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Reforming the ATC System to Promote Economic Efficiency

Dorothy Robyn
The Brattle Group

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Agenda

- Symptoms
- Problem #1: Governance
- Problem #2: Financing
- Conclusions

Key Points

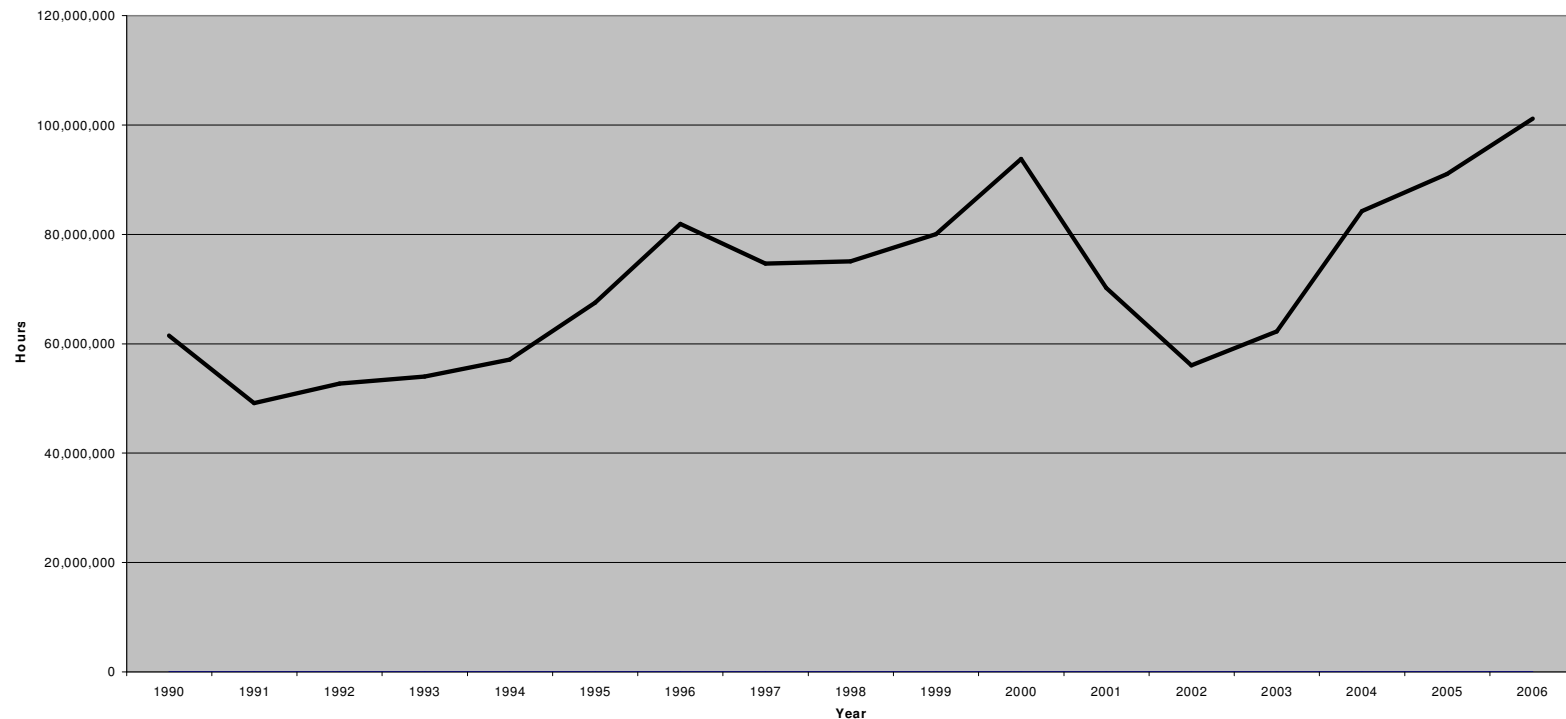
- Flight delays, outdated technology and rising unit costs are symptoms of the underlying problem with our ATC system
- The problem itself is one of faulty incentives—a result of the current a) governance structure and b) financing system
- ATC is a 24/7 service “business” being run out of a traditional government agency
- Passenger-tax financing (together with weight-based landing fees) is perverse, and contributes directly to flight delays
- The federal government can substantially reduce delays by “pricing” the scarcity of airways and runways. However:
 - FAA has failed to make the efficiency case for user fees
 - DOT’s Rates & Charges Policy remains major (perceived) impediment to airports’ use of congestion pricing/slot auctions/flat charges

