Making Sense of the Airline Safety Debate

Richard B. McKenzie

In a fit of hyperbole, Alexander Cockburn wrote in his May 1987 *Wall Street Journal* column that "the horrors of airline travel are overtaking crime and real estate on the small-talk agenda. Everyone has a war story." The following August *Washington Post* columnist Hobart Rowan chafed, "As the grim record of near collisions on the nation's airways proliferates, you and I are taking a bigger chance flying than ever before." Paul Stephen Dempsey, an attorney writing for the Economic Policy Institute, repeated the now-familiar refrain in 1990, "The economic strains created by the intense price competition unleashed by deregulation have had a deleterious effect upon carrier safety."

The public appears to believe the critics of air traffic safety. When the *Wall Street Journal* asked 2,054 people in September 1989 to indicate their level of confidence in 22 industries, 43 percent of the respondents named the airline industry as the one that inspired the least confidence. This put airlines in last place on the *Wall Street Journal*'s list.

To correct the perceived problems, Rowan and others want to bring back part, if not all, of the extensive fare and route regulation orchestrated by the now-defunct Civil Aeronautics Board before deregulation in 1978. A sizeable and growing segment of the public appears to agree with the proponents of reregulation. The Roper Organization found in 1987 that 35 percent of the people interviewed believed that airlines were not sufficiently regulated by government. Only 16 percent of those interviewed held such views three years before.

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Amid all the rhetoric concerning the deterioration of air travel safety, however, one fact stands out from the scholarly research: in general, the safety record for air travel by major carriers has improved substantially since airline deregulation. Why then is there a continuing divergence between the widely endorsed perception of impaired safety and the actual record of improved safety?

Indeed, the U.S. air travel industry is not without problems. The most notable of these is growing congestion. This congestion is principally the product of the twin forces of expanding air traffic in the period after deregulation and the political and bureaucratic bottlenecks in the airport and air traffic control systems. The evidence presented here makes the case against reregulation of airline fares and routes. Rather, a case can be made for the deregulation of the rest of the air transport system, specifically airports and the air traffic control system.

The Enhanced Air Safety Record

Airline deregulation has had one overwhelming effect: it has substantially increased air travel. In 1988 air travel on major airlines was 41 percent—or almost 100 billion revenue passenger miles—above the value projected by the trend established in the period before deregulation, 1955 to 1978. Despite this dramatic increase in volume, improvements in air safety appear to have been unaffected by airline deregulation.

There are theoretical arguments on both sides of the airline safety question. On one hand, the safety of air travel may have improved since deregulation because airlines have bought and used safer aircraft,

especially jets. In addition, maintenance procedures have continued to advance with increased experience in the industry. Furthermore, safety was never deregulated. Only the operations of the CAB were discontinued. The Federal Aviation Administration has continued to exist, although because the nearly 10,000 air traffic controllers who went on strike in 1981 were fired, for most of the 1980s there were fewer controllers to deal with a growing volume of traffic.

On the other hand, solid arguments underpin the fear that deregulation could reduce the safety of air travel. If airlines maintained greater safety standards than the FAA required when airlines were regulated by the CAB, then it is possible that fare competition after deregulation could have forced airlines to concede some of their safety margin. After all, deregulated airlines fly more planes more fully loaded with pilots who, because of the increased demand, may have less experience in the cockpit. Pressed by the forces of price competition, some airlines have attempted to control costs by continuing to operate older planes. Other airlines might respond to competition by cutting corners on safety to reduce costs and thereby to lower fares. Under deregulated skies, more airplanes mean increased opportunities to have accidents, which could lead to more accidents and fatalities.

Table 1 includes the basic data on total accidents, fatal accidents, and fatalities for major airlines flying domestic routes. The total number of accidents for major domestic airlines declined irregularly during the 1955 to 1990 period, but since deregulation in 1978, the number of total accidents has averaged 21.6 per year. This number is less than half of the annual average for the 1955 to 1977 period of regulation. The average annual number of fatal accidents in the period since deregulation, 3.8, was 40 percent below the annual average for the regulated period, 6.3. The average annual number of passenger fatalities in air accidents in the deregulated period, 121.9, was 28 percent below the annual average for the regulated period, 168.2.

