More deregulation can beat the coming crunch in air travel

Airline Deregulation: The Unfinished Revolution

By Robert W. Poole Jr. and Viggo Butler

After more than 20 years of airline deregulation, air travel is again at the forefront of public policy. Policymakers have been besieged with continued consumer complaints about congestion and delays, along with a variety of other complaints: that business fares are up, that some smaller cities are not receiving the kinds and amounts of air service their residents would like to have, and that small start-up airlines cannot compete effectively. Various solutions have been proposed, including, for the first time since 1978, federal control over some of the prices charged and routes served by major airlines.

But any return to a regulatory system that has the government micromanaging routes and services would be misguided. Such a "solution" would do little to improve air travel and would cause significant harm to consumers. Despite the criticisms, airline deregulation has provided—and continues to provide—enormous benefits to the average traveler. Economists from the Brookings Institution and George Mason University have estimated that consumers save some $19.4 billion per year thanks to the lower fares resulting from a competitive airline marketplace. American cities have been offered much greater air travel access, thanks to an aviation marketplace in which airlines are free to provide service when and where demand exists, without having to seek permission from central planners. Millions of Americans began to fly for the first time in their lives. Airline deregulation democratized air travel in America.

There are, of course, serious problems remaining. But these problems stem not from too much reliance on market forces, but from too little. In deregulating the airlines in 1978, Congress unleashed market forces on one segment of the air-travel system—but failed to free up the critical infrastructure on which the airlines depend, namely the airports and the air traffic control (atc) system. These essential elements of the air travel system remain not only government-controlled, but government-owned.

Not surprisingly, problems emerged when a consumer-responsive airline industry placed demands on an infrastructure still bureaucratically controlled. The problems typically have been blamed not on the infrastructure managers, largely invisible to the traveling public, but unfortunately on the airlines themselves. Instead of reregulation, today's real policy challenge should be to remove the remaining government interventions in aviation infrastructure that restrict competition and hinder the growth of new forms of airline service.

The benefits of such reform could be substantial. For instance, new technology exists that could produce an increase up to 50 percent in capacity at such congested airports as LaGuardia and Washington's National (now Reagan National), and which could greatly expand the number of air routes between cities. But these new technologies are likely to come about in a timely fashion only

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if the structure and funding of today's obsolescent atc system is dramatically changed. As the National Civil Aviation Review Commission found, the atc system must be turned into a businesslike organization, funded directly by its users.

Another key policy reform is for airports to be free to expand their capacity directly, rather than wait for the FAA to make runway grants or to install upgraded landing equipment. Congested airports should be allowed, for instance, to levy market-based access charges during peak hours, with the revenues earmarked for capacity-enhancing investments within the same metro area. Reliever airports in the Chicago, New York, and Washington areas could provide nonstop regional jet service to supplement service offered at the existing congested airports.

In short, technology and intelligent policy changes can give us a more competitive airline market with a much greater capacity. Policymakers should resist the temptation to micromanage who flies where. Instead, they must finish the job they started in 1978, by freeing up aviation's infrastructure to cope with a dynamic, evolving aviation marketplace.

Deregulation's Initial Waves: Hubs and Spokes

during the first 10 years of deregulation (the 1980s), the major airlines shifted dramatically from point-to-point to hub-and-spoke route systems. Following the example of pre-deregulation Delta, which pioneered the concept at Atlanta, the major trunk airlines built up major connecting hubs at what had been principally origin-and-destination (o&d) airports, such as Charlotte, Dallas, Detroit, Minneapolis, Pittsburgh, and St. Louis. Hubbing made possible huge increases in service for two categories of air traveler. First, those living in the hub-airport city gained access to a many-fold increase in the number of destinations and the number of flights. Second, residents of small cities on the spokes of the hub, who may have lost some point-to-point service, gained access to potentially hundreds of destinations via the hub. These major gains in air service, accompanied by a pronounced and ongoing decline over time in inflation-adjusted air fares, have been well documented by the U.S. Department of Transportation (dot).

