Table 6. Tax revenue sources for government operating subsidies to transit, aggregate 1978 data for 26 largest U.S. metropolitan areas.

<table>
<thead>
<tr>
<th>Level of Government</th>
<th>Type of Tax</th>
<th>Amount ($000 000s)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federalb</td>
<td>Individual income tax</td>
<td>364.5</td>
<td>64.3</td>
</tr>
<tr>
<td></td>
<td>Corporation profits tax</td>
<td>127.5</td>
<td>22.5</td>
</tr>
<tr>
<td></td>
<td>Sales tax</td>
<td>53.3</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>21.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>566.3</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>Income tax</td>
<td>130.5</td>
<td>30.2</td>
</tr>
<tr>
<td></td>
<td>Sales tax</td>
<td>188.1</td>
<td>43.5</td>
</tr>
<tr>
<td></td>
<td>Gasoline tax and motor vehicle excise tax</td>
<td>27.4</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>Property tax</td>
<td>3.7</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>83.0</td>
<td>19.2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>432.7</td>
<td></td>
</tr>
<tr>
<td>Local and regional</td>
<td>Income tax</td>
<td>32.0</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>Sales tax</td>
<td>107.6</td>
<td>42.1</td>
</tr>
<tr>
<td></td>
<td>Gasoline tax and motor vehicle excise tax</td>
<td>27.4</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>Property tax</td>
<td>475.6</td>
<td>39.5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>16.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1205.2</td>
<td></td>
</tr>
<tr>
<td>Total government subsidyc</td>
<td>Income tax</td>
<td>604.0</td>
<td>27.4</td>
</tr>
<tr>
<td></td>
<td>Corporation profits tax</td>
<td>127.5</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Sales tax</td>
<td>749.0</td>
<td>34.0</td>
</tr>
<tr>
<td></td>
<td>Gasoline tax and motor vehicle excise tax</td>
<td>124.2</td>
<td>5.6</td>
</tr>
<tr>
<td></td>
<td>Property tax</td>
<td>21.7</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>120.2</td>
<td>5.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2204.2</td>
<td></td>
</tr>
</tbody>
</table>

*Where taxes were not specifically earmarked for transit subsidization, the operating subsidy in each metropolitan area was distributed according to the composition of local general revenues in each specific area. The same procedure was followed at the state level. The state and local figures do not indicate any allowance for the federal contribution to general fund coffers via revenue-sharing grants. These accounted for about 4 percent of state and local revenues. Ultimately, therefore, federal taxes accounted for an even higher proportion of total operating subsidies than shown in the table, and state and local taxes accounted for a lower percentage than indicated.

bNo federal taxes are specifically earmarked for transit; therefore, amounts of specific taxes under this category reflect the composition of general revenues only.

cThis total excludes about $4100 million in operating subsidies to transit in smaller urban areas and also excludes about $185 million in nongovernment operating subsidies (such as bridge and tunnel tolls) in the larger areas.

2. A dramatic increase in the federal role in transit financing.

Prior to 1965, there was no federal role, and even as late as 1970, the federal contribution was overwhelmed by state, regional, and local contributions. By 1978, however, the federal government actually funded a greater percentage of the total operating and capital subsidy in the United States than all other government levels combined (52 percent). It is somewhat ironic that in the United States, with its strong tradition of decentralized government, the federal role in transit financing is significantly greater than the corresponding role of national governments in most Western European countries, even with their long traditions of very centralized government structures.

REFERENCES

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Alternatives Analysis in the Financing of Multijurisdictional Public Transportation Services

ALICE E. KIDDER

The challenge of welding several independent and geographically distinct political jurisdictions into a single transportation service has been beyond the grasp of many U.S. cities. The rewards of such a feat are tempting—a widespread regional network of coordinated transportation service, an end to misaligned bus routes based on town boundaries rather than travel needs, and the economic advantage of spreading overhead costs such as the outlays for transit management and vehicle maintenance. Additional advantages include increased ability to attract federal dollars and a broader base for marketing of transportation services. Private bankrupt transit properties can be rescued and rationalized when several jurisdictions pool their financial resources. These benefits are offset, however, by the inherent problem of the public systems' requirement for public funding, and the subsidy must somehow be apportioned...
to the residents of separate and frequently competing political jurisdictions. Sharing the cost of the deficit is required but, in the nature of multijurisdictional areas, the units of government are independent and cannot commit one another to future action without recurring appropriations by the individual jurisdictions. The determination of a basis for distributing the subsidy requirements is a difficult and politically sensitive task. This report explores the manner in which eight cities addressed the problem of sharing costs.

Areas were selected for study based on (a) their history of multijurisdictional financing arrangements, (b) their successful and unsuccessful experiences with alternative financing mechanisms for cost sharing, (c) the presence of innovative financing arrangements, and (d) lessons to be shared with other cities of comparable population size and density. The cities vary in fiscal capacity and geographic region. The research team surveyed patterns of transit deficit sharing in the 50 states through telephone interviews with local transportation financing officials. All systems that were located in the 100 largest metropolitan areas were contacted to determine whether one or more political jurisdictions contributed jointly to the financing of the public transportation services in the area. By using the results of the telephone interviews, the researchers selected judgmentally the case study sites.

