

Program Performance Versus Transit Performance: Explanation for Ineffectiveness of Performance-Based Transit Subsidy Programs

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Concomitant with increasing state support of public transit has been a growing concern in state houses over the operation of "empty" buses and trains and the desirability of tying state transit allocations to transit performance. Despite the popularity of performance-based transit subsidy programs among legislators and voters, performance-based programs have not worked well. In general these programs have either been unpopular and short-lived or politically popular and ineffectual. This occurs because of a conflict in all state transit subsidy programs between the political measures of subsidy program performance and operational measures of transit system performance. State funding of public transportation tends to be structured by programmatic concerns with distributional equity. Legislatures seek to ensure that citizens in all parts of the state benefit from public transportation subsidies. If the rewards and penalties in a performance-based program are large enough to motivate improved transit system performance, they will likely result in an uneven geographical distribution of funds, which is usually politically unpopular and creates pressure to weaken or abandon the performance-based allocation program. A study of the operating subsidy programs in 16 states is summarized and a program in three states are described to indicate that the programmatic goals of distributional equity supersede efforts to motivate improved transit performance. Reviewed are the rationale for linking transit performance to funding allocations, the political constraints on performance-based allocations, a survey of 16 state transit subsidy programs, and the distributional equity requirements that might be redefined to be more consistent with performance-based programs.

The biggest change in subsidies for public transit during the past decade has been the growth of state support of transit operations in the face of declining federal operating support. In 1980, federal funds accounted for nearly 30 percent of all transit operating subsidies nationwide, compared to less than 25 percent from state programs. By 1992, however, state transit programs accounted for nearly 40 percent of all transit operating subsidies, compared to just 10 percent from federal sources (1).

Concomitant with this rise in state support of public transit has been a growing concern in state houses over the operation of "empty" buses and trains and the desirability of tying state transit allocations to transit performance. Despite the visceral popularity of performance-based transit subsidy programs among both legislators and voters, such programs, when implemented, generally fail to influence transit operators to improve performance for one of two reasons:

1. State operating subsidy programs with strong performance incentives tend to generate strong local opposition from areas with penalized operators. This opposition results in the watering down or abandonment of the performance-based program to restore distributional parity of funding among operators.
2. To maintain distributional equity among operators from the outset, the performance incentive component is only a small component of a much larger state program, so small that the rewards and penalties have little influence on operator performance.

The net effect in either case is a "token" performance-based program; one that appears strong, but does little to influence operator behavior. This occurs because of a conflict in all state transit subsidy programs between subsidy program performance and transit system performance.

Like most resources distributed by state governments, state funding of public transportation tends to be structured by programmatic concerns with distributional equity. In particular, legislatures seek to insure that citizens in all parts of the state benefit from subsidies of public transportation. If the rewards and penalties in a performance-based program are large enough to motivate improved transit system performance, they will likely result in an uneven geographical distribution of funds. This uneven geographical distribution is usually politically unpopular, creating pressure to weaken or abandon the performance-based allocation program.

This paper summarizes a study of the operating subsidy programs in 16 states and describes the programs in three states (California, Pennsylvania, and Michigan) in some detail to indicate that the programmatic goals of distributional equity supersede efforts to motivate improved transit performance. The paper begins by reviewing the rationale for linking transit performance to funding allocations, turns to an examination of the political constraints on performance-based allocations, summarizes a survey of 16 state transit subsidy programs, and concludes with a discussion of how distributional equity requirements might be redefined to be more consistent with performance-based programs.

LINKING TRANSIT PERFORMANCE MEASURES TO FUNDING ALLOCATIONS

Defining and measuring performance in the private sector is fairly straightforward; profitable firms are successful, money-losing firms are not. A variety of measures, such as debt to equity ratios, changes

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in market share, and so forth, can be used to analyze different facets of performance, but ultimately all performance is determined by profit or loss.

Performance in the public sector is harder to define. In public transit, operators have multiple, and often competing, goals. A typical transit operator may have defined goals of (a) providing bus service to all parts of the service area, (b) providing frequent service to schools, malls, the central business district, and low-income areas, (c) reducing traffic in congested areas, and (d) maximizing cost recovery from the farebox. Evaluating the performance of a transit system with such goals is difficult because achieving some goals can preclude attaining others.

Performance-based funding for public transit, however, is based on the premise that there are "bottom lines" for public transit that can be meaningfully evaluated. Performance measures are regularly used by managers to evaluate their systems and by oversight boards and outside funding agencies to track transit performance and progress (2), but their usefulness and accuracy become hotly debated when used as a basis for allocating subsidies between systems.

