Use of Revenue Sharing for Public Transportation in Rural Areas

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The purpose of this study is to explore whether rural towns and counties use part of their revenue-sharing funds to support public transit operations or other aspects of public transportation such as road construction and maintenance. This is of interest because the current demonstrations of public transportation programs in rural areas are supported mainly by federal demonstration funds from the Federal Highway Administration, and they face possible funding termination unless sufficient local financial support is forthcoming. This study is also of interest because of the impact of new legislation that makes broader federal assistance available to public transportation in nonurbanized areas.

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Several questions were of interest to the research team.

1. Is revenue-sharing money used for public transportation?
2. How much of the revenue sharing used for public transportation is spent on public transit compared with the funds spent for roads, streets, pavements, or other similar transportation needs?
3. What has been the trend in funding availability through revenue sharing as it appears in the budgets of rural towns and counties?
4. What are the characteristics of towns and counties in nonurban areas that use money for public transportation compared with those that do not?
5. Do political jurisdictions served by FHWA programs for public transit funded by Section 147 (Rural Transportation Demonstration Program) of the Federal-Aid Highway Act of 1973 spend more than the average rural area does on public transportation and in particular on public transit, defined as the movement of passengers?

RESEARCH METHODOLOGY

Revenue-sharing funds are received annually by local political jurisdictions such as towns, boroughs, counties, parishes, and the like, to be spent as locally generated revenue at the discretion of the locality. Minimal reporting requirements yield information on the broad categories for which the money is spent. These categories include not only public safety, environmental protection, health, recreation, libraries, social services for the aged or the poor, financial administration, education, social development, housing and community development, and economic development, but also one additional category, which is of concern here--public transportation.

Researchers obtained a sample of randomly selected rural areas (jurisdictions within nonurbanized areas that contain fewer than 10 000 in population) that had previously been compiled by the Transportation Institute of the North Carolina Agricultural and Technical State University for a study of transportation in rural towns. The sample consisted of 350 rural towns that represented all parts of the United States and are listed in the Rand McNally Atlas as substate jurisdictions that have populations less than 10 000.

With the cooperation of the Office of Revenue Sharing of the U.S. Department of the Treasury, the research team obtained photocopies of the actual use reports filed annually by the jurisdiction that list the actual expenditures by category under the headings "Capital" and "Operating and Maintenance". In some cases, the town selected in the random sample was not a political entity that received revenue-sharing funds. In such a case, data on the revenue sharing of the county in which the town was located were substituted for missing town data. In other cases, the jurisdictions had not filed all successive reports, and data were recorded only for the available years. Consequently, the sample size fluctuates somewhat from year to year.

Data were gathered for 1973 through 1975. It was noted that expenditure patterns for 1973 were often small in comparison with the later years, ostensibly because the program was in an initiation phase. Frequently, rural jurisdictions simply carried funds over into 1974. The limited number of years weakens the possibility of establishing meaningful time trends. No actual use reports were available for 1976 or later, despite the fact that data had been gathered in the summer of 1978.

FHWA furnished several important data sources: the list of funded and active Section 147 demonstration projects; the quarterly reports of financial activity for those systems, for the most part as of spring 1978; and a list of liaison personnel at each operation. The researchers made telephone contact with the operations and learned the political jurisdictions served by FHWA demonstration projects.

Telephone calls were made to the Section 147 projects and to a nonrandom sample of 120 jurisdictions chosen from the first sample because they exhibited significant expenditures of funds for public transportation. The purpose of this survey was to find out whether any of these funds were being used to support public transit.

Data from the various sources were prepared in computer-ready format, analyzed statistically by means of the Statistical Package for the Social Sciences, and are available to interested researchers who may wish to use them.

FINDINGS

Use of Revenue-Sharing Funds for Public Transportation

Data are reported for four groups of jurisdictions:

1. Towns represented by the random sample for which National Association of Counties (NACO) data were available on county characteristics,
2. Other towns represented by the random sample of rural areas for which no NACO data on corresponding counties were available due to the small population of the counties,
3. Counties in which towns from the random sample were located and for which revenue-sharing reports were available for the county but not the town, and
4. Towns or counties served by the Section 147 demonstration projects.

It is evident from Table 1 that all groups have jurisdictions that spend revenue-sharing funds for the support of public transportation. In 1973, for example, 22.4 percent of the sample towns in large counties spent money for public transportation out of revenue-sharing funds. An even larger percentage of the counties participated: 42.4 percent of all counties in the study area reported use of revenue-sharing funds for public transportation. Districts served by Section 147 demonstration projects resemble the average pattern per county; 35.8 percent reported such use of funds.