But the changes in service that resulted from the hub-and-spoke system were constrained by the limitations of the aviation infrastructure—airports and atc—which had not been altered by deregulation. Huge increases in landings and takeoffs at hub airports put enormous stress on the atc system. Unlike an investor-owned network utility (e.g., the telephone system), the atc system is not paid for directly by fees charged to customers. Thus when traffic soared the system's revenues did not. The dot still had to go to Congress every year to request funding for capital investments and for additional controllers. Its top-down, bureaucratic management style led to serious problems in developing and implementing technological modernization to cope with an airline system whose growth was now taking off in unpredicted ways.

Making things worse, in response to an unprecedented strike by air traffic controllers in 1981, a national form of rationing called "flow control" was instituted—essentially slowing everything down so that growing air traffic volumes could be accommodated safely with obsolete computers and radar. That system remains in place today, seriously constraining aviation growth.

Airports, too, found it difficult to respond to changing patterns of demand. Their capital expenditures are funded in part by issuing revenue bonds and in part by federal Airport Improvement Program (aip) grants. In exchange for aip grants, airports must sign long-term (20-year) grant agreements, giving the Federal Aviation Administration (faa) de facto economic regulatory control. One major consequence is that the faa has made it virtually impossible for airports to respond to high airline demand by increasing the price of their services (landings and takeoffs). Hence, the only alternative way to cope with airport congestion has been rationing—arbitrary "slot" allocations at four airports and the nationwide flow-control system for all the others.

Deregulation's Second Wave: Low-Fare, Point-to-Point

the growing level of congestion at major hub airports during the 1980s created opportunities for alternative services. One such alternative was low-fare, no-frills, point-to-point service. Southwest Airlines, whose origins predate deregulation, was freed by deregulation to offer its then-unique type of short-haul, no-frills, low-priced, interstate service. Shunning congested airports and direct competition with the major airlines, it carved out a thriving market niche during the 1980s by reviving point-to-point service. During the 1990s Southwest moved into the ranks of the nation's top 10 airlines, and its service expanded to the East Coast with new service to Florida, Baltimore, and Providence. Southwest's aggressive low prices have greatly expanded the market. For example, in 1996, before Southwest's arrival, daily passenger traffic to 14 Providence markets was 1,471. One year later, with Southwest having cut the average fare from $291 to $137, the daily passenger count had increased to 5,100.

The obvious appeal of the Southwest model led to a host of startup airlines attempting to replicate its success. Many have failed or have pursued other niche market strategies (e.g., Alaska and Midwest Express with more-frills, point-to-point service). Most recently, several of the major airlines—including Continental, Delta, United, and US Airways—have created subsidiaries offering low-fare, low-frills, point-to-point service using a single type of aircraft and lower-paid crews.

The low-fare, point-to-point revolution has succeeded thus far despite the constraints of bureaucratic, non-market aviation infrastructure. Southwest and its competitors have deliberately avoided the most congested

hub airports and routes. They have sought out underserved city markets (e.g., Providence and Oakland) and secondary airports in major urban areas (e.g., Dallas's Love Field and Houston's Hobby Airport). But the very success of this type of service is putting stress on the airports it serves and on the atc system. Its continued growth depends critically on freeing up the infrastructure to respond to increased future demand.

Deregulation's Third Wave: The Regional Jet

the term "regional jet" (or rj) refers to a new type of small jet airliner, which entered service in 1997. First to enter the market was Bombardier, with 50-seat and 70-seat versions of its Canadair Regional Jet, along with Embraer's 50-seat RJ-145. Within the next few years these aircraft will be joined by the 37-seat Embraer RJ-135 and the 32-seat Fairchild Dornier 328JET, followed by variants with 44, 55, and 70 seats. The use of these small jetliners is expected to lead to further major changes in the airline market.

RJs are being used initially by regional airlines that serve as feeders to the hubs of such major airlines as American, Delta, and United. In that market niche, RJs are proving highly popular with air travelers, who much prefer them to the small turboprop aircraft that they are replacing. For example, Atlantic Coast Airlines has noted that its United Express turboprop operations feeding United's hub at Dulles lost business in 1997 to other regionals serving competing hubs that were quicker to implement RJ service.

But the RJs' popularity with passengers is only one of their important attributes. Ultimately more important is their low seat-mile costs for medium-length routes capable of supporting only modest numbers of passengers. An RJ's direct operating cost (per seat-mile) is lower than that of a comparably sized turboprop for routes longer than about 400 miles. The ability to serve such markets economically with jet airliners opens up the possibility of adding smaller cities and more-frequent service to the spokes of hubs such as Dulles (as Atlantic Coast plans to do). But it also offers the prospect of a new market for point-to-point service—whether offered by existing regionals or by another generation of new-entrant airlines, applying something like the Southwest model to a much smaller size of aircraft than the 110-to-189 seat 737.