Whether performance measurement is used as an internal management guide, as a report card to overseeing boards and agencies, or as a basis for funding, multiple and sometimes contradictory measures of performance are often used. Transit performance, in other words, is largely in the eyes of the beholder. Transit users typically want frequent, reliable, and affordable service to their most frequent destinations. Transit managers often favor a smooth operation that stays within budget; for example, high morale and low absenteeism, few accidents and breakdowns, and few complaints from the board of directors or users. Transit boards typically want high-quality service (both coverage and frequency) that attracts riders, particularly in the areas they represent. And outside funding agencies, such as the federal, state, and regional governments, are often interested in reducing operating deficits and insuring an equitable distribution of subsidies among operators.

Determining funding allocation formulas based on performance measures is the most controversial use of performance indicators, particularly among transit managers. Transit operators, especially those slated to lose funding under some performance-based allocation proposal, frequently argue that performance measures are not comparable across properties and that measures should be used to internally manage improvements to transit systems, not to determine funding agency allocations.

Regardless of the particular performance measures used, there are three principal approaches to linking operating subsidies to transit performance:

1. *Threshold standards.* Performance is measured against uniform statewide standards. To be eligible for funding, for example, operators are required to meet or exceed some minimum standard, such as a farebox recovery ratio. California and Wisconsin are two states that currently use threshold standards in their transit subsidy programs.

The advantages of such programs is that they are relatively simple to administer and ostensibly fair, because they hold all systems to a uniform standard. Such programs do not, however, allow for differences in operating environments; they do not reward systems for exceeding standards, and the "death penalty" (withholding all subsidies) for failure to meet standards is difficult to enforce.

2. *Individual comparisons.* Each system is judged individually, either against past performance or current goals. Here systems can be judged (a) on annual changes in performance indicators, or (b) relative to a set of performance goals set in consultation with the

state. The rationale for such an approach is that the service goals and operating environments (terrain, street network, population demographics, prevailing wages, etc.) make each transit system unique and incomparable and, therefore, only longitudinal evaluations of individual system performance changes are meaningful. Michigan and Pennsylvania are two states that use individual comparisons in making allocations.

Individual comparisons are popular with transit operators; they push systems to improve performance every year and hold them directly accountable for goals and performance. On the other hand, such programs can benefit poorly performing systems with room for improvement over already high-performing systems. Further, they do not control for changes (such as increased fuel prices) beyond operators' control, they encourage systems to make small incremental performance improvements instead of large, single-year jumps, and they may encourage operators to set low, easily attainable goals.

3. *Group comparisons.* Systems are judged relative to one another on an annual basis. The two common approaches here are to (a) judge each system against the statewide average for one or a number of performance indicators, or (b) judge each system against the performance of a "peer group" of similar transit operators nationwide. Indiana and North Carolina are two states that use group comparisons in making transit subsidy allocations.

The advantage of group comparisons is that they hold systems accountable to statewide or peer group performance, which makes it harder to explain away poor performance. And, in contrast to the longitudinal comparisons just described, they control for changes (such as increased fuel prices) beyond individual operators' control and they reward substantial performance improvements in a single year. Group comparisons may not, however, adequately control differences in operating environments between operators; service effectiveness measures (such as passengers per hour) favor operators in densely developed areas while cost-efficiency measures (such as cost per hour) favor operators in areas with low labor costs.

In addition to encouraging improved transit system performance, state transit finance programs are structured by internal program performance goals as well. For example, several state programs are explicitly intended to leverage local financial support of public transit. In Wisconsin and Michigan, systems are required to meet local match threshold requirements to receive funding. And in Indiana, the level of state funding is indexed to the level of local funding.

POLITICAL CONSTRAINTS ON PERFORMANCE-BASED ALLOCATIONS

Whichever performance-based allocation approach is used, state transit finance programs are judged politically by internal standards of programmatic effectiveness, particularly distributional equity. Table 1, drawn from a survey of transit operating subsidy programs in 16 states (3), notes several ways that distributional equity can be defined and how these concerns might be accommodated in a performance-based allocation program. The various approaches states have adopted to encourage improved program performance are also summarized.

