on the basis that the incremental revenue such schedules would attract would exceed the marginal cost incurred. Since each new schedule offered the competitive advantage of a new departure time, there was a steady on-going pressure for the level of capacity to be driven beyond the point of fully allocated viability, and into the zone of marginal cost recovery.

As indicated in the preceding portion of this chapter, the specific focus of schedule additions has shifted since deregulation. Some long-haul routes have had substantial increases in schedule additions; others have actually declined. Routes that feed spokes into hubs have increased; non-hub thin traffic routes have generally been stable, or have declined.

While the specific location of capacity increases has shifted, the pressures inducing increases in overall industry capacity have continued. During the first 5 years of deregulation, over-capacity was generally cited as the industry's main problem, and was blamed for the companion problem of fare wars triggered by too many empty seats. For example, CAB Chairman McKinnon stated: "And the problem of excess capacity in major markets seems to spur the carriers to cut prices to the point that they would not cover fully allocated costs if their planes were full."⁶³

At about the same time, Michael Levine (then President of New York Air, and a former senior pro-deregulation official of the CAB) stated: "Excess ca-

63. Speech before New York Society of Security Analysts, April 23, 1982.

capacity is the single most important threat in existence to the financial health of the airline industry."⁶⁴

While it was popular during this period to blame airline excess capacity on the recession, that explanation is not supported by the record. Table 19 indicates the year-by-year changes in traffic and in seat-mile capacity since 1978. Overall, load factor softening was *not* driven by any severe recessionary traffic loss; traffic in the most unprofitable year (1982) was actually 14 percent *higher* than in 1978.

Rather, the decline in load factor occurred because seat miles were added more rapidly than traffic was growing. (Between 1978 and 1982, the 14 percent traffic increase was accompanied by a 19 percent increase in seat miles, and this is what produced a 2.5 point drop in load factor.) The reason, it may be assumed, is because of the continued competitive value of adding frequency, and the tendency to do so on the basis of marginal cost.

The tendency for capacity to out-pace traffic continued into 1984. For that year, passenger-mile growth of 7.2 percent was exceeded by seat-mile growth of 9.4 percent, so that load factor declined by 1.2 points. The concern caused by these trends was summarized in the trade press: "The weak traffic growth, combined with the more hefty growth in capacity, raises the prospect that the industry may be entering a period of battling for passengers through use of discounting techniques, a prospect that already alarms some carrier executives . . ."⁶⁵

In February 1985, the airline newsletter of First Boston Research expressed concern about the "unbridled capacity growth that we now foresee for the industry over the coming months."

Possibly even more significant than the actual capacity changes during this period was the continuous stream of announcements of schedule additions and new routes, by both large and small carriers. Six years into the era of free entry, route expansion still had not stabilized.

Stated more generally, the most serious implication for excess capacity in the future derives from the failure of airline competition to follow the scenario anticipated by deregulators. Having noted that air-

EXAMPLES OF ANNOUNCEMENTS OF CONTINUING ROUTE EXPANSION

Spring/Summer 1984

"Starting May 1. New Nonstop routes: Richmond-Atlanta; Ontario-Atlanta; Ontario-Dallas/Ft. Worth; Portland-Salt Lake City; Portland-Dallas/Ft. Worth." (Delta Airlines Ad, *Travel Weekly*, March 29, 1984.)

"In the largest single expansion in the airline's 58-year history at Chicago, American will increase service at Chicago by 32 percent over the next two months, with flights to 15 new cities. . . ." (*Aviation Daily*, May 1, 1984, p. 1.)

"Continental adds new service from Denver, Houston hubs." (*Aviation Daily*, May 9, 1984, p. 53.)

"Republic expands market with Indianapolis service, nonstops to Boston." (*Aviation Daily*, May 9, 1984, p. 53.)

"United's Chicago hub will help entry into Atlanta market." (*Aviation Daily*, June 6, 1984, p. 207.)

"Continental adds Dallas, San Jose, and Boston to route system." (*Aviation Daily*, June 19, 1984, p. 274.)

"Muse Air adds nonstops between Texas, California points." (*Aviation Daily*, June 22, 1984, p. 301.)

"Eastern Metro Express expands service to Alabama, Tennessee." (*Aviation Daily*, July 17, 1984, p. 85.)

"Continental begins nonstop service to Pensacola, Newark." (*Aviation Daily*, July 17, 1984, p. 85.)

"Piedmont inaugurates nonstop San Francisco service." (*Aviation Daily*, July 17, 1984, p. 84.)

"New York Air adds New Orleans to system." (*Aviation Daily*, August 1, 1984, p. 171.)

Fall 1984

"New York Air on October 31 will begin two daily roundtrips between Newark and Tampa . . ." (*Aviation Daily*, September 28, 1984, p. 146.)

"People Express plans five new daily Newark-Cleveland nonstops beginning October 18 . . ." (*Aviation Daily*, October 3, 1984, p. 17.)

"American will inaugurate flights from Chicago to Columbus and St. Louis in early November." (*Aviation Daily*, October 18, 1984, p. 25.)

line competition in the past had led to scheduling rivalry that generated excess capacity, deregulators predicted that free market pricing freedom would obviate the need to compete in this same manner. Thus, CAB Chairman Kahn stated: ". . . the answer to the fear of excessive capacity and low load factors, I am convinced, is to revise the process that produces this kind of wasteful, cost-inflating service competition, by opening the door to price competition."⁶⁶

64. Letter to Senator Dole, May 10, 1982.

65. *Aviation Daily*, August 15, 1984, p. 249.

66. *Aviation Week*, March 20, 1978, p. 41.

But, as Chapter 4 points out, pricing freedom has not normally ended up as a basis for competitive differentiation between the several carriers on a given route (because of fare matching). Therefore, the search for product differentiation has continued to place emphasis on schedule rivalry. Airline advertisements, wherever possible, still stress "most non-stops," even in the midst of an intense fare war.)

In announcing a 50 percent increase in transcontinental seat capacity in March 1984, the marketing vice president of American Airlines stated: "Convenient schedules are the biggest factor in selecting a carrier."⁶⁷

As noted in an editorial in *Aviation Week*, September 24, 1984: "Deregulation and increased price competition have not changed the importance of schedule frequency all that much."

Thus, the competitive pressures toward overcapacity that were observed in the past, and that were supposed to be eliminated with deregulation, still remain in the picture. And, with the multiple carrier competition permitted by free entry, there is a basis for concern that capacity management will continue to be the "Achilles' heel" for this industry in the future.

SCHEDULING EFFECT ON AIRPORT CONGESTION

In mid-1984, the effect of increased scheduling (including peaking associated with hub-and-spoke operations) led to serious concern for growing airport and airway congestion and delays. The FAA Administrator stated that the airlines' use of hub operations produces peak traffic loads that frequently exceed airport capacity.⁶⁸

For the first 6 months of 1984, airline delays were 73 percent above those of the year earlier.⁶⁹

And *Time Magazine* reported on October 8, 1984:

With carriers bunching their flights during the most attractive hours, an airport like Chicago-

O'Hare found itself facing 42 departures between 7 0AM and 7:15 AM, but with a capability to handle only 23. Jetliners had to wait and wait before taking off, forcing many passengers to miss connections and appointments.

Various proposals were advanced for dealing with this matter, including further expansion of airport/airway capacity; some form of auctioning of airport slots; reduction of general aviation activity; and joint industry efforts to make schedule adjustments that level off the peaks.

For immediate (but temporary) relief the Department of Transportation sought antitrust exemption for the airlines to conduct discussions of schedule adjustments at six highly congested airports. These meetings were held in September 1984, and did produce agreements (subsequently approved by the CAB) that should provide at least interim relief. For the longer term, however, more drastic solutions will probably be required.

When viewed in perspective, pressures contributing to congestion are long term rather than short term, and changes brought about by deregulation have intensified those pressures in marked degree.

Concerns about congestion first became significant in the mid-1960s, when the FAA imposed the so-called "high density" rule, limiting the number of allowable aircraft movements per hour at several key airports (LaGuardia, Kennedy, Washington National, and O'Hare). With antitrust exemption, airlines formed schedule committees, to work out the distribution of allowable "slots" at those airports between the several carriers.

For over a decade, those committees worked reasonably well, primarily because the relative route stability under regulation limited the number of adjustments that had to be negotiated from one scheduling season to the next.

In the meantime, several other developments during that period were also keeping the congestion issue under control. These developments included:

1. Four years after the FAA found it necessary to impose its high-density rule, carriers started taking delivery of wide-body jets—planes that were two to three times the size of conventional jets they re-

67. *Travel Weekly*, March 29, 1984, p. 1.)

68. *Travel Weekly*, July 2, 1984, p. 2.

69. *New York Times*, July 13, 1984, p. 1.)

placed. This eased congestion, by reducing the number of aircraft movements required to handle any given volume of passenger traffic.

2. In 1973, the industry was hit by the Arab oil embargo. One consequence was a mandatory government-imposed cut-back in the amount of fuel allocated to each airline, forcing a reduction in flight activity.

3. Partly because of the need to save fuel, but also to improve profitability, the CAB, in the early 1970s, established a moratorium on the creation of new routes. It also authorized inter-carrier agreements, wherein carriers agreed to mutual capacity restraint cut-backs on specific routes.

4. While the start of deregulation (in 1978) opened up unlimited route expansion possibilities, the full pressures in this direction were obscured for a time by the early 1980s recession (which forced carriers to apply some restraint), and by FAA slot limits, following the 1981 PATCO strike. (In effect, this became a form of de facto regulation, since it represented a governmentally-imposed limit on operations.)

Thus, from 1966 (when the issue of congestion first surfaced) until 1984, a series of developments had the effect of slowing down (or, in some cases, actually rolling back) the expansion of operations.

By 1984, all of these moderating factors had been eliminated. In place of the route moratorium of the early 1970s, there was now totally free entry. In place of the surge of wide-body equipment that came onto the scene in the early 1970's, the tendency now was for smaller planes (because of the deregulated fragmentation of markets among a larger number of carriers). Inter-carrier capacity restraint agreements were now actually prohibited by the new law. The PATCO-related ceilings on operations were by 1984 removed. The recession was over.

And, on top of all this, the very nature of deregulated scheduling, with its emphasis on hub-and-spoke, placed a special premium on the very type of time-of-day bunching of flights (for connection purposes) which makes for a special degree of congestion. Table 38 gave just one example of the peaking of activity at one time of day, at Atlanta in 1983, with 74 flights scheduled to arrive in a 21-minute period.

The contribution of deregulated free entry to hub

congestion is evident in Table 44, which indicates the increased number of "spoke" routes operated into Atlanta by the two carriers that conduct hub operations there. Each carrier has come very close to doubling the number of spoke routes into this hub. And since the very essence of a hub-and-spoke operation is to cross-connect between the largest number of inbound and outbound flights, the increase in the number of spokes necessarily means greater concentration of operations within short spans of time.

For the long-term future, the deregulation-induced emphasis on small rather than larger planes means that there will be a continuing intensification of this problem.

In April 1984, the Federal Aviation Administration published its long-term "National Airspace System Plan." Forecasting that air carrier passenger enplanements would roughly double by the year 2000, it also forecast that the number of commercial airports experiencing "significant" congestion would by then have increased from 10 in 1981, to 15 in 1985, and to 62 by the year 2000.

At this writing, the subject is still under discussion by industry and government officials, and it is impossible to predict what actions will in fact be required to provide long-term relief.

To the degree that the solution involves some form of governmentally imposed ceiling on airline operations, this could of course reduce the previously discussed competitive pressure toward over-capacity. However, that could be a very painful "solution," particularly in terms of the impact on community air service—an aspect that will be discussed further in the next chapter.

TABLE 44—NONSTOP SPOKE ROUTES BY DELTA AND EASTERN INTO ATLANTA HUB (1978 AND 1984)

	Nonstop Spoke Routes	
	Delta	Eastern
December 1978	47	41
October 1984		
Jet Service	78	75
Turboprop service by affiliated carriers	14	5
Total	92	80
Percent increase	+96%	+95%

Source: Official Airline Guide.

EFFECT OF DEREGULATION ON FUTURE FLEET PLANNING

Airline fleet planning involves decisions that affect the pattern of operation for decades into the future. Aircraft being ordered in 1984 and 1985 will, for the most part, still be in operation in the year 2005 and beyond. Once fleets are acquired, the cost of retiring them prematurely is very high—so that present fleet decisions (as influenced by deregulation) will have a long-lasting impact on the future efficiency of the air transport industry.

The principal effect of deregulation on fleet planning has been to encourage the acquisition of smaller planes rather than larger ones. As already noted, schedule frequency has continued to be a highly important aspect of airline competition. Added competition on important routes has caused traffic levels to become more fragmented than in the past. Hence, the desire of each competitor to maintain schedule frequency has led to emphasis on smaller aircraft units.

Quite apart from the actual competitive division of markets to date, the sheer *uncertainty* as to the number of future competitors contributes to the desire for smaller planes, since such planes provide greater flexibility to absorb added competition. The desire for high schedule frequency into hubs, as part of hub-and-spoke emphasis, has worked in the same direction.

The de-emphasis of larger planes shows up most conspicuously in connection with the curtailed ordering of wide-body aircraft. The 747's (with close to 400 seats) and the wide-body trijets (DC-10's and L-1011's, with about 280 seats) first were ordered in the late 1960s, and came into service in the early 1970s. Since such planes were first ordered, U.S. airline traffic has nearly trebled. This normally would have increased the usefulness of planes of that size. Market fragmentation however, has so negated the effect of overall traffic growth as to have lowered the demand for large planes.

In the three year period 1981–83 only 1 747 was delivered to a U.S. airline. At the start of 1984, there were only four planes of this type on order for future

delivery to U.S. airlines. During 1981–1983, there were only 11 passenger DC-10's/L-1011's delivered to U.S. airlines, and at the start of 1984, there were no planes of these types still on order. Of a total of 381 jet passenger aircraft on order by U.S. airlines at the start of 1984, only 14 percent were planes of 200-seat size or larger; 25 percent were for planes of 180- to 200-seat size, and the remaining 61 percent were for planes of 150-seat size or smaller.

IMPLICATIONS FOR FUTURE AIRLINE ECONOMICS AND OPERATIONS

The deregulation-encouraged emphasis on smaller planes means that the industry will be losing the unit-cost efficiencies of larger aircraft. Many of the costs involved in aircraft operation do not increase proportionately to increased plane size. The result is that larger planes normally provide greater seat-mile cost efficiency.

As pointed out by the CAB: "Airlines could minimize the average cost of serving a market, and hence the fare, by flying large aircraft at high load factors."⁷⁰ Former CAB Chairman Kahn stated the point even more strongly: "Second, and even more important, cost per seat drops sharply with density; the more dense the traffic, the bigger the planes that can be used, and *there are enormous economies associated with the size of plane, up to the limit of the biggest planes available.*"⁷¹

In short, there is wide agreement on the fact that there is an "economy of scale" in the matter of aircraft size. The fact that deregulation pressures have led the industry to think primarily in terms of *smaller* planes for their future fleet orders will therefore build into the industry's long-term cost structure a sub-optimization on this score.

In addition, the trend toward smaller planes will compound the problem of airport/airway congestion discussed earlier. In the past, the steady trend toward *larger* planes permitted traffic growth to be

70. CAB, Report to Congress, January 31, 1984, p. 22.

71. Alfred Kahn, Lecture at Northwestern University, April 1982, p. 13, emphasis added.

Changes in Domestic Airline Scheduling

handled with a less-than-proportionate increase in the number of aircraft operations. For example, in the decade from 1973 to 1983, the industry's annual flight departures actually *decreased* by 2.5 percent,

while passenger boardings were *increasing* by 57 percent. This benefit toward holding congestion within bounds will be lost if recent trends toward smaller planes continue.

Chapter 8

Change in Service Frequency and Convenience

There has been a tendency for service improvements to favor larger communities. Overall, in terms of the total number of passengers carried, it appears that more passengers are receiving improved service than the number experiencing deteriorated service. There are some pockets of serious service reduction, but thus far, these have been more the exception than the rule. The real test for service to small communities will come when air traffic congestion forces airlines to curtail their more marginal services and when the temporary subsidy for "essential service" ends in 1988 (or sooner).

In the regulated environment prior to 1978, airlines had an obligation to provide "adequate" service on the routes certificated to them. This type of public-utility franchise obligation was removed with deregulation. The service provided by an airline on any route has now become dependent solely on marketplace economics.

Before considering the specific service changes that have occurred, it is important to recognize that even under regulation, the concept of air service "adequacy" was at best fuzzy and subjective. Since the most convenient service is direct, nonstop service to a passenger's ultimate destination, there was an understandable desire by communities to have as much nonstop service to as many destinations as possible. The CAB developed a formula that considered such factors as nonstop versus one-stop service, to establish a "Quality Service Index." But this mainly provided a *comparative* measurement of adequacy. It could indicate whether service was better on one route than on another, but it did not attempt to indicate any absolute threshold levels at which "adequacy" began.

