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# ASSESSING THE ARGUMENTS FOR URBAN TRANSIT OPERATING SUBSIDIES

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Operating subsidies to urban transit have been growing rapidly in recent years. In the near future they will probably pay one-third or more of the industry's operating expenses. Proponents argue that operating subsidies are desirable because (a) they alleviate problems with existing automobile and land use patterns (such as congestion, air pollution, energy consumption, and urban sprawl); (b) they create a more egalitarian distribution of income and mobility; and (c) they permit public transit to be priced at its marginal cost. Unfortunately, many of the arguments of subsidy proponents are implausible. The most plausible argument is not that operating subsidies should be used indiscriminately, but that they should be used to support only particular types of public transportation service. Local transportation authorities currently do not restrict their fare reductions to the appropriate types of service, and they are not likely to do so in the future.

•IN RECENT YEARS the amount of operating subsidies received by the urban transportation industry has grown rapidly. The public, as well as most government officials, appears to accept without criticism the necessity or desirability of operating subsidies. Now that operating subsidies are so substantial, it is important to reassess their rationale. This analysis has two purposes: to estimate the size of current government operating subsidies and to review evidence that suggests that operating subsidies will not generate most of the benefits proponents of subsidies claim.

## GROWTH OF OPERATING SUBSIDIES

A few states and local governments have long provided assistance to local urban transportation firms. Since World War II, public transit ridership has steadily declined, and the level of state and local government subsidies for both capital and operating expenses has slowly increased. Partially because of the burden of these growing subsidies, local governments began to lobby for federal operating and capital assistance for urban transportation in the late 1950s.

Programs of federal aid for urban transit have existed since the early 1960s, but not until 1974 could federal aid be used to pay both capital and operating expenses. Since 1964, the principal program of federal aid has been the UMTA capital grant program. Only public agencies are eligible for capital grants, but they are allowed to lease the capital facilities or equipment purchased at nominal rates to privately owned transportation firms. The local agency must contribute a share of the costs of any federally assisted capital project. The local share, a minimum of one-third through 1973 and one-fifth since that time, cannot be financed out of passenger revenues. Federal expenditures under the capital grant program have increased from \$52 million in fiscal year 1965 to \$826 million in fiscal year 1974. The National Mass Transportation Act of 1974 authorizes the expenditure of \$7.8 billion for capital grants over the next 6 years, an average of \$1.3 billion per year.

Federal assistance was restricted to capital expenses until 1973 largely because it was believed that local transportation authorities and unions would find it more difficult to dissipate capital assistance, especially in wasteful operating practices and ex-

cessive wage rates. Local authorities in smaller urban areas thought that the restriction was unfair, however, because the capital needs of their bus transit systems were relatively small. In addition, some local authorities in the larger urban areas (which were extending, building, or planning rail transit systems) lobbied for operating assistance. They believed passenger revenues on these new rail systems would not even cover operating expenses.

As part of the National Mass Transportation Assistance Act of 1974, which increased the funding for federal capital grants, Congress authorized a new program of federal operating grants. Unlike capital grants, which are distributed among metropolitan areas at the discretion of the Secretary of Transportation, operating grants are distributed among metropolitan areas according to a formula specified in the act. Local governments are required to contribute an amount at least equal to federal operating aid, and the level of local operating aid must not fall below the level provided in the years just prior to 1974. The act authorized \$3.9 billion in operating aid during the 6 years from 1975 to 1980; the annual rate of disbursement increases from \$300 million in 1975 to \$900 million in 1980.

Direct estimates of the magnitude of all the government operating subsidies for urban transportation are difficult to obtain mainly because hundreds of state and local governments provide operating aid. No transportation operation can sustain a service that operates at a deficit without some form of subsidy, however. Thus a useful rough estimate of government operating subsidies can be obtained by looking at the industry operating deficit. This deficit is the difference between operating expenses and operating revenues (which are made up largely of passenger revenues). Figures obtained this way may, however, underestimate actual government subsidies for two reasons. First, the operating deficit does not reflect those government operating subsidies provided in the form of tax abatements or services in kind. Second, some firms still make an operating profit, and, as a result, the operating deficit does not accurately represent the sum of the operating deficits incurred by the firms in the industry.

If we use the reported industry operating deficit as a rough minimum estimate of government operating assistance, the recent growth in the level of operating subsidies is impressive. The urban transportation industry includes bus and rail transit firms and commuter railroads. Extensive data on deficits of transit firms are available from the American Public Transit Association. APTA estimates that transit firms did not show a collective operating deficit until 1963. The transit operating deficit grew rapidly after 1963, in the last few years at an annual rate of 25 to 30 percent. By 1973 the annual transit operating deficit was \$681 million (1). In that same year the collective operating deficit of commuter railroads was between \$42 and \$108 million, depending on what share of railroad operating costs is allocated to commuter as opposed to freight operations (2, pp. 380-382). Thus by 1973 the total annual urban transportation operating deficit was between \$723 and \$789 million.

Because of this recent rapid growth, government operating subsidies were an important source of revenue for the industry even before federal operating grants began. By 1973 operating subsidies were more than one-third as large as all revenues received from passengers. Although the operating deficit was between \$723 and \$789 million, operating revenues (largely passenger revenues) were \$2.085 billion. This level of operating subsidy is even more impressive when one considers that during 1973 the industry also received at least \$1 billion in state, local, and federal capital assistance. If we count capital as well as operating assistance, in 1973 the industry received about as much in government subsidies as it collected in passenger revenues.

In the future, if only because of the federal operating grant program, the level of operating subsidies will continue to grow. The law establishing that program requires that local governments provide matching funds; it also requires that the operating aid given to local governments not be reduced below the level provided before the program began. At the level of currently authorized funding for federal operating grants, operating assistance from all levels of government will increase from \$1.223 billion in fiscal year 1976 to at least \$1.623 billion in 1980. During that same period, if the current funding levels for the federal capital grant program are not changed, capital as-

sistance from all levels of government will be at least \$1.625 billion per year. Thus, in the next few years, minimum total government assistance (operating plus capital subsidies) will grow from \$2.848 to \$3.248 billion per year. This estimate is considerably higher than the \$2.085 billion collected by the industry from passengers in 1973.

Few other industries are as dependent on government subsidies as the urban transportation industry now is. Most other industries price their goods and services so that the revenues collected from customers are sufficient to pay for the production costs. Selling a good or service at its cost implicitly encourages consumers to conserve the scarce resources used to produce it. Why is urban transportation so unique? Why should the industry fail to charge its users for the resources required to provide transportation?

## ARE OPERATING SUBSIDIES DESIRABLE?

### The Proponents' Arguments

Proponents of urban transportation subsidies argue that government subsidies make it possible to set fares below average costs, and that fares below costs are desirable because they generate benefits for society. Fares can be set below average costs either by reducing the fare while maintaining the level and quality of service provided (thus maintaining costs) or by holding the fare constant while increasing the level and quality of service provided (thus increasing costs).

The proponents of subsidies claim that low fares offer benefits. First, they correct the problems with current automobile and land use patterns. The most frequently cited problem with automobile use is excessive automobile travel encouraged by government aid for highway construction and by the failure of governments to charge automobile users for the full costs of the congestion, pollution, and accidents they cause or the parking spaces and energy they consume. Proponents of subsidies argue that lower transit fares reduce automobile travel by encouraging travelers to shift to transit. The most frequently mentioned problems with current land use are urban sprawl and the decline of economic activity in the central business districts of large metropolitan areas. It is widely believed that jobs and residences will return to the centers of large metropolitan areas if public transit is subsidized.

A second benefit of low fares is that they create a more egalitarian distribution of income and mobility. Some proponents of subsidies argue that the benefits of low fares accrue largely to transit riders and that the riders generally have low incomes. Other proponents argue that low transit fares are especially beneficial to persons who, because of poverty, age, or physical handicap, have limited access to private automobiles.

Improving the allocation of society's resources among competing uses, which comes from pricing goods and services at their marginal costs, is a third benefit attributed to low fares. The marginal cost of a good or service is the additional cost incurred by producing one more unit of that good or service. Generally, only economists are concerned about pricing goods at marginal cost, and most economists argue that the allocation of society's resources is improved if we produce only as much of a good as can be sold at the marginal cost. If the average cost of a good declines as the output of the good is increased, then the revenues collected under marginal cost pricing will be less than the total costs. Some economists argue that transit exhibits such declining average costs and, as a result, must be subsidized if it is to be priced at marginal cost (3).

### The Opponents' View

Opponents of subsidies generally have two counterarguments. One is that the subsidies will cause inefficiency in the transit industry. Managers in unsubsidized and privately

owned firms have strong incentives to use efficient methods to produce their services because reductions in production costs increase their profit. Under subsidy arrangements, however, cost reductions usually do not bring increases in profits. In addition, because subsidized firms are often publicly owned, profits are often a less important goal for their managers. As a result, the manager's incentives to control costs may be weak.

The other and perhaps more important counterargument is that the proponents' arguments that low fares are desirable because they generate important benefits are implausible because low fares do not generate the benefits proponents claim or because low fares are a relatively inefficient method of generating those benefits.

Available evidence generally supports the latter counterargument. We will review the evidence below and draw from it three important conclusions. First, most, but not all, of the proponents' arguments are implausible. The unconvincing arguments are that low fares are desirable because they improve land use, improve some problems with automobile use, and create a more egalitarian distribution of income. Second, the proponents' more plausible arguments do not imply that subsidies and low fares should be applied indiscriminately but rather that subsidies should be restricted to specific types of transit service. The plausible arguments are that low fares are desirable because they reduce automobile congestion and improve the allocation of resources through marginal cost pricing. Third, local transit authorities do not restrict their subsidies to the appropriate types of transit service, and they are not likely to do so in the future. The first two of these conclusions have been noted by several other analysts (4, pp. 341-353; 5; 6). But given the recent rapid growth in government operating subsidies, it is worthwhile for us to review the conclusions again.

## THE PROPONENTS' IMPLAUSIBLE ARGUMENTS

### Improvement of Land Use Patterns

Analysts concerned with current land use do not concur in the exact reasons why urban sprawl and CBD decline are undesirable. If they are undesirable, fare reductions will have only a small and uncertain effect on sprawl and decline. Land use patterns are the product of a number of decisions made by individual workers and employers on residential and workplace locations.

Economists have developed simple analytic models of these locational choices. The cost of transportation is an important factor in locational choices; for example, models hypothesize that workers consider the out-of-pocket and time costs of commuting to their jobs from different locations when choosing their residence. Workers employed in the center of a metropolitan area are assumed to make a trade-off between decreasing costs of land and housing and increasing commuting costs when deciding how far away from the center they will live (7).

These same analytic models can be used to make gross predictions about the effects of changes in transportation prices, including transit fares, on the location decisions of workers and employers. Based on use of these models, in the short run even a substantial change in fares will have little effect on land use. In the short run the most important effect will be on the residential location decisions workers make. A fare reduction will have little effect because transit fares are only a small part of the costs that individuals consider when choosing a residential location. In addition, certain characteristics of the land markets, such as the durability and immobility of houses, make the response of locational decisions to changes in relevant costs quite slow.

In the long run, lower fares are more likely to affect land use. The effect, however, will not be an unambiguous reduction in urban sprawl or CBD decline. For example, a reduction in fares will make it less expensive for workers employed in the center of a metropolitan area to live in lower density areas farther from the center and, as a result, will tend to shift the location of residences and certain population-serving industries, such as retail sales, away from the centers of metropolitan areas. However, a reduction in transit fares will also make it less expensive for employers in the center

of the metropolitan area to attract employees and, as a result, may cause an increase in economic activity at the center and in the number of workers who must live close enough to the center to commute. Because a change in transit fares establishes incentives both to decentralize and to centralize residences and jobs, it is not clear whether, in the long run, changes in fares will reduce or accelerate CBD decline and urban sprawl.

### Improvement of Automobile Use Patterns

With the possible exception of the argument that low transit fares will reduce automobile congestion, most of the arguments that low fares are desirable because they alleviate problems of automobile use are unconvincing for three reasons. The first reason is that some of the alleged problems with the current pattern of automobile use are not especially serious. For example, it is not obvious that the failure of automobile users to pay the full costs of the parking they use causes excessive automobile use. Automobile parking is subsidized because fees in some municipal lots do not cover costs or because some employers and retailers provide free parking for those employees and customers who use automobiles. Evidence suggests that where the cost of land for parking spaces is high, as in the centers of the more dense metropolitan areas, these practices are uncommon (2, pp. 156-159). As a result, the effective parking subsidy and any resulting imbalance between automobile and transit use are probably relatively small.

The second reason why some of the proponents' arguments are unconvincing is that, even if problems with automobile use are serious, low fares simply will not alleviate them. For example, several empirical studies and casual observation have shown that, at least in the short run, a change in transit fares has only a small effect on the level of automobile use (6, 8, 9, pp. 61-71). One study, which used data on the choices of commuters in Chicago in the late 1950s, estimated that, if the transit fare had been dropped to zero, there would have been only a 13 percent reduction in automobile work trips. To induce a 50 percent reduction in automobile work trips in the 1950s, when incomes were much lower than they are now, each transit rider would have to have been paid about 50 cents for each trip (8).

