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ROUNDTABLE ON CONCESSIONS

Contribution from the United States

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ROUNDTABLE ON CONCESSIONS

1. Take-off and landing slots at congested airports are a scarce resource that can be allocated by government authorities as a type of concession. The U.S. antitrust agencies have consistently supported the goal of finding an effective and comprehensive method of handling the allocation of slots that both addresses the problem of airport congestion and encourages competition at congested airports. This paper is derived from comments filed in May 2005 by the Department of Justice (DOJ) in proceedings concerning slot allocation at Chicago's O'Hare Airport.

2. Slots, or rights to take-off or land at a particular time, were first used in the U.S. in 1969 and until recently were imposed to allocate capacity at four major airports: New York's LaGuardia, New York's Kennedy, Chicago's O'Hare, and Washington's Reagan National. Slots have always been apportioned administratively by the Federal Aviation Administration (FAA), largely to incumbent carriers based on existing service. The airlines with service at O'Hare in 1969 still have most of the slots at that airport. In 1985, the FAA created a buy/sell market for slots, which was expected to lead to a more efficient allocation of these scarce resources. Instead, the FAA found that it was rare for more than a few slots to be available in the secondary market at any given time. Only when an existing carrier exited the airport, as when Eastern and TWA went out of business, were large groups of slots available for sale. Due to the sporadic availability of slots, entrants (or incumbents seeking to expand service) often found it difficult to acquire sufficient slots to establish a viable service pattern in a city pair.

3. On two occasions, the FAA and Congress responded to this difficulty by relaxing the slot constraints at various airports. Both experiments failed, however, because they were unaccompanied by any mechanism, other than costly congestion, for limiting service to the airport. In 2000, Congress lifted slot controls at LaGuardia for smaller regional jets. The resulting rush of new flights led to major congestion problems at LaGuardia until the FAA restored administrative controls to limit arrivals and departures. At O'Hare, Congress mandated the lifting of all slot restrictions in July 2002. In response the two hub carriers American Airlines and United Airlines, promptly over-scheduled the airport.

4. Some of the congestion at O'Hare stems from the airlines' move to regional jets, which may inefficiently use O'Hare's limited capacity. An examination of data from a representative day in December 2004 shows that regional jets accounted for 44% of operations, but only 24% of seating capacity. This disparity between operations and seating capacity arises because regional jet operations at O'Hare average only 56 seats, compared to 140 seats on the average domestic jet flight. Regional jets do allow efficient service on feeder routes at hub airports, and to smaller communities that might not have enough traffic to justify larger jets. With the current system of airport pricing, however, congestion costs are not factored into the service decisions of airlines. There is no price signal to the airlines that would encourage them to balance the value of regional feeder service in small aircraft against the costs created by congestion. Instead, congestion at the airport creates a classic externality where the costs of delay are imposed on all users of the airport.

5. Faced with the problem of congestion at O'Hare, the FAA responded by convincing United and American to roll back some of their flights voluntarily in 2004. This scheduling reduction, however, was offset by the addition of flights by other carriers at the airport, leading to no net reduction in congestion. The FAA called a "delay reduction meeting" of all carriers serving O'Hare in the summer of 2004. The meeting resulted in an order, effective November 1, 2004, that limited arrivals to 88 per hour during peak hours, and that effectively prohibited entry at O'Hare without FAA permission.

6. The slot buy/sell market did not result in an efficient allocation of slots at O'Hare. No matter how slots are distributed (including a government giveaway to market incumbents), as long as a secondary market exists and transaction costs are low, slots should be bought and sold until each finds its highest valued use.[1] In practice, however, the slot market previously attempted at O'Hare and LaGuardia did not result in an efficient allocation among incumbents, nor did it facilitate competitive entry in the constrained airports.[2] The secondary market never became sufficiently liquid to achieve these results, for several reasons.

1. Transparency

7. Transparency in the market for slots is one reason the secondary market never became sufficiently liquid. Transparency means that the identity of buyers and sellers is widely known. Transparency in the secondary slot market permits strategic purchases by incumbents to prevent new entry. An incumbent carrier probably would never knowingly sell to an entrant that was likely to compete against it, given that such a sale would likely decrease the slot holder's profitability. More importantly, a potential entrant would have equal difficulty buying from other slot holders. Such slot holders, if approached by the potential entrant, would have every incentive at that point to seek out the threatened incumbent and solicit a better offer. Because the rents from limiting competition almost always exceed the more competitive rents an entrant would earn, the threatened incumbent should be willing to outbid the entrant, even if it would use the slots in an economically less efficient manner. Strategically purchasing available slots can be an effective entry deterrent, especially since multiple slot holdings required for significant entry rarely come up for sale.

