Evaluation of Alternative Arrangements for the Provision of Airport Taxi Service
by Sumner J. La Croix, James Mak and Walter Miklius

ABSTRACT

Three contractual arrangements to provide taxi service are in use at U.S. airports: exclusive contract, permit system, and open system. These contracts differ in their collection of rents, the quality of taxi service provided, and their consistency with the political power of important interest groups. Contractual terms vary because airport administrators attach different weights to these objectives.

I. Introduction

Taxicabs play an important role in carrying passengers to and from airports. For instance, at Washington National Airport, 33 percent of the passengers used taxicabs in 1987.¹ The average for all major U.S. airports is around 10 percent (Urban Consortium, 1980). Complaints about the quality of airport taxi service are common at nearly all airports. Most complaints concern fare gouging, trip refusals, dirty drivers, dirty and/or unsafe cabs, and drivers who cannot understand or speak English.²

Taxicab service at airports is regulated under several regimes. At virtually all major U.S. airports any licensed taxicab is permitted to bring passengers to the airport, but only some taxicabs are licensed to solicit deplaning passengers. Airport taxi service is provided under a variety of contractual arrangements. They can be categorized under 3 types: (1) Exclusive Contract where a single taxicab company is granted the exclusive privilege to solicit passengers leaving the airport;³ (2) Permit System in which a government agency issues a limited number of permits to selected taxicab operators to provide service; and (3) Open System in which any taxicab licensed to provide service in the metropolitan area is allowed to solicit passengers at the airport.

¹The authors are Professors in the Department of Economics, University of Hawaii at Manoa, Honolulu.
In this paper we explain why we find three different taxi service arrangements at major U.S. airports and the effects of the choice of a particular taxi service arrangement on the performance characteristics of airport taxi service. Our analysis is partially based on information gathered during the fall of 1989 from personal visits to 8 of the top 20 U.S. airports and interviews with ground transportation administrators and taxi operators. These airports were selected to obtain examples from all 3 taxi arrangements. The airports visited include Hartsfield Atlanta International Airport (open system), Los Angeles International Airport (open system), Houston Intercontinental Airport (open system), Detroit Metropolitan Wayne County Airport (permit system), Seattle-Tacoma International Airport (permit system), Greater Pittsburgh International Airport (exclusive system), Honolulu International Airport (exclusive system), and Washington-Dulles International Airport (exclusive system).

II. Background

Until the early 1970s airport taxi service at a large number of major U.S. airports was supplied by one taxi company under exclusive contract with the airport operating authority. Since the mid-1970s exclusive contracts have become a target of the deregulation movement. Exclusive contracts at Dallas/Fort Worth, Houston, and Honolulu have been targets of antitrust suits although both Houston and Honolulu have survived court tests. Airports in Los Angeles and Atlanta switched to the open system from the exclusive system largely due to political pressure to end what were widely regarded as airport taxi monopolies. Houston, San Francisco, and Washington National Airport also recently switched to the open system, while Miami switched to the permit system. Exclusive systems remain at Dallas/Fort Worth, Pittsburgh, Dulles, and Honolulu. In the past decade the pendulum has swung in the opposite direction, with the exclusive system regaining favor. In 1979 the Seattle-Tacoma Airport switched from an exclusive system to an open system, found it unworkable (Zerbe, 1983), and then converted to a permit system. Finally, in November 1989, Seattle decided to switch back to the exclusive system. In 1982 Sacramento Metropolitan Airport also switched from an exclusive system to an open system, resulting in a "taxicab mess" that included allegations of price gouging, dirty drivers, unsafe cabs, and unfair competition. In 1989 the airports director asked the County Board of Supervisors to approve a return to the exclusive system. In December, 1989 Detroit Metropolitan Airport switched from a permit system to an exclusive system.

The best contractual arrangement for providing airport taxi service remains a controversial issue among scholars (DeVaney, 1977; La Croix, Mak and

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Miklius, 1986). In evaluating airport taxi service at Dallas/Fort Worth Airport in the mid-1970s, DeVaney (p. 2) concluded that "objections to an open, competitive system cannot be sustained in light of the inefficiency of the present exclusive system, and what is known or can be predicted about a competitive system." DeVaney argued that airport authorities generally are too concerned about getting deplaning passengers off the airport quickly at the expense of economic efficiency. In his analysis of urban taxi service regulation, Eckert (1973) suggested that airport authorities prefer to deal with a single taxicab company due to their preference for a simple life. La Croix, Mak, and Miklius (1986) suggested that DeVaney's criticisms of exclusive systems may not apply to all exclusive airport taxi contracts. They argued that taxicab service provided under an exclusive contract at Dallas/Fort Worth Airport was inefficient because the terms of the contract were unnecessarily restrictive. They concluded that "[i]t is not the exclusivity, but rather, the terms of the contract and the special circumstances specific to each market that determines which system is best for a particular market" (p. 158).

