

Policy Insight

Low-Cost Solutions to Portland's Traffic Problems: Congestion Pricing and Free-Market Transit

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SUMMARY AVAILABLE HERE

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EXECUTIVE SUMMARY

The provision of transit services, including both mass transit and taxis, is heavily regulated in Portland, as it is in most urban areas. Further, there is an extremely lucrative set of taxes on employment that supplements grants from the state and federal governments for Tri-Met, the regional transit agency. Despite the large and growing tax revenue, transit ridership continues to decline as a percentage of regional travel; and Tri-Met seeks ever larger public subsidies. The taxi market is stagnant and most existing companies resist attempts by others to provide new transportation services that customers want.

To reduce traffic congestion, the region is currently considering the possibility of implementing an experimental congestion pricing program. If such a system is implemented, the demand for alternative transportation services will increase; but the current providers are unlikely to be responsive to such changes, and their high costs limit the ability to provide cost-effective services. This paper proposes a set of policies to de-regulate and privatize the transit and taxi services so as to complement congestion pricing in bringing the power of the market to the transportation system.

There is massive evidence that transit providers do not use their subsidies to provide efficient, cost-effective service; and the subsidies, along with restrictions on entry by would-be competitors, make it close to impossible for efficient service to be provided. There are many examples of de-regulation and privatization saving money and allowing for better and more cost-effective service; but there are also examples of poorly designed de-regulation that has not worked as planned. Part of the problem is that de-regulation is seldom accompanied by changes in the institutional structure that would allow for effective competition. This paper discusses the evidence on cost savings and efficiency as well as the issues that must be addressed in trying to design an effective

set of institutions to promote "constructive" competition, where producers gain by providing better service at lower cost.

It is not possible to set out a definitive set of recommendations, but the paper provides some guidance on the directions that reform should go and the broad outline of the types of reform likely to be needed to promote efficient transportation services.

- **Restrictions on entry should be virtually eliminated in both the mass transit and taxi markets.** Some minimum standards, such as liability insurance and safety requirements, should be enforced; but those meeting reasonable standards should be able to provide service both in direct competition with existing service providers and by providing types of services currently prohibited, such as shared-ride van services.
- **Rules allowing effective competition must be developed.** For example, forcing consumers to take the next taxi in line prevents competition on the basis of either quality or price. Prohibiting private providers from competing with Tri-Met limits consumer choices.
- **Privatization of the mass transit market is essential.** Tri-Met is a protected monopoly, and its high cost and low productivity can not be changed without some competitive pressure. At a minimum, Tri-Met should be required to contract for service on some of its routes. Experience in Denver and other cities has shown that even a limited amount of contracting can save twenty-five percent or more of the cost of service.
- **Public subsidies for transit should be directed to the users of the transportation system rather than the service providers.** If the subsidies were provided to users, who could use them to purchase transit service or alternative trans-

The provision of transit services, including both mass transit and taxis, is heavily regulated in Portland, as it is in most urban areas.

portation services, then they would promote the most efficient provision of service rather than simply allowing costs to increase.

- **Subsidies should be greatly reduced and targeted at low-income users.** Tri-Met will receive close to \$120 million in employment-based taxes this year alone, and this revenue source is growing rapidly. A cut of over \$100 million per year in taxes would still leave over \$20 million per year to provide subsidies for low-income, transit-dependent users.

INTRODUCTION

Portland is considering a bold experiment to better manage our roadways. Discussed under the term "congestion pricing," the region is looking at ways to induce people to use our scarce transportation resources more efficiently. For many years, transportation economists have argued that the road system is used inefficiently because it is not appropriately priced. Peak-period traffic causes inefficient delays. Correct pricing on heavily used roads can be expected to change driving patterns so people will use congested roads only when the benefit to them is greater than the cost to themselves and others. Peak-load pricing will also create incentives to carpool and use alternative methods of transportation.

Metro and the Oregon Department of

Transportation (ODOT), assisted by a variety of other agencies, have appointed a task force to investigate the potential for using congestion pricing.

Yet the road system is only part of the transportation system; if we are to rationalize the use of roads through economic reforms, we must also look to rationalizing transit systems that use the roads. Broadly speaking, transit (also known as common carrier or for-hire services) can be considered as everything aside from the private automobile. Because of regulation and restriction on entry, this is largely limited to monolithic mass transit and taxi service in the United States; but a variety of other types of service could be expected in a de-regulated transit market. Both mass transit and taxi service in Portland, as well as most other cities in the US, suffer from high cost and a failure to respond to changing transportation patterns. The public transit industry has been granted monopoly privileges and heavy subsidies, at least partly to convince people not to use automobiles. There is mounting evidence that such subsidies have not achieved the desired results and that the existing organizational and legal framework leads to inefficiency.

The taxi market also has the potential to contribute to more efficient provision of transportation services, but it is protected from competition and highly regulated. This regulation leads to high costs and low levels of service. It also creates a barrier to the provision of innovative services that might be attractive to a variety of potential customers.

Many of the issues associated with the failure of public transit in the United States could be addressed in isolation. They are not inherently related to the problems with road pricing. Yet the transit system would be expected to see a substantial increase in demand for service if congestion pricing is implemented. Unfortunately, the current protected monopoly providers of transit service are unlikely to respond to this increase in demand in a cost-effective, flexible manner; and the opportunity to

both increase transit usage and ameliorate some of the disadvantages of congestion pricing would be lost. As one expert has put it:

“Congestion pricing and competitive, free-enterprise transportation services are ideal complements. One cannot exist without the other. If the political fallout from congestion pricing is to be minimized, there must be dramatic increases in transportation alternatives for those tolled off of roads. Public [monopoly] transit cannot handle huge increases in peak hour demand because expanding peak period service is too costly.

For free-enterprise transportation to work, moreover, there must be market-based pricing. An environment of abundant free parking, heavily subsidized transit fares, and a low-density, auto-oriented urban structure will attract few jitney operators and private transit entrepreneurs. This was the case in Arizona, where the entire motor vehicle common carrier industry was completely deregulated in 1982. In both Phoenix and Tucson, no jitney or commercial transit-like services have been initiated since deregulation because driving and parking remain cheap, and for those inclined to ride mass transit, public (subsidized) transit fares are too low for privateers to compete and make a profit.” (Cervero, 1992)

This paper is an attempt to set out a series of actions that would allow for more use of market incentives in the provision of transit services so as to complement the use of market incentives that congestion pricing would generate for road usage.

MASS-TRANSIT REGULATION

The history of mass transit regulation in the United States is one of early movement to monopoly provision. Early transit systems, particularly rail systems, had very high fixed costs but fairly low costs for serving additional passengers. This situation is known as a “natural monopoly”

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service is too costly.*

and is the historical justification for regulation. The electric streetcars clearly had high fixed costs and low marginal costs; and there were not good alternatives when streetcars were first introduced. Hence, there were some valid reasons to regulate prices.

A monopoly may not be profitable if it faces competition from a more cost-effective substitute, and the streetcars were at a disadvantage when automobiles appeared. Private automobiles that carried passengers for a fare were known as jitneys. The streetcars were threatened by jitneys starting in 1914, and there was a rapid spread of regulations to ban this form of competition (Hilton 1985, pp. 34-38).

Current mass transit systems rely most heavily on buses, have substantial public subsidies, and face enormous competition from the private automobile. Despite the major differences between buses and streetcars and the vastly different economic context for transit provision, the regulatory restrictions adopted in the era of streetcars remain largely unchanged today.

Despite the ban on competition, rising income and the development of the automobile as a viable method of commuting reduced the demand for mass transit. This resulted in declining profitability for transit and threatened bankruptcy for many operators. Many local governments and then the federal government began to subsidize the operation of transit systems, with the federal government requiring public take-over.

Hence, transit went from being primarily a privately provided service, with heavy regulation to prevent monopoly profits, to being a publicly provided service with large subsidies. However, it retained its monopoly status due to government restrictions on competition.

Transit has been in decline in the United States for many decades. It has become increasingly dependent on subsidies from the federal as well as state and local governments, yet some analysts see the problem becoming increasingly severe:

"In retrospect, it is clear that misplaced idealism financed by federal subsidies has been a major cause of the problem. Cities were encouraged to take over privately-owned transit systems, with the goal of rationalizing competing services and expanding patronage. Transit managers were encouraged to extend service into areas that were inherently unsuitable for transit. Government funds were used to keep transit fares low for everyone, in order to assure access for a few - the poor. And the easy availability of these subsidies encouraged labor unions to ask for high wages and generous working conditions.

