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Volume Title: Pensions in the American Economy

Volume Author/Editor: Laurence J. Kotlikoff and Daniel E. Smith

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-45146-1

Volume URL: <http://www.nber.org/books/kotl83-1>

Publication Date: 1983

Chapter Title: Financial Aspects of State and Local Pension Plans

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Chapter URL: <http://www.nber.org/chapters/c7267>

Chapter pages in book: (p. 372 - 436)

7 Financial Aspects of State and Local Pension Plans

7.1 Contributions to State and Local Pension Funds: Time Series Analysis

In 1980 total contributions to state and local pension plans equaled \$24.00 billion, more than a ninefold increase from the \$2.48 billion reported in 1950 (table 7.1.1). Employee contributions constitute about a quarter of 1980 contributions, a decline from 1950's 43.33 percent share. The remaining contributions are made by either state or local governments with the contributions of local governments slightly exceeding those of state governments.

The table further distinguishes contributions to state-administered and locally administered plans. Many of the former plans cover state as well as local public employees. In return for their participation in the state plan, local governments are often required to contribute to state-run plans. In 1980 contributions by local governments to state-administered plans represented over 30 percent of total state-administered plan contributions. Close to 30 percent of 1980 contributions to these state plans were made by employees. One presumes that a sizable fraction of these employee contributions represent payments of local government workers.

State governments on occasion also contributed to local pension plans. However, state contributions constitute less than 4 percent of contributions to local government plans.

Contributions per active participant are almost twice as large for locally administered public plans as for state-administered public plans (table 7.1.2). For 1977, state-administered pension contributions per participant equaled \$1,587.73, slightly more than half of the \$3,041.38 contribution per participant in large local plans.

Table 7.1.3 compares contributions to state and local pension funds to total state and local payrolls. In the 1960s and 1970s there was a gradual increase in the ratio of state and local government contributions to their combined payroll from 10.11 percent in 1959 to 13.36 percent in 1979.

Table 7.1.1

Contributions to State and Local Pension Funds by Type of Administrator, 1959-1980
(Thousands of Dollars, for the Fiscal Year)

Year	Total			State-Administered			Locally Administered		
	Employee Contributions	Government Contributions		Employee Contributions	Government Contributions		Employee Contributions	Government Contributions	
		From State	From Local Governments		From State	From Local Governments		From State	From Local Governments
1959	1,073,242	537,458	865,915	752,368	507,006	300,281	320,874	30,452	565,634
1960	1,140,119	692,835	959,047	801,695	659,079	358,125	338,424	33,756	600,922
1961	1,200,867	768,782	1,037,052	856,876	735,813	405,694	343,991	32,969	631,358
1962	1,287,604	800,935	1,081,911	942,979	752,460	441,213	344,625	48,475	640,698
1963	1,373,636	900,456	1,221,158	1,005,073	861,702	489,007	368,563	38,754	732,151
1964	1,466,223	948,748	1,307,201	1,109,464	909,964	541,075	372,759	38,784	766,126
1965	1,625,594	1,025,657	1,392,545	1,207,639	983,687	592,389	417,955	41,970	800,156
1966	1,771,193	1,150,534	1,479,488	1,345,456	1,108,013	603,599	425,737	42,521	875,889
1967	1,959,641	1,353,278	1,702,079	1,494,008	1,304,739	747,455	465,633	48,540	954,624
1968	2,192,503	1,660,380	1,924,558	1,670,138	1,609,641	877,449	522,365	50,739	1,047,109
1969	2,439,987	1,787,947	2,188,227	1,893,893	1,726,257	1,066,736	546,094	61,690	1,121,491
1970	2,787,764	2,045,635	2,554,395	2,148,655	1,978,475	1,236,562	639,109	67,160	1,317,833
1971	3,158,716	2,296,344	2,944,965	2,412,374	2,214,932	1,380,555	746,342	81,412	1,564,410
1972	3,399,723	2,530,068	3,219,934	2,637,193	2,428,104	1,598,319	762,530	101,964	1,612,615
1973	4,165,628	2,992,535	3,656,394	3,333,862	2,883,865	1,831,179	831,766	108,670	1,825,215
1974	4,207,015	3,383,660	4,437,033	3,315,371	3,280,679	2,193,273	891,644	102,981	2,243,760
1975	4,487,740	4,092,668	5,022,714	3,552,104	3,974,359	2,622,713	935,636	118,509	2,400,001
1976	4,808,259	4,747,515	5,754,237	3,854,032	4,671,707	2,969,357	954,227	75,808	2,784,880
1977	5,233,473	4,959,738	7,409,506	4,222,512	4,846,715	4,050,972	1,010,961	113,023	3,358,534
1978	5,687,635	5,827,501	7,793,182	4,619,319	5,704,451	4,263,568	1,068,316	123,050	3,529,614
1979	6,068,605	6,448,762	8,888,021	4,968,326	6,317,652	5,172,798	1,100,278	130,710	3,715,224
1980	6,465,605	7,580,700	9,951,159	5,285,218	7,399,276	5,611,093	1,180,387	181,424	4,340,066

Source: U.S. Department of Commerce, Bureau of the Census, *Finances of Employee-Retirement Systems of State and Local Governments*, (various years), series GF.

Table 7.1.2

Contributions to State and Local Pension Funds per Covered Worker, by Type of Administrator, 1957-1977

Year	Total			State-Administered			Locally Administered		
	Contributions (In Thousands)	Participants' (In Thousands)	Contributions Per Participant	Contributions (In Thousands)	Participants' (In Thousands)	Contributions Per Participant	Contributions (In Thousands)	Participants' (In Thousands)	Contributions Per Participant
1957	2,099,000	3,729	562.89	1,280,000	2,785	459.61	819,000	944	867.58
1962	3,171,000	4,961	639.19	2,136,000	3,885	549.81	1,034,000	1,076	960.97
1967	5,015,000	6,465	775.72	3,546,000	5,247	675.81	1,469,000	1,219	1,205.09
1972	9,150,000	8,407	1,088.38	6,663,000	6,921	962.72	2,487,000	1,485	1,674.75
1977	17,602,000	9,738	1,807.56	13,121,000	8,264	1,587.73	4,483,000	1,474	3,041.38

Sources: Bureau of the Census, "Employee-Retirement Systems of State and Local Governments", *Census of Governments*, 1957, 1972 and 1977. Bureau of the Census, *Finances of Employee-Retirement Systems of State and Local Governments*, (various years), series GF.

1. Includes active participants only.

Table 7.1.3

Ratio of State and Local Pension Fund Contributions to State and Local Employee Payroll, 1959-1980
(in Millions, for the Fiscal Year)

	Contributions			State and Local Payroll			Ratio of Total Contributions to Total Payroll
	Total	State	Locally	Total Payroll	State	Local	
		Administered	Administered		Payroll	Payroll	
1959	2,476.6	1,559.7	917.0	24,500.4	5,824.8	18,675.6	.1011
1960	2,792.0	1,818.9	973.1	26,580.0	6,289.0	20,290.8	.1050
1961	3,006.7	1,998.4	1,008.3	29,038.8	7,034.4	22,004.4	.1035
1962	3,170.5	2,136.7	1,033.8	31,431.6	7,615.2	23,816.4	.1009
1963	3,495.3	2,355.8	1,139.5	34,083.6	8,356.8	25,726.8	.1025
1964	3,722.2	2,560.5	1,177.7	37,166.4	9,133.2	28,033.2	.1001
1965	4,043.8	2,783.7	1,260.1	40,803.6	10,190.4	30,613.2	.0991
1966	4,401.2	3,057.1	1,344.9	45,578.4	11,702.4	33,876.0	.0966
1967	5,015.0	3,546.2	1,468.8	50,558.4	13,266.0	37,292.4	.0992
1968	5,777.4	4,157.2	1,620.2	57,024.0	15,080.4	41,943.6	.1013
1969	6,416.2	4,686.9	1,729.3	63,026.4	17,166.0	45,860.4	.1018
1970	7,387.8	5,363.7	2,024.1	70,876.8	19,346.4	51,530.4	.1042
1971	8,400.0	6,007.9	2,392.2	76,586.4	20,900.4	55,686.0	.1097
1972	9,149.7	6,663.6	2,477.1	86,880.0	23,239.2	63,640.8	.1053
1973	10,814.6	8,048.9	2,765.7	96,180.0	25,898.4	70,281.6	.1124
1974	12,027.7	8,789.3	3,238.4	105,498.0	28,914.0	76,584.0	.1140
1975	13,603.3	10,149.2	3,454.1	115,681.2	31,832.4	83,848.8	.1176
1976	15,310.0	11,495.1	3,814.9	124,309.2	34,724.4	89,584.8	.1232
1977	17,602.7	13,120.2	4,482.5	137,040.0	38,335.2	98,704.8	.1284
1978	19,308.3	14,587.3	4,721.0	145,669.2	41,796.0	103,873.2	.1325
1979	21,405.0	16,458.8	4,946.2	160,191.6	46,431.6	113,760.0	.1336
1980	23,997.5	18,295.6	5,701.9	NA	NA	NA	NA

Source: U.S. Department of Commerce, Bureau of the Census, *Finances of Employee-Retirement Systems of State and Local Governments*, (various years), series GF. U.S. Department of Commerce, Bureau of the Census, *Public Employment in 1979*, Series GE79-No. 1.

NA - Not Available

1. Calculated by multiplying published October payroll figure by 12.

7.2 Contributions to State and Local Pension Funds: Cross-sectional Analysis

The U.S. Bureau of the Census reported \$24.00 billion in contributions to state and large local pension plans during the course of 1979 (table 7.2.1). Over three-quarters of these contributions were made to state-administered pension funds. The employee share of these contributions was 24.00 percent.

Local governments often contribute to state-administered pension plans that cover their own as well as state government workers. Contributions by local governments represented 30.67 percent of total contributions to state-administered pension funds in 1979. Payments by state governments to locally administered pension funds, in contrast, constituted only 3.18 percent of their total contributions.

California ranked first across all states in total state and local pension contributions with a payment in 1979 of almost a billion dollars. Vermont reported the smallest payments, only \$10.19 million. California also reported the largest contribution to large local plans. Hawaii, Nevada, and Utah, according to the Census, had no large local pension plans in 1979.

Table 7.2.2 shows contributions per participant in state-administered pension funds. The District of Columbia reported a large \$4,509 contribution per participant. Alaska's contribution per participant was \$3,695. Nebraska made the smallest contribution per participant, only \$780.

Table 7.2.1
Contributions to State and Large Local Pension Funds by State and Type of Administrator, 1979-1980¹
(Thousands of Dollars, for the Fiscal Year)

	Total			State-Administered			Locally Administered		
	Employee Contributions	Government Contributions From State	Contributions From Local Governments	Employee Contributions	Government Contributions From State	Contributions From Local Governments	Employee Contributions	Government Contributions From State	Contributions From Local Governments
United States	6,465,605	7,580,700	9,951,159	5,285,218	7,399,276	5,611,093	1,180,387	181,424	4,340,066
Alabama	91,674	188,905	36,608	81,768	188,346	20,782	9,906	589	15,826
Alaska	39,359	51,076	42,759	37,549	51,076	36,404	1,810	NA	6,355
Arizona	119,506	34,938	102,188	113,464	34,938	87,565	6,042	NA	14,624
Arkansas	35,913	78,505	15,306	34,923	77,131	12,908	991	1,373	2,398
California	931,829	965,718	2,010,056	683,734	965,718	1,061,369	248,095	NA	948,688
Colorado	124,303	67,229	123,953	106,909	63,170	92,119	17,395	4,059	31,834
Connecticut	82,052	181,808	57,649	70,049	181,637	6,335	12,003	171	51,314
Delaware	10,854	48,548	4,196	9,529	47,480	NA	1,325	1,069	4,196
District of Columbia ²	NA	NA	NA	NA	NA	NA	11,387	NA	24,327
Florida	41,595	137,276	394,902	10,536	129,094	308,926	31,058	8,182	85,976
Georgia	169,760	163,698	92,218	142,773	163,233	48,911	26,987	466	43,307
Hawaii ³	NA	NA	NA	63,000	NA	24,327	NA	NA	NA
Idaho	24,226	17,127	27,741	24,178	17,127	27,392	47	NA	349
Illinois	506,024	432,637	366,413	317,332	377,079	108,986	188,693	55,558	257,427
Indiana	66,922	133,510	51,622	63,609	129,915	29,337	3,314	3,595	22,285
Iowa	61,847	40,559	83,722	58,621	37,781	65,505	3,226	2,778	18,217
Kansas	52,223	60,379	31,194	48,343	60,315	22,525	3,880	64	8,669
Kentucky	94,506	119,519	39,669	89,875	119,518	25,065	4,631	1	14,604
Louisiana	151,045	109,324	92,545	137,049	180,631	54,173	13,997	693	38,373
Maine	33,710	56,971	15,782	33,706	56,971	15,749	5	NA	33
Maryland	139,967	207,076	73,022	116,907	207,076	6,565	23,060	NA	66,457
Massachusetts	250,637	260,906	209,349	141,577	260,602	NA	109,060	305	209,349
Michigan	76,484	500,020	493,662	14,651	499,865	216,428	61,832	154	277,234
Minnesota	147,108	146,265	123,160	124,540	124,934	70,299	22,569	21,330	52,861
Mississippi	67,395	42,888	60,251	66,090	43,778	56,054	1,305	110	4,198
Missouri	100,787	62,835	138,786	83,615	60,920	89,070	17,172	1,915	49,716