Program Equity

An important consideration of any new state program is distributional equity. To garner legislative support, funds must be distrib-

TABLE 1 State Approaches to Improved Program Performance

Objective	General Methodology	States Employed
Program Equity		
<i>Operator Equity</i>	Program Expenditures/Transit Operators	Numerous
<i>Geographic Equity</i>	Program Expenditures/Service Area Population	Florida, Indiana, South Carolina, Tennessee, Texas
<i>Fiscal Equity</i>	Program Expenditures/Service Area Tax Revenues	California
<i>Passenger Equity</i>	Program Expenditures/Passengers	Florida, South Carolina
Program Effectiveness		
<i>Statewide Benefits</i>	Program Expenditures/State Benefits from Transit	Connecticut, Michigan, Wisconsin
<i>Leveraging Local Commitment</i>	Program Expenditures/Local Expenditures	Indiana, Wisconsin, Connecticut, North Carolina
Program Equity and Effectiveness		
<i>Passenger Equity and Effectiveness</i>	Program Expenditures/Fare Revenues	Indiana

uted in some equitable manner around the state. Although geography has been the most common measure of equity, a number of other definitions of distributional equity can more effectively link funding allocations to transit system performance.

- *Operator equity* (program expenditures based on number of eligible operators: numerous states)

Frequently favored by transit operators, this rationale allocates funds equally to all operators. Such programs are directly contrary to the logic of performance-based allocations. In practice, programs are rarely based solely on such a rationale because transit operators vary so significantly in size. But variants of the operator equity approach are common (such as with guaranteed minimum allocations); such programs are completely divorced from most performance-based allocation rationales such as revenue needs, service production, and so forth. Despite these shortcomings, however, the logic of transit operator-based equity is frequently found in state transit programs in the form of allocation "floors," or minimums distributed to each operator regardless of size, need, or performance.

- *Geographic equity* (program expenditures based on service area population: Florida, Indiana, South Carolina, Tennessee, and Texas)

Here funds are distributed based on each operator's share of the total state population, which indirectly allocates funds uniformly to all state citizens. Unfortunately, such programs reward poor performance: they benefit operators with low levels of per capita ridership (low service effectiveness) and penalize operators with high levels of per capita ridership (high service effectiveness) (4).

- *Fiscal equity* (program expenditures based on service area tax revenues: California)

Based on "return-to-source" principles of tax equity, funds are allocated to operators based on the proportion of revenues estimated

to have been collected. Such programs, however, tend to benefit growing areas and penalize economically depressed areas.

- *Passenger equity* (program expenditures based on passenger: Florida and South Carolina)

Here funds are allocated based on each operator's share of total state transit ridership, which directly rewards systems for attracting patrons. This method has the advantage of (indirectly) subsidizing all transit patrons statewide equally. Such a program, however, can encourage operators to lower fares to attract additional riders, which lowers the farebox recovery ratio and can increase dependence on transit subsidies.

Program Effectiveness

In contrast with distributional equity, program effectiveness criteria aim to achieve some statewide policy goals apart from improved transit performance.

- *Statewide benefits* (program expenditures based on state benefits from transit: Connecticut, Michigan, and Wisconsin)

In a study of local, regional, and state policy makers, Cervero (5) finds that about half of the perceived societal benefits of public transit accrue to transit users, about 25 percent to local governments, and about 12.5 percent each to states and the federal government. Following this rationale, transit users should be expected to pay about half of the costs at the farebox, with the remaining deficit paid by local governments (25 percent), the state (12.5 percent), and the federal government (12.5 percent).

The motivation for states to allocate transit funds based on this rationale, however, stems more from a desire to cover funding shortfalls than from policy decisions about the relative state bene-

fits of public transportation. While equitable from a programmatic standpoint, such programs, because they usually are structured to cover operating deficits, do little to encourage systems to improve performance.

- *Leverage local commitment* (program expenditures based on local expenditures: Connecticut, Indiana, North Carolina, and Wisconsin)

A common objective of outside (state and federal) funding agencies is to discourage exclusive or primary dependence on their funding and to encourage local revenue generation. This is usually accomplished through matching programs, in which state or federal funds are contingent on local funding matches. The federal highway program, for example, has structured funding programs in this manner for 80 years.

In such a program, funds are used to "leverage" additional local transit expenditures. This method rewards areas with strong local financial commitments to public transit and penalizes areas that do not contribute to public transit. The local funds that qualify as "matching" can take many forms. They can be limited local government and institutional (universities, large employers, etc.) contributions or can include all local revenues (fares, advertising, local contributions, etc.).

Although such programs encourage greater local commitment to public transit, they tend to favor wealthier cities with the financial wherewithal to support local transit service. In general, such areas tend to have low per capita use of transit; thus, such programs can penalize poorer areas with higher levels of transit use.

