Economics of Private Operator Service

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ABSTRACT

Current evidence suggests that private firms can operate urban transit service at about one-half to two-thirds the costs experienced by typical publicly owned regional authorities. Competition appears to be critical in disciplining labor and management, and hence a means of achieving such low cost is to have private firms bid competitively for contracts to operate service. A public agency would retain control over what service is provided and act as a service sponsor engaged in planning, finance, and contracting with private service operators. Contracting service to private firms has already begun in many metropolitan areas; in smaller systems all services are often contracted, and in larger systems contracting has been used for services for which the cost savings are expected to be especially large.

If there is a single, major driving force behind the consideration of having private firms produce urban transportation, it is surely the belief that substantial cost savings would result. The purpose of this brief review is to examine the evidence about the relative cost of private producers of urban bus transportation compared with that of publicly owned producers, and to attempt to draw conclusions about the magnitude of possible cost savings and the conditions under which cost savings are likely to result. Other benefits from involving the private sector are likely to be important, and these will be discussed briefly.

DEFINITION

When discussing the involvement of the private sector in transit service, it is important to distinguish clearly between two different roles. These are the roles of service sponsor and of service operator. A service sponsor decides what service is to be provided and its characteristics, such as routes, schedules, and fares, and arranges for provision of the service. The sponsor's role is essentially one of policy making, planning, and facilitation. The service operator, on the other hand, actually produces the service—operates the vehicles, maintains them, hires the drivers, and so forth. There is no reason why these two roles, sponsor and operator, must be fulfilled by the same organization, and in many public services the two roles are separate—waste disposal, for example, where a city contracts with private firms for garbage and trash collection, or roads where governments contract with construction firms for road building and often for maintenance. Transit has evolved into a pattern where the same organization typically is both the sponsor and the operator, but this need not be the case. The economics of private firms as service operators will be focused on because it is through the production

of the service that cost savings are expected. The public sector would remain the sponsor of the service and retain control over the amount and quality of transit service provided.

BACKGROUND

Before turning to the comparative costs, it is useful to put this discussion in the perspective of the trend of escalating transit costs since public takeover. Table 1 gives data on the average cost per vehicle-mile of operating transit vehicles in the United States from 1950 to 1980. All costs have been adjusted for inflation using the Consumer Price Index. The costs for all modes have generally been increasing, and the average cost for all transit modes (except commuter rail) in 1980 was two and one-quarter times the average cost in 1950. (Commuter rail data from before 1970 are not available.)

In the same period transit in the United States went from a situation in which revenues exceeded costs to one in which revenues covered less than 40 percent of operating costs and virtually no capital expenditures. The rapid escalation of costs and of deficits is of course a primary motivation for considering alternative ways in which the service might be provided at less cost.

TABLE 1 Trends in Transit Costs in Dollars per Vehicle-Mile, 1950-1980[a]

Year	Bus and Streetcar[b]	Rail Rapid Transit[b]	Bus and Streetcar and Rail Rapid Transit	Commuter Rail
1950	n.a.[c]	n.a.	1.38	n.a.
1955	n.a.	n.a.	1.56	n.a.
1960	n.a.	n.a.	1.65	n.a.
1965	n.a.	n.a.	1.71	n.a.
1970	1.87	3.20	2.07	3.56[d]
1975	2.45	3.93	2.63	n.a.
1980	2.95	3.79	3.11	5.93[b]

[a]In 1980 constant dollars, adjusted using Consumer Price Index.
[b]From Pucher et al. (1, p. 158).
[c]n.a. indicates not available.
[d]From Morlok (2).

PRIVATE VERSUS PUBLIC COSTS: EVIDENCE

Data on the costs of producing essentially identical service in the United States by public agencies and private firms are scarce, mainly because so few transit services involve private firms, so data from a variety of sources will be used.

The first type of cost comparison is between entire systems operated by public organizations and ones operated by private firms. The comparisons should be between services that are similar in quality and other features, and are in the same region, so that possible regional differences in some costs, such as wage rates, do not affect results. The results, including data for the United States and two other developed nations where studies of comparative costs have been completed, are given in Table 2. The results are striking: Private operator costs are about one-half of public operator costs.