The implication is that reductions in transit fares cannot in the short run correct problems that require a large reduction in the number of automobile trips, such as automobile air pollution. Given the reductions in vehicle emission rates required under the federal Clean Air Act, automobile air pollution is a problem in only a few large cities, notably Los Angeles and Chicago. However, these cities have such unfavorable airsheds, large numbers of automobiles, and small numbers of nonautomobile pollution sources that large reductions in peak-period automobile use are necessary to ensure that federal ambient air standards are met (10). Because automobile use is relatively insensitive to changes in transit fares, in the short run automobile air pollution cannot be corrected by transit subsidies.

In the long run the number of automobile trips will be more sensitive to changes in transit fares. However, even in the long run it may not be desirable to use transit subsidies to correct problems that require a large change in the number of automobile trips. These problems, such as air pollution, energy consumption, and congestion, are in a sense the product of too much transportation. In the long run less transportation is probably a more appropriate solution to these problems than simply changing the mode of transportation used. A policy of fare reductions to encourage the use of transit, instead of a policy to discourage the use of transportation in general (and automobile transportation in particular), will increase the use of transportation and, if successful, will probably just shift the locus of these transportation-induced problems away from the automobile to public transit.

The criticism that low transit fares will not correct the problem is also applicable to the argument that lower fares are desirable because they correct the problem of excessive construction of urban highways. In fact, existing urban highway capacity



may not be excessive since the benefits of some selective construction apparently would exceed the costs (2, pp. 155-156). In addition, highway users pay the costs of urban highway construction and maintenance in special highway user charges such as motor vehicle fuel and excise taxes and tolls. However, if we accept that urban highway construction is excessive, lower transit fares cannot affect construction and maintenance costs because lower fares affect only the level of use of existing highways. Because highways are durable, changes in the level of use hardly affect construction and maintenance costs. The only way to correct the resource misallocation entailed in any excessive construction of highways is to reduce the future rate of highway construction. The recent recognition of some of the social costs of highway construction, such as the destruction of urban neighborhoods, appears to have reduced the rate. The amendments to the Federal-Aid Highway Act of 1973 may also reduce highway construction in the future. The amendments provide that, if state and local governments do not wish to construct an urban segment of the Interstate Highway System and if the U. S. Secretary of Transportation agrees that the segment is not essential, the money earmarked for the segment can be used for transit instead. The amendments also provide that, as of fiscal year 1975, state and local governments have the option of diverting federal aid designated for non-Interstate urban road systems to transit projects.

The third reason why low transit fares are not desirable to solve problems of automobile use is that low fares are often an unnecessarily cumbersome and indirect method of alleviating the problems. This criticism is most applicable to the argument that low fares are desirable because they encourage energy conservation. Although subsidies and low fares will shift some travelers from automobiles to transit, energy may not necessarily be conserved. Lower fares, rather, encourage more trip making. And, if new transit services are required to induce a substantial shift away from automobiles, the average passenger load per transit vehicle and thus the relative energy efficiency of transit may decline.

Even if we assume that low fares will save energy, conservation will occur in only one use of energy: the work trip. Low fares do not encourage conservation in other transportation uses (such as intercity and nonwork passenger trips or freight transport) and in nontransportation uses (such as home heating and manufacturing). Low fares, moreover, encourage only one method of conservation in the work trip: shifting from automobiles to transit. They do not encourage other methods, such as increasing the gasoline mileage of automobiles, car pooling, or living closer to work.

The difficulty of inducing automobile users to switch to transit suggests that, compared to reducing energy consumption in other uses and by other means, reducing energy consumption with low fares will be difficult and relatively expensive. Automobile users are attached to their automobiles largely because instant availability and door-to-door service conserve travel time. To induce any substantial voluntary shift, one must compensate former automobile users for their loss of convenience with substantial transit subsidies. The loss of convenience, or the compensation necessary to make automobile users give up the convenience voluntarily, represents a real cost of this method of energy conservation. Two methods of conserving energy in urban passenger transportation that are probably much less costly are shifting to a lighter, more energy-efficient automobile and reducing the number of nonwork trips. Lower cost methods of conserving energy are probably also possible in the nontransportation uses of energy.

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### Redistribution of Income

Like the argument that low fares are desirable because they alleviate problems of land and automobile use, the argument that low fares are desirable because they create a more egalitarian distribution of income is also implausible. Most persons who make this argument assume that the benefits of low fares accrue to transit riders and that most transit riders are poor. However, some of the benefits of low fares are shifted by market forces from the riders to other groups that have higher incomes, notably

CBD landowners. Specifically, a change in transit fares changes the relative advantage of different locations for residences and employers, and, in some situations, the landowners can exploit the advantages by charging higher rents (5, 11).

Even if transit riders do receive all the benefits of low fares, the typical rider is, by national standards, not poor. Transit ridership is concentrated in the large metropolitan areas where monetary (if not real) income is relatively high. Inasmuch as transit is mainly used for the journey to work, certain groups with relatively low incomes, such as the unemployed and retired, are underrepresented in the ridership. As a result, the distribution of all U. S. transit riders according to household income is about the same as the distribution of all U. S. households according to household income (2, p. 210; 12; 13).

The redistributive effects of low transit fares might be improved if the fare reductions were restricted to those types of services heavily patronized by poor riders (e. g., service in smaller metropolitan areas and the shorter radial and off-peak service in larger metropolitan areas) or to those riders on all types of service who are poor (e. g., through a special reduced-fare identification card). But even with this strategy low fares will not bring benefits to the large number of poor people who do not use transit often, especially the rural poor. Poor people, moreover, might prefer to be given the money directly, to spend for what they need, rather than to receive it in the form of subsidized transit. More effective and efficient methods of aiding the poor would be to give them money grants or subsidies directly for more widely consumed goods, such as food or housing.

## THE CONVINCING ARGUMENTS AND THEIR IMPLICATIONS

Two arguments for operating subsidies are more plausible than the ones we have discussed so far. They are that low fares are desirable because they reduce automobile congestion and that operating subsidies permit the pricing of transit at marginal cost. It is important to note, however, that these arguments (as well as the other, less plausible ones) do not imply that indiscriminate fare reductions are desirable. Rather, they imply that low fares should be restricted to specific types of public transit service.

### Automobile Congestion

When a vehicle enters a stream of traffic on a highway, its presence reduces the average speed of all the vehicles on the highway. By reducing the average speed it increases the cost of traveling, in terms of time, for the occupants of all the vehicles. In deciding whether to enter the highway, the occupants of the marginal vehicle do not take into account the time costs that their entrance will impose on travelers already on the road. As a result, automobile use may be underpriced and highway congestion may be more severe than is desirable. The effect of the marginal automobile on average speed and thus the time costs it imposes on other travelers can be relatively large but only when the volume of traffic is close to the maximum capacity of the highway. This usually occurs only on highways in the central areas of the larger, older metropolitan areas during the height of the morning and afternoon rush hours.

Two direct methods of reducing excessive congestion are to impose a toll on peak-period highway users equal to the time costs they impose on other users or to physically restrict access to the highway during the peak (for example, by closing or metering some expressway access ramps). Unfortunately, these direct approaches sometimes are expensive to implement or are politically infeasible (14). For example, it may be expensive to collect a toll from all vehicles entering a congested downtown area in the peak period unless access to the downtown area is restricted to a few roads or bridges (as it is in Manhattan).

Where more direct methods are impractical, it may be desirable to reduce highway congestion by lowering transit fares. Although reductions in transit fares have only a

small effect on automobile travel, on heavily congested highways extremely small reductions in automobile use can be beneficial. It is possible that the reduction in highway congestion is worth the cost of certain undesirable side effects of reducing fares, notably the cost of encouraging the use of transportation in the peak period. Obviously, this rationale for low fares implies that fare reductions should be restricted to transit services that compete with heavily congested highways. That service is likely to be confined to the extremely large and older metropolitan areas and, within the metropolitan areas, to the core area during the peak traffic periods.

### Marginal Cost Pricing

The other plausible argument that implies that low fares should be implemented only on particular types of service is that subsidies are desirable because they permit marginal cost pricing of transit. If one accepts the reasoning of many economists that pricing goods at marginal cost is usually advisable because it ensures the appropriate allocation of society's resources among competing uses, then the plausibility of this argument depends on whether the average cost of providing a transit trip declines as the number of trips increases. If average cost declines, fares set at marginal cost will generate revenues below total costs and a subsidy may be required.

The evidence on whether the average cost of transit declines as the number of trips increases is too complicated to be summarized here (2, 3). It indicates that on all but one type of service operating subsidies are not required because prices set at marginal cost will generate sufficient revenues to cover operating costs (although not always sufficient to cover capital costs as well). The only type of service for which operating subsidies may be required is bus or rail rapid transit routes with such a low density of passenger demand that headways are more than 30 or 40 min. Of course, transit service should not be provided at all on those routes if the passenger density is so low that other public transportation modes, especially taxi or jitney, could serve the passengers at a lower total cost than the transit modes. Transit service with such long headways is most likely to be found in the small metropolitan areas with relatively extensive or new highway systems. Within those metropolitan areas, long headway service is most likely to be found in the suburban areas and during off-peak periods.

### ALLOCATING SUBSIDIES TO THE APPROPRIATE TYPES OF SERVICE

Currently, operating subsidies are often not used to support those types of service that the more plausible arguments indicate should be subsidized. The problem is not that subsidies are unavailable. As was shown earlier, operating subsidies to the industry are substantial and growing. Moreover, at least before the advent of the new program of federal operating grants, operating subsidies to the industry were concentrated in firms serving those metropolitan areas that have a substantial amount of the two types of service that probably should be subsidized: service with long headways and service competing with very congested highways. This can be demonstrated by comparing the operating ratios of transit firms serving different metropolitan areas. The operating ratio is the ratio of operating expenses to operating revenues (largely passenger revenues) and, thus, reflects the extent to which the firm relies on operating subsidies. The higher the operating ratio is, the larger the relative operating subsidy is. According to 1972 data on 105 transit firms, firms in the large and high-density metropolitan areas (likely to have substantial service competing with congested highways) and firms in small and low-density areas or cities (likely to have substantial service with long headways) generally have higher operating ratios than others (2, pp. 340-357).

The more important problem with the current use of operating subsidies is that within those metropolitan areas the subsidies are usually not targeted to the types of service for which they are most desirable. It is hard to get information on the dis-

tribution of operating subsidies among different types of service within a metropolitan area. Sometimes the information can be inferred from the fare structure, the operating ratios of individual routes, or the differences in operating ratios between bus and rail transit operations serving the same metropolitan area. In a few large metropolitan areas where inferences can be drawn, the distribution of operating subsidies among different types of service appears to be perverse; the service most likely to compete with extremely congested highways (central city and short radial service) generally has a relatively low operating ratio. However, the tendency for any particular type of service to receive higher operating subsidies is not strong; for example, a wide variation often exists in the operating ratios of routes that appear to offer similar types of service (2, pp. 357-377).

State and local governments are at least nominally responsible for decisions about the appropriate level or use of operating subsidies in a metropolitan area. It is unlikely that they will, on their own initiative, change the distribution of subsidies among different types of service to make it more consistent with the distribution of subsidies implied in the more plausible arguments for subsidies. The benefits of transit subsidies are concentrated on relatively small groups within a metropolitan area, such as transit riders and, in some cases, downtown landowners and transit unions. Although the determinants of local decisions about subsidies are undoubtedly complex, a basic determinant is probably the status and relative political power of these beneficiaries. For example, in a metropolitan area where only a small portion of trips to the downtown area are made by transit, downtown interests may not perceive subsidies to be very beneficial. In a metropolitan area where the downtown has a relatively small proportion of the total economic activity, downtown interests may not be powerful enough to get substantial subsidies. And, in a metropolitan area where a majority of transit riders are poor or from an ethnic minority, subsidies are less likely.

If these fundamental characteristics of local communities are important determinants in decisions about subsidies, then it will be difficult to change local decisions about how subsidies are distributed. Actions that change the distribution of subsidies among different types of service, such as a change in the fare on one route relative to the fares on others, redistribute the benefits of subsidies among different groups of riders (and landowners) within the metropolitan area. These different groups often come from different cities or neighborhoods within the metropolitan area, and therefore benefits are redistributed among the different cities and neighborhoods, too. As a result, such decisions are politically sensitive for the metropolitan area government. It is difficult to arrive at a consensus among riders, cities, or neighborhoods about what is a fair distribution of subsidies within the metropolitan area. And, because local governments find changing the distribution of subsidies politically sensitive, it is unlikely that they will, on their own, retarget subsidies to particular types of service.

It is also unlikely that the federal government, perhaps as part of the program of operating grants, can improve the targeting of operating subsidies to the appropriate types of service. Because transit decisions are the responsibility of state and local governments, about the only means the federal government has for changing these decisions is to make federal grants conditional on them. One reason why it is unlikely that the federal government could improve the targeting of subsidies is that the threat of withholding grants may have little effect on state and local decisions, especially since the decisions affected are so sensitive.