In the four decades of CAB regulation, there were

a number of informal complaints brought by communities alleging service inadequacy. But usually these were resolved in informal conferences between CAB staff, the community, and the one or more airlines involved. Very few cases involving service adequacy were actually brought before formal CAB proceedings.

Nevertheless, there was a degree of regulatory pressure for some reasonable level of service over certificated routes—even though that pressure took more subtle, intangible, and indirect forms. The strongest pressure was the ever-present threat that if incumbent carriers did not provide reasonable service, the CAB would authorize additional carriers onto the route. Even where the route was of only marginal economic value to the incumbent carrier, there was always the possibility that it might become valuable with future traffic growth. Thus, there was a long-term "investment" aspect to keeping out additional carriers.

Moreover, the track record of service on existing routes always had some bearing on the CAB's attitude toward granting carriers new routes they might be applying for, and this became another of the

indirect levers contributing to maintaining reasonable service.

Finally, the very fact that airlines could operate only on routes certificated to them was in itself a factor that tended to stabilize service on even the weaker parts of the system. Even the weaker routes were usually able to cover the direct, cash costs of operation. And since there was not the "free entry" ability to redeploy at will onto more attractive routes, carriers generally found that it was economically acceptable to continue service (at more than marginal returns) on the weaker routes as against the alternative of merely grounding the planes.

With deregulation, all of the above factors radically changed. There was no longer either the regulatory "carrot or stick" reason for staying with a marginal route. And, with free entry, there were myriad opportunities to re-deploy equipment toward routes that appeared more attractive. As a result, there were both affirmative incentives to shift out of former routes—and a removal of the regulatory constraints against doing so. Carrier route systems changed drastically.

The degree of route and service change was *not* anticipated by Congress when it enacted deregulation legislation. Proponents of deregulation had argued that if carriers had unprofitable routes on their then-existing systems, they would already have sought suspension of them from the CAB—and it was argued that the fact that they had not done so was in itself evidence that all of their then-operated routes were sufficiently profitable to give prospect of continued service, even with the opportunity for free exit.

This argument proved so persuasive that one Congressional committee concluded after its hearings: "... a more competitive system, of the type recommended by this report, might lead the major trunk carriers to seek to *discontinue service over routes that, at the very most, account for one-half of 1 percent of revenue passenger miles now flown.*"⁷²

This expectation failed to take account of the varied pragmatic pressures noted above, which had theretofore led carriers to maintain services which were *not* as attractive as other routes they might have preferred to serve. When the regulatory framework

was removed, the scramble of route changes was enormous. (In Chapter 7 data are cited indicating that on the average, carriers are still serving only 40 percent of the nonstop city pairs they served in 1978, a very far cry from the one-half of 1 percent route turnover predicted by the Congressional committee.)

The nature of the route changes has varied widely from city to city and from route to route, making it difficult to state in a generalized way that the public has either benefited from, or has been harmed by, the service changes under deregulation. All one can do is point to certain overall tendencies, and beyond that, indicate by example the diversity of the changes affecting different types of routes.

QUANTITATIVE SERVICE CHANGES BY TYPE OF COMMUNITY

From the start of deregulation, the CAB maintained statistical summaries for each airport, indicating changes in scheduled air service volumes, measured in both frequency of departures and total number of seats. These CAB reports also present summaries for categories of airports based on their scale of air carrier operations.

Table 45 indicates the overall change in service, between June 1978 and June 1984, for four airport size-groupings. The general picture has shown that the largest airports (i.e., the major hubs) have fared better than the smaller ones in the overall quantity of air service.

Large and medium hubs obtained increases of approximately 36–38 percent in the number of airline seats scheduled, while the small hubs received an increase of 8 percent. The "non-hub" airports actually had a *decline* of 9.7 percent in available seats.

Broad group averages, however, obscure the amount of variation that exists from one individual airport to another. For example, within the "non-hub" category, where the overall *average* showed a decline of 9.7 percent, the CAB report showed 225 individual airports where the decline was 50 percent or more, including some 119 that lost air service completely.

In any event, appraisal of air service convenience

72. *Journal of Air Law and Commerce*, Autumn 1975, p. 612, emphasis added.

**TABLE 45—CHANGES IN AIRLINE SERVICE BY SIZE OF AIRPORT
(JUNE 1978—JUNE 1984)**

Hub Class	Weekly Departures		Percent Change	Weekly Seats		Percent Change
	June 1978	June 1984		June 1978	June 1984	
Large	60,456	81,945	+35.5%	6,853,687	9,476,826	+38.3%
Medium	22,702	31,447	+38.5	2,222,422	3,024,552	+36.1
Small	12,496	14,882	+19.1	1,074,011	1,158,898	+ 7.9
Non-hub	30,356	33,185	+ 9.3	1,193,443	1,077,657	- 9.7
Total	126,010	161,459	28.1%	11,343,563	14,737,933	29.9%

Source: Civil Aeronautics Board, Report on Airline Service, September 1984, p. 44.

cannot stop with just consideration of quantitative levels of seats or frequencies; it must also consider the nature of schedules in terms of routing directness, number of stops enroute, type of aircraft used, and other factors.

QUALITATIVE SERVICE CHANGES SINCE DEREGULATION

The previous chapter on scheduling provided some flavor of the enormous variation in schedule changes that have occurred in different markets. From the consumer's perception of travel convenience, the variation has been equally great.

The discussion of service convenience can best be approached by considering the following types of situations:

- Large markets that have received considerable increase of nonstop frequency;
- Thinner markets that have come to be served more by the hub-and-spoke network, receiving more emphasis on one-stop or connecting service;
- City pairs that form the actual "spokes" of hub operations;
- Markets that have shifted from trunk or local jet service to commuter service (usually turbo-prop); and
- Smaller communities that have lost service.

Each of these categories is discussed below.

Markets with Increased Nonstop Frequency

For reasons discussed in the previous chapter on scheduling, markets with increased frequency have tended to be short/medium-haul routes of high traffic density. These are markets that were easy for new

carriers to enter with small equipment and without elaborate in-flight service requirements. Among the markets detailed in Appendix B, examples of major schedule increases include: New York-Buffalo, up from 16 trips to 37; Los Angeles-San Francisco, up from 84 trips to 138; Dallas-Houston, up from 52 trips to 95; and New York-Chicago, up from 57 trips to 70.

In addition to increased schedule frequency, these markets frequently have received more rounded service with regard to the several airports in a given metropolitan area. In some cases, new carriers have used a previously under-served airport as the basis for gaining a market "niche." Examples of the greater use of satellite airports include: New York-Buffalo where service at Newark has gone from 4 trips to 22; New York-Chicago, where service at Midway Airport has gone from zero trips to 15; and Dallas-Houston, where service at Hobby Airport has increased from 21 to 51 trips.

Markets Primarily Served By Hub-and-Spoke Connections

A vast number of city pairs are served by connecting flights via hubs. This generally includes markets of secondary traffic importance.

By and large, the effect on service convenience for this group of markets has been favorable. The very fact that these are secondary traffic markets means that, even in the past (when regulatory pressure was for direct, nonstop service) the direct service was usually limited token service or non-existent. Now, with a variety of hub-and-spoke connections, there is usually a choice of departure times, with reasonably integrated connections (since they involve single-carrier, on-line connections).

To illustrate, Table 46 shows the service published in the Official Airline Guide (OAG) for the Syracuse-Portland (Oregon) market in 1978 and 1984. In 1978, there were no carriers serving Syracuse that also served Portland. Consequently, the only available connections were inter-line, and since they were not part of single-carrier connection complexes, connecting lay-over times were quite long. The shortest elapsed time for the trip was 7 hours 49 minutes, and the longest was 11 hours 27 minutes.

In comparison, there were four carriers serving both Syracuse and Portland on-line in 1984. Three of these carriers have direct on-line connections published in the OAG. In addition, one of these carriers also had a through-plane, one-stop schedule between these points. In 1984, the prevailing elapsed time was about 6 hours 45 minutes—over an hour faster than the best time in 1978.

Not only did the 1984 connections involve less elapsed time, but they provided other advantages of single-carrier connections, including shorter walking distances between gates at the connecting point, and less exposure to lost baggage.

TABLE 46—IMPROVEMENT IN PUBLISHED SERVICE BETWEEN SYRACUSE, NY AND PORTLAND, OREGON, 1984 COMPARED TO 1978

Carriers	Departure Time	Arrival Time	Total Elapsed Time	Type of Service
<i>December 1978</i>				
AA/UA	7:15AM	12:20PM	8:05	Connection
AA/UA	9:15AM	3:20PM	9:05	Connection
AA/UA	4:06PM	8:55PM	7:49	Connection
AA/UA	6:25PM	2:52AM	11:27	Connection
<i>June 1984</i>				
AA	7:30AM	11:12AM	6:42	Thru-Flight
UA	8:30AM	12:15PM	6:45	Connection
UA	11:00AM	3:00PM	7:00	Connection
EA	12:40PM	6:49PM	9:09	Connection
AA	5:06PM	8:57PM	6:51	Connection
UA	5:10PM	8:55PM	6:45	Connection
AA	7:53PM	11:37PM	6:44	Connection

Note: American Airlines (AA), United Airlines (UA), Eastern Airlines (EA).
Source: Official Airline Guide.

"Spoke" City-Pair Markets

City pairs that have a hub airport as a terminal point, have derived considerable service improvement from the expansion of service into the hub.

One example has already been presented in Chapter 7, in Table 32, indicating TWA's increased frequency into the St. Louis hub. In addition to 21 new spoke routes into that hub, 15 of the 27 previous spokes have received increased frequency since 1978.

Service improvement for "spoke" city pairs has been greatest in the most recently "created" hubs, since they typically had comparatively little service before the hub was created. As an example, in 1978, Charlotte received only a single daily nonstop from Boston; in 1984, it received five. In 1978, Charlotte had no nonstops from Dallas; in 1984, it had four per day.

Markets Shifted to Commuter Airlines

As former trunks and local service airlines used their freedom of entry to acquire longer-haul routes, and other routes needed to round out their hub-and-spoke networks, the redeployment of aircraft to these new opportunities forced them to drop thinner, shorter-haul segments that they previously served. Of course, the new freedom of "exit" made this possible.

In turn, this opened new opportunities for the commuter airlines (subsequently re-named "regional" airlines). In many cases, their smaller, turbo-prop planes permitted them to viably serve routes that had been marginal for the operators of much larger jet aircraft.

The comfort level of turbo-props was considerably below that of the jets they replaced. Besides being slower, they were often unpressurized, and sometimes had narrow, cramped cabins. However, since trip durations were usually short, the lesser comfort was not critical. Also improved timing and number of schedules generally more than offset the comfort factor, and resulted in a net gain in convenience.

Table 47 shows examples of two short-haul routes out of Cleveland to illustrate the variety of developments affecting such routes. In one case (Cleveland-Ft. Wayne), the only service in 1978 was provided by United with three daily nonstops. By 1984, United had been replaced by a commuter airline, and in this case, the frequency of service did not change.

The second example in Table 47 shows a different

TABLE 47—EXAMPLES OF VARIED SERVICE CHANGE OF ILLUSTRATIVE CLEVELAND ROUTES (1978 VS. 1984)

	Cleveland-Ft. Wayne	Cleveland-Detroit
December 1978 Nonstops:		
Trunk/Local Service Carriers	3	13
Commuter Carriers	—	6
Total	3	19
June 1984 Nonstops:		
Trunk/Local Service Carriers	—	8
Commuter Carriers	3	39
Total	3	47
Change in Frequency:		
Trunk/Local Service Carriers	-3	-5
Commuter Carriers	+3	+33
Total	NC	+28

Source: Official Airline Guide.

situation on the Cleveland-Detroit route. The service in 1978 was primarily provided by trunk/local service jet operators. By 1984, the trunk local service schedules had dropped from 13 to 8 flights, but the commuter service had increased from 6 to 39 flights. In total, segment frequency had increased from 19 trips to 47.

Quite often, the replacement of previous jet service with commuter turbo-prop service has provided not only increased frequency, but schedule patterns geared more to the local market. An example is New York-Hartford. Table 48 compares the actual departure times in 1978 (when the service was primarily provided by jet operators) with 1984 (when service was primarily provided by commuter carriers.)

In 1978, there was no northbound schedule between 7:30AM and 4:03PM; in 1984 there were 11 schedules spread throughout that 8½-hour daytime span. Moreover, in 1978, 57 percent of the trips left at 9PM or later; in 1984, only 16 percent of the trips left at those hours.

Communities with Disrupted Service

For some communities, the shift from trunk or local service airlines to commuter carriers has been followed by service instability and disruption. A prime example is Modesto, California. In the past Modesto received air service from United Airlines. With

United's withdrawal following deregulation, Modesto has been served by a succession of five airlines, each of which subsequently discontinued service because of bankruptcy or other factors.

The "horror story" of Modesto is worth noting as an example of what can happen. In testimony presented by the Mayor of Modesto before a Congressional committee in August 1983, he referred to such problems as "... fourteen schedule changes in the 18 months, frequent cancellations, and little or no concern for the passengers..." A February 1984 *Los Angeles Times* article regarding Modesto stated: "Besides shutdowns, passengers frequently complained of canceled or delayed flights, poor in-flight service, and inconvenient scheduling. Civic leaders say the lack of reliable airline service in their communities is hurting economic growth and tax revenues."

Modesto's experience is not cited as typical of what has happened to small community service in the shift to commuter service. Rather it provides perspective to indicate that not all has been rosy. To date, while there have been some problem areas, most communities have reasonably adjusted to the transition to commuter service. There is no evidence of any significant "ground swell" of dissatisfaction on this score.

TABLE 48—DEPARTURE TIME PATTERN OF NEW YORK-HARTFORD NONSTOP SCHEDULES (1978 VS. 1984)

Departure Period	Summer 1978	Summer 1984
6:00AM- 6:59AM	—	1
7:00AM- 7:59AM	2	1
8:00AM- 8:59AM	—	2
9:00AM- 9:59AM	—	—
10:00AM-10:59AM	—	2
11:00AM-11:59AM	—	1
12:00N -12:59PM	—	1
1:00PM- 1:59PM	—	1
2:00PM- 2:59PM	—	1
3:00PM- 3:59PM	—	3
4:00PM- 4:59PM	1	2
5:00PM- 5:59PM	1	2
6:00PM- 6:59PM	—	2
7:00PM- 7:59PM	1	—
8:00PM- 8:59PM	1	2
9:00PM- 9:59PM	3	2
10:00PM and later	5	2
Total	14	25

Source: Official Airline Guide.

SUBSIDY PROGRAM

In part, the maintenance of service to the smallest communities has been made possible thus far by the provision of special subsidy assistance authorized by the Deregulation Act (Section 419). This new subsidy program differs from that contained in the original 1938 statute. The original subsidy was intended to be *developmental* in nature—to provide “seed money,” enabling a carrier to develop beyond a mere subsistence level of service. The current Section 419 subsidy has no comparable developmental aspect. It is intended only to maintain the bare minimum level of service that would stave off total loss of service for a community that was part of the certificated route system in 1978.

The subsidy provisions are temporary and will expire in 1988. That date was selected as the end of the first 10 years of deregulation, with the expectation that this subsidy would only be used to provide a transitional “bridge,” giving communities and airlines an opportunity to adjust to deregulated service and to find a basis for eventual self-sufficient air service.

Recently, however, there have been indications that many communities receiving subsidized service will lose service completely upon the expiration of this subsidy, if it is not replaced with some other form of assistance. Thus, a May 1983 report of the General Accounting Office stated: “And, unless circumstances change, carriers are likely to drop or substantially reduce service to the subsidized communities when the program ends in 1988.”

A similar comment came in January 1984 testimony of the National Association of State Aviation Officials: “Unless these markets are stimulated by the use of better (larger, more comfortable) airplanes, and unless the carriers are provided with promotional expertise and funding, most present EAS (essential air service) communities will lose all scheduled air service in 1988.”

The CAB has also expressed a similar outlook: “Some communities covered by the (subsidy) program will continue to require subsidy since their traffic levels are not sufficient to maintain air service without some form of assistance.”⁷³

OTHER FACTORS AFFECTING FUTURE OUTLOOK FOR SERVICE

In the highly fluid situation of present airline operations, the service now being provided is no guarantee of what may be provided in the future. Among the factors affecting future air service will be the growing tightness of airport and airway capacity. Until early 1984, the full implications of this developing situation were obscured by the fact that airway restrictions imposed following the 1981 PATCO strike had established certain numerical ceilings on the level of service. In effect, the FAA slot quotas provided a form of *de facto* regulation of the volume of total air operations.

