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The Budgetary Effects of Rising Public Employee Costs

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THE RISING COSTS OF PUBLIC SERVICES HAS BEEN REPEATEDLY BLAMED ON THE INCREASE IN POPULATION AND PUBLIC DEMAND. HOWEVER, RECENT STUDIES CONCLUDE THAT POPULATION HAS LITTLE IMPORTANCE, AND THAT UNION PRESSURES, EMPLOYMENT LEVELS, COMPENSATION AND OTHER FACTORS ARE THE VILLAINS IN THE COST SITUATION.
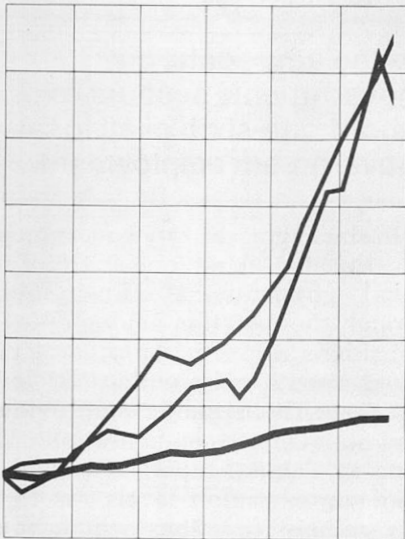
By ROY W. BAHL. Explanations of the rising level of municipal government expenditures have traditionally centered on the changing size and composition of core city populations. The conventional wisdom is that city government expenditures tend to grow fast in response to increased population and to increased concentrations of "high cost citizens," as indicated by larger proportions of non-white population, greater population densities, larger proportions of families with incomes below the poverty level, etc. Accordingly, Federal agencies and State governments have looked for appropriate "need" indicators in devising allocation formulae for fiscal aids, and projections of the fiscal futures of city governments have been at least partially tied to the increased expenditure needs implied by the expectations for a concentration of poor families in the urban core.

The recent trends in city expenditures have suggested that such demand factors play a small role in effecting the rate of expenditure increase, i.e., even with little change in city populations, expenditures have continued

to rise in the face of inflation and public employee union pressures. Consequently, the concern over rising city government expenditures has turned to considerations related to increases in public employment levels and compensation. Specifically, the trend of current expenditure increase might be viewed in terms of the increase in wage rates, pension and fringe benefit levels, non-labor costs, and numbers employed. The first three of these are particularly sensitive to the inflation rate, the first two to collective bargaining agreements, and only the latter would seem to be heavily influenced by the changing size and composition of city populations. The very important implications of viewing city government expenditure increases in terms of these public employment cost "determinants" are that (a) city (and suburban) government expenditures may rise quite independent of the growth in expenditure "needs," and (b) the sources of expenditure increase—if public employee related—are more predictable, and controllable, than are population-related causes of expenditure increase.

The second of these points underlines the basic objectives of this article—to describe, conceptually and empirically, these public employment related causes of municipal government cost increase; and to demonstrate the practical uses of a public employment analysis of municipal government expenditures. The latter is done in the context of a case study of the New York City government.

Increases in expenditures are, of course, equal to the sum of increases in (a) average wage rates, (b) numbers employed, (c) city government payments for pensions-fringe benefits, (d) non-labor expenditures for materials, equipment, and supplies, and (e) transfer payments and debt service. Excluding the latter, and capital expenditures, these components of increase may be predicted if only increases in average wages, the number employed, non-labor expenditures per employee, and the city contribution rate for pensions and fringe benefits are predicted. Some hint about the possible future magnitude of increases in these variables might be gained from an examination of historical trends for large city governments in the United States.

The data in Table 1 show the levels and rates of growth of full-time equivalent government employment and total private sector employment. These data show that state and local government employment has grown about 1.7 times as fast as total national employment, but at about the same rate as employment in the private service sector. For every one hundred persons in the United States, there were approximately 4.2 state and local government employees in 1970 as compared to 3.2 in 1962. In terms of absolutes, over the 1962-1970 period, for every one hundred person increase in employment, seventeen were full-time equivalent state and local government employees; and, over the more recent 1967-1970 period, twenty-three were full-time equivalent state and local government employees.

