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AIRLINE DEREGULATION: THE UNFINISHED REVOLUTION

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Executive Summary

In the 20th anniversary year of airline deregulation, air travel is again at the forefront of public policy. Policymakers have been besieged with a variety of complaints: that business fares are up, some smaller cities are not receiving the kinds and amounts of air service their residents would like to have, that small start-up airlines can't compete effectively, as well as continued consumer complaints about congestion and delays. A variety of 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.

Any return, however, 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 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 a still bureaucratically controlled infrastructure. The problems typically have been blamed not on the infrastructure managers, largely invisible to the traveling public, but rather on the airlines themselves. This is unfortunate. 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 which could produce up to a 50 percent increase in capacity at congested airports like LaGuardia and Washington National, and which could greatly expand the number of air routes between cities. But these new technologies are only likely to come about in a timely fashion if the structure and funding of today's obsolescent air traffic control 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 much higher-capacity, more-competitive airline market. 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.

Part 1

Introduction

A. The Effect of Regulation and Deregulation

America's fledgling airline industry was hit hard by the Great Depression. As part of a general approach to limit competition and protect firms from failing, commercial aviation was organized essentially as a government-supervised cartel. Under legislation enacted in 1938, the Civil Aeronautics Board (CAB) decided which airlines could serve which cities and set the price (not prices) which they could charge for each route. In most cases only one or two airlines were allowed to serve a particular route (e.g., for many years, Los Angeles-Honolulu and Miami-Los Angeles were monopoly routes, and only two airlines were allowed to serve New York-Miami). Prices tended to be high, and to increase over time, since the CAB permitted increased costs to be passed along in higher fares—which did not provide strong incentives for airlines to seek out ways to reduce costs.

During the 1950s, 1960s and 1970s airports maintained marketing departments whose job was to lobby both airlines and the CAB for additional service—but approvals of new airline routes were few and far between. Under regulation, every effort was made to ensure that no airline ever went out of business. Airline managements were forced to please the regulators, not their customers, and that incentive weakened their ability to respond to consumer needs. And the ability to pass on costs via CAB-approved fares allowed inefficient work rules and expensive management practices to proliferate. Thus, the advent of deregulation found airlines with too many large aircraft, too many non-economic routes, and work rules that would prove unsustainable in competitive markets.

During the 1960s and early 1970s, economists had noticed that in those few markets not controlled by the CAB—especially the north-south markets within California—lively competition among airlines led to air fares that were dramatically lower than on routes of comparable distance and traffic levels elsewhere. Eventually, evidence of this kind led to pressures to liberalize CAB regulations during the 1970s. During the Ford administration, air cargo was deregulated, and discount fares were allowed for the first time. In the subsequent Carter administration, CAB chairman Alfred Kahn pushed for greater liberalization. When Sen. Ted Kennedy (D - MA) embraced the cause and held hearings highlighting the benefits of airline competition, airline deregulation became a pro-consumer issue. The result was the historic Airline Deregulation Act of 1978, which phased out CAB controls on routes and pricing, and eventually the CAB itself.

The result has been very positive for both consumers and airlines. 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.[1] Airline productivity has grown enormously over the past 20 years, enabling the larger U.S. carriers to become the industry's global leaders in an increasingly borderless world. 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.

In short, what deregulation accomplished was to transform a static, cartelized aviation market into a dynamic, continually changing market. This process has gone through several waves—and is still continuing.

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B. Deregulation's Initial Wave: 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—via the hub—access to potentially hundreds of destinations via the hub. These major gains in air service, along with a pronounced and ongoing decline over time in inflation-adjusted air fares, have been well-documented by the U.S. DOT.[2]

This system came under extensive criticism, in large part because the large concentrations of flights at hub airports meant that a number of major airlines were able to gain huge market share at one or more hubs, providing more than 2/3 or 3/4 of all service at hubs such as Atlanta, Charlotte, Denver, Detroit, Minneapolis/St. Paul, Pittsburgh, and St. Louis. Critics pointed out that average air fares were significantly higher on flights to and from such hubs than to and from other large airports. Even at these hubs, however, fares were lower than they were under the old regulatory system.[3]

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1 Robert Crandall and Jerome Ellig, *Economic Deregulation and Customer Choice* (Fairfax, VA: Center for Market Processes, George Mason University, 1997).