Table 7.2.1 Continued

Contributions to State and Large Local Pension Funds by State and Type of Administrator, 1979-1980¹
(Thousands of Dollars, for the Fiscal Year)

	Total Government Contributions			State-Administered Government Contributions			Locally Administered Government Contributions		
	Employee Contributions	From State	From Local Governments	Employee Contributions	From State	From Local Governments	Employee Contributions	From State	From Local Governments
Montana	35,114	15,012	23,178	34,856	14,351	22,688	258	661	490
Nebraska	19,519	7,811	20,509	11,146	7,087	6,387	8,373	724	14,122
Nevada ¹	NA	NA	NA	15,376	16,302	53,227	NA	NA	NA
N. Hampshire	21,773	12,243	11,227	21,653	12,243	11,107	120	NA	120
New Jersey	207,533	302,051	183,747	204,768	302,051	171,237	2,766	NA	12,510
New Mexico	51,901	20,500	36,984	51,901	20,500	36,972	NA	NA	12
New York	204,819	557,341	2,871,341	65,186	556,701	1,298,909	139,632	640	1,572,431
N. Carolina	180,682	184,814	77,319	178,423	184,756	71,353	2,259	58	5,967
N. Dakota	15,085	4,676	11,914	13,989	4,636	10,327	1,097	40	1,588
Ohio	546,261	208,629	679,153	538,173	208,629	659,709	8,088	NA	19,444
Oklahoma	47,029	157,552	17,408	39,492	142,978	6,265	7,537	14,574	11,142
Oregon	98,881	53,581	109,341	93,701	53,581	91,147	5,181	NA	18,194
Pennsylvania	343,980	501,418	336,643	270,978	477,945	198,681	73,001	23,473	137,962
Rhode Island	32,490	31,356	18,159	28,852	31,328	10,038	3,638	28	8,121
S. Carolina	84,129	55,744	64,668	83,478	55,564	63,480	651	180	1,188
S. Dakota	18,014	7,597	12,108	17,473	7,532	10,704	541	65	1,404
Tennessee	102,903	195,002	79,773	81,676	189,707	26,849	21,227	5,296	52,924
Texas	407,304	382,831	112,686	361,311	382,722	26,959	45,993	109	85,727
Utah ²	NA	NA	NA	69,443	20,511	55,772	NA	NA	NA
Vermont	10,186	15,827	1,280	10,105	15,827	427	81	NA	853
Virginia	134,456	111,992	89,810	126,357	111,983	40,835	8,099	10	48,975
Washington	184,506	347,851	43,549	166,252	347,078	10,300	18,256	774	33,249
W. Virginia	51,975	59,936	13,943	50,461	59,933	11,044	1,514	3	2,899
Wisconsin	74,651	136,762	273,422	62,442	104,384	211,389	12,209	32,378	62,033
Wyoming	13,480	7,145	19,920	13,400	7,145	19,823	80	NA???	97

Source: U.S. Bureau of the Census, "Finances of Employee-Retirement Systems of State and Local Governments in 1979-1980"
NA - Not Available

1. Large local pension funds include large-city pension funds and funds of other large local pension plans.
2. Locally administered only, for fiscal year 1977-78.
3. State administered only, estimated.

Table 7.2.2

Contributions to State-administered Pension Funds Per Participant by State, 1979-1980
(Dollars Per Participant, for the Fiscal Year)

	Employee Contributions Per Participant	State Government Contributions Per Participant	Local Government Contributions Per Participant	Total Contributions Per Participant
Alabama	528.32	1,216.75	134.28	1,879.34
Alaska	1,109.93	1,509.78	1,076.09	3,695.80
Arizona	794.89	244.76	613.45	1,653.10
Arkansas	361.52	798.45	133.62	1,293.59
California	715.11	1,010.03	1,110.07	2,835.21
Colorado	1,102.85	651.65	950.28	2,704.77
Connecticut	707.24	1,833.88	63.96	2,605.09
Delaware	377.88	1,882.86	0.00	2,260.74
DC	1,437.75	0.00	3,071.59	4,509.34
Florida	27.51	337.09	806.66	1,171.26
Georgia	536.14	612.97	183.67	1,332.77
Hawaii	1,228.07	1,120.86	448.34	2,797.27
Idaho	479.51	339.67	543.25	1,362.44
Illinois	735.99	874.56	252.77	1,863.33
Indiana	299.48	611.66	138.12	1,049.27

Table 7.2.2 Continued
 Contributions to State-administered Pension Funds Per Participant by State, 1979-1980
 (Dollars Per Participant, for the Fiscal Year)

	Employee Contributions Per Participant	State Government Contributions Per Participant	Local Government Contributions Per Participant	Total Contributions Per Participant
Iowa	370.22	238.60	413.69	1,022.51
Kansas	438.64	547.27	204.38	1,190.30
Kentucky	597.91	795.11	166.75	1,559.77
Louisiana	612.74	485.68	242.20	1,340.62
Maine	514.38	869.41	240.34	1,624.13
Maryland	706.70	1,251.77	39.69	1,998.16
Massachusetts	889.49	1,637.30	0.00	2,526.79
Michigan	36.25	1,236.82	535.51	1,808.57
Minnesota	537.32	539.02	303.30	1,379.63
Mississippi	337.371	223.475	286.140	846.986
Missouri	647.96	472.09	690.24	1,810.29
Montana	559.07	246.65	389.94	1,235.65
Nebraska	348.574	221.635	199.744	769.952
Nevada	300.82	318.94	1,041.36	1,661.12
N.Hampshire	666.16	376.63	341.71	1,384.51
New Jersey	596.25	879.52	498.61	1,974.38
New Mexico	587.27	231.96	418.34	1,237.57
New York	79.73	680.93	1,588.76	2,349.42
N. Carolina	550.92	570.47	220.32	1,341.70
N. Dakota	611.30	202.59	451.28	1,265.16
Ohio	703.76	272.82	862.69	1,839.27
Oklahoma	414.79	1,501.73	65.80	1,982.32
Oregon	809.3	462.80	787.27	2,059.40
Pennsylvania	644.02	1,135.91	472.19	2,252.12
Rhode Island	828.68	899.79	288.31	2,016.77
S. Carolina	315.434	209.959	239.869	765.259
S. Dakota	650.67	280.48	398.60	1,329.75
Tennessee	446.68	1,037.50	146.84	1,631.01
Texas	593.79	628.98	44.31	1,267.07
Utah	994.17	293.64	798.45	2,086.27
Vermont	625.43	979.58	26.43	1,631.43
Virginia	421.190	373.277	136.117	930.583
Washington	674.38	1,407.90	41.78	2,124.07
W. Virginia	432.80	514.04	94.72	1,041.57
Wisconsin	250.96	419.52	849.58	1,520.05
Wyoming	341.52	182.10	505.22	1,028.85

Source: U.S. Bureau of the Census, "Finances of Employee-Retirement Systems of State and Local Governments in 1979-1980"

7.3 State and Local Pension Fund Benefit Payments: Time Series Analysis

The two tables in this section (7.3.1 and 7.3.2) document the growth in benefit payments of state and local pension plans. Expressed as a fraction of the total income of elderly households, these public pension payments have risen from 3.11 percent in 1960 to over 5 percent. State and local plan benefit payments now exceed \$12 billion; they totaled \$725 million in 1957. Nominal payments per beneficiary were \$1,388 in 1957 and \$4,954 in 1979. Measured in dollars of constant purchasing power, the percentage increase in real payments per beneficiary during this time period is 54.8 percent.¹

Payments per beneficiary have consistently been greater for locally administered plans than for state-administered plans. In 1957 the differential was 22.43 percent; it was 8.35 percent in 1977.

The data for public plans displayed in table 7.3.2 invite a comparison with those of table 5.3.2 for private plans. The only year with strictly overlapping data in the two tables is 1972. In that year benefits per beneficiary in public plans exceeded those of private plans by over 50 percent. The \$2,085 1975 payment per beneficiary of private plans is approximately the amount paid by public plans in 1967; the \$1,280 1965 payment per beneficiary of private plans is actually less than the 1957 \$1,539 payment per beneficiary of public plans. These data accord with information in table 3.7.13 on the mean pension income of the elderly by the source of their pension benefit. That table records, for example, \$4,654 as the mean pension income of male 65- to 69-year-old state and local pension recipients. The corresponding number in the table for recipients of private pensions is \$3,561.

Table 7.3.1

Relationship of Private, State, and Local Pension Fund Benefit Payments to the Total Income of the Elderly, 1950-1975

Year	Total Income of the Elderly	Private Pension Fund Benefit Payments		State-Administered Pension Fund Benefit Payments		Locally Administered Pension Fund Benefit Payments ¹	
		Amount	Percent of Total Income	Amount	Percent of Total Income	Amount	Percent of Total Income
1950	16,180	370	2.3	NA	NA	NA	NA
1955	22,510	850	3.8	NA	NA	NA	NA
1960	32,500	1,720	5.3	530	1.63	481	1.48
1965	43,380	3,520	8.1	995	2.29	690	1.59
1970	68,020	7,360	10.8	1,913	2.81	1,124	1.65
1971	76,300	8,600	11.3	2,233	2.93	1,291	1.69
1972	84,900	10,020	11.8	2,694	3.17	1,428	1.68
1973	96,200	11,240	11.7	3,279	3.41	1,668	1.73
1974	110,820	12,970	11.7	3,868	3.49	1,814	1.64
1975	121,140	14,850	12.2	4,480	3.70	2,060	1.70

Sources: American Council of Life Insurance, Consumer Research Division, Data Resources, Inc., and Bureau of the Census, "Finances of Employee-Retirement Systems of State and Local Governments."

NA — Not Available

1. Table includes only locally administered plans with 500 or more participants.

Table 7.3.2

State and Local Pension Fund Benefit Payments per Beneficiary, by Type of Administrator, 1957-1979 (in Thousands)

Year	Total			State-Administered			Locally Administered ¹		
	Benefit Payments	Beneficiaries ¹ (Thousands)	Payment Per Beneficiary	Benefit Payments	Beneficiaries ¹ (Thousands)	Payment Per Beneficiary	Benefit Payments	Beneficiaries ¹ (Thousands)	Payment Per Beneficiary
1957	725,000	522	1,388	357,000	284	1,257	368,000	239	1,539
1962	1,259,000	739	1,703	697,000	447	1,559	562,000	292	1,924
1967	2,103,000	1,030	2,041	1,280,000	677	1,890	822,000	352	2,335
1972	4,121,000	1,463	2,816	2,694,000	1,040	2,590	1,428,000	423	3,375
1977	8,455,000	2,271	3,723	6,048,000	1,661	3,641	2,407,000	610	3,945
1979	12,476,000	2,518	4,954	9,460,802	2,009	4,709	3,015,277	509	5,923

Sources: Bureau of the Census, "Finances of Employee-Retirement Systems of State and Local Governments", (various years), and Bureau of the Census, *Statistical Abstract of the United States*.

1. Beneficiaries include retired employees and survivors of employees receiving periodic benefit payments.

2. Table includes only locally administered plans with 500 or more participants.

7.4 State and Local Pension Fund Benefit Payments: Cross-sectional Analysis

The U.S. Census reports \$12.5 billion in benefit payments by state and local pension funds for the fiscal year 1979–80 (table 7.4.1). State-administered plans account for 75.83 percent of the total. The four states with the largest benefit payments, New York, California, Pennsylvania, and Ohio, made combined payments of \$5.60 billion.

While locally administered plans as a group historically have made greater payments per beneficiary than state-administered plans as a group (section 7.3), table 7.4.2 shows that, within particular states, state-administered plans may report much greater payments per beneficiary than locally administered plans. The Pennsylvania state plan's \$6,281 payment per beneficiary in fiscal year 1979 is considerably larger than the \$4,404 payment reported by its large local plans. There are fourteen states with larger payments per beneficiary by the state-administered plans. For seventeen states the opposite is true, and for nineteen states data are not available to make the comparison.

There is considerable variation across states in state-administered as well as locally administered benefit payments per beneficiary. The Alaska state-administered plan's ratio of benefits to recipients was \$8,559 in fiscal year 1979, the largest for any state. Nebraska's \$1,438 payment was the lowest. In the case of locally administered plans, the District of Columbia and New York City rank first and second in benefits per beneficiary with \$10,275 and \$7,750, respectively. California is close behind, posting a \$7,106 benefit per beneficiary. Iowa is the state with the smallest payment, \$1,539 per beneficiary by locally administered plan.