Thus we now find ourselves in a situation where transit service is spread into too many low-usage areas, supply costs are too high, and fares are unrealistically low. Two decades of well-intentioned federal subsidies have insulated management from the discipline of the farebox and encouraged the growth of inefficient service. It is no surprise that a number of observers are now proposing a return to various forms of private operation to remedy these problems." (Lave 1985, pp. 1-2)

The situation has only worsened since these comments were written. Lave identifies three major rationales for government regulation of transit: cross-subsidization of worthy activities; preservation of economies of scale; and coordination of service. He then argues that none of these rationales withstand

much scrutiny. In particular, the notion of large scale-economies is contradicted by the empirical evidence that large operations are more costly.

A particular problem in addressing cost issues associated with transit operations, is the separation of higher societal costs as defined by an economist, meaning more resources used in the provision of the service, and the monetary cost that the transit agency is concerned about. Several studies have concluded that transit agencies pay workers substantially more than market wages. From an economic perspective, this wage surplus is a transfer to the workers from the taxpayers and riders of the system, but it is not a "cost" in terms of additional resources being used. On the other hand, many work rules affect the ability of an agency to function efficiently, and these rules would be costly whatever the wage structure. Much of the discussion of cost-savings associated with various reforms revolves around the distinction between savings associated with improvements in efficiency and savings associated with lower labor costs.

Most notably, section 13(c) of the amended Urban Mass Transportation Act of 1964 provides that transit employees must not be adversely affected by any program involving federal grants. This stipulation has been blamed for "encouraging overly generous wage settlements by giving labor a virtual veto power over federal transit grants." (Cervero 1988, p. 79) Section 13(c) has also allowed workers to get desirable working conditions and to prohibit competition to public transit.

The cost of mass transit has grown substantially since the inception of federal subsidies. One analyst concludes "transit in this country is faced with a very serious cost crisis - not a funding crisis, a cost crisis.... Only about 35 percent of the money that we have committed to operating subsidies in transit...has resulted in public benefit." (Cox 1988, p. 56)

Other authors put the percentage going to public benefit even lower. While

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productivity has increased in private bus operations, it has declined substantially by almost any measure used for public bus operations (Lave 1994). This decline in productivity can be traced to a variety of causes. Of key concern are work rules that make it difficult to provide efficient service, for example rules that restrict or prohibit the use of part-time workers or split-shift workers to more efficiently cover the high demands for service during peak periods.

Also of concern is the expansion of service into areas that are not conducive to the type of service favored by most transit agencies. These tend to be suburban areas of low density, making it difficult to carry enough people to keep the cost per person down as well as offer frequent enough service to make it an attractive alternative.

Finally, existing transit agencies have little incentive to attempt to innovate and provide new and more effective services to their customers. Even large, efficient companies can fail to see and adapt to changes in the options available and

customer preferences. In the private sector, competitors have an incentive to discover such oversights and provide the better service. An example would be IBM's reliance on mainframe technology when the personal computer was being developed. If IBM had the ability to limit competitors that public transit agencies do, the development and use of personal computers would have been substantially delayed, or prevented altogether. In the public transit area, competitors are typically banned, and taxpayer subsidies allow for inefficiency in operation. So, the transit monopoly can continue even if there are better alternatives. Further, the massive subsidies to public transit make it difficult for the private sector to compete even if a better alternative is available and can legally be provided.

The high cost of the public transit agencies creates one of the strongest points of contention between advocates of more competition and efficiency in transit provision and advocates of public systems. Because workers in public transit systems receive compensation that is substantially above what they would earn if they faced competition from the private sector, one impact of competition is typically to reduce wages. While this lower cost allows a combination of savings to taxpayers and increased service to transit users, workers will often be made worse off.

Nevertheless, it must also be recognized that the rigid work rules in the public sector make it harder to provide efficient, cost-effective service. The distinction between wages and work rules is important in evaluating many of the deregulation attempts in the transit industry. While virtually all such attempts find large cost savings, many people are opposed if this cost savings is associated with paying drivers a wage closer to market value. Some agencies have avoided this conflict by allowing existing workers to retain their compensation advantages but phasing in market-based compensation for new workers. However, this delays the ability to provide greater levels of service and/or lower fares for users with any given

subsidy.

TAXI REGULATION

Most cities in the US place substantial restrictions on taxis, with many regulating entry and most regulating fares and other service characteristics. There is widespread evidence that restrictions on entry lead to high prices and poor service. Some of the less obvious regulations, such as requiring passengers to take the next cab in line at a cabstand or airport, may also have important impacts on the efficiency of service provided. Also, restrictions on the ability to serve multiple passengers limit a taxi's ability to provide certain types of transportation services.

The effects of regulation and deregulation of taxis was examined in a report prepared by the Federal Trade Commission. The report identifies four market segments: cruising cabs, cabs at stands, radio-dispatched cabs, and cabs providing service under contract. They also identify five areas of regulation: entry restrictions, fare controls, restrictions on the type of service offered, requirements to provide certain amounts of service, and quality regulations. The report concludes that:

"[There is] no persuasive economic rationale for some of the most important regulations. Restrictions on the total number of firms and vehicles and on minimum fares waste resources and impose a disproportionate burden on low income people. A number of cities have achieved favorable results by deregulating entry and minimum fares in the radio-dispatched market segment, which typically accounts for around 75 percent of all cab trips. Similarly, there is no economic justification for regulations that restrict shared-ride, dial-a-ride, and jitney service.

By contrast, potential market failures provide a credible theoretical rationale for some other types of regulations, including fare ceilings and regulations dealing with vehicle safety and liability insurance." (Frankena and Pautler 1984, p.1)

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The report indicates that the majority of problems occur at airports and that reforms aimed at better posting of fares and more targeted toward airport operation would be effective in addressing these concerns without distorting the rest of the taxi market. Klein et al. (1997) point out that the typical situation at an airport is a line of taxis, with the passenger directed to the next one in line; and this is itself a form of regulation that does not promote competition on the basis of either price or quality of service.

Dempsey (1996) goes through an extensive list of factors that "prevent" competitive markets in the taxi industry, such as an unwillingness among riders to search for lower prices and an inability to determine the quality of a particular taxi before engaging it. However, these arguments could be made equally for a wide variety of consumer services, and the development of brand names and franchise agreements provide obvious evidence that the information problems can be overcome with an appropriate regulatory environment, one intended to promote competition while allowing companies to protect their investments in market development.

The one issue that does raise some concern is the question of cross-subsidy. Many taxi companies, including those in Portland, are required to provide certain services and to accept all fares at the same rate. Yet it is easy to see that some trips are more profitable than others. For example, a

taxi taking someone from the airport to a downtown hotel is likely to have a new fare at the hotel, while one taking someone to the suburbs is likely to return empty. Similarly, service late at night is on average less profitable than service provided during peak hours. In a competitive market some differentiation of fares would occur, and this is likely to be efficient. It makes little economic sense to, in effect, tax users of lower-cost service in order to subsidize service to higher-cost users.

One rationale for such cross-subsidies is to guarantee service to low-income neighborhoods; however, even this argument has several serious problems. First, many such low-income neighborhoods could be served much better and more cost-effectively by new services, but these services are banned to protect the taxi companies. Second, even if there is a net subsidy to low-income areas, this purpose could be served much more effectively with direct subsidies to low-income users. For example, any such subsidies could be financed by a small diversion of the massive subsidies that currently go to mass transit.

Another reason for cross-subsidies is "regulatory simplicity." Publicly regulated prices often appear to be kept simple because the process by which regulations are adopted does not lend itself to the inclusion of complex cost differences in setting rates. Private firms, not constrained by these rigid procedures, are able to adopt prices that more carefully reflect cost differences.

ALTERNATIVE TYPES OF SERVICE

In addition to the typical mass transit vehicles and taxis, most cities also have a variety of specialized service providers. The most common would be limousine or van service to airports. These services also tend to be heavily regulated and restricted. In a number of cities, the service has been more difficult to control because the city limit is also a state border, and cities and

states do not have the discretion to limit interstate commerce that they have in regulating transportation alternatives within their borders. These cities provide interesting evidence that there is potential for substantial expansion of such services.

