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THE IMPACT OF ALTERNATIVE DISTRIBUTION FORMULAS  
ON THE ALLOCATION OF REVENUE SHARING FUNDS  
IN NEW YORK STATE\*

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Introduction

Over the past decade, a fundamental transformation has occurred in the attitudes of our citizens regarding the range, quantity and quality of services desired of all levels of government. One result has been a dramatic rise in public expenditures to provide the diverse set of services desired. For example, between 1960 and 1972, expenditures of federal, state and local governments increased from \$151.3 billion to \$410.3 billion, about 171 percent. Local government expenditures, which were pushed upward by expanding school enrollments and welfare caseloads, maintained their relative importance by growing from \$29.0 billion to \$75.4 billion, about 169 percent [1, p. 17].

The rising cost of providing public services placed severe strains on the budgets of units of government across the country. Heavy reliance on the property tax as a primary source of revenue merely exacerbated this problem at the local level. The relatively faster rate of growth in total expenditures than either property tax revenues or revenues from own sources contributed to the development of an ever-widening "revenue gap." Local leaders, faced with pressure to simultaneously hold down property taxes and expand services, sought assistance from higher levels of government. This pressure from local and state leaders led to final passage by the U.S. Congress of the State and Local Fiscal Assistance Act of 1972, commonly known as federal general revenue sharing.

Perhaps because the reaction of state and local leaders to general revenue sharing has been almost universally favorable, and perhaps because the program has been in existence less than two years, little empirical analysis of its impact has been performed. Several aspects of

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the legislation deserve closer attention by researchers. For example, the legislation provides for the allocation of revenue sharing funds to county areas on the basis of population, relative income and general tax effort. The allocation of revenue sharing funds to county areas varies directly with population and general tax effort, but inversely with per capita income. The federal legislation also contains a provision whereby any state may legislate an optional formula for distributing funds to local governments within the state. Rather than allocating funds on the basis of the three-factor formula, which includes population, general tax effort and relative income, the law permits states to adopt a formula based on population and general tax effort, population and relative income, or a combination of those two factors. The purpose of this paper is to evaluate the potential impact on the distribution of federal general revenue sharing funds among county areas in New York State of allocating funds based on (1) population, relative income and general tax effort, (2) population and general tax effort, and (3) population and relative income.<sup>1/</sup>

#### The State and Local Fiscal Assistance Act of 1972

The federal general revenue sharing legislation specifies procedures under which each state's revenue sharing allocation is to be distributed. One-third of the state's entitlement goes to the state government with the remaining two-thirds going to local governments within the state. The local government entitlement is, in general, allocated to each county area on the basis of population, general tax effort and relative income, as indicated in Equation (1).<sup>2/</sup>

$$CPl_i = \frac{POP_i \cdot GTE_i \cdot RI_i}{\sum_{i=1}^n POP_i \cdot GTE_i \cdot RI_i} \quad (1)$$

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<sup>1/</sup> County areas in New York State were selected for analysis because of the availability of data. Similar procedures could be adapted for other states or for units of local government within county areas.

<sup>2/</sup> Procedures are also specified for allocating revenue sharing funds to the county government, the towns as a group, and the cities and villages as a group based on the adjusted taxes of each group, and among individual towns, cities and villages on the basis of population, general tax effort and relative income. This analysis concentrates on the initial allocation of revenue sharing funds among county areas.

where

- $CP1_i$  = proportion of the local government revenue sharing entitlement, county area  $i$ .  
 $POP_i$  = population, county area  $i$ .  
 $GTE_i$  = general tax effort factor, county area  $i$ .  
 $RI_i$  = relative income factor, county area  $i$ .  
 $n$  = the number of county areas.

Population means the total resident population for a county area as determined by the Bureau of the Census in the 1970 Census of Population. The relative income factor is defined as the ratio of state per capita personal income to county area per capita personal income. Per capita income for each county area is the mean income of all persons residing in that county area, based on the 1970 Census of Population and Housing.

The general tax effort factor for a county area is defined as the ratio of adjusted taxes to aggregate personal income for that county area. Adjusted taxes encompass all general purpose taxes of the county government, as well as those of the towns, villages and cities within the county area. Included are property taxes (except those collected to support schools and other education programs); the local portions of jointly imposed State and local sales and compensating use taxes<sup>3/</sup>; other non-property taxes, such as those, for example, on admissions and harness racing; and, licenses, permits and other county or municipal taxes. Adjusted taxes do not include receipts from user charges, special assessments, interest earnings or fines.<sup>4/</sup>

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<sup>3/</sup> A local government's share of a wholly state imposed tax is classified as an intergovernmental transfer and not as local tax effort.