2 *Secretary's Task Force on Competition in the U.S. Domestic Airline Industry, Executive Summary* (Washington, DC: Office of the Secretary of Transportation, February 1990).

3 Kenneth M. Mead, "Air Fares and Service at Concentrated Airports," *Testimony before the Senate Aviation Subcommittee* (Washington, DC: General Accounting Office, June 7, 1989).

In addition to scheduling changes, airlines also reconfigured their fleets for hub-and-spoke service, shifting over time to smaller aircraft, so as to provide more-frequent service, feeding hubs from a growing number of spokes. This included a general downsizing of long-haul aircraft (e.g., 747s were replaced by DC-10s coast-to-coast, which were subsequently replaced by 767s and 757s) and the shift on many spoke routes from one or two flights per day on smaller jets (737s and DC-9s) to a considerably larger number of flights per day on much-smaller turboprops. The latter were usually flown by commuter airlines operating under joint agreements with their major-airline partner.

But these changes by the airlines were constrained by the limitations of the aviation infrastructure—airports and ATC (air traffic control)—which had not been altered by deregulation. Huge increases in landings and take-offs 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. It 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.

Changes by the airlines were constrained by the limitations of the aviation infrastructure.

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 take-offs). 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.

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

The growing level of congestion at major hub airports during the 1980s created opportunities for alternatives. One such alternative was low-fare, no-frills, point-to-point service. Southwest Airlines, whose origins pre-date deregulation, was freed by deregulation to offer its then-unique type of short-haul, no-frills, low-priced service on an interstate basis. 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.[4]

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 service on a point-to-point basis). 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 most congested hub airports and routes with the most congested air traffic. They have sought out under-served city markets (Providence, 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 this infrastructure to respond to increased future demand.

Virtually every under-served airport in the country has sought to attract service from one or more of these airlines, to provide new service at low fares. But the problem with many of these cities is that they are too small to generate the kinds of passenger loads needed to fill a 737, DC-9, or MD-80 aircraft. Thus, until now, these cities have found it difficult to attract any significant amount of jet service.

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D. Deregulation's Third Wave: The Regional Jet

The term "regional jet" (or RJ) refers to a new type of small jet airliner, which began entering 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 ERJ-135 and the 32-seat Fairchild Dornier 328JET, followed by variants with 44, 55, and 70 seats. These small jetliners are expected to lead to further major changes in the airline market.

The initial use of RJs is by regional airlines that serve as feeders to the hubs of major airlines like 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 which 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 which were quicker to implement RJ service.[5]

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[4] "DOT Spotlights Fare Changes," *Airline Business*, February 1988, p. 27.

[5] "CRJs Are Energizing ACA's Dulles Hub," *Regional Aviation*, April 3, 1998, p. RA-3.

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. The 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 ACA plans on doing). 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 110-189-seat 737.

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.

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 former Delta flight on this route. Although Atlanta is a Delta hub (making this route technically still a spoke), many of this 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 web-site 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 via 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 only be made via turboprop, connecting through St. Louis, for a total trip time of more than four hours. The customer appeal of nonstop, point-to-point RJ service is obvious. A sampling of the many medium size city-pairs which 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? Bombardier estimates the U.S. market for 50 and 70-seat RJs to be 1,600 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.[6] 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, in a typical day an RJ will make more take-offs and landings than a larger jet. Thus, the 44 percent increase in the U.S. jet fleet produced by the addition of RJs would lead to a virtual doubling of the current

[6] "Jets Revamp the Regionals," *Airline Business*, April 1998, p. 35.

21,000 daily airline takeoffs. Such a doubling will not be possible without major upgrades of the air traffic control system.