By early 1984, as the PATCO-related slot restrictions were eased and carriers implemented previously inhibited expansion plans, it became clear that the new levels of service were beginning to crowd the capacity of the airport and airway system. This could have an impact on the prospects for maintaining service levels in smaller markets in the future. As airport/airway capacity becomes a “scarce resource,” the normal workings of the free market would naturally tend to make this resource more available to the stronger, denser traffic routes, and squeeze out the thinner markets. One suggestion for dealing with this issue would involve the auctioning of airport slots, or permitting the buying and selling of slots. In any such process, the stronger routes would obviously have the greater ability to pay the “going” rate.

Unless the government steps in with some form of predetermined set-aside for smaller communities (which would of course mean a *de facto* form of regulation) there is the real possibility that air service to smaller communities and thinner markets will be increasingly squeezed out by airport/airway constraints.

Another factor that would move in the same direction may be the sheer capital cost of new transport aircraft. A capital-constrained industry could find itself limited as to the number of aircraft units it can afford to purchase. To date, there has been a substantial supply of used aircraft, which most of the new entrants have been able to acquire, usually at depressed prices. The ownership cost of these planes has been low, making it feasible to maintain services

73. Civil Aeronautics Board, Report to Congress, January 31, 1984, p. 100.

that may appear more marginal if required to support fully-costed brand-new equipment.

As carriers reach the point where it becomes necessary to ground present planes, they may find it financially impractical to maintain the full range of their present services and, here again, it would be natural in the free market for the thinner routes and cities to be squeezed out.

In one sense, it may be argued that if free market forces have the effect of squeezing out service on thinner routes and to small communities, this is no less than Congress intended when it opted for the free market over regulation in 1978. However, a reading of the legislative history would indicate otherwise. Congress was led to believe that the public could in effect "eat its cake and have it too"—that it could have the competitive spur without losing balanced service across the full spectrum of communities.

This expectation was clearly stated, for example, in the report of the Senate Subcommittee on Administrative Practice and Procedure:

Of course, increased competition may lead to changes in the individual route maps of one or more existing carriers. But it should not significantly alter the extent to which towns are served by the system taken as a whole. . . . In any event, the subcommittee projects that the gradual introduction of increased price competition and more liberalized entry will not diminish service to smaller towns, nor will it injure the nationwide service network."⁷⁴

As indicated earlier, the free market has already deviated from the projected scenario with the drastic turnover of routes and the generally lesser service for smaller communities. If the other developments here mentioned (like the possibility of auctioning airport slots) have further negative impact on small commu-

nity service, they will not be in conformity with what Congress had been led to expect.

GENERAL COMMENTS ON SERVICE TRENDS

The wide degree of variation in service changes since deregulation is evident in the preceding discussion. This in itself is significant, since it indicates a complete change from the "public utility" attempt to assure overall system adequacy of service. If the public is viewed as requiring a general system of service, the satisfaction of that need has obviously been more sporadic in the deregulation free market than it had been under regulation.

Despite the difficulty of generalizing the results to date, certain comments appear supportable:

1. There has been a tendency for service changes to favor larger communities.

2. At the same time, even for smaller cities, there have certainly been many areas of substantial improvement that balance out the areas of down-grading. Overall, there has not been a type of deterioration that would lead to a demand for re-regulation. And overall, in terms of sheer numbers of passengers, it is probably correct to say that more passengers are receiving improved service than the number receiving deteriorated service.

3. There have been certain pockets of serious reduction of service, but thus far, these have been more the exception than the rule.

4. The real test will come with the passage of additional time. In particular, when the program of temporary subsidy for "essential service" communities comes to an end in 1988, there will be an important test of whether those communities will then find themselves removed from the air service map, or whether some non-subsidy alternative basis will by then have developed for maintaining their services.

5. Insofar as airport/airway capacity takes on the aspect of a "scarce resource," any free market solution to this problem (such as auctioning peak-hour slots) could have negative effects on service to smaller communities and thin-traffic routes.

74. *Journal of Air Law and Commerce*, Autumn 1975, p. 613.

Chapter 9

The Consequences of the "Open Skies" Policy in International Aviation

This chapter identifies and examines significant changes in U.S. international air transportation that have occurred since 1978, when the Carter Administration's pro-competitive policy push went into high gear. First, the difficulties of such an analysis are pointed out, and then how the study data were selected is explained. Primary focus of the review is on traffic developments and on U.S. airline participation and profitability. Consumer benefits and long-term public interest considerations are also examined.

A high level of humility must attend any serious effort to examine the results of "deregulation" of international air transportation. For one thing, it was not possible to export the domestic policy of the United States. The most that the Carter Administration was able to do was to induce some governments to enter into more liberal bilateral agreements, which was far short of its broad "Open Skies" objective.

Other factors also make analysis difficult. The U.S.-Europe market had already been extremely competitive for many years. While historically there had been only three U.S. scheduled passenger airlines (principally Pan American and TWA), there were large numbers of charter airlines (both U.S. and foreign) competing for shares of the U.S.-Europe market, as well as many foreign scheduled airlines. Every major Western European country had its "flag" carrier (with the three Scandinavian countries forming the SAS consortium) and several Eastern European airlines flew to the United States as well. Non-European airlines also flew the North Atlantic to the United States via Europe from India, Pakistan, Iran, and Israel. While most of the European airlines theoretic-

ally served only their homelands, in practice many of them used their home ports as funnels and transfer points to serve all of Europe, the Middle East, and Africa. Carriers such as Air France, British Airways, KLM, Lufthansa, Sabena and Swissair, in particular, provided extensive geographic competition.

In addition, the transatlantic services were subject to severe price competition from the charter airlines. By 1977 more than 25 percent of all U.S.-Europe passengers flew on charter flights, including those operated by scheduled airlines. Low charter prices, made possible principally by payment for almost every seat on the airplane (as compared with the average year-round 55 percent to 65 percent occupancy rate on the scheduled services),^a as well as the considerable scheduled service competition, constrained the fares of the scheduled airlines. This was particularly true because so large a share of the market was tourist travel, interested in multiple destinations—and it was a short train or bus ride from Luxembourg, for example, to the various touristic sites in Europe. For these reasons the policy effects of the late 1970's did not introduce competition into this

market, but rather selectively increased competition. This makes the before-and-after comparison less clear-cut.

Still other factors complicate identification and analysis of the effects of the "Open Skies" policy as an isolated phenomenon. There has been a staggering increase in fuel cost. While this was always a major expense item, it tripled in cost soon after the 1973 Arab oil embargo and shot up again in 1979. Despite some subsequent price softening, in late 1984 fuel was about seven times as expensive as in 1972.

There have also been recurrent periods of economic recession, generally affecting wide regions of the world. In the United States, the periods 1970/71, 1974/75, and 1981/82 were particularly difficult.

Severe inflation in the United States and much of the industrialized Free World affected both airline operating expense and the economic flexibility of potential customers.

Another factor has been the sharp and rapid changes in foreign exchange values. A strong dollar makes it more expensive for foreigners to visit the United States; a weak dollar serves as a magnet. Conversely, a strong dollar reduces the cost of foreign travel for Americans. In 1983/1984 the dollar was at historic peaks against many other major currencies.

More recently, beginning in 1982, the spectacular economic collapse in Mexico and South America drastically reduced travel to the United States, particularly in the case of South America where U.S. citizens have in recent years accounted for 30 percent or less of the total market.

In addition, international air transportation is always affected to some degree by questions of war and peace, and by internal and international tensions. Lebanon and Central America are literally war zones; the U.S.S.R. and much of Eastern Europe, the Philippines, Iran, and broad areas in the Middle East, as well as some countries in South America, are gravely affected by political tensions.

It is not feasible to analyze the consequences of the "Open Skies" policy on a country by country basis. There are too many countries; a crazy patchwork of changes in bilateral agreements; and even the major "external" factors listed above have affected various countries and areas differently, and at dif-

ferent times. What does offer some insight promise is to review, against worldwide trends, what has happened in the three principal intercontinental markets: U.S.-Europe; U.S.-Far East; and U.S.-South America.

There are two principal reasons for selecting these three areas for concentration. First, they are the areas of major importance to U.S. international air transportation. Although about 35 percent of U.S. international travel is between the United States and the Caribbean, Mexico, and Central America, those services are short haul, and in many respects almost an extension adjunct of the U.S. domestic system. Once these closeby markets are excluded, the overriding dominance of the three major intercontinental markets becomes clear. Using 1978 as a pivot point, U.S.-Europe accounted for 42 percent of *total* U.S. international travel, U.S.-Far East 11 percent, and U.S.-South America 7 percent—the three market areas together accounting for 60 percent or nearly all of the traffic remaining after exclusion of the Caribbean, Mexico and Central America.⁷⁵

Secondly, although none of the three areas is altogether homogeneous, each falls into a somewhat different group so far as the acceptance of "Open Skies" and the degree of competition are concerned. Liberal bilateral agreements were relatively widely accepted in Europe, where there was already so much competition in fares and service that a number of European governments believed their airlines would gain more from increased access to the U.S. market than they would lose from a little more competition. Moreover, Western Europe is such a relatively compact geographical area that acceptance of increased competition by West Germany, The Netherlands, and Belgium effectively opened the whole continent to competition for most tourist-oriented passengers.

South American governments were at the opposite end of the spectrum. They always have been, and continue to be, highly restrictive, and firmly rejected the Carter Administration's policy. One probable reason for this, over and above basic philosophy,

75. U.S.-Canada air travel is not included in any of these statistics, nor is official travel of U.S. military personnel, even on commercial aircraft.

is concern that their national carriers would be overrun by freely competing U.S. airlines.

The U.S.-Far East market represents an intermediate situation. While liberal agreements (not always fully honored by the foreign governments) have been negotiated with the Philippines, the Republic of China, Singapore, and South Korea, access to Japan is the key to the major portion of the U.S.-Far East market. Not only is Japan extremely important in its own right, but most visitors to the area do not want to bypass it. Furthermore, it is strategically located, and distances in the Far East are too great to permit sidetrips to Japan as casual "backhauls." The Japanese government has always been conservative in its civil aviation policies, but has gradually been persuaded to accept more service to and from the United States.⁷⁶ Also, although the Japanese government has a strict regulatory policy about pricing, the whole area, including Japan, is rife with price-cutting, not all of which is legal.⁷⁷

Having selected the geographic areas on which to focus, it is also necessary to select a useful timeframe. The period 1972-1983 appears most reasonable. Not only does this provide almost the same number of years before and after the 1978 "swing" year, but 1972 is a reasonably "normal" year with which to begin.⁷⁸ The 1970/71 recession was past, and 1972 was a good recovery year; the recession of 1974/75 was still to come. Also, 1972 was the last full year that preceded the 1973 Arab oil embargo, and the beginning of sharp fuel price increases.

76. There were two principal reasons. First, the U.S. government had been pressuring Japan for years to permit a third long-haul U.S. airline to commence passenger service (Northwest and Pan American have served Japan since the end of World War II), and the pressure involved factors (such as the overall trade imbalance) that went beyond air transport policy. Japan finally permitted United to commence service to Tokyo in 1983. (In exchange, Japan received expanded authority to serve the United States.) The second factor was that Japan often found it advantageous to grant other Asian governments (which had already secured from the United States rights to serve the United States via Japan) access to the Japan-U.S. market. This was part of the package Japan was willing to pay for the rights which it received from the other Asian governments.

77. In addition to fairly overt price cutting, more recently the airlines have been paying very high commissions (reportedly up to 50 percent) to tour organizers and travel agents in efforts to win their business. Although difficult to document and quantify, it is widely believed that this has led to considerable rebating by these distributors.

78. The authors recognize, of course, that implementation of the new competitive freedoms achieved by the Carter Administration policy did not all happen by January 1, 1979. On the other hand, it has been noted that "the passage of the Airline Deregulation Act of 1978 was the culmination, not the start, of a period of freer entry and more competitive fares." (Stelzer, paper delivered at Institute of Air Transport Symposium, Paris, May 1984.) In the case of international air transportation, the Carter Administration began its pro-competitive drive in 1977.

There is also the important question of what information to examine. Many issues warrant consideration, but consistent and meaningful data are limited. There are good statistics on traffic totals, citizenship, and market shares by "flag" of airlines. The same is true of U.S. airline profitability. In a more limited way service changes and pricing are examined, as well as several other developments that are, or may become, important public policy issues.

TRENDS IN PASSENGER TRAFFIC AND MARKET SHARES, 1972-1983

Trends in passenger traffic and market shares between the United States and all world areas are examined first, and then attention is turned to similar analyses for each of the three principal intercontinental areas.

A Global View

Total international passenger traffic to and from the United States between 1972 and 1983 grew by almost the same absolute amount, but at a much slower rate, then during the preceding 11-year period (see Table 49).⁷⁹

TABLE 49—COMPARISONS OF LONG TERM AIR TRAFFIC GROWTH BETWEEN U.S. AND ALL AREAS (IN THOUSANDS)

	Number of Passengers	Increase	Cumulative Percentage Increase	Average Annual Increase
1960	4,902	15,882	324%	14.0%
1971	20,784			
1972	24,601			
1983	40,547	15,946	65%	4.7%

Source: Immigration and Naturalization Services Statistics.

While one could not expect to maintain the very high earlier growth rates, the 1972-1983 period was marked by a new phenomenon: several year-to-year periods in which the absolute number of passengers declined. Thus, there was a slight fall-off from

79. Different agencies of the U.S. government have collected and published these statistics over the years: initially the Immigration and Naturalization Service of the Department of Justice and more recently the Department of Transportation. Also, from time to time, there have been variations in what is included and in classifications. As a result, different collations of these data may vary somewhat. So long as there is reasonable consistency, any discrepancies have no significant affect on this analysis.

1973 to 1974, and from 1974 to 1975; and a larger decline from 1981 to 1982 (see Table 50).

It is worth noting that well over half the total growth during the entire 11-year period occurred in two years, from 1977 to 1979.⁸⁰ In the four years following 1979, including the economic recovery year 1983, growth was exceedingly modest, approximately 9 percent for the entire period.⁸¹

TABLE 50—NUMBERS OF AIR PASSENGERS, U.S.—ALL AREAS (IN THOUSANDS)

1972	24,601	1978	32,750
1973	26,189	1979	37,350
1974	25,639	1980	39,468
1975	25,446	1981	40,743
1976	27,100	1982	39,539
1977	28,504	1983	40,547

Source: Same as Table 49.

While general economic conditions significantly influence the total amount of travel, the nationality of the travelers is strongly affected by relative currency values (rates of exchange).⁸² There has been an unanticipated surge in the value of the dollar. Based on a standard 18 currency comparison that sets the value of the U.S. dollar at 100 in 1980, the dollar was 102 in 1978, 100 in 1979 and 1980, and then started climbing rapidly to 113 in 1981, 126 in 1982 and 133 in 1983.⁸³ Reported data for 1984 show further increases: 1st quarter 138, 2nd quarter 139, and 3rd quarter 147.2. The experts were baffled by the dollar's gain compared to other currencies, and grew more cautious about predicting a reversal of that trend.

As a result of the strengthening dollar, the long-term trend of increased travel by aliens, relative to U.S. citizens, was sharply reversed. The degree to which this will continue depends on the dollar's future strength. Broad citizen/alien travel data are shown in Table 51.

80. It is probable that this short spurt of strong growth, in this very cyclical industry, contributed to the fervor of the Carter Administration deregulators. The CAB and other U.S. air transport policy makers have typically exhibited short memories, and have acted to expand competition during (or just after) the intermittent periods of industry growth and prosperity.

81. Although only limited statistical data 1984 are available as this goes to press, early figures indicate that growth in 1984 will exceed 10 percent.

82. Published data show only a U.S. citizen/alien breakdown. This does not, of course, exactly correspond to residents and non-residents of the United States.

83. The index is called the Multilateral Exchange Rate Model (MERM), and is weighted by trade volumes. International Financial Statistics, published by the International Monetary Fund.

DOLLAR'S RISE: EXPERTS BAFFLED

LONDON, Sept. 11—The dollar traded at above 3 German marks this week for the first time since floating exchange rates were adopted 11 years ago, continuing a recent pattern of strength against the currencies of the world that has left monetary experts struggling to understand and agree on what forces control how much a nation's money is worth internationally.

The push through the largely psychological 3-mark barrier came on the heels of a climb last week that brought the dollar to record levels against the British pound, the French franc and the Italian lira, while raising its value against the Japanese yen, the major currency that has stood up best to the dollar's surge. The dollar turned in a mixed performance in European trading today and fell slightly in the United States as traders took profits.

The dollar's rise has lasted more than three years against most currencies, defying repeated predictions by most experts as to when and where the climb would end.

"At the moment, it's a brave man who says that the trend will be arrested, much less reversed," said John Atkin, an economist with Citibank here.

Source: Barnaby J. Feder, *New York Times*, September 12, 1984.