<sup>4/</sup> By excluding revenue derived from user charges and special assessments from local tax effort, the general revenue sharing legislation may create incentives which will lead local government leaders to reduce their reliance on user charges and special assessments. It is often argued that user charges more nearly equate the benefits and costs of providing public services than do general revenues and, thus, should be encouraged rather than discouraged. Also, because some towns and villages rely more heavily than others on user charges for local revenue, elimination of these charges from local tax effort may work to their disadvantage. In addition, to the extent that support for public education may be a greater proportion of local tax effort in rural than urban areas, elimination of support for education from estimates of general tax effort may work against rural areas. The impact of each of these exclusions deserves additional attention in future research efforts.



## Evaluation of Alternative Formulas

### Population, Relative Income and General Tax Effort

In New York State, the three-factor formula, which includes population, relative income and general tax effort, is currently being used to allocate the local government revenue sharing entitlement among county areas. To approximate the distribution of the 1972 local government entitlement of \$394.3 million, estimates of population, relative income and general tax effort for the county areas of New York State were substituted into Equation (1). The census of county area population for 1970 were obtained from the U.S. Bureau of the Census [5]. Aggregate personal income and per capita personal income for the counties of New York State were derived from data published by the New York State Division of the Budget and estimated by the New York State Department of Commerce from the federal estimates of aggregates for each state [4, pp. 93-94].<sup>5/</sup> Adjusted taxes for each county area were calculated on the basis of data published by the New York State Department of Audit and Control [2].

Estimates of the county area allocations, expressed both in thousands of dollars and as a percentage of the estimated \$394.3 million local government entitlement for 1972, are presented in Table 1.<sup>6/</sup> These figures indicate that, under the three-factor formula currently in use, New York City receives nearly \$192.5 million (48.8 percent) of the local government entitlement for New York State. The highly urbanized counties in Group 2, those containing between zero and 25 percent rural population, receive over 27 percent of the total. Thus, the highly urbanized portions of the State receive over 76 percent of the local government entitlement under the three-factor formula.

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5/ Estimates of personal income include money income received by residents before deductions of income taxes and government retirement payments, and include benefits for retirement, unemployment and welfare. Certain nonmonetary income, such as the rental value of owner-occupied homes, payment-in-kind for work performed, and food produced and consumed on farms, is included. This definition of personal income may differ slightly from that used by the Office of Revenue Sharing to compute allocations to local governments [6, pp. 3-4]. However, differences are thought not to be of sufficient magnitude to influence the results of this analysis.

6/ Counties are grouped on the basis of percent rural population. Group 1 consists of the five counties of New York City (Bronx, Kings, Queens, New York and Richmond), all of which have zero rural population. Group 2 counties have rural populations between zero and 25 percent. Rural populations of Groups 3, 4 and 5 fall in the range of 26-50 percent, 51-75 percent and 76-100 percent, respectively.

Table 1  
Estimates of 1972 Revenue Sharing Allocations Based on Alternative  
Distribution Formulas, County Areas of New York State

County Groups <sup>a/</sup>	Percent of 1970 State Population	1972 Allocation Based on POP, GTE and RI <sup>b/</sup>		Change From 1972 Allocation Based on POP and GTE		Change From 1972 Allocation Based on POP and RI	
		County Area	Percent of	Change in	Percentage	Change in	Percentage
		Allocation (thousands)	Total	Allocation (thousands)	Change	Allocation (thousands)	Change
<u>Group 1</u>							
New York City	43.28	\$192,458	48.81	+\$19,281	+10.02	-\$38,760	-20.14
<u>Group 2</u>							
Albany	1.57	3,982	1.01	+ 237	+ 5.94	+ 1,814	+45.55
Erie	6.10	23,895	6.06	- 2,721	-11.39	+ 2,996	+12.54
Monroe	3.90	10,764	2.73	+ 592	+ 5.50	+ 3,628	+33.70
Nassau	7.83	16,955	4.30	+ 6,664	+39.30	+ 5,008	+29.54
Onondaga	2.59	11,238	2.85	- 1,341	-11.93	+ 236	+ 2.10
Rockland	1.26	4,771	1.21	- 749	-15.70	+ 1,104	+23.14
Schenectady	0.88	2,366	0.60	- 79	- 3.33	+ 1,222	+51.65
Suffolk	6.18	25,117	6.37	- 3,628	-14.44	+ 3,076	+12.25
Westchester	4.90	8,162	2.07	+ 4,889	+59.90	+ 3,825	+46.86
Total	35.21	107,250	27.20	+ 3,864	+ 3.60	+ 22,909	+21.36
<u>Group 3</u>							
Broome	1.22	4,929	1.25	- 710	-14.40	+ 631	+12.80
Chautauqua	0.81	4,180	1.06	- 1,065	-25.47	+ 39	+ 0.94
Chemung	0.56	2,366	0.60	- 513	-21.67	+ 394	+16.65
Cortland	0.25	1,262	0.32	- 355	-28.12	+ 118	+ 9.35
Fulton	0.29	1,419	0.36	- 394	-27.78	+ 119	+ 8.39
Herkimer	0.37	1,183	0.30	- 237	-20.03	+ 670	+56.64
Montgomery	0.31	1,419	0.36	- 354	-24.95	+ 198	+13.95
Niagara	1.29	6,427	1.63	- 1,341	-20.86	- 39	- 0.61
Oneida	1.50	5,678	1.44	- 1,104	-19.44	+ 1,577	+27.77
Orange	1.22	4,416	1.12	- 749	-16.96	+ 1,301	+29.46
Rensselaer	0.84	2,839	0.72	- 394	-13.89	+ 946	+33.33
Total	9.01	36,118	9.16	- 7,216	-19.98	+ 5,954	+16.48



