June 30, 1989

STATUS REPORT: AIRLINE COMPETITION AND CONCENTRATION SINCE DEREGULATION

INTRODUCTION

Airline deregulation once again is under attack. Pointing to the recent wave of mergers between airlines, some observers now are saying that deregulation has failed. Loosening federal controls over airline routing and pricing was billed as the key to more competition, but instead, they say, the U.S. is heading toward an airline oligopoly.

The facts, however, tell quite a different story. Rather than a trend toward oligopoly, competition in the industry remains vastly stronger than in the days of regulation. Freed from the old regulatory limits on competition, today's typical air traveller enjoys greater choice of carriers than before deregulation. For instance: while in 1977 almost half of all passengers flew on airlines that had 70 percent more of the traffic on their route, last year only about 20 percent did so.

Positive Results. To be sure, at certain major airports the proportion of flights handled by the one or two largest carriers has grown considerably since deregulation. This is largely a natural consequence of the market-driven "hub and spoke" system of routing, in which passengers are routed through central hub airports. But the result of this reorganization for consumers has been overwhelmingly positive, as airlines have been able to serve more consumers on more frequent flights at much lower costs. And far from benefitting transitting passengers at the expense of "hostage" residents of the hub cities, local residents have been among the systems largest beneficiaries – enjoying more frequent service and more non-stop destinations than otherwise would be possible.

Andrew Laperriere and Michael McLaughlin assisted with the research for this study.

Nevertheless, there is still much to be done to stimulate even more competition. For one thing, legal barriers to service in the United States by non-U.S. carriers should be reduced, thereby expanding the number of airlines available to domestic passengers. For another, action should be taken to expand the capacity of the nation's airport and airway system, to provide room for new competitors to enter the market. Important steps for this include improved management of airport slots and gates and the use of private-sector incentives to expand and build airports.

By these actions, the benefits of deregulation can be further extended. Reregulation, on the other hand, would mean less competition and higher prices for passengers.

THE GROWTH OF "HUB AND SPOKE" NETWORKS

For most of its history, the U.S. airline industry was tightly controlled and regulated by the federal government. The Civil Aeronautics Act of 1938 gave the federal government final say over the routes airlines served and the prices they charged. With the Airline Deregulation Act of 1978, however, airlines became free to set their own routes and prices.

The next few years were a time of dramatic change, as numerous new firms entered the airline industry. Typical of an industry in which new competition is introduced, this turbulent period was followed by an equally turbulent period of shake-out and consolidation. In large part, this consolidation was driven by a new and more efficient form of routing developed by the industry: the hub and spoke system.

Efficient Hub Networks. When airlines were regulated, their routing systems looked very much like those of railroads, with aircraft making several stops at various cities during a flight. Under the hub and spoke system, by contrast, passengers are flown to a central "hub" location, from which they travel to their final destination. Through this system, airlines can reduce the number of empty seats on aircraft, increase the frequency of flights to less travelled destinations, and nearly eliminate the need for passengers to change airlines in mid-trip.

Although it was economically possible to develop these more efficient hub and spoke networks ever since jets came into use, they were not widely used before deregulation simply because the regulatory system made route changes difficult. For hubs to work best, a certain volume of traffic and number of destinations is needed to fill airplanes and make frequent flights possible. This incentive for a larger scope of operations helped trigger a series of airline mergers in recent years. From 1985 through 1987, nineteen airline mergers took place. The industry has since stabilized, with few airline mergers since 1987.

HOW CONCENTRATION IN THE AIRLINE INDUSTRY HAS DECREASED

Looking at these mergers, some journalists and lawmakers have assumed that the airline industry is becoming an oligopoly. Yet the facts do not support this conclusion.

The simplest measure of competition in an industry is the overall share of the market enjoyed by major firms. Despite the airline merger trend, the shares of the national market held by major U.S. carriers today are very similar to those before deregulation. The largest airline in 1977, United Airlines, carried about 14.5 percent of passengers. Texas Air was the largest firm by 1988, carrying about 16 percent of passengers. But almost half of these passengers flew on Texas Air's now-bankrupt subsidiary, Eastern Airlines. Discounting this traffic, Texas Air last year handled only about 14 percent of passengers. Furthermore, the three largest airlines accounted for about 43 percent of passenger traffic in 1988 – only marginally higher than the 40 percent share for the three largest in 1977.[1]

Measuring Competition. Such overall figures, however indicative they may be of the broad picture, say little about the actual extent of choice enjoyed by passengers on a particular route. Passengers travelling, say, from Detroit to Cleveland are most concerned about their choices for that journey, not national market shares for each airline. Thus, the best measure of concentration in today's airline industry is the amount of competition on each of the 70,000 or so routes across the country.