TABLE 2 Comparison of Average Costs per Vehicle-Mile for Private and Publicly Owned Transit Services in Various Countries

Location	Service Type	Year	Ratio of Private to Public Costs
Australia[a]			
Melbourne	Urban bus	1970-1977	0.55-0.58
Other areas	Urban bus	1972-1973	0.50-0.65
United Kingdom[b]	Local rural and interurban bus	1977	0.58
United States			
Cleveland[c]	Urban bus	1982	0.60
Los Angeles[d]	Peak-period-only bus	1982	approx. 0.50
New York City Suburbs[e]	Urban bus	1980	0.53

[a]From Wallis (3, p.606).
[b]From Tunbridge and Jackson (4, p.6).
[c]Private communication.
[d]From Southern California Association of Governments (5).
[e]Calculated from UMTA data (6).

In addition, there have been a few instances where counties (or other local governments) have decided to have transit provided by the least expensive producer of the desired service rather than by the regional transit authority. Counties have selected an operator (or operators) by arranging competitive bidding for service contracts, and usually both the regional transit authority and various private firms have made bids. In all known cases, a private bidder has won; and a few examples of the cost saving resulting from choosing a private firm instead of the public operator are given in Table 3. The general pattern is clearly one of substantial savings from use of private producers, on the order of 50 percent. Furthermore, because of the very nature of the contracting process, these are situations in which the bids of private and public operators are for identical service. It is also important to note that savings have been realized both in large metropolitan regions and in smaller areas.

TABLE 3 Examples of Cost or Deficit Reduction from Competitive Contracting

Location	Service	Cost Savings (%)
Hammond, Indiana	All local bus service[a]	Approx. 50
Yolo County, California	Local and commuter bus service[b]	Approx. 50
Santa Clarita Valley, California	Local and express bus service[c]	40-50

[a]Private communication with P. T. Coulis, Yellow and Checker Cab Co.
[b]Private communication with W. Bourne, Commuter Bus Co., Sacramento.
[c]From Cox (7).

Although this evidence reveals that small private firms can and often do produce transit service at much less cost than do public authorities, it is important to realize that operation by private firms does not guarantee drastically lower costs. This is illustrated by the situation in New York City, where private firms continue to provide about 15 percent of the local transit service. Each local-service bus firm, which also provides some express bus service, has exclusive or monopoly rights to the routes it operates. But fares and other service features are regulated, and these firms are subsidized. In 1980 the average cost per bus-mile, exclusive of depreciation, of the five primarily local-service carriers was 17 percent below that of the transit authority (8). Some of this difference was accounted for by the higher average speeds on their routes--their average speed was 25 percent greater than that of the transit authority. Further complicating any com-

parison of costs is the fact that any major rehabilitation costs are included in the private firm costs but not the public authority costs. However, it is clear that the effect of having private firms produce transit under these traditional monopolistic conditions, with subsidies making up deficits, is little if any reduction in cost.

Additional examples of the effect of monopoly power were reported in a recent study of noncompetitive service contracting (9). The operations examined were in relatively small communities: Sioux Falls, S.D., Reno, Nev., Worcester, Mass., and a number of towns in Connecticut that are served by the same company. In two of the cases, costs were not comparable, but in the other two cases (Worcester and Connecticut) is appears that noncompetitive service contracting was slightly more expensive than production of the service by public authorities. In addition, other disadvantages of noncompetitive contracting were cited, such as cost-cutting that led to service degradation when contracts were of the fixed-cost type.

This discussion would be incomplete without reference to the recent study by Philips and Rat (10) on the costs and benefits of public ownership of transit, which has received wide publicity (see, for example, 11). Some reviewers interpreted this study as demonstrating that public sector production of transit service is more efficient than alternative forms that involve private sector participation in production. But such conclusions cannot be drawn on the basis of that study, for in reality the study did not compare the costs or benefits of public agency operation of service with the costs and benefits of private sector involvement.

It is clear that, in a significant number of instances, the observed costs of private carriers are substantially lower than the costs of public providers. But private firms are not always cheaper. Why is this so? The examples presented here point to three factors to be examined: competition, labor costs, and economies of scale.

FACTORS INFLUENCING COSTS

Competition

That competition would work to keep costs down is a proposition that hardly needs support. Although market imperfections can thwart this in some cases, the effect of competition on costs and prices is so widely seen that few would question its validity or its importance.

The examples described in the previous section illustrate the power of competition to keep transit costs low. The best examples are in service contracting: Noncompetitive service contracts were judged to result in costs somewhat higher than those of the public authorities that replaced them, and there were other service disadvantages. In contrast, those cases in which competitive bidding was used resulted in private firms being able to produce the transit service at a lower cost--typically about 50 percent less--than the public regional authority could. But there need not be overt competition between prospective service producers to provide the pressure necessary to keep costs low. All that is necessary is the possibility that another firm could enter the market if the present producer became inefficient. This explains why some private transit firms that do not face any direct transit competition would continue to remain efficient. Also crucial are the ability of the firm to make an adequate profit in the transit business, with or without sub-

sidy, and the absence of a motive to sell out to a public authority. There is pressure to keep costs low enough that no incentive exists for public bodies to transfer the franchise to another firm or to a public authority. Given the typical institutional arrangements of transit, one or more of these conditions are generally absent as a result of regulated monopoly status and need for subsidy, so that there is little pressure to keep costs low. But creation of competitive contracting can bring these forces into play.

