

Experience With Road Pricing

Summary of Experience With Road Pricing

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From the standpoint of politically feasible public policy, road pricing currently appears to hold promise not so much as the marginal-cost pricing measure for efficient road use but rather as an automobile-disincentive component of overall transportation improvement programs. Approaches of this type, which attempt to simultaneously discourage the use of low-occupancy vehicles and encourage the use of high-occupancy vehicles, have the general objective of creating conditions that would significantly alter travel behavior in favor of high-occupancy modes. Not only does this promise more mobility, better use of central areas, and reductions in pollution levels and energy consumption, but it would also generate a new source of revenue to support transit improvements, mitigate some of the possible adverse impacts of road prices, or otherwise improve the local fiscal picture.

Road pricing that levies special charges on low-occupancy vehicles appears to be more effective in improving mobility than other more general changes in prices or taxes (e.g., gasoline prices, ownership taxes, or reduced transit fares), because it focuses on the source, place, and time of the trouble—vehicles that use a large amount of street space or generate other external disbenefits per passenger carried, the problem zone in which these problems are at their greatest, and the peak periods in which the automobile is generating the most problems. It may be more effective and more flexible than other indirect means of automobile disincentives, such as exclusive bus lanes, or direct regulatory means, such as automobile-free areas, because it can be adjusted to generate just the amount of reduction in automobile travel that is required.

Several alternative forms of road pricing have been suggested—collecting tolls for entry to a congested zone, a surcharge on parking there, or metering vehicles using the zone. After some discussion of these alternatives, the current consensus seems to be that the most effective form available today is the use of a supplementary license to enter the zone (a cordon-crossing license) or to travel in the zone (areawide license).

Although road pricing appears to hold promise as a component of many current transportation improvement strategies in urban areas, actual experience with it has been extremely limited. There is no example of road pricing in the United States, except the parking surcharge experience of San Francisco and some recent parking tax schemes. These have not generated any information of great significance except to highlight the fact that such charges have minor impacts on travel and other aspects of urban life. Some cities outside the United States have considered road pricing in recent years. Proposals have been developed for Caracas, Bristol, London, and Singapore. Desk studies in these

cities have taken an in-depth look at the planning, marketing, and implementation aspects of road pricing and have evaluated the impacts of such strategies with the use of transport models.

Evaluation results from the Bristol study appear to suggest that a cordon-crossing supplementary licensing scheme would be more efficient in achieving the modal shift and increased mobility than areawide licenses, exclusive bus lanes, parking surcharges, and parking restrictions. The Singapore and London plans are of particular relevance because they went the farthest in detailed planning and evaluation of several road-pricing alternatives. They produced good prototype designs.

The London plan has currently been shelved temporarily for political reasons. In spite of the promise of considerable benefits and administrative feasibility, the transport committee of the Greater London Council decided not to act on it because of concerns about possible adverse public reaction.

Singapore implemented its plan in June 1975, and it seems to have been a great success by most standards. The package of improvements, which includes road pricing (cordon-crossing licenses during the morning peak and differential parking charges) and expansion of public transportation, has eliminated congestion from almost all locations, effected a considerable modal shift from single-occupant automobiles to higher occupancy modes, totally flattened the morning peaking of the flows, greatly increased taxi and bus speeds and productivities, and reduced air pollution. It produces revenues far in excess of the expenditures for administration and enforcement. Moreover, it does not appear to have adversely affected the businesses in the central business district (the London study indicated similar impacts).

These examples strongly suggest that supplementary licensing is a feasible instrument for road pricing, could generate large benefits, and could provide improved transportation without putting a fiscal burden on the cities. If public transportation is improved, the capacity to make trips to central areas can be increased, and the core could actually become more attractive (the experience with traffic-free zones in Europe has also suggested this—the centers have been both maintained and enhanced). At the same time, the London experience suggests that local concerns can be a barrier to implementation. Although there is a limit to which outside experience can be used in an American context, the foreign experience does provide some basic guidelines for us.