Data for 1974 and 1975 show that even more jurisdictions began using the funds for transportation purposes in the later years. In 1975, 56.5 percent of the counties and 40.0 percent of the Section 147 demonstration jurisdictions used revenue sharing for public transportation purposes. The participation rate of the towns is somewhat lower but still represents an increase over the 1973 figures.

The average amount of such funds used for public transportation has also shown a general increase across the various groups. Table 2 shows the actual averages by group for operating and capital expenditures for 1973-1975 as well as the calculated growth indices. In 1973, the average outlay for operating costs in public transportation was $18 396 for the sample counties and $18 748 for the Section 147 demonstration areas, a difference not statistically significant. By 1975, the figures had climbed to an average annual outlay of $41 841 for the sample counties and $21 739 for the demonstration areas. Similar impressive growth patterns are noted for the capital expenses for public transportation; there was an enormous increase in county outlays ($170 414) in 1974.

Use of Revenue-Sharing Funds for Public Transit in Rural Areas

The telephone follow-up survey revealed only one case of a rural community that used its revenue-sharing funds for public transportation in the form of public transit. As Table 3 illustrates, a much larger proportion of the Section 147 demonstration areas (3 out of 53 in 1974 and 6 out of 53 in 1978) used revenue-sharing funds for public transportation in the form of public transit. Nevertheless, as Table 4 suggests, by reviewing the quarterly reports filed by Section 147 agencies with FHWA from 1977 through 1978, it can be seen that revenue sharing is used by only 11.3 percent of the Section 147 demonstration areas, and other revenue sources are more

Table 1. Use of revenue-sharing funds for public transportation in selected U.S. rural areas, 1973-1975.

	Jurisdictions That Use Funds for Public Transportation				Jurisdictions That Do Not Use Funds for Public Transportation				Total			
Year	A	B	C	D	A	B	C	D	A	B	C	D
1973												
Number	37	26	28	19	128	65	117	34	165	91	203	53
Percent	22.4	28.6	42.4	35.8	77.6	71.4	57.6	64.2				
1974												
Number	60	37	130	22	120	56	86	31	180	93	216	53
Percent	33.3	39.8	60.2	41.5	66.7	60.2	39.8	58.5				
1975												
Number	59	24	113	6	111	34	87	9	170	58	200	15
Percent	34.7	41.4	56.5	40.0	65.3	58.6	43.5	60.0				

Note: A = sample towns in large counties; B = sample towns in small counties; C = counties in random sample; D = towns or counties served by Section 147 demonstration projects.

Table 2. Trends in revenue-sharing expenditures in selected U.S. rural areas, 1973-1975.

	Avg Expenditure ($)				Growth Index (1973 = 100)			
Use by Year	A	B	C	D	A	B	C	D
Operation of public transportation								
1973	1 403	6 538	18 396	18 748	-	-	-	-
1974	2 912	11 803	44 125	25 905	208	181	240	138
1975	3 475	7 328	41 841	21 739	247	112	227	116
Total operating expenses								
1973	8 599	29 235	61 939	64 866	-	-	-	-
1974	14 153	57 425	137 476	268 166	165	196	222	413
1975	37 819	36 399	161 882	244 308	440	124	261	378
Capital expense for public transportation								
1973	2 147	9 412	39 881	25 420	-	-	-	-
1974	6 536	18 001	170 414	63 368	304	191	427	249
1975	4 958	28 321	96 308	NA	230	301	241	-
Total capital expenditures								
1973	18 254	35 786	133 851	117 868	-	-	-	-
1974	34 872	97 417	293 777	296 703	191	272	219	252
1975	39 910	87 309	380 554	171 849	219	244	284	146

Note: A, B, C, and D are as defined in Table 1.

Table 3. Revenue-sharing monies spent on public transportation and on passenger transportation.

Type of Telephone Survey	No. Cases Revenue Sharing Used for A	B	B ÷ A (%)	B + A (%)
Random sample of U.S. rural towns (N=120)				
1973	37	1	2.7	0.8
1974	60	0	0	0
1975	59	0	0	0
Section 147 demonstration projects (N=53)				
1974	22	3	13.6	5.7
1978	NA	6	-	-

Note: A = public transportation; B = passenger transportation.

Table 4. Nonfarebox funding support for Section 147 projects, 1978.

