Federal Operating Assistance for Urban Mass Transit: Assessing a Decade of Experience

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ABSTRACT

Reviewed are developments in the U.S. urban transit industry during the period of federal government operating assistance (1975 to 1984). The financial and operating performance of the nation's transit industry during this period is compared with that during the prior decade (1965 to 1974), when only local and a few state governments provided operating assistance. In addition, estimates are reported of how the $7.6 billion in federal operating assistance disbursed during this period has been utilized by U.S. transit operators. Case studies of transit operators serving 13 urban areas in the United States are also used to explore variation in transit system operating and financial performance during the period of the federal assistance program. Drawing on the findings from these analyses, the paper concludes with an evaluation of the program's continued desirability as a major element of federal urban transportation policy, and two specific proposals for its reform are introduced.

For more than two decades, local government agencies across the United States have offered direct financial assistance to transit operators serving their citizens, and some have offered less visible subsidies for considerably longer. Most states also assist public transit operators indirectly (by exempting them from certain taxes and fees), and several adopted direct subsidy programs beginning as early as 1970. Between 1965--when total fare revenues collected by all U.S. urban transit operators first failed to cover their aggregate operating expenses--and 1975, state and local governments throughout the nation provided nearly $3 billion to underwrite transit operators' escalating deficits (1). The rapid growth of government assistance during this period was accompanied by widespread takeover of transit system assets and operations by local government agencies; thus, by the time the federal government first offered operating assistance in 1975, cities and public authorities already owned and operated 85 percent of all urban transit vehicles and service in the United States, and carried 90 percent of the nations's transit passengers (2).

Compared with local and state government involvement, the federal role in transit operating assistance developed more recently, and has always been more controversial. Many members of Congress originally advocated federal operating assistance as an emergency measure that was necessary to support transit operators temporarily, while they invested in major capital improvements (which were already eligible for federal funding) designed to reduce operating costs and bring increasing deficits under control. [See, for example, Senator Williams' statement reported by UMTA (3,p.II-12).] Widespread public reaction to the 1973 Organization of Petroleum Exporting Countries (OPEC) oil embargo swelled their ranks with new advocates of long-term federal involvement, who asserted that federal subsidies to finance additional transit service and lower fares would reduce energy consumption in urban transportation by attracting new transit riders from those currently commuting by automobiles. Unfortunately, this was based on a misleadingly simple comparison of energy consumption rates for singly occupied automobiles and heavily loaded transit vehicles in line-haul service, which dramatically overstated potential energy savings from increased use of transit under more realistic urban travel conditions (4). There was also little evidence that local and state subsidies had stemmed the shift to automobile travel in the nation's urban areas.

Another rationale for federal involvement was the widespread belief that transit service could not be reduced in proportion to declining ridership so that deficits would inevitably increase in the absence of government subsidies to stabilize fares. Still another rationale was the widely assumed importance of transit service in maintaining the vitality of the nation's downtown areas. (See, for example, Senator Javitts statement in 1974 U.S. Congress joint conference committee hearings, p.2.) There is an implicit connotation that transit is an industry characterized by substantial fixed costs, in which declining levels of ridership inevitably produce increasing deficits. Nevertheless, the number of nationwide vehicle-miles of transit service was reduced nearly 40 percent between 1950 and 1970 (5, p.58, Table 13). For a typical assertion of the importance of transit service to urban areas, see the statement by Representative Rostenkowski (6, p.32787). Unfortunately, this view failed to recognize that the decline of U.S. central cities was fostered by many of the same forces that produced declining transit ridership, principally rising personal incomes and the relocation of employment from central city to suburban areas as production technologies and the composition of the nation's economic output changed.

Despite their generally undocumented empirical validity, these arguments proved to be pivotal appeals: Congress authorized operating assistance under the UMTA Section 5 program beginning in 1975, citing "...the need to provide public subsidies to cover operating deficits in order to preserve adequate transit service at reasonable fares" (7,p.448).

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Assistance payments increased rapidly under the new program, but within 2 years both Congressional advocates and recipients of federal assistance were already decrying its funding level as "...insufficient to permit responsible federal participation" (8,p.15). Assistance payments had already reached nearly $600 million in 1977, but their efforts raised the level of subsidies to nearly $1.1 billion by 1980. Under intense pressure from the new administration, Section 5 grants were reduced to about $900 million by 1983; beginning the next year, operating assistance was combined with formula capital grants under the newly created UMTA Section 9 program, with operating subsidies representing about $860 million of the $2.4 billion in total assistance distributed during the first year of the new program (5,9-13).

Thus, as reported in Table 1, cumulative federal operating assistance payments through 1984 totaled more than $7.5 billion, equivalent to about $9.7 billion in 1984 dollars after adjusting to reflect the greater purchasing power of earlier years' payments.