One example of the former is the recent announcement by regional airline Atlantic Southeast (principally a Delta Connection operator) of nonstop RJ service from Stewart Airport north of New York City to Atlanta, replacing a Delta flight on this route. Although Atlanta is a Delta hub (making this route technically still a spoke), many of the route's customers will be passengers flying point-to-point between Atlanta and New York City's northern suburbs. Likewise, Continental Express has announced nonstop RJ service from Dallas Love Field to Cleveland.

The possibilities for new RJ point-to-point service are breathtaking. If current low-fare airlines can profitably offer point-to-point service between scores of city pairs in 737s, similarly entrepreneurial airlines ought to be able to offer profitable service between hundreds of other city-pairs in jetliners of 30 to 70 seats. Boeing's website forecast document points out that one of the fastest-growing areas for airlines over the next 10 years will be point-to-point routes overflying hubs. RJs will accelerate this pattern. For example, a trip from Houston to Wichita until recently required changing planes in Dallas. Today, that route is served nonstop by an RJ. To illustrate the savings in passenger time, consider that today's trip from Wichita to Cincinnati now takes just two hours nonstop via RJ. But a similar trip from Wichita to Cleveland can be made only by turboprop, connecting through St. Louis, for a total trip time of more than four hours. The appeal of nonstop, point-to-point RJ service is obvious. A sampling of the many medium size city-pairs that currently lack nonstop jet service—and which are obvious candidates for nonstop RJ service—is provided in Table 1.

How large is the market for such planes? Bom-

Table 1

Examples of City Pairs Lacking Nonstop Jet Service

Albuquerque to:	Burbank Kansas City Reno Wichita
Austin to:	Amarillo Albuquerque Kansas City Little Rock New Orleans Oklahoma City Wichita
Bakersfield to:	Albuquerque Salt Lake City
Birmingham to:	Little Rock Miami
Buffalo to:	Columbus Indianapolis Milwaukee Nashville Providence
Columbus to:	Des Moines Kansas City Little Rock Syracuse
Dayton to:	Boston Kansas City Milwaukee Oklahoma City Wichita
Des Moines to:	Albuquerque Cleveland Little Rock Nashville Pittsburgh
El Paso to:	Kansas City New Orleans Oklahoma City Reno Salt Lake City Tucson
Greensboro to:	Indianapolis New Orleans
Harrisburg to:	Albany Indianapolis
Omaha to:	Indianapolis Little Rock Nashville Oklahoma City
Richmond to:	Albany Columbus Indianapolis Nashville St. Louis
Rochester to:	Columbus Dayton Milwaukee Minneapolis

Source: *Official Airline Guide.*

bardier estimates the U.S. market for 50- and 70-seat RJs to be 1,600 units between 1997 and 2011. Fairchild Dornier estimates an additional U.S. market for over 400 30-seat RJs. *Airline Business* reports that regional jets currently account for 10.6 percent of the total aircraft order backlog, double the percentage at the end of 1996; some 318 such planes were ordered in 1997. The projected 2,000 regional jets (to the extent that they do not merely replace small turboprops) would expand the current U.S. domestic jet airliner fleet by 44 percent. And because RJs fly shorter routes than do 737s or 757s, an RJ will make more take-offs and landings per day than a larger jet. Thus, the 44 percent increase in the U.S. jet fleet produced by the addition of RJs would virtually double the current 21,000 daily airline takeoffs. Such a doubling will not be possible without major upgrades of the atc system.

Coping with Deregulation's Next Wave

a doubling of u.s. flight activity in less than 15 years will require major upgrading of the nation's air traffic control system. Without fully factoring in the effect of the RJ revolution, the National Civil Aviation Review Commission warned of impending gridlock without a major restructuring of the way the atc system is managed and funded. In brief, ncarc argued that the atc system needs to be managed and funded like a commercial business: generating its revenues from charges paid directly to it by its users, going into the capital markets to finance long-term capital improvements, and employing streamlined, businesslike procurement methods to adopt new generations of computers, radar, and satellite-based navigation.