The case studies are used in this paper to assess several questions:

1. Which criteria appear to be paramount in the choice among financing alternatives?
2. What conclusions can be drawn from the experiences of these disparate systems? and
3. Are there lessons for other areas that contemplate the formation of multijurisdictional financing arrangements?

Criteria by Which Multijurisdictional Transit Financing Alternatives Are Evaluated

In making the choice among financing alternatives, a jurisdiction must choose among several objectives to be achieved. Often one goal competes with another, and the final decision is inherently a political one. Since there is little consensus on the relative importance of the various criteria, each dimension along which the financing can be judged is discussed separately.

Efficiency

Tax revenues should be raised in a manner that minimizes interference with the economic decisions that would have been made in otherwise efficient markets. For example, it may be efficient to have persons buy in stores close to their home or work to reduce fuel consumption. The imposition of a sales tax in one jurisdiction but not in a neighboring one may, however, induce consumers to drive extra distances to purchase where the tax is lower. The extra resource cost of the fuel and time consumed is a violation of the principle of efficiency (1). The criterion of efficiency may influence several aspects of economic choice.

Consumption Decisions

If consumers have two or more competing markets in which to buy, and if one imposes a tax and the other does not, consumption decisions are distorted.

Production Decisions

If two jurisdictions are competing for the same factors of production (e.g., skilled workers), a payroll tax in one jurisdiction but not in the other will distort employee decisions about where to work and ultimately may affect the relative economic activity of the two jurisdictions.

Mode-Choice Decisions

If two or more transportation modes compete with one another for customers, the subsidy of one mode more than another may cause a distortion in the decisions of which mode is used. Many observers feel that it is socially advantageous to push consumers in the direction of energy-saving public transportation alternatives and would question whether distortions of this nature are adverse. Nevertheless, one can question the economic efficiency inherent in a practice that subsidizes inefficient transportation suppliers at the expense of competing, and more-efficient, alternative suppliers. This issue has been raised in connection with suburban bus services, as for example in Montgomery County, Maryland. Federal subsidies support the higher-cost system of buses that emanate from the Washington Metropolitan Area Transportation Authority, but a lower-cost system, Ride-On, operates without federal assistance.

Equity

Equity is a measure of fairness of the taxing and spending arrangements. Different individuals measure fairness by different standards, and what is at stake is the question of how material goods and services are to be distributed. A review of the literature reveals several concepts of equity.

Income Distribution Equity

Persons who have higher income or greater assets should pay a proportionately higher share of the costs of a public service such as transportation.

Benefit Equity

Persons who use the service should pay in proportion to the amount of service they have received. This second principle comes in conflict to some extent with the first, in the case of public transit, whenever the users are more likely to be lower-income persons.

Jurisdictional Equity

Each jurisdiction should contribute toward the support of a regional public transportation program according to a common standard, formula, or rule. This principle is violated when, for example, one state legislature fails to pass financing support comparable to that contributed by neighboring states in a case where both states benefit from the availability of a regional service.

Political Acceptability

In practice, this criterion is of overriding importance in decisions about which financing mechanism to use. Frequent violations of the efficiency or equity principles are justified by local elected officials on the grounds that it is important to get the new transportation service instituted; selection of taxing procedures that are viewed as politically salable has higher priority than theoretically sound economic principles that, if followed, might prevent imposition of the tax at all.
Administrative Simplicity

One criticism of complex formula-allocation procedures for sharing the operating costs of a transit system among jurisdictions is that the administration of the financing allocation may be costly and time consuming. Local elected officials may have difficulty in predicting the tax effects in a situation where very complex financing rules prevail. Voters may not grasp the incidence of transit financing where complicated cost allocation occurs.

Openness to Public Scrutiny

Related to the concept of simplicity is the criterion that the financing mechanisms should be available and understandable to taxpayers and the voting public. In some of the cities visited, the financing sources and the allocation among jurisdictions was well documented in newspaper articles that had preceded crucial votes. In other cities, even the local elected officials were not entirely clear on the manner in which funds were allocated among jurisdictions.

Economy in Implementation

In the case of the allocation formula used in Washington, D.C., its complexity requires the annual expenditure of over $1 million for data collection alone. Precision in information can at times be very costly. The introduction of regionwide financing arrangements that do not require such a wealth of detail of disaggregated information may be cost effective. Another aspect of economy in operations is the cost saving from the use of an existing tax source, rather than the creation of new tax collection mechanisms, special taxes, or the like. Systems that collect funds through statewide sources, such as the motor-vehicle excise tax in the state of Washington, are using previously established taxes that do not add to the administrative cost, except as the accounting of funds to the jurisdictions is concerned.

Sensitivity to Variations in the Fiscal Capacity of Component Jurisdictions

Through historical accident or by fundamental differences in economic base or political orientation, neighboring jurisdictions frequently exhibit very diverse fiscal capacities. Tax bases differ. Assessment rates and practices differ. If a transportation region includes two or more states, tax laws, constitutional limits on debt, and statewide tax levies may differ considerably between the component jurisdictions. Financing arrangements must be ingenious enough to take into account these differences and permit an amicable distribution of financial responsibility. In cases like Albany, New York, where wide variations occur in the ability to pay (from the wealthy suburbs to the much less densely populated rural areas and the inner city), much use is made of statewide financing. This practice reduces the need to confront the fiscal-capacity issue at the local level.

