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GEORGE MASON UNIVERSITY

REGULATORY STUDIES PROGRAM

Public Interest Comment on

Proposed Amendment to the Policy Regarding the Establishment of Airport Rates and Charges¹

April 2, 2008

Docket No. FAA 2008-0036

The Regulatory Studies Program (RSP) of the Mercatus Center at George Mason University is dedicated to advancing knowledge of the impact of regulation on society. As part of its mission, RSP conducts careful and independent analyses employing contemporary economic scholarship to assess rulemaking proposals from the perspective of the public interest. Thus, this comment on the Department of Transportation's (DOT's) Notice of Proposed Amendment to its Policy Regarding the Establishment of Airport Rates and Charges² does not represent the views of any particular affected party or special interest group, but is designed to evaluate the effect of the commission's proposals on overall consumer welfare.

I. Introduction

The U.S. Department of Transportation regulates the fees that most airports charge air carriers. All commercial service airports and most other airports open to the public fall under this regulation as a condition for receiving federal Airport Improvement Grants.³ DOT can regulate the amount of the fees by defining what costs airports are allowed to recover using fees. DOT can also regulate the structure of fees. Historically, fees have been based on the weight of aircraft, and airports could only use fees to recover the costs of completed airport improvements.

For more than 40 years, aviation economists have noted that this fee structure generates substantial hidden costs for passengers on commercial airlines. Ideally, fees would vary

¹ Prepared by Mark Adams, graduate fellow, and Jerry Ellig, senior research fellow, Mercatus Center. This comment is one in a series of Public Interest Comments from Mercatus Center's Regulatory Studies Program and does not represent an official position of George Mason University.

² Department of Transportation, Office of the Secretary and Federal Aviation Administration, *Policy regarding Airport rates and Charges*, Notice of Proposed Amendment to Policy Statement (Docket No. FAA-2008-0036), Federal Register 73:12 (Jan. 17, 2008). [Hereinafter "Proposed Amendment."]

³ 49 U.S.C. 47107(a)(1).

based on the time of day at congested airports, so airlines would have a strong financial incentive to use larger planes at congested times and reschedule some traffic to less crowded airports or less congested times of the day. Basing fees solely on aircraft weight reduces these incentives, creating substantial congestion costs borne by airlines and their passengers.

To mitigate this problem, DOT has proposed three changes to its Policy Statement Regarding Establishment of Airport Rates and Charges:⁴

- (1) Airport operators could establish a two-part landing fee, consisting of a per-operation charge and a weight-based charge.
- (2) Multi-airport operators of congested airports could include some costs of designated secondary airports they own in the fees charged for use of congested airports.
- (3) Operators of congested airports could include in fees the costs of airfield projects under construction.

These changes open the door to congestion-based pricing within the current regulatory framework that requires airports to accept price regulation as a condition of receiving federal grants. Such pricing could make airline passengers significantly better off by making airport fees more accurately reflect the true costs of landing at congested airports and during congested times.

II. The Economics of Airport Pricing

The economic case for congestion pricing of runways begins with Michael E. Levine, who noted back in 1969 that an aircraft's weight does not accurately predict the wear and tear it will cause to runways.⁵ The biggest influence in the ensuing scholarly literature continues to be the research conducted by Steve Morrison and Clifford Winston in the late 1980s.⁶ In an expansive empirical study of the airline industry, they found that significant benefits of deregulation ten years prior had not been realized due to the way airport usage was priced.

Conservative estimate indicates big benefits

Morrison and Winston estimated and expressed in monetary terms the cost of delays each additional flight imposes on other airlines and passengers. An individual airline has little incentive to take these costs into account when scheduling flights, because most of these costs are borne by other airlines and their passengers. Substantial reductions in

⁴ Proposed Amendment, p. 3311.

⁵ Michael E Levine, "Landing Fees and the Airport Congestion Problem," *Journal of Law and Economics* 12:1 (1969): 94.