More than 15 countries have commercialized their atc systems in similar ways over the past 15 years, most recently Canada with its transition to NavCanada in late 1996. These countries are realizing the benefits of faster technological modernization, reduced delays, and lower costs over time. Adapting the NavCanada approach to the United States would fix all the structural and funding problems that plague the faa's atc system, as we pointed out in our 1996 study. The ncarc final report recommended the creation of a performance-based organization (pbo) to take over the faa's atc functions, funded by cost-based user fees, and the Clinton administration introduced legislation to implement this approach in April 1998. Although the pbo structure has some serious limitations, it could be modified to strengthen its incentives and accountability along the lines of the more commercialized overseas atc corporations.

One top priority for a revamped atc organization would be to implement what has come to be called "free flight." Today most flights still traverse the country on a limited number of straight-line "airways," defined by the locations of ground-based beacons called vors. The aircraft is directed by air traffic controllers to fly from the first vor location to the next one, zig-zagging its way across the country. Under free flight, pilots will be able to select their own direct routings from city A to city B, guided by satellite-based navigation (such as the Global Positioning System) and other systems, rather than being confined to the limited number of currently designated airways. This change—eagerly awaited by the airlines—will greatly expand the volume of available air space, thereby aiding the growth of air traffic.

atc organizations around the world are moving toward free flight. As of 1998, this type of air navigation was in place and in routine operation on the portions of the trans-Pacific air space controlled by Australia, New Zealand, and Fiji. Yet the faa projects another 5-10 years before it will be operational on the U.S.-controlled portion of this air space. (And the faa does not even attempt to quantify how soon free flight will be available for domestic air routes.) A reformed atc system, freed of bureaucratic constraints and incentives, would be able to drastically speed this timeline.

Another pressing need is to increase capacity at the airport end of the infrastructure. Regional jets will open many smaller airports to jet airline service. RJs can operate on routes as long as 1,700 miles but can make use of somewhat shorter runways than the current jet aircraft of choice for low-fare airlines, the 737. RJs can probably substitute for turboprop commuter planes at many airports, which today cannot support jet service (see Table 2).

Another important aspect of RJs is their ability to provide airline service at additional airports in major metro areas. RJs are dramatically less noisy than larger airliners such as 737s and MD-80s; their off-airport noise exposure is similar to that of twin-engine propeller general aviation aircraft. Thus they can provide jet service to scores of reliever airports that are near congested big-city airports but are not currently served by airlines. Table 3 identifies reliever airports that are within reasonable driving distance of major airports on the faa's list of 23 delay-problem airports and could offer community-compatible jet service to supplement that provided at such congested airports as Boston, Miami, and Pittsburgh.

Opening such airports

Table 2

Candidate Airports for Regional Jet Service

Abilene, Tex.	Lebanon, N.H.	Santa Fe, N.Mex.
Bridgeport, Conn.	Lynchburg, Va.	Springfield, Ill.
Cheyenne, Wyo.	Meridian, Miss.	Tyler, Tex.
Durango, Colo,	Naples, Fla.	Wausau, Wis.
Flagstaff, Ariz.	Parkersburg, W.Va.	Worcester, Mass.
Joplin, Mo.	Reading. Pa.	
Key West, Fla.	Rockford, Ill.	

Source: *Official Airline Guide.*

Note: These airports currently have scheduled turboprop service and could be linked by RJs with airports 400-1,400 miles distant.

to RJ service will require changes to the regional air space and atc procedures. In some cases it will also require upgrading the landing aids at these airports. The present faa airport-grant system is not well equipped to make such changes in a timely fashion, but a user-funded, commercially oriented atc organization would have strong incentives to do so.

ATC Fixes for Congested Airports

a number of technical fixes can expand the air-traffic capacity of existing congested airports even when the space or political will to add runways is lacking. In addition, increased use of reliever airports within the metro areas served by capacity-constrained airports can provide greater service for those metro areas. Such changes have been held back by the faa's bureaucratic corporate culture and convoluted funding system. They would be advanced by the shift to a user-driven commercial atc organization.