In studying the impact of deregulation on airline fatalities for major scheduled carriers (per billion revenue passenger miles flown) from 1964 to 1986, University of Mississippi economist William Shughart and I made every effort to find any negative safety effect—all to no avail. Our conclusion of no effect has also been supported by a growing body of statistical analyses that have used different data series and statistical techniques.

MIT economist Nancy Rose computed the trend in accidents from 1955 to 1977 and then extended the trend line. She concluded that for the 1978 to 1986 period "accident rates after deregulation are all quite close to, or slightly below, the predicted trend."

Table 1: Annual Averages of Total and Fatal Accidents and Fatalities of Major Domestic Airlines before and after Deregulation

	Regulation 1955–1977	Deregulation 1978–1990
Total Accidents	46.5	21.6
Fatal Accidents	6.3	3.8
Fatalities	168.2	121.9

Source: National Transportation Safety Board and Air Transport Association.

Using a slightly different measure of safety, MIT management professor Arnold Barnett and Pentagon analyst Mary Higgins found statistically significant evidence of improved safety records since deregulation for the eighteen domestic trunklines that "provided nearly all of the nation's interstate jet service in the mid-1970s." Similarly, University of California at Berkeley professors Adib Kanafani and Theodore Keeler found that although the accident rate for new entrants was on average higher in the 1982 to 1985 period than the accident rate for established carriers, the difference was not statistically significant. Furthermore, Kanafani and Keeler found, "New entrants, if anything, appear to be spending more of their resources on maintenance than the large established carriers."

Scholarly research indicates that the safety record for air travel by major carriers has improved substantially since airline deregulation. The evidence makes a case for the deregulation of the rest of the air transport system, specifically airports and the air traffic control system.

Policymakers and commentators concerned with the possibility of deteriorating safety have noted that airline deregulation has been accompanied by the development of hub-and-spoke systems that rely heavily on commuter airlines. Indiana University professors Clinton Oster and Kurt Zorn recognized in their research a potential loss of safety from

substituting commuter for trunk line service and using small propeller-driven planes instead of jets. Oster and Zorn concluded, however, that "there has not been a substantial reduction in safety for travelers to and from small communities as a result of the transition to commuter service."

Private insurers of domestic airlines have economic incentives to monitor carefully the safety records of airlines. If their rates do not cover the risks involved in air travel, insurance companies lose money. Thus, if airline deregulation had made the skies less safe, insurance rates for passenger liability and for the airplanes themselves should have increased. Insurance rates are currently 22 percent below what they would have been in the absence of airline deregulation. This finding led Brookings Institution researchers Stephen Morrison and Clifford Winston to conclude, "Airline insurers perceive that deregulation has actually enhanced safety."

Statistics suggest that airline deregulation has saved more lives through a reduction in highway travel than could have possibly been lost because of expanded air travel.

Finally, the impact of airline deregulation on air safety should not be isolated from its impact on the safety of other modes of travel, most notably highway travel. Any small shift in travel from cars to planes could result in significantly reduced overall travel accidents, injuries, and deaths. Air travel, measured in deaths per million miles, is more than 30 times safer than passenger-car travel.

Using regression analysis, Clemson University economist John Warner and I estimated that between 1979 and 1986, airline deregulation (separate from a number of other factors affecting travel) increased air travel by an annual average of 11.4 percent and reduced passenger-car travel by an annual average of 3.9 percent. As a result, we estimated that automobile accidents were reduced by well over 600,000 per year, economic losses from automotive accidents were lowered by nearly $2 billion per year, automotive injuries (disabling and nondisabling) fell by approximately 66,000 per year, and automotive deaths were reduced by just under 1,700 per year.