Funding Source	Systems That Use Source No. (N=53)	Percent	Systems That Do not Use Source No. (N=53)	Percent
Comprehensive Employment and Training Act	31	58.5	22	41.5
Aging program, U.S. Department of Health, Education, and Welfare[a]	21	39.6	32	60.4
Community Services Act	15	28.3	38	71.7
State support	14	26.4	39	73.6
Education	9	17.0	44	83.0
Title 20, U.S. Department of Health, Education, and Welfare[a]	9	17.0	44	83.0
Revenue sharing	6	11.3	47	88.7
Regional agency support	5	9.4	48	90.6
Mental health	4	7.5	49	92.5
Headstart	2	3.8	51	96.2
Local tax support	0	0	53	100.0

[a]Now the U.S. Department of Health and Human Services.

important. In general, one may conclude that revenue sharing is not now being used for the support of public transit in rural areas. The presence of federal demonstration monies is positively correlated with an increased probability of such use; however, in all cases there are very few jurisdictions doing so.

Revenue sharing is used principally for the construction and repair of rural streets and roads, for constructing sidewalks, for purchase of road-maintenance equipment, and for other nontransit purposes. More results from the survey are reported below.

Other Funding Support for Section 147 Demonstration Projects

The quarterly reports of the programs also showed that Comprehensive Employment and Training Act (CETA) funds were the most common form of non-FHWA support at the local level. Of the 53 systems, 31 (58.5 percent) reported use of this source. Programs on aging, mental health, etc., of the U.S. Department of Health, Education, and Welfare (now the U.S. Department of Health and Human Services) are also important sources of indirect support for the Section 147 demonstration programs. The anti-poverty Community Services Act (CSA) programs are tapped for support in 15 cases (28.3 percent).

None of the jurisdictions reported use of local tax revenues for support of the Section 147 demonstration projects; however, it should be noted that in-kind services (repairing facilities, for example) are indirectly paid by local taxes. Six of the systems reported use of federal revenue-sharing funds. To some extent, diversion of revenue-sharing funds to public transit may have an upward pressure on local taxes, since funds from the two sources are theoretically interchangeable. No systematic attempt was made here to verify this hypothesis.

Trends in Funding of Public Transportation in Rural Areas

Table 2 indicates that three years (1973-1975) show generally upward movements in transportation financing between 1973 and 1974 but reductions on the average between 1974 and 1975. For example, the sample towns in large counties (column A) spent an average of $2147 on capital outlay for public transportation in 1973, brought the figure to $6536 in 1974, and dropped back to $4958 in 1975. These numbers obscure the wide variations in reported amounts and are small in comparison with county data, which were $39 881, $170 414, and $96 308 for the three years 1973-1975, respectively.

One reason for the generally upward pattern between 1973 and 1975 was the increase in overall funds for capital improvements. Rural jurisdictions in the sample of counties showed a steady increase from $133 851 on the average in 1973 to $380 554 in 1975, an increase of 184 percent. Except for rural counties, the growth indices in capital expenditures for public transportation actually exceeded the overall growth indices in capital expenditures. In rural counties, the index of growth (1973-1975) was 241 for capital expenditures for public transportation and 284 for total capital expenditures.

Jurisdictions do not have to spend the money in any given fiscal year, and carry-over of funds permits greater revenue availability in subsequent years. Thus, it is interesting to note in Table 5 (computed from the records of the Office of Revenue Sharing) that the total revenue-sharing funds available to the counties rose from $475 154 in 1973 to $723 823 in 1974 and declined slightly to $707 065 in 1975. These amounts of monies are ample evidence of the potential capacity of rural counties to pick up federal demonstration projects if necessary.

Comparison of Section 147 Areas with Random-Sample Towns

Do jurisdictions served by Section 147 demonstration projects show similar patterns to the pattern of rural towns found in the random-sample survey? From Table 5, one notes that the revenue-sharing funds available in Section 147 areas, principally through the counties, differ little from the funds available to the average rural county, and from Table 6 one sees that the characteristics of Section 147 towns and random-sample towns are similar except for county population size and population density. For example, revenue-sharing funds available for Section 147 areas in 1975 were slightly more than $642 000 and the average for the general sample counties was $707 000. Given wide variations in reported funding availability among the counties, these differences are not statistically significant.

With respect to other comparisons measured in Table 6, one notes that the Section 147 areas have a somewhat lower-than-average county population, a somewhat slower growth rate (1960-1970), and have somewhat lower levels of county revenue from their own sources than that for the average. These characteristics may be linked to the lower population density. A larger-than-proportional number of Section 147 grants was given to outlying low-income communities, such as those represented by tribal

councils or community-action organizations, and this may reflect a special-need population to some extent. Despite this fact, the income differences between the Section 147 areas and the random sample of rural towns ($3546 versus $3207) should be discounted as the explanation for differing behavior in expenditure for public transit.

