Allocating Federal Transit Subsidies: A Critical Analysis of Alternatives

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ABSTRACT

The federal transit program needs to be improved to be more efficient and more equitable. Few program objectives have been achieved despite a massive infusion of subsidy funds into the transit industry. The potential effectiveness of various proposed revisions in the federal program is assessed. Alternative revisions include a multimodal transportation block grant, three types of transit block grants, a user-side subsidy fund, a productivity-based bonus fund, and a system of varying federal matching rates for different types of expenditures. Hypothetical alternatives, as well as past and current federal programs, are evaluated on the basis of 10 criteria. Overall, the combination of a multimodal block grant and a user-side subsidy fund is superior to other types of revisions.

Subsidies to the American transit industry increased dramatically during the past decade. The total operating and capital subsidy from all levels of government increased from $518 million in 1970 to $7,812 million in 1980 (1). Despite this massive infusion of funds, vehicle miles of transit service increased by only 11 percent during the decade and ridership increased by only 7 percent (2,pp.55,58). These figures suggest that the direct benefits of subsidies for transit riders have not been commensurate with the size of the subsidy increase. Moreover, most studies indicate that the social and environmental benefits of transit subsidies have also been disappointingly small (3,pp.431-441; 4,pp.37-55; 5).

The apparent ineffectiveness of the subsidy program can be partly explained by rapid cost increases that accompanied subsidy growth. From 1970 to 1980 operating cost per vehicle mile increased from an average of $1.02 to $3.11 (2,pp.47-58). Capital costs per transit vehicle and per mile of rail system construction increased almost four-fold (1).

Compounding the financial problems caused by increasing per-unit costs, transit service improvements have, in some cases, focused on the most expensive types of transit. For example, 69 percent of the cumulative federal capital subsidy from 1965 to 1980 was allocated to rail rapid transit and commuter rail although these rail modes carry only 26 percent of the nation's transit passengers (2,pp.55, 69; 6). Similarly, most transit service expansion--both bus and rail--has been in the suburbs, where transit is the most unprofitable, due to long trip distances and few riders per vehicle (3,pp.277-291; 7). This expansion has occurred at the cost of reduced service in the central city, where short trips predominate and where transit vehicles are more fully occupied, if not actually overcrowded (8).

The design of the transit subsidy program may be the cause of its ineffectiveness. As the overall level of subsidy increased between 1970 and 1980, the federal proportion of financing increased from 26 percent to 53 percent. With the increase of state aid from 12 percent to 17 percent of the total subsidy during this period, the share of the burden borne by local governments decreased from 62 percent to only 30 percent (1).

Currently, less than one-third of the transit subsidy burden is directly relevant to local government officials. Consequently, when weighing the projected costs and benefits of a proposed project, local officials may be tempted to consider only the small local share of costs, and to undertake projects whose benefits fall far short of total costs yet exceed local costs. Indeed, some critics have argued that the generation of local employment alone may provide sufficient incentive for local officials to support expensive capital projects--with 80 percent to 85 percent federal financing and an average of 10 percent state financing (3,pp.7-8,31-49). Similarly, urban areas that receive generous federal operating assistance (40 to 50 percent in many cities) have initiated or maintained highly unprofitable routes and types of service that local officials probably would not have been willing to finance on their own.

It also appears that none of the federal, state, or local subsidy programs has made funding levels sufficiently contingent on cost control, ridership gains, or the achievement of social, environmental, and economic goals. Only a few states tie subsidy payments to performance indicators, and even these states set aside only a small fraction of the state subsidy to reward efficient systems. Until 1983 the federal government took no account of system performance in allocating funds, and even now, less than 10 percent of the federal transit subsidy is distributed on the basis of a performance indicator (9).

The fiscal crisis of mass transit has provoked substantial research on transit finance, including a few studies examining alternative revisions of the federal subsidy program that would encourage greater effectiveness and cost control (10,11). The new federal transportation law, passed by Congress in December 1982, partly reflects the recommendations of these studies, but in most respects it runs directly counter to them (9). Various types of revisions in the federal program would have introduced better incentives for local decision makers. For example, a range of federal matching rates could have been established, with high-priority types of expenditures (such as maintenance) receiving more generous federal assistance than other types of expenditures. Alternatively, the old program could have been replaced entirely by a transit block grant, whose amount would be tied directly to levels of output (vehicle hours or vehicle miles), ridership, or locally raised revenues. A more fundamental revision would have been the adoption of a comprehensive transportation block grant, whose allocation between highways and transit as well as between capital and operating expenses would be at the discretion of local officials. These overall changes could have been supplemented by a bonus fund to reward productivity improvement or a user-side fund to subsidize fares or special services for low-income, elderly, and handicapped riders.

The purpose of this paper is to describe the most promising alternative redesigns of the subsidy program and to evaluate each alternative, as well as the old and current federal programs, on the basis of a comprehensive set of criteria.

CRITERIA

The following criteria, which are the key to choosing among the alternatives, were developed:

1. Productivity and cost control.
2. Service level and distribution.
3. Fare policy.
4. Ridership levels.
5. Distribution of funds among cities, states, and regions.
6. Impact on poor, minorities, elderly, and handicapped.
7. Flexibility in changing circumstances.
8. Correspondence with transportation needs of each city.
9. Independence in local decision making.
10. Administrative costs.

Clearly, the selection of evaluative criteria is a subjective matter. Although few would doubt the appropriateness of considering the foregoing criteria, there is certainly room for disagreement on their relative importance. Some observers, for example, may support a program that encourages a high proportion of operating costs to be covered by passenger fares. Others may favor just the opposite. Similarly, independence in local decision making may be an advantage for some, whereas others may prefer a high degree of federal control.