8. Similarly, slot leases are transparent because the leasing process necessarily involves the identity of lessons and potential lessees being disclosed, and thus have the same problems associated with a transparent buy/sell rule. Although slot leasing is fairly common, the leases come with provisions that allow the lease holder to terminate the lease on relatively short notice. Leasing is therefore a substantially more risky and thus inferior means of entering a market. A new entrant understandably may be reluctant to incur the cost of beginning new service to Chicago if its lease could be pulled at any moment by an incumbent.

2. Market Power

9. Another reason the secondary slot market never became sufficiently liquid is that the FAA's initial allocation of slots at O'Hare gave the bulk of all slots to two carriers, American and United. This allocation gave those carriers much larger market shares in slots than any other carrier could obtain, and effectively limited the amount of competition other carriers could offer to O'Hare on at least some routes. Both of these carriers developed hubbing operations out of Chicago O'Hare, and any slot they sold would have almost certainly been used to compete with them on some route. Therefore, neither American nor United were willing to sell slots to potential competitors, making the bulk of O'Hare slots unavailable to others.

3. Uncertainty of Duration and Value

10. Another obstacle to creating a liquid market in slots is the repeated use of temporary administrative allocation mechanisms that do not create long-term property rights. Under each of the FAA's administrative allocation systems, the award of a slot has been a temporary right, exercisable only until the system changes again. That right has become quasi-permanent in practice, but anyone interested in buying a slot takes the risk that the system may change in a way that reduces the expected value of the property conveyed. The uncertainty about the time period over which the right can be exercised, therefore, makes it difficult for buyers and sellers with different views about the likely duration of that time period to

agree on price. In addition, by periodically giving away slots, Congress and the FAA have contributed to the uncertainty about slot value. The result is that fewer slot transactions occur, and the market is less liquid than it would be absent the uncertainty.[3]

11. The best solution to airport congestion problems is to implement market-based solutions. To a great extent, the problems described above are inherent in any administrative allocation of slots, and can be fixed only by a more comprehensive market-based approach. Any design for a market-based system should keep two objectives in mind. First, the system must establish a price-setting mechanism that reflects both supply of and demand for scarce airport resources. This price should replace existing regulatory fee structures which encourage carriers to use scarce airport capacity inefficiently by scheduling too many smaller planes. Second, the system should promote competition by enabling scarce capacity to be more easily transferred among carriers, and by preventing capacity from being locked up in ways that allow the exercise of market power. There must be a sufficiently liquid market in slots to permit new carriers to enter an airport rapidly and on a large enough scale to efficiently serve routes in competition with large incumbents.

12. There are two possible market-based approaches for allocating scarce airport capacity: congestion pricing and auctions. Both have the potential to be far superior to an administrative system. Each approach has strengths and weaknesses, as outlined below; the optimal choice will depend on particular market conditions.

3.1 Congestion Pricing

13. Under a congestion pricing system, the existing slot allocation system would be abolished in favour of congestion fees set for particular times.

14. Airlines currently pay weight-based fees for landing. The consequence of the weight-based fee structure is that a small regional jet, which causes just as much airspace congestion as the largest 737, pays a much lower landing fee than the much larger plane. Airlines thus do not face a price that reflects the fact that airspace is a scarce input.

15. If airlines were charged a flat landing fee based upon demand at particular times of day, regardless of the size or type of plane, smaller aircraft such as regional jets would appropriately have to bear a higher per-passenger cost for using an airport's scarce landing capacity than they do now. Regional jets would continue to be part of the airport's mix of aircraft, but at the margin where airlines are choosing between larger jets and regional jets, larger jets operating slightly less frequently will become a more attractive option than scheduling multiple trips on regional jets. The result would be an increase in passenger throughput at capacity-constrained airports.

16. The advantage of congestion pricing is that it is relatively easy to implement. The regulator would set prices for slots at different times and airlines would set their quantities accordingly. If the prices are initially too low, then the congestion prices can be raised over time to ration demand. A uniform fee for landing at a particular time would reduce the congestion bias caused by the current system of weight-based landing fees.