The data on individual routes show a large and unmistakable decrease in concentration since the airlines were deregulated. In 1977, for instance, almost half of all passengers travelled on airlines that carried 70 percent or more of the traffic on the route. In 1987, only 19.5 percent did so. Even more striking: in 1977, more than one in ten passengers flew on carriers with 100 percent of the traffic on their route. In 1987, only 1.8 percent did so. Overall, in 1977, the average passenger flew on a carrier with over 60 percent of the market on the route. By 1987, this figure was down by about a third – to approximately 40 percent.

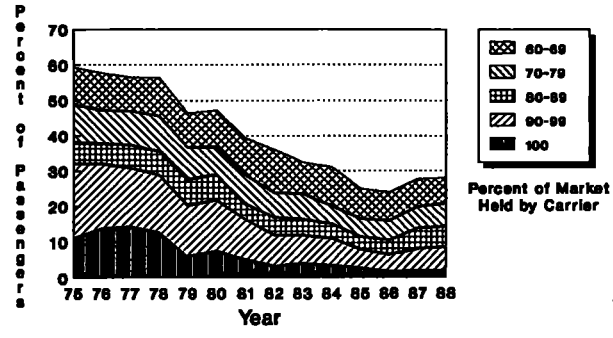
Virtually Unchanged Concentration. The recent airline merger wave seems to have had only a minor effect on route concentration. From 1986 to 1987 the portion of travellers on airlines with 70 percent or more of the traffic on their route rose only four percentage points to 19.7 percent – still much less than the levels of the 1970s. Since then, based on third quarter 1988 data, it has remained virtually unchanged.

Such a decrease in concentration on routes may at first seem strange given the fact that overall market shares in the industry are now about the same as they were before deregulation. The explanation lies in the nature of the old

1 Calculated from Civil Aeronautics Board and Department of Transportation Air Carrier Traffic Statistics, 1977 and 1988.

regulatory system. The Civil Aeronautics Board often gave airlines protected positions on the routes they flew, with few or no competitors on each route. With the removal of that protection, airlines were able to elbow into one another's routes. Thus, even with similar overall market shares, concentration could decrease significantly.

Passengers Traveling on Carriers with High Market Shares
(by route)



Source: Civil Aeronautics Board and Department of Transportation Origin and Destination Surveys, 1975-1988 (third quarter only for 1988.

CONCENTRATION AT HUB CITIES

Despite the substantial general decrease in concentration in the industry, there has been serious concern over concentration in particular areas – especially at hub airports. As airlines established hubs, and directed more of their traffic toward their hub airports, each handled an increasing percentage of the traffic at those airports. For instance, in 1987, Trans World Airlines (TWA) handled over 80 percent of the traffic at St. Louis and Northwest Airlines handled over 80 percent of that in Minneapolis.[2]

Such statistics might seem to imply that passengers in major cities confront near monopolies. But traffic share statistics can exaggerate the real level of concentration. There are several reasons why the data are misleading. Among them:

1) Airport concentration is not a universal trend.

Many major airports, such as Los Angeles, New York, Buffalo and Cleveland, have seen decreased concentration since deregulation. Overall, according to a study by the investment banking firm of Salomon Brothers, Inc., 21 of the 50 Largest U.S. airports saw decreased concentration between 1977 and 1987.[3]

2) Measurements of the gross amount of traffic handled by airlines at hubs inflate the extent of their dominance.

The figures compiled by Salomon Brothers, like most similar studies, are based on the total number of passengers boarding or leaving an airplane at the hub, without regard to their ultimate destination. However, half or more of a airline passengers using a typical hub are merely connecting from one

2 Julius Maldutis, "Airline Competition at the 50 Largest U.S. Airports Since Deregulation," Salomon Bros., Inc., August 1987, pp. 22,28.
3 *Ibid.*

flight to the next. Thus, although Northwest, for instance, handles almost 80 percent of the traffic at the Memphis airport, only about 55 percent of the passengers actually going to or from the city of Memphis travel by Northwest. Passengers thus exercise a much wider degree of choice that the raw data would at first suggest.[4]

3) The share of airport traffic does not directly indicate the degree of choice enjoyed by passengers.