All of the criteria relate to the effectiveness of the transit program in a broad sense--namely, to maximize the benefits of transit for any given amount of subsidy. This goal is perhaps clearest in the first criterion, which considers the extent to which different subsidy designs encourage productivity improvement, reductions in the growth of per-unit costs, moderate wage settlements, and the elimination of highly unprofitable and underused types of services. This first criterion overlaps the second, which examines the impact of alternative subsidy designs both on overall service levels in each city and on the distribution of services by type of service, by time of day, and by portion of the urban area. Together the impacts on service and fares (the third criterion) largely determine the impact on ridership (the fourth criterion). This latter impact is especially important, because the direct benefits of transit for riders as well as the indirect social and environmental benefits of transit are mainly a function of--and reflected by--ridership levels.

The fifth and sixth criteria both deal with equity; that is, equity among geographic areas as well as among individuals. More than almost any other federal program, transit subsidies have been attacked because most of the funds have been concentrated in only a few states, or in only a few cities. This has been an important factor in congressional deliberations, and it has a significant effect on the political feasibility of any transit subsidy program. An equally important equity issue involves how each alternative subsidy program would affect disadvantaged groups. Will the poor, for example, face disproportionately large fare hikes and service cutbacks, or are they likely to benefit from the new incentives introduced by each alternative program?

The last four criteria deal with a range of practical considerations. Ideally, a subsidy program should be adaptable to changing circumstances. As populations change, as travel patterns shift, as government budgets vary from year to year, a subsidy program should be flexible enough to deal with changing transportation needs while responding to the changing availability of government funds. Moreover, a program should be sensitive to the different transportation needs of different areas. In one city, there may be a pressing need for transit improvements, whereas in another, highway expenditures may merit top priority. Similarly, there may be a need for operating funds in one city, whereas capital funds for infrastructure improvement may be required in another.

It is probably desirable that a program encompass different needs and priorities. The eighth criterion overlaps the ninth--the degree of independence in local decision making. It is debatable whether local officials are more likely to make wise decisions than federal officials. Some observers might argue that if the federal government finances most of the subsidy, it ought to determine the objectives that are to be pursued and strongly influence how funds are spent. Others would argue that federal officials are too fare removed from the actual situation in each city to understand what is really needed, or what is feasible. Finally, the administrative costs of each alternative must be taken into account.

Together, these 10 criteria form the basis for a comprehensive evaluation of alternative redesigns of the federal subsidy program and of the actual programs that have been in effect. It is possible to imagine additional considerations, but the chosen criteria probably include the most important factors.

Of course, it cannot be expected that a proposed alternative should satisfy all the criteria. Indeed, to some extent, there are conflicts among the criteria. For example, maximizing the nation's transit ridership could probably be achieved most effectively by concentrating subsidy funds in high-density, transit-oriented areas where additional service is likely to be more intensively used than it would be in low-density, automobile-oriented areas. This concentration of funds--and of additional service--in areas that already have the most transit service would leave automobile-oriented areas with even less transit than exists currently. Although it would maximize transit riderships nationwide (for any given amount of subsidy), such a strategy may increase inequities in the distribution of subsidy funds and service among geographic regions, and may further reduce the mobility of the carless disadvantaged living in low-density areas. Thus, there are inevitably trade-offs among some of the criteria.

The analysis that follows is primarily qualitative and conjectural in nature. Because there is little actual experience with the alternative programs--either in the United States or abroad--it is impossible to predict with certainty exactly how each alternative would perform on each criterion. In most cases, however, it is possible to assess the nature or direction of each type of impact on the basis of the incentives and distribution formulas inherent in each alternative. Even such a limited analysis highlights the relative advantages and disadvantages of alternative subsidy programs.

Before evaluating hypothetical alternatives to the old federal subsidy program, it is appropriate to assess this program according to the same criteria that will be used to evaluate various revisions that were considered as well as the new federal program that actually resulted.

EVALUATION OF THE OLD FEDERAL PROGRAM

The most significant aspects of the old federal transit program were its categorical nature, the degree of federal oversight, and the way funds were distributed among urban areas. [For a detailed discussion of the program and its evolution, see Meyer and Gomez-Ibanez (4,pp.37-55; 10; 12; 13).] The program was categorical in that most available funds were restricted in use, and depending on use and source different federal matching rates applied. For example, the so-called Section 3 funds, which in 1980 accounted for $1.7 billion of the total $4.1 billion federal subsidy, could only be used for capital projects approved by the Secretary of the U.S. Department of Transportation on a case-by-case basis. The federal matching rate for Section 3 capital grants was 80 percent, and there was no statutory limit on the amount each urban area could receive.

In contrast, most Section 5 funds ($1.6 billion in 1980) could be used for either capital or operating expenses, but a higher federal match was provided if capital expenditures were chosen (80 percent versus a maximum of 50 percent for operating expenses). A special category of Section 5 funds could only be used for bus replacement (about $0.4 billion of the $1.6 billion total). The maximum Section 5 funding for each urban area was determined by a formula based primarily on population and population density. Also, no state's portion of a single metropolitan area could receive more than 30 percent of the nation's total Section 5 funds. The result of these stipulations was that the federal government financed the maximum 50 percent of transit operating subsidies in most low-density, automobile-oriented cities but substantially less than 50 percent in high-density, transit-oriented cities (e.g., 22 percent in New York) (14).