Table 7.4.1

State and Local Pension Fund Benefit Payments by State and Type of Administrator, 1979–1980
(Thousands of Dollars, for the Fiscal Year)

State	Total Amount	State-Administered		Locally Administered ¹	
		Amount	Row Percent	Amount	Row Percent
Alabama	119,132	111,421	2.06	7,711	.14
Alaska	34,238	34,238	100.00	NA	NA
Arizona	56,666	50,584	89.27	6,082	10.73
Arkansas	45,058	45,058	100.00	NA	NA
California	1,960,253	1,292,261	65.86	669,992	34.14
Colorado	96,517	74,836	77.54	21,681	22.46
Connecticut	174,025	161,977	93.08	12,048	6.92
Delaware	22,234	20,729	93.23	1,505	6.77
District of Columbia ²	30,825	NA	NA	30,825	100.00
Florida	246,267	201,916	81.99	44,351	18.01
Georgia	170,468	138,379	81.18	32,089	18.82
Hawaii ³	76,000	76,000	100.00	NA	NA
Idaho	30,905	30,905	100.00	NA	NA
Illinois	625,183	391,135	62.56	234,048	37.44
Indiana	148,872	137,013	92.03	11,859	7.97
Iowa	59,842	58,303	97.43	1,539	2.57
Kansas	52,984	47,199	89.08	5,785	10.92
Kentucky	106,919	101,122	94.58	5,797	5.42
Louisiana	224,555	219,830	90.30	23,626	9.70
Maine	77,972	77,972	100.00	NA	NA
Maryland	217,373	179,790	82.71	37,583	17.29
Massachusetts	494,731	288,344	58.28	206,387	41.72
Michigan	425,984	269,472	63.26	156,512	36.74
Minnesota	152,399	101,588	66.66	50,811	33.34
Mississippi	60,888	59,412	97.58	1,476	2.42
Missouri	121,605	88,868	73.08	32,737	26.92
Montana	36,876	36,876	100.00	NA	NA
Nebraska	14,579	7,191	49.32	7,388	50.68
Nevada	29,344	29,344	100.00	NA	NA
New Hampshire	18,328	18,328	100.00	NA	NA
New Jersey	336,652	324,134	96.28	12,518	3.72
New Mexico	38,321	38,321	100.00	NA	NA
New York	2,013,225	974,673	48.41	1,038,552	51.59
North Carolina	191,277	189,949	99.31	1,328	.69
North Dakota	7,957	7,957	100.00	NA	NA
Ohio	775,560	763,006	98.38	12,554	1.62
Oklahoma	99,567	85,736	86.11	13,831	13.89
Oregon	93,784	75,240	80.23	18,544	19.77
Pennsylvania	850,771	709,821	83.43	140,950	16.57
Rhode Island	52,714	45,451	86.22	7,263	13.78
South Carolina	88,860	88,860	100.00	NA	NA
South Dakota	9,195	8,764	95.31	431	4.69
Tennessee	147,058	114,730	78.02	32,328	21.98
Texas	387,182	337,889	87.27	49,293	12.73
Utah	26,299	26,299	100.00	NA	NA
Vermont	13,736	13,246	96.43	490	3.57
Virginia	154,552	130,453	84.41	24,099	15.59

Table 7.4.1 Continued

State and Local Pension Fund Benefit Payments by State and Type of Administrator, 1979-1980
(Thousands of Dollars, for the Fiscal Year)

State	Total Amount	State-Administered		Locally Administered ¹	
		Amount	Row Percent	Amount	Row Percent
Washington	275,155	242,853	88.26	32,302	11.74
West Virginia	90,198	90,198	100.00	NA	NA
Wisconsin	162,218	133,256	82.15	28,962	17.85
Wyoming	7,875	7,875	100.00	NA	NA
Total	12,476,079	9,460,802	75.83	3,015,277	24.17

Source: U.S. Bureau of the Census, "Finances of Employee-Retirement Systems of State and Local Government,"
NA - Not Available

1. Table includes only locally administered plans with 500 or more participants.
2. Fiscal year 1977-78.
3. Estimated.

Table 7.4.2

Benefit Payments of State and Large Local Pension Funds per Recipient¹ by State and Type of Administrator, 1979-1980
(Thousands of Dollars, for the Fiscal Year)

	Benefit Payments	Total		State-Administered			Locally-Administered		
		Recipients (Thousands)	Payment Per Recipient	Benefit Payments	Recipients (Thousands)	Payment Per Recipient	Benefit Payments	Recipients (Thousands)	Payment Per Recipient
Alabama	119,132	27	4,412	111,421	25	4,456	7,711	2	3,855
Alaska	34,238	4	8,559	34,238	4	8,559	NA	NA	
Arizona	56,666	19	2,982	50,584	18	2,810	6,082	1	6,082
Arkansas	45,058	15	3,003	45,058	15	3,003	NA	NA	
California	1,960,253	330	5,940	1,292,261	236	5,475	669,992	94	7,106
Colorado	96,517	23	4,196	74,836	18	4,157	21,681	5	4,336
Connecticut	174,025	29	6,000	161,977	26	6,229	12,048	3	4,016
Delaware	22,234	6	3,705	20,729	6	3,454	1,505	*	
District of Columbia	30,825	3	10,275	NA	NA		30,825	3	10,275
Florida	246,267	69	3,569	201,916	59	3,422	44,351	10	4,435
Georgia	170,468	40	4,261	138,379	32	4,324	32,089	8	4,011
Hawaii	76,000	14	5,428	76,000	14	5,428	NA	NA	
Idaho	30,905	11	2,809	30,905	11	2,809	NA	NA	
Illinois	625,183	145	4,311	391,135	97	4,032	234,048	48	4,876
Indiana	148,872	44	3,383	137,013	42	3,262	11,859	2	5,929
Iowa	59,842	33	1,813	58,303	32	1,821	1,539	1	1,539
Kansas	52,984	29	1,827	47,199	27	1,748	5,785	2	2,892
Kentucky	106,919	38	2,813	101,122	37	2,733	5,797	1	5,797
Louisiana	224,555	42	5,346	219,830	37	5,941	23,626	5	4,725
Maine	77,972	16	4,873	77,972	16	4,873	NA	NA	
Maryland	217,373	38	5,720	179,790	30	5,993	37,583	8	4,697
Massachusetts	494,731	87	5,686	288,344	44	6,553	206,387	43	4,799
Michigan	425,984	97	4,391	269,472	69	3,905	156,512	28	5,589
Minnesota	152,399	44	3,463	101,588	35	2,902	50,811	9	5,645
Mississippi	60,888	20	3,044	59,412	20	2,907	1,476	*	
Missouri	121,605	39	3,118	88,868	27	3,291	32,737	12	2,728
Montana	36,876	10	3,687	36,876	10	3,687	NA	NA	
Nebraska	14,579	7	2,082	7,191	5	1,438	7,388	2	3,694
Nevada	29,344	6	4,890	29,344	6	4,890	NA	NA	
New Hampshire	18,328	6	3,054	18,328	6	3,054	NA	NA	
New Jersey	336,652	68	4,950	324,134	65	4,986	12,518	3	4,172
New Mexico	38,321	11	3,483	38,321	11	3,483	NA	NA	
New York	2,013,225	337	5,973	974,673	203	4,801	1,038,552	134	7,750
North Carolina	191,277	47	4,069	189,949	47	4,041	1,328	*	
North Dakota	7,957	5	1,591	7,957	5	1,591	NA	NA	
Ohio	775,560	163	4,758	763,006	160	4,768	12,554	3	4,184
Oklahoma	99,567	25	3,982	85,736	22	3,897	13,831	3	4,610
Oregon	93,784	34	2,758	75,240	31	2,427	18,544	3	6,181
Pennsylvania	850,771	145	5,867	709,821	113	6,281	140,950	32	4,404
Rhode Island	52,714	11	4,792	45,451	9	5,050	7,263	2	3,631
South Carolina	88,860	26	3,417	88,860	26	3,417	NA	NA	
South Dakota	9,195	6	1,532	8,764	6	1,460	431	*	
Tennessee	147,058	45	3,267	114,730	36	3,186	32,328	9	3,592
Texas	387,182	94	4,118	337,889	83	4,070	49,293	11	4,481
Utah	26,299	11	2,390	26,299	11	2,390	NA	NA	
Vermont	13,736	4	3,434	13,246	4	3,311	490	*	
Virginia	154,552	45	3,434	130,453	37	3,525	24,099	8	3,012
Washington	275,155	59	4,663	242,853	52	4,670	32,302	7	4,614
West Virginia	90,198	27	3,340	90,198	27	3,340	NA	NA	
Wisconsin	162,218	59	2,749	133,256	52	2,562	28,962	7	4,137
Wyoming	7,875	5	1,575	7,875	5	1,575	NA	NA	
Total	12,476,079	2,518	4,954	9,460,802	2,009	4,709	3,015,277	509	5,923

Source: Bureau of the Census, "Finances of Employee-Retirement Systems of State and Local Government," Tables 3 and 4

NA - Not Available

* - Fewer than 500 Recipients

1. Recipients include retired workers and surviving spouses receiving benefits under joint survivor annuities.

7.5 State and Local Pension Fund Assets: Time Series Analysis

The period between 1950 and 1980 witnessed an impressive growth in state and local pension fund assets from \$4.9 billion to \$198.1 billion (table 7.5.2). Despite this sizable growth, public pension assets remain only a small fraction of total U.S. household net worth. In 1950 public pension assets represented .52 percent of total U.S. household net worth; in 1980 the percentage was 1.82. Table 7.5.1 presents time series for private and state and local pension fund assets as well as total household net worth. Public pension assets have grown at roughly the same rate as private pension fund assets. In 1950, 27.84 percent of total private and public pension assets were held by state and local pension funds. In 1980 the fraction was .3044. As a share of total household net worth, these private and public pension assets have risen from 1.9 to 6.0 percent.

Tables 7.5.2 and 7.5.3 report Census Bureau tabulations of the particular assets held by state-administered and large local pension funds. It should be noted that while the federal government does not regulate state and local pension portfolios, these asset holdings are frequently regulated at the state level. In 1959 almost 90 percent of state pension fund assets were invested in bonds, primarily federal, state, and local bonds; only 2.0 percent of state pension assets were invested in corporate stocks. By 1979, 21.3 percent of state pension portfolios were placed in corporate stock. The fraction allocated to other investments rose to 17.3 percent from 9.4 percent over this period. Interestingly, state and local securities almost disappeared from state pension portfolios by 1979, although they represented 17.60 percent of total 1959 holdings.

The historical changes in the composition of large local pension fund assets are quite similar to those observed for state pension funds. State and local pension fund assets fell from 38.94 percent of total assets in 1959 to 8.67 percent in 1980. The federal securities portfolio share also declined over this period from 29.08 to 16.12 percent. Investments in corporate stock rose from 1.52 percent of assets in 1959 to 18.36 percent in 1980.

The portfolio shares of large-city pension funds have also changed over time in a manner similar to that of state pension assets. Table 7.5.4 shows an increase in non-governmental securities from 20.62 percent in 1959 to 70.97 percent in 1980. For state-administered pension funds the increase was 35.80 percentage points, from 43.73 percent in 1959 to 81.53 percent in 1980. For cities as well as states the biggest reductions occur in holdings of state and local securities. In 1959, 54.27 percent of large-city pension fund assets were invested in these securities. By 1980 this portfolio share had declined to 15.23 percent, a figure, however, that is still substantially larger than the .35 percent portfolio share of state-administered funds or the 8.67 percent portfolio share of large local funds invested in state and local government securities.

Table 7.5.5 provides another perspective on the size of state and local pension fund assets. This table presents the share of different financial assets held by public pension funds and by private pension funds and insurance company pension reserves.

State and local pension funds are significant holders of U.S. government securities and corporate bonds. For both these assets, state and local pension funds owned close to a fifth of total outstanding securities in 1980. In combination, private and state and local pensions held 37.56 percent of total U.S. government securities and 46.29 percent of total corporate and foreign bonds in 1980.

The 1980 share of total corporate equities held by state and local pension funds was only 2.71 percent. State and local pensions also play a small role in both the mortgage market and the market for state and local government securities.

Table 7.5.1

Relationship of Private and State and Local Pension Fund Assets to Household Net Worth, 1950-1980
(In Billions)

Year	Private and State and Local Government Pension Fund Reserves			Total Household Net Worth	Ratio of Total Pension Fund Reserves to Total Household Net Worth
	Total	Private Pension Fund Reserves ¹	State and Local Pension Fund Reserves		
1950	17.6	12.7	4.9	939.0	1.9
1951	20.4	14.8	5.6	1,027.0	2.0
1952	24.1	17.5	6.6	1,079.1	2.2
1953	30.0	20.5	8.0	1,105.4	2.7
1954	34.6	23.8	9.5	1,216.2	2.8
1955	40.4	29.6	10.8	1,324.5	3.1
1956	45.7	33.6	12.1	1,415.5	3.2
1957	51.3	37.5	13.8	1,431.5	3.6
1958	60.4	44.8	15.6	1,601.5	3.8
1959	69.3	51.7	17.6	1,690.6	4.1
1960	76.7	57.0	19.7	1,727.2	4.4
1961	88.7	66.4	22.3	1,886.4	4.7
1962	93.3	68.8	24.5	1,881.5	5.0
1963	105.7	78.3	27.4	2,018.0	5.2
1964	120.2	89.6	30.6	2,160.0	5.6
1965	135.0	100.9	34.1	2,330.9	5.8
1966	143.3	105.2	38.1	2,389.5	6.0
1967	164.1	121.5	42.6	2,668.7	6.2
1968	184.5	136.5	48.0	2,990.6	6.2
1969	193.5	140.3	53.2	3,028.4	6.4
1970	211.9	151.6	60.3	3,175.7	6.7
1971	245.5	176.5	69.0	3,476.0	7.1
1972	289.0	208.4	80.6	3,856.6	7.5
1973	275.1	190.4	84.7	4,033.3	6.8
1974	264.3	176.3	88.0	4,232.0	6.3
1975	323.8	219.0	104.8	4,765.9	6.8
1976	381.3	260.9	120.4	5,345.8	7.1
1977	412.3	279.8	132.5	6,843.4	6.0
1978	471.3	317.4	153.9	7,792.1	6.0
1979	530.9	361.2	169.7	8,795.0	6.0
1980	650.7	452.6	198.1	10,911.2	6.0

Source: Federal Reserve Systems, Flow of Funds Accounts, Assets & Liabilities Outstanding, 1949-1978 and 1957-1980

1. Includes pension fund asset and insurance company pension reserves. The Federal Reserve adjusts Security and Exchange Commission private pension fund data for double counting of assets administered by life insurance companies and those not administered by life insurance companies. These figures do not therefore correspond exactly to estimates of the Securities and Exchange Commission presented in table 5.5.3.