One principal "fix" is available for certain airports with parallel runways. Traditionally, the faa has not permitted simultaneous bad-weather landings or takeoffs on parallel runways spaced closer together than 4,300 feet. The precision runway monitor (prm) is a new type of secondary radar that permits simultaneous bad-weather operations on parallel runways spaced 3,400 feet apart. One airport where the installation of a prm will make such simultaneous operations possible—thereby increasing hourly capacity—is Kennedy. Others include Baltimore-Washington (bwi), Memphis, Minneapolis-St. Paul, Raleigh-Durham, and St. Louis. Although only a limited number of airports can be improved with the new radar, these installations will help to improve nationwide air traffic flow because all operations are linked together by the atc system's flow-control procedures. The prm is an example of a new system whose development and installation would have been in place years sooner under a commercialized atc system.

Table 3

Reliever Airports for "One Airport" Cities

Major airport	Reliever airport for RJ service	Longest runway (ft.)
Atlanta	Fulton County	5,700
Boston	Worcester	7,700
Charlotte	Hickory	6,400
Denver	Centennial	10,002
Miami	Homestead	11,000
Minneapolis-St. Paul	St. Paul (downtown)	6,711
Orlando	Sanford	9,600
Philadelphia	Northeast Philadelphia	7,000
Phoenix	Williams	6,000
Pittsburgh	Allegheny County	6,500
St. Louis	Scott (Mid-America)	10,000
Seattle	Renton	5,379

Source: *FAA Preliminary List of Airports Located near 23 Delay-Problem Airports, 1993* and Aircraft Owners and Pilot's Association's *Airport Directory.*

There are no currently operational technical fixes for single-runway airports that have reached the limit of their capacity. However, improved air traffic management using the Global Positioning System (gps) offers the potential for significant improvements in the capacity of a single runway. That is because the principal constraint today is how far apart aircraft must be kept in the landing queue (so-called in-trail separation), to avoid having an aircraft experience dangerous turbulence caused by the wake of the aircraft ahead of it. In-trail separation requirements reduce the actual capacity of a single runway from its theoretical maximum of about 60 operations per hour to around 40. But the precision guidance offered by augmented ("differential") gps enables several aircraft to approach the runway not in a long, straight line but rather from several different directions, flying curved approaches. Curved approaches and staggered glide-slope angles can be flown in any weather, reducing the extent to which turbulence in the wake of one aircraft affects following aircraft.

Curved approaches have been demonstrated in simulation models for years and tested experimentally but are only now starting to be approved by the faa for routine operations. Thus far only a handful of commercial airports have been equipped with the necessary gps equipment. But it is only a matter of time. Curved approaches could be in routine use within five years if the atc system is converted to a commercial corporation. Taking maximum advantage of this technology could produce an increase as great as 50 percent in the hourly capacity of such airports as LaGuardia and National, greatly expanding access to those congested airports.

Slot Allocation: The Pre-deregulation Approach

converting the atc system to a user-driven, commercially focused network utility will bring about large increases in the capacity of long-distance air routes and in the capacity of such congested airports as LaGuardia and National. These and other desirable close-in airports will eventually again experience greater demand for airline service than their runways can support, even with advanced technology. When that occurs, how should the aviation infrastructure respond? The pre-deregulation answer, still in force today, has been to use a crude form of rationing. A freed-up system should resort to market forces such as those used to cope with supply-demand imbalances everywhere else in our economy.

In 1969, nine years before the start of airline deregulation, growing congestion at O'Hare, LaGuardia, Kennedy, and National airports created concerns at the faa about delays that would result from attempting to squeeze more landings and takeoffs into each peak hour at those airports. In response to that problem, the pre-deregulation faa calculated what it deemed to be the maximum safe number of operations per hour for each airport and allocated them into specific time slots. Then, rather than pricing the limited capacity, the faa divided the slots into

three bundles and allocated them administratively: (1) the largest bundle to the airlines then providing scheduled service, (2) the next-largest bundle to existing commuter carriers, and (3) a third bundle to general aviation (private planes) on a first-come, first-served basis.

Although there have been some adjustments to the allocations over the years (e.g., the number of commuter slots at LaGuardia was increased in 1985), the only major policy change occurred in 1985, when a "buy-sell" rule went into effect. dot began allowing airlines to buy and sell slots to one another, "grandfathering" existing slots to the holders of record as of December 16, 1985. In doing so, however, dot took pains to emphasize that it still owned the slots and reserved the right to withdraw slots from the incumbent airlines at any time. dot also retained about 5 percent of the slots at O'Hare, National, and LaGuardia and distributed them by lottery to nonincumbent carriers in 1986.