I. Symptoms

Symptoms—Flight Delays

- Flight delays are the most visible symptom of ATC problem

Figure 1
Flight Delays



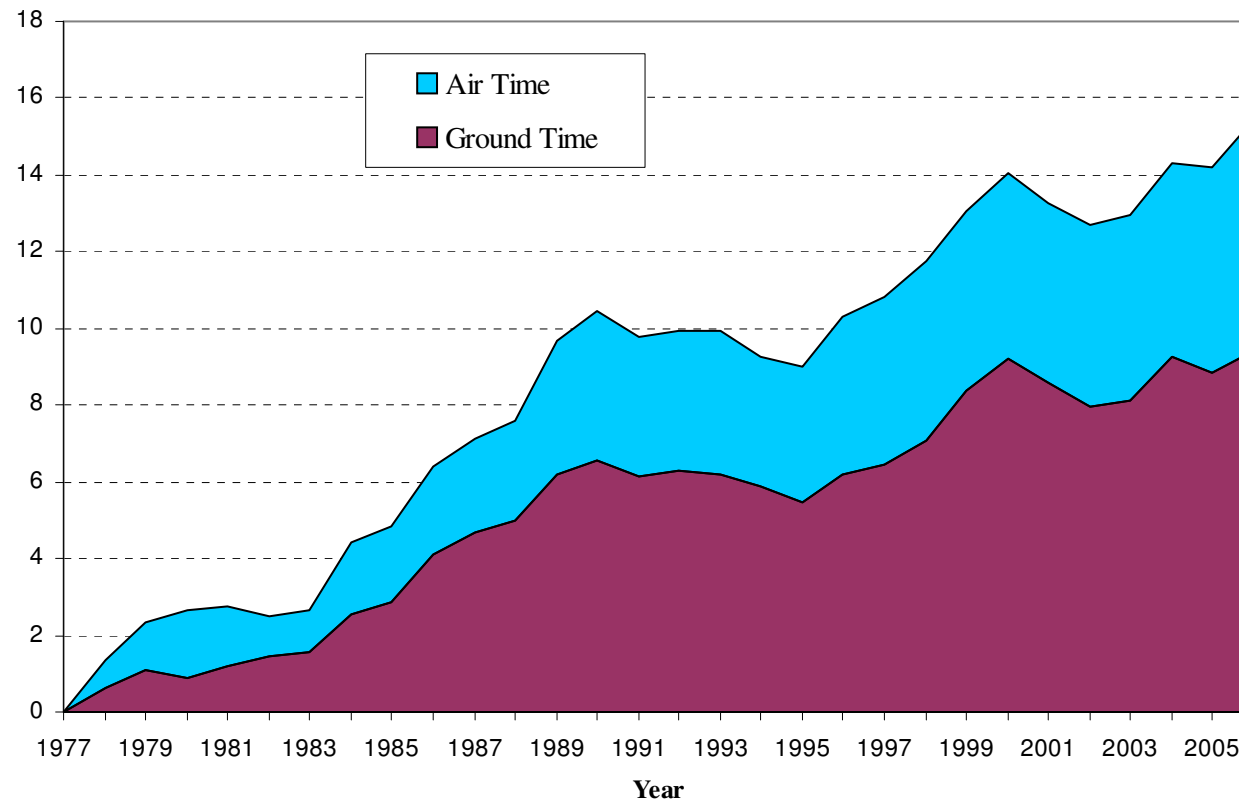
Source: ASQP and T100 Domestic Segment

Symptoms—Flight Delays

- Flight delays are a drag on the economy
 - Cost to airlines \$7.7B (2006)
 - Cost to pax \$3B-\$13+B
- Published delay statistics understate true costs
 - Flight cancellations
 - Missed connections
 - Airline schedule-padding (see Fig. 2)