Teal and Berglund (1987) recently reviewed the impact of taxicab deregulation in the U.S. and concluded (p. 54) that

[it] cannot be demonstrated to have produced, in most cases, the benefits its proponents expected. Prices do not usually fall, improvements in service are difficult to detect, and new price-service combinations have not been developed. There is little evidence that either consumers or producers are better off. The one important exception is new entrants to the industry, who now have an opportunity to serve a market to which they were previously denied access. Even for them, however, deregulation is a mixed blessing. Many have been unable to survive in the more competitive unregulated environment, and those who have survived are apparently obtaining low earnings.

That airport taxicab deregulation has not lowered prices or improved service quality is not surprising. La Croix, Mak, and Miklius (1986) provided two reasons why deregulation of airport taxi service does not provide more price competition. First, passengers arriving from out of town may be unfamiliar with local taxi service, the level and spread of rates, and the availability of competitive services. Given the small importance of the taxi fare in the overall cost of the trip and the high value of time on vacation and business trips, most deplaning passengers have little incentive to shop around for taxi service. Second, the first-in first-out (FIFO) taxi queue discipline employed at airports provides little incentive for cab drivers to engage in price competition even if taxicabs are permitted to set their own rates. Kirby (1981) and Gelb (1980; 1983) observed that after fares were deregulated at San

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Diego and Seattle-Tacoma Airports, taxicab operators set very high fares and still remained confident of getting business. In Portland, Oregon, all taxicab companies charged the maximum rate shortly after maximum fares were introduced. The same occurred at Seattle-Tacoma Airport after rate regulation was reinstated. Zerbe (1983, p. 47) observed that "[t]he maximum rate has tended to become the rate."

Deregulation of airport taxi service has also not provided better service as measured by passenger waiting time, because passenger waiting time was close to zero at almost all major U.S. airports prior to deregulation. Indeed, at nearly all airports, the queue of taxis waiting for passengers is typically very long regardless of the contractual arrangement. Table 1 provides information on the waiting times for taxi drivers at the 8 airports in our survey. Schroeter (1983) attributed the long queue to the fare structure. He demonstrated that when the flag-drop charge is low relative to the per mile charge, drivers prefer to wait longer for a single long airport trip rather than provide several short trips in the city. Taxi fares at most airports are set by local city and county governments which usually establish a single rate structure for all taxi trips in the metropolitan area, including trips to and from the airport. Since most metropolitan taxi trips are in-town, short distance trips, the fare structure is usually set to reflect the higher cost of operating taxis in town. By contrast, trips originating at major U.S. airports tend to be long-distance trips that allow fewer stops and higher average operating speeds, resulting in lower operating costs per mile than in-town trips. Thus, the combination of the fare structure and lower operating costs generate economic rents in airport taxi service. The existence of a common pool of rents helps to explain why most airports are concerned about curtailing the length of the taxi queue waiting for passengers. Reducing the queue length not only reduces traffic congestion at the airport, it also lessens the dissipation of economic rents by taxicabs waiting too long in airport taxi holding pens.

III. Factors in the Choice of Airport Taxi Arrangements

To understand why airport administrators choose a particular taxi arrangement, it is useful to examine their objectives. Airport administrators are faced with the complex task of designing a contract which (1) collects rents for the airport authorities; (2) provides higher quality service than elsewhere in the metropolitan area; and (3) is consistent with political power of taxi drivers and other important interest groups. Unfortunately, these objectives are not mutually consistent. The reason why we observe different arrangements at different airports is that airport authorities attach different weights to each of the objectives. This is due, in part, to differences in the
environment in which they operate. Our analysis focuses on how these environmental differences drive airport administrators' choice of contract.

### TABLE 1

<table>
<thead>
<tr>
<th>Type of Arrangement</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open:</td>
<td></td>
</tr>
<tr>
<td>Atlanta</td>
<td>2.4</td>
</tr>
<tr>
<td>Houston</td>
<td>2.25</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>1.1</td>
</tr>
<tr>
<td>Permit:</td>
<td></td>
</tr>
<tr>
<td>Detroit</td>
<td>2.25</td>
</tr>
<tr>
<td>Seattle</td>
<td>3.5</td>
</tr>
<tr>
<td>Exclusive:</td>
<td></td>
</tr>
<tr>
<td>Dulles</td>
<td>...</td>
</tr>
<tr>
<td>Honolulu</td>
<td>0.92</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>1.17</td>
</tr>
<tr>
<td></td>
<td>1.5-2</td>
</tr>
</tbody>
</table>

**Notes:**

1. This waiting time was achieved by imposing an odd-even system whereby each licensed taxicab is permitted to pick up passengers at the airport only every other day.
2. The typical waiting time at Dulles was difficult to estimate. While taxi drivers gather in the early morning at the staging area, the rationale for gathering appeared to be social, rather than to queue for a fare. However, the queue often ran out at peak arrival times and late at night.