Inflation-Proof Revenue Sources

One problem that has been handled with varying degrees of success by the various metropolitan areas is the issue of deriving a funding source whose receipts keep pace with the region's increases in the cost of living. Transit costs are particularly vulnerable to inflationary pressure. A very high percentage of operating costs are labor costs. The typical system usually has labor costs that amount to at least 70 percent or more of total operating costs. Since most of the major city transit systems engage in collective bargaining with organized labor, the practice of including cost-of-living escalators into labor contracts is widespread. The cost-of-living clauses generally include a cap, and the unions do not advance more than the full extent of the consumer price index (CPI) adjustments. Nevertheless, many clauses build in sizeable cost increases for the transit operation. Even a cost-of-living adjustment based on 0.6 of changes in the CPI is significant when the wage bill is 70-80 percent of total costs.

The escalation in transit costs can be met if the revenue sources also expand with inflationary pressure. There are several ways in which such tax escalation may occur:

1. Revenue sources such as sales taxes automatically increase receipts as the scale of economic transactions in the area increases.
2. Rules can be built into the tax structure to allow for expansion of rates automatically, and
3. The local governing bodies may be called on for renewed appropriations for transit support based on evidence of cost increases.

This final method leaves the discretion in the hands of the elected officials and is the most common practice. The disadvantage is that the planning horizon is foreshortened because one cannot predict with certainty the outcome of crucial local votes. For systems that are unable to build in revenue sources that escalate with the pace of costs, the alternative is retrenchment of service or, in some cases, the development of alternative subsidies. In the case of the Washington, D.C., metropolitan transportation region, cost escalations in building the new subway system have forced the development of alternative financing arrangements. To date, the principal source of relief has been special legislation passed by Congress to augment the basic federal assistance available from the Urban Mass Transportation Administration (UMTA) (legislation that includes debt guarantees, for example). Again, cities have frequently been compelled to turn to higher levels of government to solve problems based on the inability or unwillingness of local services to pay for the growing transit deficits.

Stability and Predictability

When multibillion-dollar capital investment programs are undertaken by regional transportation authorities, they have created an important fiscal partnership between federal, state, and local agencies. Financing of this large block of capital can be done through conventional money markets only if the revenue source that will retire the debt is demonstrable and predictable. The vagaries of decisions about authorization legislation weigh substantially in the minds of would-be lenders. Hence, it is financially advantageous to have developed stable and predictable sources of financing. The advantages are obvious: lower lending rates, less dependency on municipal corporate ratings (which have suffered in recent years), and the ability to raise money to solve initial cash-flow problems that frequently arise in waiting for federal or state financing.

In some cases, the issue of stability and predictability is couched in terms of a test of the political will of a region to finance the operations of a system on a long-term basis. The amortization of capital costs is based on commitments made at a single point in time, whereas the decisions about
the scale of operations can be adjusted incrementally based on the political judgment at various points in time. Where this issue arises is in cases such as the Washington, D.C., Metro subway system, where exceptions have raised the issue of whether the electorate wants to support a system with an implied capital and operating costs as was originally designed. To some extent, the two issues are intertwined. The larger the scale, measured in capital terms, the higher the operating funds needed to sustain the system. The fear is that the system will be designed on too large a scale, and segments yet to be built will be abandoned; or, worse still, service will be abandoned even after a line is installed. One may point to cases where high capital investment was not sustained by operating funds, and the project was terminated. In the case of Bradley International Airport, for example, capital facilities for commuting are not used because of a lack of operating funds.

**Sensitivity to Variations in Demand for Transportation Services**

Several of the systems noted problems in adjusting financing arrangements to changes in demand for public transportation. For example, sudden modal shifts sparked by the energy crisis have strained existing peak-hour capacity. The scale of system operations cannot be increased without causing important increases in the deficit for operation. A capital constraint may also exist, but the staggering of commuter runs can bring about more-effective or better-balanced use of equipment if operating costs are covered. The problem lies in the fact that city and state budgets are locked in by collective bargaining provisions. The use of part-time drivers, for example, is not possible in some cases. Cities such as Seattle and Washington, which have been successful in negotiating provisions for a flexible labor supply, with part-time staffs permissible, find it easier to cope with unexpected variations in ridership.

Financing formulas that gear funding of the deficit to demand-related variables (such as ridership, vehicles hours of service, or fare-box revenue) are better able to cope with this problem. Some systems have built-in guidelines that suggest that the fare-box revenue should be maintained at a constant or increasing fraction of operating costs. The state of Maryland, for example, proposes to reimburse the Washington Metropolitan Area Transportation Authority based on an assumed fare-box recovery of 50 percent.