For example, a number of cities have fairly sizable subscription service sectors. New York and Washington, DC are typically cited as having the most developed service, and they appear to have developed largely because providers were able to carry passengers across state lines and avoid many of the regulatory restrictions usually found on such services. While these cities have density and other characteristics that make them relatively attractive for such services, the service providers have to compete with extensive public transit systems that are heavily subsidized. Hence, their potential in other cities may be large, especially if the cost of private automobile usage is increased due to congestion pricing.

OREGON'S REGULATORY STRUCTURE

Oregon has a fairly complex set of rules regarding the types of regulation for various common carriers. These rules create substantial barriers to entry; and, where entry is allowed, they may limit the ability to compete for customers.

Fixed-route service and taxi service are heavily regulated, while irregular service not operating as a taxi is typically licensed, but not as heavily regulated with respect to entry and other characteristics. Hence, limousine services can be provided, but they are not supposed to directly compete with taxis. Also, they may be prohibited from competing on the basis of price and are often restricted in their ability to advertise their services.

Other services, such as shuttle service to the airport, are subject to regulatory restrictions intended to keep them from directly competing with taxis. This has

...there is no economic justification for regulations that restrict shared-ride, dial-a-ride, and jitney service.

resulted in less stringent regulations in the suburbs than in Portland, since the suburban communities typically have very little taxi service to compete with. For many years, the shuttle services in Portland were limited to pick up and delivery at major hotels due to taxi opposition to expanded service. Unlike suburban shuttle services, the Portland services were prohibited from taking passengers directly to or from their homes and the airport, but the regulatory commission recently relaxed this restriction in reaction to public pressure (Oliver 1997).

The following are the methods for determining regulation of the market for common-carrier services in Oregon:

- A. For vehicles weighing less than 26,000 pounds, regulation within a city and within three air miles of the city are the responsibility of the city. If another city is within the three air-mile limit, then regulation is done jointly. The regulatory boards have broad authority to limit entry and to regulate fares and types of service.
- B. Carriers operating outside of these limits are regulated by the State. If the operation is a fixed-route service, then regulation limits competition by requiring the applicant to show a need for the service and by allowing existing competitors to object. For charter service, there appear to be far fewer barriers to operation. A major destination of many of the fixed-route carriers is the Portland

International Airport. In addition to requiring that the carrier has operating authority from the appropriate regulatory agency, it must also have permission from the Port of Portland, which oversees all ground-based common carriers operating in the airport.

- C. Interstate carriers are regulated by the Federal Highway Administration.
- D. Limousine service (generally defined as vehicles carrying eight or fewer passengers but not operating as taxis) are licensed in Portland, but are not subject to the same restrictions on entry as fixed-route and taxi services; however, they are restricted in their ability to compete on the basis of price and are restricted in the types of service that they can provide.

Oregon has two types of public mass transit districts, Transit Districts and Transportation Districts. However, there are a variety of other characteristics that may be more important than the specific designation. In particular, two of the three largest Transit Districts in Oregon -- Portland (Tri-Met) and Lane County -- can levy payroll taxes at the discretion of their Boards, which are appointed by the Governor. Most other mass transit providers must submit their local revenue requests to voters and typically rely on property taxes rather than payroll taxes. Two that do have payroll taxes are Mollala and Wilsonville, which retained the payroll tax when seceding from Tri-Met.

While Tri-Met and other Transit Districts use the payroll tax for operating funds, they may still use property taxes to fund general obligation debt, and Tri-Met has relied on such taxes for funding the local share of light-rail construction costs. The Salem Transit District and the other Transportation Districts in Oregon rely on property taxes for both operating subsidies and possibly to fund general obligation bonds. Other funds for all transit agencies come from the federal

government, state government, and a variety of other sources.

There are many complications and barriers to entry within the system. Some are regulatory barriers and others relate to the system of subsidies that currently flow to mass transit. Both types of barriers must be examined to generate information about how de-regulation and privatization might be used to improve service and what types of barriers exist to provision of cost-effective services that might complement congestion pricing.

PORTLAND MASS TRANSIT

Despite the complexity of the funding arrangements, it is possible to provide some broad context to the revenue and expenditure situation. Tri-Met follows most transit agencies in separating operations and capital expenditures. This occurs both because of large fluctuations in capital expenditures from year to year and because most of the money for capital expenditures has come from the federal government. The federal government also has paid most of the cost of light rail construction, although the matching funds from state and local sources have increased with each new line proposed. The state and local shares for light rail are largely paid through bonds funded by property taxes and lottery revenue.

While proponents of mass transit often complain about the need for additional funds, Tri-Met has in fact seen *rapidly increasing revenues for both capital expenditures and operations*. For example, Tri-Met's 1997-98 budget shows that total operating resources have increased from \$146,759,968 in 1994-95 to an expected \$190,826,562 in 1997-98. Despite this thirty-percent increase in operating resources, service expansion has been limited. Figure 1 shows the graphs of both operating revenues and ridership over the period from 1987 to 1997.

The growth in ridership also masks the

While proponents of mass transit often complain about the need for additional funds, Tri-Met has in fact seen rapidly increasing revenues for both capital expenditures and operations.

fact that *Tri-Met is capturing a shrinking share of all trips*. With the rapid growth of employment and population in the Tri-County area, all transportation services have seen increases in demand, but the increase for Tri-Met is less than the increase for other modes so that Tri-Met carries a declining share of rides and would likely see a decline in ridership if population were stable.

Much of any increase in revenue seems to be absorbed by higher costs. For example, in its most recent union contract, Tri-Met agreed to effectively eliminate any contracting out with no regard for cost differences between the contract terms and the cost of direct provision. Further, the time for employees to reach the maximum salary in their classification was significantly reduced, with most now at top pay in three years. In the previous contract, union pensions were doubled, in addition to standard wage increases.

The payroll tax has been a rapidly growing source of revenue due to the combination of job growth and salary increases. Figure 2 shows how the payroll tax compares with passenger fares as a source of operating revenue for Tri-Met. The employment taxes provide the largest