### Rent Extraction and Rent Seeking

As we noted above, rents from airport taxi service stem from the fare structure and the lower costs of longer trips. Collection of rents is important to most airport administrators as the revenues are often returned to airport special funds which subsidize other airport services or finance projects beneficial to administrators and airport users. Rents are usually collected through a trip fee per cab or per passenger (see Table 2). Only part of the fee is economic rent, with the remainder compensating the airport for services provided to taxis. DeVany (1977) noted that trip fees
are a minor source of revenue for airports. For example, in fiscal year 1990-91 the exclusive taxi concessionaire at Honolulu International Airport (HIA) paid $477,349 in trip fees to the airport. This is partly compensation for the use of 45,000 square feet of space whose rental value is estimated at $40,000 per year. By contrast total concession revenues received by HIA mounted to $261.6 million. At Atlanta’s Hartsfield Airport (with an open system), total concession revenues from taxis amounted to $180,608 in 1988. The cost to the airport of providing starters, tickets, and restroom supplies was $109,081, and this figure does not include the imputed rent and depreciation of the taxi staging area.

<table>
<thead>
<tr>
<th>Type of Arrangement</th>
<th>Concession Fee (dollars)</th>
<th>Percent of Typical Fare</th>
<th>Concessionaire Provides Dispatch Service</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlanta</td>
<td>0.50</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td>Houston</td>
<td>1.10</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>0.50^1</td>
<td>2</td>
<td>No^1</td>
</tr>
<tr>
<td><strong>Permit:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detroit</td>
<td>2.80</td>
<td>10</td>
<td>Yes</td>
</tr>
<tr>
<td>Seattle</td>
<td>1.00</td>
<td>4</td>
<td>No</td>
</tr>
<tr>
<td><strong>Exclusive:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dulles</td>
<td>2^2</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td>Honolulu</td>
<td>0.32</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td>Pittsburgh</td>
<td>0.35</td>
<td>1.5</td>
<td>Yes</td>
</tr>
</tbody>
</table>

^1 The concession fee as well as the dispatch service is financed from a $2.50 per trip fee passed on to taxi passengers as a surcharge on the metered taxi fare.
^2 At the time of the survey, the concession fee at Dulles was set as a fixed monthly fee plus a trip fee per passengers after the total passenger count exceeded a specific number.

The incentive to collect rents is somewhat offset by the presence of taxi operators as an important interest group in some cities. Taxi drivers fit the
mold of the interest group which is sufficiently small and homogeneous to be well-organized for political action yet large enough to have some clout at the ballot box. Given the political power of taxi operators, airport administrators have incentives to award taxi operators some portion of the rents from airport taxi service. Leaving rents to competing taxi drivers invariably leads to rent seeking and dissipation of rents unless the taxi service contract is carefully structured. The three types of airport taxi arrangements vary in their effectiveness in limiting the rent-seeking activities of taxi operators.

The open system is particularly problematic, as competition between individual drivers for rents induces an expansion in the number of taxis serving the airport. For example, in 1979 when Seattle-Tacoma Airport switched from an exclusive system to an open system, the number of airport-licensed cabs increased from 35 to 263 by the end of 1979. As the number of taxis increased, so did the queue of taxis waiting for passengers and the amount of time each driver spent in the queue. Existing rents were dissipated by the excessive number of taxis waiting for passengers. At Sacramento Metropolitan Airport, deregulation of airport taxi service doubled the number of taxi cabs from 150 to 300. Two open system airports (Atlanta's Hartsfield and Houston Intercontinental) had average waiting times for airport taxis of over 2 hours for a passenger load (Table 1). At Los Angeles Airport, also an open airport, the waiting time for taxis is comparatively short, only 1 hour. This is largely because the City of Los Angeles has restricted the total number of taxicabs in Los Angeles at about 1,250 since January 1983 and the airport taxi dispatch company has imposed an odd-even system whereby each licensed taxicab is permitted to pick-up passengers at the airport only every other day.

An exclusive contract provides incentives for the contract holder to limit the number of taxicabs waiting in line, as it is the sole claimant to rents. At airports with exclusive contracts, we observed lower, but still significant, average waiting times by taxis for passengers (see Table 1). The primary reason for the long queues is that the exclusive contractor is often not a profit-maximizing firm, but a nonprofit association of independent drivers. In many cities the association manager has little control over drivers' decisions to wait in the airport queue.