Program Effectiveness and Equity

None of the surveyed state programs linked allocations directly to fare revenues, though several incorporate farebox recovery rates in some manner. Transit fare research has consistently indicated that transit users, even poor users, prefer high-quality service over low fares (6). Yet transit operators find it politically very difficult to raise fares, even if it is to increase service frequencies or add routes.

One way to encourage operators to improve service and attract more paying customers is to allocate funds based on the amount of fare revenue collected. Under such a passenger effectiveness and equity program, funds can be distributed to operators based on that operator's share of statewide fare revenues. This is similar to the passenger-based equity program described earlier, but here operators are specifically rewarded for attracting paying customers.

In effect, states could adopt an equity rationale of indirectly funding a "matching" program for transit users. For every dollar that transit riders paid in fares, the state could provide some fixed match. In addition to encouraging operators to attract fare-paying passengers, such programs are inherently equitable because they would subsidize all transit users equally statewide; every transit patron in the state receives an indirect subsidy from the state in proportion to that patron's contribution (fare).

Of all of the programmatic equity programs described here, linking program expenditures to fare revenues would come closest to balancing the goals of transit performance with program equity. One problem with linking subsidies to fare revenues, however, is that such a matching program would only indirectly contain costs. One way to link subsidies more directly to costs is to allocate funds based on each operator's deficit (or subsidy) per passenger; in other

words, the lower the deficit per passenger, the greater the allocation per passenger. But, although such a program is directly linked to both costs and revenues, it may be counter intuitive to elected officials. That is, the less subsidy an operator needs (because of a low deficit per passenger), the more subsidy it receives. Although directly rewarding systems for high performance, such an allocation schema is likely to be viewed by both elected officials and transit managers as programmatically ineffectual and inequitable, given that funding will tend to flow to systems least in "need" of subsidy. However, no such directly performance-based allocation rationale was currently used by any of the 16 states surveyed for this study.

Given this inherent contradiction between programmatic equity and transit performance, any successful performance-based allocation program must satisfactorily accommodate the two. One strategy of accommodation may be to redefine equity. If equity is defined in terms of service consumption, such as either transit patrons or fare revenues, programmatic distributional equity goals do not directly conflict with transit performance goals. More often, however, distributional equity is defined in terms unrelated to transit service, such as number of transit operators, population, or tax revenues collected. In such cases, performance-based transit subsidy programs are handicapped from the outset.

SURVEY OF STATE TRANSIT SUBSIDY PROGRAMS

A survey of state transit subsidy programs was conducted for North Carolina as part of the development of a performance-based transit operating subsidy program for that state. This survey found that the role of performance monitoring in state transit finance programs varies significantly from state to state. In 6 of the 16 states surveyed, we found that performance measurement and monitoring plays a primary or secondary role in the allocation of state funding for transit operations. In four additional surveyed states, performance monitoring plays only a minor role, or no role at all, in the allocation of transit operating funds. And four surveyed states provide no state funding for transit operations.

Time and budget limitations, unfortunately, prevented a census of the practices in all 50 states, so the sample of sixteen states was selected using two criteria.

1. States with large metropolitan areas and many public transit systems (such as Pennsylvania) were emphasized over more rural states (such as Idaho); and
2. As this research was to assist North Carolina in developing a new operating subsidy program, states in the southeast (such as South Carolina) were emphasized over states in other parts of the country (such as Arizona).

Each survey consisted of a 30- to 90-min telephone interview with the state official (usually a manager in the public transportation section of the department of transportation) directly responsible for the administration or funding, or both, of public transit. The respondents were queried on (a) whether their state subsidizes public transit operations, (b) the history and structure of the operating subsidy program, (c) whether and how subsidy allocations were linked to transit performance, and (d) the nature of political support for or opposition to performance-based operating subsidies.

The results of this survey are summarized in Table 2. Note that, with the exceptions of the less urbanized, southern states of Alabama and Louisiana, all of the remaining states subsidize public transit. Among the states actively monitoring transit system performance, three general approaches to motivating improved performance have been adopted.

1. Five states directly link some measure(s) of transit performance to allocations: Indiana, Florida, South Carolina, California (Los Angeles area only), and Michigan.

The proportion of the total state program allocated on the basis of performance varies significantly, from nearly 40 percent in Indiana to about 1 percent in Michigan.

2. Three states use performance audits to push systems toward improved performance: South Carolina, California, and Wisconsin.