Table 1 (continued)

County Groups <sup>a/</sup>	Percent of 1970 State Population	1972 Allocation Based on POP, GTE and RI <sup>b/</sup>		Change From 1972 Allocation Based on POP and GTE		Change From 1972 Allocation Based on POP and RI	
		County Area Allocation (thousands)	Percent of Total	Change in Allocation (thousands)	Percentage Change	Change in Allocation (thousands)	Percentage Change
Group 4							
Cattaraugus	0.45	\$ 2,445	0.62	-\$ 710	-29.03	\$ 0	0.00
Cayuga	0.42	2,208	0.56	- 552	-25.00	+ 40	+ 1.81
Clinton	0.40	1,893	0.48	- 552	-29.17	+ 355	+18.75
Delaware	0.25	1,222	0.31	- 394	-32.24	+ 198	+16.20
Dutchess	1.22	2,997	0.76	- 119	-23.97	+ 1,932	+64.47
Franklin	0.24	1,814	0.46	- 749	-41.30	- 237	-13.07
Genesee	0.32	1,104	0.28	- 158	-14.31	+ 394	+35.69
Jefferson	0.49	2,484	0.63	- 670	-26.97	+ 158	+ 6.36
Madison	0.34	1,696	0.43	- 552	-32.55	+ 315	+18.57
Ontario	0.43	1,617	0.41	- 316	-19.54	+ 512	+31.66
Orleans	0.20	670	0.17	- 118	-17.61	+ 316	+47.16
Oswego	0.55	3,509	0.89	- 1,301	-37.08	- 79	- 2.25
Otsego	0.31	1,222	0.31	- 355	-29.05	+ 473	+38.71
Putnam	0.31	1,420	0.36	- 277	-19.51	+ 78	+ 5.49
St. Lawrence	0.61	3,588	0.91	- 1,380	-38.46	+ 355	+ 9.89
Saratoga	0.67	2,957	0.75	- 1,143	-38.65	+ 1,223	+41.36
Seneca	0.19	670	0.17	- 157	-23.43	+ 276	+41.18
Steuben	0.55	2,011	0.51	- 552	-27.45	+ 867	+43.11
Tioga	0.25	828	0.21	- 237	-28.62	+ 552	+66.67
Tompkins	0.42	1,893	0.48	- 395	-20.87	+ 236	+12.47
Ulster	0.77	3,076	0.78	- 631	-20.51	+ 709	+23.05
Warren	0.27	1,774	0.45	- 473	-26.66	- 355	-20.01
Washington	0.29	1,301	0.33	- 394	-30.23	+ 316	+24.29
Wayne	0.44	1,419	0.36	- 275	-19.38	+ 710	+50.04
Wyoming	0.21	867	0.22	- 276	-31.83	+ 237	+27.34
Yates	0.11	513	0.13	- 158	-30.80	+ 118	+23.00
Total	10.71	47,198	11.97	- 12,894	-27.32	+ 9,700	+20.55



Table 1 (continued)