Figure 1 Tri-Met Operating Revenue

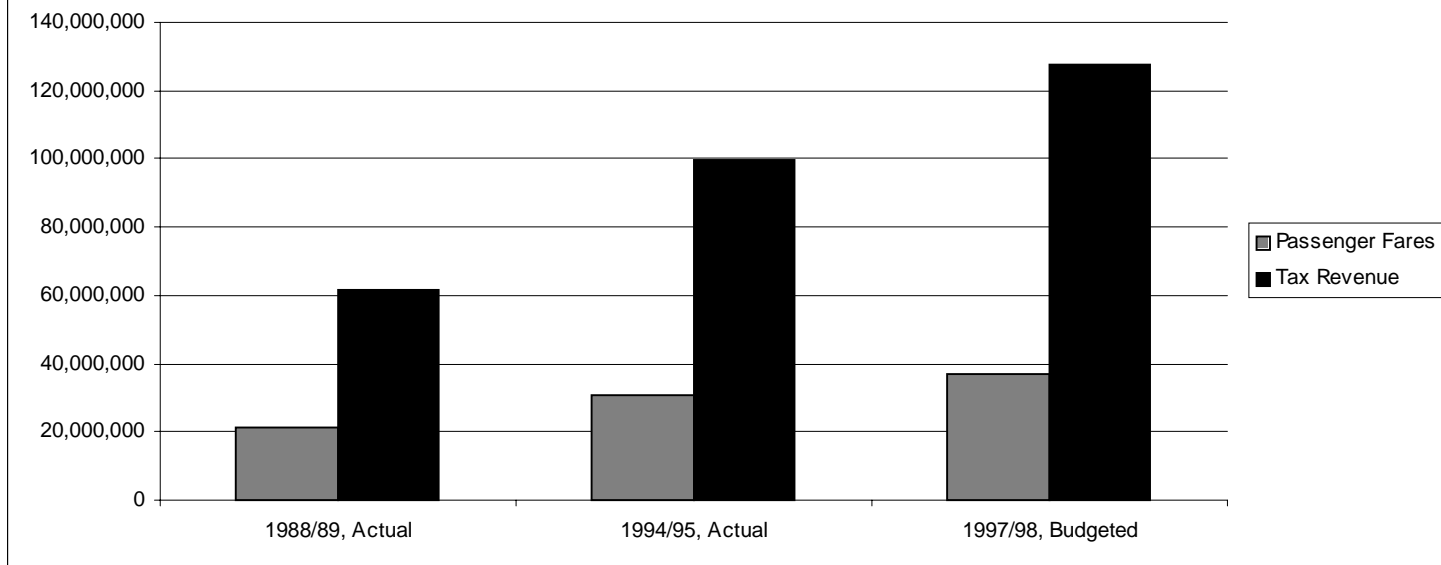
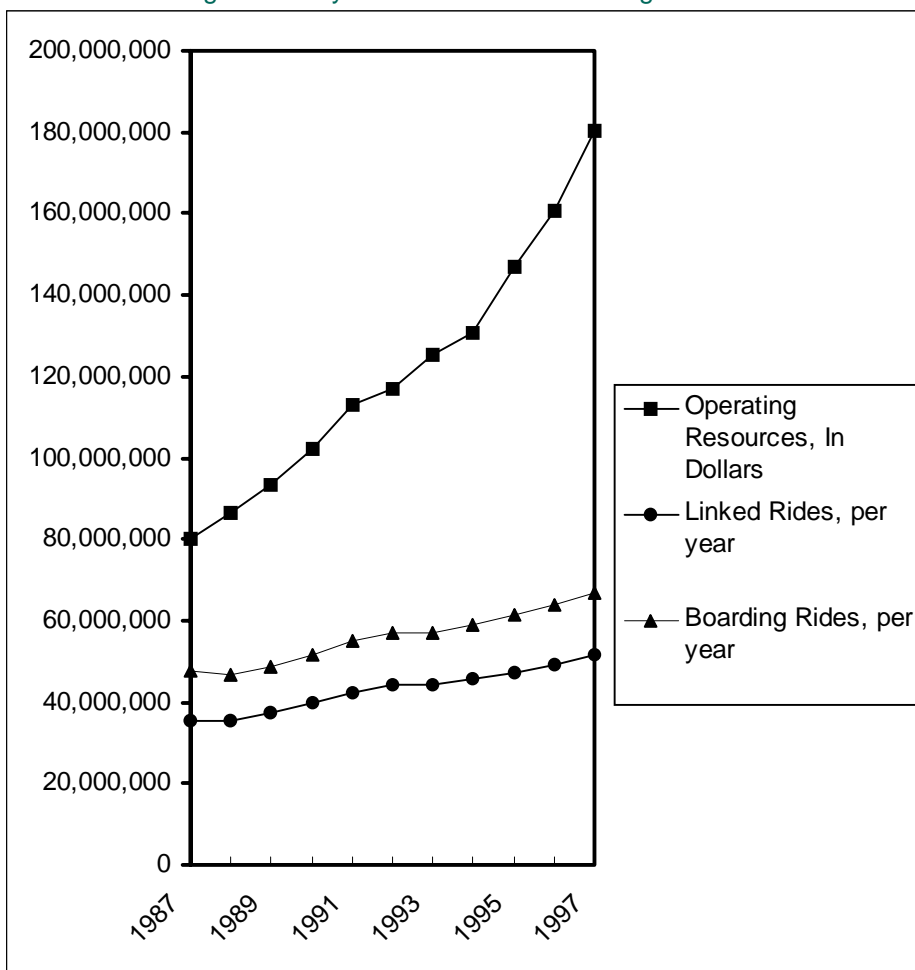


Figure 2 Payroll Taxes and Passenger Fares



source of operating revenue for Tri-Met, expected to provide over \$120 million this year and growing rapidly, with farebox revenue a distant second. Tri-Met has a goal of recovering thirty percent of its operating cost from the farebox, but it is currently well below that target, receiving only about twenty-five percent of its operating revenues from its customers through the fare box.

Other operating revenue comes from the federal and state governments, with most of the state operating assistance targeted at Special Needs Transportation. The latter is door-to-door service provided under the mandate of the American's With Disabilities Act. It is largely provided under contract, using smaller buses.

The source of revenue is not closely tied to service provision. In particular, recent job growth has been concentrated in suburban areas that are not well served by transit. This has created pressure for Tri-Met to provide service to these areas to justify the collection of the payroll tax. This service is typically the most costly and least effective of the transit service provided. The mismatch between revenue generated and service provided helps

explain the secession by Wilsonville and Mollala. Each Transit District levies its own payroll tax within its jurisdiction, and the rates vary. For example, Wilsonville, which separated from the Tri-Met service district in 1989, provides a much higher level of service and zero fares as compared to the service that Tri-Met had provided; and it also levies a payroll tax that is half the rate that Tri-Met levied. Hence, Wilsonville gets much better service with lower taxes and fares than it did when it was part of the Tri-Met district.

Tri-Met gets large amounts of capital subsidies from the federal government. Capital expenditures vary substantially from year to year, and are currently very high due to light rail construction. Even without light rail construction funds, farebox revenue is typically below fifteen percent of the agency's total budget. With the light rail construction included, it has fallen as low as about six percent of total expenditure.

For several years, Tri-Met has attempted to gain another type of general-revenue subsidy. The agency has targeted an increase of about \$45 million per year to help pay for the operating cost of the expanded light-rail system as well as other services. They have pursued the possibility of raising automobile registration fees to provide the funding, although this would require a change in the State Constitution, which reserves automobile related taxes and fees for road maintenance and improvements.

Tri-Met's Strategic Plan calls for it to become the mobility manager for the region. This implies that the agency should encourage other providers of service and be open to competition in providing that service. However, the implementation of the strategic plan has focused largely on providing more traditional, radial-oriented transit service, using light rail and bus expansions. Unfortunately, *the city center is the focal point of a steadily declining percentage of trips; and Tri-Met does not adequately serve destinations outside of*

the central city. Further, efforts to provide more cost-effective transportation by contracting for service with the private sector have been substantially reduced, and the same service is now provided directly by Tri-Met at about twice the operating cost.

For transit service in the region to become more attractive to customers, the service must be able to provide for the demands seen in today's economy. In particular, customers are known to be more sensitive to waiting time and to the need for transfers than they are to fares or line-haul times. Yet the type of service being developed requires more reliance on transfers and often results in increases in expected waiting time for riders. To provide service more in accord with the demands of customers, some decentralization would be very desirable.

Tri-Met is currently involved in an effort to determine what type of service is best suited to suburban travel requirements and says that it is committed to looking at the type of provision best suited to providing this service, including contracting and other options. However, past experience shows that Tri-Met is unlikely to allow for outside provision of services. Further, the high cost of Tri-Met provided service would make most such service undesirable. At least part of the solution must be to allow lower-cost provision of service.

EXPERIENCE WITH TRANSIT DEREGULATION AND PRIVATIZATION

A variety of steps can be taken to bring market forces to bear on the provision of urban mass transit. These range from allowing private companies to compete to providing some service under contract to complete de-regulation of the industry. While experience in the US has been mostly limited to some contracting for service, there are lessons to be learned from the more aggressive de-regulation

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that has occurred in other countries as well.

PRIVATE CONTRACTING

While most transit providers in the US use direct provision as the principle means of providing transit service, there have been a variety of experiences with contracting for service provision from private companies. The evidence is overwhelming that this type of contracting saves substantial amounts of money and allows for either lower subsidies from the taxpayers or a higher level of service to be provided for a given level of subsidy.

Bernekov and Raffel (1990) summarize a variety of surveys of experience with contracting out in the public sector. The surveys of transit contracting are extensive, with some covering hundreds of transit agencies. They conclude that privatization "*has been shown to increase productivity in ... bus transit.*" (p.143) Some of the studies report private operators between 50 and 65 percent less costly than public buses. More specific information comes from the experience of agencies that have instituted privatization in the recent past.

A number of cities have experimented with contracting for specific services. The general result has been lower costs with no other noticeable differences in service, or lower costs and improved service. For example, Ringo (1988) reports on competitively bid private service that had half of the operating cost of the public service that it

replaced (p. 63), but he does caution that there are potential problems with private contracting, such as failure to perform or poor quality. These problems do not seem to occur with any frequency.

The Denver Regional Transportation District was required by state law to contract for at least twenty percent of its service, and the estimates are that this resulted in short-term savings of about 12.5 percent of costs and long-term savings of 25 to 30 percent of cost. About half of the savings were due to lower wages and fringe benefits (Peskin, Mundle, & Varma 1993). Karlaftis et al. (1997) review the recent experience of privatization in Indianapolis and conclude *"in the case of the Indianapolis public transit system, privatization has helped reap large benefits in terms of efficiency, effectiveness, and safety."*

The Center For Urban Transportation Research (1997) lists many specific examples of transit agencies saving money through competitive bidding for service. Perhaps as interesting as the examples of contracting were the examples where transit unions were allowed to bid in competition with the private sector and won by substantially lowering their cost of service (p. 40), indicating that the current regulatory and subsidy environment has indeed been a substantial cause of the high cost of public transit.

