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## ■ Footnotes

1. For a short description of the airline industry under CAB regulation and the early years of deregulation see Bauer (1986).

2. See Douglas and Miller (1974).

3. See Kahn (1988).

4. See Butler and Huston (1988).

5. See Call and Keeler (1985), Bailey Graham, and Kaplan (1985), and Butler and Huston (1987) for some of the tests for contestability. See in particular Butler and Huston (1987) for a test of imperfect contestability.

6. See Bauer (1987).

7. See Meyer and Oster (1987) p. 15.

8. See Rose (1988).

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## Airline Deregulation: Boon or Bust?

by Paul W. Bauer

The Airline Deregulation Act of 1978 took the operational decisions of running an airline (what routes to fly and what fares to charge) away from government regulators and returned them to the airlines.<sup>1</sup>

Over the last decade, the airlines have used this new freedom to institute a number of fundamental changes in the structure of the industry. Since 1978, discount fares have been more widely used and the variety of restrictions on these fares has increased, frequent flier plans have proliferated, carriers have come and gone, and hub-and-spoke operations have emerged.

This *Economic Commentary* examines the benefits and problems that have resulted from the deregulation of the airline industry and makes some recommendations for changes in public policy to preserve the benefits and to mitigate the problems.

### ■ Benefits of Deregulation

Deregulation increased both the degree and scope of competition in the airline industry. From 1938 to 1978, the Civil Aeronautics Board (CAB) essentially controlled the routes airlines could fly and the fares they could charge. Airlines could only compete with one another by offering higher quality service than their rivals. Since the CAB—also charged with promoting the industry—would raise fares to cover higher

operating costs to ensure the financial health of the industry, there was little incentive for the airlines to work to hold costs down. The result was higher fares and higher quality of service than the average traveler preferred.<sup>2</sup>

In a deregulated market, airlines have had to adopt productivity-enhancing techniques, such as the hub-and-spoke route networks, to stay competitive. As a result, labor productivity has increased greatly. Since deregulation, the number of workers in the industry has increased only 48 percent, while the number of passengers flown has increased 86 percent and the number of miles flown has increased 109 percent.

The gains in operating efficiency brought about by competition were largely passed on to travelers in the form of lower fares and more frequent flights. Although fares have risen some in the past year, average revenue per passenger declined 30 percent in real terms between 1976 and 1987.<sup>3</sup> Some of the price reduction came at the expense of more restrictions on tickets (not fully refundable, for example, requiring advance purchase, or requiring a stay over a Saturday night). About 90 percent of passengers now fly on discounted tickets at an average discount of 60 percent off the "regular" coach fare according to the Air Transport Association.

Deregulation of the airline industry has produced wide-ranging changes that have created benefits and some problems for the public. The promotion of safety, high-quality performance, and beneficial competition within the industry should be a goal of public policy. These policy goals, however, must be based on a sound understanding of the market forces behind the post-deregulation changes in the airline industry.

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The hub-and-spoke route systems now used by the airlines have resulted in more frequent flights. Most destinations can now be reached with, at most, a one-stop flight; densely traveled routes still receive nonstop service. Morrison and Winston (1987) studied the effect of hub-and-spoke networks and found the total benefits to passengers were on the order of \$5.7 billion dollars a year in 1985.

While the majority of travelers have benefited from deregulation, gains have not been distributed evenly. While very few cities have lost air service, some did lose service by major carriers. These cities may be better off with more frequent commuter airline service than they were under relatively infrequent major carrier service.<sup>4</sup>

The benefits of lower fares are also not evenly distributed among classes of passengers. Fares tend to be higher on routes served by fewer carriers. In addition, business travelers often cannot meet the requirement for discount fares. Passengers who could afford to fly before the discount fares of deregulation must endure more closely packed seats, a higher percentage of seats being filled, and the general increase in congestion at the airport. All in all though, there is little doubt that passengers are on average better off.

#### ■ Industry Competitiveness

Unfortunately, competition does not work as well at "regulating" the airline industry as some proponents of deregulation had predicted. Some felt the airline industry was an example of a perfectly contestable market. Fares would be set just high enough to cover costs because, if they were set any higher, other carriers would enter the market and undercut the incumbent carrier.

Every study that has examined this issue has failed to find evidence that the airline industry is perfectly contestable. However, there is evidence that the industry is imperfectly contestable: the number of carriers that could quickly enter a route does limit how high incumbent firms can raise their fares on

the route.<sup>5</sup> In recent research looking at the determinants of direct fares to Cleveland, Bauer and Zlatoper (1989) found that for each additional carrier serving a route, fares were lower, but by less and less as the number of carriers in a market increases. Fares decline as additional carriers are added to the route, but only until about four carriers are serving the route.

The increase in the national market shares of the largest airlines, resulting from the merger wave of the mid-1980s and the operating agreements of the major carriers with local service airlines, has worried some analysts. Both of these developments have trade-offs between higher operating efficiency and quality of service on one hand and potential anti-competitive effects on the other. Since fares are determined by individual route and airport factors, it is not clear how concerned policymakers should be by the increase in concentration at the national level.