Symptoms—Flight Delays

Figure 2
Increase in Flight Travel Times

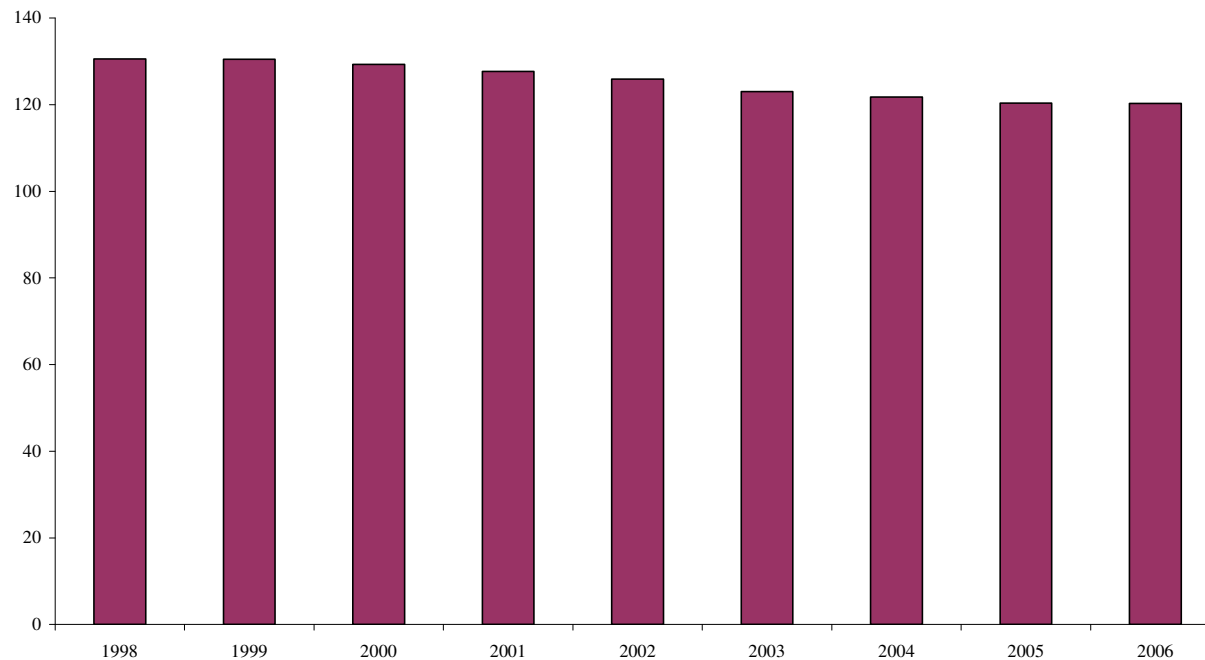


Source: Steven A. Morrison and Clifford Winston, “Delayed! U.S. Aviation Infrastructure Policy at a Crossroads,” in *Aviation Infrastructure Performance: A Study of Comparative Political Economy*, edited by Winston and Gines de Rus (Brookings Press, forthcoming).