TABLE 1 Government Operating Assistance Payments to U.S. Urban Transit Systems (1965-1984) *(1,5,9)*

Year	State and Local Governments		Federal Government	
	Actual Dollars (000,000)	1984 Dollars (000,000)	Actual Dollars (000,000)	1984 Dollars (000,000)
1965	9.6	29.0	-	-
1966	35.2	103.1	-	-
1967	63.2	179.6	-	-
1968	152.0	413.9	-	-
1969	208.0	538.0	-	-
1970	231.0	567.0	-	-
1971	310.0	724.4	-	-
1972	333.8	748.9	-	-
1973	536.8	1,139.3	-	-
1974	1,048.6	2,043.8	-	-
1975	1,146.6	2,046.4	301.8	538.6
1976	1,299.5	2,203.6	422.9	717.1
1977	1,393.1	2,232.4	584.5	936.6
1978	1,610.9	2,402.9	689.5	1,028.5
1979	2,178.2	2,990.5	855.8	1,175.0
1980	2,651.7	3,334.6	1,064.6	1,339.0
1981	2,953.8	3,387.9	999.1	1,145.9
1982	3,526.8	3,814.9	922.9	998.3
1983	4,545.6	4,736.5	887.2	924.5
1984	4,895.2	4,895.2	860.1	860.1
Cumulative totals				
1965-1984	29,129.6	38,531.9	7,588.4	9,663.6
1975-1984	26,201.4	32,044.9	7,588.4	9,663.6

It is difficult to establish whether escalating federal involvement displaced assistance that might otherwise have been provided by state or local governments during this period because the subsidy levels they would have offered in the absence of federal intervention cannot be reliably estimated. After adjusting for inflation, combined state and local operating assistance increased by 260 percent between 1970 and 1975, almost exactly twice the percentage growth in state and local assistance that occurred during the period of increased federal subsidies (1975 to 1984). However, this comparison does not necessarily suggest that federal participation displaced state and local subsidy effort because the dollar increase in inflation-adjusted state and local government operating assistance during the years coinciding with the UMTA Section 5 program (almost $2.7 billion when measured in 1984 dollars) was considerably larger than its growth from 1970 to 1975 (about $1.5 billion in 1984 dollars).

The data in Table 1 indicate that combined state and local operating assistance continued to increase rapidly during the period of increasing federal involvement--amounting to more than $26 billion since 1975, more than three times the federal contribution--so there is no immediate suggestion that federal participation displaced assistance by lower levels of government. Nevertheless, federal assistance has been substantial, and the debate over its future should include an assessment of how it has affected transit operators, as well as how effectively the program has accomplished its original objectives.

TRANSIT INDUSTRY PERFORMANCE BEFORE AND DURING FEDERAL ASSISTANCE

Table 2 give a comparison of changes in several important measures of transit industry performance for two recent periods: (a) the years from 1965, when total fare revenues first failed to cover its aggregate operating expenses, to 1974, the year before federal assistance began; and (b) 1975 to 1984, the period of federal participation. Changes in performance during the latter period are subdivided into those occurring while federal operating assistance under the UMTA Section 5 program was increasing (1975 to 1980), and the subsequent period (1980 to 1984) of decreasing federal support.

Between 1965 and 1974, local government agencies in the nation's cities were the primary source of transit operating assistance (many of them actually took over ownership and operation of urban transit companies during this time); although several states began direct transit subsidy programs during this period, most financial assistance was provided at the local level. Between 1975 and 1980, subsidy payments by all levels of government increased extremely rapidly, but after 1980 assistance by state and local governments continued to increase rapidly while federal subsidies declined.

As indicated by the data in Table 2, changes in many measures of transit industry performance during these two periods were closely comparable, including changes in two basic measures affecting transit labor costs: compensation and service produced per worker. Annual compensation per employee (which consists of wages plus the estimated value of employer-provided fringe benefits) increased 93 percent between 1965 and 1974, and by another 104 percent during the federal assistance period, as the data in the table indicate.

However, these increases are very different when expressed in constant dollars because of the major inflationary shock dealt the U.S. economy by the OPEC oil price increase during the 1979-to-1980 period. Real compensation levels received by transit workers even decreased from 1975 to 1980, although this occurred throughout the U.S. economy, and their rapid growth resumed during the 1980-to-1984 period. Clearly, the pattern of generous nominal wage and fringe benefit increases established during the era of predominantly local subsidy of the nation's transit industry continued throughout the era of federal participation, as did the industry's historical decline in labor productivity. The major difference between the two periods appears to be that the continuing gains in transit workers' compensation were temporarily offset by the rapid inflation that prevailed during the 1978-to-1980 period.

The data in Table 2 also indicate that the percent increases in actual expenses per vehicle-mile of transit service operated were almost identical for the periods 1965 to 1974 and 1975 to 1984. Again, rapid price inflation during the latter period meant

TABLE 2 Transit Industry Performance Under Changing Mixes of Operating Assistance from Local, State, and Federal Government

Performance Measure	Percent Change During Periods: 1965-1974	1975-1984	1975-1980	1980-1984
Compensation per employee				
Actual dollars	93	104	31	56
Adjusted for inflation	54	14	-8	24
Service produced per employee	-10	-7	-11	5
Expense per vehicle-mile				
Actual dollars	135	132	58	47
Adjusted for inflation	87	30	11	17
Vehicle-miles of service	-5	8	5	3
Passengers carried per vehicle-mile of service	-21	8	9	-1
Expense per passenger				
Actual dollars	171	115	46	48
Adjusted for inflation	73	20	3	17
Average fare paid				
Actual dollars	51	55	20	29
Adjusted for inflation	20	-13	-15	3

that the real increase in unit operating costs during the federal subsidy era was only about one-third as large as that experienced during the previous decade; however, this difference is also largely attributable to the wave of inflation caused by the 1979-1980 oil price shock. The increase in petroleum prices increased transit operating expenses as well, but it was responsible for only about one-tenth of the 132 percent increase in expenses per vehicle-mile of service between 1975 and 1984 that was reported in Table 2. Further, the data in the table suggest that with the return to more modest inflation rates during the period of declining federal assistance (1980 to 1984), real expenses per vehicle-mile actually increased considerably faster than during the previous years when federal operating subsidies increased rapidly.