Comparison of Jurisdictions That Do and Do not Spend Revenue-Sharing Funds for Public Transportation

Only on the basis of population density are areas that spend money on public transportation out of revenue-sharing funds statistically different from those jurisdictions that do not. From Table 7, one notes that the 1974 data show an average of $74 134 of total operating expenses from revenue sharing for those systems that do spend money on public transportation compared with a similar figure of $70 736 for those systems that do not. In view of the large SDs on these variables, one may conclude that there is no statistically significant difference. There appears at first glance to be a higher level of capital expenditures overall for those systems that use funds for public transportation ($172 847 compared with $51 846), but again the very large variances prevent drawing such an inference. With respect to population density, however, the systems that use funds for public transportation tend to have significantly lower population densities (122.8 opposed to 268.0), which suggests that these lower-density areas have fewer revenue sources to devote to needed capital road improvements. It is noted that revenues from local (own) sources are less for the areas that spend money on public transportation ($6 245 000 compared with $7 952 000). Again the difference is not significant. For these other variables, these two types of jurisdictions are similar: percentage nonwhite in the population, percentage elderly in the total population, and per-capita income.

Table 8 presents information from telephone surveys made by the Transportation Institute of North Carolina Agricultural and Technical State University in August 1978 of areas that do not spend revenue-sharing funds for public transportation. Of the towns responding out of the 120 interviewed, 32.1 percent were served by privately owned intercity buses and another 8.9 percent were served by publicly owned intercity buses. A mere 1.8 percent (two localities) were served by a local bus; both systems were publicly owned. Much more important to local passenger transportation were the taxi companies, which were present and locally based in 23.2 percent of the cases and were based in other towns for 15.2 percent of the cases that reported. Nearly one-quarter (24.1 percent) of the responding jurisdictions provided service to special target groups (elderly or handicapped) in a special public transportation program.

Only 10 of the 120 systems contacted reported that local funds had been spent for public transpor-

Table 5. Average revenue-sharing funds available in selected U.S. rural areas, 1973-1975.

Jurisdiction	Average Funds Available ($)			Growth Index (1973 = 100)	
	1973	1974	1975	1974	1975
A					
Amount	53 529	78 537	75 988	147	142
SD	75 293	105 904	99 492		
N	163	179	166		
B					
Amount	152 160	239 421	207 061	157	136
SD	205 298	354 636	366 007		
N	90	92	57		
C					
Amount	475 154	723 823	707 065	152	148
SD	828 812	1 022 980	946 013		
N	203	214	199		
D					
Amount	542 458	700 404	642 437	129	118
SD	106 739	1 027 701	710 689		
N	53	53	15		

Table 6. Comparison of Section 147 areas with random-sample towns.

Item	Section 147 Areas (N=53)	Random-Sample Towns (N=180)
County population (avg)	64 849	104 461
Increase, 1960-1970 (%)	6.0	9.7
Nonwhite (%)	9.7	8.2
Elderly (65+ years) (%)	10.6	11.9
Density	104.6	249.9
Revenue from own sources (1974), county data ($)	5 757 000	7 788 000
Per-capita income, county ($)	3546	3207
Town population	4279[a]	3193[b]

[a]N=8. [b]N=180.

Table 7. Comparison of study areas that do and do not spend revenue-sharing funds for public transportation.

Item	Jurisdictions That Use Revenue Sharing for Public Transportation		Jurisdictions That Do not Use Revenue Sharing for Public Transportation	
	Avg	SD	Avg	SD
1974 revenue sharing used for:				
Operating expenses, transportation ($)	23 138[a]	51 673	0	0
Total operating expenses ($)	74 134	181 931	70 736	412 391
Capital expenses, transportation ($)	55 309[a]	220 621	0	0
Total capital expenses ($)	172 847	671 044	51 846	86 219
1974 revenue-sharing funds received ($)	195 675	624 696	113 769	304 122
1974 revenue-sharing funds available ($)	236 901	455 275	211 691	612 553
County population	78 659	133 453	104 570	200 276
Increase, 1960-1970 (%)	8.5	15.4	9.12	17.17
Nonwhite, 1970 (%)	8.6	14.8	8.5	12.1
Elderly (65+ years), 1970 (%)	11.7	3.2	11.5	3.9
Density (000 000s)	122.8[a]	196.9	268.0	102.6
Revenue from own sources ($000 000s)	6.245		7.952	
Per-capita income ($000 000s)	3.163		3.351	
Town population ($000 000s)	3.526	2574	3.093	2334

[a]Statistically significant difference at 0.05 level.