Table 7.5.2

Portfolio Composition of State-administered Pension Funds, 1959-1980
(Amounts in Millions of Dollars)

Year	Cash and Bonds		Federal Securities		State and Local Securities		Corporate Bonds		Corporate Stocks		Other Investments		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1959	121	1.15	3,846	36.63	1,852	17.64	3,483	33.17	209	1.99	987	9.40	10,499	100.00
1960	113	.93	4,162	34.32	1,920	15.83	4,311	35.55	281	2.32	1,339	11.04	12,127	100.00
1961	145	1.05	4,142	30.02	1,909	13.84	5,226	37.88	359	2.60	2,017	14.62	13,798	100.00
1962	153	.98	4,149	26.69	1,720	11.06	6,700	43.10	512	3.29	2,313	14.88	15,546	100.00
1963	159	.91	4,471	25.60	1,407	8.06	7,945	45.49	683	3.91	2,800	16.03	17,465	100.00
1964	146	.74	4,776	24.21	1,154	5.85	9,428	47.79	918	4.65	3,304	16.75	19,726	100.00
1965	152	.69	5,186	23.47	941	4.26	10,621	48.07	1,158	5.24	4,033	18.25	22,093	100.00
1966	147	.60	4,952	20.08	758	3.07	12,413	50.34	1,485	6.02	4,905	19.89	24,660	100.00
1967	236	.85	4,594	16.61	702	2.54	14,319	51.76	1,912	6.91	5,903	21.34	27,666	100.00
1968	254	.82	4,127	13.28	676	2.18	16,866	54.28	2,574	8.28	6,576	21.16	31,073	100.00
1969	242	.69	3,814	10.83	563	1.60	19,974	56.69	3,693	10.48	6,945	19.71	35,231	100.00
1970	282	.71	3,243	8.11	562	1.41	22,680	56.75	5,134	12.85	8,065	20.18	39,966	100.00
1971	336	.74	2,949	6.51	532	1.17	26,264	58.00	6,986	15.43	8,218	18.15	45,286	100.00
1972	419	.82	2,241	4.38	684	1.34	29,570	57.80	9,209	18.00	9,035	17.66	51,158	100.00
1973	561	.96	2,164	3.70	336	.57	33,895	57.94	12,509	21.38	9,486	16.22	58,499	100.00
1974	714	1.08	3,702	5.60	330	.50	37,007	55.94	14,679	22.19	9,725	14.70	66,157	100.00
1975	800	1.07	4,898	6.56	207	.28	41,693	55.81	16,431	22.00	10,675	14.29	74,703	100.00
1976	728	.85	7,234	8.41	1,223	1.42	45,123	52.48	19,002	22.10	12,669	14.73	85,979	100.00
1977	818	.86	9,500	10.01	596	.63	45,364	47.80	21,733	22.90	16,901	17.81	94,913	100.00
1978	1,304	1.18	14,425	13.07	318	.29	51,266	46.45	24,404	22.11	18,639	16.89	110,357	100.00
1979	1,883	1.50	20,510	16.30	362	.29	55,108	43.80	26,987	21.45	20,953	16.66	125,803	100.00
1980	2,647	1.83	26,213	18.12	511	.35	60,871	42.07	31,146	21.53	23,294	16.10	144,682	100.00

Source: U.S. Department of Commerce, Bureau of the Census, Finances of Employee-Retirement Systems of State and Local Governments, (various years), series GF.

Table 7.5.3

Portfolio Composition of Large Local Pension Funds, 1959-1980
(Amounts in Millions of Dollars)

Year	Cash and Bonds		Federal Securities		State and Local Securities		Corporate Bonds		Corporate Stocks		Other Investments		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1959	105	1.80	1,699	29.08	2,275	38.94	1,520	26.02	92	1.57	150	2.57	5,842	100.00
1960	108	1.68	1,792	27.95	2,418	37.71	1,787	27.87	112	1.75	194	3.03	6,412	100.00
1961	123	1.74	1,849	26.12	2,494	35.24	2,241	31.66	123	1.74	247	3.49	7,078	100.00
1962	133	1.72	1,963	25.34	2,328	30.05	2,824	36.45	182	2.35	318	4.10	7,747	100.00
1963	151	1.85	1,959	24.00	2,136	26.16	3,345	40.97	187	2.29	385	4.72	8,164	100.00
1964	154	1.73	2,179	24.45	1,928	21.63	3,918	43.96	205	2.30	529	5.94	8,913	100.00
1965	170	1.75	2,211	22.74	1,803	18.55	4,477	46.05	264	2.72	797	8.20	9,721	100.00
1966	171	1.61	2,094	19.75	1,773	16.72	5,237	49.40	352	3.32	976	9.21	10,602	100.00
1967	196	1.69	2,056	17.73	1,740	15.00	5,957	51.36	478	4.12	1,171	10.10	11,598	100.00
1968	217	1.73	2,000	15.90	1,696	13.48	6,450	51.28	737	5.86	1,479	11.76	12,579	100.00
1969	216	1.58	2,001	14.67	1,805	13.23	6,744	49.43	1,229	9.01	1,649	12.09	13,643	100.00
1970	233	1.56	1,936	12.95	1,597	10.68	7,452	49.84	1,788	11.96	1,956	13.08	14,952	100.00
1971	257	1.58	1,513	9.27	1,511	9.26	8,377	51.34	2,482	15.21	2,177	13.34	16,317	100.00
1972	372	2.11	1,480	8.41	1,738	9.87	8,345	47.41	3,407	19.36	2,261	12.85	17,602	100.00
1973	531	2.67	1,295	6.50	1,191	5.98	9,438	47.38	5,004	25.12	2,459	12.34	19,919	100.00
1974	774	3.63	1,625	7.62	502	2.35	10,968	51.42	4,881	22.88	2,580	12.10	21,330	100.00
1975	1,220	5.22	1,671	7.15	521	2.23	11,907	50.97	5,332	22.82	2,710	11.60	23,361	100.00
1976	690	2.70	1,973	7.73	1,927	7.55	12,266	48.06	5,603	21.95	3,062	12.00	25,522	100.00
1977	883	3.09	5,689	19.91	3,302	11.56	11,482	40.19	6,243	21.85	4,239	14.84	28,559	100.00
1978	1,126	3.49	3,966	12.29	3,414	10.58	12,643	39.17	6,907	21.40	4,195	13.00	32,280	100.00
1979	1,440	4.01	4,837	13.47	3,505	9.76	13,694	38.15	6,695	18.65	5,727	15.95	35,897	100.00
1980	1,572	3.88	6,537	16.12	3,514	8.67	14,166	34.94	7,444	18.36	7,312	18.03	40,544	100.00

Source: U.S. Department of Commerce, Bureau of the Census, *Finances of Employee-Retirement Systems of State and Local Governments*, (various years), series GF.

Table 7.5.4

Portfolio Composition of Large City Pension Funds, 1959-1980
(Amounts in Millions of Dollars)

Year	Cash and Bonds		Federal Securities		State and Local Securities		Nongovernmental Securities		TOTAL	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1959	29	.78	899	24.32	2,006	54.27	762	20.62	3,696	100.00
1960	29	.68	1,148	26.77	2,171	50.63	940	21.92	4,288	100.00
1961	40	.85	1,162	24.77	2,225	47.43	1,264	26.95	4,691	100.00
1962	21	.43	1,203	24.61	1,978	40.47	1,686	34.49	4,888	100.00
1963	23	.43	1,176	21.82	1,894	35.15	2,296	42.61	5,389	100.00
1964	23	.39	1,335	22.84	1,823	31.19	2,664	45.58	5,845	100.00
1965	27	.42	1,341	21.02	1,632	25.58	3,380	52.98	6,380	100.00
1966	18	.27	1,213	18.42	1,607	24.40	3,747	56.90	6,585	100.00
1967	25	.34	1,205	16.18	1,595	21.42	4,621	62.06	7,446	100.00
1968	51	.63	1,188	14.60	1,546	19.00	5,352	65.77	8,137	100.00
1969	39	.46	1,210	14.30	1,488	17.58	5,727	67.66	8,464	100.00
1970	45	.50	1,142	12.60	1,285	14.18	6,592	72.73	9,064	100.00
1971	46	.48	805	8.34	1,204	12.48	7,596	78.71	9,651	100.00
1972	56	.51	777	7.04	1,136	10.29	9,066	82.16	11,035	100.00
1973	183	1.54	537	4.51	472	3.97	10,703	89.98	11,895	100.00
1974	343	2.67	769	5.99	390	3.04	11,329	88.29	12,831	100.00
1975	668	4.75	796	5.66	495	3.52	12,115	86.08	14,074	100.00
1976	181	1.18	740	4.81	1,851	12.03	12,619	81.99	15,391	100.00
1977	174	1.03	967	5.70	2,946	17.36	12,883	75.92	16,970	100.00
1978	251	1.39	1,216	6.71	3,359	18.54	13,287	73.36	18,113	100.00
1979	285	1.40	1,872	9.21	3,456	17.00	14,718	72.39	20,331	100.00
1980	229	1.01	2,914	12.80	3,467	15.23	16,156	70.97	22,766	100.00

Source: U.S. Department of Commerce, Bureau of the Census, *Finances of Employee-Retirement Systems of State and Local Governments*, (various years), series GF.

Table 7.5.5

Shares of Selected Total U.S. Financial Assets Held by Private Pension Funds and Insurance Company Pension Reserves and State and Local Pension Funds, 1957-1980
(Billions of Dollars)

Year	Corporate Equities			U.S. Government Securities		
	U.S. Total Amount	Private Pensions ¹ Amount ²	State and Local Pension Funds Percent of Total	U.S. Total Amount	Private Pensions ¹ Amount	State and Local Pension Funds Percent of Total
1957	299.0	8.00	2.68	32.6	3.70	11.35
1958	418.0	12.30	2.94	33.3	3.80	11.41
1959	454.0	15.30	3.37	34.4	4.00	11.63
1960	451.0	17.40	3.86	34.4	3.90	11.34
1961	574.0	24.10	4.20	35.2	3.80	10.80
1962	505.7	23.10	4.57	37.3	4.10	10.99
1963	597.0	29.00	4.86	37.2	4.10	11.02
1964	662.1	35.20	5.32	39.1	4.30	11.00
1965	749.0	42.60	5.69	38.7	4.10	10.59
1966	682.7	41.30	6.05	40.0	3.90	9.75
1967	868.2	53.40	6.15	37.9	3.30	8.71
1968	1,032.6	64.40	6.24	40.0	3.80	9.50
1969	913.9	64.50	7.06	38.0	3.80	9.95
1970	906.2	70.80	7.81	41.2	4.10	9.95
1971	1,059.2	93.90	8.87	41.4	3.90	9.42
1972	1,197.1	122.30	10.22	46.7	4.90	10.49
1973	948.1	97.50	10.28	47.9	5.60	11.69
1974	676.9	69.60	10.28	50.7	6.80	13.41
1975	892.5	97.30	10.90	72.2	12.70	17.59
1976	1,052.0	121.40	11.54	97.2	17.30	17.80
1977	991.3	113.60	11.46	119.8	23.40	19.53
1978	1,034.2	121.30	11.73	138.0	26.50	19.20
1979	1,229.0	139.80	11.38	159.2	30.70	19.28
1980	1,636.0	199.60	12.20	207.7	38.50	18.54

Table 7.5.5 Continued

Shares of Selected Total U.S. Financial Assets Held by Private Pension Funds and Insurance Company Pension Reserves
and State and Local Pension Funds, 1957-1980
(Billions of Dollars)