Tri-Met's experience with contracting shows that costs increase when moving from contract service to direct provision. Tri-Met started the Sunnyside Shuttle on May 10, 1993 to provide service in areas that were not suitable for regular fixed-route service. The experimental service was provided under contract until Tri-Met decided to provide the service directly in April 1995.

Table 1 shows that the actual cost of operation increased substantially when Tri-Met brought the service "in house." This largely reflects the higher wages and fringe benefits for Tri-Met drivers, but may also be partly reflective of different work rules.

Information is presented for weekday operation alone.

As the table shows, the operating cost per rider under the contract provision was \$7.37 per ride and the total cost was \$12.50 per ride. These are high compared to the average for fixed-route service, but they look good in comparison to the alternatives. Under the Tri-Met cost structure, the operating cost per ride just about doubles to \$14.61, and the total cost goes to \$19.75 per ride. It is interesting to note that the increased cost of providing this service has now made it a prime target for service reduction.

Hence, the first step in using market forces to improve productivity at Tri-Met would be for more contracting out of service. Tri-Met argues that its labor contracts prevent such contracting, but this is just a result of Tri-Met negotiations with the union. Future contracts could be modified to allow for more contracting. In studying the ability of transit agencies to contract, Luger and Goldstein (1989) find, *"The weight of this evidence is that section 13(c) is an important issue for transit managers, and appears to lead to higher costs. But, it is not a significant impediment to contracting. The decision to contract is based on a host of factors...key determinants include the transit managers' attitudes toward privatization."* (p. 230)

...in the case of the Indianapolis public transit system, privatization has helped reap large benefits in terms of efficiency, effectiveness, and safety."

This finding along with the evidence of other transit agencies contracting with the private sector, and Tri-Met's own history of contracting, argue that greater contracting is well within the purview of the agency; and there is substantial evidence that this would lead to significant cost savings in the provision of transit services.

DE-REGULATION OF ENTRY

It is currently illegal for service providers to compete with Tri-Met. Given

Table 1

Cost and Productivity of Sunnyside Transit Service Alternatives

	Contract Operation	Tri-Met Operation
Operations Cost		
Annual Total	\$307,105	\$608,902
Cost/Vehicle Hour	\$22.41	\$44.43
Average Cost/Ride	\$7.37	\$14.61
Rides/Vehicle Hour	3.04	3.04
Total Cost		
Annual Total	\$520,873	\$822,669
Cost/Vehicle Hour	\$41.22	\$60.03
Average Cost/Ride	\$12.50	\$19.75

Source: Rufolo et. al. (1995)³

the large subsidies received by Tri-Met, there is no reason to limit competition. Anyone who wants to provide service in any areas served by Tri-Met should be allowed and even encouraged to do so. Typically, it is expected that any interest in providing service would be targeted at Tri-Met's most "profitable" routes; but since Tri-Met does not make a profit on any of its routes, any shedding of service would reduce the Tri-Met deficit or allow for better service in other areas.

Many people are skeptical that anyone would want to compete with Tri-Met since it does lose money on every ride, but the amount of loss varies with the service. Service on short-haul high-density routes requires the least amount of subsidy per rider. A more efficient provider of service might indeed be able to make a profit on such routes. Certainly, if congestion pricing is instituted, and especially if transit subsidies are reduced, the potential for profitable private provision would substantially increase. A key impediment to the provision of such service is the ability to use passes and to transfer to other parts of the mass transit system. If Tri-Met is serious about allowing and even encouraging private providers to compete, it must set out methods to allow for coordination of fares and service.

A number of cities have had de facto partial deregulation due to illegal jitney service. Klein et. al. (1996) report that there are extensive illegal jitney operations in both New York and Miami. In New York, the operations continue to succeed despite various efforts to control them, including more than 11,000 criminal summonses issued against jitney operators in one eighteen-month period. That the service can be profitably operated despite very high subsidies to the transit system indicates the potential for this type of service.

Despite the jitneys' attractiveness in terms of frequency, speed, and service, Klein et. al. believe that regular bus service is an important "anchor" for the jitney service by setting a fixed schedule to give

potential riders some guarantees of service. Hence, they argue for changes in regulations to permit more mixing of jitney and regular bus service.

Portland does not have the density of any New York routes, but it does have a lower cost structure, so it is certainly possible that some routes would tempt a private provider. While this would often make Tri-Met's cost per passenger and farebox recovery ratios look worse, it would in fact improve mobility in the region and offer riders greater transit alternatives.

Subscription bus service is provided in a variety of US cities, and appears to be growing, but from a small base. In addition, there is still some un-subsidized transit service on longer routes, but it is difficult for un-subsidized operations to compete with subsidized public agencies. Giuliano and Teal (1985) surveyed operations in seven metropolitan areas in the US. Despite finding substantial activities in a number of areas, including Boston, they conclude that the potential for such services is very limited:

"Privately provided un-subsidized public transit service must compete with the low fares of subsidized public transit services on the one hand and the high quality of service provided by vanpools and subscription services on the other.... Transit agencies in most urban areas have direct access to subsidies, and consequently they control the structure of service provisions within their service area. With very few exceptions, transit agencies are unwilling to share service provision with private providers, even when the incentive of fiscal problems exist. If an increased role for private providers is to be achieved, then, institutional change must take place." (p. 179)

Private subscription services and employer sponsored vanpools appear to be a more viable alternative than private, un-subsidized transit service. In particular, there are often incentives either offered directly or provided through the tax code to encourage employers to provide such

While regulation and public provision are the norm in the more affluent economies, there is much more variation in the developing countries. Many countries have extensive use of shared-ride private vehicles (jitneys) that are owned and operated by the driver.

services. The tax incentives or subsidies can help level the field relative to subsidized public transit service.

COMPLETE DE-REGULATION

Since mass transit has been regulated for even longer than it has been receiving major public subsidies, many people find it hard to imagine the possibility of complete de-regulation and open competition in the provision of this service. However, Britain has experience with major de-regulation and a variety of other countries have various forms of open competition:

"The British Transport Act of 1985 ordered the deregulation and privatization of local bus services throughout Britain... First, government controls over entry into the local bus industry were greatly relaxed... Second, the publicly owned bus companies that had dominated local bus service were reorganized as separate for-

profit corporations... Third, local authorities could supplement the profitable or commercial routes by subsidizing additional services that they felt were warranted by social concerns.” (Gomez-Ibanez and Meyer 1993, pp. 37-38).

The major exception to this was London, where a requirement to use contracting out of service was implemented rather than a complete deregulation with free entry and competition.

The British experience was neither as bad as critics feared nor as good as supporters had hoped. There was a substantial benefit in the form of reduced public subsidies, overall service levels appear to have increased somewhat, and there has been innovation in the type of service offered. However, fares have increased substantially, and some types of service have been cut back. The impact on labor is ambiguous since there did not seem to be any reduction in wages for existing drivers, but many new drivers were hired at lower wages and work rules were often changed (Gomez-Ibanez and Meyer 1993, 59-60).

By contrast, there seems to be almost unanimous agreement that the change in London to contracting out some service had a positive impact. The contracted service is less costly than direct public provision would be, and the competition seems to have caused the public agency to improve its own productivity. The lesson seems to be that there are costs to sudden, drastic changes in the methods by which service is provided, but that there is substantial room for innovation and improvement in the way in which public transit is provided.

While regulation and public provision are the norm in the more affluent economies, there is much more variation in the developing countries. Many countries have extensive use of shared-ride private vehicles (jitneys) that are owned and operated by the driver.

Several countries also have experience in

moving from a very regulated structure to a less regulated one. Thomson (1992) reports on the experience in Chile with deregulating urban bus transportation starting in the late 1970s. After deregulation, there was a substantial increase in bus service, and the government acted to limit the number of buses using congested streets. Fares increased in real terms, but they had been increasing under government regulation as well prior to deregulation. While base fares increased somewhat more rapidly after deregulation, a regulatory premium for night and weekend fares effectively was eliminated in the deregulated environment. Shared-ride taxi fares decreased and were much closer to bus fares after deregulation. Along with the higher fares, service quantity increased as did service quality, and there was a shift to the use of the taxibuses, due to the higher operating speed and more frequent service, as well as shared-ride taxi service. Thomson also notes that there was not any creation of luxury bus services, with that market presumably served by shared-ride taxis.