Table 1: Examples of City-Pairs Lacking Nonstop Jet Service

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

Source: *Official Airline Guide.*

Part 2

Enhancing Competition: Stepping Backwards or Moving Forward?

Twenty years after the enactment of the Airline Deregulation Act of 1978, a number of proposals are being considered, in Congress and elsewhere, to re-introduce controls on some elements of airline pricing and routes. Though described by their proponents as pro-competition, they would put the federal government (specifically, the U.S. Department of Transportation) in the position of deciding which air fares are too high or too low, reduce the extent of service by certain airlines to specific airports, and mandate that only certain other airlines—offering service only to certain types of cities—could replace the former airlines at those specific airports. Despite the good intentions of the bills' proponents, enactment of measures such as these would, in fact, partially re-regulate the airline industry. They would shift the locus of decision-making for key aspects of pricing and service from the marketplace to government bureaucrats.

Given the enormous and well-documented success of airline deregulation in expanding air travel and reducing air fares, why have proposals for partial re-regulation emerged on the 20th anniversary of airline deregulation? One factor is growing expressions of concern over the limited airline service (in particular, jet airliner service) to smaller cities such as Des Moines and Rochester. Another factor is the difficulties encountered by low-fare and/or start-up airlines in gaining access to major hub airports. A particular focus of attention in all the proposed bills is the extreme difficulty encountered by non-incumbent airlines in gaining access to "landing slots" at the four busy airports where such slots have been defined by the federal government: Chicago's O'Hare (ORD), New York's Kennedy (JFK) and LaGuardia (LGA), and Ronald Reagan Washington National (DCA).

It is ironic that these calls for reregulatory action arise at precisely the time that deregulation is entering its next wave: the regional jet revolution. For the RJ's potential is precisely to meet the demand for better service to smaller cities and to secondary airports in major urban areas. But the ability of the U.S. aviation system to accommodate this next wave is a real question mark. As noted previously, the historic 1978 deregulation act freed up the airline component of the system, but it left unchanged the other two key components: airports and air traffic control. Both are still owned and operated by government agencies, and are managed in strikingly noncommercial ways. Neither has been able to adapt to keep pace with the dynamic, rapidly changing nature of a competitive airline market.

The air traffic control (ATC) system is a major impediment to aviation growth. It had difficulty coping with the shift to hubs-and-spokes in the 1980s and the revival of point-to-point in the 1990s, and will have major difficulty coping with a doubling of landings and takeoffs due to regional jets over the next decade. As noted

in the final report of 1997's National Civil Aviation Review Commission, which was set up by Congress to rethink the management and financing of the Federal Aviation Administration, "the United States' aviation system is heading toward financial and fiscal gridlock."[7] Due to poor management and inadequate capital investment to modernize the air traffic control system, the average delay per airline flight is expected to triple by 2014. Without major structural change, NCARC found, "delays and congestion will become overwhelming." This kind of gridlock will make it much harder for new-entrant airlines to gain access to popular airports and it will foreclose the possibility of doubling the number of landings and take-offs, as implied by today's projected RJ growth.

Thus, the real challenge for aviation policy in 1998 is to finish the job of airline deregulation left incomplete by the historic 1978 legislation. That legislation removed federal controls on pricing and routes but failed to remove numerous non-market aspects of the system's vital infrastructure: airports and air traffic control. These remaining impediments to a dynamic, competitive airline market include obsolete technology that constrains the volume of point-to-point flights and limits access to major airports, arbitrary restrictions on access to certain congested airports, and restrictions on what airports can do to make growth acceptable to their surrounding communities.

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[7] *Avoiding Aviation Gridlock & Reducing the Accident Rate*, final report of the National Civil Aviation Review Commission, Washington, DC, December 1997.

Part 3

Fixing the Air Traffic Control System

A. 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 impact 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, business-like procurement methods to implement new generations of computers, radar, and satellite-based navigation.

Congress recently "reformed" the FAA's procurement regulations and personnel policies, reducing (on paper) the number and extent of regulations. But industry observers detect little or no meaningful changes in the agency's corporate culture, indicating that fundamental reform—changing the system's relationship with its customers—is still vitally needed.