Year	Corporate and Foreign Debt					Mortgages				
	U.S. Total Amount	Private Pensions ¹		State and Local Pension Funds		U.S. Total Amount	Private Pensions ¹		State and Local Pension Funds	
		Amount ²	Percent of Total	Amount	Percent of Total		Amount ²	Percent of Total	Amount	Percent of Total
1957	73.4	17.90	24.39	4.0	5.45	156.8	6.10	3.89	.5	.32
1958	80.2	19.90	24.81	5.1	6.36	172.5	6.60	3.83	.7	.41
1959	84.8	22.20	26.18	6.0	7.08	191.9	7.90	4.12	1.0	.52
1960	90.2	24.40	27.05	7.1	7.87	208.9	8.80	4.21	1.5	.72
1961	95.4	26.10	27.36	8.9	9.33	229.6	9.70	4.22	1.9	.83
1962	100.9	27.90	27.65	10.7	10.60	253.4	10.60	4.18	2.2	.87
1963	107.2	30.20	28.17	12.8	11.94	280.5	11.70	4.17	2.6	.93
1964	113.9	32.50	28.53	14.9	13.08	307.0	13.50	4.40	3.1	1.01
1965	122.0	34.70	28.44	17.2	14.10	335.3	15.20	4.53	3.7	1.10
1966	133.2	38.00	28.53	20.2	15.17	358.4	17.00	4.74	4.5	1.26
1967	149.7	40.40	26.99	23.9	15.97	382.9	18.20	4.75	5.0	1.31
1968	164.1	42.30	25.78	26.6	16.21	412.5	19.20	4.65	5.4	1.31
1969	178.0	44.20	24.83	30.6	17.19	443.2	20.60	4.65	5.6	1.26
1970	202.4	47.20	23.32	35.1	17.34	473.1	22.00	4.65	5.9	1.25
1971	227.0	48.70	21.45	39.0	17.18	525.7	22.80	4.34	6.3	1.20
1972	247.3	50.40	20.38	43.2	17.47	602.4	23.00	3.82	6.5	1.08
1973	261.9	54.50	20.81	48.4	18.48	682.3	24.40	3.58	7.1	1.04
1974	286.7	61.60	21.49	54.9	19.15	742.5	27.10	3.65	7.7	1.04
1975	323.4	68.40	21.15	61.8	19.11	801.5	30.00	3.74	7.5	.94
1976	364.6	77.10	21.15	66.9	18.35	888.8	33.60	3.78	7.7	.87
1977	400.7	92.20	23.01	72.9	18.19	1,021.1	36.80	3.60	8.0	.78
1978	432.5	107.30	24.81	81.9	18.94	1,169.4	42.50	3.63	8.6	.74
1979	465.4	121.30	26.06	85.0	18.26	1,326.8	50.30	3.79	9.6	.72
1980	503.8	138.50	27.49	94.7	18.80	1,447.4	62.70	4.33	10.9	.75

Year	State and Local Government Securities				
	U.S. Total Amount	Private Pensions ¹		State and Local Pension Funds	
		Amount ²	Percent of Total	Amount	Percent of Total
1957	53.7	0.4	.74	2.4	4.47
1958	59.2	0.4	.68	2.7	4.56
1959	65.5	0.6	.92	3.2	4.89
1960	70.8	0.6	.85	3.6	5.08
1961	75.9	0.7	.92	3.9	5.14
1962	81.2	0.7	.86	4.0	4.93
1963	86.9	0.7	.81	3.9	4.49
1964	92.9	0.7	.75	3.8	4.09
1965	100.3	0.7	.70	3.5	3.49
1966	105.9	0.7	.66	3.3	3.12
1967	113.7	0.6	.53	3.1	2.73
1968	123.2	0.7	.57	3.2	2.60
1969	133.1	0.7	.53	3.2	2.40
1970	144.4	0.8	.55	3.3	2.29
1971	161.8	0.9	.56	3.4	2.10
1972	176.5	0.9	.51	3.4	1.93
1973	191.2	0.9	.47	3.4	1.78
1974	207.7	1.1	.53	3.7	1.78
1975	223.8	1.4	.63	4.5	2.01
1976	239.5	1.9	.79	5.6	2.34
1977	261.4	2.2	.84	6.1	2.33
1978	287.5	2.4	.83	6.4	2.23
1979	309.3	2.5	.81	6.4	2.07
1980	336.1	3.0	.89	6.7	1.99

Source: Federal Reserve System, Flow of Funds Accounts,
Assets and Liabilities Outstanding, 1957-1980.

1. Includes assets held by private pension funds and estimates of assets held by insurance companies as pension reserves.

2. Estimated assuming the portfolio distribution of insurance company pension reserves is the same as the portfolio distribution of all reserves held by insurance companies.

7.6 State and Local Pension Fund Assets: Cross-sectional Analysis

Assets of state and local pension funds totaled \$185.23 billion at the end of their 1979 fiscal years (table 7.6.1). Most of these assets, 78.11 percent, were held by state-administered pension plans. California and New York reported end of year assets of \$32.12 billion and \$32.59 billion, respectively. Together, these states, which accounted for less than one-fifth of total 1979 U.S. state and local government employment, reported over a third of the total state and local pension assets. North Dakota and the District of Columbia show the smallest assets, \$159.75 million and \$62.89 million, respectively.

Between the beginning and end of the 1979 fiscal year, the gross assets of state and local pension funds increased by \$23.57 billion (table 7.6.1). This increase reflects receipts of \$37.31 billion, outlays of \$14.08 billion, plus a change in liabilities and statistical discrepancy of \$.27 billion. Receipts, in turn, consisted of \$6.47 billion, \$7.58 billion, and \$9.95 billion in contributions from employees, state governments, and local governments, respectively. The additional sources of receipts, \$13.31 billion of investment earnings at book value

(excluding unrealized capital gains and losses), represented an 8.24 percent return on gross assets. State-administered funds experienced an 8.19 rate of return, while the return for locally administered plans was 9.48 percent.

Assets per participant for state and large local pension funds totaled \$16,530 in 1979 (table 7.6.2). For large locally administered plans, assets per participant (\$26,364) are almost twice the corresponding value for state-administered plans. New York public pensions reported \$29,271 per participant in 1979, the largest value for any state. California ranked second with \$26,258 per participant. Virginia, Mississippi, and West Virginia reported assets per participant of \$6,416, \$5,279, and \$5,199, respectively.

Table 7.6.3 considers the 1979–80 portfolio composition of state and local pension fund investments. In that fiscal year the aggregate portfolio consisted of 40.30 percent corporate bonds, 20.75 percent corporate stocks, and 20.12 percent government securities. Compared with state-administered plans, locally administered plans report larger portfolio shares invested in state and local governments and smaller shares invested in corporate bonds.

There is considerable variation across states and, within states, between state- and locally administered pensions in the composition of investments. Delaware, for example, reported a 46.46 percent investment share in corporate stocks; in Indiana the stock share was less than 1 percent. In Nebraska, 17.50 percent of local trust fund assets but only 7.42 percent of state trust fund assets were invested in corporate stock during fiscal year 1979–80.

Table 7.6.1
Flow of Funds Statements of State and Local Pension Funds by State and Type of Administrator, 1979–1980
(Thousands of Dollars)

State and Type of Administrator	Cash and Security Holdings Beginning of Fiscal Year	Employee Contributions	Receipts		Earnings on Investments	Payments		Increase in Liabilities and Statistical Discrepancy	Cash and Security Holdings At End of Fiscal Year
			Government From State	Contributions From Local Governments		Benefits	Withdrawals		
United States, Total	161,648,974	6,465,605	7,580,700	9,951,159	13,315,428	12,207,396	1,801,101	272,328	185,225,698
State-Administered	125,802,982	5,285,218	7,399,276	5,611,093	10,307,672	8,808,549	1,447,996	531,954	144,681,650
Locally Administered	35,845,993	1,180,387	181,424	4,340,066	3,007,756	3,398,847	353,105	-259,627	40,544,048
Alabama	1,670,474	91,674	188,905	36,608	151,779	122,785	16,959	-6,360	1,993,335
State-Administered	1,487,659	81,768	188,316	20,782	138,695	111,421	14,718	-6,648	1,784,433
Locally Administered	182,815	9,906	589	15,826	13,084	11,364	2,241	289	208,903
Alaska	591,300	39,359	51,076	42,759	72,096	36,128	8,966	2,463	753,958
State-Administered	577,506	37,549	51,076	36,404	69,970	34,238	8,847	-9,861	719,558
Locally Administered	13,794	1,810	NA	6,355	2,125	1,890	119	12,324	34,400
Arizona	1,917,628	119,506	34,938	102,188	183,598	56,895	38,899	-23,125	2,238,939
State-Administered	1,759,525	113,464	34,938	87,565	171,398	50,813	36,862	-16,802	2,062,413
Locally Administered	158,103	6,042	NA	14,624	12,200	6,082	2,037	-6,323	176,526
Arkansas	739,736	35,913	78,505	15,306	76,143	48,600	13,255	74,485	958,234
State-Administered	716,947	34,923	77,131	12,908	74,183	45,581	13,029	74,612	932,095
Locally Administered	22,788	991	1,373	2,398	1,960	3,019	227	-125	26,139
California	28,091,552	931,829	965,718	2,010,056	2,262,363	2,269,350	288,039	133,175	32,125,342
State-Administered	19,848,435	683,734	965,718	1,061,369	1,577,642	1,510,865	216,673	163,587	22,789,620
Locally Administered	8,243,116	248,095	NA	948,688	684,720	758,485	71,367	-30,412	9,335,722
Colorado	2,283,231	124,303	67,229	123,953	209,353	133,911	32,698	47,264	2,721,422
State-Administered	1,898,542	106,909	63,170	92,119	177,926	104,290	29,454	63,383	2,297,758
Locally Administered	384,689	17,395	4,059	31,834	31,427	29,621	3,245	-16,120	423,663
Connecticut	1,770,013	82,052	181,808	57,649	139,165	209,751	17,084	-25,569	1,995,367
State-Administered	1,392,527	70,049	181,637	6,335	116,664	177,433	15,093	-13,385	1,576,395
Locally Administered	377,486	12,003	171	51,314	22,501	32,318	1,991	-12,188	418,969
Delaware	213,964	10,854	48,548	4,196	20,536	26,618	1,479	183	271,662
State-Administered	198,846	9,529	47,480	NA	19,397	21,955	1,225	132	253,428
Locally Administered	15,118	1,325	1,069	4,196	1,138	4,663	254	51	18,234
District of Columbia Locally Administered ¹	37,768	11,387	NA	24,327	3,054	31,763	938	18,119	62,892
Florida	3,963,946	41,595	137,276	394,902	394,711	277,296	20,331	-109,702	4,545,432
State-Administered	3,319,274	10,536	129,094	308,926	335,153	215,988	14,072	-96,110	3,790,885
Locally Administered	644,672	31,058	8,182	85,976	59,558	61,308	6,259	-13,593	754,546

Table 7.6.1 Continued
Flow of Funds Statements of State and Local Pension Funds by State and Type of Administrator, 1979-1980
(Thousands of Dollars)