The markets in which airlines compete are the routes between airports, not the airports themselves. Thus it is competition on each route which is important, rather than the proportion of passengers using a particular airline at an airport.

Analyzed from a route perspective, concentration at hub airports is lower today than before deregulation. In St. Louis, for example, airline concentration measured by airport traffic share has more than tripled since 1977.[5] Yet, concentration on routes to and from St. Louis today is lower than it was a decade earlier. In 1977, almost 35 percent of passengers going to or from St. Louis were on routes in which one carrier handled 90 percent or more of the traffic. Yet in 1988, only about 17 percent were on such routes. Similarly, the portion of such travellers on routes where one carrier held 70 percent or more of the traffic fell from about 60 percent to just under half.[6] For all hub airports, the share of passengers carried by airlines with 70 percent or more of the traffic on a route fell from 42 percent to 31.8 percent between 1980 and 1988.[7]

PRICING AT HUBS

Another way to gauge competition at hub airports is to examine the fares charged there. The General Accounting Office calculates that, on average, fares at airports it defines as concentrated are 27 percent higher than those at other airports.[8] Yet a closer examination reveals that this pricing difference generally is not attributable to less competition at airports. In fact, fares at airports seem to show little correlation to the percentage of flights handled by the leading carriers. For example, in Pittsburgh, USAir handles over 80 percent of the traffic, but charges fares that are less than the industry average (for similar distances). On the other hand, at the less concentrated San Francisco airport, United offers fares 27 percent above average.[9]

4 Northwest Airlines statistic.

5 Maldutis, *op. cit.*, p. 28. Based on Herfindahl-Hirschman Index of concentration.

6 Calculated from Civil Aeronautics Board and Department of Transportation Origin and Destination Surveys, 1977 and 1988 (third quarter only for 1988.)

7 Simat, Heilensen & Eichner, *Hub Operations: An Analysis of Airline Hub and Spoke Systems Since Deregulation*, (May 1989), table 4-11. (Using third quarter figures.)

8 Kenneth M. Mead, *Air Fares and Service at Concentrated Airports*, Statement before the Subcommittee on Aviation, Senate Commerce, Science and Transportation Committee, p. 2, June 7, 1989.

9 Kurth & Co., Inc., *Salt Lake City Airline Fares' Study*, February 1989, chart 4.

Differences in the fares charged to and from particular airports reflect many factors. Fares are generally lower, for instance, on more densely travelled routes. Many of the most densely travelled routes in the country are between non-hubs, such as between New York and Washington, D.C., while many less densely travelled routes are between small city hubs, such as Charlotte and Raleigh/Durham. Other factors, such as capacity limits at airports, also affect fare levels.

Consistently Better Service. The most important factor explaining fare differences, however, appears to be the service quality provided to passengers using the airport. Service from hub airports generally is consistently better than elsewhere. For instance, passengers embarking at hub cities typically fly non-stop. At Memphis and Detroit, for example, the number of non-stop destinations went up 20 percent after they were designated as hubs. At non-hubs, by contrast, non-stop flights are the exception. Since non-stop flights are more attractive to passengers, airlines can charge a higher price for them – on average about 14 to 24 percent more than other flights.[10] This factor alone explains a large portion of the fare differential.

Designation as a hub also dramatically increases the quantity of service available to residents of that city. For instance: in the four years after Northwest designated Detroit and Memphis as hub airports, the number of flights and available seats at those airports rose by about 40 percent. As a result, residents of these cities enjoy more frequent service than these cities could otherwise have supported.

On the other hand, cities that are not hubs generally have fewer flights than comparable hub cities. Cleveland, until 1987 the largest American city that was not a hub, had a lower frequency of service than hub cities its size. In one typical 1987 quarter, for instances, Cleveland had about 13,000 departures, with about 1.5 million available seats. During that same quarter, Minneapolis-St. Paul, a similar-sized metropolitan area that serves as a hub, had 26,000 departures with 3.6 million available seats.[11] Even Dayton, a city only half the size of Cleveland, had as many daily departures as Cleveland.[12] In view of these lower service levels, it would be surprising if non-hub fares were not lower than hub fares.