In Honolulu, airport authorities signed an exclusive contract with an association of independent taxicab operators to provide taxi service at Honolulu Airport. Membership in the association is restricted, and there is typically a pool of applicants on the waiting list. Regardless, La Croix, Mak and Miklius (1986, p. 149) found that airport taxicab drivers wait an average of 55 minutes on a peak day and 86 minutes on an off-peak day. The
general manager of the taxi association explained that since all drivers are owner-operators, the association cannot dictate the work schedules of the drivers and hence must have more drivers in order to guarantee 24-hour service than if all drivers were employees. The manager of the taxi dispatching service at Los Angeles Airport noted that new drivers, who often speak poor English and have little experience with radio dispatch work, find it easier to wait in line at the airport for a fare than to work the radio dispatch business in town. Moreover, a higher probability of crime on in-town trips and increasing traffic congestion in central business districts produce a higher disutility of work effort and surely cause some drivers to choose airport trips over in-town trips.

Some airports with exclusive contracts have shorter taxi queues. Taxi drivers wait only 10 minutes during the peak hours at Pittsburgh Airport, although the average wait during the off-peak hours is 1.5-2 hours. Taxi queues form at Dulles Airport in the morning, but Dulles also occasionally experiences shortages of taxis, particularly at peak arrival times and late at night.

The permit system can also be effective in limiting rent dissipation but this requires the assumption that administrators issue the efficient number of permits. Our analysis of the two permit airports in our sample indicates that administrators issued too many permits. Both airports had converted from an open to a permit system. The change to a different arrangement contained a grandfather clause in both cases: taxi operators who served the airport under the previous system were granted permits to participate in the new system. This phenomenon would probably not be observed if the permit system was being adopted de novo.

It is also clear that compared to the exclusive system, airport administrators have more difficulty in adjusting the number of taxis under a permit system. New permits represent permanent additions to the supply and are likely to be opposed by existing permit holders. On the other hand, retiring permits is rarely politically feasible. At Baltimore-Washington Airport, taxicab operators recently went to court to delay the expiration of their permits. At the Detroit Metropolitan Airport, 126 taxi permits were issued, although consultants estimated that 97 would have been sufficient to meet demand (Mundy, Langley and Stulberg, 1984). Waiting time for taxis averaged 2-2.5 hours. Three solutions to reduce the number of permits were considered: (1) refuse to allow permit holders to transfer (i.e. sell) them to other operators; (2) refuse to reissue permits as they expire; and (3) coordinate the purchase of 30 permits by the Detroit Metropolitan Area Taxicab Association. None of these proposals received sufficient support from the taxicab operators. In December, 1989, the Aviation Department
changed to an exclusive system. When Seattle finally switched back to the exclusive system, all 167 permit holders were allowed to join the association awarded the exclusive contract to provide airport taxi service, even though airport ground transportation administrators deemed only 125 permits to be sufficient. These experiences indicate that airport taxi service based on the permit system is very costly to manage largely because of the difficulties in establishing the optimum number of permits and adjusting their number when market conditions change.

Airport authorities have incentives to collect rents from airport taxi service to subsidize other airport services and to finance projects desired by administrators. Table 2 provides information on concession fees and dispatch service at the eight airports in our survey. A surprising finding is that airport administrators do not collect higher per trip fees under exclusive contracts despite the incentives provided to the exclusive contractor to minimize rent dissipation and to collect rents. Among airports with exclusive contracts, Pittsburgh Airport has particularly low trip fees. At the time of our survey, the trip fee was $.35 or only 1.5 percent of the typical fare to downtown Pittsburgh. The contractor must, however, also provide taxi dispatch service. The reason given by airport officials for the low trip fee at Pittsburgh Airport is that Pittsburgh is the second largest U.S. city in the number of corporate headquarters and leaving some of the rents with taxi operators is seen as one way to ensure for high quality taxi service. In Pittsburgh, all cabs are owned by the Yellow Cab Company and are leased to drivers either for 10 or 20 hours per day. Each cab is returned to the garage at the end of the lease period for maintenance, washing and cleaning. Generally, vehicle quality appears to be higher than at other surveyed airports. Pittsburgh's taxi system provides a clear illustration of the trade-off (discussed below) between rent extraction and the quality of taxi service.

High Quality Service

Airport administrators generally want higher quality taxi service at the airport than is provided elsewhere in the metropolitan area. The demand for higher quality airport taxi service stems from the mix of passengers at the airport. A large percentage of arriving passengers are businessmen and tourists who have higher than average incomes and thus will demand higher than average quality taxi service. In Detroit, airport officials want the new airport taxi contractor to provide a dedicated fleet of 125 new untitled vehicles which are to be replaced during the third year of operation; they also want drivers to wear uniforms. In Seattle, airport officials stipulated in the new exclusive contract that all taxicabs must bear the company
(STITA) logo, be painted with identical color schemes and markers, and display fleet identification numbers. The contract also stipulates that cabs must be no more than seven years old on June 1, 1990 and no more than five years old on June 1, 1992. Drivers also must wear common uniforms, jackets, and hats with the STITA logo. The new contract allows for taxicabs to "be inspected for cleanliness, proper equipment, good appearance, safe operating condition and violation of any laws, ordinances or Port Rules and Regulations" whenever they are on Port property. Authorized drivers can also be reviewed for "cleanliness, good appearance, and violations of any laws, ordinances or Port Rules and Regulations." At Dulles, cabs must conform to specified minimum standards; their size is stipulated and they may not be more than 3 years old or have accumulated more than 350,000 miles.