A research group at the FAA provided a more conservative estimate of the tradeoff between air and highway travel. Relying on the advice of a group of experts drawn from the airline industry, the FAA concluded that a one percent reduction in air fares would lead to a 1.4 percent increase in annual air travel by families. Five percent of the increase would be by families who would have made their trips by car. The FAA also estimated that in the previous decade, automobile deaths averaged .887 per 100 million passenger miles for all highway travelers.

These FAA statistics can help provide a rough baseline estimate of the highway travel safety benefits from airline deregulation. I estimated that between 1978 and 1988, airline deregulation increased air travel by 671 billion passenger miles. If 5 percent of that total substituted air travel for highway travel, then airline deregulation reduced highway travel by almost 34 billion miles. The FAA's numbers then imply that airline deregulation reduced the number of highway deaths by at least 298 for the 11-year period, for an average of 27 per year. Using the FAA's computed relationship between highway fatalities and injuries (for families), I calculated that airline deregulation could have reduced serious automobile injuries by an estimated 1,600 and minor injuries by about 72,000 over the same period. These numbers imply an average of 142 fewer serious injuries per year and an average of about 6,500 fewer minor injuries each year over the 11-year period. These are very rough, conservative estimates, but they support the thesis that airline deregulation has saved more lives through a reduction in highway travel than could have possibly been lost because of expanded air travel.

Such findings greatly complicate the analysis surrounding proposals to reregulate airlines in the name of greater safety. Any form of increased regulation that increases airline costs can be expected to lead to increased air fares. Higher air fares will drive some people back to the nation's highways, where more lives may be lost than are saved in the air.

The Persistence of Safety Concerns

Despite all the good news surrounding airline safety, however, safety remains an abiding concern with the traveling public and among researchers. What explains the gap between the perception of deteriorating safety and the reality of improved safety records?

Partial Deregulation. Many travelers' complaints are as understandable and justifiable as they are misdirected. Problems arise in part because air travel in the United States was never totally decon-

trolled. In particular, airport landings and takeoffs are not generally subject to the forces of free-market pricing. Below-market prices for access to runways remain common, and peak-load pricing is rarely used to alleviate the resulting congestion.

Furthermore, airports and air traffic control systems remain extensively regulated by the federal government. As a result, their operations are greatly crimped by bureaucratic procedures that inhibit airport expansion and modernization. Reason Foundation president Robert Poole has explained, for example, that "the tragic February 1st collision between a USAir 737 and a commuter plane at Los Angeles International Airport was caused directly by the antiquated air traffic control system." Poole has pointed out that the airport was operating at the time with a 20-year-old, vacuum-tube based ground radar system that had been out of service for 18 hours before the accident. As a result, the air controllers in the tower did not know the exact location of the commuter plane on the runway. Furthermore, the airport's surveillance system was operating so poorly on the day of the accident that the controller could not accurately locate the incoming 737 jet. To make matters worse, the controllers were short-handed at the time of the accident.

Such problems are not unique to Los Angeles. They are endemic to most major airports. Detroit Metro Airport, where two planes collided on a runway in December 1990, does not have any ground radar system—but then only 14 airports in the country do have such systems. The inability of airports to expand or to adopt state-of-the-art technology and the continuing manpower shortages in many control towers may help explain why "runway incursions" have risen by 49 percent over the three years (1987 to 1989) in which they have been counted.

The problem is created in large part, according to Poole, because "the FAA is required to buy things according to cumbersome procurement rules. It takes between four and seven years to purchase new radar for an airport. The agency's highly touted 1982 plan to modernize the air traffic control system started out as a 10-year, $12 billion program; it has grown into a 16-year, $27 billion plan, and is hopelessly behind schedule." Airport expenditures are subject to the full impact of Washington budget battles. Consequently, Congress has not allowed the FAA to spend all the funds it collects from the 10 percent ticket tax levied for the purpose of investing in improved air transport systems. While the number of departures has continued to climb, the FAA's

"EASY DOES IT, HENDERSON ... WHEN YOU'RE MORE FULLY TRAINED THOSE NEAR-MISSES WON'T BOTHER YOU AS MUCH!"

trust fund has accumulated unspent funds at a rate of about $1 billion a year through the late 1980s. Budget and equipment procurement constraints coupled with air travel expansion have resulted in a significant drop in real expenditures per departure.