⁶ Stephen A Morrison and Clifford Winston, "Enhancing the Performance of the Deregulated Air Transportation System," *Brookings Papers on Economic Activity: Microeconomics* (1989): 84-99.

congestion costs could be achieved by increasing fees at peak times to reflect these costs. Morrison and Winston took a very conservative approach, assuming that airlines would not alter behavior in response to price changes, such as switching some flights to off-peak times, using larger aircraft at peak times, or rerouting flights to avoid congested airports. In their analysis, congestion-based fees increase economic welfare simply by inducing some passengers to forego flying, thus reducing congestion. The authors found that “optimal” congestion pricing without any additional investment in airport capacity would increase net economic welfare by \$6.93 billion per year by reducing congestion and delays (1988 figure adjusted to 2008 dollars).⁷ (“Optimal” prices are the prices that force airplane operators to consider the entire cost of the flight, including any costs they might impose on others.) Delays at major airports would be reduced by 50 percent.

However, there would be big winners and big losers. Congestion pricing without additional investment would redistribute \$20.96 billion (in 2008 dollars) from airlines and passengers to airport operators. The biggest losers were regional operators and general aviation, such as corporate and fractional jets. Landing fees increased tenfold at congested airports but less at other airports. Net economic welfare would nevertheless increase, because the costs associated with congestion are substantial. A study by Alan Carlin and R.E. Park for example, found that the costs of delays at La Guardia were 20 times greater than landing fees.⁸

Investment improves airline and passenger welfare

Morrison and Winston also estimated what would happen if congestion pricing was combined with investment in capacity expansion. Net benefits would increase substantially without transferring enormous sums from airlines and passengers to airports. Total welfare would increase by \$20.05 billion (in 2008 dollars) while landing fees only increased by \$180 million overall. The bulk of the welfare increase would come from savings in carriers’ operating costs (\$19.21 billion) and passenger delay costs (\$2.26 billion).⁹ Airport net revenues would decline by \$1.4 billion because new investment exceeded the increase in landing fees. Delays at major airports would fall by 90 percent.

In Morrison and Winston’s study, airlines and passengers reap the full benefits of congestion pricing only when such pricing is combined with investment. By ignoring land constraints when estimating the cost of building new runways, they probably underestimated the cost of creating new runways. However, next generation technologies now allow airports to increase runway usage, or to build additional runways on existing land, without compromising safety.¹⁰ Furthermore, at some congested airports, existing

⁷ Using the Federal Reserve Bank of Minneapolis CPI Calculator (woodrow.mpls.frb.fed.us/research/data/us/calc)

⁸ A. Carlin and R. Park, “Marginal Cost Pricing of Airport Runway Capacity,” *American Economic Review* 60 (1970): 310-19.

⁹ S Morrison and C Winston, “Enhancing the Performance of the Deregulated Air Transportation System,” *Brookings Papers on Economic Activity: Microeconomics* (1989): Table 11, p93.

¹⁰ Viggo Butler, *Increasing Airport Capacity Without Increasing Airport Size*, Reason Foundation Policy Study 368 (2008).

runway capacity is not fully utilized due to land-side constraints. For example, the Port Authority of New York and New Jersey reports that the maximum capacity at JFK Airport is 75 movements per hour, whereas the FAA estimates this may be increased to 87 movements without new runways.¹¹ These factors suggest that congestion pricing today could generate greater increases in economic welfare with perhaps less investment required than Morrison and Winston assumed.

Behavioral changes improve airline and passenger welfare

We noted earlier that Morrison and Winston assumed airlines adjust to congestion pricing only by reducing the number of flights and passengers. Contrary to this assumption, it is likely that the airlines themselves would adjust their behavior in response to prices in order to make more efficient use of runway capacity. To test this assumption, Joseph I. Daniel and Munish Pahwa compared three separate models of air traffic (including Morrison and Winston's) with empirical data on actual flight scheduling. They found that a model that assumes aircraft arrive continuously (rather than in blocks), with allowances for bottlenecks and some randomization of arrivals, was closest to actual airline practice. They then estimated how airlines would shift arrival times in response to congestion fees.¹²

When they allowed airports to adjust landing fees so that each arrival could be charged a different price, they found that both queues and congestion fees would be much lower around peak times than Morrison and Winston estimated. Off-peak fees would actually be lower. Average fee levels would be similar to average fee levels under the existing weight-based fees for larger aircraft. Moreover, general aviation aircraft could avoid peak fees by flying within half an hour of their preferred times.