More important, little support is evident within the legislative or executive branches for a federal effort to assess and change detailed local decisions about subsidies. Lack of congressional support for such an effort can be seen in the fact that, unlike the older federal capital grants (which are distributed among metropolitan areas largely at the discretion of the U. S. Secretary of Transportation), the new federal operating grants are distributed among metropolitan areas by a formula specified by the authorizing legislation. Within the executive branch the only support for an effort to assess and improve local decisions about transit comes from the Office of Management and Budget (OMB). OMB has been concerned that most of the expensive rail lines constructed under the capital grant program generate too few benefits to justify their costs. To date, the Urban Mass Transportation Administration, which administers the federal capital and

operating grant programs, has successfully resisted OMB pressure to make detailed assessments of local proposals for capital projects. Instead, UMTA usually approves any capital grant application that meets the simple statutory requirements (9, pp. 77-83).

The reluctance of Congress and UMTA to assess and improve local decisions about subsidies is understandable. Because the rationale for targeting subsidies to particular types of service is complex and not widely appreciated, the federal government could appear petty and unreasonable if it threatened to withhold assistance because fares on particular services were too high or too low. Any attempt to change local decisions would cause additional friction between the relevant federal agency and the congressional delegations from the affected areas.

Key congressional supporters of federal assistance are motivated less by the possibility of using federal assistance to alleviate problems with current patterns of automobile and land use, with the distribution of income and mobility, and with marginal cost pricing of transit than by the possibility that federal transit assistance will provide some financial relief to hard-pressed urban governments. Of course, the objective of providing financial relief to urban governments does not imply categorical grant programs for transit, but rather a program of revenue sharing with urban governments. This is especially true because transit ridership and presumably the benefits of transit subsidies are heavily concentrated in a few large cities in the Northeast. (The New York, Chicago, Boston, and Philadelphia metropolitan areas have only 14.6 percent of the nation's population but more than 52 percent of transit ridership.) Regardless of whether transit assistance is the appropriate mechanism for bringing financial relief, it is obvious that members of Congress preoccupied with the objective of financial relief will perceive little payoff in making assistance conditional on detailed local decisions about how subsidies are used.

## SUMMARY

Most of the popular arguments supporting government subsidies for low transit fares are implausible. The more plausible of these arguments do not imply indiscriminate subsidies but rather subsidies to particular types of services. The governments responsible for local transit decisions do not target subsidies to the appropriate types of service and are unlikely to do so in the future.

The lack of popular appreciation of the limitations of the arguments for subsidies and the inability of governments to target subsidies to the appropriate types of service probably have two important consequences. The first and most obvious consequence is that current government subsidies, despite their size, probably do not effect even the more achievable of their claimed benefits. The second consequence is that the level of government subsidies to the industry is likely to grow far beyond the levels implied by the more plausible arguments. Without an appreciation of the limitations and implications of the arguments, government officials and managers in the transit industry have no defensible criteria for deciding whether the fare on a service is appropriate or whether a particular service should be expanded. In the confusion, low fares, like the 35-cent fare in New York, are often treated as if they were ends in themselves, rather than means to other ends. Further, transit managers tend to make few changes in the services they provide, regardless of declining patronage and changes in residential and employment patterns. If these simplistic policies are followed in the face of constant cost inflation, the recent rapid growth in government subsidies will continue. For example, a simple extrapolation of current cost and passenger trends indicates that the annual transit operating deficit in the New York metropolitan area alone will reach \$1 billion in a few years. Although this rapid growth in transit subsidies is unlikely to effect many of its claimed benefits, it will reduce the amount of resources urban governments have available to help with other pressing public problems, such as poverty, education, housing, health care, emergency services, and crime.

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# FEDERAL TRANSIT OPERATING SUBSIDY OPTIONS

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This paper reviews the political and historical background of transit operating subsidies. The issue discussed is not whether there should be operating subsidies, but rather which levels of government should provide them and in what fashion. Three arguments are reviewed: the fiscal, federal role, and pragmatic arguments. The fiscal argument is that the operating deficits of transit authorities represent a local government fiscal program and should be treated as such. The federal role argument states that federal operating subsidies would lead to an inappropriate degree of federal involvement in local government decision making. The pragmatic argument is that it would be extremely difficult to use federal operating subsidies as an effective tool for improving urban transit operations and that the subsidies carry a real chance of being counterproductive. This paper examines four categories of operating subsidy options: no operating subsidies, the pipeline approach (unrestricted flow of funds to the transit industry), the block grant approach (exemplified by the transportation revenue sharing bill and the federal-aid urban highway program in the 1973 highway act), and the quid pro quo approach (a grant program whereby specific quid pro quos in the form of definite improvements or innovations in an urban area transit system are demanded in return for federal subsidies).

•THE PURPOSE of this paper is to define and review the options that were open to the U. S. Department of Transportation with respect to transit operating subsidies after the Federal-Aid Highway Act of 1973 was enacted.

The operating subsidy issue in its present form resulted from changes in the market faced by public transit and changes in public attitudes toward the provision of transit services. After World War II, increasing incomes, generous federal housing programs, and federal support for highway construction combined to bring about a new pattern of land use and dependence on the private automobile, which cut deeply into the transit market, especially off-peak, nonwork trips. The financial consequences of this change in transit demand were especially severe. As the ratio of peak to off-peak ridership has increased, transit authorities have been compelled to maintain larger fleets of rolling stock and, much more importantly, larger numbers of drivers or motormen on the payroll for whom off-peak revenue-generating opportunities are not available.

At the same time, public attitudes have shifted from a perception of transit as a service to be provided by the transit operator to one to be provided by local government and, finally, to one to be provided by the taxpayers, regardless of whether it can be remunerative. Coupled with this view is the position that transit fares ought not to bear too heavily on lower income groups. This has led to proposals that transit be provided free, although zero fare transit has not yet occurred in any major urban area. The consequence of this new attitude is seen in a long series of public take-overs of private transit companies. It is notable that, in smaller urban areas where transit use has traditionally been light, service has frequently been allowed to cease altogether while the private operators go bankrupt or withdraw from business; in larger cities the local government has taken up the burden.

The involvement of the federal government began with the enactment of the Urban

Mass Transportation Act of 1964. This legislation recognized increasing difficulties of transit operations on a self-sustaining basis and contained an implicit presumption that the situation could be corrected with the purchase of new equipment. Deteriorating equipment that resulted from the weakened finances of the operators was seen as a major factor in driving away ridership, and it was thought that using federal aid to purchase equipment might turn the situation around. Through the remainder of the 1960s, pressures for increased federal aid to transit continued to mount as it became increasingly clear that the program established by the 1964 act was not leading to a resolution of transit problems. However, a broad consensus that federal operating support was necessary was not reached. The Urban Mass Transportation Assistance Act of 1970 provided much more money and made possible for the first time federal support of major rail system investment, but it continued to confine federal aid to capital purchases. Strong opposition by the administration was probably decisive in keeping operating subsidies out of the 1970 act. As a compromise, that act did contain a requirement that DOT report on the feasibility of an operating subsidy program.

The report, submitted to Congress in November 1971, essentially found that operating subsidies were not in fact feasible on the grounds that no way could be found to effectively operate such a program without offering transit authorities in local government a disincentive to look to their own resources. (This view will be discussed further under the so-called pragmatic argument.) The submission of the report did not dispel a strong interest in operating subsidies on the part of big cities and major transit operators. Considerable political activity continued, which ultimately resulted in a limited victory for the forces supporting operating subsidies with the passage of Title V of the National Mass Transportation Assistance Act of 1974.

## THE BASIC ARGUMENTS

It is important to recognize that the issue is not operating subsidies, per se. That there may be valid efficiency or equity reasons for subsidizing transit, especially peak-hour transit, is not in dispute. The minimization of air pollution generated by peak-hour automobile use is only one such reason. The issue, then, is not whether there should be operating subsidies but rather which levels of government should provide them, and in what fashion. Inasmuch as there is general agreement that state and local governments are appropriate sources of such subsidies, the issue concerns only the desirability of federal operating subsidies.

The three arguments reviewed may be termed fiscal, federal role, and pragmatic arguments. The fiscal argument is that the operating deficits of transit authorities represent a local government fiscal program, not a transportation problem, and should be treated as such. The federal role argument states that federal operating subsidies would lead to an inappropriate degree of federal involvement in local government decision making. The pragmatic argument is that it would be extremely difficult to use federal operating subsidies as an effective tool for improving urban transit operations and that they carry a real chance of being counterproductive. The following discussion takes each of these points in turn.

### Fiscal Argument

The fiscal argument starts with the position that, to a large degree, transit operating deficits are the consequence of deliberate policy decisions at the state and local levels. Some portion of deficits may be due to management ineptitude or failure of management to aggressively pursue new sources of revenue. Clearly, some portion, perhaps the largest part, must also be due to prevailing public attitudes in many large urban areas concerning the need for transit service, fare levels, and labor agreements. As a consequence of these attitudes, local governments find themselves providing deficit transit service as one more service that taxpayers desire, along with school, police, and welfare programs. In this light, the deficit of a public transit operation does not reflect



a transportation problem but simply adds to the fiscal burden on local government. The problem, then, should be addressed not by the Department of Transportation but by those who concern themselves with the fiscal burdens on state and local government and federal assistance with those burdens. In other words, the proper federal answer to transit deficits lies in revenue sharing.

Intellectually, this provides a powerful argument in favor of general revenue sharing as the best way to cope with the operating deficit problem. Revenue sharing has some weakness, however, because it does not provide an argument against federal operating subsidies, as such. A proponent of operating subsidies could fully embrace this rationale but would point out that, as a practical political matter, important segments of the Congress have been somewhat suspicious of revenue sharing and that, desirable as it may be, it simply may not be available as a tool for federal fiscal assistance. Therefore, such a proponent could continue, What is the matter with providing the same fiscal assistance through a categorical grant program? Aside from the standard arguments against categorical grant programs, this is a difficult point to answer in the context of the fiscal argument. The possibilities are a general opposition to categorical programs, the argument that the state and local fiscal crisis is overblown, or development of another argument against operating subsidies.

### Federal Role Argument

In one form, the federal role argument is based on the concept that the federal role in urban affairs is defined, a priori, as being very limited. Meeting the current operating costs of a local government function is considered to be beyond the defined limits of this policy, and, hence, not a good idea. Appeal to federal noninvolvement on these grounds is limited, however, by the fact that the federal government is already deeply involved in urban matters and urban transportation. Indeed, transportation infrastructure investment decisions may well have a more profound impact on the life, growth, and quality of an urban area than do decisions concerning transit system operations. There is a practical side to the federal role argument, however, that does have some force. This has to do with the possibility that the federal government could, through the grant approval process, begin to participate in decision making on matters such as fare levels and transit operators' working conditions. The federal government would risk becoming a party in local disputes rather than being in the position of responding to requests for assistance that come after local political questions have been resolved.

### Pragmatic Argument

The pragmatic argument rests on DOT's strong, explicit, and statutory interest in improving urban transportation. Clearly, in pursuing that objective, DOT ought to be able to influence at least some critical local decisions, particularly in the context of supporting innovations in the way local authorities conduct transit operations.

One of the most useful tools that DOT could possess would be an ability to support and reward innovators and improvers of public transportation. In this respect, operating subsidies provide a potentially much stronger lever than capital grants. However, the kind of operating subsidy for which the transit industry, represented by the American Public Transit Association, has been pressing would be tantamount to an open cash pipeline from Washington to the transit authorities' coffers. Such an arrangement would combine some of the worst features of categorical grant and revenue sharing programs; that is, federal funds could be used for only one purpose and there would be no effective project approval or program review. DOT would simply hand the money over and, in so doing, would find itself stuck in a situation that was nearly irrevocable, that was constantly deteriorating financially, and that presented an ever larger claim on the federal fisc. This presents a fundamental problem with operating subsidies that must be overcome.

## OPTIONS

The four general categories of operating subsidy options established here are no operating subsidies, the pipeline approach, the block grant approach, and the quid pro quo approach. The preceding part of this paper was devoted to the arguments concerning no operating subsidies, so that option will be treated only briefly here. The pipeline approach, meaning the unrestricted flow of funds to the transit industry, was also discussed and dismissed in the discussion of the pragmatic argument and will receive very brief treatment. The block grant and the quid pro quo options are the only two that offer any hope of overcoming the objections contained in the pragmatic argument.

The block grant approach is exemplified by the transportation revenue sharing bill and the federal-aid urban highway program in the 1973 act. The quid pro quo approach represents a categorical grant program under which specific quid pro quos in the form of definite improvements or innovations in an urban area transit operation would be demanded in return for the federal subsidy.

### No Operating Subsidies

The upshot of the arguments presented is that there should be no federal operating subsidy program unless the objections raised by the pragmatic argument can be overcome. These can be overcome only if ways can be found to run a program without it becoming a mere conduit for federal money to transit operators.

### Pipeline

The pipeline option serves only to convey funds to transit operators, and by its use DOT would forgo any possibility of positively fostering transit innovation and improvement. It should, therefore, be rejected.

### Block Grant

The theory underlying the block grant option is that operating subsidies for urban transit should compete with a number of other uses, including nontransit uses, for the available federal money. This competition, it is argued, has a built-in guarantee against wasteful maintenance of the existing operations. Whether such a result would, in fact, occur in practice in the absence of any federal review or project authority is debatable. In any event, it is probably a sound political judgment that revenue sharing is currently not a viable approach to the operating subsidy problem. The transportation revenue sharing bill was never warmly received by Congress.