The technology lag inherent in the government-run air traffic control system not only undermines safety, but helps explain why passengers must endure the rising costs of more and more frequent delays. Robert Poole and the Air Transport Association have thus called for the privatization of the air traffic control system with the expectation that air travel safety and convenience would thereby be improved.

The Miscounting of Near Misses. In his study *Flying Blind,* Paul Dempsey relies heavily on the official FAA count of near midair collisions—or "near misses." Dempsey cites the facts: "There were 311

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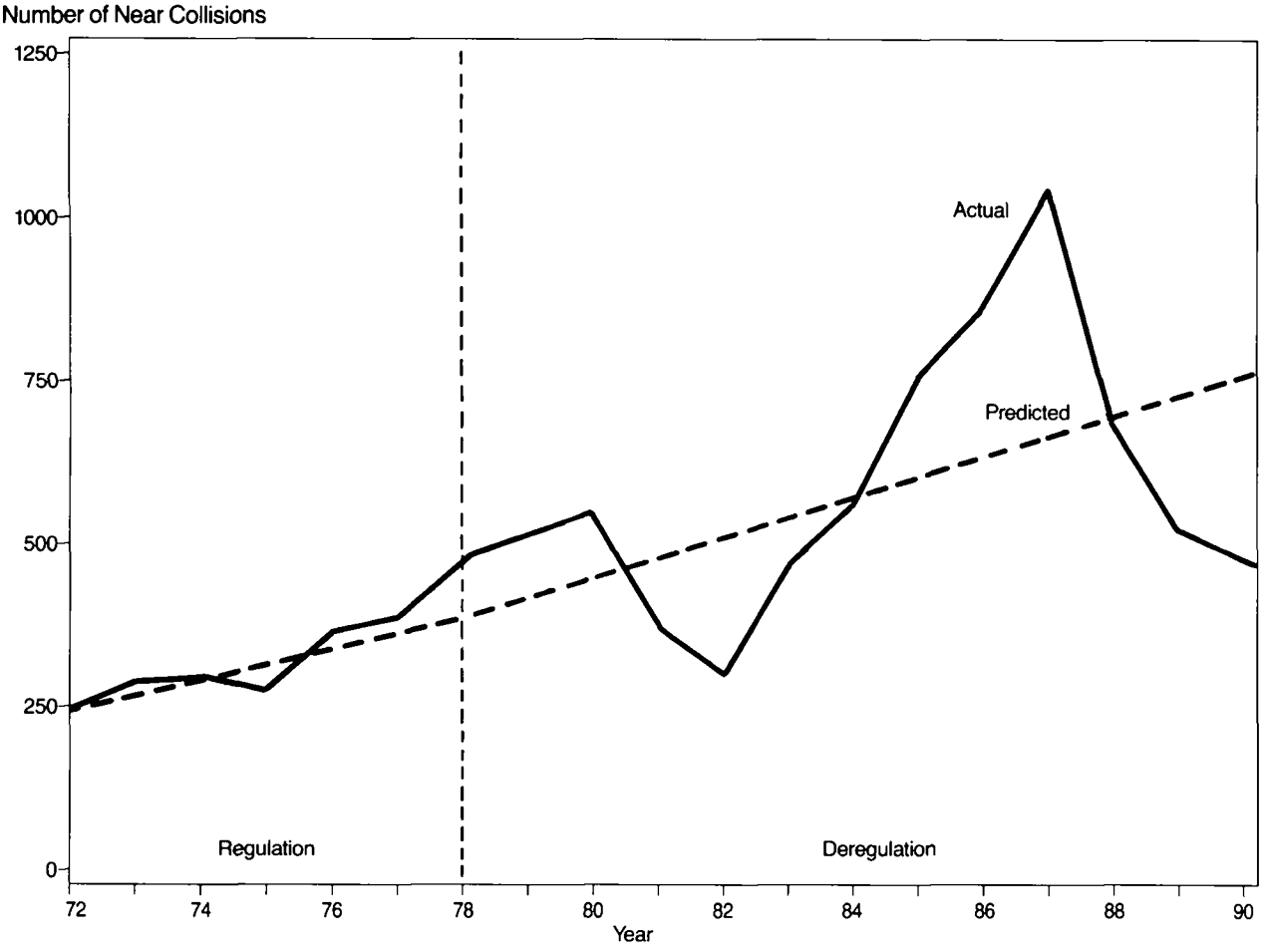
near misses during 1982, 475 in 1983, 589 in 1984, 758 in 1985, 840 in 1986, and 1,058 during 1987." Dempsey then charges that the number of near misses has soared principally because of airline deregulation. Although Dempsey's numbers are correct, his *analysis* regarding the growing threat of near misses and the deterioration of air travel leaves much unsaid. Dempsey's narrow focus on the total count of near misses for the 1982 to 1987