Another significant way airlines can respond to peak-pricing is through “up-gauging”—that is, using larger aircraft so the runway effectively serves more passengers at peak times. *Aviation Week* reported that in recent years airlines have actually been down-gauging at New York's most congested airports.¹³ The NEXTOR study, an advanced strategic simulation by the FAA, found that up-gauging in response to congestion pricing at Newark would result in nearly as many available seats as before. This study, however, did not examine the impact of allowing airlines to redirect flights to less congested airports, which would further ease congestion and allow airlines and passengers to avoid some of the fees at congested airports.

¹¹ MITRE Corp. Center for National Aviation System Development, *2004 Airport Benchmark Capacity Survey*, FAA (2004): JFK-3.

¹² Joseph I. Daniel and Munish Pahwa, “Comparison of Three Empirical Models of Airport Congestion Pricing,” *Journal of Urban Economics* 47 (2000): 1-38.

¹³ R Poole and B Dachis, *Congestion Pricing for the New York Airports*, Reason Foundation Policy Study 366 (2007), Tables 6-8; citing Simat Helliesen & Eichner Inc, based on OAG data, *Aviation Week & Space Technology* (July 30, 2007):42.

Some caveats

Critics may argue that some of the assumptions in these later studies are over-optimistic. In particular, actual congestion fees may not correspond to the “optimal” fees calculated by economists, and pricing might not vary minute-by-minute. If so, then congestion pricing will not produce benefits as large as the scholarly literature suggests.

It may also be inaccurate to assume that airlines ignore the congestion costs they impose on other parties, because a large carrier’s decision to add another flight could delay some of its own flights.¹⁴ If airlines already take some of these congestion costs into account, then the potential benefits of congestion pricing may not be as large as scholars have estimated. However, other research suggests that individual airlines do ignore substantial congestion costs they impose on other airlines and their passengers.¹⁵ Thus, congestion fees would still provide a positive benefit.

Finally, there are some reasons the scholarly research might under-estimate the benefits of congestion pricing. Congestion costs have increased since 1988; a recent study estimates the current nationwide cost of ground delays alone at \$10 billion.¹⁶ Moreover, other assumptions in the scholarly studies are quite conservative. None of the studies estimates the combined effects of congestion pricing, increased investment in capacity, and the full menu of ways airlines could alter schedules and aircraft in response to congestion fees. Therefore, the published research is as likely to underestimate the benefits of congestion pricing as to overestimate them.

III. Analysis of DOT’s Proposals

A. Two-part fee

Giving airports the option to charge per flight operation gives them the opportunity to set fees that more closely reflect congestion costs. DOT’s language is consistent with this goal, as the two-part fee is permitted only if it “reasonably allocates costs to the appropriate users on a rational and economically justified basis.”¹⁷ Inducing airlines to take into account the congestion costs their scheduling decisions impose on others would mitigate an externality caused by the current pricing system, which fails to reflect congestion costs.¹⁸ Though economists have predicted benefits from congestion pricing

¹⁴ Jan K. Brueckner, “Airport Congestion When Carriers Have Market Power,” *American Economic Review* 92:5 (2002): 1357-1375.

¹⁵ Steven Morrison and Clifford Winston, “Another Look at Airport Congestion Pricing,” *American Economic Review* 97 (2007); Joseph I Daniel and Katherine Thomas Harback, “(When) Do Hub Airlines Internalize Their Self-imposed Congestion Delays?,” *Journal of Urban Economics* 63 (2008): 538-612.

¹⁶ Robert W Poole Jr. and Benjamin Dachis, *Congestion Pricing for the New York Airports*, Reason Foundation, Policy Study 366 (2007).

¹⁷ Proposed Amendment, p. 3314.