TABLE 51—COMPARISONS OF AIR TRAVEL BY CITIZENS AND ALIENS, U.S.—ALL AREAS (IN THOUSANDS)

	U.S. Citizens	Aliens
1972	15,463	9,138
1981	18,883	21,909
increase	3,420	12,771
1981	18,883	21,909
1983	24,259	16,288
increase (decrease)	5,376	(5,621)

Source: Same as Table 49.

TABLE 52—U.S. CITIZENS AS PERCENT OF TOTAL MARKET, U.S.—ALL AREAS

1972	63%	1978	56%
1973	61	1979	52
1974	58	1980	48
1975	56	1981	46
1976	57	1982	50
1977	58	1983	60

Source: Same as Table 49.

Thus, after uninterrupted sharp decreases in the proportion of travel consisting of U.S. citizens, from 1972 to 1981, by 1983 the U.S. citizen share had nearly returned to the 1972 level (see Table 52).

Also of key interest are trends of U.S. airline market share. A gradual decline occurred, from 54 per-

cent in 1972 to 49 percent in 1980 and 1981, but with a recovery to 51 percent in 1983 as shown in Table 53.

Without exception, worldwide and in every geographic area, U.S. airlines have been less successful in attracting aliens than U.S. citizens. There are many explanations for this. In many foreign countries, there are motivations of patriotism and security (language, type of food, etc.) to use the national airline. Beyond that, however, there are other influences: government regulations requiring government employees and many business travelers to use the national airline; national airline control over the distribution system; bias in computer reservations systems owned by national airlines; currency exchange controls; among others. Government ownership of airlines provides a strong incentive for government to help airlines to be successful. Without being judgmental of the merits of the "Open Skies" policy, it is certainly a fair criticism of its advocates that they either ignored or downplayed the pervasive absence of a "fair marketplace" abroad.

Generally speaking, during the 1972-1983 period the U.S. airlines attracted between 55 percent and 60 percent of the U.S. citizens, but only slightly over 40 percent of the aliens, who traveled to or from the United States. The U.S. airline share has tended to move in the same direction as the U.S. citizen share of market (see Table 54). Overall, the U.S.-Flag share seems unable to break consistently through the 50 percent barrier.

It should also be noted that, although the U.S. airlines have consistently attained the 50 percent overall share that many foreign governments consider to be "fair," that level of participation results from the stronger than average showing of U.S. airlines in the heavy-traffic Caribbean, Mexican, and Central American areas.⁸⁴ U.S. citizens have consistently

TABLE 53—U.S. AIRLINE MARKET SHARES BETWEEN U.S. AND ALL AREAS

1972	54%	1978	50%
1973	54	1979	51
1974	53	1980	49
1975	50	1981	49
1976	50	1982	50
1977	50	1983	51

Source: Same as Table 49.

TABLE 54—U.S. AIRLINE MARKET SHARE AND ITS COMPONENTS, U.S.—ALL AREAS

	Makeup of Market		U.S. Airline Participation in		Overall U.S. Market Share
	Citizens	Aliens	Citizens	Aliens	
1972	63%	37%	62%	42%	54%
1973	61	39	61	45	54
1974	59	41	60	44	53
1975	57	43	58	40	50
1976	57	43	57	40	50
1977	58	42	58	40	50
1978	56	44	57	41	50
1979	52	48	58	43	51
1980	48	52	57	42	49
1981	46	54	57	42	49
1982	50	50	57	42	50
1983	60	40	57	41	51

Source: Same as Table 49.

tently accounted for over 60 percent of the total traffic to and from these areas; and U.S. airlines have consistently captured more than 60 percent of the U.S. citizens and more than 50 percent of the aliens. If these nearby regions are eliminated, U.S. airlines are carrying less than half the long-haul international air traffic to and from the United States.⁸⁵

The United States-Europe Market

More passengers travel between the United States and Europe than to and from the Caribbean, Mexico, and Central America combined. As a share of total U.S. international traffic, European traffic has hovered around the 40 percent level, drifting slightly downward in more recent years. Although 1984/1985 data will show a reversal, its rate of growth

84. This attitude reflects more than simple chauvinism. Many foreign governments have financial interests in their airlines. But there are other factors as well. International air transportation is generally recognized abroad as an important foreign trade item, and a means for earning hard currencies; it is widely regarded as an aid in attracting tourism; it can provide significant employment; in emergency, the civil aircraft and infrastructure (personnel and facilities) become part of the national defense forces; it is often used for diplomatic communication and presence abroad; and many governments consider their national airlines instruments and symbols of prestige. The Carter Administration policy makers subordinated all of these considerations to "consumer" benefits.

85. Those who believe that national airlines are "entitled" to a 50 percent share of a nation's international traffic are reaching somewhat too high. For when a government enters into an agreement that gives it access to Fifth Freedom traffic, it is, in effect, bartering some of its Third and Fourth Freedom traffic for Fifth Freedom traffic. This is not, necessarily, a direct one-to-one exchange, but it is inherent in the whole bilateral system that the right to carry traffic between two foreign countries is paid for by the grant to others of increased access to the homeland market.

has slowed considerably from earlier periods, and has fallen behind that of total world traffic (see Table 55).

TABLE 55—COMPARISONS OF LONG-TERM AIR TRAFFIC GROWTH, U.S.—EUROPE (IN THOUSANDS)

	Passengers	Increase	Cumulative Percentage Increase	Average Annual Increase
1960	2,021	7,435	370%	15.0%
1971	9,456			
1972	11,241	4,246	38%	3.0%
1983	15,487			

Source: Same as Table 49.

In contrast to earlier periods, year-to-year reductions began in 1973. The degree to which this highly tourist-oriented European market reacts to general economic conditions is suggested by the facts that the volume in 1976 (see Table 56) was still slightly below that in 1972, and the number of passengers in 1983 was little more than in 1980.⁸⁶ As a share of total world traffic, U.S.-Europe declined from 46 percent in 1972 to 38 percent in 1983.

TABLE 56—NUMBERS OF PASSENGERS, U.S.—EUROPE (IN THOUSANDS)

1972	11,241	1978	13,694
1973	11,523	1979	14,868
1974	10,147	1980	15,310
1975	9,901	1981	15,564
1976	11,134	1982	15,119
1977	12,082	1983	15,487

Source: Same as Table 49.

The percentage of U.S. citizens in the U.S.-Europe market fell sharply from 1972 (when it was 67 percent) to 1981 (47 percent). The percentage then made a strong recovery with the growing strength of the dollar (see Table 57). By 1983, it had recovered to 61 percent.

The U.S. airline share has been responsive to shifts in U.S. citizen share, but unable to reach the 50 percent level. The U.S. airline market share was sustained at or near the 45 percent level as the citizen share declined because of a slight increase in the percent of aliens attracted by U.S. airlines (see Table 58).

The U.S.-Europe market is by far the most mature

and most competitive intercontinental market. The relative stability of its makeup and market shares in recent years suggests that the data shown in Table 58 are reasonably indicative of the future, barring some drastic change in circumstances. It is likely that if European currencies strengthen, or the world adjusts to the 1983/1984 strength of the dollar, the U.S. citizen percentage of U.S.-Europe travel will diminish and the overall U.S. airline share will drop to 45 percent or less—the situation that prevailed before the drive for "Open Skies."

TABLE 57—COMPARISON OF U.S. CITIZEN AND U.S. AIRLINE SHARES IN THE U.S.—EUROPE MARKET

	U.S. Citizen Share of Market	U.S. Airline Share of Market
1972	67%	46%
1973	65	49
1974	62	46
1975	61	44
1976	61	45
1977	62	45
1978	58	44
1979	53	44
1980	48	42
1981	47	41
1982	52	45
1983	61	47

Source: Same as Table 49.

TABLE 58—U.S. AIRLINE MARKET SHARE AND ITS COMPONENTS U.S.—EUROPE

	Makeup of Market		U.S. Airline Participation in		Overall Market Share
	Citizens	Aliens	Citizens	Aliens	
1972	67%	33%	53%	33%	46%
1973	65	35	54	39	49
1974	62	38	53	35	46
1975	61	39	52	32	44
1976	61	39	52	34	45
1977	62	38	52	34	45
1978	58	42	50	35	44
1979	53	47	49	38	44
1980	48	52	48	36	42
1981	47	53	47	36	41
1982	52	48	51	39	45
1983	61	39	52	37	47

Source: Same as Table 49.

The United States-Far East Market

This market area has witnessed the strongest sustained traffic growth over the last 25 years. While the

86. As noted above, 1984 growth has been very strong, and the travel industry expects continued sharp growth in 1985.

rate of growth has declined as the base increased, traffic between the United States and the Far East has continued to grow, year after year, with no significant interruption. It more than doubled during the 1972-1983 period (see Table 59).

TABLE 59—COMPARISONS OF LONG TERM TRAFFIC GROWTH, U.S.—FAR EAST (IN THOUSANDS)

Passengers	Increase	Cumulative Percentage Increase	Average Annual Increase
1960 306	1,903	622%	19.6%
1971 2,209			
1972 2,684	2,833	106%	6.7%
1983 5,517			

Source: Same as Table 49.

As a result of this strong growth, compared to world trends, the relative importance of the very long-haul Far East market has increased significantly: from 11 percent of total U.S. international air travel in 1972 to almost 14 percent in 1983.

Unlike the worldwide or U.S.-Europe situation, the 11-year growth was reasonably well distributed over the entire period, with only one year of minor decline as shown in Table 60. Unlike the worldwide and U.S.-Europe experience, growth between the U.S. and the far East continued to be significant after 1980.⁸⁷

TABLE 60—NUMBERS OF PASSENGERS, U.S.—FAR EAST (IN THOUSANDS)

1972	2,684	1978	3,632
1973	2,972	1979	4,397
1974	3,214	1980	4,922
1975	3,344	1981	5,286
1976	3,285	1982	5,445
1977	3,284	1983	5,517

Source: Same as Table 49.

For most of the period, the U.S. citizen share of the total market was declining sharply, until it stabilized at 30 percent or less. However, as in all other areas, it jumped sharply in 1983, because of improved economic conditions in the United States and the increased strength of the dollar (see Table 61).

Despite the fact that U.S. citizens comprise a smaller portion of the total U.S.-Far East market than between the U.S. and Europe, U.S. airline market shares to the Far East have been quite comparable,

87. Growth in 1984 accelerated to approximately 15 percent.

TABLE 61—U.S. CITIZENS AS PERCENT OF TOTAL MARKET, U.S.—FAR EAST

1972 ^a	43%	1978	30%
1973	38	1979	27
1974	35	1980	27
1975	33	1981	28
1976	32	1982	29
1977	32	1983	37

a. This was a decline from 49 percent in 1971, when for the first time U.S. citizens accounted for less than half the market.

Source: Same as Table 49.

although somewhat lower in the most recent years. It is interesting to see them in juxtaposition, as shown in Table 62. The U.S.-Flag share in the Far East market has consistently exceeded the citizen share during this period, whereas the opposite has been true in the U.S.-Europe market (see Table 63).

TABLE 62—COMPARISONS OF U.S. FLAG MARKET SHARES WITH U.S. CITIZEN SHARES

	U.S.-Far East		U.S.-Europe	
	Flag Share	Citizen Share	Flag Share	Citizen Share
1972	47%	43%	46%	67%
1973	50	38	49	65
1974	51	35	46	62
1975	41	33	44	61
1976	45	32	45	61
1977	44	32	45	62
1978	41	30	44	58
1979	44	27	44	53
1980	41	27	42	48
1981	39	28	41	47
1982	39	29	45	52
1983	41	37	47	61

Source: Same as Table 49.

TABLE 63—U.S. AIRLINE MARKET SHARE AND ITS COMPONENTS, U.S.—FAR EAST

	Makeup of Market		U.S. Airline Participation in		Overall Market Share
	Citizens	Aliens	Citizens	Aliens	
1972	43%	57%	62%	35%	47%
1973	38	62	60	44	50
1974	35	65	60	46	51
1975	33	67	52	35	41
1976	32	68	62	38	45
1977	32	68	57	38	44
1978	30	70	57	36	41
1979	27	73	58	39	44
1980	27	73	52	37	41
1981	28	72	51	34	39
1982	29	71	51	34	39
1983	37	63	52	35	41

Source: Same as Table 49.

This table also shows the breakdown between citizens and aliens, and what portion of each the U.S. airlines have carried.

There has been a perceptible downturn in U.S. airline participation in the U.S.-Far East travel of both citizens and aliens since the 1976-1979 period. This trend is quite different from that in the U.S.-Europe market, as shown in Table 64. Overall, U.S. airline shares to the Far East have declined, while those to Europe have been more stable, despite greater year-to-year fluctuations (see Table 65). To at least some extent, this comparative deterioration in the Pacific is attributable to new or increased foreign airline service, which followed the Carter Administration agreements with Singapore, South Korea, and the Republic of China.⁸⁸ This may, in time, be somewhat offset by the 1983 institution of service to Tokyo and Hong Kong by United Air Lines.

TABLE 64—RANGE OF U.S. FLAG PARTICIPATION BY CITIZENSHIP

	U.S.-Far East		U.S.-Europe	
	Citizen	Alien	Citizen	Alien
1976-79	57-62%	36-39%	49-52%	34-38%
1980-83	51-52%	34-37%	47-52%	36-39%

Source: Same as Table 49.

TABLE 65—RANGE OF U.S. FLAG TOTAL MARKET SHARES

	U.S.-Far East	U.S.-Europe
1976-79	41-45%	44-45%
1980-83	39-41%	41-47%

Source: Same as Table 49.

The United States-South America Market

Until it stumbled in 1982, and collapsed in 1983, the U.S.-South American market had experienced spectacular growth during the period of review. Most

of this occurred in the latter part of the 1970's, and reflected a massive increase in travel by South Americans to the United States. Economic woes of the major South American countries, however, has brought a sharp reversal. Even so, long-term growth has been substantial (see Table 66). From 1972 to 1981, the increase was an amazing 176 percent.

TABLE 66—COMPARISONS OF LONG TERM TRAFFIC GROWTH, U.S.—SOUTH AMERICA (IN THOUSANDS)

	Passengers	Increase	Percentage Increase
1960	355		
1971	1,085	730	206%
1972	1,249		
1983	2,616	1,369	106%

Source: Same as Table 49.

Annual traffic volume figures are shown in Table 67. The extraordinary decline from 1981 to 1983 was entirely attributable to a 38 percent reduction in the number of South American passengers, for whom U.S. dollars had become scarce and expensive.⁸⁹

TABLE 67—NUMBERS OF PASSENGERS, U.S.—SOUTH AMERICA (IN THOUSANDS)

1972	1,249	1978	2,343
1973	1,414	1979	2,821
1974	1,637	1980	3,344
1975	1,725	1981	3,450
1976	1,764	1982	3,223
1977	1,986	1983	2,616

Source: Same as Table 49.

Overall, the importance of the U.S.-South America traffic, as a share of total U.S. international traffic, increased from 5 percent in 1972 to 8.5 percent in 1981. By 1983, however, it had fallen back to only a little over 6 percent.

The U.S. citizen share of the market had been decreasing steadily, falling to as low as 25 percent in 1981 and 1982. In 1983, it shot back up to 38 percent (see Tables 68 and 69). The U.S. carrier market share has been remarkably steady, basically holding in the 42 to 45 percent range, with only minor deviations.

88. These airlines compete for traffic to and from all of East Asia. While Singapore Airlines is particularly aggressive, its experience illuminates the general problem. Initiating its first transpacific service in the summer of 1979, with four roundtrip widebody flights a week, in September 1984 it operated 13 roundtrips, all of which served strong intermediate points between the U.S. and Singapore. In 1983, it carried 351,000 transpacific passengers, of whom only 27 percent were reported as traveling between the United States and Singapore. By the first quarter of 1984 this had declined to 22 percent, with well over one-third of its total passengers traveling between Hong Kong and the United States. Its participation in the U.S.-Japan market was held to the 70,000 to 75,000 a year range only by the fact that it was permitted to operate via Tokyo on only three roundtrip flights per week.

89. The decline in total U.S.-South America travel continued into 1984, even though the number of U.S. citizen passengers increased.

TABLE 68—U.S. CITIZENS AS PERCENT OF TOTAL MARKET, U.S.—SOUTH AMERICA

1972 ^a	41%	1978	35%
1973	43	1979	30
1974	42	1980	27
1975	40	1981	25
1976	39	1982	25
1977	38	1983	38

a. Unlike the situation in the Europe and Far East markets, U.S. citizen share of U.S.-South America travel had for many years before 1972 been well below 50 percent.

Source: Same as Table 49.