The demand for high quality taxi service creates a whole host of contractual problems. The most fundamental problem is that higher quality service is also higher cost service. If airport authorities had the power to set taxi fares, they could increase the price of taxi services to reflect the higher quality of service demanded. Seven of the eight airport authorities in our sample (with the exception of Detroit) had, however, no authority to set fares. Fares are usually set by local government authorities who set a single taxi rate for all taxi trips in the metropolitan area, including those to and from the airport.16 The rates generally reflect the lower quality of taxi service demanded in the metropolitan area. Thus, airport authorities demand higher quality taxi service at prices set for lower quality service. If airport authorities rigidly enforce taxi contracts requiring higher quality service, then rents generated by airport taxi service decrease or become negative. Taxi drivers are, however, often able to generate new rents at the fixed market price by reducing the quality of service and costs of operation. This leads to conflicts between airport taxi operators and airport authorities over the quality of service.

Our analyses of service quality and rent seeking under price control can be integrated with the aid of a simple diagram (Figure 1). The diagram incorporates information about two service qualities, high (H) and low (L). We assume that the marginal cost of providing a given quality of service is constant. Following Leffler's (1982) model of product quality, an increase in product quality induces a nonlinear increase in demand (D_H to D_L) and entails higher marginal costs (MC_H to MC_L). With a controlled price (0A), increases in product quality always increase the quantity transacted.17 At the controlled price (0A) with firms supplying low quality (L) service, firms are willing to supply more taxi services than consumers demand (AG). Firms compete on nonprice margins, such as waiting in line, to gain
business given the surplus of taxi services. Unless the parties contract to limit rent dissipation, rents (AGED) could be fully dissipated.

One reason why airport authorities may be so concerned about maintaining high product quality is that increases in product quality increase total rents over an initial range of quality. If an increase in product quality can be accomplished at low cost (MC\textsubscript{L} to MC\textsubscript{H}) and is highly desired by consumers (D\textsubscript{L} to D\textsubscript{H}), then total rents increase (AGED to AKIC). In this case the interests of consumers and airport authorities are fully aligned as consumer surplus also increases (MGA to NKA). At some quality level, producer rents are maximized; beyond this point a marginal increase in product quality increases total surplus but increases marginal cost so much that producer rents fall. This occurs if the marginal cost of producing high quality (H) is MC\textsubscript{H}' rather than MC\textsubscript{H}. Total surplus increases from MGED to NKJB while producer rents fall from AGED to AKJB.
Two implications are important in our context. First, Leffler (1982, p. 963) has shown that firms in a competitive industry subject to a price control choose a quality level that is below the level that would maximize producer and consumer surplus. A suitably chosen minimum quality regulation could increase consumer surplus and overall welfare in this case. Airport administrators’ attempts to enforce higher quality standards are, therefore, likely to be roughly consistent with achieving efficiency. Second, suppose that the airport authorities choose to enforce a quality level that maximizes industry rents minus the costs to the authorities of enforcing the higher quality level. Suppose that the high quality level (H produced at MC_H) in our diagram is the rent-maximizing quality. Airport authorities could extract the full rent from taxi drivers/companies by charging a per trip fee of AC. In this case taxi drivers earn no rents. If the taxi operators can reduce quality to the low quality level (L) in the diagram without being detected, then per trip rents increase from AC to AD. Given the per trip fee of AC, drivers/taxi companies earn a per trip rent of CD. This analysis indicates that airport authorities should constantly have problems with taxis operators who attempt to generate rents by reducing quality over dimensions of the product which are costly to measure (Barzel, 1982). The preoccupation of airport administrators interviewed in our study with finding new contractual terms to ensure high quality airport taxi service provides anecdotal evidence for this proposition.