There were two additional sources of capital subsidies. In 1980 $26 million in federal transit aid was provided through the Urban Systems program, which allowed state and local officials to choose between capital expenditures for highways or transit. The federal matching rate, however, was less than for Section 3 or Section 5 funds (70 percent versus 80 percent). Moreover, the total amount of available federal funding was much less. Finally, Interstate transfer funds provide an 85 percent federal match for transit capital projects built in lieu of formerly approved links in the Interstate highway network that have been deemed unnecessary by state and local officials. Interstate transfer grants--which must be approved by the Secretary of Transportation on a case-by-case basis--amounted to $675 million in 1980.

In short, the old federal transit program, under the 1978 Surface Transportation Act, comprised a variety of grant provisions, with a range of matching rates, approved uses, application procedures, distribution methods, and degrees of federal oversight. Overall, there was a strong bias toward capital subsidies. Not only did they entail higher federal matching rates, but the total amount of federal funds that could be used for capital expenditures was much larger than the amount that could be used for operating expenses. Almost 60 percent of program funds were distributed at the discretion of federal officials, who therefore had considerable influence in determining which transit projects were undertaken. Finally, all federal funds were stipulated in compliance with numerous regulations--including labor rules, accessibility requirements (for the elderly and handicapped), environmental standards, social impact assessments (especially for minorities), guarantees of citizen participation, and requirements to purchase American-built equipment.

There were a number of ways in which the old federal program may have encouraged inefficiencies. First, it provided no incentives for cost control. Indeed, the higher the costs, the larger the federal subsidy received--both for operating and capital subsidies. Subsidy amounts were not tied to levels of service or ridership. In addition, the especially high capital matching rate created a bias toward expensive capital investment. As indicated by Tye (15) and Hilton (5), this led to inadequate maintenance of existing infrastructure and equipment. Moreover, there was an incentive to spend the maximum possible federal funding, regardless of the intrinsic desirability of the actual projects undertaken. Favorable employment impacts alone were generally sufficient to offset the small proportion of capital costs (10 percent or less) borne by local governments.

Inefficiencies were not limited to the capital subsidy program. It appears likely that operating subsidies might have encouraged excessive increases in wages and fringe benefits, declining labor productivity, unwarranted service expansion, and the maintenance of highly unprofitable and underused types of service. In an econometric analysis of the finances and operations of 77 U.S. transit systems in 1979 and 135 systems in 1980, Pucher et al. (16) found that for every additional dollar of federal operating subsidy, operating costs per bus hour increased by 62 cents. Thus, cost increases associated with federal subsidies consumed almost two-thirds of the subsidy--controlling, of course, for other factors affecting costs.

It does not appear that federal subsidies had favorable impacts on service levels, fares, or ridership. The results of the rail-oriented and suburban-focused service improvements of the 1970s suggest that service increased most where it was least used and most unprofitable (8,17,18). In this respect, federal subsidies were not targeted where they would have been most effective. Moreover, the overall amount of transit service (vehicle miles) increased by only 11 percent from 1970 to 1980. During the same period, transit fares in the United States increased at a rate slower than inflation so that by 1980, the average transit fare (in constant dollars) was 28 percent less than in 1970. This fare reduction, together with slight service expansion, was probably responsible for the 7 percent ridership growth during the 1970s, a sharp contrast to the 57 percent ridership loss from 1950 to 1970 (2, pp.55,58,60). These trends suggest that burgeoning federal subsidies at least helped to curtail the long-term decline in transit use. Ridership would have grown more, however, if subsidies had not encouraged cost inflation and if new services had been instituted where they would have been better used.

How equitable was the old federal program? In terms of its geographic distribution, federal funding was concentrated in a few areas. For example, the 10 largest urban areas received 65 percent of the nation's cumulative federal capital subsidy ($18.1 billion) from 1965 to 1981 (6). The same 10 urban areas received 53 percent of total federal operating assistance (14,19). Some degree of geographic concentration, of course, is virtually inevitable for any program whose funds are restricted to transit use.

The inequities that arose from the effects of the old program on disadvantaged users appear far less defensible. As indicated by Pucher (20), those types of transit services most relied on by the poor were subsidized far less than transit services used mainly by the affluent. Inequities in capital subsidies were particularly the responsibility of the federal government, as capital-intensive rail modes patronized by affluent riders were heavily favored. Moreover, the expansion of bus services in the suburbs at the expense of service reductions in the central city harmed the poor and minorities disproportionately. Although federal policies did not explicitly encourage such service shifts, neither did they protect the interests of the disadvantaged.

The old federal program offered limited flexibility to respond to changing circumstances over time. The capital program, for example, required the Secretary of Transportation to make case-by-case judgments about the appropriateness of proposed capital projects. Ideally, a transit system's grant applications as well as the Secretary's decisions should have reflected changing transit needs in each urban area, but in practice, it appears that political considerations and the overriding desire to maximize federal funding were more important in determining the distribution of grants. Moreover, such long delays arose from the grant approval process and project construction that capital subsidy responses to changing needs were quite slow (21). The operating subsidy program was even less flexible, with funds allocated on the basis of population and population density as of the latest decennial census.

Similarly, the old program appeared to be insensitive to the different transportation needs of different urban areas. Most important, no transit grants could be used for highways, and almost no federal highway funds could be used for transit. Only the small Urban Systems program permitted a choice be- tween highway and transit expenditures. The Inter- state transfer program has offered the possibility of converting highway grants to transit grants, but approval is by no means automatic; the consent of the Secretary of Transportation is required as well as special congressional appropriations from general revenues (not the Highway Trust Fund). As discussed earlier, flexibility in the use of funds between operating and capital needs was also limited; only about one-fourth of total federal funds were permitted (Section 5, excluding bus replacement funds).

The transit program also interfered with local decision making. Not only did differential federal matching rates appear to bias decisions, but discretionary programs (such as Section 3 and Interstate transfers) required project-by-project approval from UMTA. Moreover, all federal grants required compliance with an extensive set of regulations that influenced virtually every aspect of their use as well as the cost of the services or facilities financed.