¹⁸ An “externality” occurs when one party fails to take into account the costs or benefits its actions confer on other parties, and the effects are big enough that one party would compensate the other in the absence of transaction costs. See Ronald H. Coase, “The Problem of Social Cost,” *Journal of Law & Economics*

of airports only for the past 40 years, the general principle that peak-load pricing enhances economic welfare when there are congestion costs is a fundamental principle of regulatory economics and more than a century old.¹⁹ Thus, there is clearly an economic justification for allocating more of the costs to users at peak times.

B. Revised cost allocations

DOT defines a “congested” airport as an airport that accounts for at least one percent of all flight delays in the U.S., or is one of the airports identified in a May 2007 FAA report as congested in 2007 or projected to be congested by 2015.²⁰ The department proposes to let congested airports allocate additional costs to the price of operations occurring at congested times. Airport authorities operating multiple airports could shift costs from secondary airports to the rate base of a congested airport at peak times.²¹ Another proposed change would allow congested airports to start charging now for projects currently under construction.²²

The basic puzzle DOT appears to be trying to solve is this: Congestion imposes real costs on airlines and passengers. However, the current regulatory system links prices to monetary costs paid to construct and operate facilities—not to congestion costs imposed on other carriers and their passengers. Within this regulatory system based on historical costs, the simplest way to allow prices to reflect higher social costs at congested times is to allocate more of the airport’s costs to the fees charged at congested times. A straightforward way to let an authority owning multiple airports increase prices at congested airports is to allow it to allocate more of its costs to the congested airports.

The problem can also be defined in a way that creates a more direct link between decisions to use airports at peak times and airports’ resulting monetary outlays. Since new facilities are presumably built to relieve congestion, it is also roughly accurate to say that airline decisions to use a congested airport, or to use an airport at congested times, are the decisions that make the costs of capacity expansion necessary. Thus, usage decisions that increase congestion can be said to cause the costs associated with capacity expansion.

1. One large caveat

DOT explicitly recognizes that its proposed changes to the Policy Statement would not produce optimal or “true” congestion pricing. Airports could not set prices at any level that balances supply and demand at peak times. They would merely be permitted to charge per flight operation, and congested airports could allocate more costs to the prices at peak times. Revenues generated by the fees could not exceed the total cost of building and operating airport facilities.²³

¹⁹ Cite Kahn, *Principles of Regulation*, and originator of the idea

²⁰ Proposed Amendment, p. 3313.

²¹ Proposed Amendment, p. 3315.

²² Proposed Amendment, p. 3314.

²³ Proposed Amendment, p. 3313.

Within these constraints, charging a fee per operation might either over- or under-charge airlines for the costs associated with congestion. The department would do well to consider the implications of both of these possibilities.

Fees could be excessive relative to congestion costs if the additional costs allocated to congested airports or peak times exceed the current and projected costs of congestion that would otherwise occur under the current pricing system. It is true that regulation is supposed to prevent airlines from recovering more than the allowable cost of the airfield. But because fees are not explicitly linked to the costs congestion imposes on other airport users, there is no necessary reason that this cost-based limit on fees will prevent fees from exceeding the social cost of congestion. If congestion fees are set too high relative to congestion costs, airlines may over-adjust, excessively reducing passenger flows or re-routing too many passengers to non-peak times or uncongested airports.

This problem could be most easily overcome by specifying that reasonable allocation of costs to users “on a rational and economically justified basis” should include a comparison of the revenues generated by new fees with the projected social costs of congestion under the existing fees. Additional fees might not be considered reasonable if the revenues they generate substantially exceed an estimate of the social costs of congestion. Data on congestion fees and congestion costs should be made available as part of the “adequate information”²⁴ airports are required to furnish to users.

Fees based on historical costs might also fail to fully reflect the social costs of congestion. In this case, “reasonable” fees will likely improve consumer welfare but still fall short of what might be necessary to eliminate the social costs of congestion. To address this potential problem, at a minimum, the department should consider requiring that an airport seeking to charge a per operation fee must compare anticipated revenues from the new fee with the projected social costs of congestion. This analysis should be made available to DOT, airport users, and the public. If new revenues frequently fall far short of estimated social costs of congestion that might indicate that further revision of the Policy Statement is necessary.