Over 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.[8] 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. While 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.[9]

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

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[8] Robert W. Poole, Jr. and Viggo Butler, *Reinventing Air Traffic Control*, Policy Study No. 206 (Los Angeles: Reason Foundation, May 1996).

[9] 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).

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 GPS) 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 facilitating the growth of air traffic.

ATC organizations around the world are moving toward free flight. As of 1998, this type of air navigation is 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. As Table 2 illustrates, 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 3).

Table 2: Regional Jets vs. Conventional Jetliners

	Conventional Jets			Regional Jets			
	737-300	737-500	MD-80	RJ-135	RJ-145	CRJ-100	CRJ-700
1996 Fleet*	2,486	2,486	2,486	0	0	0	0
2010 Fleet**	3,500	3,500	3,500	N/A	N/A	840	795
Range (nautical miles)	2,700–3,300	2,700–3,300	2,700–3,300	1,350	1,330	1,600	1,700
Takeoff Runway Length	6,660′	6,100′	6,400′	5,415′	5,643′***	5,785′	5,135′
80dBA Noise Contour ($mi.^2$)	N/A	2.3	N/A	N/A	N/A	0.5	0.5

*Includes A-230

**Estimates from Boeing and Bombardier, respectively

***4,130 ft. for 800 mile range takeoff

Another important impact 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 comparable to that of twin-engine propeller general aviation aircraft. Hence, they can provide jet service to scores of reliever airports near congested big-city airports but not currently receiving any airline service. Table 4 identifies airports within reasonable driving distance of major airports on the FAA's list of 23 delay-problem airports which could offer community-compatible jet service to supplement what is provided at such congested airports as Boston, Miami, and Pittsburgh.

Table 3: Candidate Airports for Regional Jet Service		
• Abilene, TX	• Lebanon, NH	• Rockford, IL
• Bridgeport, CT	• Lynchburg, VA	• Santa Fe, NM
• Cheyenne, WY	• Meridian, MS	• Springfield, IL
• Durango, CO	• Naples, FL	• Tyler, TX
• Flagstaff, AZ	• New Haven, CT	• Wausau, WI
• Joplin, MO	• Parkersburg, WV	• Worcester, MA
• Key West, FL	• Reading, PA	

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

Source: *Official Airline Guide.*

Opening such airports 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.

Table 4: Reliever Airports for "One-Airport" Cities		
Major Airport	Reliever Suitable for RJ Service	Longest Runway (ft.)
Atlanta	Fulton County	5,700
Boston	Worcester	7,000
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 AOPA's Airport Directory.*

B. 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 the metro areas in question. These kinds of changes have been held back by the FAA's bureaucratic corporate culture and convoluted funding system, and would be greatly facilitated by the shift to a user-driven commercial ATC organization.

1. Fixes for Parallel-Runway Airports

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 scans much faster, thereby better defining each "target" aircraft. This 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. PRMs have been installed at Raleigh-Durham and Minneapolis-St. Paul, and will be installed at JFK and the others noted here within the next few years. Although only a limited number of airports can be improved with this new radar, these installations will contribute to nationwide air traffic flow improvements, since all operations are linked together via the ATC system's flow control procedures. The PRM is an example of a new system whose development and installation has dragged out over more than 20 years, due to the FAA's bureaucratic procurement system. These kinds of improvements would have been in place years sooner under a commercialized ATC system.

The real challenge for aviation policy in 1998 is to finish the job of airline deregulation left incomplete by the historic 1978 legislation.

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2. Fixes for Single-Runway Airports

There are no currently operational technical fixes for single-runway airports that have reached the limit of their capacity. However, improved air traffic management via 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 permits 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.

These 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. Only a handful of commercial airports have been equipped with the necessary GPS equipment so far. But this 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 up to a 50 percent increase in the hourly capacity of routine airports such as LaGuardia and Washington National, greatly expanding access to these congested airports.