State and Type of Administrator	Cash and Security Holdings Beginning of Fiscal Year	Employee Contributions	Receipts		Earnings on Investments	Payments		Increase in Liabilities and Statistical Discrepancy	Cash and Security Holdings At End of Fiscal Year
			Government From State	Contributions From Local Governments		Benefits	Withdrawals		
Georgia	2,434,438	169,760	163,698	92,218	198,616	208,839	34,702	-58,560	2,791,331
State-Administered	2,131,773	142,773	163,233	48,911	175,881	168,517	28,435	-4,485	2,489,568
Locally Administered	302,665	26,987	466	43,307	22,735	40,322	6,267	-54,075	301,763
Hawaii									
State-Administered ¹	1,105,537	63,000	57,500	23,000	98,000	84,300	8,300	-47,887	1,214,850
Idaho	280,100	24,226	17,127	27,741	26,923	39,256	7,865	706	337,567
State-Administered	278,592	24,178	17,127	27,392	26,794	38,967	7,859	825	335,942
Locally Administered	1,509	47	NA	349	129	289	6	-120	1,626
Illinois	7,793,775	506,024	432,637	366,413	655,815	757,419	105,548	-111,258	8,885,986
State-Administered	4,757,289	317,332	377,079	108,986	413,654	461,925	69,191	-30,520	5,481,894
Locally Administered	3,036,485	188,693	55,558	257,427	242,161	295,495	36,357	-80,737	3,404,091
Indiana	1,086,676	66,922	133,510	51,622	97,840	182,392	15,003	5,651	1,259,829
State-Administered	1,080,543	63,609	129,915	29,337	97,536	153,925	14,945	6,106	1,253,121
Locally Administered	6,133	3,314	3,595	22,285	304	28,466	59	-456	6,708
Iowa	1,336,459	61,847	40,559	83,722	116,168	117,747	46,933	-1,154	1,519,953
State-Administered	1,120,712	58,621	37,781	65,505	100,427	84,767	25,743	-1,240	1,297,038
Locally Administered	215,747	3,226	2,778	18,217	15,741	32,980	21,091	10,185	222,915
Kansas	801,463	52,223	60,379	31,194	83,005	72,043	18,178	7,466	963,686
State-Administered	727,704	48,343	60,315	22,525	75,389	64,078	16,879	8,909	879,107
Locally Administered	73,759	3,880	64	8,669	7,615	7,965	1,299	-1,444	84,578
Kentucky	1,449,718	94,506	119,519	39,669	124,173	127,251	15,064	11,093	1,711,427
State-Administered	1,340,588	89,875	119,518	25,065	110,960	116,562	14,634	16,368	1,585,812
Locally Administered	109,131	4,631	1	14,604	13,213	10,689	430	-5,276	125,615
Louisiana	2,403,082	151,045	109,324	92,545	198,339	272,109	21,624	-1,171	2,681,056
State-Administered	2,194,264	137,049	108,631	54,173	179,094	238,324	17,869	5,579	2,440,465
Locally Administered	208,818	13,997	693	38,373	19,245	33,785	3,755	-6,750	240,591
Maine	260,057	33,710	56,971	15,782	34,544	85,262	7,251	-2,528	313,274
State-Administered	260,054	33,706	56,971	15,749	34,544	85,223	7,251	-2,529	313,271
Locally Administered	3	5	NA	33	NA	40	NA	2	3
Maryland	3,011,467	139,967	207,076	73,022	228,294	325,003	91,758	-73,630	3,261,193
State-Administered	2,259,922	116,907	207,076	6,565	151,002	249,640	69,850	-76,793	2,415,039
Locally Administered	751,545	23,060	NA	66,457	77,292	75,363	21,908	3,164	846,154
Massachusetts	2,462,719	250,637	260,906	209,349	213,123	628,584	31,622	197,139	2,965,289
State-Administered	1,369,679	141,577	260,602	NA	114,276	323,083	34,740	-21,065	1,541,985
Locally Administered	1,093,074	109,060	305	209,349	98,847	305,501	26,881	218,170	1,423,304
Michigan	6,844,836	76,484	500,020	493,662	567,492	489,580	38,733	-89,536	7,903,378
State-Administered	4,187,727	14,651	499,865	216,428	362,145	286,352	14,508	-86,919	4,907,546
Locally Administered	2,657,110	61,832	154	277,234	205,347	203,228	24,225	-2,618	2,995,832
Minnesota	2,897,046	148,108	146,265	123,160	204,454	189,693	28,800	11,352	3,339,692
State-Administered	2,340,576	124,540	124,934	70,299	168,639	128,982	25,723	19,089	2,719,094
Locally Administered	556,470	22,569	21,330	52,861	35,816	60,711	3,077	-7,717	620,618
Mississippi	856,574	67,395	43,888	60,251	79,262	80,833	18,174	23,627	1,050,164
State-Administered	847,388	66,090	43,778	56,053	78,335	77,478	18,066	23,811	1,037,977
Locally Administered	9,186	1,305	110	4,198	927	3,355	108	-184	12,187
Missouri	2,361,802	100,787	62,835	138,786	200,387	203,244	78,980	-31,007	2,630,346
State-Administered	1,739,647	83,615	60,920	89,070	145,812	156,956	68,088	-29,329	1,932,778
Locally Administered	622,155	17,172	1,915	49,716	54,575	46,287	10,892	-1,679	697,568
Montana	418,343	35,114	15,012	23,178	34,412	52,085	10,818	-2,369	471,604
State-Administered	414,537	34,856	14,351	22,688	34,151	50,712	10,799	-2,012	467,858
Locally Administered	3,806	258	661	490	261	1,373	20	-357	3,746
Nebraska	365,216	19,519	7,811	20,509	32,895	21,162	4,628	-6,193	418,596
State-Administered	185,016	11,146	7,087	6,387	18,659	11,422	3,064	1,778	218,650
Locally Administered	180,200	8,373	724	14,122	14,237	9,740	1,564	-7,971	199,946
Nevada									
State-Administered	605,083	15,376	16,302	53,227	68,434	36,924	7,495	1,244	722,742
N. Hampshire	277,079	21,773	12,243	11,227	18,063	24,613	6,145	676	316,449
State-Administered	276,113	21,653	12,243	11,107	17,975	24,442	6,113	676	315,326
Locally Administered	966	120	NA	120	89	172	32	1	1,123
New Jersey	5,620,172	207,533	302,051	183,747	391,978	382,970	23,402	-56,466	6,266,045
State-Administered	5,588,543	204,768	302,051	171,237	389,596	367,791	22,440	-54,718	6,233,685
Locally Administered	31,629	2,766	NA	12,510	2,383	15,179	962	-1,748	32,360

Table 7.6.1 Continued

Flow of Funds Statements of State and Local Pension Funds by State and Type of Administrator, 1979-1980
(Thousands of Dollars)

State and Type of Administrator	Cash and Security Holdings Beginning of Fiscal Year	Employee Contributions	Receipts			Payments		Increase in Liabilities and Statistical Discrepancy	Cash and Security Holdings At End of Fiscal Year
			Government From State	Contributions From Local Governments	Earnings on Investments	Benefits	Withdrawals		
New Mexico	696,098	51,901	20,500	36,984	59,935	52,213	13,505	-15,234	797,971
State-Administered	695,199	51,901	20,500	36,972	59,893	52,181	13,505	-15,212	797,072
Locally Administered	899	NA	NA	12	42	32	NA	-22	899
New York	29,201,827	204,819	557,341	2,871,341	2,292,921	2,170,334	107,287	-364,994	32,592,920
State-Administered	17,548,552	65,186	566,701	1,298,909	1,254,250	1,023,027	48,238	-115,353	19,585,218
Locally Administered	11,653,275	139,632	640	1,572,431	1,038,671	1,147,307	59,050	-249,651	13,007,702
N. Carolina	3,669,562	180,682	184,814	77,319	298,605	231,126	37,261	446,875	4,626,732
State-Administered	3,633,920	178,423	184,756	71,353	296,386	228,418	36,923	451,007	4,587,427
Locally Administered	35,641	2,259	58	5,967	2,219	2,708	338	-4,130	39,306
N. Dakota	140,254	15,085	4,676	11,914	12,440	13,484	4,559	-11,136	159,750
State-Administered	126,159	13,989	4,636	10,327	11,308	12,533	4,497	-10,027	143,858
Locally Administered	14,095	1,097	40	1,588	1,133	951	62	-1,110	15,891
Ohio	10,682,821	546,261	208,629	679,153	837,152	899,438	123,879	-50,670	12,003,907
State-Administered	10,442,743	538,173	208,629	659,709	819,567	883,693	120,688	-49,749	11,735,379
Locally Administered	240,078	8,088	NA	19,444	17,584	15,745	3,191	-921	268,528
Oklahoma	788,111	47,029	157,552	17,408	68,152	118,089	10,029	1,079	961,242
State-Administered	645,496	39,492	142,978	6,265	57,369	96,185	8,230	205	795,620
Locally Administered	142,614	7,537	14,574	11,142	10,784	21,904	1,799	875	165,622
Oregon	1,397,674	98,881	53,581	109,341	82,951	118,612	23,626	7,561	1,631,377
State-Administered	1,341,946	93,701	53,581	91,147	79,666	98,799	23,035	12,960	1,574,202
Locally Administered	55,728	5,181	NA	18,194	3,285	19,813	591	-5,399	57,175
Pennsylvania	7,988,072	343,980	501,418	336,643	627,066	957,155	87,537	-33,885	8,806,139
State-Administered	6,966,559	270,978	477,945	198,681	533,529	780,044	70,223	-29,638	7,638,010
Locally Administered	1,021,513	73,001	23,473	137,962	93,537	177,111	17,314	-4,247	1,168,129
Rhode Island	485,145	32,490	31,356	18,159	41,038	60,477	4,046	-4,408	543,303
State-Administered	405,513	28,852	31,328	10,038	36,989	49,011	3,559	-430	463,279
Locally Administered	79,632	3,638	28	8,121	4,049	11,466	487	-3,979	80,023
S. Carolina	1,648,073	84,129	55,744	64,668	135,479	109,499	19,286	-21,288	1,857,306
State-Administered	1,633,736	83,478	55,564	63,480	134,155	108,303	19,085	-22,939	1,839,171
Locally Administered	14,337	651	180	1,188	1,324	1,196	201	1,651	18,135
S. Dakota	218,643	18,014	7,597	12,108	18,649	15,569	5,891	-112	259,330
State-Administered	211,803	17,473	7,532	10,704	17,599	14,730	5,807	-4,553	245,829
Locally Administered	6,839	541	65	1,404	1,049	839	84	4,442	13,501
Tennessee	1,866,722	102,903	195,002	79,773	162,019	183,506	25,632	2,480	2,225,393
State-Administered	5,505,508	361,311	382,722	26,959	428,229	440,663	102,775	-36,327	6,227,738
Locally Administered	411,022	21,227	5,296	52,924	37,311	47,100	3,955	-7,988	472,691
Texas	6,235,682	407,304	382,831	112,686	493,725	502,837	111,786	24,094	7,153,485
State-Administered	5,505,508	361,311	382,722	26,959	428,229	440,663	102,775	-36,327	6,227,738
Locally Administered	730,173	45,993	109	85,727	65,497	62,174	9,011	60,422	925,747
Utah									
State-Administered	674,070	69,443	20,511	55,772	45,322	44,962	17,142	3,790	823,946
Vermont	215,888	10,186	15,827	1,280	22,193	16,450	2,706	-6,191	242,732
State-Administered	206,723	10,105	15,827	427	21,394	15,942	2,696	-5,894	232,640
Locally Administered	9,165	81	NA	853	799	508	10	-299	10,091
Virginia	1,871,415	134,456	111,992	89,810	195,073	188,957	34,274	-41,915	2,171,874
State-Administered	1,473,947	126,357	111,983	40,835	156,479	162,413	31,960	-34,115	1,713,073
Locally Administered	397,468	8,099	10	48,975	38,594	26,544	2,327	-7,801	458,800
Washington	2,647,496	184,508	347,841	43,549	260,142	331,901	38,354	467,426	3,619,071
State-Administered	2,210,443	166,252	347,078	10,300	229,019	278,285	34,151	475,551	3,160,357
Locally Administered	437,053	18,256	774	33,249	31,124	53,626	4,204	-8,115	458,714
W. Virginia	513,378	51,975	59,936	13,943	50,574	104,939	10,548	40,055	624,922
State-Administered	497,500	50,461	59,933	11,044	49,456	101,154	10,357	41,043	608,283
Locally Administered	15,878	1,514	3	2,899	1,118	3,786	190	-986	16,639
Wisconsin	4,506,452	74,651	136,762	273,422	405,514	203,343	29,826	-31,849	5,161,608
State-Administered	3,892,273	62,442	104,384	211,389	388,591	160,410	27,154	-22,174	4,476,495
Locally Administered	614,179	12,209	32,378	62,033	16,923	42,933	2,672	-9,675	685,113
Wyoming	225,216	13,480	7,145	19,920	21,465	13,120	4,241	-2,451	271,654
State-Administered	224,645	13,400	7,145	19,823	21,434	12,987	4,232	-2,424	271,036
Locally Administered	572	80	NA	97	31	133	9	-28	618

Source: U.S. Bureau of the Census, "Finances of Employee-Retirement System of State and Local Government"

NA - Not Available

1. Estimated.

Table 7.6.2
State and Local Pension Fund Assets, 1979-1980¹
(in Thousands)

Year	Total			State-Administered			Locally Administered		
	Assets	Participants	Assets Per Participant	Assets	Participants	Assets Per Participant	Assets	Participants	Assets Per Participant
Total	182,071,239	11,014.2	16,530.59	144,681,550	9,596	15,077.28	37,39,589	1,418.2	26,364.12
Alabama	1,965,441	156	12,598.98	1,784,433	145	12,306.43	181,008	11	16,455.27
Alaska	719,558	NA	21,163.47	719,558	34	21,163.47	NA	NA	NA
Arizona	2,238,939	154.7	14,472.78	2,062,413	143	14,422.47	176,526	11.7	15,087.69
Arkansas	932,095	NA	9,609.23	932,095	97	9,609.23	NA	NA	NA
California	31,904,152	1,215	26,258.56	22,789,620	956	23,838.51	9,114,532	259	34,191.24
Colorado	2,648,456	118.5	22,349.84	2,297,758	97	23,688.23	350,698	21.5	16,311.53
Connecticut	1,875,088	115.8	16,192.47	1,576,395	99	15,923.21	298,690	16.8	17,779.17
Delaware	269,716	26.5	10,177.96	253,428	25.1	10,096.73	16,288	1.4	11,634.29
DC	62,892	7.9	7,961.01	NA	NA	NA	62,892	7.9	7,971.01
Florida	4,323,007	408.2	10,590.41	3,790,885	383	9,897.87	532,122	25.2	21,115.95
Georgia	2,769,846	297.3	9,316.67	2,489,568	267	9,324.22	280,278	30.3	9,250.10
Hawaii	1,214,850	NA	23,820.59	1,214,850	51	23,820.59	NA	NA	NA
Idaho	335,942	NA	5,998.96	335,942	56	5,998.96	NA	NA	NA
Illinois	8,470,185	563	15,044.73	5,481,894	431	12,719.01	2,988,291	132	22,638.57
Indiana	1,253,525	214.7	5,838.50	1,253,121	213	5,883.20	404	1.7	237.65
Iowa	1,344,922	159.14	8,451.19	1,297,038	158	8,209.10	47,884	1.14	42,003.51
Kansas	960,597	115.1	8,345.76	879,107	110	7,991.88	81,490	5.1	15,978.43
Kentucky	1,667,610	152	10,971.12	1,585,812	150	10,572.08	81,798	2	40,899.00
Louisiana	2,637,279	234.3	11,255.99	2,440,465	217	11,246.38	196,814	17.3	11,376.53
Maine	313,271	66	4,746.53	313,271	66	4,746.53	NA	NA	NA
Maryland	3,245,126	199.7	16,250.01	2,415,039	165	14,636.60	830,087	34.7	23,921.82
Massachusetts	2,635,817	300	8,786.06	1,541,985	159	9,698.02	1,093,832	141	7,757.67
Michigan	7,354,620	464	15,850.47	4,907,546	404	12,147.39	2,447,074	60	40,784.57
Minnesota	3,282,071	248.1	13,228.82	2,719,074	232	11,720.15	562,997	16.1	34,968.76
Mississippi	1,037,977	196.6	5,279.64	1,037,977	196	5,295.80	9,620	.6	16,033.33
Missouri	2,575,303	163	15,799.40	1,932,778	129	14,982.78	642,525	34	18,897.79
Montana	467,858	NA	8,066.52	467,858	58	8,066.52	NA	NA	NA
Nebraska	400,467	43	9,313.19	218,650	32	6,832.81	181,817	11	16,528.82
Nevada	722,742	NA	14,171.41	722,742	51	14,171.41	NA	NA	NA
New Hampshire	315,326	NA	9,853.94	315,326	32	9,853.94	NA	NA	NA
New Jersey	6,254,038	346.6	18,043.96	6,233,685	344	18,121.18	20,353	2.6	7,828.08
New Mexico	797,072	NA	9,016.65	797,072	88.4	9,016.65	NA	NA	NA
New York	32,579,284	1,113	29,271.59	19,585,218	818	23,942.81	12,994,066	295	44,047.68
North Carolina	4,619,802	326.3	14,158.14	4,587,427	324	14,158.73	32,375	2.3	14,076.09
North Dakota	143,858	NA	617.68	143,858	232.9	617.68	NA	NA	NA
Ohio	12,003,907	772.7	15,535.02	11,735,379	765	15,340.36	268,528	7.7	34,873.77
Oklahoma	903,094	106.2	8,503.71	795,620	95.2	8,357.35	107,474	11	9,770.36
Oregon	1,625,106	121.3	13,397.41	1,574,202	116	13,570.71	50,904	5.3	9,604.53
Pennsylvania	8,599,112	511	16,828.01	7,638,010	421	18,142.54	961,102	90	10,678.91
Rhode Island	534,835	38.44	13,913.50	463,279	35	13,236.54	71,556	3.44	20,801.16
S. Carolina	1,839,171	NA	6,940.27	1,839,171	265	6,940.27	NA	NA	NA
S. Dakota	254,081	287.5	9,239.31	245,829	286.9	9,138.62	8,252	.6	13,753.33
Tennessee	2,203,181	221	9,969.14	1,752,701	183	9,577.60	450,480	38	11,854.74
Texas	7,077,513	652.6	10,845.10	6,227,738	608	10,242.99	849,775	44.6	19,053.25
Utah	823,946	NA	11,770.66	823,946	70	11,770.66	NA	NA	NA
Vermont	242,668	16.7	14,531.02	232,640	16.1	14,449.69	10,028	.6	16,713.33
Virginia	2,168,882	338	6,416.81	1,713,073	300	5,710.24	455,809	38	11,994.97
Washington	3,440,330	257.9	13,339.78	3,160,357	246	12,846.98	279,973	11.9	23,527.14
West Virginia	608,283	NA	5,199.00	608,283	117	5,199.00	NA	NA	NA