Table 8. Characteristics of study areas that spent revenue-sharing funds for public transportation, 1978.

Characteristic	No.	Percent
Served by privately owned intercity bus	36	32.1
Served by publicly owned intercity bus	10	8.9
Served by publicly owned local bus	2	1.8
Served by locally based private taxi	26	23.2
Served by private taxi from another town	17	15.2
Served by special public transportation (for client groups)	27	24.1
Spent local funds for support of public transportation prior to revenue sharing	10	15.9
Increased money for public transportation with advent of revenue sharing	6	31.6

Note: Total sample size = 120.

tation prior to the advent of revenue sharing, and only 6 of the Section 147 program systems indicated that revenue sharing had permitted an increase in funds to support passenger mobility. In general, however, it is safe to conclude that revenue sharing has not been tapped in most cases by the rural areas to finance public transit.

SUMMARY AND CONCLUSIONS

The purpose of the current study was to ascertain to what extent rural local communities are using their general revenue funds to support public transit operations in the jurisdictions. The study found widespread use of funds in support of public transportation, but further inquiry led to conclusions that in almost all cases the funds were being spent for road maintenance, road construction, sidewalks, or purchase of road-related capital equipment rather than for public transit. Only two systems of the 120 contacted were discovered to have a public transit program, and only one transit system in the randomly selected sample of rural areas had received revenue-sharing funds. By contrast, of the 53 systems interviewed, the areas (towns and counties) that had received FHWA transit demonstration funds under the Section 147 program were most likely to use revenue-sharing funds for public transit. Nonetheless, revenue sharing is a less widely practiced form of local support for Section 147 programs; it ranks behind funding sources from CETA, aging programs, and CSA.

Viewed in the context of the broader definition of public transportation (including roads), revenue-sharing funds are used for mobility purposes in nearly 40 percent of the rural towns, 56 percent of the counties, and 40 percent of the Section 147 projects (data are for 1975).

The average level of transportation expenditure out of revenue-sharing funds (including roads) for the counties is approximately one-fourth of the total revenue-sharing funds expended. Since available funds may be considerably more, the fraction of the total funds available that transportation represents may be closer to 15 percent. In general, the trends in figures and the patterns for 1974 and 1975 are difficult to discern, since 1973 was a start-up year. In general, funds were up in all categories, and transportation expenditures kept pace with overall growth rates, except in the Section 147 demonstration program areas. Telephone surveys to jurisdictions that spent money for public transportation indicated that officials were satisfied that levels would not decline in the future.

Advocates of rural public transportation should pursue the question of why systems cannot be supported out of revenue-sharing funds, which appear to be mounting from year to year. An untapped local financial resource, revenue sharing may be looked to as an alternative to federal largesse as a means of financing passenger programs.

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Examination of Regional Transit Cost Allocation Among Towns: Five Case Studies

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The design and implementation of procedures now used to allocate regional public transit costs among towns are examined. The basis of this examination is a set of case studies of eight cost-allocation procedures being used in five New England regions—two in Maine and three in Massachusetts. These regions have different demographic and economic characteristics, types of transit service and regional organizations, and sizes of operations. The procedures examined employ variables such as passenger trips, passenger miles, vehicle trips, vehicle miles, and vehicle hours. The population served in the regions varies from 80 000 to 226 000. Three of the regions contain urbanized areas and all five regions include a large amount of rural area. Five of the eight procedures are used to allocate costs of demand-responsive services; the other three are for fixed-route services. The services in Maine are operated by private nonprofit agencies associated closely with human service agencies, whereas the services in Massachusetts are provided by regional transit authorities under contract with private bus companies and private nonprofit corporations. The eight operating budgets range from approximately $86 000 to $580 000, and the local shares of the operating deficit range from $16 000 to $64 000. The issues involved in the decision to select a particular procedure are illustrated. Major issues were found to be geographic characteristics of the region, types of transit service provided, and concerns of participating towns regarding an equitable basis of allocation. In addition, the manner in which these issues affected the initial choice and subsequent changes in procedures is reviewed, and a description of the experience of the regional agencies in the implementation of their procedures is given. The results of these case studies provide insight into the process of designing and implementing a procedure to apportion costs to towns that participate in a regional transit program.