10 Simat, Helliesen and Eichner, *op. cit.*, table 6.8.

11 Northwest Airlines statistic.

12 For a discussion of the problems faced by cities that do not enjoy hub status, see Teri Agins, "Off the Beaten Path: Cleveland Suffers As Largest City Without Major Air Hub," *Wall Street Journal*, August 19, 1987.

POTENTIAL IMPEDIMENTS TO COMPETITION

Competition at many hub and even non-hub airports may be constricted if entry by new competitors is limited in some way. Many factors have been cited as potential barriers to new entry by firms. Among them:

1) **Frequent flyer programs.** Most airlines offer special benefits, ranging from service upgrades to free flights, to passengers who travel extensively on their planes. These programs develop "brand loyalty": passengers stick with that airline to earn frequent flyer benefits. These frequent flyer programs are said to inhibit competition by preventing passengers from responding to better prices and services from a rival airline, and are among the most likely targets of congressional action intended to strengthen competition.

Congress, however, would be wrong to do so. In practice, airlines cannot lock out competitors with these programs. New passengers, with few accumulated credits, can easily be won away by a rival airline, as can those who have recently converted their credits into rewards. Those with the greatest incentive not to switch are those passengers about to gain awards – who impose costs on an airline. Because of this, argues former U.S. Circuit Court of Appeals Judge Robert Bork, in his book *The Antitrust Paradox*, programs such as this constitute a poor way to achieve monopoly profits.[13]

Passenger Incentives. Frequent flyer programs in fact may benefit passengers. Firms with large fixed costs need to ensure a stable base of revenue. It is thus common in many industries for firms to act to encourage customers to provide a certain amount of business. Thus, a steel producer may provide lower prices to certain customers in exchange for the customers' guarantee that some or all of their steel purchases will be from that producer. As a result, the producer is better able to make long-term plans and can operate more efficiently. The basic purpose of frequent flyer programs appears to be the same. Although passengers do not guarantee business to the airline, they are given an incentive to fly the airline again. While competitors are not locked out, the effect is a more stable base of revenue.

Admittedly discount frequent flyer programs can result in what economists call the "principal-agent" problem. Simply put, this means a business traveller may choose to fly an unduly expensive airline simply to obtain a frequent flyer benefit, while his employer pays the tab. Thus he is not sensitive to cost. But this problem occurs whenever an employee can benefit from services he purchases at employer expense – such as taking a client to a restaurant. Rather than new regulation, the solution appears to lie in increased employer monitoring of travel expenses, a common cost-control procedure in prudent companies. The federal government should also consider equalizing the tax treatment of frequent flyer benefits and other employee fringe benefits.

13 Robert H. Bork, *The Antitrust Paradox*, (New York: Basic Books, 1978), p. 326-8.

2) Travel agent bias. Another supposed barrier to competition is the system of bonuses provided to travel agents by most airlines for selling tickets on their flights. This is said to prompt travel agents to steer passengers toward favored airlines. Yet, competing airlines can counter any effect by offering similar incentives. Perhaps more important, since the travel agency industry is one of the most competitive in the world, any such bias by an agent is quickly corrected in the marketplace. Customers can and do routinely switch travel agents if they feel they are not getting the best deals from them.

3) Computer Reservations Systems (CRSs). Some major airlines own computer reservation systems, through which flight information is given to travel agents and reservations booked. These airline-owned systems have been accused of displaying their own flights more prominently on computer listings, thus giving their flights an advantage over those of others.

Such a display of information does have real advertising value, much like eye-level placement of goods on a supermarket shelf helps sell products. Yet, just as a supermarket cannot drive out competitors to its own house brands by giving those products better shelf position, an airline can hardly expect to drive out competition through CRS preferences. In fact, if it were to do so, it would decrease the value of its system to travel agents, by encouraging the growth of other systems. Pressure on travel agents by consumers for the best flights ensures that any system bias is limited.[14]

4) Limited airport capacity. As airline travel continues to grow, and airports become more congested, airlines are finding it more difficult to acquire the gates and landing slots necessary to enter into new markets. This may be the biggest threat to continued strong competition in the airline industry.