Figure 1: Actual versus Predicted Near Midair Collisions, 1972–1990



Note: Predicted values were computed from the straight-line trend established in the 1972 to 1977 period.
Source: *FAA Statistical Handbook*, FAA and author's calculations.

period fails to recognize the limited usefulness of the raw data. In particular, Dempsey fails to acknowledge that the count of near misses may be heavily influenced by forces that have nothing to do with deregulation.

Figure 1 shows the recorded number of near misses from 1972 to 1990. Notice first that Dempsey was selective in his use of the data. He focused solely on the number of near misses from 1982 to 1987, the period during which near misses increased most sharply. Dempsey fails to report that the count of reported near misses had fallen by 45 percent in the two years before 1982. Furthermore, the number of reported near misses dropped dramatically after 1987. By 1990, when Dempsey proclaimed that near misses were "soaring," the number of near misses (456) had sunk below the number for 1978 (504) and was 45 percent below the trend line. These improvements occurred despite substantial increases in traffic. In addition, as the figure shows, there was a positive trend in the number of near misses in the period before deregulation, 1972 to 1977. Statistical analysis reveals that the upward trend was not, to any statistically significant extent, increased by the advent of deregulation.

We should also recognize that the near miss count is heavily influenced by the real-dollar outlays of the FAA. The budget of the FAA determines how many air traffic controllers and other employees are monitoring the nation's air space. The availability of FAA resources, both human and financial, influences just how crowded the air space, especially around airports, can be while still remaining reasonably safe. Such considerations in turn influence how many near misses occur and how many near misses are reported, investigated, and validated.

In addition, the official count of near misses is an inherently flawed and imprecise measure for several reasons. First, the count relies on the judgments of pilots or their crew members, and such judgment calls can be affected by many factors that are totally extraneous to the actual safety of air travel. Not all near misses are reported, and not all near misses that are reported fit the official definition. The distances between aircraft are difficult to judge thousands of feet in the air at speeds attained by modern aircraft.

FAA employees also report a strong correlation between the number of reported near midair collisions and either actual midair collisions or media attention to the count of near misses. That is, when the media pay attention to near misses or when there is a midair collision—for example, the California collision between an Aeromexico jet and a private plane in 1986—the number of near miss reports tends to rise sharply. Indeed, this relationship might explain the increase in near misses in 1986 and 1987 as well as the sharp reduction in reported near misses in 1988, 1989, and 1990.

Not surprisingly, the near miss count is also related to the threat of penalties to pilots cited in near miss reports. Between 1968 and 1971, for example, reporting parties involved in near misses were granted immunity from penalties. In 1968 the count quadrupled to 2,230 from 559 in 1965 (1966 and 1967 numbers are not available). When the grant of immunity was withdrawn, the number of near miss reports plunged by 83 percent in one year—from 1,350 in 1971 to 231 in 1972.