2. Construction cost allocation

DOT solicits comments on two different approaches to incorporating the costs of capacity additions under construction into fees at congested airports. One option is to allow airports to allocate these costs to fees only at congested times. The other option is to let congested airports include these costs in fees charged at all times.²⁵

If the goal of the proposal is to induce airlines to take congestion costs into account, then the first option is preferable. Allowing a congested airport to increase fees at non-congested times would undermine the proposed policy by narrowing the difference between the cost of flight operations at congested and non-congested times. Allowing the

²⁴ Proposed Amendment, p. 3315.

²⁵ Proposed Amendment, p. 3314.

airport to increase fees only at congested times would lead the price structure to more accurately reflect the costs of congestion.

IV. Conclusion

A long history of economic scholarship justifies DOT's proposals in this proceeding. Congestion pricing has been a fundamental tenet of regulatory economics for more than a century, and economists have explicitly analyzed its benefits when applied to airports for 40 years. Empirical research consistently finds that such pricing would reduce the social costs of congestion. Moreover, many strategies exist to ensure that airlines and consumers share in the benefits. Investment in additional airport capacity is one; regulating the new fees so that airports collect no more than the costs of building and operating airports is another. Airlines themselves can mitigate the outlays associated with the new fees by using larger aircraft at peak times or shifting flights to non-peak times or non-congested airports. Economic research suggests that these possibilities provide airlines and their passengers with ample means to avoid being "gouged."

In principle, allocating more costs to flights at congested times would help reduce the social costs of congestion. In practice, this cost allocation could either over- or under-adjust the prices airlines pay to use airport facilities. To reduce both possibilities, the department should require an airport that wants to charge a fee per flight operation to estimate the new revenues this fee would produce and compare them to an estimate of the social costs of congestion at that airport. If the new revenues exceed the social cost of congestion, the fee is likely too high, even if the airport's total revenues do not exceed its total costs. If the social costs of congestion exceed the new fee revenues, the new fee may be too low.

DOT's proposal is a creative attempt to incorporate economic principles into a cost-based regulatory structure. The few small modifications we suggest will help ensure that congestion pricing produces the greatest possible benefits.

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Appendix I

RSP Checklist

Element	Agency Approach	RSP Comments
1. Has the agency identified a significant market failure?	Identifies congestion as a real and growing problem at major airports, caused in part by absence of accurate prices for use of airports. Grade: A	An individual airline tends to impose external costs on other airlines and passengers when it schedules additional flights without paying a price that reflects these “social” costs.
2. Has the agency identified an appropriate federal role?	Proposal alters price regulations that airports agree to as a condition of receiving federal airport improvement grants. Grade: A	This is a federal problem because prior federal regulations distorted the price signals.
3. Has the agency examined alternative approaches?	Primary alternatives are the status quo and the congestion pricing proposal. DOT explicitly seeks comment on whether costs of projects under construction should be included in fee only at congested times or at all times at congested airports. Grade: C	Could have considered broader alternatives, such as explicitly allowing estimated social costs of congestion to justify reasonableness of fees, or overhauling airport finance to let congestion fees partially or fully replace federal grants.
4. Does the agency attempt to maximize net benefits?	DOT acknowledges proposal will not produce “true” congestion pricing, implying that it will not maximize net benefits. Grade: B	Proposal attempts to maximize net benefits to the extent that’s possible within the cost-based pricing framework.

Element	Agency Approach	RSP Comments
5. Does the proposal have a strong scientific or technical basis?	Pricing proposal is consistent with mainstream regulatory economics research, and definition of congestion problem appears to be well-grounded in data. Grade: A	DOT's discussion of pricing suggests that the people writing this regulation are well aware of the academic literature.
6. Are distributional effects clearly understood?	DOT clearly seeks to let airports impose new fees while preventing a large redistribution of wealth from airlines and passengers to airports. Grade: B	It would be helpful to know whether this proposal is likely to benefit airline passengers across the board, or if some particular group of passengers would be made worse off.
7. Are individual choices and property impacts understood?	Incentive effects of prices are well-understood. Regulated entities accepted regulation as a condition of receiving federal grants. Grade: A	Proposal raises no "property rights" issues because it actually increases regulated entities' flexibility to recover costs.