While the growth rate in total employment by state and local government varies widely across functions, it is interesting to note that the slowest rates of employment growth are observed for those functions which tend by convention to be provided by local rather than by state governments, e.g., fire protection, libraries, sewerage.

In the aggregate, city governments account for about one-sixth of all local government employment

In the aggregate, city governments account for about one-sixth of all local government employment, though the variation among cities is considerable. Particularly, large city governments vary widely in level and growth in public employment and in average compensation. The data in Table 2 report employment and compensation levels for those government functions which these cities have in common.[1] From these data, it would seem that city governments have some latitude over the trade-off choice between its number of employees and the average wage, e.g., in 1971, Los Angeles opted for a relatively low employment of 94.6 per thousand of population, but a relatively high average wage of $12,111, whereas Baltimore made the opposite choice with a relatively high employment, 159.9, and a relatively low average compensation, $7,758. Some of this difference is clearly due to the different functional responsibilities of cities, even with respect to the common func-

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TABLE 1
Employment and Monthly Compensation Levels and Growth Rates: Public and Private Sector for 1962-70

Sector	Employment (in thousands)			Percent Annual Change	Average Monthly Compensation			Percent Annual Change
	1962	1967	1970		1962	1967	1970	
Local Government	4,480	5,509	6,626	4.2	$443	$564	$690	5.7
State and Local Government	5,958	7,454	8,528	4.6	$440	$565	$693	5.8
Non-Government Service Industries	8,028	10,060	11,630	4.7	$482	$579	$549	1.7
Total Employment	55,596	66,030	70,616	2.7	$445	$534	$639	4.6

Source: Reported in Bahl, Greytak, Campbell and Wasylenko, "Intergovernmental and Functional Aspects of Public Employment Trends in the United States", *Public Administration Review,* November/December 1972, pp. 815-832.

TABLE 2
Selected Employment and Compensation Statistics for Large U.S. Cities For Common Municipal Functions[1]

	Employment Per 10,000 Population		Average Salary	Annual Rate of 1966-71 Growth	Price Index (Oct. 1971)
	1971	1966-67 Change	1971		
New York	123.8	0.4	$11,992	9.6	128.8
Chicago	106.1	13.0	11,829	11.4	123.3
Los Angeles	94.6	−2.3	12,111	7.4	122.1
Philadelphia	139.8	18.8	10,788	13.2	126.9
Detroit	107.0	7.7	11,274	10.5	126.1
Houston	73.7	−4.7	8,296	8.4	124.5
Baltimore	159.9	26.4	7,758	8.4	126.4
Dallas	109.5	5.1	8,032	9.4	124.3
Washington, D.C.	203.8	52.2	11,250	9.9	126.5
Cleveland	119.7	13.6	9,906	12.4	126.7
Average	124.4[2]	6.9[2]	11,191	9.9	126.6
Average for all U.S. Cities over 50,000	95.2[2]		8,774	8.9	125.1

[1]Includes current expenditures for highways, police protection, fire protection, sewerage, sanitation, parks and recreation, financial administration and general control.

[2]Weighted by population.

	Employment Change	Percent of Labor Cost Increase Due To	
		Price Level Change	Real Wage Change
New York	3.5	57.6	38.9
Chicago	11.6	36.0	52.4
Los Angeles	20.6	47.3	32.0
Philadelphia	14.5	35.0	50.6
Detroit	-4.7	52.1	52.6
Houston	31.1	40.0	28.9
Baltimore	24.2	47.4	28.5
Dallas	32.9	34.5	32.5
Washington, D.C.	33.4	35.5	31.2
Cleveland	-5.9	45.8	60.1
Average	12.9	45.2	41.9
Average for All U.S. Cities Over 50,000	20.9	44.6	34.5

SOURCE: Consumer Price Index Data from U.S. Department of Labor, Bureau of Labor Statistics, *Handbook of Labor* Statistics (Washington, D.C.: United States Government Printing Office, 1967, 1971); employment and salary data taken from U.S. Department of Commerce Bureau of the Census *City Employment in 1966 and 1971* G.E. Number 1, (Washington, D.C.: United States Government Printing Office, April 1967 and April 1972).

tions. Still, the differences are wide enough to suggest that they result at least partly because of city government policy.