Symptoms—Flight Delays

- Proximate cause of increase in delays is decline in aircraft size

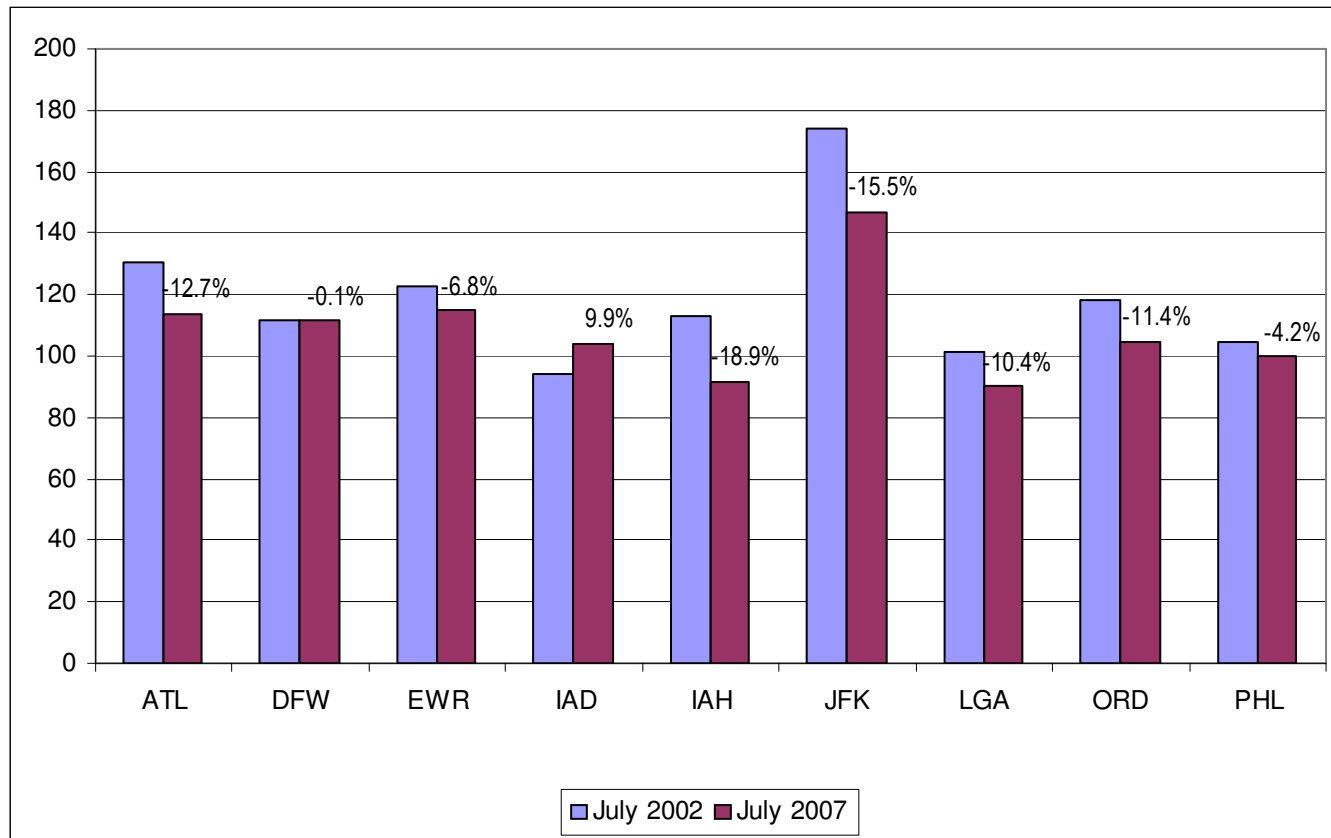
Figure 3
Average Seats per Aircraft in the U.S. Commercial Domestic Fleet



Source: Department of Transportation, Federal Aviation Administration, *FAA Aerospace Forecasts, Fiscal Years 2004-2015* and *FAA Aerospace Forecasts, Fiscal Years 2007-2020*.