In addition, the old program was time-consuming and expensive to administer. Approval of federal transit grants was slow and cumbersome (22). A large federal staff was needed to screen applications, to evaluate proposals, to monitor ongoing projects, and to ensure compliance with federal regulations. Witnesses at congressional hearings on the transit program agreed that adequate federal oversight was almost impossible (22). Not only were there too few UMTA staff available for this purpose, but the necessary judgments were often subjective and difficult to make. The old program also required large staffs at the state and local level to apply for federal grants and to facilitate compliance with federal regulations in ongoing projects. In all respects, the administration costs of the old system were high.

EVALUATION OF HYPOTHETICAL ALTERNATIVES TO THE OLD FEDERAL PROGRAM

The shortcomings detected in the preceding analysis suggest that the old federal transit program needed to be improved along a number of dimensions. A wide variety of alternatives were considered before the enactment of the 1982 federal transportation act. Several of the proposed revisions in the program would have better satisfied at least some of the criteria. In the following section the advantages and disadvantages of the most promising alternatives that were proposed are evaluated.

Minor Variation on the Old Federal Program

One of the revisions proposed would have entailed relatively minor revisions in the structure of the current program. For example, the old system of matching rates could have been altered to encourage those types of expenditures deemed to be most needed and to discourage those types of projects with low federal priority. There appears to be a consensus that precedence should be given to expenditures for maintenance of existing infrastructure and equipment and for minor capital improvements that increase the efficiency of transit operations (11,22). Such projects would receive the maximum federal match--perhaps 80 percent or even 90 percent. Large-scale capital projects as well as nonmaintenance operating expenses, in contrast, would be funded at much less generous federal matching rates--possibly as low as 20 percent or 30 percent. Such a large rate differential would probably introduce the desired bias in local decision making.

By its design, such a subsidy allocation procedure would focus funds on maintenance and improvements for existing systems, where funding is most needed and where it would probably produce the greatest benefit per dollar spent. Moreover, the low matching rate for large-scale capital projects and operating expenses would discourage elaborate and expensive new rail systems in low-density cities. It would also remove some of the inflationary impact of federal subsidies on transit wages.

With likely reductions in the overall operating subsidy resulting from the lower federal match, fares would increase. It is unclear how the total amount of service would change, but the quality of service would probably increase (fewer breakdowns, cleaner vehicles and stations, etc.), and the distribution of services would probably improve as funds shift to more intensively used, existing systems. Of course, the extent of fare and service changes would depend on the total level of federal funding.

In terms of equity impacts, subsidy funds would be more geographically concentrated under the structure of the current program than under the old federal program--due to the reduced operating subsidy. The impact on disadvantaged users would depend on the specific types of service and fare changes made by local transit operators, and these are difficult to predict. Nevertheless, a reduction in the federal matching rate for large new rail systems would reduce benefits to the relatively affluent riders who patronize such systems. Thus, low-income groups would reap a larger proportion of the total subsidy.

Although the differential matching rate program would permit some flexibility in the use of funds, it obviously interferes with local preferences by funding less-favored categories of expenditures at less-generous matching rates. Thus it assumes that priorities are more appropriately set at the federal level. The main administrative difficulty would be the uniform accounting for different categories of expenses, especially the identification and measurement of maintenance expenditures. Moreover, the distinction between major and minor capital projects may be debatable--as would be the issue of whether a project was aimed at improving the efficiency of an existing system. These problems do not appear insurmountable, but dealing with them would require considerable effort at both the federal and local levels to ensure uniform accounting procedures and to monitor whatever projects are undertaken. The problem of case-by-case federal approvals for capital projects would remain.

Transit Block Grants

The conversion of the current set of federal transit programs into a unified transit block grant would entail significantly greater structural change than would the revision discussed earlier. Perhaps most significantly, a true block grant would completely eliminate federal interference in choices among types of expenditure as well as in specific project selection. The main choice to make in establishing a block grant is how to allocate funds among cities. Three formulas for subsidy distribution appear to have the most potential: federal subsidies proportional to ridership levels, proportional to vehicle miles (or hours) of service, or proportional to state and local subsidies and fare revenues.

Ridership Block Grant

By tying subsidy levels directly to ridership, the federal program would provide strong incentives for local officials to use subsidies in ways that maximize ridership per dollar spent. Thus, many underused and unprofitable services would be cut. Within each city as well as among cities, funding would shift toward the most intensively patronized services. There would also be an incentive to keep fares low to increase ridership and thereby increase the federal subsidy. Indeed, there can be little doubt that this type of block grant would maximize the nation's transit ridership for any given amount of federal subsidy.

Because those types of services most used by the poor require the least subsidy per passenger (20), a ridership-based block grant might encourage increased services for disadvantaged central city residents. Conversely, because demand elasticity is inversely correlated with income, there may be a countervailing incentive to minimize fare reductions and service increases for services relied on by the poor. The net outcome is not obvious, but the former, more favorable equity impact would probably predominate; differences in unprofitability among types of services are much larger than elasticity differences among income groups (20,23).

Geographic concentration of funding under a ridership block grant would be slightly more than under the old federal program (62 percent versus 60 percent of total federal funds allocated to the 10 largest urban areas) (2,6,11,14). Ridership-based funding would be more concentrated because of higher load factors in large cities. Nevertheless, a ridership-based block grant may appear more equitable than the old system because it would provide equal federal subsidies per rider for all cities. As with any transit program, of course, per-capita subsidies would be much larger in large, transit-oriented cities.