**Compatibility with UMTA and Other Federal Guidelines**

In order to comply with federal financing guidelines, local jurisdictions must be able to raise 50 percent or more of the operating costs toward which UMTA is also contributing. Where some systems have found this a difficult chore in the context of multijurisdictional financing, use has been made of federal revenue-sharing funds (Northern Indiana Commuter District), of diverted highway funds under the Federal Aid to Urban Systems (FAUS) options (as in the case of Washington), and of private-public joint-venture financing (as in the case of subscription service purchased by condominiums in Melbourne, Florida). These less-usual forms of local financing are the exception rather than the rule, however. For the most part, jurisdictions solve the problem by raising funds from general revenues. In some cases, the funds are earmarked sources that are dedicated for transportation purposes. Any interruptions, therefore, in the flow of local funds threaten the continuity of federal support. In the case of Norfolk, for example, threats of possible loss of potential funding induced the city, somewhat unwillingly, to join a very large, far-flung regional transportation system.

Special federal regulations, such as required expenditures for facilities for the elderly and handicapped, add new strains to the need for local funding. Since the use of facilities for the elderly and handicapped may not follow the same pattern by subjurisdiction as does the overall system ridership, new allocation formulas are sometimes called for to apportion this extra cost equitably. New federal concerns have occasioned unexpected costs, and local requirements must adjust accordingly. Officials of Montgomery County noted that it was cheaper to forgo federal operating or capital assistance for the locally run Ride-On system, pay nonunion drivers considerably less than would be required by federal financing, and run the system in a more economical fashion.

To comply with UMTA stipulations, multijurisdictional systems that receive federal assistance have in the past had to pledge "maintenance of effort" such that federal funds do not simply replace previously contributed local funds. Some financial specialists for the systems interviewed expressed concern that maintenance-of-effort requirements would be placed in jeopardy if a major jurisdiction were to break away from a consolidated, multijurisdictional financing arrangement. Examples of smaller systems that have broken away from previous multijurisdictional arrangements are the case of Fairfax City, Virginia, which withdrew rail capital contributions from Metro when changes occurred in the allocation of subway stations; the case of Melbourne, Florida, where a jurisdiction left the regional transit configuration; and the case of Peabody, Massachusetts, which also opted out of the commuter system. South Bend, Indiana, expressed concern that one of its lessees, Mishawaka, might withdraw its support from Section 5 of the National Mass Transportation Assistance Act of 1974, as well as its local share, and thus throw into question the compliance with maintenance of effort. Thus, the ability to raise revenues through the taxing power of a consolidated government, as in the case of Dade County, or through earmarked, statewide taxes (as is true in California) eases the problem of securing a maintainable level of effort.

Congressional initiatives now call for stable and predictable local funding sources as a prerequisite for continued federal funding. One of the concerns to be addressed is whether tax sources must be earmarked specifically for transit if they are to constitute a stable and predictable basis of support. In most of the systems studied, little prior thought was given to the relationship between the financing mechanism and the subsequent impact on future decisions regarding fare levels, cost control, or marketing to increase patronage. The experience of the various systems suggests that there will indeed be some causal relationship between the type of financing available and these management decisions.

**Fare-Box Policy**

Many of the systems interviewed had an implicit subsidize-as-you-go policy. No firm policy set fares to rise as deficits increased. As deficits mounted, fare-box increases were not expected to absorb any given fraction (much less the total) of cost increases. Given the escalation of costs and fairly constant yields from fare-box and other operating revenue, the result is a sharp upward trend in local
and federal subsidies required to sustain transit operations.

Several systems reported, however, that they were under pressure to increase fares and had done so without increasing ridership. In only one of the systems interviewed (Washington) was there any policy to keep revenues from fares and other operations at some set percentage of the operating costs (or deficits). In two systems (Washington and Norfolk) fares were credited to the jurisdiction that generated the fares. Higher fares would automatically result in lower subsidies required from the jurisdiction.

Several financing specialists in the transit authorities interviewed felt that UMTA had influenced the authority to keep fares low. They felt that this policy was in response to the concerns of the transportation-disadvantaged ridership and was a partial justification for continued federal support of operating assistance. Clearly, the specialists felt no responsibility to maintain fares at a given percentage of costs simply based on federal requirements.

Cost Control

In most cases the link between financing arrangements and cost control was direct. The financing must be agreed on annually by the regional body or by the component jurisdictions, and budgets set by the board of directors of the authority had the effect of providing the general limits on spending for the transit operations. In most cases the board of directors was composed of local elected officials, who would in another capacity have to vote for subsidies to the transit company if necessary; therefore, on the surface it appeared that the decision-making process provided considerable incentive for cost control. In Seattle, for example, the newspapers carried articles that condemned the local transit (and implicitly the local officials who served on the board) for unexpected cost overruns in the rebuilding of the street-level electrified bus system.

Several factors tend to weaken the link between financing decisions and cost control. In most of the systems studied, recent collective bargaining agreements built in cost-of-living adjustments that automatically increase compensation to the work force whenever there are upward movements in the CPI. The ready availability of federal assistance for capital expansion, coupled with the maintenance-of-effort requirement, sets in motion a likely expansion of the scale of the system. Such growth (in vehicles, route miles, and hours of service) calls forth significant increases in operating costs as the new elements in the system must be maintained, staffed, and repaired. The result of system growth without concomitant revenue growth has been noticeable increases in deficits.