A more suitable alternative to revenue sharing would be to make operating subsidies one of the eligible uses in a more limited block grant program, such as that represented by the federal-aid urban provisions in the 1973 Federal-Aid Highway Act. This program retains federal project approval that can be exercised in as broad or as detailed a manner as appears appropriate. Indeed, it might be possible to incorporate requirements and conditions of the type discussed under the quid pro quo approach. Of course, to respond effectively to the political pressures for operating subsidies, funding for urban transportation would have to be increased considerably. But another highway bill is not due until the 1975 session of Congress. Moreover, it would probably be difficult to modify the highway bill in such a dramatic manner in a year in which the Public Works Committee would not ordinarily expect to take it up, and that would also be the first session after the Highway Trust Fund was finally opened after a long struggle. There is a great deal to be said for getting at operating subsidies via the highway legislation. One of its strongest attractions is that, coupled with a gradual phase-out of the capital grants program (which would have to occur some years in the future), it would remove the bias toward capital-intensive solutions that characterize current grant programs.

### Quid Pro Quo

A quid pro quo approach is a program through which the federal government consciously buys specific improvements or innovations in the operation of urban transportation in a particular city. The improvements or innovations must be specific and recognizable. Vague statements of good intentions and plans of doubtful success in the distant future would not be acceptable. Acceptable improvements would not have to be highly radical, but changes would have to be significant in terms of increasing the number of persons using transit. Some examples follow:

1. Significant decreases in door-to-door travel times;
2. Significant increases in passenger comfort and convenience on or off vehicles including, for example, replacement of obsolete vehicles and provision of bus shelters and terminals;
3. New service to places, within districts, for trip purposes or for persons currently unserved or inadequately served by public transit;
4. Reduction of adverse environmental impacts; and
5. A strategy of controlling automobile usage, e. g., projects ranging from peak-hour pricing to automobile-free zones.

It should be clear that the design and implementation of such a program would present some formidable problems. Transit authorities would strongly resist the idea that the operating assistance should go for anything other than bailing them out of their current financial problems. UMTA, presumably the administrator of such a program, would be under enormous pressure to accept only token improvements in return for the operating cost grants. An apportionment formula for distributing funds among cities might mitigate these problems, but that is by no means certain. On the one hand, a formula would settle the question of who gets how much money so that lengthy arguments with various cities about the size of their operating grants would be avoided. Certainly, project approval can be retained with an apportionment formula, but the fact that an urban area would have a definite pot of money to claim as its own might make the pressures for acceptance of token or cosmetic improvements even more difficult to resist. A formula approach also carries the danger of overfunding some areas and underfunding others.

Thus, although the quid pro quo concept for an operating subsidy program seems to have considerable appeal, there would be very real problems in administering such a program.

The EPA clean air standards and recent moves toward restricting gasoline consumption may change the situation in a significant way. Just as these events may sharply increase the pressures on us for an operating subsidy program, they may also strengthen the argument for real improvements in urban transit. It ought to be possible to key an operating subsidy program to helping cities to improve and expand their transit operations in ways that offer positive alternatives to travelers who will presumably be driven from their automobiles.

In this manner it might be possible to overcome the objections to federal operating subsidies raised by the pragmatic argument. The essential thrust of that argument is that, under normal conditions, political pressures for access to an operating grant program unrestricted by meaningful DOT requirements for transit improvements would simply be too strong for DOT to resist and a pipeline would be created. Now, the energy crisis and the clean air program (even with the compliance date extended to 1977) may provide a strong enough case to use an operating subsidy program as a tool for transit improvement.

Adoption of any form of categorical grant program, however, would raise a question of its duration. Either an indefinite commitment or a target date to terminate the categorical grant program could be used. There are two possible ways of accomplishing the latter goal:

1. Require cities to introduce taxes or tolls or both on automobiles and parking that

would eventually provide enough revenue to cover transit expenses, or

2. Create an urban transportation block grant program along the lines of the highway act, which would be applicable for both highways and transit and for capital and operating expenses, but retain some measure of federal approval authority.

One way of limiting the commitment at the outset would be to limit the amount of the subsidy to the deficit attributable to the improvements and not provide any support for existing deficits. This might not be acceptable, however, to the factions pushing for the subsidies. Another problem with this limited approach is that its power as an inducement to innovation might be limited by the fact that no assistance would be offered for existing deficits.

## CONCLUSIONS

We have seen that a categorical grant program for operating subsidies based on the so-called quid pro quo approach might result in innovations and improved service in urban transportation. No one should deceive himself, however, about the difficulties of operating such a program. It was noted that much of the substance in the quid pro quo approach could be incorporated into a block grant program based on future modification of the existing urban highway program. Such a combination might be the best of all possible operating subsidy worlds because the fact that other uses of the money would compete with operating expenditures for a fixed sum would serve as an additional control beyond that applied in the project approval process. A future concomitant of this type of modification of the highway program could be a phase-out of the UMTA capital grant program.

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This paper was prepared before enactment of the National Mass Transportation Assistance Act of 1974. The views expressed are the author's and do not necessarily reflect the position of the U. S. Department of Transportation.

# TRANSIT OPERATING SUBSIDIES FROM THE LOCAL PERSPECTIVE

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Passage of the National Mass Transportation Assistance Act of 1974 created a source of federal funding that can be used to offset transit operating deficits and improve transit operations, among other things. As a result, transit agencies are now able to turn their attention from the overall problem of balancing revenues with expenses to other issues in transit planning. A key problem that transit agencies and planners must now confront is the question of allocation of service among competing subsectors of the transit market. This paper describes some of the issues in service allocation and suggests that evaluating alternatives may be of primary importance in solving the problem. It is suggested that, within the overall framework of analysis of alternatives, some specific techniques need further development.

\*NOW that federal operating assistance for public transit has become a reality, it is appropriate to predict the impact of the operating assistance grants on local communities. This paper suggests that the primary impact of operating assistance will be to focus attention on a local problem that has existed for a long time but has not been widely recognized until now. Some suggestions are made for ways to deal with the problem.

## SUBSIDIES ARE NOT NEW

Local communities are very familiar with transit subsidies; many of them have received or given them for a number of years. This statement holds regardless of whether the transit operation is public or private. The privately owned transit company that continues to give service when it does not make a profit is, in effect, giving a subsidy to the community it serves. The public body that, for example, gives a lucrative school bus service contract to a privately owned transit service operator may, in effect, be giving a subsidy to ensure the continuance of the city transit service. In general, any time that operating expenses exceed operating revenues, a subsidy is being provided from somewhere, in some way, to cover the shortage. When subsidies are viewed in this context, it becomes apparent that the basic impact of the federal operating assistance program is to provide a predictable, non-fare-box source of revenue to a transit operation.

## NEW PROBLEMS FOR OLD

For some time now, the primary transit concern of local communities has been finding enough non-fare-box revenue to maintain some sort of public transit operation. The passage of the federal operating assistance program has certainly relieved the pressure to augment total transit system revenue for some time to come. The program has moved transit one step closer to the classic definition of a public good by separating revenues from cost to some extent. That is, user charges have become less of a factor in determining appropriate levels of service. Accordingly, the importance of the old problem of identifying and providing the service that would bring the most money into the fare box has diminished considerably.

Another issue that caused substantial debate some years ago was the question of the exact nature and magnitude of the deficit. With more revenue coming in, the importance of allocating every cent of outflow also appears to have diminished. Although economists would agree that the question of resource consumption should not be ignored, one may safely suggest that aggregate measures such as labor cost, depreciation, and the like can be temporarily subordinated to a more pressing issue. In short, we can, in the next few years, turn our attention from attempting to balance the level of service for the entire operation with the revenue for the entire operation and look into another problem area.

Suppose that the combination of existing fare-box revenue and federal operating assistance will create a surplus for a transit system in the coming year. The transit system, with the best of intentions, wishes to use this surplus to provide more service. Where should this service be provided? It seems plain that the new problem is determining the appropriate service levels to be provided to different neighborhoods, different routes, and different user groups. In other words, if the old transit problem was at the macrolevel, the new problem is at the microlevel.

The magnitude of this problem should not be underestimated. In economists' terms, it is a resource allocation problem among segments of a market, possibly combined with a serious issue of cross-subsidization. (The cross-subsidization issue arises because any transit property is likely to have under its control a few routes that could be profitably operated by private enterprise and a number of routes that could never be profitable. As part of an integrated system, the profits from one route go to subsidize the losses of another. To the extent that the routes serve different sectors of the city, one element of the riding public ends up subsidizing another.)

This new problem, which may be called a service allocation problem, includes a number of other issues. For example, in major metropolitan areas, there is a question of service allocation between links in the regional transit network and local community transit services. A minor political jurisdiction, for example, may wish to provide transit service, within its own boundaries, that is only marginally related to the regional rail transit system. Although the needs may be relatively modest, who will make the allocation between competing demands and on what basis?

Even in smaller metropolitan areas, various segments of the transit market have competing transit needs. For example, if there is just enough money left in the budget to run one more bus trip per week, should that bus provide service to senior citizens for Sunday trips to church and dinner, or should it transport young people home from an evening recreational activity? What provisions should be made for the needs of the handicapped? Do these needs, in turn, conflict with the desires of downtown merchants? Do those needs, in turn, compete with the desires of operators of outlying shopping malls (some of whom already benefit from transit service in some areas)? How are all these competing demands reconciled?

## TOOLS FOR PROBLEM SOLVING

Clearly the service allocation issue will not be resolved on either purely economic or technical grounds. Inasmuch as we already have economic and technical tools to deal with problems, this is unfortunate. However, to the extent that the service allocation issue is really a political issue, it is appropriate that we find ways to assist local communities in solving this new problem. Some techniques are already available to transportation planners; these tools need to be improved, and new ones may have to be developed. The issues can be put in terms of evaluation of alternatives, and doing so suggests some of the steps that need to be taken to solve service allocation problems.

1. Local goals and objectives need to be articulated more clearly and in ways that can be empirically meaningful. Improving mobility for all residents of the community may be an admirable goal, but it does not lend itself to objective measurement. Objectives will have to be defined more carefully, and the impacts on different segments of the community will have to be explicitly recognized.

2. A better definition of level of service is needed. Measurement of service levels is the subject of several current and proposed research projects. Without further discussion, more work is needed in this area.

3. In some localities, greater public participation in the planning process is required. Given that different segments of the community have differing transportation needs, their wishes should be considered in the planning process. Conventional techniques of determining travel desires may not be adequate for this task. It may become necessary to receive input from special-interest groups, for example, as well as through other data collection techniques.

4. In general, the decision-making mechanism must be improved. A variety of techniques exist for evaluating alternatives. Although some of these techniques are powerful tools, their potential is not fully appreciated in many transportation planning circles. The process by which the decision is made to send the one extra bus to the old folks' home, for example, is neither easy nor technical. Nevertheless, it can be facilitated and documented by an adequate evaluation technique properly applied.

## SUMMARY

Passage of the federal operating assistance legislation enables many transit planners to turn their attention from keeping the system afloat to the somewhat more pleasant task of deciding how to distribute new service among the various segments of the community. Problems within the system rather than problems of the system as a whole will become the focus of attention. To deal with these problems may require that some new techniques be developed or existing ones be perfected. The federal operating assistance in itself will not solve these internal problems; it will merely permit attention to focus on them rather than on macrolevel issues.

# PROBLEMS AND POTENTIALS OF FEDERAL TRANSIT OPERATING SUBSIDIES

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This paper addresses the problems caused by increasing escalation of transit subsidies in the face of long-term trends that are worsening transit finances and focuses attention on two issues: (a) the relationship between changes in the level of federal subsidy funding and the financial condition of the transit industry and (b) the question of why the transit industry is incurring deficits. It is emphasized that a long-run federal operating subsidy program should concentrate on understanding and controlling the transit deficit. Possible solutions to the industry's problems are offered. At the federal level the alternatives available are to (a) move the power to determine the level of deficit from local authorities to the federal government by having national fare and service standards; (b) determine precisely what the federal subsidy is supposed to accomplish and focus the money directly toward these objectives rather than subsidize all transit service; (c) design the federal subsidy mechanism to encourage innovation and increased productivity; and (d) structure federal subsidy programs to increase fare box potential rather than penalize the fare box as a revenue source. Alternatives open at the state and local levels are to (a) penalize competitors to transit through taxes and controls; (b) encourage improvements in the productivity of transit in the off peak; (c) encourage more diversion of peak-hour transit demand to alternative modes; and (d) improve competitive advantage of transit through exclusive busways and lanes, priority in traffic, and so forth.

•INAUGURATION of transit operating subsidies by the federal government has provided the occasion to reassess the entire transit program at all levels of government. On the one hand, the fact that federal money can be invested in more than just equipment is commended. Subsidy recipients no longer must overcommit for subsidized capital items and neglect unsubsidized operating expenses, a bias in the capital grant program that would ultimately lead to a very inefficient industry. Another beneficial effect of this new legislation is that the myth of temporary aid is now abandoned; the federal government is committed to a long-term program of across-the-board aid to the industry. The assumption that a cycle of fare increases and service reductions could be reversed by temporary aid is hardly a sound basis for planning the transit aid program. On the other hand, the large escalation of the federal-aid program raises questions on where the new phase may lead.