The data in Table 2 indicate that the number of passengers carried per vehicle-mile of transit service declined sharply during the years preceding federal operating subsidies, but actually increased somewhat during the years when federal subsidies increased rapidly. Because the historical decline in utilization was temporarily reversed, operating expenses per passenger carried by the nation's transit systems increased much less during the period of federal assistance than during the previous decade, particularly when measured in real terms for the 1975-to-1980 period of rapid inflation. Again, however, the more recent period of declining federal assistance indicates a return to increasing real operating expenses per passenger, as rapid growth in vehicle operating costs resumed and the 1975-to-1980 improvement in transit utilization proved to be short-lived.

Finally, the data in Table 2 indicate that aggregate transit service to the nation's cities declined slowly during the decade of local takeover and subsidy of the nation's transit industry, but that service increased modestly during the period of federal involvement. The pattern of changes in fare levels throughout the period covered by the table suggests that some of the rapid increase in assistance levels was used to avoid raising fares to match the rapid pace of growth in operating expenses.

Much of the temporary improvement in transit utilization during the 1975-to-1980 period probably represents travelers' response to the sharp decline in inflation-adjusted fares (and the parallel rise in gasoline prices), just as the 1965-to-1974 and 1980-to-1984 decreases in utilization no doubt occurred partly because even the extensive substitution of subsidies for farebox financing of operating costs was insufficient to prevent some increase in real fare levels. Thus, although federal subsidies had little visible effect on the transit industry's operating cost performance, the increasing federal assistance levels of the 1975-to-1980 period--in combination with similarly rapid growth in state and local operating subsidies--did temporarily reverse the historical trends of declining service, higher real fares, and declining transit ridership; however, these developments proved both costly and short-lived.

WHAT HAS FEDERAL OPERATING ASSISTANCE ACCOMPLISHED?

Although there appears to be little evidence that federal operating assistance aggravated the historical declines in transit operating and financial performance, their persistence throughout the period of federal involvement clearly compromised its effectiveness in promoting its advocates' original goals of expanding transit service, reducing fares, and increasing ridership. (Again, it is virtually impossible to distinguish how federal subsidies have been spent from the ways in which other government assistance has been used, and the following analysis does not attempt to identify separate effects of assistance received from different levels of government.)

Most important, rising prices for labor and fuel--the primary inputs used to provide transit service--produced rapid escalation in expenses for providing the same level of transit service that was operated before the federal program began. Expenses for labor and fuel together accounted for 84 percent of the operating expenses incurred by the U.S. transit industry during 1983 (13, p.2-4, Table 2.07). These higher expenses absorbed much of the expansion in transit operators' budgets that was made possible by federal assistance payments, leaving surprisingly little of their growing total available to finance new service or reduce fares. In addition, the types of new service and the specific fare reductions that were implemented by using the remaining assistance produced disappointingly small gains in transit ridership in many urban areas.

Table 3 gives specific estimates of how operating assistance payments by all levels of government during the period of federal involvement were utilized by the nation's urban transit industry. These estimates were constructed by allocating the increased expenditures by all U.S. transit operators between 1975 and 1984 that were financed by growing government assistance among three categories: (a) increased

TABLE 3 Sources and Uses of Increased Government Operating Assistance Payments During the Period of Federal Participation (1975-1984)

	Cumulative Total, 1975-1984 (billions of 1984 dollars)	Percent of 1975-1984 Cumulative Total
Sources of increased operating assistance[a]		
Federal assistance	9.7	46
New state and local assistance	11.6	54
Total sources	21.3	100
Uses of increased operating assistance		
Higher costs for existing service:		
Labor expenses	6.6	31
Energy costs	1.5	7
Other expenses	0.9	4
Total	9.0	42
Expenses for new service	5.5	26
Replace lost fare revenue[b]	5.1	24
Remaining for future expenses	1.7	8
Total, all uses	21.3	100
Increase in ridership (billions of trips)	4.9	9

[a]Cumulative increase in yearly operating assistance payments above their level in 1974, the year before federal assistance began.

[b]Net of fare revenue contributed by new riders.

costs for operating the level of service that existed before the federal assistance program; (b) expenses for operating new service added during the period of federal involvement; and (c) outlays necessary to compensate for reduced farebox coverage of operating expenses. For a detailed description of the methods used to construct these estimates, see Pickrell (16, pp.282-285). Increased costs for operating the original service level were further apportioned among additional expenses for labor, energy, and miscellaneous other inputs.

The outlays necessary to compensate for reduced farebox effort are equal to the decline in revenue from continuing riders when fares were reduced, less any new revenue generated by ridership increases that occurred in response to such fare cuts. The revenue loss stemming from ridership declines that occurred in response to changes in market demand for transit service during this period was also included in this category of increased outlays, although the amount was small. Finally, any new government assistance during this period that was not matched by increased expenditures for one of these purposes (or required to meet previous years' unfunded expenses) was classified as remaining available for future expenses.

The data in Table 3 indicate that since 1975, 46 percent of the new transit assistance has been contributed by the federal program, with the remaining 54 percent representing payments by local and state agencies above the combined level they provided before the federal program began. Of this total, 42 percent--or about $9 billion in 1984 dollars--was used to meet higher costs for providing the same level of service that was operated before the program began. In turn, nearly three-quarters of this amount ($6.6 billion) was used to meet increased labor expenses for supplying transit service. A relatively small proportion of the increase in government assistance (7 percent, or about $1.5 billion) was necessary to compensate for higher energy costs, despite the common assertion that rising energy prices were a major source of increasing transit expenses during this period; higher payments for maintenance supplies, insurance, and various other inputs were responsible for the remaining increase (less than $1 billion) in expenses.