Generally, there are two factors limiting the ability of a carrier to begin operations at a particular airport: the availability of landing slots and gates.[15] Landing slots are restricted by the Federal Aviation Administration(FAA) at four major U.S. airports which experience particularly heavy traffic: Washington's National, New York's LaGuardia and Kennedy, and Chicago's O'Hare. Under current rules, each carrier at these four airports is allotted a certain number of slots, which can then be bought and sold to other airlines. While an improvement over earlier, bureaucratic, methods of slot allocation, it is still often difficult for new entrants to gain slots because incumbent airlines typically refuse to sell slots to new challengers.

At other U.S. airports, slots are more freely available, and so are not limited in this way. Occasionally, excessive traffic still may be a problem at these other airports, but this usually results in delays, rather than any lack of

14 It should also be noted that the incentives to provide such preferences may be lessening due to an emerging trend of ownership of each system by several airlines. See Carole A. Shifrin, "American, Delta Computer Reservations Deal May Intensify Global Competition," *Aviation Week and Space Technology*, February 13, 1989.
15 A generic term which includes take-off slots.

access for new carriers. Nevertheless, with the volume of air traffic expected to rise 72 percent by the end of the century, capacity is expected to become more troublesome at more airports.[16]

Capacity Problem. The second factor limiting entry is the availability of boarding gates. Even with a landing slot, an airline still cannot use an airport if it lacks a gate at which its passengers can board or disembark. Gate availability is a limiting factor on competition at some airports, although estimates of the extent of the problem vary. The General Accounting Office recently concluded, for instance, that there is little chance of a new entrant seriously challenging TWA for business at St. Louis. Yet, the GAO's conclusion was based not on a physical lack of capacity, but the assumption that St. Louis probably could not economically support full-size hubs by two airlines. Competition can exist, however, without the existence of a second hubbing airline. In addition, ample physical capacity for new entrants does exist. It has been estimated a new airline in St. Louis could probably gain enough gates to begin limited service in 60 days – and an entirely new terminal, with temporary gates, could be ready in about six months.[17]

Thus, capacity exists at St. Louis. Nevertheless, there may be problems elsewhere. Airports with more limited physical space, for instance, may have more limited options. And with the growth of air traffic, capacity doubtless will become more of a problem.

HOW TO INCREASE COMPETITION

Airline competition in the U.S. today is very healthy. It could be even healthier. Policy makers thus should continue to search for ways to increase competition, and to promote economic efficiency in the industry by improving choice to the consumer.

This requires no new regulation. It has been proposed by some analysts that the federal government control prices charged by airlines at certain hub airports, or restrict airline marketing practices. Such controls, however, would cause widespread misallocation of airline resources. The victim would be the American air traveller.

Instead of flirting with regulation, what policy makers could do to foster competition is:

1) Allow greater freedom for non-U.S. airlines to compete in the U.S.

Under what are called "cabotage" laws, only American carriers are allowed to carry passengers travelling between U.S. cities. As a result, many non-U.S. carriers who would be able to serve U.S. markets are prohibited by law from offering their services. Many of these carriers already serve U.S. routes.

16 Federal Aviation Administration, *Airport Capacity Enhancement Plan* (1988), p. 1-12.
17 Department of Transportation, *A Comparison of Air Fares and Services Before and After Trans World Airlines Acquired Ozark Airlines* (January 1989), p. 34.

British Airways, for example, has a flight from London to Detroit via New York. However, because of cabotage restrictions, it can only take on passengers in London; it cannot carry passengers travelling only between New York and Detroit. Thus, it must fly with many empty seats from New York to Detroit – even though it could increase the choices available to a New Yorker wishing to fly to Detroit.

Congress should relax these restrictions, to allow foreign carriers to carry passengers on the second leg of international flights or even to introduce flights completely within the U.S. This process could begin by negotiating with other governments for them to relax restrictions on U.S. carriers operating in those countries. Such an initiative could gain the support of many U.S. airlines operating abroad, as well as foreign carriers.[18] But given the possible benefits for U.S. consumers, even unilateral action opening up U.S. routes to non-U.S. carriers should not be ruled out.