Surveying experience in a variety of developing countries, Meyer and Gomez-Ibanez (1993, pp. 29-35) conclude that Santiago had relatively limited net benefits from deregulation because “voluntary” route associations effectively restricted entry and enforced monopoly pricing. They conclude that

“While several lessons emerge from an examination of privatization of urban bus operations in developing countries, the most important, by far, is that the benefits depend critically on whether effective competition can be established and maintained in the industry. When competition exists, privatization has the potential to reduce costs and improve the quality of the urban bus services; without competition, such reforms may bring little improvement and conceivably even a degradation of service or ... unwarranted increases in fares and excess capacity as route associations abuse their monopoly positions.” (p. 35).

They go on to note that an important difference between the developing and the

Studies have found travelers to be more sensitive to the ready availability of taxis than to speed, comfort, or virtually any other service feature.

developed countries are the large number of small operators in the developing countries. This helps to maintain competition, and they argue that it is much less common in the developed countries. This may, however, be due to entry restrictions and other regulations, since the illegal jitney markets in a number of US cities have this characteristic.

The efficiency comparisons in other cities tend to find patterns similar to those reported in the US and Britain, with public service being more costly and less efficient than private service. For example, Chang and Kao (1992) evaluated the efficiency of the five bus firms in Taipei city and concluded that the publicly owned Taipei Municipal Bus had increased efficiency after government liberalization of the bus market allowed competitors to enter in 1969, but that it was still less efficient than the four private firms.

Hence, complete de-regulation is feasible, although a poorly designed form of de-regulation could create more problems than it solves. More specific discussion of these issues will be deferred briefly while we consider the taxi market in more detail, since many of the issues that must be addressed in looking at complete de-regulation pertain to the taxi industry as well as to buses.

TAXI DE-REGULATION

Cervero (1988) reported taxi fares that

were more than 70% higher in New York City than in Washington, DC and attributed the difference to the virtually unrestricted entry into the business in Washington as compared to the rigid limit in New York. He also reported that:

“Studies have found travelers to be more sensitive to the ready availability of taxis than to speed, comfort, or virtually any other service feature. Not only do cities with open cab entry have more than three times more cabs per capita than regulated ones, but services are often more closely integrated with local bus and rail services as well. Taxis have also proven their strength in low density residential areas where public transit is highly unprofitable or uncompetitive.” (p. 73)

These findings are confirmed in a variety of other articles. For example, Taylor (1989) concludes that taxi fares in Toronto are about twenty-five percent above what they would be with less restrictive entry and regulation. The restrictions on entry then result in monopoly profits for those with licenses. Where the licenses can be traded, these profits are capitalized into the value of the license. Hence, licenses to operate a taxi can cost \$100,000 or more. New licenses were auctioned in New York for \$200,000 apiece in 1996 (Luciani 1997, p. 29). Where the licenses are not trade-able, as in Portland, it is difficult to determine the value of the monopoly restrictions; but they almost certainly exist.

While the theory and much empirical evidence supports the contention that deregulation of taxis offers the opportunity for improved service at reduced cost, there are substantial potential problems as well. For example, Teal and Berglund (1987) examined the impact of deregulation of both entry and fares in six US cities where most rides require radio dispatch. They found that the dispatch system tended to favor large firms and limit the impact of competition. Further, it appears that even with “deregulation” cities tend to maintain a variety of rules and regulations that can limit entry, such as the requirement to

provide service twenty-four hours per day. Similarly, Garling et al. (1995) reported that the initial impact of deregulation in Sweden was a substantial increase in service, but this was accompanied by an increase in fares; and after eight months of deregulation, the impact of the increased service and fares seemed to be offsetting each other, resulting in little change in ridership levels.

Other studies point to the potential problems of limited deregulation. Rosenbloom (1985) finds that many communities that purport to deregulate in fact worked to limit the effects. For example,

“In 1979, Portland’s regulatory reform allowed companies to set their own rates (up to a maximum) using either a flat rate or the meter for different types of services. The local reforms also allowed existing companies to deploy additional taxis, but there were serious efforts on the part of local officials to discourage independent operators.” (p. 188)

While Rosenbloom argues that some of the problems with deregulation may include increased cost of enforcing insurance and other regulations, the more important conclusion seems to be that it has been almost impossible to get deregulation in the US.

The two biggest steps to improving taxi service in Portland would be to deregulate entry into the taxi market and allow for shared rides. One intent of mass transit subsidies is to reduce the number of vehicles required for a particular amount of travel. In the taxi market, this can primarily be accomplished by allowing more than one person per cab. The obvious success of the Washington, DC taxi system means that it is possible to design a shared ride system that is both less expensive and more responsive than the restricted entry, single-ride regulated system.

In terms of overall transit usage, the availability of low-cost, readily available transportation through the downtown

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would make commuting by mass transit more appealing to many people. Those who now face trips during the workday, even if just during lunch, are often compelled to drive personal autos to have access for these trips. Where a taxi alternative exists, the incentive for auto availability would be reduced. While there do not appear to be any good studies of the inter-relationship between the taxi service in Washington, DC and the rail system, the availability of taxi service does seem to play some role in the willingness of commuters to use mass transit or subscription van pools or express bus service.

With this said, it must be acknowledged that the typical taxi does not achieve many of the goals of decreased cost and increased mobility for the transit system. Operating costs are higher than for private automobiles due to the services of the driver, there may be problems associated with drop off and pick up activities, and the need to call for a taxi can be a substantial deterrent for many users. It would appear that shared-ride service is more amenable to achieving many of the benefits of using taxis rather than individual automobiles. To implement shared-ride service, a zone system of fares is typically required. With a zone system of fares and with drivers having the option to pick up unrelated passengers, taxis have a much greater potential to serve transportation needs and to reduce VMT as compared to the private automobile. This also has the potential to impact on peak period congestion, since peak periods are the times that taxis would be most likely to carry multiple passengers.

Such services require a more direct understanding of the demands and concerns of riders than can be generated by

simply hypothesizing what would occur. Rather, the ultimate determinant would be found by setting up a regulatory framework that allows for maximum experimentation and competition in providing service.

PROPERTY RIGHTS, DE-REGULATION, AND PRIVATIZATION

Klein et al. (1997) make a strong case that free enterprise in urban transit requires much more than the opportunity to compete. Competitors have an incentive to provide a superior product for a lower cost to attract customers; however, customers must be able to distinguish the service provision and the supplier must be protected from certain types of competition. For example, products often have brand-name producers, and many customers are willing to pay a premium for the product because of the assurances of quality. The value of this brand-name identification is obvious in the restrictions on use by others granted by trademarks and other identifying signs.

Where a product is truly homogeneous, the government often sets standards for the specification of the product. The use of the standardization allows for extensive competition on the price side since there is little difference in the product being produced. Neither type of competition allows for completely unrestricted entry and production. Klein et al. argue that the same is true with taxis and mass transit. De-regulation as often practiced would take away the restrictions on entry but not set up mechanisms for either allowing competition on the basis of reputation (brand-name) or by being the lowest-cost producer of a standardized service. Klein et al. argue *"Transit policymakers need to discover a legal framework within which a system of free enterprise will function."* (p.1). Further, massive subsidies to current monopoly providers of transit services would leave even efficient competitors with a distinct disadvantage.

Reform in the Portland area should then

focus on four key issues: entry restrictions, specification of property rights, privatization, and the allocation of transit subsidies. Each of these issues must be addressed and acted upon to allow the full power of market forces in achieving transportation reform. The full details are well beyond the scope of this paper, but we can try to identify the key areas where action is needed.

Entry

First, and foremost, the system must allow for entry by new providers. While a case can be made for setting certain standards for new entrants, the current system of regulation effectively precludes the provision of better service. The recent vote by the Portland City Council to approve two new taxi companies is a movement in the right direction, but much remains to be done. In particular, restrictions on the provision of alternative types of service, somewhere between transit and taxi service, must be reduced or eliminated.

Existing businesses have some incentive to look for new and better products to offer their customers, but the real key to progress is the ability of someone else to identify this service and to provide it. Producers faced with such incentives are more likely to be pushing for their own innovations than producers in protected markets. In Portland, this is likely to show up as service arrangements that are simply not compatible with the current regulatory structure.