A ridership block grant would provide flexibility in the use of federal subsidies, and it would automatically provide additional funding to those cities experiencing an increased need for transit service--insofar as this is expressed by ridership growth. It might not be well-suited, however, to finance large capital projects or any type of service expansion aimed at inducing future ridership growth. Moreover, cities losing ridership--for whatever reason--would receive less funding, which would force service cutbacks and fare increases, which would further reduce federal funding, and so forth, in a vicious cycle. This may be an efficient solution to the problem of serving a changing regional distribution of transit riders in the country, but it would certainly compound the hardships of declining cities.

Another problem with a ridership block grant is the incomparability of ridership statistics, their questionable reliability, and the potential for deliberately overestimating ridership to maximize federal funding. Incomparability arises from different trip lengths, different transfer policies, and different ways of estimating free riders and trips made by monthly pass holders. Inaccuracy arises from the estimation of ridership from revenue figures (on many systems) instead of actual passenger counts. These two problems create the possibility of exaggerating ridership figures, and the subsidy program itself would provide a strong incentive to do so. Similarly, different trip lengths and transfer policies on different transit modes would also be a source of difficulty in administering a ridership block grant.

Service-Based Block Grant

Problems of administration and data validation would be greatly reduced if the transit block grant were distributed in proportion to vehicle miles or vehicle hours of service. Although it would probably be necessary to adjust the allocation formula to handle different vehicle sizes and types, there would certainly be less potential for inaccurate estimates of the necessary data for each city.

This variation on the transit block grant is not without its shortcomings. For example, it would not provide a strong incentive to eliminate underused services. It would not reward systems that achieve high ridership, and it would not penalize systems that run empty buses. Moreover, the problem of interregional inequity in the federal transit program would persist.

It is significant, however, that geographic concentration would be considerably less than with a ridership block grant. Indeed, if vehicle miles (instead of hours) were used in the distribution formula, only 50 percent of the total federal subsidy would be allocated to the 10 largest urban areas, compared to 62 percent under a ridership block grant and 60 percent under the old federal program. Small and low-density cities would be favored because bus speeds in such cities are much higher than in large, dense cities (14). In addition, per-hour and especially per-mile costs are much higher in larger cities (14). Because equal federal subsidies would be provided for each equivalent vehicle hour or mile, federal subsidies under such a block grant would cover a much higher percentage of costs in lower-density cities. Of all the alternatives examined so far, this type of grant would create the least interregional inequity.

What would its impact be on overall service levels, fares, and ridership? By its design, such a block grant would strongly encourage service expansion, regardless of whether or not additional service is well used. Although it would provide no incentive to eliminate underused service, it would discourage the provision of high-cost service because all services would be subsidized at the same per-hour or per-mile rate. Thus, it might lead to a shift of services from peak hours to off-peak hours, when per-hour and per-mile costs are much lower (24). A vehicle-mile based formula would certainly favor a shift of services to low-density suburban areas with less congestion or to increased express routes. By contrast, a vehicle-hour based formula would avoid this bias in local route planning.

A service-based block grant might actually reduce overall ridership levels. It would probably encourage fare increases, because the same federal subsidy would be received regardless of ridership, and the necessary state and local subsidy would be reduced by increasing fare revenues. In addition, although the total amount of the nation's transit service would increase, it would increase the least (or actually decrease) where ridership per vehicle is currently the heaviest, because cost per mile and per hour are generally highest for such services. To the extent that this type of block grant encourages shifts to express routes and suburban services, poor and minority riders would be harmed. This adverse impact would be mitigated, if services also shift from peak to off-peak hours, when transit use among the disadvantaged is greatest (25).

A service-based block grant would be equally as flexible as a ridership block grant by permitting choices among types of expenditures, and it would provide local decision makers considerable independence. Moreover, a service-based block grant would be more responsive to changes in travel patterns over time. Local officials would immediately receive federal funds as new services are added; it would not be necessary to wait until sufficient ridership is generated. Large new capital projects, of course, would be difficult to incorporate in any type of formula-based grant.

Revenue-Based Block Grant

The problem of large capital projects also arises for the third variant of the transit block grant, which would allocate funds in proportion to state and local subsidies plus fare revenues. This alternative is of particular interest because it was recommended by a congressional transportation subcommittee in 1982 (11). One reason the congressional subcommittee backed this formulation was the hope that it would encourage cost control. It is not clear that such an objective would be achieved. Matching state and local subsidies plus fares would be equivalent to federal funding of a fixed percentage of total costs. Therefore, the higher a system's costs, the higher its federal subsidy. Of course, the higher state and local subsidy burden needed to finance the higher costs might tend to discourage cost escalation, as would increased fare burdens.

Similarly, it is not certain what impact such a block grant would have on service levels. It does not appear to introduce any strong incentives either to change overall service levels or to shift services among modes, routes, or times of day. It would probably encourage fare increases because fare revenues would be matched by federal subsidy, unlike the current arrangement. Ridership losses would be avoided only if the matching structure so increased total funds devoted to transit (all subsidies plus fare revenues) that substantially more service could be financed, or if the new distribution of services corresponded better to the distribution of potential riders.

The latter scenario appears more likely. According to congressional estimates, a transit block grant distributed in proportion to non-federal subsidies and fare revenues would produce the greatest geographic concentration of federal funds--with 66 percent allocated to the 10 largest urban areas (11). Because transit service in these cities is better used than elsewhere, a shift of funds would permit service expansion and ridership gains per dollar of federal subsidy, although not as much as a ridership block grant would encourage. This geographic concentration of funding limits the political feasibility of such a grant. Indeed, the congressional subcommittee recommendation failed to win approval from the full transportation committee, and was not considered by the Congress as a whole.