Since 1986, as documented by the General Accounting Office, the fraction of slots held by major incumbent airlines has grown, while the fractions held by other majors and by post-deregulation airlines has shrunk. In response, Congress in 1994 authorized dot to grant limited exemptions to the slot system, so as to add slots for nonincumbent airlines. In 1997 dot added a small number of such slots at O'Hare, LaGuardia, and Kennedy, and it added another small number of slots at O'Hare and LaGuardia in April 1998. In both cases, it specified which routes and type of service the slots would be used for.

There are three fundamental problems with today's slot system. The first is dot's claim to "ownership" of the slots. While it may be true as a matter of law—Congress has accepted dot's claim and only slightly modified it by subsequent legislation—it is flawed as a matter of policy. The number of slots at an airport is determined by the extent and configuration of its runway system and landing aids—what engineers refer to as its airside capacity. That, in turn, is the direct result of investments made at or by that airport—investments in land acquisition, in pavement, in radar and other landing-aid technology, even in noise mitigation. Thus the most appropriate "owner" of the slots is the party that created the capacity in the first place: the airport.

Under the complex U.S. airport financing system, the picture becomes somewhat muddled. Airports receive part of their capital funding, especially for runways and landing aids, from federal Airport Improvement Program grants. The underlying source of those funds is primarily the airline ticket tax, which is generated at the airports. And in fact, large airports, such as those with slot restrictions, generate far more in ticket taxes than they get back in airport grants. Thus if anyone was entitled to sell slots to would-be users it should have been the airports in question, not the U.S. dot (which simply gave away the right to use the slots—but not own them—and then permitted airlines to buy and sell the use-right).

Another fundamental problem is that the slot system is redundant. In the wake of the 1981 air traffic controllers' strike, the faa instituted a new nationwide form of traffic rationing called flow control. Originally begun as an emergency measure for coping with a temporary shortage of controllers, flow control has become a permanent system based at the faa's atc System Command Center in Herndon, Virginia. With the airlines' cooperation, traffic flow is monitored and adjusted nationwide to minimize congestion near airports and to cope with weather and other conditions in real time. To a significant degree, flow control limits the number of landings and takeoffs at all major airports, not just the four that have been saddled with the 1969 slot system.

Well-meaning attempts to make the slot system more "competitive" reflect the same central-planning approach as the present system.

A third basic problem is the arbitrariness of the slot allocations. To begin with, the total calculated for each airport is arbitrary—otherwise the dot could not justify granting "exemptions" (i.e., additions) in the past several years. More important, the allocation of slots among three categories of user is completely arbitrary. For example, until the 1997 exemptions, at LaGuardia there were 68 slots per hour. Of this total, the faa assigned 6 to general aviation, 14 to commuters, and the remaining 48 to airlines. Why not 55 for airlines, 10 for commuters, and 3 for general aviation, or any other split totaling 68? faa cannot make a coherent case that its preferred allocation provides the greatest or optimal amount of any quantifiable outcome measure. Does it maximize the number of passengers brought into and out of LaGuardia, the travel time savings, or the passenger miles accommodated?

Well-meaning attempts to make the slot system more "competitive" reflect the same central-planning approach as the present system. They would have dot arbitrarily take back a certain percentage of slots from the major airlines at the four slot-controlled airports. dot would auction the slots—but not in a free market. Rather, the only bidders allowed would be "new entrants or limited incumbents." And the only services they could propose would be to "underserved" airports. As aviation consultant Michael Boyd has pointed out at some length, this type of arbitrary re-allocation would have major negative side effects, providing worse overall access to the four slot-controlled airports.

The system should be reformed, so that the right to take off and land at congested airports is determined by market forces and pricing. At those airports where demand for peak-hour access tends to exceed safe airside capacity, the airport should be free to levy access charges to bring demand into balance with supply. Revenues from those charges could be earmarked for capacity expansion investments, either in the airport itself or possibly in nearby reliever airports.

Recently, economist Joseph Daniel of the University of Delaware simulated the effects of a congestion pricing system, using real-world data on air traffic operations at the Minneapolis-St. Paul airport. His modeling showed that peak-hour arrival and departure rates would be reduced, spreading out traffic in peak periods and thus reducing delays. The principal shifts away from congested peak periods would be made by commuter and general aviation flights, not by flights of the major hubbing airlines.