The nature of the increase in city government expenditures may similarly be a result of local public employee policies. For example, the extent to which the city government gives wage increases and pension-fringe benefit increases largely determines the possibilities for employment increase. Another major reason for city government expenditure increase is inflation, which is a controllable factor by the city only in the sense that cost-of-living wage increases are the result of discretionary actions. The last three columns in Table 2 present a rough analysis of the elements of labor cost increases for city governments. These data show that for the ten largest cities, 12.9 percent of the labor cost increase was due to employment increase, 45.2 percent to price level changes, and 41.9 percent to real wage increases.[2] Second, the acceleration in city government labor costs has been primarily due to rising real and money wages, with the two factors being about equally important.

With respect to wage rate increases in general, it may be observed that the rate of growth of average compensation in the state-local sector has exceeded that in the private sector over the 1962-1973 period, and that on the average, for every $1 increment in the private sector, there was a $1.26 increment in the public sector. The conjecture

that the increase in public sector wages is basically an extension of trends in the nongovernment service sector is not borne out by these data. Average compensation levels rose substantially faster in the state-local sector than in the nongovernment service sector (see Table 1). This discrepancy may well be due to the collective bargaining strength of state-local government employee unions, which by and large does not exist in the private service sector.

Employee retirement system costs have grown at a faster rate than either public employment or average compensation (see Tables 1 and 3). In terms of averages over the 1961-1971 period, for every employee added to state and local government payrolls, retirement system costs rose by $739.00. Since the average retirement system cost per employee in 1971 was only $437.00, the decade must have witnessed a drastic increase in the contribution rate by state and local governments. Unfortunately, similar data for city governments are not available on an aggregate cross-section basis.

An expenditure forecasting model would be useful in planning long term tax policy revisions as well as in the collective bargaining process

It is possible to construct a straightforward expenditure planning model wherein the future increase in expenditures is related to increases in the real wage rate, inflation, the employment level, and in the pension contribution rate. Such a model would enable city policy makers to forecast the level of expenditures under varying assumptions about increases in the wage rate, employment level, etc., and therefore to plan long term tax policy revisions. It would also be useful as a tool in the collective bargaining process, in that it would allow the government to estimate the longer term expenditure effects of any various proposed agreements. Too often, the city comes to the bargaining table armed with little information about the longer term budgetary implications of alternative proposals for in-

creased employee compensation and/or changed work rules.

A model of this sort was recently constructed in the course of a fiscal study of New York City.[3] This empirical model is presented here to demonstrate the uses of such analysis. The results are given here only for the police function, because of space limitations. In any case, a forecast for all functions is easily inferred.

This forecasting model requires separate estimation of labor costs, retirement system costs, and nonlabor costs. Forecasts are generated for the year 1979, and are based on historical data for the 1965-1972 period.