Another equity problem with the revenue-based block grant is its likely adverse impact on low-income and minority riders. Increased reliance on fares for transit finance would cause greater hardships for low-income riders (20). Moreover, shifts of federal funds from smaller cities would also be to their disadvantage because low-income riders constitute a much higher proportion of total transit riders in smaller cities than in large cities (25).

Perhaps the greatest advantage of this third variant is its low administration costs. It would be easy to determine the total state and local subsidy and fare revenue for each city, and the potential for inaccurate data or distorted accounting would be slight.

Transportation Block Grant

The most dramatic departure from the old federal transit program would have been a transportation block grant, which could be used for either highway or transit--for either capital or operating expenses. It would generate the least federal interference with local priorities. Virtually no federal biases would be introduced by such a grant--on the assumption that state and local officials know what is best for their own areas and that they are in a better position to monitor expenditures to ensure effective use of subsidy funds.

A transportation block grant would allow transit-oriented cities to devote more money to desperately needed transit improvements instead of wasting categorical federal highway funds on expensive highway projects of questionable value, simply because the federal funding for highways is available. Transit services would be increased in areas where they are most beneficial, and they would be contracted elsewhere. For example, transit may not be an effective option in fast-growing, low-density areas where highway improvements may merit top priority. A transportation block grant would not force such communities to spend money on underused transit services. In this regard, a block grant would permit a more rational allocation of total transportation resources.

Although cost control and productivity improvement within each expenditure category would become the sole responsibility of state and local officials, the structure of the federal grant would encourage increased concern for these goals. Unlike the current situation, a dollar of federal aid wasted in transit projects would be a dollar less for local officials to spend on highway projects. Similarly, a dollar of federal aid wasted in capital spending would be one dollar less for operating expenditures. Thus, the relevant opportunity costs of federal funds for local decision makers would be considerably increased.

Efficiency would be further enhanced in an even broader sense. If the transportation block grant was distributed to areas on an equal per-capita basis, it would reward areas that manage to economize on travel and would penalize areas with extensive travel per capita. Over the long run, this might discourage suburban sprawl and encourage clustered development. Finally, such a multimodal fund would probably enhance efficiency by facilitating an integrated, multimodal approach to transportation planning. Indeed, federal officials might require each urban area to develop comprehensive transportation plans as a prerequisite to federal funding. Provided that specific project approval is not required, this would be a minor federal interference.

Effects of a transportation block grant on transit service levels, fares, and ridership would vary widely from one city to another. In cities choosing to devote a higher percentage of federal funding to transit, service would probably increase, fares would decrease (or increase less), and ridership would increase. The reverse would occur in cities deciding to shift toward greater highway emphasis. Overall, it appears likely that transit-oriented cities would become more transit-oriented, and that automobile-oriented cities would become more automobile-oriented.

The equity impacts of a transportation block grant in the United States are debatable. It would aid low-income transit riders in large cities, but it would disproportionately harm them in smaller cities, where they account for most ridership (25). Indeed, in small cities, the poor might be left without any transit at all. The interregional distribution of funds would be equitable in that per-capita subsidies would be exactly equal. Some might argue, however, that larger subsidies should be given to areas where transportation needs are greater, and that in the short-run, equal per-capita subsidies would put such areas at an unfair disadvantage.

In spite of these possible difficulties, a unified transportation block grant has considerable appeal. It would overcome the problem of channeling transit funds where they are most needed while not concentrating the funds in so few areas that congressional support cannot be obtained. The balancing off of transit funds with highway funds would reduce interregional inequities and would enhance the political feasibility of a transportation block grant.

In addition to the three major categories of program revisions analyzed previously, two supplemental grant programs might be useful as adjuncts to any of the alternatives. These adjuncts include a special bonus fund for productivity improvement and cost control and a supplemental, user-side subsidy fund for the disadvantaged.

Bonus Fund for Productivity and Cost Control

Under a special bonus fund for productivity it would be possible to set aside some small percentage of total federal funds (perhaps 10 percent) to reward those cities that achieve improvements in productivity, cost control, or some other appropriate indicator of performance. For example, average values of each indicator (or changes in each indicator) could be calculated for the country as a whole. Systems performing better than average on a particular indicator would receive a bonus, and the more indicators according to which a system was successful, the more bonus funding the system would receive. Alternatively, the critical performance measures might be specified as percentage increases or decreases. An incentive fund could probably be established for highway expenditures as well, although the specific indicators would obviously be different.

Assuming that the transit performance indicators would at least include slow growth in cost per service hour (efficiency) and increases in riders per service hour (effectiveness), a bonus fund would encourage transit systems to improve their performance in both dimensions. Service levels would probably decrease because there would be an incentive to eliminate the most expensive services as well as the services that are used the least. The overall ridership losses caused by such cutbacks would be offset by fare reductions (to increase riders per hour) and by the more effective allocation of services by route and time of day.

Equity impacts of a bonus fund would be mixed. It would probably benefit low-income riders in the central city, where vehicle occupancies are the highest, and where services would tend to shift to increase systemwide occupancy rates. Similarly, the poor would benefit from fare reductions.

Interregional equity would be low. Inevitably, cities would be treated differently: inefficient systems would be penalized, and efficient systems would be rewarded. Thus, it might conceivably lead to a more unequal distribution of funds. Moreover, if rewards are based only on changes in performance, systems that are already efficient might find it difficult to improve enough to earn a bonus. Conversely, if rewards are based on absolute levels of performance, they might represent windfall gains for already efficient systems and thus create little incentive for such systems to improve. Finally performance indicators might be significantly affected by factors (such as population change, topography, and urban structure) over which transit systems have little if any control. It might appear unfair to penalize systems for the adverse impacts of these factors.