Though the audits are not directly linked to allocations, states can reserve the right to withhold funding if audit recommendations are not followed. Further, these states have found that the publicity generated by the audits powerfully motivates systems to improve performance.

3. Four states use performance thresholds to qualify systems for state assistance: Indiana, California, Wisconsin, and Michigan.

To be eligible for funding, operators are required to meet or exceed farebox ratio, operating ratio, and/or local match.

Three Case Studies

Given this overview of the transit operating subsidy programs in the 16 surveyed states, the programs of 3 states are outlined below in more detail to indicate how the imperative of distributional equity takes precedence over and shapes performance-based allocation programs.

California

State support of public transit in California began in 1971 with the passage of the state Transportation Development Act (TDA). The TDA program, which is the largest state transit finance program in the United States, allocates about \$750 million per year and is funded by 0.25 percent of the state sales tax. Funds can be used for capital or operating expenditures, but with few exceptions cannot cross county lines; in other words, funds must be expended in the

TABLE 2 Comparison of State Allocation Methodologies

State	Cap Funds	Oper Funds	Allocation Method	Track Performance?
Alabama	No	No	N/A	No
Arkansas	Yes	No	N/A	No
California	Yes	Yes	Population + Performance	Yes
Connecticut	Yes	Yes	67% of Operating Deficit	Yes
Florida	Yes	Yes	Population + Performance	Yes
Georgia	Yes	No	N/A	No
Indiana	Yes	Yes	Base Allocation + Performance	Yes
Louisiana	No	No	N/A	No
Michigan	Yes	Yes	Operating Deficit Based	Minor
North Carolina	Yes	Yes	Base Allocation + Performance	Yes
Pennsylvania	Yes	Yes	Operating Deficit Based	No
South Carolina	Yes	Yes	Population + Performance	Yes
Tennessee	Yes	Yes	Population	No
Texas	Yes	Yes	Population + Density	Yes
Virginia	Yes	Yes	Operating Deficit Based	Yes
Wisconsin	Yes	Yes	42% of Operating Deficit	Yes

same county in which they are collected. In rural counties (less than 200,000 population), program funds can be used for streets and roads if the county can demonstrate that there are "no unmet transit needs that are reasonable to meet" in that county (4).

In 1978, two performance criteria were attached to allocations: (a) systems were required to meet a minimum farebox recovery requirement to qualify for funding and (b) all recipients were required to have triennial performance reviews by outside auditors. Beyond these two eligibility requirements, however, all TDA funds are allocated based on geographic criteria without regard to either financial need or transit performance.

1. *Geographic equity.* In most cases, funds must be collected and expended in the same county.

2. *Cost-effectiveness.* All program funding is withheld if an operator fails to achieve a minimum specified farebox recovery ratio.

3. *Geographic equity.* Outside of Los Angeles County, the funds collected in each county are distributed to transit operators in that county based on the relative share of service area population:

$$(\text{county revenues}) * (\text{system service area population}) / (\text{countywide service area population})$$

In Los Angeles County only, funds are distributed to operators as follows:

–*Operator-Based Equity.* One-half of countywide funds are distributed based on each operator's share of countywide transit route mileage:

$$(\text{county revenues}) * (\text{system regular route miles}) / (\text{countywide regular route miles})$$

–*Cost-Effectiveness.* One-half of countywide funds are distributed based on each operator's relative farebox recovery ratio:

$$(\text{county revenues}) * (\text{system fare revs}/\text{sys oper cost}) / (\text{cnty fare revs}/\text{cnty oper cost})$$

The farebox recovery requirement in the statewide (outside of Los Angeles County) cost-effectiveness criterion listed above is a threshold; if the threshold is barely met or exceeded by 100 percent, funding does not vary. If an operator falls below the standard, funding is cut off. In practice, however, this penalty is so severe that no operator has ever been fully penalized. In addition, the farebox recovery threshold has been repeatedly lowered over the years and numerous exceptions to the requirement have been added. For example, liability insurance premiums and all costs and revenues from new or realigned routes are excluded from the calculations for 3 years (7).

In contrast to this farebox "death penalty," the performance audit part of the program has proven to be quite successful. As in South Carolina, the triennial performance audits are conducted by private consulting firms procured by the state or local metropolitan planning organization through competitive bids. Transit system managers have some control in defining the scope and focus of the performance audit, though all audits must report on the annual trends of a uniform set of performance indicators. If any deterioration in performance is noted, the auditors are to identify the causes and, in consultation with the transit manager, make recommendations for improvement. The transit system then has 3 years to act on the recommendations in the audit. In addition, the audited operators are required to discuss the report, along with any proposed remedial

actions, with a performance committee composed of peer operators, regional planners, and state representatives.