For example, early jitney drivers were often simply people with a car on their way to work who would stop and pick up passengers for the fare. While this has obvious problems in terms of an unregulated ability to enter the market, there are certainly many good, reliable, well-insured drivers who might consider doing this if the incentive were large enough. Under current conditions, the incentive is likely to be fairly small and the time cost high; but with congestion pricing, both drivers and passengers would have a much greater

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financial incentive to enter into ride-sharing. Whether organized as a formal arrangement with ongoing service provision or as an impromptu assignment of passengers to vehicles arriving at a certain pick-up point, the potential to reduce the number of vehicles appears to be quite large. Further, the service is likely to be most appealing in low-income neighborhoods, with lower levels of automobile ownership and limited transit service to suburban employment centers.

While enhanced transit service might be able to accommodate some of these additional people, the monopoly transit provider would be unlikely to provide the diversity of service that may arise with no restrictions on entry. In particular, a closed market would not allow for individual drivers to accept passengers for pay. With congestion pricing, the incentive to provide van or shuttle services on a subscription basis would increase substantially, but such services are now restricted. It is also possible that private providers might want to compete with Tri-Met directly in providing service along fixed routes. The next section will consider the importance of protecting some of Tri-Met's interests when this type of competition is allowed; however, it should be allowed, and even encouraged, as a method to reduce the demand on Tri-Met resources.

Other forms of unscheduled service are also likely to be viable in some areas. To accommodate such services, the transit agency or some other public agency could provide for collection points, as well as

licensing or other verification of credentials for drivers and passengers. This would work particularly well where there is a priced corridor for peak hours. A collection point, such as a park and ride lot, would allow for passengers to provide their own collection phase. Then sorting by geographic designation would allow passengers and drivers to arrange a mutually convenient line-haul and distribution system. Alternatively, riders might be taken into downtown to use the mass transit system for the distribution phase of their journeys. Such systems may not be the best way to accommodate the changing demand for service associated with congestion pricing, but that shows the real benefit of de-regulation. Entrepreneurs would have an incentive to find out what type of service would work best and to experiment in providing it. These types of experimental service can not exist under the current regulatory structure with its restrictions on entry and on the type of service provided.

Diversity of service can only come about through competition. For example, suburban residents looking for transportation to the airport will typically have a range of alternatives available. They will differ in terms of cost, convenience, and other characteristics. The lowest-price service may require a transfer to bus for the actual trip to the airport, while a more expensive service would take several passengers at a time directly from their homes to the airport, and the single-ride taxi or limousine offers higher levels of service at higher cost.

Property Rights

Either suppliers must have the ability to differentiate their product or the consumer must be able to shop for the lowest priced producer of a standardized service, or both. Klein et al. (1997) emphasize the importance of defining and protecting property rights to specific types of investment. They focus on "curb rights" which they define as the right to stop and pick up or drop off passengers in specific areas. While they recognize the impor-

tance of competition in creating incentives for better service, they argue that service providers must be able to capture the returns to some types of investment if there is to be any incentive to make the investment.

They use the example of scheduled service creating an "anchor" that allows for mass transit along a specific route. If jitneys can run just ahead of the scheduled bus, then the operator of the jitney gets part of the return on investment in providing scheduled service made by the bus company. Hence, by restricting the access to such bus stops, the government regulator can protect the investment made by the bus company. The bus company may then find it advantageous to sell access rights, or other service providers may find it worthwhile to set up their own access points. However, such innovations require changes in the regulatory structure and actions by government to set up and enforce such rights.

A substantial problem with current competition is that real price competition is not allowed. For example, at the airport, everyone must line up for the cabs and they are assigned in the order in which they arrive. It is not possible for even an informed rider to find the lowest-cost cab nor to refuse to ride in one that is in poor condition. Hence, there is little incentive on the part of the taxi companies to either lower fares or provide other amenities.

However, if the passenger had free choice about which cab company to choose, there could be substantially more price and quality competition. Some might offer shared rides at lower cost while others offered premium services.

The issue as viewed from the perspective of existing taxi companies is that they are required to meet certain restrictions not placed on other companies, and their protected monopoly provides the revenue to allow for cross-subsidization of other services. For example, they must have a minimum amount of service available at all times. Given the nature of taxi service, it is

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likely that there will be more one-way trips at odd hours and that service to certain areas will be less likely to generate a return trip. In a well-functioning private market, such services would then command a premium. It is essential to have price differentials to encourage the provision of a wide variety of services. Various methods to allow for this type of differential are available. Among the most obvious would be to allow cab companies to designate certain types of service as being extra cost, with the extra cost posted on the cab.

Again, it is imperative that service providers be allowed to offer a range of services at different prices to encourage innovation and expansion. The issue of cross-subsidy will be addressed in the more general context of subsidies, but there is little reason to believe that the current system is either equitable or efficient in the allocation of such subsidies; and the restrictions used to allow for such subsidies seriously deter the expansion of this part of the transit market.

Privatization

As argued earlier, one of the biggest impediments to efficient provision of mass transit services is the high cost and inflexibility of Tri-Met as a monopoly provider of service. It is widely recognized that protected monopolies are inefficient, but people do not seem to recognize that transit providers are not only protected monopolies, but also the recipients of massive amounts of subsidy. The extensive evidence discussed earlier im-

plies that some form of privatization is imperative in improving the efficiency and reducing the cost of mass transit. Public subsidies of Tri-Met amount to hundreds of millions of dollars per year. The potential benefits of reducing that subsidy along with more efficient and effective service provision are huge.

The movement toward privatization could occur in a variety of stages. The most simple one would be to mandate that Tri-Met contract out some percentage of its service. Evidence cited earlier is that just allowing for bidding on some routes creates incentives for the transit agency itself to reform and improve its own level of efficiency. A more drastic, and ultimately more effective, approach would be to have Tri-Met contract for the provision of all service.

Due to the current subsidies for capital stock and the ownership of the light-rail lines, competition for operation and maintenance contracts would be the likely method of achieving efficient operation; but there might also be potential for contracting out the entire provision of service on specific lines or in specified areas. Tri-Met would then serve as the planning and coordinating agency rather than as the service provider. This would indeed allow it to focus on improving mobility.

Subsidies

In their review of the literature, Karlaftis et al. (1997) find that *“there are clear links between increases in subsidies, on one hand, and reductions in performance and productivity, on the other.”* (p. 68).

The major deterrent to efficiency that occurs when subsidies go directly to a monopoly provider can only be avoided if subsidies could be directed to the transit user rather than the transit provider. This would allow consumers to choose whether they want bus service, shared-ride taxis, subscription vans, or possibly some other service. By giving consumers some power over the use of the subsidy, there would be

greater incentive to provide the service that customers want. As things stand now, Tri-Met continues to receive its subsidies no matter what happens to ridership, and competitors would have to compete with Tri-Met's subsidized fares, even if they were allowed to operate.

Given the ability of private van service to compete with heavily subsidized bus service in several large cities, it is likely that customers would demonstrate a major preference for this type of service if given a choice as to how to spend the subsidy. Further, by directing the subsidy to the transit user, larger subsidies could be given to low-income or other transit dependent people rather than subsidizing everyone based on the trip, with the largest subsidy per ride typically going to more affluent suburban commuters.

Within Tri-Met, the payroll tax is the largest source of local revenue. It is about four times as large as farebox collections. Hence it should surprise no one that Tri-Met is more concerned about continuing to receive payroll tax subsidies than it is about providing service to customers. Many transit agencies have found themselves caught in a bind to provide larger amounts of service to suburbs to maintain their tax base, while all analysis of efficiency argue that these suburban services should be shut down rather than expanded.

With subsidies targeted at the rider rather than the transit agency, attracting riders would again be a high priority for Tri-Met. Subsidy retention would depend on getting riders into mass transit rather than on making service potentially available, but little used, in sparsely populated areas.

If the current subsidy money were to go to riders directly in the form of transit vouchers, it would allow private companies to provide service and compete for both fares and vouchers. This would create an incentive for new and innovative service that is responsive to customer demands. One particular problem with direct Tri-Met

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provision is that it is likely to conclude that the same type of service should be provided everywhere, while a more decentralized system could be more responsive to differences in demand and service characteristics in each area. Coupled with Tri-Met's high cost of service, there is little likelihood that such service could effectively be provided. Hence, service innovations will again “fail” and provide a rationale for continued reliance on large, fixed-route buses and trains with a radial orientation.