It is certain that when high demand confronts limited supply every would-be provider will not get everything it wants. By now, hundreds of years of experience should have taught us that sorting out scarce air-traffic capacity by letting entrepreneurs try things and find out—by trial and error—who gets what is the least-bad alternative for society. It does not satisfy everybody's desires, nor could it. But as long as the rules of the game permit competition, continual bidding does the best that can be expected.

Consquences of Nonmarket Allocation

in testimony before the transportation subcommittee of the Senate Appropriations Committee, aviation consultant Michael Boyd argued that re-allocation of the slots at the four constrained airports would serve fewer total customers because, under the approach proposed in most pending bills, slots would be taken away from major airlines—which are using those slots to serve larger cities with high demand—and be re-allocated to smaller airlines serving smaller cities with low demand. And although Boyd does not mention this point, one possible consequence of such a re-allocation of slots is the loss of one or both of the hourly East Coast shuttle services, which depend critically on extensive slot availability.

Smaller cities with existing service to a hub such as O'Hare could end up losers. That would occur as the major airlines choose which existing slots they must give up—and obviously select those slots used for routes to less-lucrative points. As Boyd put it, "When faced with loss of slots [at O'Hare], what cities do you think the planners at [American Airlines and United Airlines] would reduce service to? Miami or Moline? Los Angeles or Albany?"

Small cities that rely on a large hub to get to a LaGuardia or Reagan National could also end up losers. Boyd cites TWA's hub at St. Louis as an example. Small cities whose access to LaGuardia is via that hub (e.g., Springfield, Ill.) will have less access to LaGuardia if TWA is forced to give up some of its LaGuardia slots to a smaller airline that will now provide service to LaGuardia directly from an "underserved" airport. While those few underserved cities may gain, a larger number of cities that had been served by the St. Louis hub connection will lose.

Even small cities that get new service to one of the four airports may not gain much. The problem of small cities is not primarily to get to one or two important destinations (e.g., Chicago or New York). Rather, it is to gain access to the U.S. airline network. One or two flights a day to LaGuardia or National will not do a traveler much good if his destination is Louisville (since neither LaGuardia nor National is a major connecting hub). But even if his underserved city gains a few daily flights on a small airline to O'Hare (which is a major connecting hub for American and United), the beleaguered traveler will have to change terminals and risk the loss of his checked luggage, which will have to be transferred to a different airline that serves the point where he actually needs to go.

Perimeter Rules

three airport systems currently have in place some form of restriction on the types of airline service that can make use of the individual airports in that metro area. The perimeter rule for LaGuardia and Kennedy is imposed by the Port Authority of New York and New Jersey; Congress imposed the perimeter rule for National and the Wright Amendment for Dallas's Love Field. All three restrictions limit the distance or the specific states to which nonstop service can be provided to and from the metro area's close-in airport.

Perimeter rules are conceptually similar to slot allocations—another attempt at central planning. The Wright Amendment was enacted 30 years ago to dramatically limit competition for air service at the new Dallas-Fort Worth Airport, to ensure that investors would purchase its initial bonds. Dallas-Fort Worth is today one of the world's financially strongest airports, with or without this rule. The National perimeter rule was similarly intended to protect brand-new Dulles Airport, which has also become a successful long-haul (and connecting hub) airport over the years. And the Port Authority's rule was an attempt to accomplish by regulation what an access charge system would accomplish by pricing.

And that is the point of this discussion. If an access charge system is allowed to replace the failed slot system, then the current perimeter rules will serve no good purpose. Their continuation will serve merely to restrict access to the market, constraining decisions that ought to be made by individual airlines responding to the demands expressed by their customers.

What Policy Changes Are Needed

the previous sections have suggested that the commercial aviation market has undergone several major changes since the advent of deregulation in 1978—and is on the brink of another major change: the regional jet revolution. The airline market remains dynamic,

developing innovations in aircraft and service patterns to meet the emerging needs of its customers. But the infrastructure of airports and air traffic control on which air-travel growth depends is not dynamic or flexible. It is still mired in bureaucratic corporate cultures and noncommercial, anti-competitive ways of operating.