Because these escalating costs absorbed so much of the increased government assistance offered after 1974, only about one-half remained to further the goals of the federal subsidy program. As the data in Table 3 indicate, only about 26 percent of new government assistance received by U.S. transit systems between 1975 and 1984 ($5.5 billion) was actually used to meet expenses for operating the modest amount of new transit service that was added after federal operating subsidies were first offered. Another 24 percent ($5.1 billion) of the increase in operating assistance during this period was used to allow farebox coverage of operating expenditures to be reduced. Most of this in effect compensated for the fact that while per-passenger expenses more than doubled during the period of the federal program, typical transit fares were raised by only about one-half (as the data in Table 2 indicated). This number also includes the effect on farebox revenue of declining demand for transit service in the nation's urban areas, which continued to reduce the number of transit trips that would be made at any specific fare level during this period.

Thus during the entire period of federal participation in transit operating assistance, only about $10.7 billion of the $21.3 billion in increased government assistance (that is, subsidies above the level already provided by states and localities before federal participation began) was actually used to further the goals of adequate transit service at reasonable fares. The remaining 8 percent of the increased assistance payments made during this period (nearly $1.7 billion in 1984 dollars) was not matched by either previous unmet obligations or new expenditures by transit operators, and was thus apparently retained by its recipients to meet future expenses. However, this aggregate figure no doubt obscures considerable variation in the situations confronting individual transit operators: some were probably unable to meet all of their current expenses during certain years, whereas others may have accumulated significant amounts that remain available to meet future expenses.

As the data in Table 3 indicate, the effects on nationwide transit ridership of the service increases and fare reductions that were financed by increased government operating support were apparently modest. About 4.9 billion more transit trips were made during the period from 1975 to 1984 than would have been made if ridership remained at its level before the advent of the federal operating assistance program, representing only about a 9 percent increase in transit usage. This ridership gain was estimated by assuming that in the absence of an increase in government subsidies after 1974, ridership in each of the years between 1975 and 1984 would have remained at its (lower) 1974 level, rather than continuing on the slight upward trend that began in 1973. If the 1972-to-1974 upward trend is used to estimate ridership from 1975 to 1984 in the absence of increasing subsidy levels, the resulting cumulative increase in ridership from 1975 to 1984 is reduced to about 1.3 billion trips, or about 2 percent. Thus the amount of new assistance actually used to improve service and reduce fares to $9.00 per new rider (measured in 1984 dollars) is increased, of which $3.60 represents federal assistance.

Even this relatively modest increase cannot be attributed entirely to the federal operating assistance program because transit subsidies offered by state and local government also increased rapidly during this period, and rapid escalation in the costs of automobile ownership and travel in the nation's urban areas probably caused some drivers to switch

to transit for certain trips. Still, even assuming that growth in public subsidies was responsible for all of the additional transit ridership during this period and allocating only the fraction of new subsidies (50 percent in total) that actually financed new service and lower fares, increased government operating assistance payments totaled nearly $2.20 (when measured in 1984 dollars) for each new transit trip that resulted. Slightly more than 45 percent of this amount (or almost exactly $1.00) represents federal operating assistance, and the remainder consists of additional subsidies by state and local governments above the combined level they offered before the advent of the federal operating assistance program.

Because the growth in transit ridership accompanying federal involvement in operating assistance has been so small, the program's contributions to the various other goals originally sought by its supporters--such as reducing energy consumption and air pollution, or revitalizing downtown areas--must also have been modest. This is because achieving these indirect objectives requires that operating subsidies induce substantial numbers of automobile commuters to switch to transit travel, although there is still controversy about whether carrying urban commuters by conventional mass transit rather than other modes actually does save energy or reduce air pollution. Regardless of any uncertainty about the theoretical effectiveness of transit in promoting these goals, the modest ridership gains that accompanied the federal operating subsidy program certainly mean that it has contributed little toward reducing these undesirable by-products of current urban travel patterns.

WHY WAS OPERATING ASSISTANCE SO INEFFECTIVE?

There are several reasons why government operating assistance failed to significantly advance its advocates' original goals, and many of these reasons should have been foreseeable by transportation policymakers and transit operators. Rising labor expenses absorbed such a large part of government assistance because transit workers' compensation levels increased rapidly as assistance levels were expanded, while the productivity of transit workers continued to decline. As the data in Table 2 indicate, annual compensation per transit employee has more than doubled since the federal assistance program began in 1975, while the number of vehicle-miles of service operated per full-time transit employee has declined nearly 7 percent (despite some recent improvement). The costs of living in the nation's urban areas escalated rapidly during this period, as did workers' compensation levels throughout much of the U.S. economy (particularly those received by other unionized workers employed in providing local government services). Nevertheless, transit workers' pay levels increased significantly during the era of federal assistance even after adjusting for inflation--increasing 14 percent, as the data in Table 2 indicated--while average real earnings throughout the private sector of the U.S. economy actually declined during most of this period. Further, labor productivity in many of the nation's other transportation industries, including some faced with the same scheduling, maintenance, and administrative complexities confronting urban transit operators, continued to increased during this period (17, Table B-38).