The labor cost forecast is made from

$$\triangle L = A_1 \triangle E + A_2 \triangle P + A_3 \triangle W \quad (1)$$

Where $\triangle L$ = estimated labor cost increase; $\triangle E$ = estimated employment increase; $\triangle P$ = estimated price level increase; and $\triangle W$ = estimated real wage increase. The term A_1 might be viewed as the wage rate existing in the current year, hence $A_1 \triangle E$ is the total cost increase of all new employees added, whereas $A_3 \triangle W$ is the total cost increase associated with any given *real* wage increase.[4] The term $A_2 \triangle P$ describes the labor cost effects of whatever inflation is expected to take place during the forecast period. One possibility for estimating A_1, A_2, and A_3 is from historical data. In order to carry out this analysis, police labor cost trends were studied for different job categories—executive, uniform, clerical, laborer, and others. Wages paid to each employee in the department were aggregated by these job categories and the total was divided by the number of employees in that job category to calculate an average wage rate. Based on an analysis of 1965-72 trends for New York City, it was found that direct labor costs rose by $8,544 for each new employee hired over the period, by $296.7 million for each 100 percent increase in the price level and by $49,010 for a $1.00 increase in average real wages.

City government retirement costs (R) may be estimated from

$$R = b_1 \triangle E + b_2 \triangle P + b_3 \triangle W + b_4 \triangle C \quad (2)$$

where $\triangle C$ = change in the city pen-

TABLE 3
Expenditures By State and Local Governments For
General Purposes, Personal Services, and Retirement Programs, 1961-71
(Dollar Amounts in Millions)

Fiscal Year	Personal Service Expenditures	General Expenditures	Retirement Expenditures[1]	Personal Service Expenditures as a Percentage of General Expenditures	Retirement Expenditures as a Percentage of Personal Service Expenditures
1961	$26,461	$56,201	$1,806	47.1	6.8
1966	40,059	82,843	2,630	48.4	6.6
1971	70,561	150,674	5,241	46.8	7.4
Average Annual Percentage Increase					
1961-1966	8.6	8.1	7.8		
1966-1971	12.0	12.7	14.8		
1961-1971	10.3	10.3	11.2		

[1]Contributions by governments to employee retirement programs administered by state and local governments.
Source: U.S. Bureau of Census, *Statistical Abstract*, 1964 (Washington, D.C., USGPO, 1965).
   U.S. Bureau of Census, *Governmental Finances in (1961, 1966, and 1971)*, Series GF (Washington, D.C., USGPO, 1962, 1967, and 1972).
   U.S. Bureau of the Census, *1967 Census of Government: Historical Statistics on Governmental Finances and Employment, Volume 6. Topical Studies No. 5* (Washington, D.C., USGPO, 1969).
   U.S. Bureau of the Census, *Finances of Employee–Retirement Systems of State and Local Governments in 1970-71*, Series GF-No. 2 (Washington, D.C., USGPO, 1972).

sion contribution rate.[4]

The term b_1 in equation (2) is the existing city contribution per employee, b_3 shows the pension cost response to an increase in real wages, b_2 shows the response to increases in the general price level, and b_4 shows the response to changes in the contribution rate. An analysis of 1965-1972 New York City trends shows that wage rates of members of the retirement system increased approximately four times faster than did membership, and that the retirement system is moving closer and closer to being non-contributory, i.e., whereas the New York City government accounted for about 62 percent of total employer plus employee contributions in 1961 the percentage had risen to 80 by 1971. The analysis of these historical data indicates that the hiring of an additional police department employee increases retirement costs by $1809; an increase in average real wages of $1 increases retirement costs by $10,172; a 100 percent change in the price level increases costs by $64.8 million; and a 100 percent increase in the contribution ratio increases costs by $295.8 million. Non-labor costs are defined here to include expenditures for city government purchases of materials, equipment, supplies and contractual services. The forecasting equation for non-labor costs[5] may be written

$$\triangle N = C_1 \triangle E + C_3 \triangle P \qquad (3)$$

where C_1 is the non-labor cost per employee and C_3 is the non-labor cost response to price level increases. The results of the 1965-1972 analysis for New York City show that an increase of 1 employee required an additional $716 in labor costs and an increase of 100 percent in the price level required a $10.1 million

dollar increase in non-labor costs.