Increasing federal aid to transit will evoke increasing opposition by those who do not accept the goals of the program or who do not believe the promises of benefits. Because of the financial standards that have been applied to the transit industry, proponents of the federal-aid program take this criticism very seriously. Chronologically, the following standards have governed federal support, but all (except the last) were eclipsed by debilitating economic trends in the transit industry:

1. Levels of service are dictated by what the passenger will pay for;
2. Required subsidies are borne by state and local government;
3. Federal subsidies are limited to a subsidy to interest costs (this was the brief period of the subsidized loan program under the Housing and Home Finance Agency);
4. Federal subsidies are extended to capital expenses, but operating expenses are



borne by the transit rider or the state and local taxpayer; and

5. Federal subsidies are extended to operating expenses.

Each of these phases was an attempt to hold the line on the decline in transit ridership. Revising funding standards to reverse the decline in ridership raises a number of questions: Has the decline in ridership reached an equilibrium (1), or is the continual need to increase the level of support a symptom of a long-term trend? Will the revision of standards continue beyond the operating subsidy phase? Do increases in federal subsidies help solve the problem or merely postpone the day of reckoning?

These disturbing questions have prompted a fear expressed by U.S. Department of Transportation staff and others that an operating subsidy will get out of hand and become a bottomless pit. Fear of the bottomless pit at the federal level is enhanced by the fact that the magnitude of transit operating deficits is affected by local operating decisions on fare and service and competitive conditions in the market for travel services. None of these is under direct control of the federal government.

Attitudes toward the deteriorating financial condition of the transit industry are generally represented by two opposing viewpoints.

1. Subsidies to transit are needed because the industry is inherently unprofitable. Although considerable benefits would accrue to the local community from supporting transit through local tax revenues, those benefits cannot be realized because of inadequate local tax resources. Hence, federal support is required.

2. The need for subsidy is not inevitable but is determined by local transit operating and fare decisions and the response of consumers to competitive market conditions determined by public policy. Instead of an open-ended commitment to continuing subsidies that fail to attack the cause of the problem, the causes of transit financial problems should be determined, and policy should be directed toward solving the problems that generate a need for subsidy. Conditions should be created whereby the need for subsidy is reduced or eliminated, either through improved service advantages for transit (the carrot approach), penalties to the use of alternative modes (the stick approach), or the use of alternatives to federal transit subsidies. This approach stresses that federal subsidies merely attack the symptoms, which will progressively deteriorate if the causes are left unchecked (2).

This paper is oriented toward the second view. Transit needs public support at some level, but fundamental economic forces threaten the viability of the federal subsidy program. The following points are advanced.

1. To understand the problems and potentials of transit operating subsidies, we must answer the following questions: Why is the transit industry incurring deficits? Why is the transit industry now being subsidized by the federal government? What forces determine changes in the level of federal support over time?

2. Although the level of federal funding for transit has increased, the funding program has not accomplished its stated objectives. The deteriorating financial condition of the industry has necessitated increased levels of federal subsidy to transit. The level of federal funding is escalating because increasing subsidies are required as economic trends cause increasing deficits. Local and state governments have succeeded in shifting a large part of the burden of supporting this industry to the federal government, which has implicitly agreed to underwrite the growing losses sustained in the effort to maintain ridership.

3. Transit industry deficits are affected by local policy decisions that are not under the control of the federal government.

4. The future problems and potential of the federal operating subsidy to transit depend on the factors that determine the future financial condition of the industry and the resulting required level of federal funding. Unless the subsidy mechanism attempts to control factors that increase the size of the industry deficit, the federal government will be underwriting a deficit at a rate that cannot be maintained because program benefits will not rise commensurate with program costs. The result will be widespread

public disaffection with federal transit subsidies.

5. To mitigate this threat to the program requires that more attention be given to enhancing the industry's financial condition by increasing the use of the fare box as a source of revenue. Improving the structure of the federal subsidy mechanism to create incentives for transit efficiency, eliminating penalties in current subsidy mechanisms for using the fare box as a source of transit revenue, and improving the quality of transit service (particularly in the off peak) should be pursued to accomplish this objective.

#### CHANGES IN THE LEVEL OF FEDERAL SUBSIDIES AND THE FINANCIAL CONDITION OF THE TRANSIT INDUSTRY

Since federal transit operating subsidies were initiated, observers have commented that the capital grant program has not accomplished its objectives during the last decade. Some have even argued that the program has been a failure because steady increases in the subsidy have been accompanied by continuing decline or only very modest increases in transit ridership.

Those who condemn the program on these grounds fail to realize that a given level of federal subsidy can only temporarily save the industry from long-term trends. Surely the decline in ridership would have been substantially greater if there had been no federal program. The federal subsidy is not increasing because of an overwhelming desire to extend the scope of the benefits the federal subsidy program was designed to achieve. Rather it has increased because the industry is operating in an unstable situation in which a revenue and cost squeeze has produced rapidly increasing deficits. As the economic climate has worsened, more subsidy has been required to preserve a given level of transit service and fare. Funding decisions have been made based on the industry's needs. Furthermore, some of the federal money in the past has gone to facilitate take-overs of private companies and has only substituted for private capital rather than to provide additional service.

The goal of reversing the economic trend in any substantial way through subsidies is hopeless as long as the fundamental economic forces affecting that trend are at work. As long as the ground rules for policy making do not change, the only reasonable goal of the federal transit subsidy is to enable transit to lean against the prevailing winds.

These trends should be a source of concern to proponents of ever-increasing federal subsidies because federal subsidies have been initiated under conditions that are virtually certain to create an increasingly costly program without a commensurate increase in the use of transit over time.

1. Levels of service, fares, and other aspects of the competitive status of transit vis-à-vis other modes are determined by policy decisions made at the local level and by long-run economic trends that make traditional transit service a less desirable travel alternative to more and more people. Local governments are hesitant to change these policy decisions or to reverse the impact of these long-run economic trends.

2. The federal government has agreed to assume much of the increasing requirement for financial support caused by these deteriorating conditions; the federal government has consistently countered the deteriorating financial condition of the industry with more money, and there is little reason to expect this policy to change in the near future.

Because increasing transit deficits require larger federal subsidies to accomplish the same level of service and patronage, the problems and potentials of transit operating subsidies depend on the long-run factors determining the financial condition of the industry. If these long-run trends continue to make traditional transit more costly to preserve, a crisis will be reached in which a political decision will be made that the public can no longer afford the transit industry as it is now organized. On the other hand, if these trends have run their course, this threat is lessened. Understanding why the transit industry is losing more money is therefore crucial to understanding the future of the industry.

## WHY IS THE TRANSIT INDUSTRY INCURRING DEFICITS?

The factors contributing to the decline in ridership of transit are well-documented (3). Less clear is the relationship among these factors, the decline in ridership, and the resulting deficit. At one time, the transit industry made profits. Why the decline in ridership should lead to deficits is by no means clear.

The interaction of adverse trends in the demand for transit, the costs of providing service, and the willingness of local governments to accept deficits rather than increase fares and cut services is complicated and deserves much study. For example, consider the following suggestion (4):

Many transit planners begin with the assumption that public transportation can never pay for itself and will always be supported by public subsidies. That assumption can and must be rejected. In fact, if we could only attract to the MBTA the same number of people who used the old Boston El in 1946, there would be no MBTA deficit at all.

Clearly, increased demand for transit service at present fares and costs per passenger will not solve the transit industry's financial problem. If the transit industry carried twice as many passengers, it would lose twice as much money, or maybe even more, because even more riders would vote against fare increases. The conclusion that the industry would lose twice as much is based on the assumptions that the system operates at capacity in the peak and that an increase in demand would not change the peak-base ratio. In some rail systems the deficit might be less than twice as much because of economies of scale in the rail technology, i.e., twice as much volume would not necessarily cost twice as much.

Explanations that have been offered for the transit industry's inability to cover its expenses include demand factors, cost factors, and public policy factors.

### Demand Factors

The chief competitor to transit, the automobile, has been subsidized through uneconomic highway facilities for the peak-hour user and through reductions in parking charges. This subsidy has narrowed the difference in price of the two modes so that an attempt to cover transit costs by fare increases would divert so many patrons to the automobile that a break-even level of service could not be achieved. In the views of some (4),

Every highway we build in the metropolitan area competes directly with public transportation by taking riders away from transit and into their private automobiles. So not only are we spending ridiculous sums of money to build these roads, but we are at the same time progressively adding to the MBTA deficit by building them.

Although this argument has gained widespread support, the actual effects of increased highway capacity on transit finances have been inadequately studied. An alleged subsidy to automobile users that is possibly relevant to transit finance is the high-cost highway capacity built to meet the peak-hour automobile user's needs. For the purpose of illustration, we assume that such a subsidy exists.

Whether an increase in peak-hour highway capacity would harm the financial condition of transit is not obvious. An increase in highway capacity affects peak-hour service differentials between modes more than off-peak service differentials, and it is likely that the choice of mode in the off peak will not be significantly changed. If peak-hour rail transit users shift to automobile when a new highway is built, the financial picture for transit may be improved because the peak-base ratio will be lower, and the transit losses due to the high cost of capacity that serves only the peak traveler may

be avoided. Where transit and automobile share the same right-of-way, it is not clear why the automobile peak-hour line-haul time should improve relative to that of transit. (When a limited-access highway diverts automobile but not bus traffic from local streets, the effect on transit should be to reduce the peak-base ratio, which is similar to the rail transit case.) Even if automobile line-haul time did increase, the impact of the service differential should be to lessen the number of peak-hour transit users and improve transit finance. An alternative explanation is that improved traffic flow affects line-haul time of both modes equally, but travelers respond to the bigger percentage reduction of the line-haul time of the automobile. However, studies have indicated that demand for transit is much more sensitive to time spent walking, waiting, and transferring than line-haul time. Obviously this explanation of the transit financial picture needs more study.

Increases in income have provided travelers with the means to satisfy their demand for high-quality transportation. The traditional service provided by transit has little appeal to the traveler who prefers door-to-door service, privacy, convenience of scheduling, ubiquity, low travel time, image, and comfort of the private automobile. This trend in tastes and income has encouraged metropolitan residential decentralization (as have subsidies to single-family housing), which has created large markets for urban travel in which transit has suffered a cost disadvantage.

Although these trends are certainly valid explanations of why the transit market is shrinking, it hardly explains why the industry cannot simply cover its costs at a lower volume. Some of the largest operating losses are incurred in the highest density metropolitan areas; transit operations were once profitable even in the medium-density cities. Clearly there must be something more than merely declining demand for transit.

### Cost Factors

One view is that the shift from transit to automobile has reduced transit productivity because more cars mean more congestion and slower bus speeds. This view is, of course, directly contrary to the view that highway construction and reduced congestion cause peak-hour transit service to deteriorate relative to that of the automobile.

More research is needed to evaluate the importance of increased congestion. Whether congestion has in fact increased is debatable. When congestion increases, does it affect transit service more adversely than the automobile mode? If so, why? Intuition would suggest that congestion has probably hurt transit operations the most where the demand is most highly peaked. However, it is doubtful that adverse changes in congestion are adequate to explain the rate of deterioration of transit finances. Certainly the biggest losses are being incurred in rail systems for which street congestion is not directly relevant to costs.

Another viewpoint is that transit capacity and costs are based on service in the peak hours, but labor costs, the largest part of total costs, must be paid for the entire workday. (Note that the decline in off-peak demand is treated as a cost factor because the problem is not the decline in demand per se, but the inflexibility of costs in the off-peak.) The great decline in off-peak demand has not allowed a proportionate cut in costs, which are primarily determined by peak-hour demand. More revenue must be generated from the peak-hour traveler. However, in most transit systems, the incremental transit rider in the peak is unwilling to cover the incremental cost of expanding capacity to satisfy his demand.

This factor has obviously been important, especially in situations where regulatory restrictions have prevented cutbacks in off-peak service when such cutbacks were feasible. Although transit deficits would be with us even if the decline in demand had been equally borne in peak and off-peak hours, this explanation does point to possible ways to ameliorate the effect of increasing deficits. These will be discussed below.

One very important factor has been inadequately considered under the rubrics of inflation, costly wage settlements, and so forth. A well-known phenomenon of economic development is the Baumol-Bowen effect, which states that in an economy with rising real wages costs of service industries (with a high percentage of labor costs and slow

increases in productivity) rise relative to the costs of other goods and services. The effect is to cause industries such as domestic service to decline over time and for do-it-yourself activities to increase.

The Baumol-Bowen effect has caused the cost of transit to rise relative to that of the private automobile. The shift from transit to automobile for the work trip is an economically rational reallocation of time that is comparable to the do-it-yourself phenomenon. The effects of this trend may be seen by observing that wages paid to transit employees must rise over time consistent with higher wages in the economy generally. The driving chore is often perceived to have little cost; converting automobile drivers to transit riders would not free their travel time during the trip for a more preferred leisure or work activity. However, a transit driver employed during the peak frequently is nonproductive during the off peak because of the lack of demand for off-peak transit and work rules against split shifts and part-time labor. The cost of this nonproductive off-peak labor increases over time because of the rise in wages and the increased peaking of demand for transit.