As the data in Table 2 also indicate, utilization of transit service by urban residents improved only slightly during the period of federal support for transit operating costs. Although this did represent a reversal of its prolonged postwar decline, it was partly caused by the decline in inflation-adjusted transit fares that accompanied it. Further, its magnitude was disappointingly small considering that this period was marked by various developments that were widely expected to slow--and by some observers, even to reverse--the historical decline in demand for transit travel, including sharply rising costs for owning and operating automobiles, a slower pace of population and employment suburbanization, and decreasing real incomes for many urban households.

The failure of transit utilization to improve significantly appears partly attributable to the particular pattern of new transit service that was financed by growing operating assistance. Because total route mileage over which transit vehicles operated increased much more rapidly than did total vehicle-miles of service, the average number of vehicle-miles of transit service operated per mile of route deceased almost 25 percent between 1975 and 1984. [For more extensive discussion and documentation of these developments, see Pickrell (18).] Thus what is probably the most important dimension of public transit's usefulness as a means of urban transportation--the frequency of service it provides--declined significantly during this period. This occurred partly because schedules within the densely developed central areas of many U.S. cities, the traditional strongholds of transit service and ridership, were curtailed.

At the same time, much of the vehicle mileage added during this period represented bus service on routes that were newly extended into the expanding suburban areas of large cities, or operated by newly established public transit systems serving many of the nation's smaller urban areas. In both of these situations, travel patterns tend to be diffuse, whereas automobile ownership is generally widespread; thus the resulting demand for transit travel supports only infrequent service, most often with very low accompanying ridership (18). Because the improvement in transit utilization was so modest, increases in operating costs per unit of service were translated into similar growth in costs per passenger carried by the nation's transit systems, which more than doubled between 1975 and 1983.

At the same time, the average fare paid by transit passengers increased by only about one-half during this period, as the data in Table 2 indicate, so that the fraction of transit operators' expenses that was covered by passenger fares decreased sharply: the average fare actually paid for a transit trip declined from almost 55 percent of the expenses imposed by a typical rider during 1975 to only 39 percent of those costs by 1984. Combined state and local government subsidies increased from $0.20 to $0.71 per transit passenger between 1975 and 1984, reaching 50 percent of the U.S. industry's total revenues during 1984, while federal subsidies contributed an additional $0.15 per passenger--the remaining 11 percent of the industry's revenues--by 1984.

Yet even this substantial transfer of the burden of paying for transit service from users to taxpayers attracted surprisingly few new riders because it consisted mainly of widespread conversion to flat fare systems and marketing of unlimited-use passes to regular commuters. During the first several years of the federal subsidy program, many of the nation's largest transit operators eliminated premium fares or surcharges for trips covering long distances, travel during peak commuting hours, and trips requiring transfers--all of which were particularly costly to carry--in favor of uniform fares and free transfers (18, p.117, Table 6.2). More than three-quarters of U.S. transit systems currently offer

weekly or monthly passes that entitle their holders to unlimited free rides, but are commonly priced below the equivalent of one round trip per weekday (19). The primary recipients of these substantial fare discounts, regular peak-hour commuters traveling long distances, are often those attracted to transit by its favorable travel time and service level for such trips, which they value particularly highly.

Thus these changes in fare structures usually offered particularly large reductions to riders whose travel behavior was least sensitive to fare levels, who imposed the largest share of transit systems' operating expenses, and on whom transit operators' resulting loss in farebox revenue was greatest. However, at the same time they often resulted in higher fares for many price-sensitive riders because large increases in basic fare levels were often necessary to maintain minimal farebox coverage of expenses by transit operators that eliminated premium fares and introduced discount passes. As a consequence, this widespread restructuring of fares produced disappointingly small ridership gains in most urban areas, whereas much of both federal and expanded state and local assistance was used simply to fill the growing gap between the costs of carrying transit passengers and the fare revenues they contributed.

COMPARING TRANSIT PERFORMANCE AMONG URBAN AREAS

A number of case studies focusing on transit operators serving individual urban areas were conducted to supplement the analysis of industrywide developments in urban transit during the era of federal operating assistance. The basic criterion for selecting case studies was the availability of financial and operating data for the transit system (or, in a few cases, multiple systems) serving an urban area during both 1975 and 1983. Because virtually all U.S. urban transit systems reported these data to UMTA under its Section 15 reporting requirement during 1983, this meant that any urban area served by an operator (or operators) that voluntarily reported these data to a APTA for 1975 could be selected. Urban areas with transit systems that did so were classified by population and geographic region of the nation, from which a sample of 13--representing populations from 150,000 to several million, as well as all of the nation's major geographic regions--was selected for detailed study. The urbanized areas selected include (in alphabetical order) Buffalo, New York; Charleston, West Virginia; Chicago, Illinois; Dayton, Ohio; Madison, Wisconsin; Miami, Florida; Milwaukee, Wisconsin; Minneapolis-St. Paul, Minnesota; New York, New York; northern New Jersey; Portland, Oregon; San Diego, California; and Syracuse, New York.