Part 4

Fixing Airport Access Problems

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 currently congested airports like LaGuardia and Washington National. But highly desirable, close-in airports like these latter two will eventually again experience demand for airline service greater than what their runways can provide, 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, as we use to cope with such supply-demand imbalances everywhere else in our economy.

A. Slot Allocation: The Pre-Deregulation Approach

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 which would result from attempting to squeeze more landings and take-offs into each peak hour at those airports. In response to this 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 this limited capacity, it divided these 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.

While there have been some adjustments to these allocations over the years (e.g., the number of commuter slots at LGA 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 Dec. 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.[10] DOT also retained about five percent of the slots at ORD, DCA, and LGA and distributed them by lottery to non-incumbent carriers in 1986.

Since 1986, as the General Accounting Office (GAO) has documented, the fraction of slots held by major incumbent airlines has grown, while the fractions held by other majors and by post-deregulation airlines has

[10] John H. Anderson, Jr., *Airline Competition: Barriers to Entry Continue in Some Domestic Markets* (Washington, DC: General Accounting Office testimony, March 5, 1998), p. 6.

shrunk. In response, Congress in 1994 authorized DOT to grant limited exemptions to the slot system, so as to add slots for non-incumbent airlines. In 1997 DOT added a small number of such slots at ORD, LGA, and JFK, and it added another small number of slots at ORD and LGA in April 1998. In both cases, it specified which routes and type of service these 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 this may be true as a matter of law—Congress has accepted DOT's claim and only slightly modified it via 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. This, 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.

The slot system leads to outcomes less desirable than those provided by the free play of supply and demand.

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 AIP grants. The underlying source of those funds is primarily the airline ticket tax, which is generated at the airports. And in fact, large airports like those with slot restrictions generate far more in ticket taxes than they get back in airport grants.[11] Hence, 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—but not own—the slots and then permitted airlines to buy and sell this 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 on a nationwide basis to minimize congestion near airports and adjust the amount of traffic to cope with weather and other conditions in real time. To a significant degree, flow control limits the numbers of landings and takeoffs at all major airports, not just the four that have been saddled with the 1969 slot system.

With the huge growth not only in overall airline service but especially of major transfer hubs such as Atlanta, Dallas/Ft. Worth, Charlotte, Denver, Detroit, Minneapolis/St. Paul, and Pittsburgh, high density of traffic to and from major airports has become a ubiquitous problem, not something that is unique to the Chicago, New York, and Washington areas. Indeed, the April 22, 1998 announcement of a joint FAA/industry plan for ATC improvements included software to space planes more efficiently at not only Chicago, New York, and

[11] Robert W. Poole, Jr., *Privatizing Airports*, Policy Study No. 119 (Los Angeles: Reason Foundation, 1990), Table 1.

Washington but also in Atlanta, Dallas/Ft. Worth, Denver, Los Angeles, Miami, Minneapolis/St. Paul, Oakland, and St. Louis.[12]

A third basic problem is the arbitrariness of the slot allocations. To begin with, the total calculated for each airport is arbitrary—as is proved by the ability of DOT to 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 LGA 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 GA? Or any other split totaling 68? FAA cannot make a coherent case that its preferred allocation provides the greatest or optimum amount of any quantifiable outcome measure. Does it maximize the numbers of people brought into and out of LGA? Maximize travel time savings? Maximize passenger miles accommodated? All it can claim is that this arbitrary allocation serves the public interest, as somehow intuited by the FAA. (The inherent arbitrariness of government-defined slots can be illustrated by an international comparison. Japan limits single-runway Narita airport to 360 slots per day, while Britain's privately owned single-runway Gatwick airport accommodates 810 operations per day.[13])

Central planners always claim that their arbitrary decisions are in the public interest. The idea that planners have the knowledge and wisdom to determine optimum allocations is what Nobel laureate economist F. A. Hayek termed the "fatal conceit." The only alternative to having planners make arbitrary allocation decisions is to allow the free play of supply and demand—based on companies' competing attempts to create value for customers—to determine an ever-changing allocation, over time.