Nevertheless, the complex nature of organizational decisions has the effect of separating, in place and time, those decisions that affect cost increases (e.g., labor dispute settlements, selection of neighborhoods to be served by transit, and choices of capital stock) from the decisions about needed subsidy. Local elected officials are frequently told after the fact that they must cover major cost overruns or face immediate loss of service. Local elected officials complained of being misled at times by hopes that federal assistance would materialize or that costs would not escalate as rapidly as they did. Political jurisdictions have found numerous ways to cover the deficit retroactively, and there are important political reasons why they should do so. Transit companies create a lot of jobs. Termination of service would imply loss of jobs—an unpalatable alternative in an election year. Many low-income persons depend on public transportation to get to their place of work; disruption of service could have important side effects in reducing the productivity of the labor force when companies have large numbers of transit-dependent workers. Many elected officials have polled the voting public sufficiently to become convinced that positive votes for growth of the transit system will be beneficial to gaining reelection. It is a later administration that may have to raise the funds to pay for increased operating costs. The short time horizon of the local elected official may induce positive votes on expansion of transportation infrastructure, since the increased maintenance and upkeep will not fall due for some time. In all case studies, deficits have grown sharply over the last five years. Rather than imposing expenditure ceilings, elected officials have found methods to subsidize the growth.

UNIQUENESS AND COMMONALITY IN FINANCING ISSUES

Most of the multijurisdictional financing arrangements described in this report took shape in the early 1970s or mid-1970s. Therefore, too little time has elapsed to discern trends or find common outcomes. The unique fiscal and topological aspects of each metropolitan area played an important role in determining the choice of revenue source and the basis for agreement among the jurisdictions. It is difficult to transfer one system to another. Table 1 presents background information on multijurisdictional public transportation financial arrangements in the eight cities studied.

As can be seen in Table 2, deficits have grown in all systems studied. Public takeover of previously bankrupt or near-bankrupt private companies has been accompanied by service expansions, and unit cost increases are associated with inflation of transit costs at rates higher than cost-of-living increases.

Again from Table 2, one notes that the deficit increase is more pronounced in the early 1970s and, in many cases, doubled or trebled between 1973 and 1977. Later increases between 1977 and 1979 show constrained growth, particularly in systems that did not have dedicated revenue sources.

Several levels of government have shared in making up the operating deficit. Increased availability of federal and state funding is shown in Table 3. The role of local jurisdictions has tended to diminish as states and the federal government have offered more support for operating deficits.

If one tendency appears to be a common pattern, it is that each jurisdiction is likely to overspend local resources and to look to the next-higher level of government to contribute disproportionately to further growth of the system. Two or more adjoining cities wholly within a state are likely to propose federated financing linked to the carrot of state subsidy. Multijurisdictional systems that cross state boundaries are likely to require special federal support, as in the case of the Washington metropolitan area.

Transit officials interviewed perceived strong economic incentives for developing multijurisdictional regional financing arrangements that permit the growth of a metropolitanwide transit system. Each of the multijurisdictional arrangements discussed offered a variety of benefits. There is a comprehensive set of transit services, as compared with an earlier period when separate systems operated as individual private companies or as individual city-owned systems. None of the systems were eager...
Table 1. Nature of multijurisdictional public transportation financial arrangements for eight study sites, 1979.

<table>
<thead>
<tr>
<th>Location</th>
<th>Revenue Source for Nonfederal Share of Operating Deficits</th>
<th>Funds Earmarked for Transit</th>
<th>Formula for Cost Allocation</th>
<th>Jurisdictions Buy Levels of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany, NY</td>
<td>General revenues, state operating assistance</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Dade County, FL</td>
<td>General revenues, state operating assistance</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Northern Indiana</td>
<td>General revenues, state operating assistance</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Norfolk, VA</td>
<td>General revenues, state operating assistance</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Sacramento, CA</td>
<td>Sales and fuel taxes, general revenues</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>Motor vehicle excise tax, sales tax</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>St. Louis, MO³</td>
<td>General revenues, highway fund transfers</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Washington, DC</td>
<td>General revenues, state operating assistance</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

³Data were supplied only by South Bend, IN.

The following advantages of the regional basis for service were illustrated in the case studies:

1. Sharing of management costs (all systems),
2. Sharing of maintenance costs (all systems),
3. Improved planning capability (all systems),
4. Improvement of route alignments (in Albany, for example, routes of the individual cities did not end at the terminus of the next city's routes, so intercity travel had been difficult),
5. Opportunity to integrate bus and light rail systems (Washington and Miami),
6. Opportunity to share the tax burden to sustain major capital improvements that one city could not afford alone (all systems),
7. Increased ability to attract federal funds (Norfolk), and
8. Increased visibility of the transit system, improved marketing capability, and ridership growth (all systems).

The largest systems, whose very size, complexity, and frequently interstate nature compounded problems of management, had the most difficulty in taking advantage of these economies. In the case of Washington, for example, one county had found it less costly to set up its own independent bus service, despite the fact it was already a contributor to the regional system. The latter proved to be advantageous principally for long-haul commuting traffic rather than for internal circulation within the county.