The main reason for conducting these studies was to document variation in deficit growth and its sources among transit operators serving different urban areas. Generally, these case studies revealed that the nationwide aggregate estimates of transit industry performance and the uses of operating assistance reported previously conceal wide variation in cost, service, and fare changes, as well as in their contributions to rising deficits. In addition, the case studies were intended to examine whether differences among transit systems in the contributions of specific factors to rising operating deficits were associated with differences in their dependence on federal operating assistance. Table 4 gives a comparison of changes in unit operating expenses, service levels, transit utilization, and average fares during the period of federal operating assistance for 13 U.S. urban areas. As the data in the table indicate, transit operating expenses increased significantly in most urban areas, but the range of increases was wide and the distribution of individual cases across this range uniform. There was some tendency for cost increases to be more modest in larger areas (notably New York City, Chicago, and the northern New Jersey urbanized area), whereas the most rapid increases occurred in cities of diverse sizes and locations, including Miami, Minneapolis-St. Paul, Portland, and Syracuse.

There was also no obvious pattern of service increases among the 13 cases studied: three cities actually experienced significant reductions in transit service, two of which (Chicago and New York) were those where the natural market for transit service remains strong and cost increases were relatively modest. There was some tendency for service increases to be related to the pace of population growth, for example, Miami, Portland, and San Diego--all rapidly growing areas--showed rapid service increases; however some areas with declining population, such as Charleston and Milwaukee, also showed

TABLE 4 Comparison of Changes in Transit Performance in 13 U.S. Urban Areas During the Period of Federal Operating Assistance (1975-1983)

Urban Area	Percent Changes from 1975-1983 in: Expense per Vehicle-Mile[a]	Vehicle-Miles of Service	Passengers per Vehicle-Mile	Average Fare per Passenger[a]
Buffalo	26	2	-11	-38
Charleston, W. Va.	27	22	-40	16
Chicago	15	-10	13	-12
Dayton	17	86	-41	-3
Madison, Wis.	39	32	-24	37
Miami	40	28	-29	12
Milwaukee	30	24	-6	-33
Minneapolis-St. Paul	51	12	-13	30
New York City	11	-7	-5	10
Northern New Jersey	–	28	-6	-18
Portland, Ore.	53	46	17	-18
San Diego	3	56	-24	47
Syracuse	47	-7	9	-37
Average for 13 urban areas[b]	28	24	-12	-1

Note: Data were calculated by the author from data reported by APTA *(20)* and UMTA *(13)*.

[a]Percent changes after adjusting for inflation.
[b]Unweighted average of individual values for 13 urban areas given in table.

rapid service increases. In any event, population alone is a poor indicator of demand for transit service, and the largest reductions in service occurred where other more important factors remained conducive to strong demand for conventional transit service.

Finally, the data in Table 4 indicate that an extremely wide range of fare policies was pursued by transit operators serving different urban areas, and that fare reductions were not generally accompanied by the intended increases in transit utilization. Transit operators serving 7 of the 13 urban areas studied reduced average fares (measured after adjusting for inflation) during the period of federal involvement--three of them by a third or more--whereas the remaining 6 increased average fare levels, again often by as much as 30 percent or more. Fare reductions were accompanied by increases in the utilization of transit service in only three of the seven cities that implemented them; in the remaining four where fares were cut, as well as in all six where average inflation-adjusted fare levels were increased during this period, utilization of transit service decreased, often substantially. These cases thus provide a few examples of improved transit utilization in response to reduced fares, but for the most part they reveal a continuing decline in urban residents' use of transit service except where fares are kept extremely low, while highway capacity remains limited, automobile parking is costly, and jobs remain highly centralized. These conditions are obviously beyond the influence of transit subsidy policy, and remain present in relatively few U.S. urban areas.

USES OF OPERATING ASSISTANCE IN INDIVIDUAL URBAN AREAS

Table 5 gives estimates of the uses of increased operating assistance received between 1975 and 1983 by transit systems serving the 13 urban areas, as calculated by the author. As the data in the table indicate, in all but 2 of the 13 urban areas studied, meeting the increased expenses for operating the level of transit service supplied before 1975 consumed a substantial share of new operating assistance. (In Chicago, the increase in costs to operate even the reduced service level after 1975 amounted to 128 percent of new assistance received; this was financed partly by savings from eliminating some service during this period.) Thus in nearly all of the cases reviewed, the effectiveness of rising assistance levels in financing transit service improvements and fare reductions was severely compromised by their use to meet higher costs to operate existing services.

TABLE 5 Estimated Uses of Government Assistance Recieved by Transit Operators in 13 U.S. Urban Areas (1975-1983)

Urban Area	Percent of New Operating Assistance Used To:		
	Maintain 1974 Service Level	Add New Service	Substitute for Farebox Effort
Buffalo, N.Y.	44	4	52
Charleston, W.Va.	41	27	32
Chicago, Ill.	128	-91	63
Dayton, Ohio	18	48	34
Madison, Wis.	65	40	-5
Miami, Fla.	63	35	2
Milwaukee, Wis.	46	31	23
Minneapolis-St. Paul, Minn.	89	19	-8
New York City, N.Y.	72	-45	73
Northern New Jersey	–	42	58
Portland, Oreg.	68	41	-9
San Diego, Calif.	8	77	15
Syracuse, N.Y.	77	-8	31
Average for 13 urban areas	55	17	28
All U.S. urban areas[a]	46	28	26

[a]Percent of assistance actually matched by new expenditures; differs from entries in Table 3 because not all new assistance was used for one of these three purposes.

The data in the table also indicate that the use of increased operating assistance to finance new service varied widely among the 13 urban areas studied. In three cases, service levels were curtailed (as the data in Table 4 indicated), and the resulting savings were transferred to other categories of new spending. In all but one (Buffalo) of the remaining 10 cases examined, a significant share of new operating assistance made available to transit systems during this period was actually used to increase service levels; most commonly, 20 to 50 percent of increased subsidy levels funded new service, but in one case (San Diego), more than three-quarters of new assistance was used for this purpose.