In spite of the relatively positive information from abroad, however, it is hazardous to make definitive estimates of the major impacts of road pricing in an American context. In the absence of actual local experience, the behavioral response of travelers to a package of transportation improvements that includes road pricing

as the automobile disincentive measure is difficult to predict with any certainty. This is particularly so because we are considering pricing levels that are significantly beyond the realm of current experience in the United States. Consequently, it is difficult to predict with certainty the impacts on the business activity, on low-income travelers, and on long-term locational and other behavior. Some questions regarding the enforceability and legality of such policies in the United States also remain unanswered. Thus, the guesses made today

are less than convincing for the decision makers.

The current activities of the Service and Methods Demonstration Program of the Urban Mass Transportation Administration in the area of road pricing are aimed at developing more experience in the United States. The purpose of an experimental demonstration is to generate more relevant information in an American environment and to determine with greater confidence the applicability and potential of road pricing in this country.

Congestion Pricing: The Example of Singapore

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For many years it has been suggested by economists that attempts to solve urban transport problems by a continual expansion of road capacity are doomed to failure. Rather, they have argued, the problem should be attacked by making people pay more for making journeys that result in congestion—hence the terms congestion pricing and road pricing. Although the concept has been theoretically respectable for many years, putting it into practice has until now been put off because of potential problems of implementation, enforcement, and equity. There is one exception. Between 1967 and 1974, Singapore carefully examined its transport problems and decided that the time had come to restrain the use of private automobiles in congested areas. The policy instrument selected was a form of congestion pricing called area licensing.

Singapore is a rapidly growing city-state. Seventy percent of its 2.2 million inhabitants live within a radius of 8 km of the central business district of the city. A similar proportion of the city's jobs are located in the same area. By 1974, there were more than 250 000 registered motor vehicles, almost 150 000 of them private cars. A large proportion of these vehicles operate in the central area, leading to a significant level of congestion. It is estimated that population growth and rising incomes will lead to a more than threefold increase in the number of cars by 1992. Aware of the extreme levels of congestion implied by such growth, the government of Singapore set out to develop a coordinated transport policy.

Two major transport studies were carried out from 1967 to 1974. Both concluded that limitations on the ownership and use of private motor vehicles would be required in Singapore. In the meantime, several plans were put into action. Land use plans attempted to coordinate the location of new housing, employment, and services in new industrial centers outside the city of Singapore to reduce the need for transport. Some road construction was undertaken. A mass transit system and an area traffic control system were studied. Bus

services were improved by the provision of several kilometers of exclusive bus lanes, the use of school buses to expand the peak-hour fleet, and a major administrative reorganization in the bus company. A policy of restraining the rate of growth of automobile ownership by taxation was implemented. To raise public awareness of traffic problems, a campaign to promote staggered work hours and car pooling was launched. All this involved an extensive publicity effort and government-business seminars.

With the exception of a few critical areas, these policies were adequate to deal with present-day congestion. The government, however, was not satisfied that these measures would prevent congestion from becoming a serious problem in the future.

It became clear that a radical change was required in both public and private attitudes toward the ownership and use of private automobiles, and the government declared its intention of restricting the use of automobiles in congested areas. While the short-run objective of this policy was to relieve congestion in central Singapore, the long-run objective was to persuade motorists to reconsider their attitudes toward automobile ownership and use. The government believes that modification in travel behavior over time can be achieved once the motorist understands and accepts the rationale behind the need for more widespread use of public transport.

THE TRAFFIC RESTRAINT SCHEME

The government of Singapore therefore set itself the goal of designing a scheme to reduce peak-hour traffic by 25 to 30 percent. It was estimated that this reduction would restore reasonably good traffic conditions. At the same time, several constraints were recognized. First, accessibility to and mobility within the central area should be maintained to protect the economic vitality of the area. Thus, an efficient and reliable alternative mode of transport should be available to those commuters who would be discouraged from driving into the central area. Second, since the mobility of the private automobile was recognized as a benefit, the restrictions should apply only when and where they were needed to combat local congestion. Third, the scheme should be easy to administer and enforce. Fourth, it should not require a subsidy.