17. Congestion pricing has been used for several years to improve the flow of traffic on two highways in Southern California. Highway SR-91 in Orange County, California has four free lanes next to two toll lanes in each direction. There is a pre-determined toll schedule for every hour of the day. The rates vary from $1.05 for most overnight and pre-dawn hours to $7.00 for some afternoon rush hour time periods. On Interstate 15 in San Diego, there is a toll schedule for two reversible lanes. The toll varies with the level of congestion on the road and can change as often as every six minutes.

18. Although congestion pricing is likely superior to administrative allocation, a drawback to congestion pricing is the regulator's lack of knowledge about what price to set. A regulator may not have good enough information to allow it to set the right price without frequent experimentation. Even that mechanism may have problems because the necessary feedback for quantity adjustment may be slow. In particular, airlines often advertise service well in advance so as to schedule and make ground facility arrangements efficiently. This, in turn, implies that adjustments based on the changing price of arrival authorisations may be slow. For highly congested airports, the cost of setting the wrong price and getting too much (or too little) airline traffic may be high.

3.2 Slot Auction

19. A slot auction would allocate scarce arrival authorisations through a periodic open- bidding mechanism. For example, the FAA has good information about O'Hare's capacity for arrivals and departures, and can set a maximum quantity relatively precisely. An auction would determine the price for arrival authorisations at a particular time, regardless of the size or type of plane.

20. A well-designed slot auction would both assign prices to allocate efficiently scarce airport resources, and limit the maintenance or accumulation of market power by individual carriers. Such goals require careful attention to the details of auction design. For instance, the auction should limit informational feedback during the auction itself. Bidders might know the aggregate level of demand and supply of all arrival authorisations in each time period, but not be permitted to know the identity of the other bidders. This practice is fairly typical at auctions and is designed both to limit collusion among bidders and to prevent strategic bidding. Although more information allows more informed bidding on the part of bidders in ways that can be efficient, full knowledge of which airlines are bidding for which slots in an auction could encourage incumbent airlines to attempt to foreclose entry by particularly strong competitors. In this case, the government's interest in preserving competition among carriers should take priority over bidders' desires to have complete information about rival bids.

21. Any auction design must allow for sufficient liquidity so that potential entrants are not unnecessarily impeded. Annual auctions of a significant portion of airport arrival capacity (20%, for instance) would help allow for rapid entry when it is efficient.[4] Such a five-year rotation would provide a concrete duration for the property right, and therefore assist airlines in valuing the slots.

22. A switch to a market-based mechanism for allocating arrival authorisations will not by itself achieve the twin goals of reducing congestion and encouraging more competitive outcomes. Entry and expansion of new carriers, a key mechanism for encouraging competitive outcomes, is constrained not only by scarce landing rights, but by the limited availability at some airports of ground-based assets such as gates, baggage-handling, and check-in positions. To make any auction for arrival authorisations effective in this environment, aviation authorities must help ensure that ground-based assets will not be a constraint for new slot owners. A common-use pool of gates, for example, might be one solution to overcome some of the hurdles associated with limited ground-based assets. Another issue that authorities must take into account is that the transfer of ground facilities to slot holders can be disruptive of current operations. Auctioning off only 20% of the airport's capacity at a time, as discussed above, would allow for efficient transfer of needed ground facilities.

NOTES

1. See, *e.g.*, Ronald Coase, The Problem of Social Cost, 3 J. Law & Econ. 1 (1960). "Highest valued use" for the carriers, however, might translate into market power on particular routes. Any distribution of slots must be subject to vigilant antitrust oversight.

2. Airline Deregulation: Barriers to Entry Continue to Limit Competition in Several Key Domestic Markets, Government Accounting Office, October 1996, GAO/RCED-97-4.

3. The interaction between the lack of liquidity in the marketplace and the uncertain nature of the property right being transferred may also make existing slot holders less willing to sell slots. For existing slot holders, the value of a slot includes not only the current value of operating a slot at the slot-constrained airport, but also the option to change their operational patterns in the future by adding flights ("option value"). To avoid paying a high price to get back into an airport later, slot holders may prefer to retain their slots if they are unconvinced that they can buy back into the airport later at a reasonable price. Although in theory someone could pay for acquiring this additional option value as well, the uncertainty surrounding the future of slots makes such a transaction more risky, and thus sales may simply not take place.

4. There is a trade off involved in limiting the duration of the property right – it induces some uncertainty in airlines' future plans, in return for keeping avenues of entry open.