In the rare case in which the transit firm tries to make a profit without government subsidy, competition with alternative means of transport would work to contain costs and also to provide service quality and price tailored to the market. In general, regulation constrains management, but in at least a few cases it does not do so to the point of eliminating the possibility of self-supporting service. Examples include the very successful express bus services in New York City, the new suburb-to-central business district (CBD) commuter buses in the Chicago area, and a few small services elsewhere. (See Morlok and Viton elsewhere in this Record for a discussion of these.)

Labor Cost Differences

In general, labor costs are lower for small private firms and small public agencies than for a typical large regional transit authority. This stems from a combination of lower basic wage rates, including benefits, and less restrictive work rules. Because labor costs typically account for 50-70 percent of transit operating costs, the effect of reduced labor costs can be substantial.

The most comprehensive study of this was done in the Philadelphia metropolitan area. As has been the case in other studies of labor costs, it was found that driver pay per unit of work performed (vehicle-mile driven) increased substantially with increases in the size of the organization, the effective wage rate in the larger organizations being twice that found in the smallest. Furthermore, this holds even with an adjustment for the difficulty of the job as reflected in the size of the vehicle operated (measured by its capacity).

The data given in Table 4 reveal this pattern. The relative cost of drivers, including wages and benefits, is expressed here on a per vehicle-mile basis, with the cost for various vehicle and firm sizes given as a percentage of the cost for the largest firm and largest vehicles. This suggests that if a single regional (monopoly) transit organization were to be replaced with a number of smaller organizations, one would expect the wage bill to diminish substantially. The halving of total operating costs found in aggregate comparisons of the sort presented in Tables 2 and 3 is entirely consistent with this result for wage rates.

Actual examples can be found of this pattern of lower wage rates prevailing among firms providing transit services. In the area served by the large Alameda-Contra Costa (AC) Transit System (840 buses) in the San Francisco area, AC Transit pays its drivers $12.21 per hour. But two small transit systems in the same area--one serving the central part of Contra Costa County and the other the eastern part--pay only $8.01 and $5.25 per hour, respectively. In the Philadelphia area, the small private Schuykill Valley Lines had paid its drivers about 70 percent of the wage rate of the regional transit authority before the service was taken over by that authority. Since then the drivers' union has successfully negotiated with the authority to reduce the pay difference (13). In the Boston area, a recent study found that the transit authority's labor costs are as much as three times those of private, nonsubsidized operators of transit (14).

Further supporting the important effect organizational size has on the wage rate is the fact that the same pattern has been observed in all types of industry (15). Among the various factors that explain this phenomenon (16), the most important seem to be the following: First, workers seem willing to trade off the increased recognition of their work and importance of their position in a smaller firm for somewhat lower wages. Second, differences in wage bill per unit of output might be due to more fully using the time paid for in small firms. There is probably less chance of a labor-management agreement in small firms specifying regulations that lead to some workers being paid for time during which no work is performed. In a small firm there tends to be a lack of anonymity among workers, and workers in jobs that require a full effort would be aware and resentful of other workers with an easy job or nothing to do. Third, firms with smaller market shares tend to face more intense competition than do larger ones and hence would have little opportunity to provide workers with higher wages. Finally, it has been observed that smaller firms are less likely to be unionized than larger ones, reflecting in part union targeting of organizing efforts on firms in which the increase in membership is likely to be greatest. In addition, in the case of transit, firms that are successful in keeping wages low seem to choose their workers carefully. Often they try to hire persons who want to work part time only and who are not the main breadwinners for their families. Although these explanations apply primarily to private firms, they also could apply to carefully managed small public transit authorities.

Scale Economies

An important reason often advanced for having transit services provided by a single regional authority is that it is less costly for all service to be produced by one organization than by many. The evidence simply does not support this assertion.