The fraction of new assistance remaining to substitute for farebox effort also varied extremely widely among the cities examined. In a few cases (Madison, Minneapolis-St. Paul, and Portland), fare revenues increased even after adjusting for inflation, and the resulting proceeds were used to finance higher unit costs or added service. In Miami, only about 2 percent of new operating assistance was used to replace farebox coverage of transit costs, and in San Diego as little as 15 percent was apparently used for that purpose. However, in some other urban areas as much as 30 to 50 percent of increased assistance levels was used to compensate for revenue reductions stemming from the combination of fare cuts and ridership declines caused by external market forces. In both New York City and Chicago, amounts equal to large proportions of new operating assistance were used to replace farebox revenues, but as discussed previously these were partly financed by cost savings that resulted from service reductions.

EVALUATING FEDERAL OPERATING ASSISTANCE

The demise of privately profitable, large-scale conventional mass transit service in the U.S. cannot reasonably be attributed to federal transit subsidy policies, and particularly cannot be blamed on the federal operating assistance program, as some of its harsher critics have suggested. Federal capital assistance did help finance some public takeovers of unprofitable or bankrupt transit operators by local government agencies between the time it was first offered in 1964 and the 1975 advent of the Section 5 operating assistance program, while federal highway investment policies may have contributed to the changing patterns of transit ridership that made many private systems unprofitable. Nevertheless, public ownership and operation of the nation's transit industry was firmly entrenched before the advent of the federal operating assistance program.

Further, comparing changes in transit industry performance during various periods does not reveal any pronounced difference between the effects on transit performance of support for transit from federal versus lower levels of government. The modest differences in basic cost, productivity, and other performance trends in the industry between the years before federal assistance began and the decade for which it has been available were largely confined to the start-up years of the Section 5 program (1975 to 1980) and were at most only partly attributable to

federal assistance itself. This history reveals that simultaneous rapid growth in operating assistance from every level of government, as occurred from 1975 to 1980 when federal, state, and local support all expanded rapidly, was able to reverse temporarily the historical patterns of declining transit service and increasing fares. However, it also reveals that the new service and lower fares financed by rapidly growing government support produced only modest growth in mass transit ridership, which was also confined to the brief period of simultaneously expanding support by all levels of government. Even this modest increase in transit ridership was not entirely attributable to growing government assistance; actually, the federal assistance program was probably responsible for relatively little of it.

Federal operating assistance was ineffective in promoting increased ridership and the other objectives sought by its advocates partly because much of it simply financed escalating expenses for operating existing service. Some of the increase in transit labor costs--although probably very little, judging from the sluggish pace of wage growth in other industries during this time--may have been necessary to match pay rates in other sectors of the economy, whereas some probably resulted from labor practices and administrative procedures mandated by Congress as conditions for receiving operating assistance; certainly the major increase in energy prices was out of the control of transit operators. Nevertheless, transit management practices and service polices must also have contributed significantly to the rapid escalation in the industry's operating expenses because growth in expenses per unit of service outpaced even the increases in prices the industry paid for its major operating inputs.

Subsidies were also ineffective because transit ridership proved surprisingly insensitive to the service increases and fare reductions that the remaining government assistance actually financed. Certainly the extension of transit service to outlying suburban areas and smaller cities reflected the changing distributions of population and employment in U.S. cities and among regions of the country, but transit utilization at the urban densities that characterized these newly served areas was foreseeably low. At the same time, widespread conversion to flat fare systems and the introduction of commuter passes targeted fare reductions on travelers who were predictably least responsive to them, and who were most expensive for transit operators to serve.

Finally, expanding government assistance was ineffective in promoting transit use because the natural market for conventional mass transit service in U.S. urban areas continued to decline, as it has throughout virtually the entire 20th century. Declining demand for mass transit travel is the product of rising incomes of urban residents, continuing decentralization of population and employment within the nation's urban areas, and changes in the demographic structure of U.S. households. None of these is likely to be significantly altered by federal transportation policies, and it may be undesirable to attempt to modify them using available policies.

At the same time, the real costs of tailoring conventional mass transit services to meet the evolving spatial and temporal patterns of urban travel demand produced by these forces are unavoidably increasing. Geographic dispersion and extreme peaking in travel patterns necessarily reduce labor productivity in transit operations, while requiring higher pay rates to compensate workers for accepting undesirable work schedules, thus compounding the problems already faced by operators of a labor-intensive service in an economy characterized by rising wage costs. Together, these complications seriously undermined the effectiveness of government subsidies in promoting increased ridership and the variety of related objectives originally sought by the advocates of federal assistance. Federal operating assistance was probably no more ineffective than subsidies offered by local or state governments. Some evidence even suggests that assistance financed by dedicated state and local tax sources is even more likely to be absorbed by increasing labor compensation or other expenses than are subsidies appropriated from general government revenues such as federal assistance under the Section 5 and Section 9 programs (18,pp.84-89;21,pp.32-35).

Thus the basic problem with the federal operating assistance program was neither that it hastened the demise of a viable private industry, nor that it compromised the U.S. urban transit industry's operating performance. Rather, the problem with federal transit assistance continues to be that it is a costly and predictably ineffective means by which to promote a catalog of poorly articulated, empirically unrealistic, and perhaps even undesirable goals. Because of the high cost of accommodating it, increased mass transit ridership is not by itself necessarily a desirable objective. There remains considerable doubt whether promoting conventional transit actually can save energy or reduce air pollution; and there is no evidence that publicly subsidized mass transit service is sufficient or even necessary for the continued viability of urban areas. A program that attempts to achieve these objectives indirectly by subsidizing operators of conventional mass transit service appears destined to remain not only unnecessarily costly, but also a disappointingly ineffective element of federal transportation policy.