Symptoms—Flight Delays

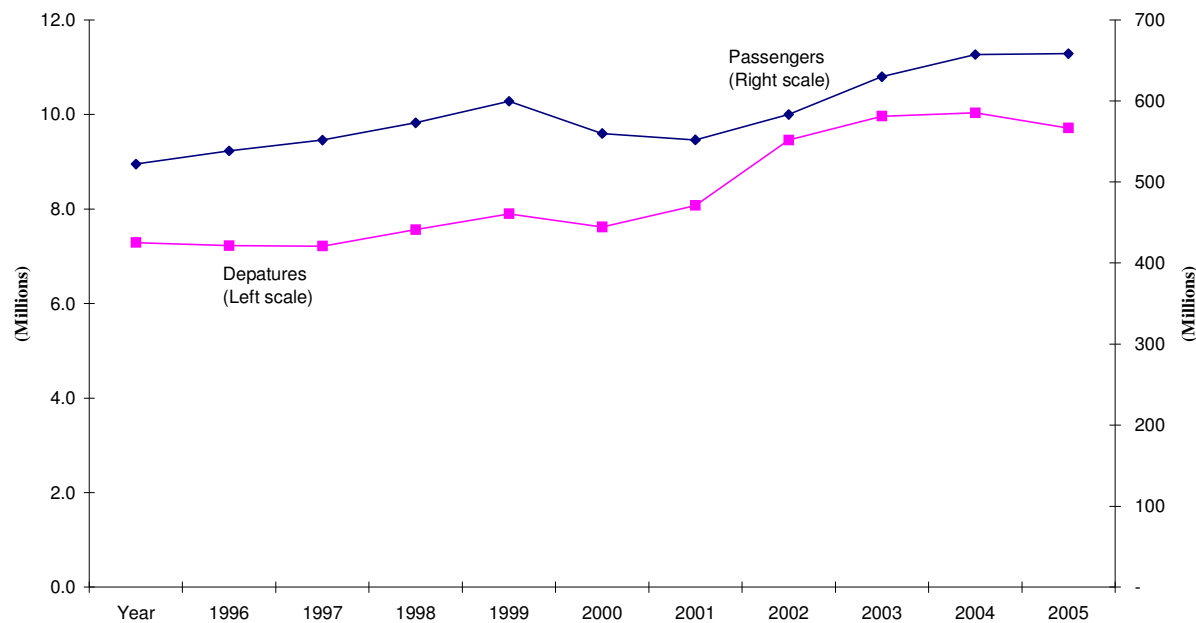
Figure 4
Change in Average Seat Size by Airport – All Departures



Symptoms—Flight Delays

- As a result of downgauging, the increase in departures has exceeded the increase in passengers

Figure 5
Domestic Scheduled Air Traffic Departures & Passenger Traffic



Source: Department of Transportation, Bureau of Transportation Statistics, *U.S. Air Carrier Traffic Statistics*

Symptoms—Outdated Technology

- A second symptom is our outdated ATC technology
- Aging technology limits capacity and raises costs
 - Imprecise radar → wide separation of aircraft
 - Terrestrial navaids → inefficient air routes
 - Aging equipment → expensive maintenance
- Chronic problems with modernization:

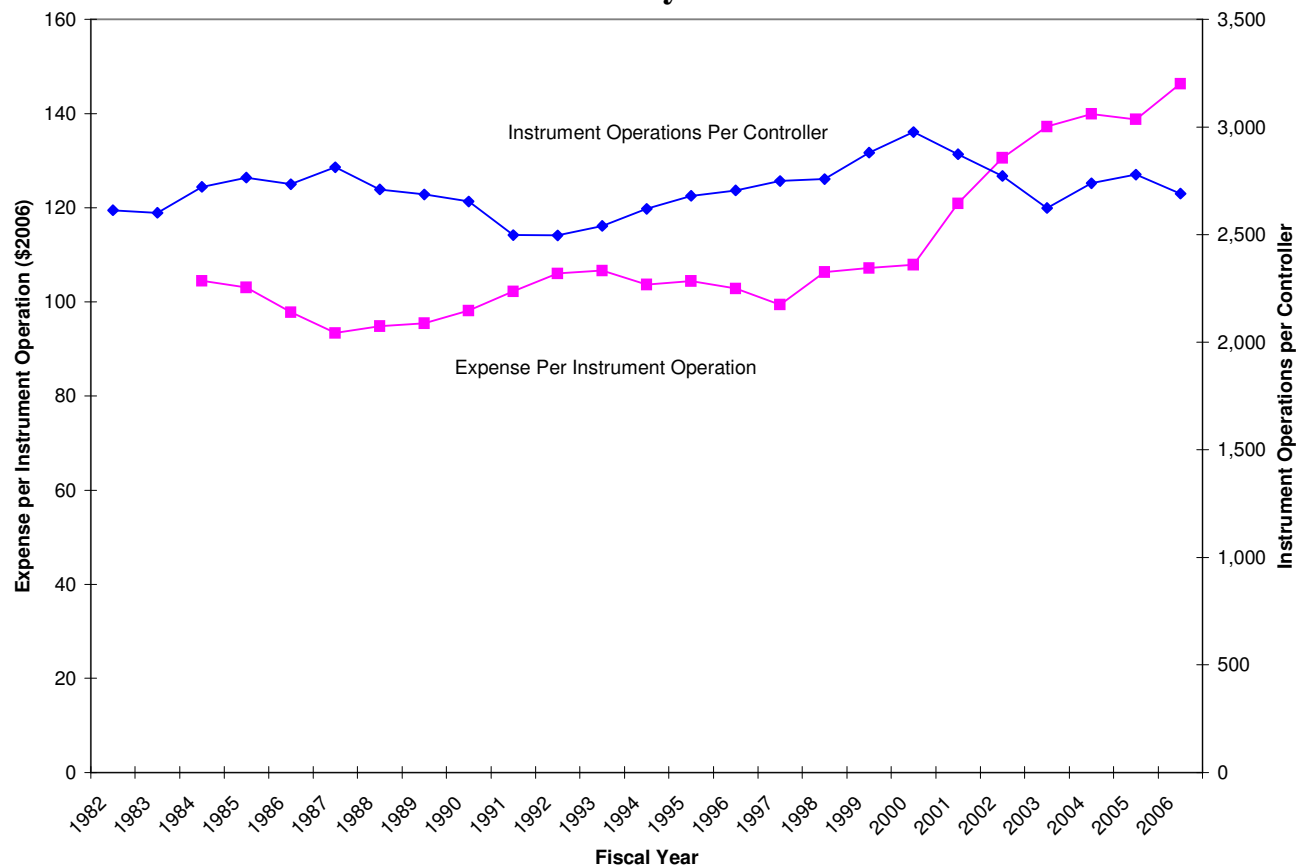
“Most FAA modernization projects have a record of (1) promising more capability than they ultimately deliver, (2) being completed later than promised, and (3) costing far more by the time they are completed than the initial cost estimates.”

“Reforming the Federal Aviation Administration: Lessons from Canada and the United Kingdom,” by Clinton V. Oster, Jr., with the assistance of John S. Strong, IBM Center for the Business of Government (2006), p. 14

Symptoms—Flat Productivity & Rising Unit Costs

- Symptom #3 is the FAA/ATO's flat productivity and rising unit costs

Figure 6
Controller Productivity & ATC Unit Costs



II. Problem #1—Governance

Problem #1—Governance

- As a traditional government agency, FAA is not well-suited to operating a 24/7, high-tech, service “business”
- FAA faces more complex incentives than does an ordinary business
 - Who is the customer?
 - Russ Chew’s three “value chains”
 - Congress as de facto customer
 - Federal budget rules and constraints
 - Pressures to overstate benefits and understate costs of large investment projects
 - Lack of technical oversight exacerbates principal-agent problems
 - Incentives to maximize output

Economists' Rx: Move ATO out of FAA

- Most economists favor moving ATO out of FAA
 - Efficiency rationale
 - Safety rationale
- Less agreement on where to put it, since it remains a monopoly
 - Independent government corporation (*e.g.*, USATS)
 - User-owned cooperative (NavCanada)
 - Private corporation with rate regulation (NATS)
- Key question: Where and to what extent can system take advantage of competition?
 - Current examples
 - Contract towers
 - Flight Service Stations
 - ADS-B Contract
 - What's possible longer term? History of network industries: technology creates potential for competition in what was once a natural monopoly.

III. Problem #2—Financing

Problem #2—Financing

- Tax financing directly encourages overuse of scarce ATC capacity
 - Airlines pay only indirectly
 - Small aircraft contribute less than large aircraft, even though cost to serve them is same
 - DEN-PHX: A320 contributes \$1498
 - 50-seat RJ contributes \$502
 - Most important, it ignores congestion costs
- Business jets contribute far less than the burden they impose
 - DEN-PHX: 6-pax Gulfstream pays only \$133
- Weight-based landing fees compound problem

Problem #2—Financing

- Basing charges on ticket value/aircraft weight made sense at one time
 - Form of Ramsey pricing
 - Appropriate way to cover costs absent congestion
- But now that approach is perverse—and it contributes directly to delays
- Size should not matter!