County Groups <sup>a/</sup>	Percent of 1970 State Population	1972 Allocation Based on POP, GTE and RI <sup>b/</sup>		Change From 1972 Allocation Based on POP and GTE		Change From 1972 Allocation Based on POP and RI		
		County Area	Percent of	Change in	Percentage	Change in	Percentage	
		Allocation	Total	Allocation	Change	Allocation	Change	
		(thousands)		(thousands)		(thousands)		
<u>Group 5</u>								
Allegany	0.25	\$ 1,183	0.30	-\$ 394	-33.31	+\$ 315	+26.63	
Chenango	0.25	1,065	0.27	- 276	-25.92	+ 276	+25.93	
Columbia	0.28	1,025	0.26	- 276	-26.93	+ 434	+42.34	
Essex	0.19	1,419	0.36	- 433	-30.51	- 354	-24.95	
Greene	0.18	1,104	0.28	- 276	-25.00	- 118	-10.69	
Hamilton	0.03	434	0.11	- 40	-19.22	- 316	-72.81	
Lewis	0.13	749	0.19	- 276	-36.85	+ 40	+ 5.34	
Livingston	0.30	828	0.21	- 158	-19.08	+ 591	+71.38	
Schoharie	0.14	670	0.17	- 236	-35.22	+ 158	+23.58	
Schuyler	0.09	552	0.14	- 197	-35.69	0	0.00	
Sullivan	0.29	2,248	0.57	- 474	-21.09	- 829	-36.88	
Total	2.13	11,277	2.86	- 3,036	-26.92	+ 197	+ 1.75	

a/ Counties are grouped on the basis of percent rural population. Group 1 consists of the five counties of New York City (Bronx, Kings, Queens, New York and Richmond) all of which have zero rural population. Group 2 counties have rural populations between zero and 25 percent. Rural populations of Groups 3, 4 and 5 fall in the range of 26-50 percent, 51-75 percent and 76-100 percent, respectively.

b/ POP, GTE and RI represent population, general tax effort and relative income, respectively. Population is the 1970 census of county area population. General tax effort is estimated by dividing the adjusted local tax revenue of each county area by aggregate personal income for that county area. Relative income is estimated by dividing state per capita personal income by per capita income of each county area.

Counties in Group 3, with between 26 and 50 percent rural population receive approximately 9.2 percent of the local government entitlement, while those in Group 4, with between 51 and 75 percent rural population, receive approximately 12.0 percent of the entitlement. The most rural counties, those with between 76 and 100 percent rural population which make up Group 5, receive slightly less than three percent of the local government entitlement.

#### Population and General Tax Effort

To evaluate the potential impact of legislation by the State to adopt an alternative revenue sharing allocation formula based on population and general tax effort, each county area's proportion of the local government entitlement was re-calculated using Equation (2).

$$CP2_i = \frac{POP_i \cdot GTE_i}{\sum_{i=1}^n POP_i \cdot GTE_i} \quad (2)$$

Allocating the local government entitlement on the basis of population and general tax effort, which eliminates relative income from the formula, results in substantial shifts in the distribution of revenue sharing funds. These changes, expressed in Table 1 in thousands of dollars and as a percentage of the amount received under the three-factor formula indicate that eliminating relative income from consideration results in an increase of over 10 percent in the proportion of the local government entitlement accruing to the counties of New York City. They would enjoy about a \$19 million boost in federal general revenue sharing funds.

The highly urbanized Group 2 counties would also benefit from greater emphasis on population and general tax effort. Their share of the local government entitlement would increase by \$3.9 million, a 3.6 percent increase. However, this increase is by no means evenly distributed across Group 2 counties. For example, high income Westchester and Nassau Counties would be the major beneficiaries, receiving increases of 59.9 percent and 39.3 percent, respectively. Monroe and Albany Counties would also receive additional revenue, but more modest increases of 5.5 percent and 5.9 percent, respectively. Four counties, Erie, Onondaga, Rockland and Suffolk, would receive less revenue under the two-factor formula containing population and general tax effort than under the three-factor formula which also includes relative income.

Reduced reliance on relative income would also lower the revenue sharing allocation in every county in Groups 3, 4 and 5. Because per capita income in these rural counties is lower than in the urban counties, relative income is considerably more important. As a result,



Group 3 counties incur about a 20.0 percent reduction in their revenue sharing allocation. The reductions in both Groups 4 and 5 amounts to approximately 27 percent. Clearly, New York City and several of the highly urbanized counties would be the primary beneficiaries of adopting an allocation formula based on population and general tax effort.

#### Population and Relative Income

A third allocation formula was used to evaluate the potential impact of distributing funds to county areas on the basis of population and relative income. The proportion of the local government entitlement which would accrue to county areas based on population and relative income was calculated using Equation (3).

$$CP3_i = \frac{POP_i \cdot RI_i}{\sum_{i=1}^n POP_i \cdot RI_i} \quad (3)$$

Eliminating general tax effort from the general revenue sharing formula would also result in substantial shifts in the distribution of funds compared to the distribution under the three-factor formula. These changes for county areas, expressed in thousands of dollars and as a percentage of the allocation received under the three-factor formula, are presented in Table 1.