TABLE 69—U.S. AIRLINE MARKET SHARE AND ITS COMPONENTS, U.S.—SOUTH AMERICA

	Makeup of Market		U.S. Airline Participation in		Overall Market Share
	Citizens	Aliens	Citizens	Aliens	
1972	41%	59%	49%	38%	42%
1973	43	57	51	38	43
1974	42	58	52	38	44
1975	40	60	50	38	43
1976	39	61	46	35	39
1977	38	62	50	36	41
1978	35	65	53	39	44
1979	30	70	54	41	45
1980	27	73	50	43	45
1981	25	75	47	43	44
1982	25	75	44	41	42
1983	38	62	48	39	42

Source: Same as Table 49.

Effect of the "Open Skies" Policy on Traffic Growth and Market Shares

The following observations are "tentative," for it appears that factors other than competition have been most influential in determining broad market trends. Economic matters seem predominantly important: recessions stifle traffic growth and economic collapse can cut traffic sharply overnight. Also, the relative values of currencies strongly influence the direction of traffic flows and the citizen/alien composition. This, in turn, affects U.S. airline market shares.

Nonetheless, it is still useful to attempt to compare trends in the three major intercontinental areas. Europe has long been highly competitive, and expanded scheduled service has largely replaced the earlier charter service. The Far East has experienced expanded competition since the late 1970s. In South America, almost all foreign governments have re-

jected any expansion of the traditionally limited competition.

Trends in total traffic volumes suggest little correlation between the extent of competition and traffic growth. The slowest rate of growth was in the European market, where competition was most intense. The fastest traffic growth, by far, until the 1982/1983 economic collapse, was in South America, the least competitive market.

In regard to U.S. airline market share, the U.S.-Europe market was generally stable, hovering around 45 percent, with no real change since 1978. The U.S.-Far East market was clearly down as expanded foreign competition took hold. The U.S.-South America market was the most stable of all foreign markets, at between 40 and 45 percent.

These data suggest, as might be expected, that the U.S. airline share of market is reduced by significantly increased foreign airline access to the U.S. market.

Since the extent of U.S. citizen participation is generally believed to influence U.S.-Flag share, the divergent trends in this regard are of interest.⁹⁰ In the U.S.-South America market, during the period under review, U.S.-Flag share held quite constant as citizen participation declined from the 40 percent level early in the period to 25 percent in the 1981/1982 period. The citizen share increased to 38 percent in 1983 but had no net effect on U.S. Flag participation.

The lower citizen participation growth to the Far East—to 37 percent from 27 to 29 percent range in 1979 to 1982—had only a minor effect on U.S. Flag-share. It went back up to 41 percent from the 39 percent of the preceding 2-year period but was still at a historical low, except for these two years.

The pattern was different in the U.S.-Europe market, where the 1982/1983 increases in citizen participation were accompanied by significant increases in U.S.-Flag shares.

It would appear that changes in citizenship significantly affect Flag share only when the citizen component is near or above 50 percent.

90. Proponents of "Open Skies" have frequently attributed declines in U.S.-Flag shares almost exclusively to reductions in U.S. citizen shares.

In the light of these observations, it can be tentatively concluded that the advance of U.S. procompetitive policies in international air transportation has neither served as a market stimulus nor benefitted the U.S.-Flag airline system in terms of market share. Indeed, the Far East experience indicates that increased foreign airline access is inimical to U.S. airline market participation.

THE U.S. BALANCE OF PAYMENTS CONSEQUENCES OF INTERNATIONAL AIR TRANSPORTATION

There are two ways that international air travel affects any nation's balance of payments. First, there is the surplus or deficit involved in the transportation itself. When U.S. citizens pay dollars to foreign airlines, there is an outflow of dollars, resulting in a foreign exchange loss. Conversely, when foreigners pay their money to ride on U.S. airlines, typically that money is converted to dollars and there is an inflow of dollars. The difference between these outflows and inflows affects the U.S. balance of payments. Deficits in this account are usually referred to as "passenger fare deficits."⁹¹

International travel affects the United States' balance of payments in another and sometimes more important respect as well. This is often referred to as the travel "spending gap"—the difference between what foreign visitors spend in the United States and what U.S. visitors spend abroad. Although this spending gap can be relatively great, there has been no support for containing it by limiting U.S. citizen foreign travel.⁹² This would be an unacceptable infringement on the rights of citizens. The only governmental effort here is to try to stimulate and promote travel to the United States—an activity in which the U.S. government spends less money and makes less

concerted effort than most other tourist-oriented governments.

The passenger fare account, in which the United States has consistently experienced a "fare deficit," is a function of the U.S. airline market share relative to the share of travel by U.S. citizens. When the U.S. citizen share of travel exceeds the U.S. airline share of the market (weighted, of course, by average fare payments), the United States suffers a "fare deficit." This deficit has been growing rapidly. Ranging between approximately \$1 billion and \$1.7 billion in the 1970s, it shot up to \$3 billion in 1983 as shown in Table 70. 1984 will undoubtedly show a further substantial increase. As the overall U.S. trade deficit mounts, the air travel account should be an area of increasing concern.

**TABLE 70—U.S. PASSENGER FARE DEFICIT
(BILLIONS OF DOLLARS)**

1972	1.1	1978	1.7
1973	1.1	1979	1.5
1974	1.3	1980	1.6
1975	1.5	1981	2.0
1976	1.6	1982	2.1
1977	1.7	1983	3.0

Source: Report of the United States Travel and Tourism Administration for data through 1981. *Survey of Current Business*, U.S. Department of Commerce for 1982 and 1983.

THE PROFITABILITY OF U.S. INTERNATIONAL AIRLINE OPERATIONS

The unusually large profits of U.S. international airline operations in 1983–84 may tend to obscure the unsatisfactory longer-term results.

There have been few relatively protracted periods during which U.S. international airline operations were solidly profitable. The last such sustained period ended when Vietnam War-related traffic and military contracts, and pressures on capacity, began to run down. This was followed in 1970/71 by poor economic conditions coupled with the delivery of large numbers of 400-passenger widebodied Boeing 747 aircraft. Then, after a brief period of recovery, there came the oil crisis and the 1974/1975 recession. A good recovery followed that lasted through 1978. Then came the deluge: slipping profits turning into heavy losses, and finally some recovery beginning in 1982. While this improvement was gener-

91. However, an airline incurs locally paid expenses when operating abroad, which must also be taken into account.

92. For the United States, the spending gap was over two billion dollars a year in the early 1970s. It subsequently continued to decline as relatively more foreigners visited the United States and showed a \$1.5 billion balance in favor of the United States in 1982. In 1983 the balance shifted sharply, to a deficit of \$2.6 billion. U.S. Department of Commerce, Bureau of Economic Analysis, "Survey of Current Business," May 1984. See, also *First Program Report of the U.S. Travel and Tourism Administration*, U.S. Department of Commerce. Data from the two sources differ in minor degree.

ally spectacular in 1983, continuing into 1984, there are many questions as to what lies beyond.

As noted earlier, the most useful measure of airline profitability is operating profit reduced by interest expense. Reasonably consistent data are available for all U.S. airlines, since they have reported such information to the CAB (and now the Department of Transportation) for broad geographic entities on the basis of a prescribed system of accounts.⁹³ In summarizing these data, this study omits the all-cargo airlines, but will necessarily include the all-cargo services of the combination carriers.

TABLE 71—PROFITABILITY OF U.S. AIRLINE ATLANTIC DIVISION OPERATIONS^a (IN THOUSANDS OF DOLLARS)

	Total Operating Revenue	Operating Profit (Loss)	Interest Expense ^b	Operating Profit (Loss) After Interest
1972	1,038,899	4,226	11,188	(6,962)
1973	1,163,750	32,390	12,649	19,741
1974	1,314,043	(58,293)	38,220	(96,513)
1975	1,373,575	(12,837)	38,377	(51,214)
1976	1,521,658	71,153	36,168	34,985
1977	1,767,675	111,327	50,856	60,471
1978	2,012,375	77,650	62,765	14,885
1979	2,367,856	(16,055)	52,732	(68,787)
1980	2,786,153	(114,215)	84,612	(198,827)
1981	2,854,255	(77,644)	94,470	(172,114)
1982	2,851,626	52,549	86,656	(34,107)
1983	3,006,804	412,333	105,682	306,651

Recap:

1972-75	4,890,267	(34,514)	100,434	(134,948)
1976-79	7,669,564	244,075	202,521	41,554
1980-83	11,498,838	273,023	371,420	(98,397)

1972-83 24,058,669 482,584 674,375 (191,791)

a. Through 1977, includes National, Pan American, and Trans World. 1978 also includes Braniff and Delta. In 1979, Northwest commenced U.S.-Europe service, and is included. Additions in 1980 include Air Florida and Western, but National had by then been merged into Pan American. By 1982, Western had discontinued service, World had begun scheduled service and reported Atlantic Division results, and American replaced bankrupt Braniff during the course of the year. People Express commenced service in 1983, but is not included. Several other airlines (primarily Transamerica and Capitol) did not report by Division, and have not been included.

b. Pan American's interest expense was not allocated to Divisions prior to 1974. The reported amount of \$24.4 million in 1974 is indicative of properly assignable amounts for 1972 and 1973.

Source: CAB.

93. The individual airlines do have considerable discretion in some of their expensing policies and in how they allocate revenues and expenses between divisions (allocation between Domestic and Atlantic of the revenue from a passenger from St. Louis to London via New York on the same airline). In addition, individual airlines vary their allocation policies from time to time. For this discussion purpose any distortion is insignificant.

94. It also includes Pan American's Africa and Internal German services, and intra-area Fifth Freedom traffic of all airlines (e.g., a passenger from Rome to Cairo).

Atlantic Division Operations

Starting with the CAB denominated Atlantic Division, which is primarily U.S.-Europe,⁹⁴ the picture is as described in Table 71. Although traffic and revenues were up sharply in 1984, incomplete income statements for the first 9 months indicate some drop-off in profitability from 1983.

Pacific Division Operations

This area, as reported to the CAB, includes not only the U.S.-Far East operations, but also U.S.-South Pacific, and operations within these areas, such as Tokyo-Hong Kong, and Auckland-Sydney. The two principal operators over the period under review have been Northwest and Pan American. Northwest has not served the South Pacific. Although Pan American has, it is not possible to separate and eliminate financial information for that area. The data shown in Table 72 also include TWA from 1972 to 1975, when it terminated its Central Pacific operations (included in U.S.-Far East) and Braniff for

TABLE 72—PROFITABILITY OF U.S. AIRLINE PACIFIC DIVISION OPERATIONS (IN THOUSANDS OF DOLLARS)

	Total Operating Revenue	Operating Profit (Loss)	Interest Expense ^a	Operating Profit (Loss) After Interest
1972	463,876	27,472	3,858	23,614
1973	531,573	48,794	5,453	43,341
1974	615,471	309	17,954	(17,645)
1975	650,159	18,755	18,242	513
1976	714,319	33,802	17,619	16,183
1977	807,562	72,522	25,171	47,351
1978	904,839	127,866	22,096	105,770
1979	1,126,022	79,909	18,877	61,032
1980	1,228,240	(51,771)	31,961	(83,732)
1981	1,341,583	(43,271)	32,430	(75,701)
1982	1,396,295	(35,556)	28,039	(63,595)

Recap:

1983	1,693,283	86,437	38,173	48,264
1972-75	2,261,079	95,330	45,507	49,823
1976-79	3,552,742	314,099	83,763	230,336
1980-83	5,659,401	(44,161)	130,603	(174,764)

1972-83 11,473,222 365,268 259,873 105,395

a. See note b in Table 71. Pan American's reported Pacific Division interest expense in 1974 was \$11.3 million.

Source: CAB.

1979–1980, its only two years of service to the area. United commenced service to Japan and Hong Kong in 1983.⁹⁵ As in the case of the Atlantic Division, operations of the all-cargo airline (Flying Tigers) has been excluded.

Preliminary reports for the first 9 months of 1984 show increases of approximately 15 percent in revenues and operating profit, as compared with the same period in 1983.

South America Operations

The reporting unit prescribed by the CAB is the Latin American Division, which includes not just the U.S.-South America market, but also the Caribbean, U.S.-Mexico, and Central America. From 1972–1982, the only two U.S. airlines serving South America were Braniff and Pan American. Braniff's "Latin American" operations were predominantly South

America. Until the mid-1970s, Pan American had substantial, but unprofitable, Latin American operations that were not to South America. There is no way to exclude these from the reported data. In 1982, Eastern added the South America service of bankrupt Braniff to its already substantial Latin America services. Thus, the data summarized in Table 73 comprises the Latin American Division operations of Braniff from 1972 to 1982, Eastern for 1982 and 1983, and Pan American from 1972 to 1983. Were it possible to show only U.S.-South America, the results would be much more favorable, at least until the latter part of the period. The Eastern and Pan American financial reports for the first 9 months of 1984, for Latin America, show a continuing decline in revenue, but also a substantial reduction in operating loss.

Discussion of Profitability

Several conclusions emerge from review and analysis of these data. On an overall basis, despite extremely good, recent experience, long-haul international air transportation is not a business in which to get rich. Over the entire 12-year period, operating profit in the three areas aggregated only \$927 million on total revenues of \$43 billion—an operating profit margin of little over 2 percent. Operating profit failed to cover interest expense, which amounted to a total of \$1,152 million. The U.S. airlines invested large sums of equity to achieve these miserable results.

Still looking at the entire period, none of the three areas is particularly attractive from a financial point of view. Operating profit margins did not vary all that much: 3 percent in the Pacific, 2 percent in the Atlantic, and 1 percent in South America. Most analysts generally agree that a long-term profit margin of at least 5 percent is required to provide adequate funds for reinvestment and some return to stockholders. (Indeed, with interest expense approaching 4 percent of operating revenues, a 5 percent operating margin is clearly inadequate.)

The business is extremely cyclical. The sinking spells of 1974 and 1975 were highlighted by a recession combined with skyrocketing fuel prices. Sharp recovery (and the only period of significant across-the-board profitability) occurred between 1976 and

TABLE 73—PROFITABILITY OF U.S. AIRLINE SOUTH AMERICA OPERATIONS (IN THOUSANDS OF DOLLARS)

	Total Operating Revenue	Operating Profit (Loss)	Interest Expense ^a	Operating Profit (Loss) After Interest
1972	396,192	(5,972)	1,534	(7,506)
1973	428,573	(3,387)	1,975	(5,362)
1974	494,300	(21,512)	14,397	(35,909)
1975	485,684	(12,435)	12,712	(25,147)
1976	447,284	(4,044)	11,089	(15,133)
1977	529,587	31,703	17,668	14,035
1978	615,454	72,749	17,106	55,643
1979	709,780	45,749	16,729	29,020
1980	827,982	16,579	26,202	(9,623)
1981	848,967	22,041	25,338	(3,297)
1982	950,253	(824)	35,142	(35,966)
1983	846,042	(61,437)	48,298	(109,735)
Recap:				
1972–75	1,804,749	(43,306)	30,618	(73,924)
1976–79	2,302,105	146,157	62,592	83,565
1980–83	3,473,244	(23,641)	134,980	(158,621)
1972–83	7,580,098	79,210	228,190	(148,980)

a. See note b in Table 71. Pan American's reported Latin American Division interest expense in 1974 was \$12.2 million.

Source: CAB.

95. Continental had very limited operations involving Micronesia through the period, and in 1979 began to serve the South Pacific. It has been omitted from Table 72.

1978 when there was economic recovery and relatively stable fuel prices. Then another sinking spell began in 1979, as fuel costs began to climb, closely followed by another recession. A spectacular recovery occurred in 1983 as strong economic recovery took hold and fuel prices fell.⁹⁶ History and partial data for 1984, suggest that overall profits may have peaked in 1983.

The patterns of profitability in the three areas varied considerably. Whereas there were alternating periods of profits and losses in the Atlantic and Latin American areas, Pacific operations showed at least some profitability every year until 1980. It was the one area where, until 1980, profit margins were at healthy levels (approximately 7 percent from 1972 to 1979). This situation changed drastically as the new competitive services took hold.

An additional comment on profitability of international service is pertinent.

For Braniff, freedom to enter new international markets contributed to bankruptcy. In two years of transpacific service it lost (before interest) \$26.7 million on \$43.9 million of revenues. In the Atlantic, from 1978 to 1982, Braniff lost (before interest) \$61.8 million on revenues of \$312 million.

At the opposite end of the spectrum, so far as the quality of management, efficiency of operation, and financial strength are concerned, is Northwest Airlines. Yet Northwest, which has almost always reported good profits in the Pacific, lost money in the first four years of its U.S.-Europe operations, for an operating loss from 1979 to 1982 of \$80.9 million. Even in the spectacular peak profit year of 1983, Northwest earned only \$4 million on revenues of \$157 million. This would suggest that "freedom to enter" international markets has proved to be very costly for both conservative and speculative-oriented airline managements.