2) Improve the allocation of capacity at airports.

To increase the ability of firms to begin new operations at airports, policy makers should act to improve the allocation of airport capacity. At the four airports at which landing slots are controlled, for example, the Federal Aviation Administration should consider allocating at least some slots through direct auctions, at which both new and existing entrants would have equal access. At all other airports where congestion is a problem, landing fees should be set according to demand so that all aircraft pay the full economic value of the landing rights they use. Thus, for instance, fees could be raised during the most congested times to encourage users who can to land or take off when the airport is less congested. In this way, airports could make the fullest use of valuable capacity.

Airports also should review the way in which gates and terminal capacity are leased. The long-term leases now generally used can hinder entry by new competitors. When most of these leases were signed this was less of a problem – since competition was restricted by the federal government. Today, they can be more troublesome. Thus, as current leases expire, local airport authorities should consider replacing them with leases which can better foster competition.

3) Expand airport capacity.

In addition to improving the allocation of existing physical capacity, the expansion of airports in many cities likely will be necessary to reduce congestion and preserve competition. The trouble is that airport capacity is increasing at a snail's pace. No new U.S. airport has been built, since Dallas - Ft. Worth International in 1974.

18 Liberalization of cabotage laws has recently been endorsed by the heads of both American Airlines and British Airways. See, "Let the Marketplace Prevail," speech by Robert Crandall, Chairman and CEO of American Airlines, at the American Enterprise Institute, March 30, 1989; and "Airlines: Globalization and Post-1992 Europe," speech by Sir Colin Marshall, Chief Executive, British Airways, at the Northwestern University Transportation Center, April 27, 1989.

While much of the problem stems from local noise and environmental concerns, for which there is no easy answer, there are some steps which can be taken. For instance, expansion at many airports is constrained by "majority-in-interest" clauses in many leases between airports and airlines. These clauses typically give carriers controlling a majority of existing gates the ability to limit the use of fees to finance expansion. Airport authorities should re-examine these clauses when they expire.

Private sector financing also should be used to expand airport capacity. Every major U.S. airport is now government owned, typically by a local airport authority. But there is no need to confine airport construction and ownership to government bodies. Private capital can and should be used to fund new airport projects. Private management or ownership of airports also would spur improvements through private-sector incentives for efficiency. While there are no major private airports in the U.S., the major British airports, including London's Heathrow and Gatwick, have been privately owned since 1987, and could serve as a model for the U.S.[19]

CONCLUSION

Despite mergers, the U.S. airline industry today is less concentrated than when the industry was regulated. Measured by route, concentration has decreased substantially: today less than 20 percent of travellers fly on carriers with 70 percent or more of the market, compared with almost half in 1977.

With the development of the hub and spoke routing system, the share of flights handled by particular airlines at certain large airports has increased. But even at hub airports route-by-route concentration still is less than before deregulation. Moreover, while average fares at hub airports appear to by higher than that elsewhere, passengers at these airports receive a better product than other flyers. Passengers at hub airports in fact may be the greatest beneficiaries, rather than the victims, of airline deregulation.

Expanding Deregulation's Benefits. Nevertheless, U.S. policy makers should take steps to increase competition even more, and protect it from erosion from a growing airport capacity problem. They should remove barriers to entry by non-U.S. carriers, explore means to allocate existing airport landing slots and gate capacity better than is now done, and to expand capacity, possibly with privately owned airports.

A decade after its enactment, the Airline Deregulation Act of 1978 continues to be a boon to travellers, providing lower prices and much wider access to the air travel system than would otherwise have been possible. Announcements of the death of competition in this industry are, as Mark Twain might have said, greatly exaggerated. Policy makers, therefore, must

19 See, James Gattuso, "Privatization of Britain's Airports: A Model for the U.S.," Heritage Foundation *International Briefing* No. 17, January 23, 1989. See also, Robert W. Poole, Jr., "Airport Privatization," Reason Foundation Working Paper (undated).

ignore ill-advised proposals to limit the market freedoms that have provided enormous benefits to consumers in the past decade. Instead, they should be introducing even more market-oriented reforms to enhance and protect competition, and thus extend further the benefits of deregulation to travelling Americans.

James L. Gattuso
McKenna Senior Policy Analyst
in Regulatory Affairs