Table 7.6.2 Continued
State and Local Pension Fund Assets, 1979-1980¹
(in Thousands)

Year	Total			State-Administered			Locally Administered		
	Assets	Participants	Assets Per Participant	Assets	Participants	Assets Per Participant	Assets	Participants	Assets Per Participant
Wisconsin	5,127,742	274.7	18,666.70	4,476,495	249	17,977.89	651,247	25.7	25,340.35
Wyoming	271,036	NA	6,914.18	271,036	39.2	6,914.18	NA	NA	NA

Source: U.S. Bureau of the Census, "Finances of Employee Retirement Systems of State and Local Governments"
NA - Not Available

1. Local pension plans with more than 500 participants.

Table 7.6.3
Portfolio Composition of State and Local Pension Funds by State and Type of Administrator, 1979-1980
(Thousands of Dollars)

State and Type of Administrator	Cash and Deposits	Government Securities			Non-Government Securities			
		United States Treasury	Federal Agency	State and Local	Corporate Bonds	Corporate Stocks	Other Investments	Not Classified
UNITED STATES, TOTAL								
Amount	4,191,149	17,555,436	15,883,769	4,025,439	75,013,754	38,619,811	30,822,943	16,460
Row Percent	2.25	9.43	8.53	2.16	40.30	20.75	16.56	.01
State-Administered								
Amount	2,611,452	13,841,720	13,049,138	511,455	60,867,676	31,146,308	23,232,451	0
Row Percent	1.80	9.53	8.98	.35	41.90	21.44	15.99	.00
Locally Administered								
Amount	1,579,697	3,713,716	2,834,631	3,513,984	14,146,078	7,473,503	7,590,492	16,460
Row Percent	3.87	9.09	6.94	8.60	34.61	18.29	18.57	.04
ALABAMA								
Amount	21,089	63,599	113,435	0	1,266,629	87,968	440,615	0
Row Percent	.91	2.74	4.88	.00	53.97	5.17	32.33	.00
State-Administered								
Amount	10,084	0	91,504	0	1,191,412	57,855	433,578	0
Row Percent	.57	.00	5.13	.00	66.77	3.24	24.30	.00
Locally Administered								
Amount	11,005	63,599	21,931	0	75,217	30,311	7,037	0
Row Percent	2.04	11.78	4.06	.00	11.69	11.55	58.88	.00
ALASKA								
Amount	84,921	151,893	42,827	0	68,284	62,385	330,689	12,959
Row Percent	11.26	20.15	5.68	.00	9.06	8.27	43.86	1.72
State-Administered								
Amount	83,810	149,394	42,781	0	63,150	62,385	318,038	0
Row Percent	11.65	20.76	5.95	.00	8.78	8.67	44.20	.00
Locally Administered								
Amount	1,111	2,499	47	0	5,134	0	12,651	12,959
Row Percent	3.23	7.26	.14	.00	14.92	.00	36.76	37.69
ARIZONA								
Amount	1,823	396,192	56,683	0	788,495	445,050	550,696	0
Row Percent	.08	17.70	2.53	.00	35.22	19.88	24.60	.00
State-Administered								
Amount	559	380,211	460	0	733,487	400,693	547,003	0
Row Percent	.03	18.44	.02	.00	35.56	19.43	26.52	.00
Locally Administered								
Amount	1,265	15,981	56,222	0	55,008	44,357	3,693	0
Row Percent	.72	9.05	31.85	.00	31.16	25.13	2.09	.00
ARKANSAS								
Amount	37,880	176,904	89,183	8	483,288	120,020	50,951	0
Row Percent	3.95	18.46	9.31	.00	50.44	12.53	5.32	.00
State-Administered								
Amount	25,277	170,296	86,806	0	479,038	119,740	50,937	0
Row Percent	2.71	18.27	9.31	.00	51.39	12.85	5.46	.00
Locally Administered								
Amount	12,603	6,607	2,377	8	4,250	280	14	0
Row Percent	48.22	25.28	9.09	.03	16.26	1.07	.05	.00
CALIFORNIA								
Amount	495,937	1,679,230	3,154,960	22,516	13,474,230	7,178,699	6,119,770	0
Row Percent	1.54	5.23	9.82	.07	41.94	22.35	19.05	.00
State-Administered								
Amount	196,106	884,487	2,425,972	19,955	9,026,258	5,550,192	4,686,650	0
Row Percent	.86	3.88	10.65	.09	39.61	24.35	20.56	.00
Locally Administered								
Amount	299,831	794,743	728,989	2,561	4,447,972	1,628,507	1,433,120	0
Row Percent	3.21	8.51	7.81	.03	47.64	17.44	15.35	.00
COLORADO								
Amount	27,684	181,185	79,492	229	1,436,429	458,229	538,172	0
Row Percent	1.02	6.66	2.92	.01	52.78	16.84	19.78	.00
State-Administered								
Amount	1,877	129,950	60,136	0	1,246,878	426,291	432,625	0
Row Percent	.08	5.66	2.62	.00	54.27	18.55	18.83	.00
Locally Administered								
Amount	25,806	51,235	19,355	229	189,551	31,938	105,547	0
Row Percent	6.09	12.09	4.57	.05	44.74	7.54	24.91	.00
CONNECTICUT								
Amount	56,175	148,982	18,664	0	1,079,624	558,942	132,978	0
Row Percent	2.82	7.47	.94	.00	54.11	28.01	6.66	.00
State-Administered								
Amount	8,594	117,669	0	0	1,002,131	444,667	3,337	0
Row Percent	.55	7.46	.00	.00	63.57	28.21	.21	.00
Locally Administered								
Amount	47,581	31,314	18,664	0	77,493	114,275	129,641	0
Row Percent	11.36	7.47	4.45	.00	18.50	27.28	30.94	.00

Table 7.6.3 Continued
 Portfolio Composition of State and Local Pension Funds by State and Type of Administrator, 1979-1980
 (Thousands of Dollars)

State and Type of Administrator	Cash and Deposits	Government Securities			Non-Government Securities			
		United States Treasury	Federal Agency	State and Local	Corporate Bonds	Corporate Stocks	Other Investments	Not Classified
DELAWARE								
Amount	1,877	21,261	1,600	0	11,518	126,227	109,181	0
Row Percent	.69	7.83	.59	.00	4.24	46.46	40.19	.00
State-Administered								
Amount	385	15,091	1,600	0	9,935	118,751	107,666	0
Row Percent	.15	5.95	.63	.00	3.92	46.86	42.48	.00
Locally Administered								
Amount	1,492	6,169	0	0	1,583	7,476	1,515	0
Row Percent	8.18	33.83	.00	.00	8.68	41.00	8.31	.00
DISTRICT OF COLUMBIA								
Locally Administered ¹								
Amount	0	9,448	0	0	53,444	0	0	0
Row Percent	.00	15.02	.00	.00	84.98	.00	.00	.00
FLORIDA								
Amount	249,602	545,125	721,163	625	2,433,743	380,525	188,157	26,492
Row Percent	5.52	12.06	15.96	.01	53.86	8.42	4.16	.00
State-Administered								
Amount	212,393	436,955	666,115	15	2,256,642	218,766	0	0
Row Percent	5.60	11.53	17.57	.00	59.53	5.77	.00	.00
Locally Administered								
Amount	37,209	108,170	55,048	610	177,101	161,759	188,157	26,492
Row Percent	5.11	14.86	7.56	.08	24.33	22.22	25.84	.00
GEORGIA								
Amount	83,505	601,983	101,389	1,885	1,142,460	656,920	203,190	0
Row Percent	2.99	21.57	3.63	.07	40.93	23.53	7.28	.00
State-Administered								
Amount	45,539	469,075	58,726	0	1,098,749	626,056	191,422	0
Row Percent	1.83	18.84	2.36	.00	44.13	25.15	7.69	.00
Locally Administered								
Amount	37,966	132,908	42,663	1,885	43,711	30,864	11,768	0
Row Percent	12.58	44.04	14.14	.62	14.49	10.23	3.90	.00
HAWAII								
State-Administered ⁷								
Amount	206,500	27,000	242,000	350	186,000	188,000	365,000	0
Row Percent	17.00	2.22	19.92	.03	15.31	15.48	30.04	.00
IDAHO								
Amount	20,958	15,501	16,150	0	111,566	130,896	42,496	0
Row Percent	6.21	4.59	4.78	.00	33.05	38.78	12.59	.00
State-Administered								
Amount	19,678	15,501	15,903	0	111,566	130,882	42,412	0
Row Percent	5.86	4.61	4.73	.00	33.21	38.96	12.62	.00
Locally Administered								
Amount	1,280	0	247	0	0	14	84	0
Row Percent	78.77	.00	15.20	.00	.00	.86	5.17	.00
ILLINOIS								
Amount	317,654	1,223,610	647,505	6,643	3,464,227	1,711,416	1,513,675	1,255
Row Percent	3.57	13.77	7.29	.07	38.98	19.26	17.05	.01
State-Administered								
Amount	9,581	291,320	501,518	0	2,250,627	1,228,579	1,200,269	0
Row Percent	.17	5.31	9.15	.00	41.06	22.41	21.90	.00
Locally Administered								
Amount	308,073	932,290	145,987	6,643	1,213,600	482,837	313,406	1,255
Row Percent	9.05	27.38	4.29	.20	35.64	14.18	9.24	.04
INDIANA								
Amount	33,400	164,214	366,763	0	547,028	187	148,236	0
Row Percent	2.65	13.03	29.11	.00	43.42	.01	11.77	.00
State-Administered								
Amount	29,092	163,401	366,317	0	546,619	0	147,691	0
Row Percent	2.32	13.04	29.23	.00	43.62	.00	11.79	.00
Locally Administered								
Amount	4,308	813	446	0	409	187	545	0
Row Percent	64.22	12.12	6.65	.00	6.10	2.79	8.12	.00
IOWA								
Amount	29,080	430,593	165,410	4,090	583,383	123,191	184,207	0
Row Percent	1.91	28.33	10.88	.27	38.38	8.10	12.12	.00
State-Administered								
Amount	1,699	287,529	143,133	0	559,035	121,435	184,207	0
Row Percent	.13	22.17	11.04	.00	43.10	9.36	14.20	.00
Locally Administered								
Amount	27,381	143,064	22,277	4,090	24,348	1,756	0	0
Row Percent	12.28	64.18	9.99	1.83	10.92	.79	.00	.00
KANSAS								
Amount	13,402	29,982	99,421	16,986	232,351	282,042	289,501	0
Row Percent	1.39	3.11	10.32	1.76	24.11	29.27	30.04	.00
State-Administered								
Amount	1,940	12,114	97,070	16,986	207,547	266,519	276,932	0
Row Percent	.22	1.38	11.04	1.93	23.61	30.32	31.50	.00
Locally Administered								
Amount	11,462	17,868	2,352	0	24,804	15,523	12,569	0
Row Percent	13.55	21.13	2.78	.00	29.33	18.35	14.86	.00
KENTUCKY								
Amount	82,059	101,941	262,371	1,425	739,990	352,150	171,457	0
Row Percent	4.79	5.96	15.33	.08	43.24	20.58	10.02	.00
State-Administered								
Amount	62,969	80,181	251,713	940	714,202	313,021	162,787	0
Row Percent	3.97	5.06	15.87	.06	45.04	19.74	10.27	.00
Locally Administered								
Amount	19,091	21,793	10,658	486	25,788	39,129	8,670	0
Row Percent	15.20	17.35	8.48	.39	20.53	31.15	6.90	.00