96. As computed by the CAB, the cost of fuel for all U.S. carriers in Atlantic Division operations fell from 1.892 cents per available seat mile for the year ended December 31, 1982 to 1.657 cents for the year ended December 31, 1983. Based on the 39.3 billion seat miles operated during the latter period, this was an annual expense saving of \$92 million. Comparable computations for the Pacific Division show an annual savings of \$65 million.

AIRCRAFT AGE AND ACQUISITION PROGRAMS

Fleet composition provides clues as to probable future trends in relative market shares and efficiency of U.S. and foreign airlines. Although the 1980–1982 traffic recession created a condition of overcapacity, this is rapidly disappearing. It certainly does not detract from the longer-term importance of maintaining an adequate number of modern and efficient aircraft. Not only is this required to achieve full participation in traffic growth, but fleet composition is important to cost efficiency and the ability to operate profitably at prices that the competitive market will permit.

In regard to fleet composition, the U.S. airlines as a group have fallen behind foreign competitors. This, ironically, is a reflection of U.S. government, as well as foreign government, policy. Foreign government airline owners have been ready to support their airlines, as needed, in many ways. They have guaranteed loans for aircraft procurement, thus reducing finance costs. In many cases foreign governments have advanced or lent money to their national airlines on favorable terms.⁹⁷

In contrast, the U.S. government has placed its own airlines in a disadvantaged position with the policies of the Export-Import Bank. This was spelled out in a Congressional report based on extensive hearings held in 1981 and 1982.⁹⁸ The report stated that in 1980, the Export-Import Bank gave \$1.7 billion worth of loans to foreign carriers of 27 nations at interest rates ranging from 8 to 9.25 percent to purchase new aircraft from U.S. manufacturers. Most of these loans had no payment due for 5–7 years after they receive the money. U.S. airlines were charged loan rates of 20 to 21 percent; interest tied to the prime rate. Only 10 percent of the aircraft on order are by U.S. carriers; 90 percent are from foreign

97. In the case of the supersonic Concorde aircraft, these have—for all practical purposes—been donated to Air France and British Airways by their government owners.

98. Report of the Subcommittee of Investigations and Oversight of the Committee on Public Works and Transportation, U.S. House of Representatives on the Improvement Needed in the Implementation of the United States International Aviation Policy (Report 98-19, August 1983).

carriers. Since the United States funds the Export-Import Bank, it is thus subsidizing foreign competition against its own carriers.

The Congressional report further noted that U.S. airlines were experiencing aging equipment because of the high cost of aircraft replacement. The U.S. international fleet was 8 years old, on the average, compared to the foreign carrier fleet average of 4.6 years based on 1982 data. At the time of the Congressional hearings foreign airlines were purchasing new U.S.-manufactured, fuel-efficient equipment that made them more competitive with U.S. carriers. As both the U.S. carriers' equipment and systems grow older, the American carrier system is likely to grow smaller in capacity and be less competitive.

The situation has not improved since the Congressional report. As of the end of 1983, there were a total of 38 long-range intercontinental wide-body aircraft on order, of which only 4 had been ordered by a U.S. airline.⁹⁹ As of that date, the average age of the U.S.-Flag intercontinental fleet was 9.4 years, as compared with 6.2 years for their foreign-flag competitors.¹⁰⁰

While 1983 was an excellent recovery year, except in the case of South America, overall the 1980-1983 experience held little promise that long-haul international profitability would support an ambitious equipment replacement program. In all three major international markets interest expense exceeded operating profit by substantial amounts: \$98 million in the Atlantic, \$175 million in the Pacific, and \$159 million in Latin America. Fleet modernization (at ever increasing cost per aircraft unit) poses a serious problem for U.S. international airlines.

EFFECTS OF INCREASED INTERNATIONAL COMPETITION ON THE PASSENGER

Developments in international competition will ultimately affect the "consumer" of air transportation, as well as the public at large. Airline profitability and financial viability will, in time, influence service, effi-

ciency and prices for those who fly, or would like to.

There are also broader public and national interests at stake, particularly in international air transportation. These include: the Civil Reserve Air Fleet's contribution to national defense; balance of payments considerations; and possible influence on foreign relations. But, more immediately, how has the "Open Skies" policy affected today's passenger? While lack of sufficient data prevent a detailed analysis, the following sections examine some important developments.

Increased Number of Scheduled Airlines

Except between the United States and South America, there has been a significant increase in the number of scheduled transoceanic airlines. Since most foreign governments still concentrate their efforts on only one national carrier, most of the new entrants have been U.S. airlines.

The largest increase has been in the number of U.S. scheduled transatlantic airlines, as shown in Table 74. Were it not for political reasons, there would have been two more foreign airlines operating in August 1984—the Polish airline LOT and the Russian Aeroflot. And some of the "new" U.S. scheduled airlines formerly operated a significant volume of charter flights.

TABLE 74—NUMBER OF SCHEDULED AIRLINES OPERATING BETWEEN THE UNITED STATES AND EUROPE/MIDDLE EAST

	February 1977	February 1979	February 1984	August 1984
U.S. Airlines	3	4	11	11
Foreign Airlines	25	27	27	28
Total	28	31	38	39

Source: Official Airline Guide.

The numbers are much smaller in the Pacific area. Some U.S. airlines rushed in, but did not last—Braniff is the outstanding example. As of the latter part of 1984, the most significant changes involved the institution of service by United Airlines to Tokyo and Hong Kong;¹⁰¹ the institution of service by two additional foreign airlines, Singapore and CAAC, the

99. These orders were by Northwest Airlines, one of the few major U.S. airlines in a strong financial position.

100. Information supplied by the Boeing Company.

101. Although United was certificated by the U.S. CAB much earlier, Japan resisted U.S. pressures until 1983.

airline of the People's Republic of China; and the re-entry of Thai Airlines.

These foreign airlines would have been permitted to serve the United States even under traditional policies of limited competition, since reciprocity is an essential element in international air service agreements. A principal consequence of the new pro-competitive U.S. policy was the broad scope of traffic rights granted to foreign carriers, both old and new. This involves not just the U.S. cities that they are permitted to serve, but their access to Fifth Freedom traffic as well.¹⁰²

More U.S. City Gateways

Another very visible service change, from the public's point of view, has been the expansion of U.S. gateway cities. Since 1977, when the "Bermuda II" agreement with the United Kingdom took effect, the following U.S. cities received their first nonstop scheduled service to Europe by a U.S. airline (based on August 1984 published schedules): Atlanta, Dallas/Fort Worth, Denver, Houston,¹⁰³ Minneapolis/St. Paul, Newark, and Tampa.

There was also a large increase in the number of U.S. cities served by foreign transatlantic airlines. For example: British Caledonia added Atlanta, Dallas/Fort Worth, Houston, Los Angeles, and San Francisco. KLM added Atlanta and Los Angeles. Lufthansa added Atlanta, Dallas/Fort Worth, Miami, and San Francisco. Each gateway addition opened new service choices to passengers for whom the particular city offered a convenient departure point.

There were also other single airline service additions for many U.S. cities. Now free to operate new U.S. domestic service, the U.S. international airlines have applied the "hub and spoke" concept to their international operations. Pan American, which had been denied domestic authority prior to deregulation, provides an outstanding example of the use of this new freedom. Its September 1984 schedule shows domestic flights from some two dozen U.S. cities into its major international hub at John F. Kennedy Air-

port in New York. This service is primarily intended to feed its long-haul international flights. Among the cities served, typically with only one or two roundtrip flights a day, were Austin, Dallas, and Houston in Texas; Orlando, Tampa, and West Palm Beach in Florida; and, throughout the country, such widely scattered cities as Boston, Charlotte, Cincinnati, Cleveland, Kansas City, Minneapolis, Pittsburgh, and Raleigh/Durham.

These flights offered single airline service not just to transatlantic destinations, but to South America and the Pacific, since Pan American also flies directly to those areas from New York. For example, Pan American's September 1984 "pocket" timetable shows its own direct connecting service from Tokyo to Austin, Boston, Charlotte, Chicago, Detroit, etc.

The expansion of direct transpacific service also took another form: new U.S. city authority for already operating airlines. Thus, Northwest, which formerly had to operate from the West Coast via Honolulu or Seattle, now flies nonstop from both Los Angeles and San Francisco to Tokyo. Both Japan Air Lines and Northwest now fly nonstop from New York to Tokyo, a service formerly operated only by Pan American. Japan Air Lines now flies directly from Chicago and Seattle, formerly served only by Northwest. Another example is the Thai airline's instituted service to Dallas.

Changes in Fare Levels

There have been many rapid-order fare changes, and the range of available fares in any given market is in a constant state of flux. In some markets there were new low-fare entrants, like New York-London, with People Express and Virgin Atlantic entering in 1983 and 1984, respectively. Some traditional charter carriers such as Capitol, Transamerica, and World have gone into scheduled service.

This situation has caused major scheduled airlines to price service with one eye on to what "low-fare" carriers are charging, particularly since competing carriers usually have relative freedom to increase capacity.

Drastic changes in currency values have added further complexities. The French franc, for example, was worth only half as many dollars in September

102. Earlier reference was made to the heavy reliance of Singapore Airlines on this category of traffic.

103. Nonstop service temporarily suspended; to resume April 1985.

1984 as it had been a few years earlier. Yet it would have been wholly unrealistic to double the price of a Paris-New York ticket. As a result, fares paid in foreign currency have, in many cases, actually deteriorated when converted into dollars. Adding to revenue problems, the CAB tended to think only in terms of dollars. As a result, it disapproved a number of proposed increases in dollar fares because it felt that fares charged abroad to "foreigners" were too low relative to what "Americans" were being asked to pay.

Another aspect of the currency value distortions has been the increased use of "double ticketing" by U.S.-originating passengers: the purchase for dollars of the ticket from the United States, with the return ticket paid for in the "cheaper" foreign currency.

DOUBLE TICKETING

Never before has it been easier to reach the Far East. For example, on 747's of Japan Air Lines, Northwest Orient and Pan American, you can fly nonstop from New York to Tokyo in 13½ hours (or, because of differences in prevailing winds, return to New York an hour faster). Deciding how to go, however, is not so easy. Never before has there been so much competition among airlines, resulting in a puzzling diversity of fares. Seeking the lowest one or the one most suited to your needs can be difficult and may require the services of a travel agent who knows Asia and the airlines intimately and keeps abreast of changes.

An astute agent will know that when the United States dollar is strong, as it is now, it is sometimes cheaper for a round-trip traveler to Hong Kong not to buy a round-trip ticket, payable in American dollars, but instead to buy two one-way tickets paying for the return in Hong Kong currency. The agent will know that because of differences in the way fare agreements are negotiated between governments, it is sometimes cheaper for a Japan-bound passenger to buy a ticket to Hong Kong that allows a Tokyo stopover on the way rather than a ticket to Tokyo alone. Upon arrival in Japan, the passenger can simply throw the Tokyo-Hong Kong coupon away.

A key word in this is "sometimes." For one thing, air fares are subject to sudden change. For another thing, because of promotional fares that are intended, in part, to encourage the use of American dollars, a vacation traveler who can plan far ahead can usually do better with a round-trip ticket bought in the United States. At the same time, however, some promotional fares carry so many restrictions that few people can use them without considerable inconvenience.

Source: Paul Grimes, *New York Times*, September 16, 1984.

Discounts to travel agents is a common practice that causes real price to differ considerably from official fares. A carrier's "official" \$1,229 New York-Tokyo round trip fare, for example, may be advertised by a travel agent for only \$759.

*The explanation for the \$470 difference is that the airline, like many others, offers seats at substantial discounts to agents who provide a lot of business and disregards what they charge the public. Sometimes rebating of commissions is involved—a practice that is technically illegal in international travel but that almost never results in prosecution.*¹⁰⁴

This points up an entirely separate difficulty. A carrier may record \$1,229 as the fare received, and charge the \$470 as commission or promotional expense.

These, and other complexities, permit only brief, broad generalizations about international fare-level changes.

Following what, for the airline industry, was a good year in 1978, costs escalated so sharply that 1978 fare levels became grossly inadequate. Competitive problems and U.S. government footdragging delayed and restricted implementation of fare increases required by increasingly high costs. While average fares have gradually been increased, they still have not kept pace with cost increases.

In the Atlantic area, for example Pan Am's cost per available seat-mile increased 41 percent from 1975 (not a very profitable year) to 1983, and TWA's increased 55 percent. Their average yields per passenger mile, however, increased only 34 percent and 47 percent respectively.

In the Pacific area, Northwest's cost per available seat mile increased 87 percent from 1975 to 1983, and Pan Am's increased 112 percent. Their average yields, however, measured on a passenger-mile basis, increased only 42 and 40 percent respectively.

Average passenger-mile yield is precisely that: a mix of all fares actually received by the airline. Airlines have increasingly sought higher paying traffic in first and business classes, and have been less im-

104. Paul Grimes, *New York Times*, September 16, 1984.

ped by governments in raising these fares. At the lower end of the market, however, increases in the fares that appeal to the broadest public have lagged badly. For example, in the highly competitive New York-London market the Laker fare in 1978 was \$135 one way; the 1984 People Express fare was \$159. The one way standby fare offered by all major carriers in the market was \$169 in July 1978 and \$189 in July 1984. The super apex roundtrip fare was \$350 in November 1978, and was filed for as low as \$378 for November 1984. Even that fare was not the bottom. British Airways had filed for a \$324 roundtrip fare in September 1984.¹⁰⁵

The airline seat is a perishable commodity. It is inherent in a highly competitive environment that there will continue to be strong pressures against adequate pricing. These pressures are intensified by ease of entry. While this offers great bargains to today's travelers, it raises very troublesome questions for the U.S. airlines, and for their continuing ability to compete effectively against foreign government-supported airlines.

THE 1983 CONGRESSIONAL REPORT AND RECENT SHIFTS IN POLICY

Based on hearings held in 1981 and 1982, when the picture was dark for major U.S. international airlines, the August 1983 Congressional report provides a useful statement of Congressional concerns at that time.¹⁰⁶

At the outset the report states:

The 1979 International Air Transportation Competition Act (IATCA) presents a balanced set of international air goals, including strengthening the competitive position of international air carriers and eliminating discriminatory and

unfair practices encountered by U.S. carriers in foreign countries.

In actual practice, however, our international carriers believe that implementation of governmental policies—including the "Open Skies" policy initiated in 1978—has resulted in an unbalanced emphasis on consumer and foreign interests, including the condoning of foreign discriminatory practices, at the expense of U.S. airline revenues.

Our hearings were designed to explore the consistency of these governmental goals with the goals established by the legislation.

Following a brief background statement, summarizing the Carter Administration's efforts to create more service and fare competition, the report examined whether the economic position of the U.S.-Flag airlines had been weakened, and what problems had been experienced in carrying out the policies of the 1979 International Competition Act.

The report first addressed the "Weaknesses in the Bilateral Negotiation Process," noting that foreign governments include representatives of their national airlines as participants in intergovernmental negotiations, whereas U.S. airlines are represented only by trade associations, which in turn are limited to observer status.

Next it reviewed "Unequal Trading of Rights in Negotiations" and focussed, as an example, on the agreement with The Netherlands, whose national airline has a seemingly incontestable dominance in U.S.-Netherlands traffic.¹⁰⁷ It concluded this subsection by stating:

The Subcommittee is pleased to have noted that the attitude of U.S. negotiators at bilateral conferences seemed to have hardened since the beginning of our hearings in July 1981 in that they don't seem to give away rights for the sake of having a treaty.

In the "Cost of Adding New U.S. Entrants" subsection, the report points out that there might be both

105. As this goes to press, the two governments were in dispute on approval of these very low fares. The U.S. was pressing for approval, and the U.K.'s only concern was not that they were below cost, but that there might be antitrust proceedings in the U.S. against the British carriers, at the behest of Virgin Atlantic. (The Laker Trustees in bankruptcy have brought such suits, and the U.S. Department of Justice is investigating possible violations of the U.S. antitrust laws, based on pricing tactics of Laker's competitors).

106. Report of the Subcommittee on Investigations and Oversight of the Committee on Public Works and Transportation on the Improvement Needed in the Implementation of the United States Aviation Policy.

107. In 1983, U.S. airlines carried only 2.8 percent of the 925,000 passengers reported as traveling between the U.S. and The Netherlands.

negative and positive aspects to the mushrooming of U.S. airline competitors in any given market. Perhaps the most balanced statement was made by Judith Connor, an official in the Reagan Administration, who stated:

... when we introduce new carriers in the market, they may end up competing among themselves or with the incumbent carriers. The overall size of the traffic pie increases with additional services and lower fares. However, the pie may not increase enough to give any one carrier a large enough slice to produce profitable operations. The introduction of new entrants may become an empty victory.

This was followed by a discussion of U.S. *Policies Weakening the International Fare Structure*, where the report discussed efforts to destroy IATA rate-making, under Alfred Kahn, Chairman of the CAB during the Carter Administration. Kahn's testimony was summarized as follows:

IATA is a fare-setting forum that tends to close out such low-cost, efficient, aggressive airlines as Air Florida and Laker.