As has been said, small organizations have substantially lower costs as producers of transit service than do much larger regional authorities. Even within regional publicly owned authorities, diseconomies of scale are evident. A recent study of this (17), using data for almost all public firms in the United States in 1975, resulted in the following conclusions: For the smallest systems, increases in bus-miles result in cost per bus-mile declining slightly; for firms producing between 1.0 and 5.5 million bus-miles per year (the latter being the size of the public system in Albany, N.Y.), average costs do not vary with output; and for the largest

TABLE 4 Effect of Firm Size and Vehicle Size on Driver Costs: Wages Plus Benefits in Dollars per Vehicle-Mile as Percentage of Costs for Largest Firm and Vehicle[a]

Vehicle Seating Capacity (and type)	Firm Size (total operating revenue in $000s/yr)		
	400	100,000	275,000
5 (taxi)	30	45	71
11 (van)	33	48	74
25 (minibus)	38	53	81
45 (charter bus)	48	63	90
66 (transit bus)	59	74	100

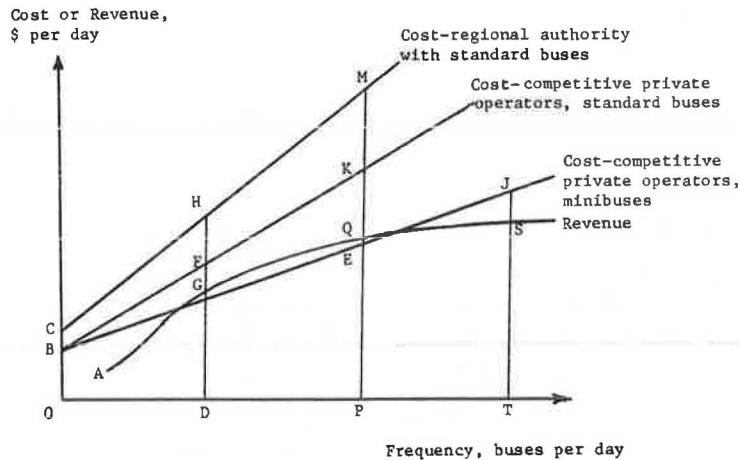[a]Calculated from Equation 3.2 in Morlok and Krouk (12, p.111).

FIGURE 1 Impacts of cost reduction on service quality and deficits.

systems, increases in bus-miles increase average costs substantially. Although there are undoubtedly economies of scale in some aspects of bus operation and diseconomies in others, the net effect at the present time is that, in general, there are no economies of scale in total cost in medium to large publicly owned systems.

IMPLICATIONS FOR SERVICE QUALITY AND QUANTITY

It is appropriate to discuss some of the benefits that might result from dramatically lower costs. These benefits will be described in terms of the impacts on a single transit route. A single route was chosen for ease of presentation. The discussion will focus on Figure 1. This figure is intended to show various effects of changing the departure frequency of buses operated on this single route. All other service features, such as the fare, and other measures of quality, such as air conditioning, are presumed to remain constant.

In Figure 1, the curve AGQS is a revenue curve that is simply the product of the constant average fare and the number of passengers using the system. The form is the S-curve that is typically found in transit demand studies. The line above this, CHM, represents the cost of producing service, as a function of frequency, by a regional authority with relatively high costs. A likely departure frequency is D, for which the costs DH exceed the revenue DG by an amount HG. This would be the subsidy required for this route, and limitations on that subsidy would determine the maximum service level that could be provided.

The effect of providing the service at lower costs is illustrated first by the line BFK; the lower threshold cost as well as the lower slope reflect the effect of operation of the service by private firms through competitive contracting. The subsidy required at frequency D is much less, only FG. The frequency could be much higher, perhaps equal to P where the subsidy required is QK, approximately equal to HG. Going one step further, if this service were provided with smaller vehicles, such as minibuses, the cost per departure would decrease (for illustrative purposes) even more, according to the data on labor costs of Table 3, to the level of line BEJ. Here a positive profit is shown at some frequency levels, such as P. If a subsidy were still to be provided, even more service could be offered--frequency T.

CONCLUSIONS

In the discussion of the private provision of public transportation, a return to bygone days when tightly regulated private monopolies provided virtually all urban transit service was not advocated. That arrangement clearly did not work, and there is no evidence to suggest that it would now. Instead, what is being discussed is a way of achieving two desirable objectives in the provision of public transit service: having the service provided at the least total cost to society and retaining public control over what service is provided, so that it continues to be responsive to overall community needs.

Achieving these goals requires a fundamental change in the planning and provision of such public services. This change is to abandon the idea that the only way to provide such service is by a single regionwide government-owned organization. Instead, buses would be operated by whatever organization is most appropriate, be it public or private. Often the most efficient operators are private, and these would operate service under contract to an appropriate public body. Through this arrangement the efficiency of private firms acting competitively can be harnessed to serve the public interest.

ACKNOWLEDGMENT

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