The attempt by airport authorities to create a wedge between the quality of taxi service in the metropolitan area and at the airport has different consequences in each of the three systems. The open system has the most difficulty in maintaining or obtaining high quality airport taxi service. If all licensed taxis in the city are permitted to solicit passengers at the airport, the quality of airport taxi service will, at best, be of the same average quality as taxi service in town. There is evidence to indicate that under the open system the average quality of airport taxi service may be lower than taxi service quality in town. For example, at Seattle-Tacoma Airport, fleet-operated cabs were increasingly displaced by independent cab operators when the airport changed from an exclusive to an open system (Gelb, 1983). Zerbe (1983, p. 46) observed that “the quality of the ride deteriorated. Drivers were less knowledgeable, cabs dirtier.” Similarly, when Houston Intercontinental Airport was first opened to all licensed taxicabs in 1980, the ratio of Yellow Cabs to independents was 8 to 1; by 1989 the ratio had fallen to 3 to 1. The Executive Vice President of the International Taxicab Association recently noted that “[t]he better the cab company, the less likely it is to serve the airport. Cab firms with better equipment and drivers are not willing to let drivers wait in long lines at
airports when they can be busy working in other parts of the city, so that the very worst cabs go to the airport.18

The exclusive system can be structured to maintain quality in most situations if some rents are left with the taxi operator. While depreciation of quality over the current contract will increase rents earned by the taxi operator, the airport authority becomes less likely to renew the contract. The taxi operator loses the future stream of rents from future contracts (Klein and Leffler, 1981). If the present value of rents to be earned on future contracts is greater than the rents to be earned from depreciating quality on the current contract, the taxi operator will provide the high quality service demanded by the airport authorities. Most airport administrators (with the exception of Pittsburgh) did not fully perceive the trade-off between rent collection and taxi service quality.

Honolulu Airport provides an excellent example of what can happen to the quality of taxi service when airport administrators attempt to extract a higher share of the rents. Airport administrators increased trip fees from $.73 per trip to $.92 per trip between 1983 and 1989. Nominal taxi rates remained constant, while real taxi rates fell by 24.49 percent due to inflation. Caught between the squeeze of higher operating costs, higher trip fees, and constant nominal fares, taxi operators adjusted service at another margin: taxi service quality. Not surprisingly, the quality of the taxi fleet at Honolulu Airport deteriorated (i.e., aged) substantially during this period. How far service quality depreciates also depends on the contractor's estimate of the present value of rents from probable future contract renewal against the rents to be gained by cheating on quality in the current contract. Thus, a lengthy contract, such as the 15-year contract at Honolulu Airport encourages quality depreciation. Contracts which are let to the highest bidder also encourage such depreciation, as they typically extract all rents from the service provider.

High quality service will not be provided if the exogenously set taxi rates are too low. Indeed, a plausible explanation for the shortage of taxicabs at Dulles Airport is that taxi fares are not sufficiently remunerative. Taxi fares at Dulles are set by Virginia authorities, and presently the fare is $1.00 for the flag-drop and $1.20 per mile. These rates are low compared to those at other airports. For example, rates are $1.20 for the flag drop and $1.40 per mile at Seattle; in Atlanta and Honolulu, the rates are $1.40 for the flag drop and $1.20 per mile. The highest rates we observed are in Los Angeles--$1.90 for the flag drop and $1.60 per mile. Dulles relatively low rates are matched with a relatively high cost of providing taxi service at Dulles. This is because the taxi fleet of 270 cabs at Dulles are constrained by the airport contract to service only the airport, a feature not observed in

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most other airport taxi contracts. Since Dulles cabs can neither pick-up fares at National Airport (an open airport) nor pick-up passengers in town except by prearrangement, most Dulles cabs must deadhead back to the airport. The combination of low rates and a high cost of providing taxi service makes it difficult for the exclusive contractor to obtain drivers. This provides at least a partial explanation for the shortage of taxis at Dulles.

The permit system shifts the burden for maintaining quality from the contract holder to the airport authorities. This leads to higher administrative costs because the permit holders are not employees and cannot be easily discharged for violating company rules. Bureaucratic procedures for enforcing higher quality generate higher costs because of their complexity. Higher costs of enforcement lead to less enforcement and a lower average level of service quality.

Contract Choice and Political Interest Groups

Airport authorities choose the contract which maximizes their utility subject to two constraints: (1) exogenously set taxi rates; and (2) the political power of the taxi drivers. Arguments in the airport administrators’ utility function may include rent collection, administrative effort, quality of service, and flexibility of operation.

Our analysis suggests that the exclusive contract achieves a number of goals desired by administrators. It minimizes rent seeking, reduces administrative costs, and provides greater flexibility than the permit system in the face of fluctuating demands for services. It is, however, less likely to produce a political equilibrium, as excluded taxi operators observe the rents collected by the lone taxi firm servicing the airport and lobby for a change in the contractual form. Political equilibrium is achieved by altering the contract to allow more taxi drivers to service the airport; this reduces the effectiveness of a political coalition of excluded drivers and operators and allows the contract to survive the process of political competition. Attainment of political equilibrium often comes, however, at the expense of economically efficient operations. Thus, when the quality of service is highly valued and when the exclusive contract can be easily structured to encompass a high proportion of taxi operators, we are more likely to observe the use of an exclusive contract.