Congress should redefine today's air-service challenge not as attempting to micromanage competition but rather as completing the job of deregulating commercial aviation. That means resisting the temptation to tinker with routes and service, that is, to centrally plan elements of airline service. It also means removing those government interventions into the aviation market left over from pre-deregulation days, such as slots and perimeter rules. It means empowering airports to make needed capacity improvements. And it also means dramatically overhauling today's creaky and slow-moving air traffic control system, so that it can provide both the short-term technical fixes to expand capacity at congested hubs and the new capacity needed to accommodate the regional jet revolution. What then, specifically, are the policy changes needed?

Commercialize the air traffic control system. The background assumption of this study is that the dynamic airline market will continue to grow and change, with more point-to-point service, with more aircraft sized for specific markets, and by accommodating the enormous potential of regional jets. But continued growth depends critically on fixing today's dysfunctional atc system. New-technology atc can bring enormous benefits thanks to greater automation of routine tasks (thereby reducing costs), more pilot discretion in choosing the most economical routings (free flight), better-sequenced approach and departure patterns (including the gps-directed curved approaches discussed previously), and increased flow rates to now-congested runways.

Eliminate federal restrictions on airport access. dot created the slot system by the stroke of a pen in 1969, and it could eliminate it in 1999 by another stroke of a pen; it has been made superfluous by flow control. Or, Congress could mandate the change by legislation. Congress could also repeal the perimeter rules at Reagan National and Dallas Love Field. Airport operators should also reconsider the wisdom of such rules.

Permit congested airports to levy access charges during peak hours. Congress could modify the rules of the current Airport Improvement Program, under which airport grants are made, to permit congested airports to levy access charges for landings and takeoffs made during peak hours. All revenues from these access charges could be earmarked for expansion of airport capacity within that airport's metro area. In many cases the investment could include the addition of runway capacity or more-advanced landing aids at the congested airport itself, for example, a commuter runway or differential gps equipment to facilitate curved landing approaches. Investment by the congested airport could be encouraged in one or more reliever airports in the metro area to enable those airports to handle business jets and turboprops and possibly regional jet airliners.

Conclusion

freeing aviation's infrastructure from government controls and financial strangulation would benefit all sectors of aviation. Passengers would benefit from a system that gives them more choices—such as more point-to-point service, and a greater mix of price and convenience options (both high-fare premium service and low-fare, off-peak, secondary-airport service). Both major urban areas and smaller cities would benefit. Major cities would have less air-service congestion and more direct-access flights to other cities, as well as increased price competition. More smaller cities would gain jet service, both to major hubs and to some cities directly. The airline industry would benefit from reduced delays, shorter flight times, and a great expansion of available air space and airport access. More-open airport access would benefit newer and smaller airlines by reducing barriers to entry. And as airports shift to the commercial model, they would be able to serve more passengers with a given number of gates, thereby expanding their effective capacity at less cost.

Airline deregulation has been an enormous policy success. It has made air travel routinely affordable to the vast majority of Americans. It has created many thousands of additional jobs in a continually expanding industry. These gains are threatened by well-meaning but ill-conceived attempts to improve airline competition by new controls on which airlines can fly when and where. What is needed, instead, is to finish the job of deregulation, removing the remaining nonmarket elements of the air travel system to permit competition to work even more effectively in the 21st century.

Readings

- Michael J. Boyd. "Barriers to Airline Competition." Testimony before the Senate Appropriations Subcommittee on Transportation, March 5, 1998.
- Robert Crandall and Jerome Ellig. *Economic Deregulation and Customer Choice.* Fairfax, Va.: Center for Market Processes, George Mason University, 1997.
- Joseph J. Daniel. "Distributional Consequences of Airport Congestion Pricing." Working Paper no. 98-03. Newark, Del.: University of Delaware, January 1998.
- Norman Minetta et al. *Avoiding Gridlock and Reducing the Accident Rate.* Final report of the National Civil Aviation Review Commission, December 1997.
- Robert W. Poole Jr. "Fine-Tuning the Recommendations of the National Civil Aviation Review Commission." Testimony before the House Aviation Subcommittee, March 25, 1998 (available at www.reason.org).
- Robert W. Poole Jr. and Viggo Butler. "Reinventing Air Traffic Control." Policy Study no. 206. Los Angeles: Reason Foundation, May 1996.