Another problem with the bonus fund would be its administrative cost. Depending on the specific performance measures chosen, it would require considerable expense and effort to monitor operations and to ensure accurate and comparable reporting of the necessary data.

User-Side Fund for the Disadvantaged

A special user-side subsidy fund for the disadvantaged might serve as an appropriate adjunct to any general subsidy program. There are many different ways in which such a user-side subsidy could be designed. The comprehensiveness of the subsidized group is also subject to debate. Ideally, it would include low-income persons as well as the elderly and the handicapped. Eligible persons might receive transportation vouchers that could be spent for transit, van service, taxis, or other transportation services deemed appropriate. Of course, it would be possible to restrict the program to transit, but this would greatly reduce the benefits of the user-side subsidy. Many elderly and handicapped individuals are simply unable to use conventional transit. Moreover, in small cities especially, taxis represent a far more available and convenient mode of travel.

Economists and transportation analysts are virtually unanimous in their support for user-side subsidies to help the disadvantaged (3,pp.312-313; 4, pp.250-253; 26;27). Similarly, there is widespread agreement that redistributive objectives should primarily be the responsibility of the federal government (28). Thus, it appears appropriate for such a subsidy fund to be coordinated and financed at the federal level.

A user-side subsidy fund would be cost-effective in two respects. First, it is unquestionably the most effective way to target subsidies to the disadvantaged. Second, it would facilitate efficiency of conventional transit operations by freeing transit managers from concern about adverse equity consequences of productivity measures. For example, it would reduce the need for expensive modifications to existing transit systems to make them accessible to the elderly and the handicapped. Likewise, it would permit fare and service policy decisions to focus exclusively on improvement of efficiency.

In addition to the favorable equity impact such a user-side subsidy would have for disadvantaged groups, it would also enhance reductions in interregional inequities in the distribution of federal funds. The percentage of transit riders with low incomes is more than twice as large in small cities as in large cities (25). Thus, a user-side subsidy aimed at the poor would benefit a much higher percentage of transit riders in smaller cities. This would reduce the overall concentration of federal transit subsidies in the 10 largest urban areas. Because median incomes are considerably lower in smaller cities at any rate, even a multipurpose transportation voucher program would have a deconcentration effect.

There are other advantages of a user-side subsidy. By its design, it would correspond exactly with the needs of each city for special subsidies for the disadvantaged, both in the level of funds and in the use of those funds. Moreover, funding levels would automatically adjust over time to changing needs as population characteristics change.

The main drawback of a user-side subsidy program is administrative cost, including possible difficulties in ensuring eligibility and preventing fraudulent use of vouchers or discount transit passes. A number of demonstration programs sponsored by UMTA suggests that these potential problems can be successfully handled (26), but doing so would require increased staffing at both the federal and local levels. Critics might also complain that a user-side subsidy program would interfere with local prerogatives in deciding which type of traveler to subsidize. This appears to be a dubious objection, however, especially if federal funding were 100 percent. As discussed earlier, moreover, a user-side fund would facilitate reduced federal interference in other aspects of transportation policy.

EVALUATION OF THE NEW FEDERAL PROGRAM

In the last hours of the lame-duck session of the 97th Congress (December 1982), a new federal transportation law was finally passed: the Surface Transportation Assistance Act of 1982 (P.L. 97-424) (9). It contains modifications to the 1978 legislation that significantly change the procedure for allocating federal transit subsidies. A larger percentage of the subsidy total is now allocated by formula (63 percent versus 40 percent under the 1978 act), and the allocation formula itself has been altered. Whereas the bulk of formula funds were allocated according to population and population density under the old Section 5 formula, the new Section 9a and Section 9 formulas allocate funds primarily according to the amount of transit service supplied in each urban area (vehicle miles and route miles).

For example, 57.37 percent of the total rail transit subsidy is to be distributed in proportion to each area's vehicle miles of commuter rail and rail rapid transit service; 38.24 percent will be distributed in proportion to rail route miles; and 4.39 percent will be distributed in proportion to rail passenger miles multiplied by the ratio of passenger miles to operating cost in each area (9). Federal subsidies for bus transit in cities with populations of 200,000 or more are to be allocated 50 percent on the basis of bus vehicle miles, 25 percent on the basis of population, and 25 percent on population times population density. Subsidies to urban areas between 50,000 and 200,000 in population will be allocated 50 percent in proportion to population and 50 percent in proportion to population times population density (9). Subsidies to nonurbanized areas will be allocated solely on the basis of population.

These formula-allocated funds comprise the so-called block grant portion of the new federal program. In several ways this terminology is inappropriate. Local officials are significantly restricted in their use of Section 9 funds. The federal matching rate for capital expenditures is 80 percent, whereas for operating expenditures it is only 50 percent. Thus, there remains a strong bias toward using federal subsidies for capital projects. Moreover, there is an absolute limit to the federal operating subsidy received by each urban area. For urban areas with populations of 1 million or more, the federal operating subsidy cannot exceed 80 percent of the federal operating subsidy in FY 1982. For urban areas with populations between 200,000 and 1 million, the limit is 90 percent of the 1982 subsidy, and for yet smaller areas, the limit is 95 percent (9). The larger the urban area the more stringent the limit on operating funds, and the less real choice there is between expenditure options.

Aside from its decreased relative importance, the main changes in the discretionary capital grant program (Section 3) are a slightly reduced federal matching rate (75 percent versus 80 percent) and its financing through the proceeds of 1 cent of the federal gasoline tax instead of from general federal revenues. The Interstate transfer program remains intact (with an 85 percent federal match), but at sharply reduced levels of funding (e.g., $365 million in FY 1983 versus $675 million in 1980). As was true under the 1978 legislation, both Section 3 and Interstate transfer grants are made on a case-by-case basis by the Secretary of Transportation.