Objections to the exclusive contract can also be reduced if the selection procedure incorporates some competition among the potential service providers yet does not lock in the same company for long periods. As one taxi association executive indicated, "[I]nlocking some of our members out of the airport is reasonable if it is done fairly." It is hardly surprising that Honolulu Airport’s 15-year exclusive contract, which was awarded by nego-
tiation rather than by competitive bid, has recently been under critical legislative scrutiny. In 1988, Hawaii’s House of Representatives passed a resolution (H.R. No. 166, H.D. 1) requesting the Department of Transportation to reevaluate its current policy of allowing only one taxi company to operate at Honolulu Airport.29

Airport authorities are more likely to use a permit system when service quality is less important and the exclusive contract lacks political support. If demand is relatively stable, the problems with permit inflexibility are minor, and the permit system provides permit holders with sufficient rents to ensure long-term, high quality service. One disadvantage of a permit system is that it usually requires more monitoring of the numerous permit holders by airport authorities. One rationale for the choice of a high-cost contract is that the permit system may be politically more viable than the exclusive system.

We argued above that open systems often encounter major difficulties, including rent seeking by taxi companies, high administrative costs, and low quality service. Given these problems, why would airport administrators ever choose an open system? First, the severity of these problems varies across airports, and utility-maximizing administrators will choose an open system more often where these problems are less severe. For example, high quality is less important at airports where a smaller proportion of travellers are corporate executives or high income tourists, and rent seeking is less important when the pool of rents is small.

Second, administrators consider the political power of taxi operators when they choose a system. In cities where there are several large taxi companies, individual companies have substantial political leverage and can object to contractual arrangements excluding them from the rents derived from airport service. This factor becomes particularly important when only a small proportion of a metropolitan area’s taxis can service the airport under an exclusive contract or permit system, as more taxi companies are likely to be excluded from the system. If airport authorities used either an exclusive contract or a permit system, taxi drivers would engage in political action to change the system.

Adoption of the open system is likely to produce political equilibrium and economic efficiency when the problems with the open system are minimal and taxi drivers are politically powerful. And if the open system has severe problems and taxi drivers are politically weak, then administrators are likely to choose permit or exclusive systems. The difficult case occurs when the open system has severe problems and taxi drivers are politically powerful. Two outcomes are possible in this situation. If administrators succumb to the taxi drivers’ political power by adopting an open system,
taxi service will be characterized by numerous problems and demands by other constituencies for reform. If, however, administrators are able to resist the taxi drivers' lobbying and adopt a permit or exclusive system, the system will perform well but will be subject to continuing political resistance by taxi drivers who will petition relevant political authorities to mandate an open system to ensure "equitable access" to the airport and, implicitly, to the pool of rents generated from the service.

III. Conclusion

Our analysis of taxi service contracts has focused on three different types of systems used by U.S. airports to ensure adequate provision of taxi service. Our analysis is not limited to airport taxi service; it applies to any organization that wants to ensure high quality taxi service at its facilities in the presence of municipal ceilings on taxi fares. Hotels, shopping centers, and other large public facilities face the same problems as airports. Private firms are, however, less subject to political pressures than public organizations which must respond to the concerns of elected officials.

Proponents of airport taxi service deregulation in the mid-1970s believed that competition would bring lower prices and better service quality. The force of new ideas was coupled with political pressure by taxi companies excluded from airport service to "open" airports to all licensed taxi operators. As a result, many airports switched from the exclusive system to the open system. The evaluation of exclusive contracts is, however, once again evolving, even among industry executives. Indeed, an executive of the International Taxicab Association recently suggested that airports will receive better taxi service and probably more revenue from taxi operations if they limit the number of cabs that can serve their facilities.21 Experience at airports using the open taxi system indicates that competition has brought neither lower prices nor better taxi service. Indeed, airport administrators at both the Los Angeles and the Atlanta Airports, who opened their airports due to political pressure, quickly found that the quality of taxi service deteriorated at both airports because it was difficult to "fix blame for poor quality service". Since 1989, both Seattle and Detroit have switched back to exclusive airport taxi service indicating that airport administrators and lawmakers are now placing greater value on service quality than the provision of equal airport access to all taxicab operators. The exclusive system is still troubled by its lack of widespread political support due to the perception of monopoly and the political power of excluded drivers. In Sacramento, County Supervisors rejected the airport director's proposal to reinstate the exclusive system and instead decided to give taxi companies 90 days to propose other solutions such as awarding contracts to more than one
company. With 35 taxi companies serving the airport, it is unlikely that a consensus will be reached other than the status quo. Some airports have chosen the permit system as an alternative to the exclusive and open systems.