By contrast to this dynamic marketplace allocation, well-meaning attempts to make the slot system more "competitive" reflect the same underlying 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 off these 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.[14]

In short, the slot system is a significant government intervention into the aviation marketplace that is inconsistent with the principles of a deregulated, competitive marketplace. As an attempt at central planning, it is inherently arbitrary. It leads to outcomes less desirable than those provided by the free play of supply and demand. And it is not even necessary, given the advent of nationwide flow control in the 1980s.

The system should be reformed, so that the right to take off and land at congested airports is determined by marketplace 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 near-by reliever airports.

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[12] Jeff Cole, "FAA, Air Groups Agree on Traffic Plan," *Wall Street Journal*, April 23, 1998.

[13] "Spoilt Japanese Airlines," *The Economist*, April 4, 1998, pp. 71–72.

[14] Michael J. Boyd, "Barriers to Airline Competition," testimony before the Subcommittee on Transportation of the U.S. Senate Committee on Appropriations, March 5, 1998.

B. Allocating Capacity via the Market

1. The Case for Pricing

There are numerous situations in our daily lives in which demand tends to exceed supply. This occurs at certain times and places where more people desire to use a facility or service than can be accommodated in the short term. A prime example is movie theaters and restaurants at the prime hours on Friday and Saturday nights. There are only two basic alternatives for coping with this situation. The first is to permit would-be users to bid for the limited number of spaces available, with the winners being those willing to pay higher prices if they really must have access at those premium times. Those willing to shift to less-popular times benefit by paying less. The only alternative is some form of non-market allocation, either by the facility owner (e.g., by lottery) or by an outside (usually governmental) body. Throughout our free-market economy, we have chosen to let supply and demand—i.e., the expressed preferences of various market participants—deal with these kinds of situations. The few exceptions tend to be facilities (such as freeways) operated by governments—yet even in the case of freeways, alternatives such as tolled express lanes are gaining acceptance.[15]

There are several inherent advantages to allocating scarcity via the market rather than by governmental fiat.

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Second, a market-pricing approach generates revenues, which can be used to address the capacity shortfalls—assuming the system is designed to facilitate such uses of revenue. A telephone system facing rapidly growing demand for business-hours calling will charge higher prices during those hours to shift low-priority calls to other hours, but will then use the increased revenues to add capacity, increasing its level of service at those premium prices. Likewise, under an access-charge system for high-demand airports, the additional revenues could be earmarked for the kinds of near-term capacity expansions discussed above (e.g., adding differential GPS to permit curved approaches), and ultimately for the creation of additional runway capacity elsewhere in the same metro area. Specific policy changes along these lines will be set forth below.

Third, a market-pricing approach makes better use of available information than a government-allocation system. Neither Congress nor the DOT nor the FAA possesses the kind of all-encompassing knowledge of

[15] Kenneth Orski et al., "High Occupancy/Toll (HOT) Lanes and Value Pricing— A Preliminary Assessment," *ITE Journal*, June 1998.

the one best way to distribute airline service at LaGuardia or any other airport. The airline industry is highly dynamic, changing not merely from year to year but from month to month in response to innovations in service and pricing (hub-and-spoke, point-to-point, no-frills/low-fare), the advent of new types of aircraft (e.g., regional jets), normal economic cycles of boom and recession, and many other factors. The best information we have as to the relative value of specific airline routes and services is whatever emerges from the market process. Midwest Express may try launching nonstop, many-frills service from Milwaukee to Washington National—and may or may not find it profitable. That same landing slot at DCA may be worth more or less to an AirTran offering no-frills service to National from Orlando. It makes no more sense for Congress or DOT to specify one or the other of these as serving the public interest than it would for a city council to specify that one type of commercial bidder would be approved for a prime corner lot than another.

A market-pricing approach makes better use of available information than a government-allocation system.