A projection of city government police expenditures may now be made on a basis of these historical trends if only one makes assumptions about the growth between now and 1979 in the following parameters: number of police employees, the price level, real wages, the retirement system contribution ratio. For purposes of presentation here, it is assumed that these factors will grow either at the same rate which they grew between 1965 and 1972, or that they will grow at one-half of this rate (the latter is referred to as a "slow" growth alternative). In this sense we might generate a "conservative" and a "high" estimate, and show the range of possibilities that might occur. The results of such a forecast are presented in Table 4. These results underline the dramatic increase in New York City police ex-

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penditures and enable policy makers to simulate different outcomes under different assumptions about wage rate increases, employment increases, etc.

There are clearly immense conceptual problems with an analysis such as this, and so it is offered here only as a first approximation to the solution of the expenditure forecasting problem. The most important weakness is the inability of the model to account for any productivity increases that might occur either because of increased numbers of employees or because of increased wage rates. Because of this weakness, it should be emphasized that no inferences can be drawn about

whether certain increases in real wages or in employment have reached "desirable" or "undesirable" levels.

Still, the policy uses of an expenditure forecasting model based on public employment consideration are considerable indeed. The generation of forecasts for expenditure planning and for collective bargaining uses could prove of great value to city government fiscal planners. Moreover, a more sophisticated version of a model such as this may assist in assessing the cost implications of alternative technologies in the delivery of city government services. □

Footnotes

[1]Police and fire protection, sanitation other than sewerage, financial administration, general control, and road and street maintenance.

[2]Detailed results of this analysis are reported in Roy W. Bahl, Alan K. Campbell, and David Greytak, *Taxes, Expenditures, and the Economic Base: A Case Study of New York City* (New York: Praeger Publishers, forthcoming). The methodology for these estimates may be found in Richard D. Gustely, "A Comparison of Changes in City Government Labor Costs Among the Ten Largest U.S. Cities: 1966-1971," The Maxwell Research Project on the Public Finances of New York City, No. 11 (Syracuse: Metropolitan Studies Program, 1973).

[3]Bahl, Campbell, and Greytak, *op. cit.*

[4]Strictly, an interaction term must also be added to account for the fact that new employees also may benefit from wage increases. Because of its complexity, the interaction term is assigned to the real wage effect here. It is discussed in Gustely, *op. cit.* no. 16.

[4]Bernard Jump, "The Cost of Providing Retirement

and Social Security Benefits to Employees: Trends, Causes, and Prospects, 1961-1972;" and "The Cost of Providing Retirement and Social Security Benefits to New York City: Projections to 1980," The Maxwell Research Project on the Public Finances of New York City, Nos. 9-10 (Syracuse: Metropolitan Studies Program, 1973).

[5]David Greytak and Robert Dinkelmeyer, "The Components of Change in New York City Non-Labor Costs—Fiscal Year 1965-1970: Supplies, Materials, Equipment and Contractual Services," Maxwell Research Project on the Public Finances of New York City, No. 13 (Syracuse: Metropolitan Studies Program, 1973).

TABLE 4
New York City Expenditure Forecast for 1979: Police Department
(in millions of dollars)

Conditions	Labor	Type of Expenditure Non-Labor	Retirement	Total Expenditures
Present Trend	$979.5	$26.8	$234.1	$1,232.4
Slow Employment Growth	886.0	20.5	211.8	1,111.6
Slow Real Wage Growth	913.2	26.8	218.3	1,151.4
Slow Price Growth	836.3	24.7	199.9	1,054.5
Slow Contribution Rate Growth	979.5	26.8	224.3	1,223.2
Slow Real Wage, Employment & Contribution Rate Growth	826.0	20.5	189.2	1,029.5
Slow Growth for All	705.3	18.9	161.5	880.4
1972 Expenditure	$484.9	$12.0	$106.2	$ 599.1[1]

[1]Includes debt service and unallocated appropriations.
Source: Roy W. Bahl, Alan Campbell, and David Greytak, *Taxes, Expenditures, and the Economic Base: A Case Study of New York City,* (Praeger Publishers, forthcoming)