The effects of the shift in modes may be interpreted economically in many ways. As transit users shift to automobile, they unburden themselves of the increasing costs of nonproductive off-peak transit labor (and usually save their own increasingly valuable time as well). Another way to view the problem is to define two labor markets: a peak-hour transportation labor market glutted by the potential entry of do-it-yourself automobile drivers and an off-peak daytime labor market with very high wages due to good employment opportunities in the normal business day. The automobile mode economizes on scarce labor resources by using labor in the glutted peak-hour market only, but transit requires the purchase of labor in both markets. Another interpretation is that transit has locked itself into a joint cost situation: The cost of providing peak-hour service cannot be incurred without also incurring the cost of off-peak service. The automobile driver does not suffer a comparable disadvantage.

It might be noted that the transit mode is more labor-intensive than the automobile mode in almost every respect, especially in passenger travel time and in the production of equipment. Efforts to remedy this, however, confront the problem that an automated transit industry is even more inflexible in the off peak than is the present transit industry.

If the transit industry is characterized by economies of scale, declining volume means increases in per-unit costs. This explanation is similar to that of metropolitan decentralization, which reduces the density of demand along routes.

A number of studies have shown that bus service has little economy of scale beyond the threshold where service is introduced, except for reductions in waiting time due to reduced headways when service is increased (which does not affect transit finances directly). Because many bus systems are incurring large deficits, the presence of economies of scale is probably not an important factor in explaining the increasing deficits.

### Public Policy

Adherents of the public policy explanation maintain that a deficit is not inevitable but results from the unwillingness of the community to cause hardship by raising fares and cutting uneconomic service, especially if much of the costs of this decision can be passed on to the federal government. Although this explanation for the escalating deficits is probably the most persuasive, it unfortunately offers little toward resolving the present dilemma other than to suggest that the only way to avoid the next subsidy phase is to go back two phases.

### Summary

This sketchy review of possible explanations for the long-run trends in transit finance points to the impossibility of reaching conclusions. Clearly a number of factors are at

work, and more research is needed to establish their relative importance. Many trends, such as urban form, that have adversely affected the transit industry may now be abating. However, it is clear that the most powerful influences are not likely to subside. The current recession and increases in automobile operating costs have not had an appreciable effect on transit finances, for example. Public policy cannot be based on the assumption that a new Golden Age of transit is imminent.

## PROBLEMS AND POTENTIALS OF TRANSIT OPERATING SUBSIDIES

The long-term trends that are worsening the financial difficulties of transit suggest that expanding the federal subsidy program merely postpones the day of reckoning. After all, it was the arrival of the day of reckoning at the state and local levels that precipitated federal subsidies. No program can assume that the public will continue to pay more and more to achieve less and less. Will federal transit subsidies ultimately go the way of virtually every other federal-aid program to the cities, such as highway construction, urban renewal, public housing, and new towns (to mention a few programs that have lost their consensus of support)? Proponents of transit must recognize and shape the long-run trends that are the root causes of the problem if they want the program to survive.

The federal maintenance of effort (MOE) requirement may be viewed as one response to the problem. Under this standard, federal moneys may not merely substitute for local funds but are intended to finance additional effort. Unfortunately, MOE, whatever other merits it may have, does not address the issues raised here. In fact, as the financial condition of the transit industry crumbles, local grant recipients must also run faster to stay in place.

If the MOE concept has any impact at all on the level of local support, it will ultimately be self-defeating. Intolerable burdens imposed on the local communities are eventually passed back to the federal government through pressure for more permissive standards for the local funding ratio or for new subsidy programs.

Much more study is needed to point the way. Some possible solutions to the industry's problems can be identified now, but little hope can be offered that they will be acted on. Either they challenge vested interests protected under the present arrangements, or they require hard choices to determine priorities for the transit subsidy program.

### Alternatives at the Federal Level

The first alternative is to establish national fare and service standards. The problem with this suggestion is that it nationalizes the transit industry without addressing the causes of the problem. Federal guidelines and standards for recipients may be used to shape these decisions, but it is highly unlikely that a bureaucratic approach will work, especially where Washington has a distaste for it, as in the present case.

Another alternative is to determine precisely what the federal subsidy is to accomplish and focus the money directly toward these objectives rather than subsidize all transit service. One disturbing trend in the federal grant process is that, to expand the political base of support for a program, the objectives are diffused by expanding the program's beneficiaries. It is not entirely incorrect to note that, to save the 35-cent fare to New York, transit subsidies to nonurban areas were recently authorized. The approach suggested is to identify ultimate program objectives and design a grant mechanism to achieve those objectives. Unfortunately, this approach is unworkable because it is inconsistent with the primary reason the operating subsidy was initiated—ballooning deficits. It is likely that more specificity in the grant process will come only as a fall-back position if the entire program has been severely weakened by attack.

Furthermore, this approach will inevitably generate conflicts between different constituencies supporting transit subsidies. Different program objectives imply different transit service configurations and different types of grant programs to achieve those

objectives. Defining objectives and priorities for the program will inevitably require hard choices between competing objectives that will split the consensus of subsidy proponents. No one subsidy mechanism can be expected to accomplish all competing objectives of transit financial support. As such, this solution has little chance of ever being implemented.

Another alternative is to design the federal subsidy mechanism to encourage innovation and increased productivity. Subsidies frequently dull the edge of innovation and efficiency. A desirable solution would be to condition the subsidy on improved performance or to require alternative suppliers to compete for subsidies given directly to consumers (similar to the food stamp program). Alternatively, the federal subsidy program might be designed to encourage any of the local responses discussed below.

The major problem with this solution is how little is known of the effects of alternative incentive schemes. In general, a major problem with all such schemes is that any attempt to design a nonneutral subsidy device invariably runs into undesirable consequences. Research in this area is required to determine whether a workable approach can be found (7, 8).

Still another alternative is to structure federal subsidy programs to increase fare box potential rather than penalize the fare box as a revenue source. Tying federal aid to a sharing arrangement with local recipients, it was hoped, would induce recipients to spend the funds wisely. A neglected factor in this thinking was that the requirement for local subsidies encouraged larger deficits. These larger deficits in turn increased the pressure on local governments to secure more federal support. Federal policy should at least be neutral toward the support of transit through the fare box. The Urban Mass Transportation Act of 1964 specified that federal funds were to apply to the project costs net of operating income. Naturally no recipient could pass up a fare cut funded two-thirds by the federal government (which was the effect of this provision), and virtually no grant projects contemplated any fare box support for the project.

Similarly, the federal government should not use the grant process to encourage local governments to commit vast sums to inflexible systems that are guaranteed to produce operating deficits if forecasts are unreal. Federal capital grants sometimes became responsible for transit operations that local governments were unable to adequately support. Under the circumstances, operating subsidies became inevitable. Although capital grants were frequently justified because of inadequate local resources and competing pressures on local budgets, the actual effect was often adverse to local government finances because they were not saddled with large operating deficits. Having committed the capital, the federal government locked itself into meeting the operating expenses. This is the coercive deficiency of budgeting.

### Alternatives at the State and Local Levels

One alternative is to penalize competitors to transit through taxes and controls. This suggestion is a good example of the impossibility of evaluating a potential solution to transit's financial problems without a firm idea of urban transportation objectives. The objective of raising the cost of automobile use is to divert demand to transit. Assuming this policy is effective, there will be two effects on transit finances, a ridership effect and a fare effect. If transit ridership increases and if fare policy remains the same, the transit industry's losses will increase along with the new ridership (for reasons given above).

The fare effect will also be adverse to transit finance. As the cost of automobile operation increases, lower not higher transit fares would be justified if the objective of transit policy is to hold down fares to captive riders. Higher automobile costs imply greater transit dependency, which implies a greater justification for lower fares and higher deficits according to the captive rider rationale for low fares. Politically speaking, the larger ridership will have greater strength in blocking fare increases. For these reasons, penalties for automobile use will probably be a weak tool for reversing the financial trends in the transit industry.

Alternatively, in the productivity of transit in the off peak could be improved by (a)

combining it with a conjugate industry such as local package delivery; (b) using more part-time transit labor; and (c) changing the structure of service in the off peaks to respond to the more dispersed pattern of origins and destinations.

This solution is based on the Baumol-Bowen effect and its relation to the peaking phenomenon of transit. The labor problems that would arise would be so enormous that it would seriously be considered only if the industry faced a crisis of public support so great that subsidies were threatened.

Another alternative is to encourage more diversion of peak-hour transit demand to alternative modes such as jitneys and fee-paid car pools. Diverting trips and using part-time bus operators will eliminate the costly marginal peak-hour riders who are a financial drain on the transit system. Allowing new modes to compete with transit will allegedly improve the peak-base ratio and curtail money losing service.

As a way of attacking the peaking problem it is much more likely of implementation and success than devising methods for increasing off-peak labor productivity in transit. Two unanswered questions determine the advisability of this approach. First, would peak-base ratio be improved, or would these new modes divert more off-peak demand from transit than peak-hour demand? After all, this was the experience of competition with the automobile mode. Second, diversions from bus transit to the new modes may increase the number of vehicles on the streets whereas diversions from automobile to the new modes may tend to reduce the number of vehicles on the streets. In the peak hours, would the diversion from transit to the new modes be so great that it would swamp the diversion from automobile to the new modes, thereby causing increased street congestion and vehicle emissions? This problem has greatly concerned those who are considering incentives for car pooling. These questions currently cannot be answered and are high priority for future transportation demand research.

Finally, the competitive advantage of transit could be improved through exclusive busways and lanes, priority in traffic, and so forth. The problem with this solution is that it does not address the problem raised here. Improving transit's competitive advantage directly generally requires more outlays to support transit, and, unless fare policy changes, it will produce higher deficits.

## CONCLUSIONS

This paper has made three major points: Long-run trends will continue to escalate the cost of merely preventing further transit ridership declines; unless these trends are recognized and dealt with, the federal transit subsidy will do less and less for more and more money, resulting in a substantial public disaffection with federal transit subsidies; conflicts over the subsidy objectives and lack of knowledge of how to use the federal subsidy process to correct the problem are discouraging impediments. Under the circumstances, a long-run federal operating subsidy program should concentrate immediately on understanding and controlling the transit deficit.

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# WHAT PRIZES WHEN ONE SUBSIDIZES? SOME LESSONS FROM THE PAST

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This paper reviews past U.S. subsidy programs in both agriculture and transportation to establish facts about federal subsidies and apply these facts to current federal transportation subsidy programs. Two points are made. First, traditional transportation subsidies paid by the federal government have been justified in terms of national advantage. Based on this assumption, the case for federal subsidization of urban public transportation would be in extreme difficulty. This point primarily establishes reasons why urban transportation subsidies should not exist. There is, however, another approach, which leads to the second point that a new case for federal subsidization can be made strictly in terms of local advantage. An argument is presented for this new case.

•THE POLYPHONIC message of the various definitions of subsidy comes to this: There is definitely a subsidy if there is a government payment to a private individual or corporation for a specific and specified purpose, in addition to whatever funds the recipient earns or expects to earn on his own.

To extend the definition into the not-so-positive, there may be a subsidy if there is special tax treatment for an industry or other economic entity, if there is special tariff protection (or special tariff concessions), or if there is some other governmentally administered device such as a minimum-price program.

For present purposes, I will confine myself to a meaning of subsidy that is limited to government partial payments for services that also receive income from the fare box or its equivalent. I will not confine myself to the traditional usage of subsidy as referring only to government payments to private enterprise, because there are few private enterprises left in the field of urban passenger transportation and hence very restricted opportunities for such government payments. Nor will I confine myself, rigidly, to specific or specified purposes. Part of the interest of the subsidy question lies in the distinction between subsidies that are aimed at a specific target and have a high prospect of hitting it and blunderbuss subsidies that rely on the proposition that it is worth the cost of the gun and the ammunition to see whether anything drops when one pulls the trigger.

Now that we established the ground rules, we may return to our basic text: the Joint Economic Committee's report, Subsidy and Subsidy-Effect Programs of the U.S. Government. The ground rules have simplified the problem by eliminating subsidy-effect. After this simplification, the classic or straight-out government payment in partial support begins to show an exceptional affinity for the transport sector. But, to bring transportation squarely within our sights, we must mention a whole category of subsidies that have managed to slip past our definitional barriers. These may be summed up in the extremely broad term, the farm program.

So what does the farm program have to tell us about subsidies or transportation in any of its forms? It can tell us quite a lot, but much of it is negative and most of it political. The first negative contribution of the farm program, of course, is that it has been designed to raise farm prices and thereby to raise farm incomes; in contrast, the classic subsidy program is supposedly designed either to lower prices to consumers directly or at least to enhance efficiencies in one way or another so that prices may be lowered in the long run.

But this contribution probably looks more negative than it is because of the exceptional

characteristics of farm costs and in particular the costs of the farm labor force. Outside of California, this labor force is almost entirely nonunionized. In the Corn Belt, which constitutes the heart of American agriculture, it would appear to be nonunionizable. On farms with a total value of \$500,000 and more, labor supply is still largely drawn from the operating family. Government programs to raise farm prices will increase farm land values and may even increase the incomes of renters as well as owners; but they cannot build in a higher, rigid plateau of input costs for labor or any other factor of production. Higher incomes follow the program, and they are meant to follow the program; but they are not an institutionalized by-product of the program.