The practicality of peak-pricing (sometimes referred to as "congestion pricing") at major hub airports has been debated for years, with airlines often expressing skepticism that such pricing would have meaningful effects. But because congestion increases rapidly as usage levels increase, even small shifts in peak period demand for travel can have appreciable impacts on improvements in congestion and delay statistics.

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 hence reducing delays. The principal shifts away from congested peak periods would be made by commuter and general aviation flights, not flights by the major hubbing airlines.[16]

What is certain in circumstances where high demand confronts limited supply is that not every would-be provider will get everything that it wants. By now, hundreds of years of experience should have taught us that sorting this out by letting entrepreneurs try things and find out—by trial and error—the highest and best use of the scarce capacity 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 competitive conditions, this kind of continual bidding does the best that can be expected.

2. Consequences of Non-Market Allocation

In testimony before the Transportation Subcommittee of the Senate Appropriations Committee, aviation consultant Michael Boyd pointed out many of the likely adverse consequences of government attempts to redesign air service by re-allocating slots at the four constrained airports.[17] Among Boyd's points are the following:

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[16] Joseph I. Daniel, "Distributional Consequences of Airport Congestion Pricing," Newark, Delaware: University of Delaware, Working Paper No. 98-03, January 1998.

[17] See Boyd, Supra note 6.

Fewer total customers would be served under this kind of allocation. That's likely because under the approach proposed in most pending bills, slots would be taken away from major airlines which are using those slots serving larger cities with high demand and would be reallocated to smaller airlines serving smaller cities with low demand. And although Boyd does not mention this point, one possible consequence of this kind of 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 for this premium service.

Smaller cities with existing service to a hub such as O'Hare could end up losers. This 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 ORD], what cities do you think the planners at the AA and UA systems 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 National could also end up losers. Boyd cites TWA's hub at St. Louis as an example. Small cities whose access to LGA is via that hub (e.g. Springfield, IL) will have less access to LGA if TWA is forced to give up some of its LGA slots to a smaller airline that will now provide service to LGA directly from an "underserved" airport. While those few "underserved" cities may gain, a larger number of cities that had been served via 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 won't do a traveler much good if her destination is Louisville (since neither LGA nor DCA is a major connecting hub). But even if her 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 her checked luggage, which will have to be transferred to a different airline that serves the point where she actually needs to go.

3. Highest & Best Use of Premium Airport Capacity

Suppose a market-based system replaced either the current slot system or the revamped slot system proposed in pending legislation. What might the results be at the four slot-controlled airports? By the very nature of the airline business as a dynamic market, it is impossible to project the outcome with any kind of precision. But it is possible to make some educated guesses.

To begin with, all three metro areas—Chicago, New York, and Washington—are multi-airport systems. Two of the four slot-controlled airports—LGA and DCA—are close to downtowns that are prime destinations for business-oriented travelers who are both time-sensitive and price-insensitive. Hence, under a market-based system, we can predict that business-oriented services, including something like the current shuttle, would predominate at those two airports. One consequence would likely be a further shift of price-sensitive, time-insensitive leisure travelers to alternative airports such as Newark and Baltimore-Washington International or Dulles.

O'Hare and Kennedy must be treated as separate cases. O'Hare serves as an important connecting hub for two major airlines, American and United, offering access to their entire networks for hundreds of other

cities. Neither airline seems likely to remove its hub operation, but an access-charge system might shift some of ORD's other traffic to Midway, whose role might evolve to become something more like LaGuardia and National—a closer-in, origin-and-destination airport for business and other travelers to and from the Chicago area.

Pricing access to Kennedy would probably increase the fraction of its capacity devoted to international service, while reinforcing its role as a long-haul, origin and destination airport for the New York metro area. It might also encourage some traffic to shift to newly privatized Stewart airport 60 miles to the north, which has the potential to become the metro area's fourth major airport over the next 20 years.