Our purpose is not to recommend an optimum taxicab arrangement for all airports. Rather it is to explain why all three types of arrangements are observed at major U.S. airports. We demonstrate that each of the three taxicab arrangements has its own advantages and disadvantages. While airport administrators desire taxicab service that generates revenues to finance airport services, limits the number of taxicabs serving the airport, provides high quality taxicab service, adjusts to fluctuating demand conditions, minimizes the cost of administration, and has political support, no single arrangement has an absolute advantage in all criteria. In fact, the criteria are usually inter-related. For example, frequently there is a tradeoff between provision of high quality taxicab service and collecting rents. As we argued above, ensuring high quality service often requires leaving some rents with taxi operators. This means that less revenue is collected to finance airport services favored by administrators. Since all desirable features cannot be attained by any contract, comparative analysis must be used to determine when each contract generates political and economic equilibrium. Our comparative analysis finds that criticism of exclusive contracts and open systems is often misplaced, as it fails to acknowledge the necessity to achieve political equilibrium and the differential importance assigned to particular goals by airport administrators.

REFERENCES


Endnotes


3. Taxicabs which are prohibited from openly soliciting passengers at the airport are usually allowed to pick-up passengers by prior arrangement.

4. Unless otherwise referenced in the text, cited information about ground transportation service at the eight sample airports was obtained from airport ground transportation management and taxi company/association management.

5. Until 1980 Houston Intercontinental Airport had an exclusive contract with the Yellow Cab Company. The contract was amended in 1980 to require the concessionaire to subcontract with any taxi company or licensed independent taxi operators. In effect, Houston has an open system.
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6. Airport authorities in Seattle did not limit the number of permits issued. Any taxicab company or an individual operator who paid the permit fee and agreed to follow the rules and regulations set by the Port of Seattle was issued a permit.


9. Since all taxis must charge the same fare, consumers have fewer incentives to search across airport taxis.

10. Stigler (1966) defines "economic rent" as the "surplus of earnings over what can be earned in the next best alternative".

11. Rent-seeking occurs when individuals invest resources to obtain rents assigned to other individuals or to resist other individuals who are seeking their rents.

12. One of the benefits of deregulation, as perceived by one taxicab owner, was that "deregulation enabled us to go out and start our own companies and feel part of the American dream." Many of the companies are owned by minorities or women. The Sheriff's Department confirmed that there has been vandalism in the holding area against Yellow Cab and other companies since deregulation. "No Monopoly for Taxis at Airport," Airport Ground Trans. Assoc. Newsletter, Sept., 1989, p. 9.

13. The restriction placed on the total number of licensed taxicabs in Los Angeles has resulted in an increase in the number of unlicensed or "bandit" cabs. The current estimate places the number of bandit cabs at about 600. Although they are not permitted to pick up passengers at the airport, their addition to the total fleet in the city no doubt explains the increasing length of the taxi queue at the airport. When the odd-even system was adopted in 1988, the average wait in the taxi holding pen was 15 minutes; it increased to an hour in 1989. The dispatching firm is now looking at other strategies to limit the length of the taxi queue at the airport.


15. The new exclusive taxi service in Detroit has similar features to the exclusive airport taxi service at the Dallas-Fort Worth Airport which was severely criticized by DeVany (1977) as being "inefficient." These features include an excessive number of cabs dedicated to airport service which undoubtedly will require higher taxi rates than rates in town or in other major U.S. cities. Not all airports with exclusive taxi service have dedicated taxi fleets. Taxi contracts in Honolulu and in Pittsburgh do not specify the number of taxicabs nor do they restrict airport taxis from soliciting business in town. The restrictive contract in Dallas-Fort Worth was revised in 1979. Although Dallas/Fort Worth Airport continues to have an "exclusive" taxi company (Surtran), the new contract stipulates that any taxi operator who wishes to do business at the airport may join the company for a fee.

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16. It is not uncommon for local authorities to set a special zone fare to/from the airport and
to/from the downtown business district. The purpose of the zone fare is not to raise taxi rates
above rates for other taxi trips in the city, but to minimize fare gouging of unwary
out-of-town passengers.

17. This analysis only holds if firms earn nonnegative profits from taxi service, i.e., if $MC_w \leq OA$.


19. Ibid.

20. See Hawaii Pacific Engineers (1989), p. 2. The current 4-year exclusive contract at Pittsburgh
Airport was also awarded by negotiation rather than by bid, because airport authorities
considered the Yellow Cab company to be the only cab company with a large enough fleet
to service the airport. Yellow Cab's current fleet has about 250 cabs compared to 30 cabs for
the next largest company. By contrast, the latest contract at Dulles Airport was awarded by
open bid. A review board assigned points to various criteria. Concession revenues received
a much smaller weight than the service dimensions of the contract. Seattle and Detroit have
also recently awarded exclusive contracts by negotiation rather than by bid.

21. He also recommended a bidding approach every three to five years or a similar procedure that
provides some competition for an airport's business, yet does not lock in the same operators