We should also note that the near misses reported by the FAA, the numbers on which Dempsey relies, cover all near misses between all forms of air transportation: military, general aviation, and public air carriers. The near miss count involving an air carrier (with another air carrier, a military aircraft, or a private plane) accounted for just 42 percent of all near misses between 1985 and 1988. This number did rise from 99 in 1982 to 489 in 1987, but in most years in the 1980s, over 80 percent of all near misses involved a general aviation aircraft. It would seem that a major source of the growing near miss count is the general aviation system. This issue deserves more research attention.

Finally, the general upward trend in reported near misses over the periods before and after deregulation was not accompanied by an increase in the number of actual midair collisions. Indeed, the trend in midair collisions switched from going up to going down in the late 1970s, and the downward trend continued through 1990, apparently unaffected by deregulation.

The Safety of New Entrants. In their work on airline safety, Arnold Barnett and Mary Higgins investigated the safety records, as measured by the "death risk per flight," of all-jet airlines that existed before airline deregulation in 1978 and of all-jet airlines that entered the U.S. transportation market after deregulation. Barnett and Higgins concluded that, because of the higher-than-normal number of accidents experienced by the nineteen new all-jet services, deregulation has reduced the overall safety of U.S. air travel. They draw this conclusion by relying on a claim that is questionable at best and potentially false. Barnett and Higgins assert, "Unless one believes that deregulation acted to make these airlines [that existed at the time of deregulation] safer (a position with virtually no adherents), it seems unlikely that death risk would have *exceeded* its . . . value of 1 in 11.8 million."

The authors' claim that deregulation could have done nothing to increase safety among established carriers is strategically important. It allows them to argue that "had deregulation never been implemented, the overall *Q*-value [their measure of the death risk] would have been roughly 1 in 11.8 million." That is, risk would have been determined solely by the accident rate of the established carriers. Because the actual death risk for all 37 airlines studied (both established and new) was 1 in 7.4 million in the period after deregulation, it follows that "deregulation *raised by roughly 60 percent the average risk per flight for domestic jet travel*," or so Barnett and Higgins claim.

The official count of near misses is an inherently flawed and imprecise measure. It relies on the judgment of pilots or crew, is highly correlated with either actual midair collisions or media attention to near misses, is related to the threat of penalties to pilots cited in near miss reports, and includes near misses between all forms of air transportation.

First, it is important to understand the numbers with which Barnett and Higgins were dealing. Over the period studied, the nineteen new all-jet airlines included in the Barnett and Higgins survey expe-

rienced three fatal accidents. Even the authors admitted that the new all-jet airlines had "exceedingly few accidents."

Second, it is not clear that we should so readily dismiss the notion that airline deregulation has had a positive effect on the safety records of established carriers. One can seriously argue, at least on a conceptual basis, that deregulation might have improved safety (as Keith Womer and I have shown to be the case).

Many studies indicate, for example, that accidents are often the product of inexperience. The statistical analysis by Rose revealed that flight experience has a substantial "learning effect." She concluded that "[i]ncreasing airline experience by 1 billion miles reduces the accident rate by 14.1 percent." Although her analysis focuses on airlines in existence at the time of deregulation, her conclusions could also help explain the above-average accident rates for airlines entering the market since 1978. It still does not follow, however, that deregulation has, on balance, made the American skies less friendly. The vast majority of the rapid growth in air travel since deregulation has been on established airlines. The resulting deregulation-induced accumulation of experience could have actually enhanced the safety records of the older carriers.

There are also reasons for suspecting that airline profitability and safety expenditures go hand in hand. In her investigation of airline safety Rose found "evidence that financial conditions may be correlated with accident rates at the level of individual carriers. In the presence of controls for cumulative airline flight experience and other operating characteristics, higher operating margins appear to be correlated with lower accident rates." Rose estimated that a 10 percent reduction in her measure of airlines' "operating margins" would lead to practically the same percentage increase in accidents.