A market-based access charge system would also likely mean a further shift of general (non-commercial) aviation activity from the four slot-controlled airports to reliever airports in their metro areas. Both the New York metro area (with Morristown, Teterboro, Republic, MacArthur, etc.) and the Chicago metro area (with DeKalb, DuPage, Pal-Waukee, and a number of other suburban GA airports) are well-served with reliever airports capable of handling everything from single-engine piston planes up to the largest business jets—and RJs. In the Washington-Baltimore metro area, the number of large relievers is more limited. One good candidate to become a new air-carrier airport with RJ service is Manassas, Virginia, located on a commuter rail line to Washington, D.C.; two others are Leesburg, Virginia, and Montgomery County (Gaithersburg), Maryland.

The airline market remains a dynamic one, developing innovations in aircraft and service pattern 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.

As noted earlier, a number of other airports besides the four officially designated as slot-controlled also experience the same kind of high demand at peak hours. Under a market-pricing system, they, too, would be free to levy access charges for those airlines wanting assured access to landings and take-offs during those peak periods. This description would apply to many of the 23 airports identified by the FAA as "Delay-Problem Airports."[18] While some of these airports are in metro areas containing one or more other airports with airline service (e.g., Dallas, Detroit, Houston, Los Angeles, San Francisco), the majority have no other airport with current airline service closer than 60 miles away. This is the case with Charlotte (where Greensboro is 90 miles away), Denver (where Colorado Springs is 80 miles away), Minneapolis (with Rochester 77 miles away), and Philadelphia (with Reading 60 miles distant). These distant airports are within different political jurisdictions and may be difficult to improve by the premium-service airport with revenues from its access charges. However, in most cases the major air-service airport has reliever airports nearby (as noted in Table 4) which could be improved for general aviation and regional jet purposes, using those revenues.

It might be argued that there is no need for a new source of revenues (the proceeds from access charges) to make capacity improvements at congested airports or nearby relievers that can become RJ air-service

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[18] "FAA Preliminary Listing of Airports Located Near 23 Delay-Problem Airports, 1993," *Airports*, March 22, 1994, p. 114.

providers. Airports already have access to AIP grants as well as the ability to impose passenger facility charges (PFCs) to make such improvements. However, both of these programs require time-consuming applications to the FAA, which may or may not be approved. In addition, for a reliever airport to fund a runway extension or a GPS landing system via PFC revenues, it must first have passengers to pay those charges. Yet it may not be able to attract an RJ airline to launch passenger service without first making the needed investments in improved capacity. Locally generated funds from the congested airport's access charges would provide a timely alternative.[19]

New ATC technology can bring enormous benefits.

4. Perimeter Rules

Three airport systems currently have in place some form of restriction on which types of airline service 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, while the perimeter rule for National and the Wright Amendment for Dallas's Love Field have been imposed by Congress. All three 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 DFW Airport, to ensure that investors would purchase its initial bonds. DFW is today one of the world's financially strongest airports, with or without this rule. The Reagan 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 via regulation what an access charge system would accomplish via 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 would 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.

[19] Concerns that some financially strapped communities might exploit airport management fees could be minimized by the requirement previously noted that funding be specifically earmarked for airport expansion, and similar requirements.

Part 5

Policy Changes 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 a dynamic one, developing innovations in aircraft and service pattern 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 the pattern of competition but rather as completing the job of freeing commercial aviation from economic regulation. That means resisting the temptation to tinker with routes and service, i.e., 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, via more point-to-point service, more aircraft sized for specific markets, and to accommodate the enormous potential of regional jets. But this 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 1998 by another stroke of a pen, as having been made superfluous by flow control. Or, Congress could mandate this 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 (AIP), under which airport grants are made, to permit congested airports to levy access charges for landings and take-offs 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 this investment could include the addition of runway capacity and/or more-advanced landing aids at the congested airport itself—e.g., adding a commuter runway or installing differential GPS equipment to facilitate curved landing approaches. Also encouraged could be investment by the congested airport 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.

Part 6

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). Major urban areas and smaller cities would both benefit. Major cities will 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 thanks to 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 will 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 when and where airlines can fly. What's needed, instead, is to finish the job of deregulation, removing the remaining non-market elements of the air travel system. That will permit competition to work even more effectively in the 21st century.

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Table of Contents