REFORMING FEDERAL TRANSIT POLICY

Two possibilities for increasing the effectiveness of federal transit policies appear particularly promising, but both require a major departure from the traditional attitudes toward and functioning of current federal transit assistance programs, and will thus no doubt be politically difficult to implement.

First, designating recipients of federal operating assistance in individual urban areas other than each city's major transit authority is a promising way to introduce new incentives for local transportation planners and managers to evaluate the relative importance of alternative service provision arrangements and fare structures, as well as to adapt the services they provide to different transit markets within individual urban areas. The regional transportation commissions that already exist in a number of metropolitan areas are logical candidates for this role, and some of them (such as the Detroit area's Southeastern Michigan Transportation Authority and Virginia's Tidewater Transportation District Commission) have already assumed it with apparently successful results. This strategy is advocated particularly forcefully in Lave (22, Chapter 1).

These agencies have responded to the political pressures to maintain geographically widespread transit services that inevitably arise in large metropolitan areas by using their federal (and other) subsidies to finance services that are more carefully tailored to localized travel patterns and cost circumstances in different parts of their districts than is typically the case. In doing so, they have partly avoided the tendency shown by most transit authorities that receive subsidy funds directly simply to extend conventional bus service to all reaches of the urban area, usually at the same fare charged all other riders in their service areas.

They have done so partly by contracting out various activities--including the actual operation of some services--to suppliers other than the dominant local transit authority, doubtless an unpopular strategy with these often politically powerful agencies. However, this has almost certainly been to the benefit of both service recipients and those local taxpayers who are recurringly called on to finance the bulk of the transit authority's deficits [see J.C. Echols's Use of Private Companies To Provide Public Transportation Services in Tidewater, Virginia, in Lave (22, Chapter 4)].

Designating recipients of federal assistance other than transit authorities is also a promising way to introduce an important new element into local transit service planning and operating decisions: competition among potential suppliers of transit services to these different markets. This could take the form of competitive bidding among suppliers for renewable but perhaps exclusive franchises to serve particular routes or areas, which would encourage not only efforts to improve productivity and control costs, but also to introduce higher quality transit services and various other adaptations to localized circumstances. Even under such a system, the large public transit authorities that currently operate in most metropolitan areas would probably continue to provide much of the nation's conventional transit service; however, they would face heightened competition from prospective private operators for their right to do so.

Although the recent public debate has focused almost exclusively on methods to privatize the provision of urban transit services, it is this presence of competition--even in its indirect form of competitive bidding for renewable franchises--that will encourage both public and private operators to operate efficiently and tailor their services to urban residents' travel needs. Without such competition, there is no inherent reason that private operators would deliver the current pattern of transit service any more productively than is currently done by public authorities. However, in its presence efforts to develop new services, including some that might not utilize conventional transit vehicles running on fixed timetables, would no doubt also increase as long as the subsidy-receiving agency remained willing to consider seriously authorizing their introduction.

The advantage of a more competitive system of providing urban transit services--an increased emphasis on meeting urban residents' demands for varied transportation services--should not be dismissed lightly because the public authorities that dominate the current system engage in so astonishingly little of it. For example, 18 of the nation's largest transit authorities together spent less than one-half of one percent of their total budgets on market research and service planning during 1983. It is difficult to determine how this compares with other transportation or service industries, but it does appear to be very low (see paper by Booth elsewhere in this Record).

A second change that would help rationalize current federal transit policy would be to combine the currently separate capital and operating assistance programs into a single transit block grant to be distributed among urban areas according to some agreed-on formula. The recent combination of operating assistance payments with formula-based grants for capital projects (under the UMTA Section 9 program) represents a fledgling but potentially significant step in this direction. Unfortunately, however, the new arrangement retains the basic distinction between assistance for capital investments and operating expenses that is responsible for many of the program's current problems.

Removing this distinction entirely will be necessary to neutralize the powerful incentive to overcapitalize but undermaintain the nation's transit systems that is now offered by the independent treatment of capital and operating assistance. Local political officials and transit planners respond to these incentives in a predictable but wasteful effort to substitute capital, which is made artificially cheap by the generous federal matching shares (up to 80 percent) on transit construction projects and vehicle purchases, for labor that has been made artificially expensive by a decade of unrestricted subsidies for operating expenses, much of which has found its way into escalated labor costs.

An even farther-reaching rationalization of current federal transportation policies--and, over the longer term, the shapes of local transportation systems they foster--would result from combining federal transit and highway assistance programs into a single transportation grant, to be spent largely at the discretion of local planners and political officials. Although this is a laudable longer-term policy objective, the overdue step of consolidating current federal transit assistance into a single unified program doubtless provides a sufficient political challenge to occupy federal policymakers for the foreseeable future, and in any event is probably a prerequisite to the more ambitious step of integrating urban highway and transit aid. Together with redesignating as recipients of such unified grants local agencies that view the improvement of region-wide transportation services as their mandate--rather than simply the extension or preservation of publicly operated, conventional transit service at uniformly low fares--this would represent a valuable first step toward a federal policy that fosters more productive, diverse, and useful transit service.

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