This is quite different from what is likely to happen with respect to urban subsidies. It may almost be stated as a fundamental economic axiom that it is impossible to design a direct subsidy that is meant to assist a group of urban consumers without raising some factor costs in the process. Politically speaking, this statement may seem naive and would certainly appear to be unworthy of emphasis. Whoever heard of a political body sponsoring what purports to be a consumer subsidy without the stimulus of ample advance lobbying? And whoever heard of consumers who were willing and able to carry the entire burden of such lobbying? In short, whoever heard of a supposed consumer subsidy that was not at least in part designed by and instigated in behalf of representatives of the supply side of the market?

In short, urban economics may be an economics of exacting, exciting, extreme, and even excessive competition, but it is not an economics of textbook pure competition nor even an economics of the agricultural version of pure competition. Urban economics might be described, instead, as a battleground for actual and attempted market controls. Subsidies may possibly, therefore, tend to raise unit costs as well as lower unit prices.

This is no mere theoretical speculation. Some of the opponents to operating subsidies for urban transportation, as contrasted with capital subsidies, assume that the former are likely to raise unit costs more, and more rapidly, than the latter. Unlike a farm program, which will raise prices first, raise incomes second, but perhaps atone for some of these effects by raising productivity third, a subsidy program in an urban environment runs the danger of freezing productivity first, then raising incomes second, and possibly not lowering prices third. There is even a possible fourth stage: Productivity may eventually be even lower than it was at the outset.

So, from the standpoint of the mechanics of the markets in which they operate, agricultural subsidy programs tend to have an advantage over urban transportation subsidy programs. But agricultural subsidy programs also have a similar advantage over practically any other subsidy programs, for the same basic economic reason. Even in markets where price and output are controlled by the government, as has been the case with some agricultural programs, the supply-side aspects of pure competition remain virtually intact. Farmers may be restricted to fewer acres or even cut back by marketing quotas that lower output, but they are encouraged to operate within these constraints to produce as efficiently as possible.

There is probably no counterpart to this genuinely supply-side pure competition anywhere in the urban economy. This may be illustrated not merely by urban transportation, but also by the seemingly different world of medical economics. The supply of medical services involves personnel whose incomes range from some of the highest in the country to some of the lowest paid urban workers. It involves a budgetary mix, even in the absence of any government financial support, that ranges from the receipts and motivations of a discriminating monopolist to pure charity. It employs a heavy proportion of female labor. Unless one counts the American Medical Association as a union, it is nonunionized in critical areas of supply and is organized only on a spotty basis elsewhere. Yet, in an environment that would seem in most ways to be protected from the inflationary aspects of government spending, the most obvious effect of government subsidies for medical services has been to drive up the prices and costs of these services.

The one question regarding agriculture and subsidies is, "Can you aid consumers if producers get there first?" No one ever confused acreage limitations and marketing quotas with food stamp programs; so no one has seriously thought of agricultural pro-

grams as consumer-oriented even in their basic intent. But, within the confines of producer-oriented programs, each producer is left with the profit and loss incentives and the ability to minimize at least some costs, which are sufficient to propel him partway toward efficiency. In this respect, farm programs are two steps ahead of urban transportation. Almost throughout the United States, urban transportation has been burdened with losses so that the whole idea of profit has become irrelevant from the financial and motivational standpoints. And only the very naive could believe that factor prices in urban transportation are divorced from government subsidies, especially if the government that is doing the subsidizing is not the government that is operating the transportation system.

But the classic area for government subsidy, in the sense presented earlier, is the area of transportation. The one type of legislation in which Congress has been bold enough to use the word subsidy is that pertaining to the construction and operation of vessels for and by the U.S. merchant marine. Historically, the outstanding examples of government subsidy are related to the construction of many of the American railroads. In the same period, the post office was subsidizing American packet service on the high seas. Commercial aviation was subsidized from the same source practically from the outset, and residual CAB subsidies for local service carriers continue.

Transportation assistance established that subsidies need not be restricted to private enterprise. Some states or localities assisted private railroad builders, but others constructed facilities themselves with the intent of selling or leasing them at a loss to private operators. Still others absorbed a loss in transferring public investment to private operation.

But what do urban transportation subsidies have to do with historic transportation subsidies or their survivors? This question can be addressed along several lines. Traditional transportation subsidies paid by the federal government have been justified in terms of national advantage.

The locus classicus is the bundle of land grants, loan guarantees, and other inducements offered not only for the central route across the Great Plains and the Rockies, but also for the construction of the Northern Pacific and for other railroad construction designed to tie the West Coast to the Eastern Seaboard. Indeed, the national aspect of these subsidies was so prominent that disagreement about routes was an element in sectional discord before the Civil War. The southern routes occupied by the Southern Pacific and the Santa Fe could be postponed in favor of the central routes only after the southern states had seceded from the Union.

Even before the push to the West Coast, national advantage was tied into public subsidy in a straightforward way. The Illinois Central was the first major railroad to receive important federal aid in the form of land grants. And, inasmuch as the federal government facilitated railroad construction by ceding alternate sections of land, it doubled its asking price on the remaining sections to recoup the subsidy by capitalizing on the national advantage created by the railroad.

The Civil War conditions that permitted the authorization of transcontinental railroad construction on the central route also facilitated the passage of the Homestead Act; so the earlier idea of the self-liquidating subsidy was not carried across the continent. Given the quality of land over much of the territory from the Missouri River to the Pacific Ocean, this would have been difficult in any case. But the combination of federal railroad subsidies and the Homestead Act may be viewed as two different subsidies, each regarded by Congress as in the national interest, designed to spur the growth of population and economic activity along the routes of the subsidized railroads as well as to encourage the attachment of outlying areas to the remainder of the country.

Merchant marines can now receive both construction and operating subsidies whereas even Penn Central is living more or less from hand-to-mouth on what might be called only a bare survival subsidy.

At first sight, the maritime program appears to be the practical opposite of our nineteenth-century railroad program, which tied the West Coast to the rest of the United States. In the process, it created both employment and outlets for capital equipment, which were exceptional by the standards of the day. The merchant marine programs, on the other hand, employ remarkably few people per dollar of government

expenditure and are scarcely fundamental to the success of the capital-equipment industries of the United States.

So how can we explain the mutation from a railroad subsidy program, more than a hundred years ago, which had several genuinely national attributes, to a merchant marine program that looks like an extension of rivers and harbors bills? The probable answer is that we cannot, completely, in terms either of economics or of current politics. The political largesse distributed by the maritime unions has been well-publicized. But it is nevertheless true that the average member of Congress either comes from some inland district or at least represents a seacoast area not blessed with major ports. Even New York City, possibly the world's outstanding example of a city whose whole configuration is adapted to seaborne commerce, is turning its back on maritime pursuits in terms of both geography and employment.

Therefore, the answer must be sought partly in history and partly in sociology. Ports die hard. They reflect a political afterglow even after they become moribund economically. And everyone having to do with ports, from directors of port authorities to mayors of cities, has had practice in finding the way to the pork barrel. Moreover, although there is no logical connection between American ports and an American merchant marine, these separate structures may be entered through the same lobby. Economically speaking, port authorities should regard all flags as flags of convenience. But, in terms of politics, there are necessary relationships between ports and seafaring and the construction of merchant vessels. Historically speaking, the maritime subsidy lobby has had ample time to integrate its various components and to associate them with some of our major cities, some of our most populous states, and some of our most single-minded Congressional committees.

The second part of the answer, which doubtless conveys a significant lesson for urban transportation, lies in the realm of popular sociology. Theodore Roosevelt revealed his most consummate showmanship in connection with two maritime ventures: the Panama Canal and the Great White Fleet. A strong merchant marine is associated—in the popular mind if not in practice—with a strong navy, and a shipbuilding industry provides naval support in fact as well as fancy. Navies may be obsolete, but the glamour of the sea most certainly is not. Buses have little glamor, and urban buses have even less. In terms of their total environment, most American subways probably have least of all. Nor is sheer glamor the only element in creating a psychological difference. A specific level of New York subway fares may be more important to the defense of the United States than a new merchant vessel, but this remains to be established. No one has even tried.

The idea of government subsidy for transportation purposes did not simply move from the land to the sea over a long period of time. It also took to the air. The idea of national defense, or at least of national interest, has been an important feature of our commercial air policy almost from the beginning. The modern variant of the old air mail subsidy, in the form of CAB payments to local-service airlines, is scarcely more than the tip of the iceberg. Far more government dollars every year are spent on behalf of general aviation; but, because these dollars take the form either of not levying certain taxes that could be levied or of not rigorously attempting to allocate federal airway and airport assistance by type of aviation benefited, the word subsidy is harder to interpret for air modes than for land and sea modes. Whatever the interpretation and however large the dollar amount charged against it, general aviation is heavily subsidized at the federal and sometimes at the state and local levels, and the explanation for federal subsidy is specifically national defense or, more generally, national interest.

It is not surprising that a program of federal expenditure is justified in terms of national advantage. Try to justify any kind of government spending on grounds of national disadvantage. But, in all the cases cited, the vague idea of national advantage has served as a background for the development of more specific cases based on development arguments. When the development argument had to be applied not to a thriving infant but to a moribund relic, as was the case with the merchant marine, then the economic aspects of manifest destiny were played down in favor of the political and even the military aspects. No one has ever expected an American merchant marine to

have very profound effects on the growth rate of the gross national product. But many individuals, in politics and out, have responded to the idea of showing the flag.

It should be clear by now that the case for federal subsidization of urban transportation is in difficulty on several counts. Given the organization of American society, such a program cannot be national in the sense that all residents of the country may be assumed to have at least some access to the services being subsidized. Nor is there a straightforward case that such subsidization aids economic development. Perhaps most important of all, the psychology of public transportation has not caught the imaginations of the American public as it apparently caught the imaginations of those who were responsible for the subways of Moscow, Mexico City, and Montreal. Even BART, which was originally heralded with enthusiasm, has so far mainly achieved the limited objective of proving that computers and commuters may not mix.

Up to this point, I have presented a number of reasons why urban transportation subsidies should not exist. Yet they do exist, they are growing, and they give every indication of continuing to grow. Even the hesitancy about operating subsidies, rooted in part in those fears with respect to factor payments and factor productivities that have already been discussed, is yielding in the face of prosubsidy pressure. So what can be the purpose of the discussion? Fortunately, a further line of inquiry is yet to be explored.

A new case for federal subsidization can be made strictly in terms of local advantage, but it must be a careful case, and it must not stop at the edge of the metropolitan area. One area that has scarcely been explored by economists, politicians, or engineers is the area of "What if?", which is also the area of the quantum leap and of distinct alternative hypotheses. It begins with a *reductio ad absurdum*. Assume the population of the United States to be spread evenly over the surface of the countryside or at least spread as evenly as climatic conditions permit. Then there would be no need for urban transportation and indeed no possibility of it. Everyone would have to cultivate his or her own garden. On this extreme assumption, it is of course questionable whether all these gardens would even keep those who tilled them alive.

In less metaphorical terms, the concept of nodality is clearly related to any very advanced level of economic well-being or culture (as is evident, indeed, from the very origin of the words civilization and urbanity). If the concept of nodality is related to higher as opposed to lower levels of well-being and civilization, then some particular orderings of nodality must produce economic, if not social, results that are superior to other orderings. A United States organized around 50 state capitals with 1 million population each would relate to economic efficiency as the human eye relates to the eye of a fly. The idea of nodality implies larger nodes and smaller nodes and some recognizable pattern of geographical distribution of both larger and smaller.

Next we might bring in the impact of taxes. In the days of Henry George, the problem looked simple: Assess a single tax on land, and the nodal points with their high real estate values will automatically yield so much more per acre that they may also even yield more per capita. Even now, it is true that the least of all central business district problems is a low taxable value per unit of resident population in the CBD. The problem, however, is increasingly one of an escape of taxable values beyond the confines of central business districts and even central cities, with no comparable escape or even with an accretion of dependent populations whose public services must be derived in the main from urban real estate taxes.

The next familiar step in the argument is that the function of a city is to permit the meeting of minds. Face-to-face, head-to-head, or eyeball-to-eyeball, these confrontations can accomplish more and can do it faster than any combination yet invented by IBM. Minds require very little space. Their owners may luxuriate in expensive offices that bear heavy taxes, but even these investments may be less per worker than those required for the operation of an ordinary machine shop. It is not just the real estate, as such, that generates the income; it is the meeting of minds that might be worth little in solitude but is very productive, and therefore valuable and expensive, in conjunction. So New York and other cities generate heavy flows of income tax—personal and corporate—per capita, per worker, or on any other basis of measurement.

If the United States were simply a collection of city-states, the taxation and expenditure pattern would have to work itself out on a regionalized basis. But, as it happens, the federal government has become the major collector of the most important, and flexible, and in almost every sense progressive of all taxes, those levied on income. If the meeting of man and machine generates property or sales taxes, the meeting of man and man generates income taxes. Therefore, if there are any special productivity advantages in having New York City as a substitute for a vastly extended Central Park, these productivity advantages tend to generate income primarily and property values only secondarily. And, because the fruitfulness of a meeting of minds is a function of the number of minds meeting, there must be a case for at least a few very large population agglomerations. And very large agglomerations of population must rely on urban transportation.