With deregulation, improved efficiency could have led to less emphasis on visible forms of nonprice competition and more focus on less visible forms of safety competition. This substitution would occur, in part, because markets have always regulated safety.

It is generally assumed that because deregulation permitted price and route competition, industry profits, and hence safety, have suffered. But competition was not totally suppressed before deregulation; only prices and routes were controlled. Earlier studies showed that profits were largely competed away in the period before deregulation. In fact, the switch from nonprice to price and route competition could have increased the profitability of the airline industry overall, especially after the initial adjustments to the new "open skies." Several studies have found that deregulation made the airline industry more efficient and profitable, a finding that caused Rose to speculate that deregulation may have made U.S. skies marginally safer, a "tendency that is likely to be strengthened by the recent merger wave in the industry."

Although it is possible that deregulation could have induced a substitution of price competition for safety competition, other substitutions are just as possible, at least conceptually. In the days before deregulation, airlines were prone to engage in highly visible forms of competition for passengers. Safety could have been marginally sacrificed in favor of better meals and movies, for example. With deregulation, improved efficiency could have led to less emphasis on visible forms of nonprice competition and more focus on less visible forms of safety competition.

This sort of substitution would occur, in part, because markets have always regulated safety. Several researchers have found significant market penalties associated with accidents and lax airline safety standards. This effect could have actually been enhanced in a deregulated environment. To the extent that efficiency and profitability increased, so did the net wealth of airline stockholders. As a result, stockholders had more to lose in the event of a negative market reaction to lax safety standards, more accidents, and more fatalities. In addition, before its demise, the CAB regularly took steps to aid financially troubled airlines. Once the CAB closed its doors, bankruptcy became a very real threat.

Furthermore, because fare and route regulations were gradually eliminated after 1978, the federal government had a budgetary and labor force windfall. After the CAB was disbanded in 1985, federal manpower and funds were no longer devoted to fare and route regulation, and more resources (than would otherwise have been possible) were available to devote to the regulation of airline safety. Although the controllers' strike did result in a reduction in the human resources devoted to airline safety in the 1980s, there is no reason to believe that the strike was caused by airline deregulation. It could well have occurred in the absence of deregulation.

It remains an open question then whether airline deregulation marginally increased or decreased the amount of resources devoted to airline safety by the airlines themselves or by the relevant safety agencies—the FAA and other agencies and departments within the Department of Transportation.

Barnett and Higgins also implicitly assume that if airlines had not been deregulated in 1978, the history of regulation since 1978 would have been a replay of the fixed form of fare and route regulation used for most of the period before 1978. Barnett and Higgins assume, for example, that none of the new all-jet carriers they studied would have been allowed to enter the industry. It is true that no new trunklines had been approved by the CAB in the decades before deregulation, but scholarly and political pressures were building in the early 1970s for greater regulatory leniency where entry and exit were concerned as well as for greater fare and route flexibility. In fact, the airline industry was subject to partial, albeit limited, deregulation by administrative actions for several years before the 1978 legislation. It is far from clear, therefore, that no new all-jet airlines would have been allowed to enter the industry during the 1980s. Thus, we cannot attribute all of the accidents of the newer airlines to the form of deregulation adopted in 1978.

Finally, airline regulation had proved inherently unable to adapt readily to long-term technological trends or to economic conditions. We can only wonder how the formal regulatory process would have handled the energy crisis of the late 1970s when fuel prices quadrupled in a matter of months. Airline profitability, and thus safety, might very well have taken a tumble if relatively rigid, government-established fares had remained in place. Similarly, if fares had been regulated in late 1990 and early 1991, industry profitability could well have suffered even more than it did. It is also possible that the airlines' greater freedom to introduce peak-load pricing after deregulation enabled them to reduce airline and airport congestion from what it would have otherwise been, and thus marginally to improve travel safety. It should also not be forgotten that with deregulation airlines were granted the right to drop unsafe routes to improve their profitability by reducing their insurance costs.