Elimination of general tax effort from the distribution formula would reduce the revenue sharing allocation of New York City while increasing the share of the other county groups. The share distributed to New York City would decline by \$38.8 million, or more than 20 percent. The allocation to counties in Groups 2, 3 and 4 would rise by about 21.4 percent, 16.5 percent and 20.6 percent, respectively. While, on average, Group 5 counties would receive a 1.8 percent increase in revenue, four of the 11 counties would receive less revenue and one would receive approximately the same amount as under the three-factor formula.

Adoption of a formula which excludes general tax effort from the computations would work to the disadvantage of New York City, whose tax effort, as defined in the revenue sharing legislation, is quite high. Most of the remaining county areas in the State would receive greater amounts of revenue than under the three-factor formula based on population, relative income and general tax effort.

Perhaps a work of caution is appropriate. Because the percentages and changes occasioned by alternative formulas are sometimes small, there may be a tendency to judge the potential impact of these alternative formulas as being too small to be of importance to local officials. However, a reduction of less than one percent in the county's share of a



several hundred million dollar local government entitlement would involve the gain or loss of substantial amounts of revenue. For example, the revenue sharing allocation to rural Schoharie County based on the three-factor formula is only 0.17 percent of the local government entitlement in New York State, however, the allocation amounts to about \$670,000. Elimination of general tax effort from the formula would increase the revenue sharing allocation to \$828,000. On the other hand, eliminating relative income from the three-factor formula would reduce the allocation to Schoharie County to \$434,000. Thus, the three formulas investigated in this study would yield a range of revenue sharing funds from \$434,000 to \$828,000 for Schoharie County.

Similar variation exists for larger and more populous counties. For example, in suburban Westchester County, the allocation of revenue sharing funds would range from a minimum of \$8,162,000 under the existing three-factor formula to a maximum of \$13,051,000 under the two-factor formula which contains population and general tax effort.

In New York City, the dollar figures are even more startling. They range from a minimum allocation of \$153,698,000 under the two-factor formula containing population and relative income to a maximum of \$211,739,000 under the two-factor formula based on population and general tax effort. These variations in revenue sharing allocations are obviously of sufficient magnitude to be of interest to local officials concerned with increasing pressure on local budgets.

#### Summary and Conclusions

The purpose of this study was to evaluate the potential impact of alternative revenue sharing formulas on the distribution of the local government entitlement among county areas in New York State. The formula currently in use, which distributes funds on the basis of population, relative income and general tax effort, allocates approximately 48.8 percent of the local government entitlement to New York City and an additional 27.2 percent to nine highly urbanized counties containing from zero to 25 percent rural population. The more rural counties, including those in Groups 3, 4 and 5, receive only 9.2, 12.0, and 2.9 percent of the local government entitlement, respectively.

Eliminating relative income from the three-factor formula currently in use would alter substantially the distribution of revenue sharing funds among county areas in New York State. The primary beneficiary would be New York City, whose revenue sharing allocation would increase by about 10.0 percent, or \$19.3 million. The highly urbanized counties in Group 2 would also benefit on average, however, five of the 11 counties in this group would lose revenue under the new formula. The effect on rural counties would be entirely adverse with all 48 counties losing revenue. For Groups 3, 4 and 5, the revenue sharing losses would amount to 20.0, 27.3 and 26.9 percent, respectively.

Eliminating general tax effort from the three-factor formula would also alter substantially the distribution of revenue sharing funds among county areas. The share of the local government entitlement going to New York City would be reduced by more than 20 percent. Based on the 1972 local government entitlement, this reduction would amount to slightly less than \$39 million. However, the allocation to all other county groups would be greater than currently received under the three-factor formula. The allocation to Groups 2, 3, 4 and 5 would increase by 21.4, 16.5, 20.6 and 1.8 percent, respectively. Most of the rural county areas, because both average tax effort and per capita income are low, would benefit from formula changes designed to reduce the importance of general tax effort, as it is currently defined, while increasing the importance of relative income.

More detailed analyses are needed to provide the basis for an informed public policy decision regarding changes in the revenue sharing allocation formula. This study is, hopefully, a small step in the right direction. Future research should include focusing on alternative measures of general tax effort and the potential impact on the distribution of revenue sharing funds of excluding property taxes and user charges from the computation of general tax effort.

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