Dedicated Revenue Sources and Centralized Transit Authorities

Dedicated revenue sources and centralized transit authorities result in improved ability to plan and achieve capital acquisition. Spokesmen for transit agencies that enjoyed dedicated funding sources (either through an earmarked tax or through passage of revenue bonds) thought that they had achieved a considerable advantage in negotiation with banks for interest rates, in maintaining the proper cash flow, and in ability to demonstrate local commitment as matching money on gaining federal capital assistance. This point was made in Dade County, where bonds passed in the early 1970s provided needed funds; in Seattle, where a series of dedicated taxes financed capital acquisitions; and in Sacramento, where considerable improvement of service to outlying areas has come from the state-collected earmarked sales tax revenues.

The advantages of having a dedicated revenue source are that leaving agencies can predict appropriate amortization schedules and can increase the credit rating of the transit authority and thus charge lower interest rates.

Dedicated financing sources and centralized regional authorities run greater risk of high-cost operations. Systems such as that in Norfolk, which depend on annual appropriations by the five participating jurisdictions and where there is no dedicated financing, exhibited the highest ratio of fare-box receipts to total operating costs. Cities such as Seattle and Sacramento, which have tax funds earmarked for transit, had the highest deficits. Such a comparison should be qualified by the fact that passage of a dedicated tax may be evidence of higher demands for transit; the larger deficits may be simply a reflection of the political judgment to have a higher cost and more extensive system.
tern of interjurisdictional decision making: Where the formulas build in an incentive for cutting back service to non-revenue-producing areas, cost per passenger mile can be minimized but at the expense of service to less-dense areas and suburbs. Where the basis of regional financing or service allocations are made on the basis of systemwide criteria (as in the case of Seattle), cost may be allowed to climb in an effort to develop higher levels of service and eventually generate high patronage. In the short run, costs per passenger mile are higher.

Deficits have been growing faster than the CPI in all but a few cities studied, but a few that have put transit financing on a "buy what you can afford" basis have succeeded in limiting the growth of the deficit by comparison with cities that have dedicated revenue sources. Deficits grew by an average of 34 percent in the period 1977-1979 in cities that have dedicated revenue sources but only grew by an average of 14 percent in cities that have subsidy support from annual appropriations.

Few cities attempt to match cost increases with fare increases, and the inevitable result in an inflationary era is the growth of deficits as a fraction of total operating costs. Several cities reported that UMTA had urged them to refrain from major fare increases. In most cities, fare increases were considered politically unwise. However, some cities (Miami, Washington, and Seattle) had experienced fare increases with no accompanying decline in ridership. As the fiscal crisis deepens, more cities appear to turn to this method of covering costs, but fare increases were modest by comparison with the rise in costs. In cities such as St. Louis and Seattle, where the earmarked sources generated more revenue than was currently used, incentives for cost control appeared to be less.

Dedicated revenue sources for supporting transit are an outgrowth of higher levels of political support for transit and higher ridership as well as a reflection of per capita income of an area. Cities such as Seattle, Portland, Houston, and Sacramento reflect a protransit orientation of voters and local elected officials; they have consequently been able to pass dedicated taxes (locally or at the state level). Cities such as the Virginia communities that have rejected transit financing bills are more likely to be automobile oriented or less likely to have the journey to work end in the central business district. Cities where sentiment for transit improvements is mixed (e.g., Miami) have either had close votes that narrowly passed transit financing bills or have been unable to pass dedicated financing arrangements at the local level (northern Indiana). The degree of popular support for transit may explain the presence of dedicated, or at least stable, financing arrangements.

Dedicated transit revenues do not in and of themselves ensure a stable and predictable revenue source. Contrary to popular belief, the availability of a dedicated source of transit revenue (such as an earmarked sales tax) does not guarantee the availability of funds to cover operating deficits. In the case of St. Louis, for example, the earmarked tax may be used for a number of alternative transportation purposes and must be signed over by the component jurisdictions. Their failure to do so has caused several cash-flow problems for the transit authority. Further, earmarked revenue sources may be subject to cyclical fluctuations (such as variations in tax receipts from a statewide freight car leasing tax in northern Indiana). Earmarked revenue sources must be responsive to inflation to be adequate and stable revenue producers.

On the other side of the issue, stable and predictable revenue sources may come out of an annual appropriation process where the political disposition is in favor of transit. The Capital District Transit Authority in Albany, New York, receives considerable state assistance and has been able to acquire needed buses, expand service to suburban and rural areas, and conclude labor negotiations in an atmosphere of assured financing, because the legislature has been supportive of transit improvements both in the Albany area and elsewhere in the metropolitan centers of the state. The stabilizing element is the political necessity of raising large nonfederal contributions from the state legislature to match the federal assistance that goes to New York City. To collect enough upstate votes, the bills also include sizeable sums for cities outside the New York City area.

Finally, no earmarked tax is perpetually useful for supporting transit in the absence of political opposition. The Washington state legislature has the power to eliminate the dedicated motor-vehicle excise tax if it so chooses. Voters in Miami came close to reversing a bond issue vote in favor of transit.