To the extent that the new federal legislation maintains provisions of the old legislation, the criticisms made at the outset of this discussion still apply. For example, the continuing large differential between federal matching rates for capital and operating subsidies maintains the strong bias toward capital expenditures. Moreover, the discretionary portion of capital funding remains subject to inordinate political influence and contains no provisions to ensure cost control or effective use of funds.

The new elements introduced into the federal transit program by the Section 9 block grant raise additional concerns. Of total formula funds, 46 percent will be allocated in proportion to vehicle miles, 11 percent according to route miles, 7 percent in proportion to passenger miles times passenger miles per dollar of operating cost, and 36 percent--on the old basis--in proportion to population and population density (9). As discussed earlier, this fourth of the allocation criteria has limited relevance to the transit funding needs of each urban area, and it certainly does not encourage cost control or rational deployment of services. The first three criteria at least relate to the output of transit systems. The problem with the vehicle mile and route mile measures is that they provide no incentive to eliminate underused services. Because transit speeds are much higher in outlying areas, the temptation is to expand suburban services--even if they are lightly used--so as to increase system mileage and federal subsidy funds at minimum cost. Likewise, because it is less expensive to build rail transit systems in low-density areas, the new allocation formula is biased in favor of suburban rail service.

Perhaps the most interesting new factor in funding allocation is the use of passenger miles weighted by passenger miles per dollar of operating cost. Theoretically, this criterion should encourage improved ridership as well as control of per-unit costs. In practice, however, it will be difficult to estimate passenger miles accurately. The room for error is great, and the subsidy formula provides the incentive to overestimate. As discussed previously with respect to the ridership-based block grant, it is difficult enough to verify simple passenger totals for each transit system. Passenger miles present the additional complication of estimating average trip length. Even small errors could significantly distort subsidy allocations (by the square of the error in estimated trip length).

Approximately 56 percent of the new formula funds will be allocated to the 10 largest urban areas. This figure exceeds the degree of concentration under the old Section 5 program (53 percent) but is lower than funding concentration under the old, discretionary capital programs (65 percent) (6,19, 29). Because the overall level of funding concentration under the 1978 legislation was 60 percent, the implementation of the combined operating and capital block grant through Section 9 should lead to reduced geographic concentration--and less than would have resulted from a purely ridership-based grant (62 percent) or a revenue-based grant (66 percent) (11). This suggests somewhat greater equity on a per-capita basis but less equity on a per-rider basis. Transit riders in dense, transit-oriented areas will be discriminated against even more under the new legislation than they were under the old. Large cities are put at the additional disadvantage of having less flexibility in choosing between operating and capital expenditures as a result of the more stringent limits on total operating subsidies in large cities.

The overall impact of the new formula program on disadvantaged users is hard to predict. On the one hand, the service-based formula encourages shifts of service to the suburbs, where both operating and capital costs per mile are lower. This would probably leave a smaller proportion of service in the inner city, where the poor are concentrated. On the other hand, the reduced importance of discretionary capitals funds--which had been used primarily for rail services patronized by the affluent--may offset this negative impact.

In contrast to the old Section 5 program, the new Section 9 block grant offers somewhat greater flexibility to adjust to changing circumstances over time. Approximately 64 percent of these funds can vary according to the amount of service offered (9). Thus, systems that need to expand service can expect a commensurate increase in federal subsidy to help offset the cost. In the case of long-term capital investments, however, increased service levels--and thus supplemental funding--will significantly lag behind capital expenditures, which will cause short-term financing problems. The 36 percent of Section 9 funds that continues to be allocated in proportion to population and population density (recalculated only once every 10 years) will be unresponsive to changing transportation needs.

Likewise, the new set of federal subsidy programs may not be responsive to the different transportation needs of different types of urban areas. The possibility of using federal funds for either highway or transit expenditures is even more limited than under the old legislation due to sharply reduced Interstate transfer funding. The choice between capital and operating expenditures is also restricted under the new program, with a strong bias toward capital. As a result, the distortions in local transportation expenditure decisions observed under the old federal program may persist. Not only would this lead to an inefficient use of subsidy funds, but its interference with the specific preferences of states and urban areas could be viewed as a shortcoming in itself.

Finally, there is little reason to believe that the new set of federal transit programs will be less expensive or less time-consuming to administer than the old program. The discretionary Section 3 and Interstate transfer grants will still require case-by-case approval by the Secretary of Transportation. Moreover, the new Section 9 block grant formula is more complicated than the old Section 5 formula, and the data needed for the formula are more difficult to measure and verify. The calculation of passenger miles alone will require a team of experts if even roughly appropriate figures are to be obtained. In short, the 1982 federal transportation law offers little improvement over the 1978 legislation. The federal program could still benefit from improved subsidy allocation procedures that promote efficiency and equity.

CONCLUSION

Of all the alternative designs of the federal transportation program examined here, the combination of a multimodal transportation block grant and a special user-side fund appears to be the most promising. In many ways this combination would be an improvement over the current program. It would avoid unjustifiable biases between highway and transit expenditures as well as between operating and capital expenditures. It would greatly increase the sensitivity of the program to the different needs of different types of cities and regions of the country. It would increase the independence of local officials in choosing among transportation projects but would also force them to weigh more carefully the full costs and benefits of alternative expenditures of subsidy funds. It would reduce interregional disparities in federal funding. It would target subsidies more effectively to the mobility-disadvantaged, and its administrative costs would be lower than most alternatives.

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