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Experience With Transit Pricing

Summary of Experience With Transit Pricing

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The quality and price of public transportation have the potential to influence a wide range of facets of urban life. There is an obvious triangular interrelationship for a transit agency among the level of output (which determines the quality of service), the pricing policy, and the level and nature of public subsidy. The key problem for the public agencies that are responsible for funding, regulating, or managing the local transportation system is to fix on the sides and the angles of the triangle. In doing so, however, they are making policy decisions that not only affect the workings of the transit system itself but may also influence the efficiency of the urban transportation system as a whole (including the environmental and energy consequences), the distribution of income and the budgetary decisions of local households, retail spending patterns, employment, urban form, and maybe even the competitive advantage of that particular metropolitan area. So while the major concern in deciding on transit service and fare levels should be with the direct transportation consequences, there are many other less direct considerations that may also legitimately influence pricing decisions.

INFLUENCES ON PRICING DECISIONS

I am aware of several major strands of research, analysis, and operating policy that concern the level and structure of transit fares. For example, the theoretical microeconomists have long been interested in the question of pricing public transportation services. Their interest has centered almost exclusively on considerations of efficiency from a variety of different viewpoints, e.g., the implications for pricing of spatial and temporal variations in the demand for transit service or the use of bus fares to offset a failure to impose efficient prices on private automobiles that share a highway facility. The analysis of transit pricing is a particularly interesting area, not only because of the lumpiness in supply and its cost and peaking characteristics but also because transit service as a consumer product exhibits a number of peculiarities. For example, the level of supply and the level of demand both influence the quality of the product itself in dimensions that are known to be important to the consumer (the frequency of service and the level

of in-vehicle crowding, for instance). Moreover, the unit of supply—vehicle-kilometers or vehicle-trips—is not identical with the unit of demand, the passenger-trip. Such wrinkles present analytical challenges that have led to the publication of several theoretical pieces in the professional literature during the past 20 years.

A second approach to these issues concerns the management and political considerations that have actually determined how transit has been priced. With one or two exceptions, these forces have been completely independent of the analyses of the theoretical economists. In the days when transit was still largely privately owned, one might expect the transit operator to behave like a regulated monopoly supplier, seeking to maximize his return; but of course he had no real monopoly, as a steadily increasing market share for the private automobile bears witness. Under public ownership, the operating agency's motives will be both different and more complex, depending principally on such factors as the degree of involvement of elected politicians in management decisions and the financial arrangements with supporting governments. In both cases, however, the analysis underlying specific pricing decisions has customarily been very limited and simple in conception. Demand response to fare changes has been predicted by industry-wide heuristic rules of thumb about the price elasticity (or the so-called shrinkage ratio), perhaps modified to reflect past local experience. Little has usually been known about the local market and the factors that influence demand among particular market segments.

This last deficiency has been greatly ameliorated by a third strand of analysis, which first gained currency in the late 1960s. Analyses of the travel behavior of individuals—through the development of cross-sectional disaggregate behavioral models of travel demand and modal or route choice and through the application of the techniques of attitudinal survey research—have produced a great deal of information about the factors that influence travel choices. Some of this information has found its way into transit planning and marketing, but it is still true that many transit operators have minimal information about their local markets.

There are also two relatively recent events that affect this debate. The first is an increased willingness of

some transit agencies to try new pricing and service initiatives. As transit has come into public ownership, this has often been accompanied by an initial willingness of local governments to devote more funds to operating assistance. In a number of cities—particularly the newer, growing cities of the South and West that are least troubled by fiscal problems—this has led to slashed transit fares systemwide or off peak or completely free fares in the downtown area. In many cases, service quality has also been significantly upgraded. Since transit deficits are rising nationally at a compound annual rate of 44 percent in real terms and fiscal problems of our cities are mounting, I am not sure how long this new movement will continue, but for the moment we are being given a unique opportunity to study the demand response to transit changes.

The second recent development is the growing amount of interesting and more sophisticated analysis of transit patrons' response to changes in fare and service levels. More and more work of this type is beginning to appear in the professional literature (1, 2, 3, 4, 5). These studies demonstrate, I think, that it is possible to develop models of transit patronage by using readily available or cheaply collectible data without ignoring some of the complexities of the phenomenon and that these models can make useful planning tools.

IDENTIFYING PRIORITIES FOR RESEARCH

I agree that questions about what will happen if we make a particular change and what are the likely ridership and cost implications of, say, increasing fares, adjusting headways, or reducing the need to transfer are keys in making intelligent decisions about price and service levels. I disagree, however, that data limitations are such that we can do no better than to address these questions with very simple, noncausal models. Of course, the quality of the operating data generated by the typical transit operator is poor, and other relevant data may often be available only in aggregate form. But travel behavior in general, and the level of transit patronage in particular, are complex phenomena. I don't think we stand much of a chance of answering the what-will-happen-if question unless we do our homework better to establish cause-and-effect relationships. And that analysis must explicitly take into account such complex facts as that demand responds to a whole package of service features (price, frequency, reliability, temporal and spatial extent of the system, need to transfer, comfort, level of promotion, and so on), that it is impossible to have a major fare adjustment without also affecting service quality in some way (level of crowding, frequency, boarding times, and so on), and that there are many factors external to the transit system that lead to variations in patronage across routes or through time (activity patterns in the area, weather, and so on).

These matters may seem a little academic to some, but unless we really turn our efforts to investigating cause and effect in a logically rigorous fashion, it is likely that our model of what happens when the transit system is changed will be spurious. Can we hope to do analysis of this nature, given the data limitations? I believe strongly that we can, if we take such precautions as choosing to study a transit system that maximizes data quality and maximizes the variance in the variables

(price and service levels) under study, and specifying and estimating causal models that explicitly take account of some of the relationships discussed above. The work of Gaudry (2) and Schmenner (3) (to cite but two examples) illustrates that it can be done.

This leads to a comment about some of the studies described here. I don't place much faith in before-and-after studies as a means of assessing cause and effect in this area. There are simply too many influences on transit patronage to permit making definitive deductions from the differences between two snapshots at two points in time. We can each think of several possible (or even probable) explanations for the fact that Shirley Highway ridership was higher during 2 days in November than during 2 days in August, even after seasonal correction and a fare increase. Only if we have developed good causal models of the type to which I have referred can we hope to ultimately make much sense of before-and-after measurements.

I would like to raise several general questions that have not been discussed yet. There appears to be an increasing tendency, in discussing transit pricing, to throw considerations of economic efficiency out the window or at least to regard them as subservient to considerations of equity (or welfare). What have we to say about the relative importance given to the various objectives of transit pricing—transportation system efficiency, equity considerations, favorable impacts on urban development, and so on? How about the use of bus transit pricing to offset the modal-choice effects of failing to price the automobile efficiently? What do we want to say about the relative effectiveness of transit provision or transit pricing policies as a tool of welfare policy? Even though it appears that the net incidence of transit subsidization may under certain circumstances be such as to benefit the poor disproportionately, is transit the best instrument to bring about such an income redistribution? Is it politically feasible to speak about replacing transit support by direct income transfers? Would not transit subsidies to the user, targeted at specific population subgroups through ticket or voucher schemes, be a more direct welfare approach than direct subsidies to the transit subsidy and pricing policies? All of these are issues that require discussion here.

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