Alternatives to the Dedicated Transit Tax

Alternatives to the dedicated transit tax are the allocation of subsidy among component jurisdictions by formula (Washington, Boston, and Norfolk) or by legislative fiat (Albany). The use of a prescribed formula to allocate costs among component jurisdictions has been a frequent method of handling the cost-allocation problem. In one city (South Bend) costs were shared with a neighboring city on the basis of the ratio of assessed property values. Such a formula has little relationship to demand or supply conditions that relate to transit and will probably change over time. More common is a formula that links relative costs or system inputs with the relative contributions made by the component jurisdictions. For example, local shares for the capital costs of the Washington Metro subway system are built around a formula that involves station stops and other input variables.

A more economically defensible basis for the formula is the netting out of fares collected within a jurisdiction against the cost of service given to a jurisdiction. Thus, a marginal cost-of-service pricing policy makes sense from an efficiency standpoint. However, even in this case it is difficult to settle certain knotty problems:

1. How is service that is provided simultaneously to several cities (as on a long-haul commuter run) to be divided among the cities?
2. How are joint costs (e.g., maintenance and planning) to be allocated to the component jurisdictions, particularly in cases where the relative amounts of service vary widely among jurisdictions?
3. Which is more important in defining the recipient area: residence of passenger, workplace of passenger, or current location of passenger?
4. How are fares to be credited when transfers are purchased?
5. How are discounts to senior citizens or school children to be apportioned among jurisdictions?
The final determination of the appropriate formula is a political issue that, for the most part, is settled by compromise among the representatives of the participating jurisdictions in the course of the transit financing debate. There are no right formulas, only more-durable and less-durable formulas. Formulas that rely on indicators that are independent of supply or demand for transit (e.g., relative population, relative property values, or relative taxing capacity) are more likely to becomeachronistic and require renegotiation. Formulas that allow for changes in service levels to be reflected in the cost-allocation formula will be acceptable for long-run arrangements (as in the cases of Washington or Norfolk).

It would appear that earmarked, regional transit taxes are difficult to pass. Repeated defeats in Indiana, rejection of the local-option sales tax by the Virginia legislature, and the delays in gaining Illinois support for the St. Louis financing arrangement are evidences of the problems to be anticipated. In many states new legislation limits the growth of local taxing (such as property tax freezes in California, constitutional debt ceilings in many states, and even the limitation of tax receipts in Prince George's County, Maryland). These restrictions place artificial barriers in the way of raising local tax money in support of bus lines or rail systems.

Formula-allocated deficits are less visible to the voter and have been instituted in a number of cities. They are likely to be the principal vehicle for allocation of costs in multijurisdictional systems in the future. The formulas allow for yearly political votes on the level of service desired and leave considerable control in the hands of local elected officials.

Local Autonomy

Local autonomy sometimes conflicts with the goal of a rational, regional system, and different areas choose financing plans based on the relative importance of these criteria. There is a conflict in permitting local decision making regarding service levels and the degree of financial support with the ideal of a regional system. Areas that are totally regionalized permit no sharing of the part of the component jurisdictions gain the advantage of being able to plan for a sensible regional system without the necessity of responding to local issues. However, the relative independence of the transit district from the local units of government removes decision making from the hands of local elected officials, who are likely to lose interest in the transit operations unless sufficiently consulted. The degree of coordination with other groups (land use planning, local elected officials, and school systems, for example) is a matter for management discretion rather than financial necessity. Independent agencies (such as Seattle's Metro) came under pressure of takeover by political units, as exemplified by King County's interest in taking over responsibility for public transportation in the area.

Systems that go to the other extreme and allow each component city to buy the level of service it feels it can afford (e.g., Norfolk) lose some of the advantages of regionalism. Buses may run half full but with closed doors through some neighborhoods, so that the city is not forced to share some of the cost of the commuter run. Planners may be unable to experiment with the development of new routes and service options if the local governments do not feel willing to finance the experiment.

Trade-Offs Involved

A trade-off is involved in the decision whether to have close voter control over the major transit financing decisions or to have an ensured continuity in financing arrangements by looking in a dedicated revenue source. There appears to be a perceived conflict in the minds of transit planners over whether to have close voter control, which may result in changing financing methods or a financing arrangement that is obscure to most of the general public. Frustrated by several failures to enact dedicated transit taxes in Indiana, the Northern Indiana Commuter Transit District succeeded in passing the dedication of a little-known existing ad valorem tax on the leasing of freight cars. In some cities (e.g., Albany, Norfolk, and St. Louis) voters had no opportunity to vote on capital financing issues because the funding sources from the state were sufficient to provide needed funds.

In some cities, transit votes have received wide press coverage and have been major political issues. This was true in Seattle at the time of the enactment of the regional sales tax and also in Miami, where voters narrowly affirmed the desire to go ahead with completion of the subway system.