Problem #2—Financing

- Tax financing encourages inefficiency on FAA's part as well
 - ATO lacks basic customer feedback
 - No incentive to provide value-added services because it can't charge for them
- Tax financing impedes investment
 - Tax revenues don't signal where/how much investment is needed
 - Investment gets shortchanged because it's on-budget

Economists' Rx: Efficient (Marginal Cost) Pricing

- A shift from taxes to efficient prices (cost-based user fees) could have far-reaching benefits:
 - More efficient use of ATC system—fewer delays (allocative efficiency)
 - More efficient provision of ATC (productive efficiency)
 - More efficient investment in innovation and new technology (investment efficiency)

Economists' Rx: Prices and Allocative Efficiency

- In short run, prices would lead to more efficient use of scarce ATC capacity
- Ideally, fees would vary by time of day/season to reflect delay costs
- But there's case for starting with a flat, per-flight charge
 - Congestion is due in part to current, perverse financing mechanism
 - A flat charge would reduce congestion by eliminating bias toward small a/c
- In short, first the cake (flat fee); then the icing (congestion charge)

Economists' Rx: Prices and Productive Efficiency

- Prices would encourage more efficient provision of ATC services by FAA
 - Users can compare value to cost even where choices are limited
 - FAA could compare costs and revenues to decide which services (or facilities) to expand or contract
- FAA could offer—and users could buy—value-added services:
 - An airline could pay more to get priority in system (or pay less for reduced service)
 - Several airlines could buy extra services during peak hours
- Adoption of fee-for-service by FAA's Logistics Center had powerful impact on producer (and user) behavior
 - Paying customers provided more direct feedback
 - Logistics Center took the customer feedback more seriously

Economists' Rx: Prices and Investment Efficiency

- With FAA moving to NextGen, most important benefit of prices may be to guide investment and facilitate technology adoption
 - Market signal as to what users are willing to pay for
 - Key tool to help FAA overcome equipage problem
 - NavCanada charges less for aircraft equipped with datalink
 - Non-price options (*e.g.*, offering preferred airspace) can achieve same goal but with greater difficulty
- More generally, prices could facilitate deals with and between user groups
- With prices/user fees, FAA would have option of private borrowing

IV. Conclusions

Conclusions

- Flight delays, outdated technology and rising costs are the symptoms, not the problem
- The underlying problem is:
 - A governance structure that forces the ATO to deal with multiple “value chains”
 - A financing system that guarantees overuse of the system because users don’t pay their real cost
- No easy governance fix as long as ATC is a monopoly, although incremental steps to increase user input and accountability are key
- By contrast, financing fix is straightforward—at least intellectually:
 - Moving to efficient prices for ATC is the single most important thing the federal government could do to promote aviation
 - Prices would reduce delays and facilitate investment
 - Prices would even address governance by creating direct link between users and ATO
 - Prices are equitable: users pay their costs—no more, no less

Conclusions, cont.

- In sum, efficiency case for pricing ATC—*i.e.*, the case for introducing economic incentives—is powerful:
 - “Moral exhortation doesn’t change people’s behavior. Prices do.”
(Austan Goolsbee)
- Why, then, has no one made that case for user fees as part of the FAA reauthorization debate? In a summer when delays have become a national nightmare, why has the FAA not argued for user fees and congestion pricing as the immediate response?
- Instead, FAA’s case for user fees has been all about cost recover/revenue adequacy:
 - We need NextGen to meet expected demand.
 - To finance NextGen, we need a stable, predictable revenue source.
 - User fees are stable and predictable.
- Similarly, ATA has ignored efficiency; its case for user fees has been all about equity—making business jets pay their fair share

Conclusions, cont.

- Maybe it's not too late
- Airport congestion pricing may be an easier sell than user fees
 - Airports have the authority
 - Public officials and press “get” congestion pricing
 - There are ways to address airline opposition
- Time is right: the federal government can substantially reduce delays – and do so before next summer
- Remember: “A crisis is a terrible thing to waste.”