Kahn used bad examples; both of these airlines subsequently became bankrupt.

The subsection headed *U.S. Unsupported Carriers vs. Government-Supported Foreign Carriers* quoted testimony by Ambassador Brock, U.S. Trade Representative. "Foreign governments pour hundreds of millions of dollars into their civil aviation industry. Our government provides U.S. carriers with no financial support."

Ambassador Brock then referred to practices, such as pooling, illegal for U.S. carriers, yet permitted for foreign airlines. The report states:

Many foreign carriers are enjoying benefits that are considered illegal in the United States. For instance, a government controlled carrier can have a vast, interlocking network that includes agencies, tourist bureaus, and freight forwarders. They can also benefit from "pooling" arrangements in which carriers of two or more

countries mesh their schedules, prices, sales promotions, reservations, and revenues. With pooling arrangements, airlines increase their load factors and split revenues. Other governments are interested in their airlines for such reasons as promotion of tourism, defense capabilities, and projection of national image—not just for purposes of transportation.

Under the subsection headed "Prevalence of Unfair/Discriminatory Practices," numerous examples of different types of unfair and discriminatory practices were listed, with examples of specific foreign governments that had engaged in them. These included: excessive landing fees; excessive noise pollution charges; ground handling monopolies; excessive fuel charges; restrictions on charter operations; restrictions on capacity, number of carriers, aircraft used and "passenger pick-ups"; pricing restrictions; limitations on cargo; unreasonable or discriminatory navigation and other user charges; currency remittance problems; advertising and marketing restrictions; restrictions on the use of computerized reservation systems; and "Fly-national" practices that are far more restrictive than those of the United States.

The Congressional Report found that the United States has historically negotiated hard rights for soft rights—giving up routes and schedules of greater economic value than those received, in the interest of lower fares and new airline entrants.

Our most obvious and most fully documented deficiency is in our failure to respond forcefully to foreign discriminatory and unfair competitive practices. As a result, there is not a fair and equitable market for our carriers in international transport.

The report further states that U.S. airlines are competitive and efficient, but generally they are competing against the authority and financial strength of foreign governments that want their own airlines to succeed for a variety of nationalistic reasons in addition to transportation. Even the United States helps foreign carriers indirectly through its support to the Export-Import Bank that provides low interest rate loans to foreign carriers to enable them to purchase

new equipment. In many countries, the total airline infrastructure (airports, reservation systems, travel agencies, and groundhandling) is controlled and sometimes owned or subsidized by the government. U.S. privately owned carriers must compete with these national protections, subsidies, and monopolies in order to survive.

The report urged the Administration to make clear "to other countries, our flag carriers and even to our citizens exactly what they would expect from U.S. international policy." After listing numerous specifics, the report concluded:

In short, we want to insure that there is a fair and equitable market environment for international air travel that provides for profitability for our flag carriers, reasonable rates and quality service for our consumers, and a consistent and firm position to present to foreign governments and their carriers.

It is still much too early to tell whether these policy objectives will, in fact, be attained on a long-term consistent basis. But the hearings and report may well have had at least one effect: a very perceptible slowdown in the promotion of "Open Skies."

Following the report, the Reagan Administration put more effort into enforcing compliance with bilateral agreements than into expanding them.

In early 1984 Matthew Scocozza, a top policy official in the Department of Transportation, was interviewed about current U.S. policy. As reported:

Scocozza said the U.S. has gotten much tougher in responding to U.S. carrier problems in international markets. In 1983, 'I think we did get

tough with a few countries . . . 'The tougher stance 'is a refreshing thing.'

"Under current international policy, 'No one gets anything they do not deserve' . . . 'Balance of benefits is not a bad phrase anymore. I know it was taboo for a couple of years, but people now have to show on the record that what we are getting is equivalent to what we are giving them.'¹⁰⁸

CAB board members expressed similar positions. Chairman McKinnon was quoted as having said:

. . . we have to make sure that the U.S. is getting a fair deal, because bilateral relations are not a one-way street.¹⁰⁹

Ultimately, the basic policy issue in international air transportation is how to balance the different, and sometimes conflicting, objectives. The U.S. government has traditionally put high value on what it perceived to be "consumer" benefits. Against worldwide opposition, it sponsored low-priced charter flights. It was virtually alone in establishing direct competition between its airlines.

But even so, the "Open Skies" policy was an extreme exaggeration of this pro-consumer bias, in its complete disregard of the many broader interests uniformly valued by other governments, and by Congress: a strong, well-equipped air transport system; efficiency and profitability of its carriers; market share and trade considerations; etc. While it was an aberration not likely to be repeated soon, its effects are not likely to be quickly erased.

108. *Aviation Daily*, January 16, 1984, p. 74.

109. *Aviation Daily*, January 12, 1984, p. 57.

Chapter 10

Deregulation and Aviation Safety

This chapter looks at the repercussions of deregulation on aviation safety. Deregulation has forced airlines to find ways to compete more effectively and to reduce costs. Some fear that this strain of competitive pressure may entice carriers to "cut corners" on safety considerations in order to save time and money. Interestingly, the industry's safety record has improved under deregulation. This chapter was written by Jerome Lederer, an aviation safety specialist and President Emeritus of the Flight Safety Foundation.¹¹⁰

The Deregulation Act of 1978 stirred considerable concern in the aviation safety community. The community feared that the levels of safety would be lowered by the impetus to establish newly certificated carriers, as well as by the proliferation of commuter or air taxi services to fill the gaps in air transport services left by established airlines. The high level of safety preceding deregulation (far above minimum requirements) had been patiently achieved over 60 years of operating experiences. It does not appear, however, that air safety has been compromised by deregulation despite the grim expectations.

In 1978 there were 219 air carriers. In 1983 the total had risen to 419. Competition and economic pressures commanded extraordinary reorientation of operational, administrative and personnel policies by the established airlines to conform with the changing environment.

ECONOMIC PRESSURES

The rising costs of airline operations, especially the cost of fuel and labor, prior to deregulation were

already creating financial pressures to cut administrative and operational costs. The increase in cost of fuel, for example, impelled managements to examine the need to carry the extra weight of fuel reserves beyond minimum requirements of the Federal Air Regulations (FARS). The added fuel reserves had provided a very comforting feeling of security, a cushion for safety, that pilots relished. The costs of spares, the maintenance procedures, airline-operated weather services, special services provided by medical and safety departments, and many other potential cost saving measures were critically reviewed before deregulation. The onset of deregulation added fervor to the search to economize. Many in the safety community had an uneasy feeling that economic pressures would result in "cutting corners" in maintenance, training, and operations, and the paring of other practices considered essential in retaining a high level of safety higher than required by compliance with the minimum FARS.

Capt. Henry Duffy, president of ALPA, said in the September 25, 1983 issue of the *Aviation Daily*:

We are troubled by a nagging suspicion that somehow, somewhere, sometime, the extreme

110. See Acknowledgement at end of this chapter.

financial difficulty of the industry will result in a reduction of the margin of safety. This added safety margin means fully equipped training facilities and maintenance centers, safety programs, reliable aircraft and responsible work rules.

He indicated that pilots are now more often under pressure "... to bring aircraft in under minimum or in marginal conditions..." "If we are to live up to our commitment as the safest air transportation system in the world, then we must make certain the industry is economically able to support the cost of meeting that extra margin of safety. Today it is not."

CONCENTRATED FLIGHT ACTIVITIES: HUB AND SPOKE

The hub-and-spoke concept of route operations was widely adopted concurrently with deregulation. It was spurred by the need for improved economics, better traffic flow and better control over hub markets. The concentration of activity put more pressure on flight crews and maintenance to meet schedule commitments to connecting as well as originating passengers.

Employees realized that their jobs depended on how well their airline can provide reliable "competitive on time" airline service. Commuter lines offering only the spoke service also felt endangered by this competition. The temptation of employees to wink at minimum equipment lists, or to delay maintenance needs, in an effort to retain passenger confidence by meeting schedules are considered to be threats to safety. Instances of this were voiced but naturally not for attribution except in NTSB accident reports. One such report involved the crash of Air Illinois Flight 710 near Pinckneyville, Illinois on October 11, 1983.

The investigation revealed that the flight crews, who encountered these problems while in flight, were not entering the electrical discrepancies in the aircraft flight log; rather, they were passing them to maintenance personnel verbally and via separate bits of paper.

(From opening statement by Ronald L. Schleede, Investigator-in-Charge, NTSB, at the Public Hearing.) Airlines were going bankrupt, jobs were endangered, employees were more likely to put schedules before safety.

MEETING MINIMUM STANDARDS

FARS are considered as the minimum for safety. Newly certificated airlines, including commuters, when questioned about safety have responded that they were fully complying with the FARS. Apparently, some of them were not aware that the airlines, *by statute*, are required to operate beyond the *minimum* of the regulations to "the highest possible level of safety." This requirement, though difficult to define, provided the underlying philosophy that has made airline operations the safest form of long-distance public transportation.

FAA INSPECTORS

Another concern has been the increased workload of FAA air carrier inspectors. This inspection force was reduced by budget requirements while the demands for their services were increased enormously as a result of airline proliferation. In an attempt to fill the gap, general aviation inspectors, not experienced in air carrier operations, were shifted to air carrier inspections. The FAA's inspectors capacity to monitor general aviation and to investigate general aviation accidents delegated to them by the NTSB were reduced by the transfer. This resulted in the investigation of accidents by telephone, with the possible loss of field observation and some statistical data. Improved FAA productivity and a promised addition of 166 inspectors to the FAA force could alleviate some of the present concern.

MEDICAL AND SAFETY DEPARTMENT REDUCTIONS

Economic pressures have impelled airlines to shrink medical and safety departments in their endeavor to cut costs. In the relatively stable era prior

to deregulation, these departments were well equipped and well staffed by the airlines that had them. Companies without medical departments contracted with outside medical services and clinics. Documented advantages of company supported medical departments show that they have yielded remarkable savings.¹¹¹ Nevertheless, airlines have been cutting back on their medical services and staff under the stress of financial pressures. The staff of safety departments of those airlines that have them have also been curtailed by economic pressures.

The NTSB Aircraft Accident Report on the Eastern Airlines, Lockheed 1011, W334EA, Miami, Florida, May 5, 1983, refers to the elimination of the safety department's analyst and secretary. Then it goes on to state: "The manager, flight safety stated that . . . the shortage of adequate personnel has limited his ability to establish a data bank and to do complete trend analysis." The inference is that a near disaster, due to the absence of "O" rings in the plugs of the three engines, might have been prevented by trend analysis; there had been previous instances of missing "O" rings.

Economic pressures have resulted in similar curtailments of safety departments of other airlines. However, it should be noted that a number of airlines enjoy excellent safety records without a specialized safety entity. Essential safety coordination and responsibilities are usually assumed by a senior official, such as the vice president of operations.

WAIVERS OF FEDERAL AVIATION REGULATIONS

Airlines may appeal to the FAA for waivers of the "minimum" Federal Aviation Regulations that they consider to be burdensome. These appeals have been intensified by the effects of deregulation. Col. C.V. Glines, editor of *The Airline Pilot*, spelled this out on the occasion of receiving the prestigious Lauren D. Lyman Award from the Aerospace Writers Association on June 5, 1984. He said: "Deregulation

has already had an insidious effect that may soon be seen in the accident statistics."

Glines further noted:

There has been a significant increase in requests from air carriers for exemptions or waivers to the basic FAA minimum regulatory standards. These exemptions and waivers, when granted, have the effect of lowering the present minimum FAA requirements. Since these new minimum standards are then used by the carriers to develop their operating practices, their overall safety margin is narrowed. Some examples: requests to reduce IFR fuel reserves; requests to extend pilot flight time/duty time; requests to operate within a terminal control area without two-way radio communications; and requests to dispatch an aircraft without meeting the regulations concerning flight attendant seats, stowage of carry-on bags, a public address system, weather radar and radio or navigation equipment.

There are also petitions from some airlines to lower minimum qualifications for flight and ground crews and relief from certain maintenance requirements. Several U.S. airlines have received permission to deviate from the requirements for life rafts and other survival equipment. The FAA has not listened to ALPA's plea to require a standardized high-buoyancy life vest for every seat in every airline aircraft to replace the five types now in use, all of which are difficult to put on and have a basic design defect that literally forces the water into the mouth and nose.

AIRLINE SAFETY RESEARCH AND DEVELOPMENT

A profusion of safety devices and techniques in common use by air carriers originated with them individually and sometimes in concert. This was done at considerable cost. Examples are airborne radio, airborne radar, deicing boots, the use of electrical eddy currents to detect cracks, early air traffic control, early flight data recorders, slide chutes. Economic security

111. Stanley R. Mohler, M. D., "The Aviation Medical Department," *Human Factors Bulletin*, (Flight Safety Foundation) September/October 1984.

and stability provided incentives to underwrite such ventures. Economic instability, introduced by deregulation, tends to curb the spirit of technical experimentation and innovations previously so prevalent in air transportation.

RESULTS TO DATE

The concerns and grim accident expectations of the aviation safety community in respect to airline deregulation did not materialize in the first six years of deregulation. In fact, the safety record has improved. Pertinent extracts follow from the testimony of the Hon. Jim Burnett, Chairman, National Transportation Safety Board, before the Subcommittee on Government Activities and Transportation, House of Representatives, regarding Aviation Safety Under Deregulation, June 14, 1984:

So why all the recent clamor about aviation safety? Because Congress changed the economic rules by passage of the Airline Deregulation Act of 1978 which led to drastic alteration of commercial aviation route and fare structures. Passage of this legislation was preceded by dire predictions that a rash of accidents would result from a lower level of safety due to cut-throat fare wars.

While there have been highly competitive fare wars and some airlines have been put out of business or are on shaky financial ground, it cannot be concluded by me or anyone else that safety has been derogated because of economic difficulties.

If safety concerns have been cut—and that certainly is and always has been a possibility—it is not reflected in accident data through 1983. In fact, both small and large airlines in scheduled service under Part 121 have significantly improved their accident rates between 1978 and 1983. The reductions run as high as 50 percent in their rate of fatal accidents.

Commuter operations under Part 135 chalked up an even more impressive record. Their total accident rate for every 100,000 departures was

down from 1978 to 1983 by 75 percent. Their fatal accident rate was cut 87 percent.

Are we to conclude then that economic deregulation has resulted in an increased level of aviation safety? Again, I don't believe there is basis for such a conclusion. The inter-relation of economics and operating safety is very complex, as are the factors that account for accident statistics. We can and do look for trends in accident investigation data, but we cannot draw safety conclusions—good or bad—from airline ledger sheets.

Even though accident statistics have been encouraging in recent years, the Safety Board remains sensitive to the industry's economic hardships in terms of their potential safety implications. Of particular concern to the Board was the occurrence in 1983 of several unsettling incidents that could have been major aviation accidents.

The potential for disaster became a tragic reality in October 1983 when an Air Illinois Hawker-Siddeley crashed on a rainy night in a farm field near the town of Pinckneyville, Illinois, killing all ten persons on board. At the Board's public hearing on the accident, which I chaired, we uncovered a laundry list of maintenance and operational procedures that were not carried out "by the book." Subsequently, Air Illinois surrendered its operating certificate, citing inability to meet FAA standards.

The occurrences I have just described all involved operational factors. In view of the charged atmosphere of the deregulated environment, there is concern that such accidents are an indication that management procedures may be breaking down under economic stress. Again, the Safety Board has been unable to draw any conclusions in this regard, but it recognizes the prudence of intense scrutiny in order to eliminate some of that concern.

Airline management has the responsibility to insure that its procedures are adequate to provide the highest possible level of safety—and that they are executed properly, particularly

when a shaky bottom line may draw management attention away from its safety responsibilities.

It is the responsibility of the FAA to see to it that the airlines are doing their jobs. After all, it was not safety that was deregulated; only economic restraints. Much to her credit and to the benefit of aviation safety, Secretary Dole has been swift to react to warning signals of trouble by calling for an increase of 166 FAA inspectors over the current force and in directing a thorough white glove inspection of all the nation's airlines. While it is noteworthy that one carrier was grounded and 44 required a closer look as a result of this inspection, what is most significant is that the process revealed a high level of air carrier compliance with FAA regulations.

This should not come as a surprise to anyone in the industry, despite current financial hardships. The capability to operate an airline according to the safety requirements is an economic necessity. Any airline that cannot sustain the required level of safety not only is not fit for service but will not survive the competition.

In respect to general aviation safety, which might have been affected by the diversion of FAA general aviation inspection to air carrier inspection, the record has also improved since 1978, though it fluctuates randomly (see Table 75).