While transit managers sometimes complain of outside interference, the performance audits are often welcomed as a useful management tool. In this way, the audits reflect a broad range of uses of performance measurement, such as internal management evaluation, system report card, and guidelines for funding allocations. In addition, a recent study of transit performance programs by Fielding (8) concludes that performance audits are the most successful examples of funding agencies effectively motivating improved transit system performance.

Overall, the TDA program in California strongly favors lightly patronized suburban transit systems over heavily patronized central city systems. The return-to-source and service area population allocation criteria in particular undermine the performance-based eligibility requirements by favoring service-ineffective systems with low per capita levels of ridership (4).

Pennsylvania

Pennsylvania was one of the first states to adopt a performance-based allocation program for public transit. The program, which began in 1980, distributed 90 percent of state transit funding on the basis of need and 10 percent on the basis of performance. This program, which was scrapped for fiscal year 1987, was organized as follows.

The need component consisted of a percentage (60 percent in 1980) of an "allowable deficit" less federal aid. The allowable deficit was determined by estimating "allowable costs" (previous year's deficit times an inflation factor) less "required revenues" (defined in 1980 as a farebox recovery of 40 percent):

Allowable costs = previous deficit * inflation index

Required revenues = minimum revenue/cost ratio of 40%

Allowable deficit = allowable costs – required revenues

90% of state subsidy = allowable deficit * 60%

The performance-based component provided an additional 10 percent incentive, based on four performance indicators: (a) cost per hour, (b) revenue per hour, (c) ridership per hour, and (d) revenue-to-expense ratio. For the first three indicators, transit systems were not compared to a peer group or to transit operators statewide; each operator was instead required to maintain or improve performance from the previous fiscal year. For the fourth measure (revenue-to-expense ratio), operators were required to meet or exceed an annually established statewide standard (40 percent in 1980). Initially all four measures were weighted equally at 2.5 percent apiece.

The performance measures had been explicitly structured to avoid peer group or statewide operator comparisons in an effort to forestall objections over the invalidity of comparisons between systems. Only the recovery ratio was applied as a single statewide measure, which was proposed as both a measure of local support and of cost-effectiveness. This did not, however, prevent strong local opposition from areas with systems penalized by these performance measures. Penalized operators complained that the structure rewarded previously inefficient systems that had a lot of waste to cut, while well-run systems had less room for improvement. Fur-

ther, systems that realized large performance improvements got no more than systems with no change in performance; this encouraged systems to focus on small incremental improvements each year, instead of major improvements in any one year.

The Pennsylvania program was complex and cumbersome to administer. Frequent disagreements arose over the accuracy and uniformity of the data used to calculate both need and performance. Pittsburgh and Philadelphia opposed the program because it was easier for small agencies to qualify. The state legislature was uncomfortable with the creation of "winning" and "losing" systems. The program never stabilized; the performance standards were weakened several times before the program was eliminated in 1987 (8).

Currently, Pennsylvania allocates funds based on each system's historical share of state funding. For fiscal year 1994, \$237 million was distributed over 21 systems, though the large systems in Pittsburgh and Philadelphia receive approximately 95 percent of all allocations.

In transit operator-based equity, allocations to operators are based on each operator's share of statewide appropriations during the 1991 fiscal year. This formula is fixed and does not vary by performance, ridership, service, or financial need. Each system's share is locked in for the indefinite future. This formula reflects both the strong local opposition to performance-based allocations and the desire of operators and their political allies to make funding as predictable as possible. This formula, however, does not account for changes between systems over time, nor is any funding available for systems created after 1990.

Although the performance-based allocation program of 1980 to 1987 was popular with state transit officials, it was bitterly opposed by transit operators, who objected to the variability of funding from year to year. State transit officials would like to return to a program in which 10 to 20 percent of allocations are based on cost and revenue performance measures, but no current plans are in the works (J. Dockendorf, Bureau of Public Transportation, Pennsylvania Department of Transportation, personal communication 1993).

Michigan

In the early 1980s, Michigan developed a very complex operating subsidy program using 47 indicators. So many countervailing indicators were used that significant changes in overall performance were rarely reflected in allocations. The system was extremely complex and disagreements over the accuracy and comparability of the data and measures were common, causing the program eventually to be abandoned.