A second source of concern is the increase in concentration at airports with only one carrier offering hub service, creating what are known as "fortress hubs." Market shares at such airports tend to overstate the market power that the hub airline has since most of the passengers of the hub airline are only making connections at the airport.<sup>6</sup>

However, these hub airlines usually have sufficient market power so that they can price discriminate between passengers traveling to or from the airport and passengers only making connections at the airport. Borenstein (1988) and Butler and Huston (1987) find that the fare from a rim city to a hub city, plus the fare from that hub city to another rim city, is usually much higher than the connecting fare—through the same hub city—for the flight between the two rim cities. The reason is that there are usually other hub cities where passengers could make connections to go between the two rim cities, but passengers flying to the hub city will most likely have to fly on the airline that has a hub there.

In part, the higher fare for flights into and out of the hub reflects the higher quality of service offered to these passengers (more nonstop flights and more frequent flights), but it also reflects the market power of the hub airline, which is further entrenched by its computer reservation system, its frequent-flier plan, and its target commission rates—all of which serve to deter entry by other carriers. The trade-off between fares and quality of service benefits business travelers, who tend to be time-sensitive and price-insensitive, much more than tourist travelers, who tend to be price-sensitive and time-insensitive.

It must be remembered that at the individual route level, concentration has actually fallen slightly since deregulation. A recent Congressional Budget Office study found that the number of carriers per route has actually increased for most types of routes. Currently, an average of 2.5 carriers serve the typical route. Easing the entry of additional carriers onto routes should continue to be a policy objective, since the industry is not perfectly competitive.

#### ■ Congestion

The congestion of the air traffic control system should be viewed as evidence of the success of deregulation. Put another way, if fares were set higher, fewer travelers would fly and there would be less congestion. This would hardly be a welfare-enhancing public policy either from the standpoint of equity or economic efficiency. The congestion stems primarily from the air traffic control system failing to expand rapidly enough and from the inefficient way scarce gate space and takeoff and landing slots are allocated.

Little has been done over the last eight years to expand the air traffic control system despite the large growth in its use. This has occurred despite the \$3.5 billion surplus in the Airport and Airway Trust Fund—a fund financed by users' fees that can only be spent on maintaining and improving the air traffic control system. Two decades into the age of semiconductors, the air traf-

fic controllers continue to use vacuum-tube technology.

At some point, the air traffic control system will have to be modernized and expanded, but until then, existing facilities could be utilized much more efficiently by using prices to allocate scarce gate space and takeoff and landing slots. If takeoff and landing fees varied by time of day, with higher fees during the peak times, airlines would have an incentive to use these facilities more uniformly throughout the day. High fees at the most congested airports might induce some airlines to shift some flights to less congested airports, particularly those flights involving a high percentage of connecting passengers.

#### ■ Service Quality

Under deregulation, airlines can compete with fares in addition to quality of service. This has resulted in meal service and other amenities being cut back, since most passengers have revealed a preference for lower fares even at the expense of lower quality.

Requiring airlines to publish their on-time performance records provides passengers with better information with which to plan their trips. On balance, it was a positive development; however, it has led the airlines to change their behavior in ways that are not necessarily optimal. First, since the on-time arrival rate refers to the plane, not to the passengers, airlines may not wait as long for connecting passengers on delayed incoming flights as they used to in order to preserve their "on-time" performance. Another problem is that the on-time arrival rate masks the true extent of the congestion problem. One way airlines increased their on-time arrival rate was by adding time to their flight schedules into congested airports. These scheduled congestion delays result in millions of lost man-hours in the course of a year.

The safety dimension of service quality is a more serious issue. To date, there have been fewer accidents per passenger mile flown than was the case under regulation. By most measures,

commercial flying is still a much safer mode of travel than the private auto or private plane.<sup>7</sup> Yet there is no reason to be complacent given the current strains on the air traffic control system. Currently there are fewer FAA inspectors than there were eight years ago, while there are many more planes in commercial service.

Proponents of deregulation never intended for the government to slacken its efforts in regulating the safety of the industry. In fact, government regulation of safety is more important in a deregulated environment than it was in a regulated environment, since the financial condition of an airline may influence its safety choices (such as spending on maintenance and pilot training).<sup>8</sup> Under deregulation, the FAA should be even more vigilant.

#### ■ Conclusion

Effective public policy must be based on a sound understanding of the forces driving the changes in the airline industry after deregulation. The benefits of airline deregulation have been substantial, but they have not been uniformly distributed among passengers and between cities. Care must be taken to preserve the benefits to travelers.

Informed enforcement of the antitrust laws should be sufficient to preserve competition at the route level. So far, even with the wave of mergers in the mid 1980s, there are still more carriers per route on average than in 1983 and certainly more than there were under CAB regulation. Steps to make acquisition of gate space and takeoff and landing slots easier would also help reduce the market power an airline has at its hubs.

Though safety will always be a concern, there have been fewer accidents per passenger-mile since deregulation. With rigorous enforcement of the existing FAA safety regulations and with a modernization of the air traffic control system, there is every reason to expect this trend to continue.

In the meantime, scarce airport resources would be more efficiently utilized if they were priced correctly. If takeoff and landing fees varied by time of day, then price-sensitive passengers would fly off-peak, thus reducing the peak demands on the system and freeing up resources for users who value them more highly. This would reduce congestion and increase the margin of safety in the system.

In short, there is a useful role for government to play in preserving and expanding the benefits brought about by airline deregulation, but government regulation of the routes airlines can fly and the fares they can charge is not good policy. Government enforcement of existing safety, antitrust, and consumer protection laws is beneficial. Government investment in improving the air traffic system (airports and air traffic control) is essential.