Many people react to revelations about the level of subsidy to transit by arguing that these subsidies are needed to assure that service is provided to low-income and other transit disadvantaged people. However, the evidence is that little of the subsidy actually has that effect. In terms of farebox recovery, high-density, short-haul routes generate the largest amount of fares relative to the cost of providing the service; and these are the types of routes that typically serve low-income areas. The biggest subsidies per rider go to the low-density, long-distance, suburban service that typically serves relatively higher-income families. Hence, subsidies provided directly to transit users could also be designed so that relatively more of the subsidy actually assists low-income and other transit dependent commuters than now occurs. Further, if low-income transit users have choice among the types of service providers, they are more likely to

get service that meets their needs.

COORDINATING WITH CONGESTION PRICING

The congestion pricing options being considered by the Metro-ODOT task force have been classified as falling into one of four categories: spot, partial facility, whole facility, and corridor. A spot option would involve the use of toll or price paid when passing a particular spot. It would function as a traditional toll in many ways, but it need not be collected in the same way and would vary in amount by time of day.

A partial facility option would typically involve one lane of a highway. In this case, the targeted lane would have a toll while other lanes did not. Often high-occupancy vehicles would be allowed to use the lane without payment.

A whole facility project would price all usage of a single highway in the peak direction. A corridor project would price all roads in a particular corridor. This would prevent people from moving to arterials to avoid the pricing on a freeway. Each of these options could benefit from partial relaxation of the transit monopoly.

Spot, Whole Facility, and Corridor

Both spot and whole facility pricing increase the cost for a vehicle to make a specific trip, such as suburban commutes to downtown. This type of congestion pricing would be most amenable to provision of traditional transit service, since it is best oriented toward suburban-downtown commutes. Yet even in this situation, there are a variety of reforms that would be likely to improve the use of transit.

First, entry restrictions on providing service along such corridors should be eliminated. With the higher cost of road usage, the demand for higher occupancy vehicles will increase, but the time disadvantage of traditional mass transit

will remain. Evidence from Britain and developing countries is that smaller vehicles, operating in a decentralized manner, meet commuter demands much more effectively than large vehicles. Van pools and other types of commuter service would be more likely to appeal to current auto drivers than would large vehicles.

A second type of reform would be to allow for increased mass transit between, say, a transit center and downtown, but to allow for competitive bidding for the provision of the service. Given the cost advantage that private providers have both in terms of employee compensation and productivity, for any given subsidy, more service would be available for potential commuters; and higher service frequency is an important method to minimize commuter wait time. Further, with the higher demand for service associated with congestion pricing, it should be possible for private providers to provide such service without any subsidy if they do not have to compete with subsidized public transit.

Partial Facility

Partial facility proposals typically look at pricing for one or two lanes of a freeway and making some special provision for high-occupancy vehicles. The greatest transportation benefit from such proposals would come with an increase in the number of people per vehicle, and this could often be achieved best through carpooling rather than the provision of additional transit services. Current restrictions on drivers being able to pick up other passengers for a fee are a deterrent to the formation of such carpools. Some easing of government regulations might also allow for the formation of more specialized van pools since they would be able to achieve time advantages on the trip that might offset the time disadvantages of collecting and distributing multiple riders.

Use of Congestion Pricing Revenue

...a reduction in other taxes is likely to generate the greatest amount of support as well as the greatest incentive for efficient transportation.

Congestion pricing would raise revenue. Some transit advocates would use this revenue to further subsidize mass transit, but this would be a serious error. Further subsidies would most likely generate further cost increases, with little in the way of service improvements. In addition, public support for congestion pricing is very low if it is viewed as just another tax.

Rather, the revenue should be used to lower or eliminate other taxes. One obvious example would be to eliminate the payroll tax in areas subject to congestion pricing. If it is decided to use the money for subsidies, then the subsidies should be given directly to the users, and they must have some options as to how they will use the subsidy.

Congestion pricing has great potential to improve the transportation system. Any adoption of such pricing will lead to an increase in demand for alternatives, but these alternatives must also face market pressures if they are to be provided efficiently. Return of the revenue from such pricing should not distort the true cost of transit alternatives, and a reduction in other taxes is likely to generate the greatest amount of support as well as the greatest incentive for efficient transportation.

BARRIERS TO ACTION

The barriers to re-organizing the transit market are substantial, but certainly no

greater than the barriers to the implementation of congestion pricing. Some actions could be taken by current service providers, if they were so inclined; but others would require changes in regulations or laws at the local, state, or even federal level. Some actions might be feasible at the agency or local level, but actual implementation may require actions by a higher level of government to overcome existing practices.

For example, Tri-Met could contract for provision of transit service with private providers, as it has done in the past; however, the existing labor contract for Tri-Met effectively prohibits contracting for transportation services, so the contract terms would have to be changed. The change in future contracts is an option; however, Tri-Met seems to move further away from competitive contracting over time. Since Tri-Met's leadership is appointed by the Governor, it would appear that direction from the Governor's office or legislative action could induce the agency to take steps toward more competition and privatization.

Similarly, the payroll tax that Tri-Met receives could be used for a variety of programs to allow transit users to direct this money toward other service providers; but it would require action by the agency to move away from direct provision of service and toward creating incentives for others to provide service that is more responsive to customer requirements.

At the local and state level, laws and regulations would have to be changed to allow for competition in providing innovative transit services. As it now stands, potential competitors must get past substantial regulatory barriers to be allowed to compete with the subsidized mass transit providers or the protected taxi firms; and certain types of potentially desirable service, such as shared-ride vans or taxis, are effectively prohibited. Changes in the laws and regulations that restrict entry would have to be done carefully so as to allow for protection of "brand name" investments and the creation of certain

types of property rights for the service providers. However, the changes appear to be largely within the scope of local governments and regulators. Some changes in the recent past have moved in the direction of greater competition and more concern for providing service to users rather than protecting existing service providers, but much remains to be done.

Federal restrictions also remain a major barrier to improving mass transit. Federal grants still give workers substantial power over the transit agency management, and federal grants are largely targeted at monopoly, public transit providers. In particular, the current capital subsidies strongly favor a monopoly public provider. Within this structure, there is still substantial potential for Tri-met to own the capital stock and to competitively contract for operations; but more drastic restructuring would require changes in, or waivers from, federal restrictions.

It would appear that the payroll tax could be converted into direct subsidies for transit users at local discretion, but changes in the use of federal subsidies would again be dependent on changes in federal law. Nevertheless, it is certainly plausible that even with the existing capital subsidies, private competitors would be able to attract many riders if they could get a share of the payroll subsidy. This would be particularly true on the high-density routes where current farebox recovery ratios are the highest.

RECOMMENDATIONS

Eliminate existing laws that restrict or prohibit entry by private entrepreneurs in both the mass transit and taxi markets. Some minimum standards, such as liability insurance and safety requirements, should be enforced; but those meeting reasonable standards should be able to provide service both in direct competition with existing service providers and by providing types of services currently prohibited, such as shared-ride van services.

Develop rules and institutions to allow effective competition. For example, Tri-Met should be able to restrict the possibility of an interloper accessing one of its bus stops just before a scheduled bus arrives, but it should not be able to prevent someone from providing a competing service.

Privatization of the mass transit market is essential. At a minimum, Tri-Met should be required to contract for service on some of its routes. In principle, there is no reason why Tri-Met should not contract out for the provision of all operations. A way to implement this would be to split off the Tri-Met board from the agency, and give it a new mission of simply awarding contracts for specific transit routes to Tri-Met or *any other contractor* that successfully submitted a bid for service in a competitive process.

Public subsidies for transit should be directed to the users of the transportation system rather than the service providers. If the subsidies were provided to users, who could use them to purchase transit service or alternative transportation services, they would promote the most efficient provision of service.

Subsidies should be greatly reduced and targeted at low-income users. Tri-Met will receive more than \$120 million in employment-based taxes this year alone, and this revenue source is growing rapidly. A cut of \$100 million per year in taxes would still leave over \$20 million per year to provide subsidies for low-income, transit-dependent users.

The Portland region should implement congestion pricing on all regional highways, and make those facilities totally self-supported by tolls. To ensure that motorists are not taxed twice, the region should seek authorization from the state legislature to begin lowering the \$0.24 per

gallon state gas tax within the area utilizing congestion pricing.

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