Experiences of Cities That Have Multijurisdictional Financing Programs

The experiences of the cities that have a history of multijurisdictional financing offer some important lessons to cities that are considering implementation of such a financing program. Once initiated, it is difficult to alter the financing arrangements or the basis for formula allocation. These agreements, when put into practice, will benefit some jurisdictions and work to the detriment of others. For example, if population of the jurisdiction is put into the formula, cities that experience growth will pay a larger share of the operating deficit as time goes on. To change the basis of the formula is, consequently, a zero-sum game, where one side benefits only at the expense of another jurisdiction. Improvement for one jurisdiction hurts another, and the potentially losing jurisdiction will try hard to block any change. The process of negotiating decision itself destabilizing, as it introduces possible delays in payments and cash-flow problems.

Another lesson to be learned is that political consensus in favor of transit development is a necessary precursor to any workable financing scheme, however hidden from voter scrutiny. More important than an earmarked revenue source for the stability and predictability of financing is a strong political stance in favor of the transit system currently in operation or proposed. Loss of that political consensus in Dade County threatened a capital building program that had "locked-in funds" from bond issues but had gained voter approval several years earlier. The political consensus in the New York legislature in favor of high levels of transit service for the principal cities and suburbs in the state has produced a stable and feasible source of nonfederal matching funds. The fact that the funds must be approved annually has not caused any particular difficulty to the transit authority, which has come to count on the availability of funds from the state operating-assistance program.

Finally, the experience of the regional transit systems studied indicates that increased attention should be given to ensuring that revenue sources, of whatever origin, have the following characteristics:

1. Expand with inflation,
2. Expand with increases in the demand for transit.
3. Provide built-in incentives for cost control and restriction of service to nonproductive routes, and
4. Restrict the number of decision makers who must approve the pass through of funds from one agency to another.

In the cities that have experienced the most serious threats of service interruption because of financing difficulties (Washington and St. Louis), recurring violations of these principles have caused difficulties. Capital-contribution agreements in the case of the Washington Metro have been for fixed sums; with the onset of inflation these capital-contribution agreements have had to be renegotiated. This process has proved time consuming and holds open the possibility that one party or another will drop out of the next round of financing. In both these cities, decisions to fund must be made simultaneously by two state legislatures and by the local governments involved. The multiplicity of decision points can cause cash-flow problems, since the budget cycles of the various groups differ. Political differences among the jurisdictions can cause local politicians to use the transit subsidy as a club to extract policy concessions in its favor from the board of directors of the transit authority.

CONCLUSION

Multijurisdictional transit financing has been approached from many directions. Some jurisdictions act as independent units that buy services at a pre-determined rate by using general revenues. Other cities have adopted regionwide taxation, either directly through local levies or by the earmarking of state taxes collected in the areas. Some allocate service on the basis of financial contribution; others use a regional planning framework that does not allocate specific amounts of service to jurisdictions as such.

There is an increasing tendency to overspend all local resources and to look to the next-higher level of government to contribute disproportionately to further growth of the system. New fiscal imperatives may require the jurisdictions to reevaluate the low-fares policy inherent in their programs or to renegotiate local arrangements to accommodate the higher costs of public transportation.

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Job-Related Employee Attitudes in Urban Mass Transit

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Early efforts of behavioral scientists interested in finding attitude-behavior linkages on the job centered largely on job satisfaction. More recently, organizational commitment has joined job satisfaction as a focal variable and, indeed, shows greater promise as a predictor of both employee participation and worker productivity. Nonetheless, job satisfaction continues to interest organizational scholars, partly due to current societal concern about the quality of working life. Neither concept, however, seems to have found a wide audience within the transit industry. This research attempts to fill that void by assessing the degree of organizational commitment as well as patterns of job satisfaction in a sample of 1244 lower-level employees in 24 public mass transit organizations. Cross-industry comparisons are facilitated by the use of standard measures for which normative data are available. Contrary to the belief of some scholars, lower-level transit employees do become committed to their organizations. On the other hand, overall satisfaction levels were lower for transit employees than for those employed in most comparative occupations. The specific job aspects responsible for dissatisfaction tended to be those related to the rewards and employee treatment that are under control of the organization rather than the nature of the work itself. In general, the unique pattern of job concerns found among transit employees indicates that attitudinal research based on other occupations should be applied in the transit industry only with due caution.

The attempt to establish reliable and meaningful linkages between employee attitudes and on-the-job behavior has been a long-term quest of behavioral scientists. Early research in organizations tended to concentrate on linkages between job satisfaction and relevant job behaviors (i.e., productivity, attendance, and continuation of organizational membership). More recent emphasis has centered on a global, psychological attachment to the organization, usually called organizational commitment. Despite potentially significant payoffs for the management of transportation organizations, little systematic analysis of these employee attitudes has been evident in the transit industry. This study extends the analysis of job satisfaction and organizational commitment to public mass transit organizations, with particular focus on the transit operator.

PRIOR RESEARCH

Early efforts to relate worker attitudes to work behavior focused on the concept of job satisfaction. The intuitive notion that a satisfied worker should also be a productive worker can be traced back at least as far as the famous Hawthorne studies, which were conducted by Elton Mayo and his associates in the late 1920s and early 1930s (1). Whether the Hawthorne studies were actually responsible, or they occurred at the right moment in history, they appeared concurrently with a dramatic shift of managerial mood—from an emphasis on worker motivation by manipulation of wage incentives and environmental conditions to a new approach centered on human relations.