Now we attempt to tie together all the threads of our argument. If having at least some large population centers produces an economy that is more productive than anything envisioned by Thomas Jefferson and if the taxes that represent a partial siphoning-off of this superior productivity are for the most part remitted to the federal government and not to the city or its metropolitan area and if both the maintenance of this national productivity and of this tax flow from city to center depend on a degree of agglomeration that can only be supported by efficient urban transportation and if the tax funds remaining after remittances to the federal government are inadequate to supply all other needed metropolitan services and adequate transportation as well, then there may indeed be an economic as opposed to a political case for federal subsidization of urban transportation.

There are some warnings with respect to this chain of argument. First, it is obviously a chain that cannot simply be presented and then taken for granted once and for all. No one portion of the argument can really be quantified; no one step is logically inevitable; nothing in the entire argument really helps in deciding how much federal aid should be granted to urban transportation or in what form or subject to what stipulations.

Second, this chain of reasoning definitely cannot be used as a defense of or as an excuse for the institutional arrangements now used in connection with several forms of urban public transportation subsidies. For example, the idea of moving commuters by rail retains a psychological magic that is certainly not reflected in the financial results of any rail commuter service. Subsidy per rider is now far higher for rail commuters to the few cities of the United States that still offer that mode than for any other form of public transportation. Yet this heavy outlay has not reversed the decline in rail commutation that began some 50 years ago. Moreover, these riders tend to have above-average incomes and often begin their commuter journeys from residences in areas that are strictly zoned to ensure low residential densities and high minimum values per residence. An exceptional per capita subsidy to this group could still be justified on the basis of the argument presented. But, for residents of states such as Connecticut and New Jersey, who have no income tax, even the basic case would need considerable emendation if it is to satisfy the peculiarities of the New York metropolitan area.

Third, the idea that federal subsidies should be used to maintain the 35-cent subway fare in New York City, for example, is almost unquestionably self-defeating. Maritime subsidies may in fact permit a certain level of wages to be attained and maintained on shipboard, but Congress could never be expected to pass legislation, session after session, specifically designed to produce certain rates of pay. More generally, it is hard to see either an economic or a political future in the proposition that massive federal funds should be applied to aid one specific type of local expense that is incurred on a very large scale in only one city in the country and all this in order to build an artificial island of stationary prices amid the inflationary seas.

Fourth, there is an inherent conflict of interest between the subway cities and the bus cities, as well as between the actual subway cities and the incipient subway cities. The argument for nodality is not necessarily an argument for any given number of very large nodes or for a given number of nodes deserving of subway transportation. Yet, given the vastly higher per capita costs of a subway and the unglamorous character of the urban bus, the danger is that phase 1 will be characterized by a heavy imbalance of

federal funds in the subway direction, followed by phase 2 involving the construction of marginal subways, followed by phase 3 involving much heavier demands from bus only cities for subsidy lest they, too, carry out their threats to go the subway route.

Fifth, as has been pointed out by many different people, federal transportation subsidies extended across the gamut of metropolitan areas would, in the first instance, underwrite the most far-flung patterns of residential, commercial, and industrial uses of space the world has ever seen. In the absence of invasion threats from Canada or Mexico, which would induce us to draw back within the walls, extensive subsidies might achieve not only an antinational but even an antilocal objective. In other words, the antiautomobile argument is not necessarily also protransit.

Sixth, although the meeting of minds hypothesis does not require that every mind be that of a genius nor even that there be any maximum number of auxiliary forces employed per mind, the fact remains that a considerable percentage of the population of American cities is ill-adapted, by intelligence, educational accomplishment, native language, or inclination, for employment in a meeting of minds environment. For this group, when old-line industries leave the center of metropolitan areas, the seeds of long-run tragedy are planted unless more active measures are taken than any so far contemplated. Given the proliferation of industrial parks, which might better be termed industrial parking lots, on the outskirts of every metropolitan area, the contribution of either transportation or subsidies for transportation is not self-evident.

Seventh, the political backing for subsidization has yet to congeal into a solid, dependable, long-run pressure group. At the moment, everybody hates the automobile, apparently including potential buyers of new cars. Many of these automobile haters are in the front ranks of those supporting operating subsidies for transportation. Yet almost none of the automobile haters has, in fact, abandoned his own car; proportionately very few have shifted from car to transit. In the nineteenth century, the railroad lobby was strong and well-organized and had both the means and the environment of public opinion that permitted the priming of the subsidy pump with a certain amount of corruption. In the twentieth century, the forces seeking maritime subsidies are capable of political teamwork worthy of a governmental Super Bowl. The push for subsidization of urban transportation is new and therefore does not have the veteran supporters found in other forms of transportation. But, in the process of organization, the various groups seeking aid for transportation must beware lest they greatly oversell their product or claim that subsidies can accomplish incompatible objectives or mistake passing fads for permanent tendencies. A case can, indeed, be made for urban transportation subsidies. This case may even contain economic allegations that are far from ludicrous even though they may not be subject to rigorous proof. But if this case is to be made, it must be anchored on assumptions more sophisticated than that of the inevitability of the 35-cent New York subway fare.

## THE SUBSIDY ISSUE REDEFINED

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•THE PRECEDING PAPERS are better titled the case against subsidies. The authors are primarily from the university and the consultant communities. Although these authors are highly competent and well versed, they are grounded in theory and have not come to grips with the day-to-day issues that affect people trying to move through our cities. The papers made no mention of the portion of the population that is transit dependent, those people who rely on the existence of a decent transit system at a reasonable cost. The authors may fairly be described as antisubsidy.

The representation needed to provide a more rounded perspective on the issues was not included in the TRB conference session in which the preceding papers were presented. Representatives of neither transit authorities, state or local government, nor the transit dependent were included. Therefore, I feel compelled to present for consideration the other side of the coin. Public transit subsidies are a necessity to the maintenance of the urban organism.

In 1974, public transportation in the United States ran a deficit on the order of \$1.3 billion. Yet, just 12 years ago, public transportation was a money-making proposition. The transformation that occurred has been a stark lesson in reality, but the numbers, in themselves, are insignificant; suffice it to say that the day of the privately owned transit company is over. Many have been merged into public authorities; some are gone. Ridership continues to deteriorate, and costs continue to spiral. The result seems inevitable: higher and higher deficits. But it is not so immutable a cycle as it appears.

The other papers in the Record have taken the present deficit situation and dissected it on a theoretical plane. This approach, although technically sound and interesting, begs the issue; deficits are here to stay if public transportation is to remain a public good. Thus the choice for the present is not whether to subsidize public transportation. More accurately, the choice may be whether to have public transportation at all.

Although this might seem debatable to some, to me the answer is obvious; I take it as a given that the urban system cannot function healthily without public transportation. There are too many people in cities who must use public transportation in their everyday activities. These include the urban poor, the young, the elderly, the physically handicapped, large families, families without cars, and so forth. In inner-city areas especially, where public facilities are not always available, the combination of transit-dependent groups and greater need for transit can be debilitating.

Not only must transit be maintained for these groups, but also it must be maintained at a price they can afford. Thus the subsidy question posed above is moot; we must provide subsidies. The question now becomes how to design a logical subsidy program that will maximize the return on the investment, for the transit subsidy is a critical investment in our collective urban future. It is this issue that most profitably could have been addressed in the previous papers.

The arena in which the subsidy issue is usually discussed is charged with emotion, as well it might be, for much is at stake. Yet a valid perspective is generally lacking. Most urban transportation experts point to the need to reduce automobile use and to get people back on transit. At the same time the use of subsidies is criticized as unsound. Ironically, though, the present modal choice has been shaped by a policy that invested untold billions of dollars in highways and continues to subsidize the motorist at a pace that is difficult to fully comprehend.

In the Washington, D.C., metropolitan area, local government is wary of increasing costs, let alone those that may be called subsidy. Still the city continues, unwittingly, to dole out millions of dollars in direct automobile subsidies. An approximation of the amounts involved may be seen by looking at actual city expenditures directly related to



highways, such as police-related costs, the court system, and the like. In fiscal year 1974 expenditures were \$29 million in excess of automobile-related revenues. This is triple the District's share of the transit subsidy for that time period. And this figure is only for direct dollar expenditures. If indirect costs were compiled, such as the cost of air pollution, noise pollution, and the like, the subsidy would be much higher. If the additional value of federally supplied parking to employees in the central city were included, the subsidy would increase on the order of \$10 million. And, whereas the transit subsidy has only recently emerged, the automobile subsidy has been present for at least 20 years. This has been documented in studies of Milwaukee, San Francisco, Chicago, and other large metropolitan areas.

It is this incredible differential in priorities that has created a road network that is vastly superior to any public transit system operating in the country. There is no way, short of mandatory controls, that the motorist will forsake the privacy and convenience of his or her car for a ramshackle, unreliable bus that takes longer to arrive. If mandatory controls are to be avoided, then, the only alternative is to win the motorist by creating a service that competes with the automobile, that is faster and more reliable, and that is as comfortable, convenient, and enjoyable to use. This is not feasible without massive expenditures equivalent to those that the urban highway and street network has received and continues to attract.

Cities have recognized or are about to recognize that subsidies are required to keep public transit going. The resultant policy has been to provide enough of a subsidy to keep the service going and nothing more. In some cases service is cut back even further. It is this policy that creates the vicious cycle I referred to earlier. If you take two competing concerns—one that is healthy and thriving and the other that is feebly trying to exist—and if you provide funds for them both to maintain their present states of existence, then it goes without saying that the healthy will thrive and the ill will barely survive. We point to the money that has been spent on public transportation and wonder why miracles have not happened, why people have not flocked from their cars to the buses. The answer is just too obvious to see; expenditures on public transit are nothing compared to the investments that the automobile has benefited from and continues to receive. Of course the modal split is not significantly affected.

In Washington, D.C., the Washington Metropolitan Area Transit Authority (WMATA) maintains a service philosophy that has seen regional bus ridership erode by more than 60 percent since the early 1950s. The profit motive that shaped its private predecessors, although officially gone, is still a prevalent factor in decision making. WMATA resists service innovation and clings to methods that have long been outdated. It is on these policies that the fate of the transit systems rests. The cliché that "war is too important to be left in the hands of the generals" holds here; transit is too important, and too fragile, to be left in the hands of the transit operator.

Although I may have overstated the case, the picture is not far from accurate and certainly reflects a widespread condition that precludes the possibility of real change. It will take a new approach to service, one that will begin to develop a modal capability approaching that of the automobile, before significant change occurs.

The previous papers criticized transit proponents who claim that subsidies will cure the existing ills. They cite statistics to prove that this is not the case. However, there is no way to prove or disprove this case because there is no city in the country where the level of transit subsidy has even approached that of the automobile. There are only a few cases where public transit can compete with the automobile in terms of time and convenience; in these cities transit attracts a significant ridership.

In any case, few serious advocates of public transportation will maintain that subsidies in themselves will significantly affect the modal split. It is clear that major changes will not occur so long as measures are only meant to avert disaster. We are reacting to past situations instead of anticipating future situations. This must change; we must develop a total policy program that includes

1. A major improvement in service,
2. A decrease in direct and indirect automobile subsidies,
3. Disincentives that discourage automobile use,

4. A federal and local policy to encourage transit ridership, and
5. Subsidies to keep the cost reasonable.

Measures to date have been half-hearted in most areas. Only a few cities have really committed themselves to change. One of these is Atlanta, where reduced fares and increased service have increased ridership, not drastically but significantly. Some are disappointed in the results; they expected overnight miracles. The commitment must be long term.

Local commitment is not enough. Washington, D.C., which is only feeling the stirrings of local commitment, has seen several of its options effectively eliminated. A variety of actions meant to tax commuters and discourage automobile use have been forbidden, for the time being, by a Congress committed only to itself (commuters, all, who probably rarely see the inside of a bus).

The previous papers dismissed subsidies as being unproductive and rewarding inefficiencies that perpetuate the policies that created them. True, subsidies have had this effect in the past. There is, however, no reason to maintain the subsidy procedures that have done this. There are approaches to the subsidy issue that can, forcefully, be productive. One approach is to provide funds in the form of incentives: to reward increasing ridership, especially of transit-dependent groups, to reward increasing vehicle productivity, and to reward efficient procedures. Sound approaches that have been suggested are still untested.

Nor do subsidies have to be oriented to the transit operator per se. There are resources available for public transportation that are grossly misused. Taxis, for example, represent a vast potential for public transportation. If a service structure that complemented the transit operator were established and incentives (read subsidies) provided to maintain that structure, we would certainly be increasing productivity. Many cities in the world use taxicabs extensively to supplement transit. But in this country most of these applications are illegal, in part because of bus operator pressure to reduce competition. It is time to foster cooperation in this area.

I do not believe that the vicious cycle of deteriorating ridership and escalating costs is immutable. I am, however, pessimistic about breaking this cycle. It has taken many years to reach the point where transit subsidies have become acceptable at the federal level. It might, I fear, take too many more years for this subsidy to become more than an emergency stopgap. Until then the cycle will continue. Only when the subsidy becomes one link in a chain designed to constructively enhance transit, in performance and in image, will the cycle be broken.

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