**TABLE 75—GENERAL AVIATION
SAFETY RECORD**

Year	Accidents per 100,000 hours	
	Total	Fatal
1978	12.1	2.06
1979	9.9	1.65
1980	9.9	1.71
1981	9.5	1.78
1982	10.0	1.79
1983	9.4	1.67

Source: NTSB

The improved record may be due to a relative increase in age and maturity of general aviation pilots during the recession.

The absence of FAA inspectors at general aviation

accident scenes and the lack of investigation time caused by increased work load, make it difficult to evaluate what lessons are to be learned from these accidents, without having properly collected information and statistical data available.

Six years of exposure is probably sufficient time to rule out random luck as a cause of the good safety experience since deregulation. Where luck may have played a part might be obtained from the near accidents that may have had their origin in deregulation. However the NASA/FAA Aviation Safety Reporting Service, which invites the confidential reporting of near-accidents and incidents, has no indication of the effect of deregulation on near-accidents or incidents.

Several serious airline near-accidents, notably due to fuel mismanagement, occurred in early 1984. It is difficult to associate these directly with deregulation.

The complex system of air carrier safety so laboriously developed since the initiation of scheduled air transportation in 1918 has survived the stresses and strains of deregulation so far.

It might be productive to determine the reasons for the improving safety record in the period 1978–1984 considering that the safety community had sound reasons to expect a deteriorating experience. Again the aviation industry has demonstrated an extraordinary safety resilience to economic abuse.

Acknowledgement

Jerome Lederer's career spans 50 years—beginning in the pre-Lindbergh era as an aeronautical engineer with the U.S. Air Mail Service to his present retirement position as adjunct professor of the Institute of Safety and Systems Management at the University of Southern California and President Emeritus of the Flight Safety Foundation. He has witnessed the growth of aviation to its present status as the safest form of public transportation.

Following World War II, he became managing director of the Flight Safety Foundation, a position he held for 20 years concurrently as director of the Cornell-Guggenheim Aviation Safety Center.

Following the 1967 tragic fire at Cape Ken-

nedy in which three astronauts lost their lives, Mr. Lederer was invited by NASA to organize the new Office of Manned Space Flight Safety and in 1970 he was named Director of Safety for all of NASA. He retired from the position in 1972.

Mr. Lederer is listed in Who's Who in America through 1977, Who's Who in Engineering, American Men of Science, and Architects of the Age of Flight. He was selected as an elder statesman of aviation by the National Aeronautic Association, and is the recipient of over 50 awards.

Future Outlook

After six years of deregulation, some of the initial questions about this new environment have been resolved, but most still remain open.

The results of 1984 indicate that in the aggregate, this industry can have very profitable results in the free market—but the emergence of new waves of fare cutting toward the end of that year raise a question about the duration of this profit performance. Moreover, even during this year of strong aggregate earnings, there remained a number of individual carriers whose survival continues to be in doubt.

On the matter of pricing, deregulation has brought bargains to part of the traveling public—but has offset this with very high fare escalation for other parts of the public.

With respect to costs, there has been reduction in labor costs, and pressures toward efficiency in various aspects of operations—but in less visible ways, deregulation has simultaneously led to cost inefficiencies in other areas.

At the start of 1985, there remained major uncertainties about the way in which the industry's distribution channels will evolve, with the role of the travel agent less clear, and the influence of the computer reservations systems creating inequalities in the market power of different carriers. The outlook for a truly independent commuter airline industry has also been

brought into doubt by the growing importance of affiliation between those airlines and the major airlines.

Recent experience has provided fresh evidence of the enormous financial leverage that exists in this industry, with even minor changes in certain key variables causing very wide swings in the bottom-line results. The difference between the \$739 million operating loss of 1982, and the \$2 billion operating profit of 1984 was the product of a one-half cent improvement in passenger-mile yield, a two-tenths of a cent improvement in seat-mile cost, and three-tenths of a percentage point improvement in load factor. The combination of these minor changes had the result of moving the breakeven load factor from 1.5 percentage points on the *wrong* side of the actual load factor, to 3.3 percentage points on the *right* side.

The airlines have difficulty fine-tuning these highly leveraged relationships because of the tendency for competition in this industry to lead to excessive reliance on marginal-cost economics, with respect to both capacity additions, and pricing decisions. Competition in the deregulated free market has, if anything, thus far increased the pressure for marginally-

costed actions. The real test for on-going airline profitability will depend on whether the carriers find it possible to restrain the marginal-cost pressures sufficiently to keep the leverages working for, rather than against, sound economics.

Management decisions in 1985 and 1986 will be especially significant in providing clues on this matter. The six prior years of deregulation experience should have provided an ample "learning curve" as to how to cope with the free market. And by 1985, most of the special abnormal external factors (such as the initial jump in fuel prices, and the economic recession) had been overcome, or stabilized. If the industry in these next few years now shows the ability to compete with due regard to fully-costed economics, with reasonable restraint on capacity additions, and with compensatory pricing, then the profit turnaround of 1984 could be of more sustained duration.

Conversely, if the airlines continue to display the tendencies toward over capacity and recurrent fare wars, it will be necessary to consider the possibility that it may indeed have the susceptibility to "destructive competition" which was part of the rationale for regulation in the first place.

Which of these directions will be followed is likely to depend in considerable part on what happens to the industry structure as between the several carrier groupings. The ability to resist undue emphasis on marginal-cost actions would be greater once the industry reaches some degree of competitive equilibrium, in which most carriers have found some marketing niche which they find both acceptable and viable. So long as the industry is highly polarized, with a number of important carriers in precarious financial position, the pressure to act out of desperation will continue to tempt carriers into marginal-cost excursions.

During the debates preceding deregulation, there were those who predicted that after a period of turmoil, the deregulated industry would shake down to a small number of powerful survivors, with most of the others falling by the wayside. Those who forecasted that outcome expressed concern that the industry would end up as an oligopoly, with the consuming public having neither safeguard of regulation, nor of the type of vigorous competition promised in its place.

For a time, in the first few years of deregulation, that prospect seemed very remote. The carriers having the greatest initial difficulty in this new environment were the former trunks. They were then being called "dinosaurs," and it appeared that they were having great problems in adapting to the free-for-all of the free market. Meanwhile, vigorous new competition was being injected by the continuous entry of new carriers.

More recently, however, the forecasts of a drift toward oligopoly have taken on more credibility. Several of the largest carriers have been pulling away from the others in terms of relative profitability. And these same carriers also have the special advantages of computerized reservations systems, and route structures most favorably suited to the frequent flyer programs.

In the meantime, the outlook for a continuous injection of "new entrant" carriers has become more dim. The ease of entry has been weakened by the lesser enthusiasm of investors, in the face of the high mortality rate of the newer carriers. Most of the new carriers have found it a greater challenge than originally contemplated, to overcome the market identity and other advantages of the larger carriers.

It is quite possible that the industry will in a few more years "shake down" to a small number of strong major airlines, a few specialized regional airlines, and a commuter industry that remains independent, but with varying degrees of affiliation with larger carriers.

This format could provide the equilibrium that permits the industry to remain profitable—but it is unclear what this type of industry will mean in terms of the fare levels and services for the public.

In the international arena, the outlook has some similarities, but also some differences, growing out of the fact that the framework there is still one of bilateral governmental regulation, even though the nature of that regulation has been relaxed in some regions.

A major question here is how effectively the U.S.-Flag international air services will be able to compete against the largely government-owned foreign carriers. The current surge of international traffic, and the special surge of U.S.-resident travel, have been stimulated by the abnormally favorable exchange

rates for U.S. dollars—a factor which all countries are trying to change.

The nature of the international marketplace, with the great market power of large tour operators and other middlemen, has always made it especially vulnerable to below-cost pricing, and with any softening of traffic growth, pressure on adequate pricing can be expected to increase.

A special problem for the longer-term future is the

prospect that U.S.-Flag carriers will find themselves equipped with less modern and efficient long-range intercontinental planes than their government-supported foreign competitors.

In the interest of assuring a strong national-flag industry, the U.S. policy toward international aviation may find it necessary to back away even further from the initial extremes of "Open Skies" objectives.

Appendix A

Methodology for Developing Fare Comparisons for Table 9

Because of the enormous variation in (and volatility of) airline pricing in recent years, a comparison of fares cannot present a complete picture of the pricing "universe." All that can be done in relation to this constantly changing scene is to present what amounts to a "tip-of-the-iceberg" snapshot of a sample of the variation, as it existed at one instant of time.

In drawing the sample for this snapshot, great care has been taken to establish sampling rules that would assure absence of bias in the selection of city-pairs to be reviewed.

Once the city pair sample was drawn by these rules, the fare reference section of the April 1984 Official Airline Guide (OAG) was used to determine the lowest "effectively available" one-way coach fare. Then, the April 1978 OAG was used to determine the most nearly comparable fare available in that past period.

The specific ground rules for drawing the city-pair sample, and the fares related thereto, are described below.

Procedure for Obtaining Random Sample of City Pairs

It was deemed important to obtain a city-pair sample that would provide a cross section of markets of different stage lengths, and of different traffic densities. The procedure employed was as follows:

1. A list of "base cities" was drawn from Table 3 of the CAB O&D Report. (Table 3 ranks all cities in terms of their total O&D passenger volume.) Using this table, the base cities were taken as those ranked No. 1, No. 11, No. 21, No. 31, etc. A total of 7 such base cities was thus drawn.

2. A matrix was then developed for each of the 7 base cities, seeking a sample of city pairs linked to those base cities, with the "cells" of the matrix providing a cross-classification of varying mileage blocks, and varying traffic density blocks. Specifically, three mileage categories were used (0 to 400 miles; 401 to 1,500 miles; and over 1,500 miles). Four traffic density categories were used (10 to 50 O&D passengers per day; 51 to 200 passengers; 201 to 500 passengers; and over 500 passengers.)

3. Starting at rotating alphabetical starting points within Table 8 of the O&D report for each of the base cities, city pairs involving those base cities were placed in the appropriate cross-classification cells of the above-described matrix, until each cell had a maximum of three city pairs. (Except for the largest base cities, not all cells could be filled with three

city pairs each, simply because the smaller base cities did not have that many city pairs meeting the two-fold criteria of mileage/density.) The sample drawn by this methodology provided 70 city pairs.

Ground Rules for Fare Determination

1. The objective was to obtain fares that were the lowest "effectively available" on a one-way basis.

2. The term "effectively available" was meant to indicate that the average passenger would have a reasonable chance of getting access to this fare. It would not have been meaningful to have included low fares available only on a very limited basis by a carrier offering virtually no service in a given market. At the other extreme, it would also have been misleading to limit the fares only to those offered by the largest carriers in the market. To avoid either form of distortion, a fare was treated as "effectively available"

if it was offered by a carrier that had a significant (though not necessarily dominant) presence in the market. (For example, in any market served by People Express, that carrier's fare was treated as the lowest "effectively available" fare, regardless of whether most or all of the other carriers on the route matched it.)

3. When a "capacity controlled" fare was published for one-way effectiveness, that fare was used, even though there was no way of knowing the degree of limit placed on the number of seats available at this fare.

4. To validate the representative nature of the fare data obtained by these rules from the OAG source, spot checks were made by telephone calls directly to the reservations offices of the several airlines. This was done where the data indicated an especially high inflation in the fare since 1978. The spot check phone calls confirmed the data as being accurate.

Appendix B

Examples of Nonstop Schedule Frequency Change on High Volume Traffic Routes, Summer 1978 and Summer 1984

Route	Summer 1978		Summer 1984	
	Carrier	Daily Frequency	Carrier	Daily Frequency
New York-Los Angeles	AA	6	AA	9
	UA	5	UA	6
	TW	7	TW	4
	—	—	PE	2
	—	—	PA	2
	—	—	WO	2
	—	—	CL	1
Total		18		26
New York-San Francisco	AA	4	AA	4
	UA	5	UA	5
	TW	6	TW	3
	—	—	PA	2
	—	—	WO	1
Total		15		15
New York-Miami	EA	14	EA	11
	NA	10	PA	6
	DL	3	QS	2
	—	—	QH	1
	—	—	TW	1
	—	—	JW	1
Total		27		22

(continued)

Examples of Nonstop Schedule Frequency Change on High Volume Traffic Routes, Summer 1978 and Summer 1984

Route	Summer 1978		Summer 1984	
	Carrier	Daily Frequency	Carrier	Daily Frequency
New York-Ft. Lauderdale	EA	11	EA	7
	NA	6	DL	7
	DL	7	QS	2
		<u>24</u>		<u>16</u>
Total				
New York-Chicago	AA	21	AA	21
	UA	17	UA	24
	TW	19	TW	7
	—	—	ML	15
	—	—	PA	2
	—	—	CL	1
		<u>57</u>		<u>70</u>
Total				
Dallas-Houston	WN	21	WN	39
	BN	16	BN	7
	TI	15	CO	5
	—	—	DL	9
	—	—	MC	15
	—	—	AA	15
	—	—	RC	3
	—	—	UA	1
	—	—	AL	1
		<u>52</u>		<u>95</u>
Total				
New York-West Palm Beach	EA	3	EA	8
	NA	2	PA	3
	—	—	PE	8
	—	—	DL	2
	—	—	QS	1
	—	—	QH	1
		<u>5</u>		<u>23</u>
Total				
Chicago-Los Angeles	AA	7	AA	11
	UA	9	UA	11
	CO	6	SI	3
	TW	1	CL	1
		<u>23</u>		<u>26</u>
Total				

(continued)

Route	Summer 1978		Summer 1984	
	Carrier	Daily Frequency	Carrier	Daily Frequency
New York-Buffalo	AL	9	AL	14
	AA	7	PE	15
	—	—	EA	4
	—	—	UA	1
	—	—	UR	3
Total		16		37
Los Angeles-San Francisco	UA	17	UA	27
	WA	12	WA	4
	PS	45	PS	58
	PA	2	DL	3
	RW	3	OC	34
	TW	4	AS	8
	OC	1	AA	1
	—	—	TW	2
	—	—	EA	1
Total		84		138
Phoenix-Los Angeles	RW	5	RC	8
	TW	4	HP	12
	AA	3	PC	8
	WA	4	WA	5
	CO	4	WN	11
Total		20		44

Carrier Codes:

AA American Airlines
 UA United Airlines
 TW TWA
 PE People Express
 PA Pan American
 WO World Airways
 CL Capitol Air
 DL Delta
 QS Northeastern Int'l
 QH Air Florida
 JW Arrow Air
 ML Midway
 NA National

BN Braniff
 TI Texas Int'l
 CO Continental
 RC Republic
 AL USAir
 SI Jet America
 UR Empire Airlines
 PS PSA
 WA Western
 RW Air West
 OC AirCal
 AS Alaska Airlines

HP America West
 WN Southwest Airlines
 PI Piedmont
 OZ Ozark
 NC North Central
 NW Northwest
 NY New York Air
 FH Mall Airways
 DD Command Airways
 YH Albany Air Service
 SS Brockway Air
 RP Precision Airlines

Note: Frequency for designated city pairs includes all airports shown in *Official Airline Guide* as serving the respective metropolitan areas.

Source: *Official Airline Guide*.

Appendix C

Examples of Nonstop Schedule Frequency Change in Secondary Traffic Routes, Summer 1978 and Summer 1984

Route	Summer 1978		Summer 1984	
	Carrier	Daily Frequency	Carrier	Daily Frequency
Dallas-San Diego	DL	2	DL	3
	AA	<u>4</u>	AA	<u>5</u>
Total		6		8
Chicago-San Antonio	AA	4	AA	2
	—	<u>—</u>	UA	<u>2</u>
Total		4		4
Cleveland-Tampa	UA	2	UA	2
	EA	<u>1</u>	—	<u>—</u>
Total		3		2
Baltimore-New Orleans	DL	2	DL	1
	—	<u>—</u>	PI	<u>1</u>
Total		2		2
Kansas City-Las Vegas	UA	1	EA	2
	TW	<u>1</u>	OZ	<u>1</u>
Total		2		3
Minneapolis-Omaha	NC	3	RC	3
	BN	<u>4</u>	NW	<u>4</u>
Total		7		7

(continued)

Route	Summer 1978		Summer 1984	
	Carrier	Daily Frequency	Carrier	Daily Frequency
Atlanta-Greensboro	EA	6	EA	7
	—	—	DL	5
Total		6		12
Houston-Washington	EA	2	CO	3
	DL	1	—	—
Total		3		3
Boston-Detroit	NC	4	RC	7
	AA	3	NY	3
	—	—	NW	3
Total		7		13
New York-Albany	AL	6	DD	10
	FH	6	FH	6
	DD	4	DL ^a	5
	YU	1	SS	6
	—	—	RP	3
	—	—	EA	2
	—	—	UR	2
Total		17		34

^aCommuter turbo-prop service operated under Delta code designation.

Carrier Codes: See Appendix B.

Note: Frequency for designated city pairs includes all airports shown in *Official Airlines Guide* as serving the respective metropolitan areas.

Source: *Official Airline Guide*.

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