Michigan currently uses a deficit-based methodology to allocate state operating funds. Operating assistance comprises about 70 percent of the state program; for fiscal year 1993, this 70-percent share amounted to \$103 million (less administrative costs and debt service). Rural (FTA Section 18) systems can receive state subsidies of up to 50 percent of eligible operating costs, while urban (FTA Section 9) systems are eligible for state funding of up to 40 percent of operating costs. This state assistance, which applies to both fixed route and demand-responsive transit, is subject to a growth rate equal to the estimated percentage increase in revenue for the state transit operations fund. In other words, no individual system can receive a proportional allocation increase greater than the proportional growth of the entire state program. Because of the economic recession, however, state transit assistance has not increased for the past 3 years, and allocations have been relatively constant.

All systems are guaranteed a minimum allocation equal to the fiscal year 1989 funding levels. Beyond this, there are two performance components to Michigan's program.

1. *Program effectiveness.* To be eligible for funding, each system must have a local assistance-to-state assistance ratio equal to or higher than it did in the 1989 fiscal year.

2. *Program effectiveness.* Approximately 1 percent of the program (\$1 million) is allocated based on each operator's local commitment:

$$\$1 \text{ million} * (\text{system local funds/system state funds}) * \text{system oper costs}/(\text{statewide local funds/total state funds}) * (\text{state oper costs})$$

3. *Service effectiveness.* Approximately 1 percent of the program (\$1 million) is allocated based on each operator's share of statewide fare revenues (which function as a proxy for attraction of paying passengers):

$$\$1 \text{ million} * (\text{system fare revenues/statewide fare revenues})$$

In addition, transit performance measures are collected by the state and reported to the legislature. State officials report no plans to change the current program, though a proposal sponsored by Michigan transit operators and opposed by state transit officials is under consideration by the legislature to transform the current program into a simple "block grant"-type allocation program for transit and to eliminate the program and service effectiveness criteria entirely (B. Beachler, Michigan Department of Transportation, personal communication 1993).

Summary

A clear lesson from these case studies is that programmatic stability cannot be achieved without a satisfactory accommodation of distributional equity in a performance-based allocation program. In states that link transit performance with state funding, the state transit officials we spoke with emphasized the importance of balancing the goals of improved transit performance with the imperative of distributional equity; successful programs, they say, must effectively strike such a balance. Further, and perhaps not surprisingly, they stressed the importance of building a consensus among transit operators in developing even a small performance-based component to a state operating subsidy program. Most transit managers plan on 3- to 5-year budget projections, and to them any state funding program must be predictable in the short run.

"PROBLEM" OF DISTRIBUTIONAL EQUITY

Transit operators receive operating subsidies from a variety of sources: local, state, and federal. Most of these funds are distributed by formula to insure distributional equity. Accordingly, the influence of any performance-based allocation program on transit operator behavior will depend on the size of the performance-based program relative to all of the other subsidies received.

Consider a transit system receiving \$1 million in combined local, state, and federal operating subsidies distributed on the following basis: (a) service area population 45 percent (\$450,000); (b) service area population density 25 percent (\$250,000); (c) annual vehicle

miles of service 25 percent (\$250,000); and (d) operating ratio (performance-based allocation) 5 percent (\$ 50,000).

In this example, the majority of subsidies (70 percent) are population based and are not directly related to the transit system or its performance; if costs, ridership, or fare revenues go up or down, the subsidies do not change. The next largest share of subsidies (25 percent) encourages systems to offer as much service as possible, regardless of whether this service attracts riders. In contrast, the performance-based allocation encourages systems to attract both passengers and income, and to contain costs; this allocation accounts for only 5 percent of all revenues.

In this hypothetical example, the transit system has little motivation to attract riders and operate full buses. The operator would benefit from increasing vehicle service miles that captured few additional riders (25 percent of subsidies), even if these service expansions lowered the system's operating ratio. Thus, depending on the combined distribution of all operating subsidies, improved transit performance would be either encouraged or discouraged. This, then, is a key obstacle to effective state performance-based allocation programs: the nonperformance-based allocation formulae (which account for 95 percent of the allocations in example above) undermine and/or contradict the performance-inducing part of the program.

There are three basic philosophical approaches to equitably distributing transit subsidies. These three approaches are differentiated primarily by who is viewed as the principal beneficiary of transit subsidies: voters and/or taxpayers, transit operators, or transit passengers. Distinguishing among these three general approaches is important, because most transit subsidies are allocated on the basis of distributional equity and not performance.