For several reasons, it is inappropriate to assert that there are no serious grounds for investigating the possibility that deregulation enhanced the safety records of carriers in business at the time of deregulation. As a consequence, the general claim by Barnett and Higgins that new entrants have substantially reduced safety in the era after deregulation must remain in serious doubt.

Necessary Adjustments. Of course, deregulation requires adjustments, and many of these adjustments take time. In fact, the aggregate long-term benefits of deregulation are likely to be directly related to the magnitude of the adjustments. Airlines needed time to experiment and to adjust their regulated route systems to more efficient and profitable configurations such as the hub-and-spoke systems. The government has also required time to adjust to the new realities of deregulation, including a larger-than-expected expansion in air travel (certainly a larger expansion than the budget process could allow for without problems).

It remains an open question whether airline deregulation marginally increased or decreased the amount of resources devoted to airline safety by the airlines themselves or by the relevant safety agencies.

The experimental nature of many of these adjustments implies that some of them will fail. Many new entrants have exited the industry, and some of the airlines that had operated successfully under the old regulatory regime have experienced serious financial difficulties. Older carriers and their employees that had grown accustomed to surviving without paying close attention to costs have proved unable to compete effectively.

Furthermore, some travelers have lost on net as a result of the changes required by deregulation. Many business travelers see themselves as net losers. These travelers rarely pay directly for their tickets, so they rarely benefit directly from reduced fares. Meanwhile, these passengers do bear the greater costs and inconvenience associated with reduced services and increased congestion.

In addition, airline passengers who regularly make short trips have generally lost as a result of deregulation, although travelers making longer trips have gained from the deregulation of air fares. The fact is that, under the CAB's price regulation, short-haul flights were often subsidized by longer-haul flights. But this does little or nothing to appease travelers flying short distances. To many such travelers, a loss is a loss, subsidy or not.

The Media Focus. Finally, the persistence of public complaints about safety can also be partially explained by the old adage that a picture is worth a thousand words. The frequently replayed television coverage of a fiery crash, the descriptions of cleanup efforts, and victim counts often have more effect than several million words of dry, difficult to understand statistical reports on the impact of deregulation.

The attention given to the December 1990 collision of two Northwest jets on a runway in Detroit, in which eight people were killed and twenty others injured, is a case in point. The banner headline in the next morning's *Detroit News* was set in large, bold type. Almost every paper in the country carried the pictures of the burned-out DC-9 and recounted the story of how the pilot, who had just returned to work after a five-year medical leave of absence, had become lost in the dense fog that covered the runway. It is safe to assume that few readers stopped to consider that more people were killed on Michigan roads every weekend of 1990 than were killed on the Detroit runway on that one fateful day.

Improvements in air travel safety have not been slowed by the decontrol of air fares and routes. The problems that exist are caused primarily by the government's failure to deregulate the entire air transport system, including the air traffic control system.

Conclusion

Airports crowded with people and packed and delayed flights can actually be viewed as evidence of how well deregulation has worked. But such scenes often fortify peoples' impressions that the nation's air transport system is not functioning very well. Meanwhile, higher nominal ticket prices driven by inflationary forces affecting all goods and services make gains difficult to detect by a flying public unable to readily compare actual air fares with what fares would have been under the old CAB regime.

Contrary to the fears of opponents of airline deregulation, however, improvements in air travel safety have not been slowed by the decontrol of air fares and routes. That is the central, most common finding from the available statistical evidence.

The problems that do exist, the congestion in the air and in the terminals, are caused primarily by the government's failure to deregulate the entire air transport system, including the air traffic control system. The safety and travel benefits of air fare and route deregulation have probably been constrained by the inability of the FAA to expand airports and the air traffic control system to meet the demands of rapidly expanding air travel in the period since deregulation. This perspective of the air travel problem suggests that the solution is not reregulation. Rather, more deregulation is needed in the air transport system.