When voters and/or taxpayers are viewed as the principal beneficiaries of transit subsidies, allocations are commonly based on (a) each transit system's service area population, or (b) the proportion of state tax revenues generated locally. Such approaches are consistent with the district-based structure of legislatures and councils, are congruent with the principles of local home rule, and frequently result (as in California) in stable long-term programs. Allocating funds based on population or tax collections, however, does little to motivate systems to increase ridership and can penalize systems with high levels of ridership, since greater per capita ridership equates to lower subsidies per passenger. Under a return-to-source tax revenue plan, rapidly growing areas can benefit from increased funding at the expense of economically depressed areas.

When transit systems are treated as the principal clients of transit subsidy programs, funds are commonly allocated (a) on the basis of service produced (such as vehicle service hours or route miles) or (b) on the basis of financial need (such as each system's share of the statewide unfunded deficit). Such programs are popular with transit managers because they can ease budget deficits and they reward service production. And, accordingly, service-based funding encourages operators to increase the level of service provided. Such need-based allocations can, in the short-term, eliminate service cutbacks, but financial need-based allocations can reward high deficits and poor financial management, which discourages both cost-efficiency and cost-effectiveness. And, by favoring service produced over service consumed, service-based allocations can discourage service effectiveness by encouraging service expansions without regard for the additional riders attracted.

Finally, when transit patrons are viewed as the principal beneficiaries of transit subsidies, allocations can be made based on (a) each operator's share of statewide transit ridership, or (b) each operator's

statewide share of fare revenues (which equally matches each rider's fare contribution). Such approaches directly reward systems for attracting riders, and each transit patron statewide benefits equally from the state program. Fare revenue-based allocations encourage systems to attract paying customers, which can both increase total transit ridership and reduce net operating deficits. Unfortunately, distributional equity programs based on transit patrons are the least common and are often only small parts of much larger programs. Such programs tend to favor systems with high levels of transit ridership, and this proves unpopular with elected officials and transit managers in areas with poorly patronized systems.

Each of these three approaches achieves a different type of distributional equity: geographic parity, parity among and between transit operators, and parity among and between transit passengers. And each of these general approaches encourages and/or discourages transit performance differently. Whereas passenger-based equity approaches are clearly most consistent with performance goals, they are the least likely to be adopted. This is because they benefit a less influential constituency (transit patrons) than either the transit operator-based approaches (which most directly benefit transit managers, unions, and boards of directors) or geographic-based approaches (which are favored by legislators and voters). And without a passenger-based approach to distributional equity, a performance-based transit subsidy program, regardless of which performance measures or allocation methods are chosen, is not likely to affect transit performance.

CONCLUSIONS

A number of studies during the 1980s argued that the structure of the federal transit finance program strongly influenced transit operator behavior and discouraged improved performance (9-11), but there has been little research on the influence of growing state transit subsidy programs. And while the TRB has recently published a study of the growth performance-based transit subsidy programs (12), there has yet to be a systematic study of the effects of these programs on transit system performance. This paper has attempted to bridge this gap in the literature by outlining the political constraints on performance-based transit subsidy programs.

It is clearly possible to define and measure the performance of public transit systems. Further, the national trends in transit performance have not been encouraging for many years. While total ridership has held steady or increased on most systems over the past 20 years, most standard measures of performance (such as cost per passenger or passengers per vehicle hour) on most transit systems have been deteriorating. These sobering declines in productivity, however, are explained mostly by things outside of the control of transit managers: the declining cost of owning and driving automobiles, relative declines in central city population and employment, and the continued growth of sprawling, auto-based suburbs that are increasingly difficult to effectively serve with traditional fixed-route, fixed-schedule public transit.

But, whereas most performance declines are the result of factors exogenous to transit systems, some systems are clearly better managed than others. These systems keep labor costs tightly under control, operate well-maintained buses that have few accidents, and adroitly deploy services to attract the most patrons with the fewest vehicles. Transit-funding agencies, such as states, want to encourage this type of high-performance transit service.

But transit subsidy programs that effectively motivate transit systems to improve performance have proven elusive. This is because there are at least two ways to define successful state transit subsidy programs. Programs that have been most successful at motivating transit systems to improve performance have frequently proven programmatic failures: controversial, unstable, and short-lived. Consensual, stable, long-lived programmatic successes, on the other hand, frequently have little relation to system performance.

This paper has suggested that one strategy to overcome the "program versus performance" contradiction would be to make the transit passenger (instead of the geographic region or the transit system) the equity focus of the subsidy program. To do so, however, would be no simple task; it would require overcoming established political constituencies that have defined the politics of transit finance for decades.

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