Table 7.6.3 Continued
 Portfolio Composition of State and Local Pension Funds by State and Type of Administrator, 1979-1980
 (Thousands of Dollars)

State and Type of Administrator	Cash and Deposits	Government Securities			Non-Government Securities			
		United States Treasury	Federal Agency	State and Local	Corporate Bonds	Corporate Stocks	Other Investments	Not Classified
LOUISIANA								
Amount	261,480	315,430	417,725	19,003	1,444,835	130,049	92,532	0
Row Percent	9.75	11.77	15.58	.71	53.89	4.85	3.45	.00
State-Administered								
Amount	237,690	261,625	393,195	18,696	1,343,594	106,631	79,034	0
Row Percent	9.74	10.72	16.11	.77	55.05	4.37	3.24	.00
Locally Administered								
Amount	23,789	53,806	24,530	307	101,241	23,418	13,498	0
Row Percent	9.89	22.36	10.20	.13	42.08	9.73	5.61	.00
MAINE								
Amount	44,751	37,939	13,975	0	37,781	120,126	58,702	0
Row Percent	14.28	12.11	4.46	.00	12.06	38.35	18.74	.00
State-Administered								
Amount	44,748	37,939	13,975	0	37,781	120,126	58,702	0
Row Percent	14.28	12.11	4.46	.00	12.06	38.35	18.74	.00
Locally Administered								
Amount	3	0	0	0	0	0	0	0
Row Percent	100.00	.00	.00	.00	.00	.00	.00	.00
MARYLAND								
Amount	77,006	30,084	67,309	789	1,731,713	1,216,639	137,652	0
Row Percent	2.36	.92	2.06	.02	53.10	37.31	4.22	.00
State-Administered								
Amount	29,157	0	0	0	1,434,208	951,673	0	0
Row Percent	1.21	.00	.00	.00	59.39	39.41	.00	.00
Locally Administered								
Amount	47,849	30,084	67,309	789	297,505	264,966	137,652	0
Row Percent	5.65	3.56	7.95	.09	35.16	31.31	16.27	.00
MASSACHUSETTS								
Amount	111,291	224,659	454,578	8,563	1,798,835	271,932	95,431	0
Row Percent	3.75	7.58	15.33	.29	60.66	9.17	3.22	.00
State-Administered								
Amount	677	69,167	330,885	0	962,141	130,486	48,628	0
Row Percent	.04	4.49	21.46	.00	62.40	8.46	3.15	.00
Locally Administered								
Amount	110,641	155,492	123,692	8,563	836,694	141,446	46,803	0
Row Percent	7.77	10.92	8.69	.60	58.78	9.94	3.29	.00
MICHIGAN								
Amount	717,767	743,425	273,727	3,908	3,249,798	1,200,964	1,713,220	568
Row Percent	9.08	9.41	3.46	.05	41.12	15.20	21.68	.00
State-Administered								
Amount	638,556	552,741	37,795	425	2,046,105	723,763	907,681	479
Row Percent	13.01	11.26	.77	.01	41.70	14.75	18.50	.00
Locally Administered								
Amount	79,211	190,684	235,932	3,483	1,203,693	477,201	805,539	89
Row Percent	2.64	6.36	7.88	.12	40.18	15.93	26.89	.00
MINNESOTA								
Amount	32,131	129,554	305,762	14,205	976,480	1,269,265	612,261	34
Row Percent	.96	3.88	9.16	.43	29.24	38.01	18.33	.00
State-Administered								
Amount	1,187	103,070	286,059	2,917	838,471	1,135,586	351,784	0
Row Percent	.04	3.79	10.52	.11	30.84	41.76	12.94	.00
Locally Administered								
Amount	30,945	26,484	19,703	11,288	138,009	133,679	260,477	34
Row Percent	4.99	4.27	3.17	1.82	22.24	21.54	41.97	.01
MISSISSIPPI								
Amount	109,136	68,458	406,895	166	437,347	0	28,162	0
Row Percent	10.39	6.52	38.75	.02	41.65	.00	2.68	.00
State-Administered								
Amount	97,673	67,900	406,895	0	437,347	0	28,162	0
Row Percent	9.41	6.54	39.20	.00	42.13	.00	2.71	.00
Locally Administered								
Amount	11,463	558	0	166	0	0	0	0
Row Percent	94.06	4.58	.00	1.36	.00	.00	.00	.00
MISSOURI								
Amount	27,228	156,278	239,445	0	1,325,092	563,979	318,321	0
Row Percent	1.04	5.94	9.10	.00	50.38	21.44	12.10	.00
State-Administered								
Amount	6,752	99,105	220,216	0	990,297	373,800	242,607	0
Row Percent	.35	5.13	11.39	.00	51.24	19.34	12.55	.00
Locally Administered								
Amount	20,476	57,173	19,229	0	334,795	190,179	75,714	0
Row Percent	2.94	8.20	2.76	.00	47.99	27.26	10.85	.00
MONTANA								
Amount	5,685	28,275	996	3,079	311,602	40,975	80,993	0
Row Percent	1.21	6.00	.21	.65	66.07	8.69	17.17	.00
State-Administered								
Amount	4,341	27,856	979	1,548	311,602	40,924	80,608	0
Row Percent	.93	5.95	.21	.33	66.60	8.75	17.23	.00
Locally Administered								
Amount	1,344	419	17	1,531	0	51	385	0
Row Percent	35.87	11.18	.45	40.86	.00	1.36	10.27	.00
NEBRASKA								
Amount	4,197	45,379	55,654	595	197,979	51,390	63,402	0
Row Percent	1.00	10.84	13.30	.14	47.30	12.28	15.15	.00
State-Administered								
Amount	3	13,542	41,537	0	95,337	16,234	51,997	0
Row Percent	.00	6.19	19.00	.00	43.60	7.42	23.78	.00
Locally Administered								
Amount	4,194	31,837	14,118	595	102,642	35,156	11,405	0
Row Percent	2.10	15.92	7.06	.30	51.33	17.58	5.70	.00

Table 7.6.3 Continued
 Portfolio Composition of State and Local Pension Funds by State and Type of Administrator, 1979-1980
 (Thousands of Dollars)

State and Type of Administrator	Cash and Deposits	Government Securities			Non-Government Securities				
		United States Treasury	Federal Agency	State and Local	Corporate Bonds	Corporate Stocks	Other Investments	Not Classified	
NEVADA									
State-Administered									
Amount	73	21,850	73,612	0	337,780	69,262	220,165	0	
Row Percent	.01	3.03	10.20	.00	46.66	9.60	30.50	.00	
N. HAMPSHIRE									
State-Administered									
Amount	36,297	18,260	31,933	0	111,195	113,766	5,000	0	
Row Percent	11.47	5.77	10.09	.00	35.14	35.95	1.58	.00	
Locally Administered									
Amount	166	45,938	681,930	877	111,107	113,108	4,939	0	
Row Percent	.02	4.79	71.18	.09	11.60	11.81	.52	.00	
Locally Administered									
Amount	7,708	7,668	4,020	0	88	658	61	0	
Row Percent	38.15	37.95	19.90	.00	.44	3.26	.30	.00	
NEW JERSEY									
State-Administered									
Amount	7,874	53,606	685,950	877	4,175,944	1,090,491	251,302	0	
Row Percent	.13	.86	10.95	.01	66.64	17.40	4.01	.00	
Locally Administered									
Amount	166	45,938	681,930	877	4,167,379	1,089,840	247,554	0	
Row Percent	.00	.74	10.94	.01	66.85	17.48	3.97	.00	
Locally Administered									
Amount	7,708	7,668	4,020	0	8,565	651	3,748	0	
Row Percent	23.82	23.70	12.42	.00	26.47	2.01	11.58	.00	
NEW MEXICO									
State-Administered									
Amount	24,402	109,927	174,498	0	337,011	126,797	24,438	0	
Row Percent	3.06	13.79	21.89	.00	42.28	15.91	3.07	.00	
Locally Administered									
Amount	24,402	109,927	174,498	0	337,011	126,797	24,438	0	
Row Percent	3.06	13.79	21.89	.00	42.28	15.91	3.07	.00	
Locally Administered									
Amount	139	760	0	0	0	0	0	0	
Row Percent	15.46	84.54	.00	.00	.00	.00	.00	.00	
NEW YORK									
State-Administered									
Amount	11,590	5,094,425	2,157,721	3,898,376	6,985,117	6,722,138	7,723,552	0	
Row Percent	.04	15.63	6.62	11.96	21.43	20.62	23.70	.00	
Locally Administered									
Amount	9,506	4,749,206	1,324,536	439,046	3,986,048	4,296,623	4,780,253	0	
Row Percent	.05	24.25	6.76	2.24	20.35	21.94	24.41	.00	
Locally Administered									
Amount	2,084	345,219	833,185	3,459,330	2,999,069	2,425,515	2,943,299	0	
Row Percent	.02	2.65	6.41	26.59	23.06	18.65	22.63	.00	
N. CAROLINA									
State-Administered									
Amount	10,399	7,929	3,557	49	3,563,267	980,983	60,548	0	
Row Percent	.22	.17	.08	.00	77.01	21.20	1.31	.00	
Locally Administered									
Amount	9,205	1,900	0	0	3,551,566	970,209	54,547	0	
Row Percent	.20	.04	.00	.00	77.42	21.15	1.19	.00	
Locally Administered									
Amount	1,195	6,029	3,557	49	11,701	10,774	6,001	0	
Row Percent	3.04	15.34	9.05	.12	29.77	27.41	15.27	.00	
N. DAKOTA									
State-Administered									
Amount	6,570	32,808	41,915	0	48,699	27,276	2,482	0	
Row Percent	4.11	20.54	26.24	.00	30.48	17.07	1.55	.00	
Locally Administered									
Amount	1,069	32,165	38,563	0	46,071	23,803	2,187	0	
Row Percent	.74	22.36	26.81	.00	32.03	16.55	1.52	.00	
Locally Administered									
Amount	5,501	643	3,352	0	2,628	3,473	295	0	
Row Percent	34.61	4.05	21.09	.00	16.54	21.85	1.86	.00	
OHIO									
State-Administered									
Amount	10,209	684,665	581,363	2,607	4,540,892	3,285,336	2,898,834	0	
Row Percent	.09	5.70	4.84	.02	37.83	27.37	24.15	.00	
Locally Administered									
Amount	7,030	630,425	550,745	2,607	4,496,003	3,213,918	2,834,650	0	
Row Percent	.06	5.37	4.69	.02	38.31	27.39	24.15	.00	
Locally Administered									
Amount	3,179	54,240	30,618	0	44,889	71,418	64,184	0	
Row Percent	1.18	20.20	11.40	.00	16.72	26.60	23.90	.00	
OKLAHOMA									
State-Administered									
Amount	94,580	91,420	83,511	24	517,703	155,549	16,593	1,862	
Row Percent	9.84	9.51	8.69	.00	53.86	16.18	1.73	.19	
Locally Administered									
Amount	39,531	71,528	76,977	0	470,178	137,406	0	0	
Row Percent	4.97	8.99	9.68	.00	59.10	17.27	.00	.00	
Locally Administered									
Amount	55,049	19,892	6,534	24	47,525	18,143	16,593	1,862	
Row Percent	33.24	12.01	3.95	.01	28.69	10.95	10.02	1.12	
OREGON									
State-Administered									
Amount	17,907	10,480	107,567	0	530,844	567,535	397,043	0	
Row Percent	1.10	.64	6.59	.00	32.54	34.79	24.34	.00	
Locally Administered									
Amount	14,864	0	102,916	0	518,089	554,051	384,281	0	
Row Percent	.94	.00	6.54	.00	32.91	35.20	24.41	.00	
Locally Administered									
Amount	3,043	10,479	4,651	0	12,755	13,484	12,762	0	
Row Percent	5.32	18.33	8.13	.00	22.31	23.58	22.32	.00	

Table 7.6.3 Continued
 Portfolio Composition of State and Local Pension Funds by State and Type of Administrator, 1979-1980
 (Thousands of Dollars)

State and Type of Administrator	Cash and Deposits	Government Securities			Non-Government Securities			
		United States Treasury	Federal Agency	State and Local	Corporate Bonds	Corporate Stocks	Other Investments	Not Classified
PENNSYLVANIA								
Amount	124,903	441,409	381,481	2,414	5,008,559	1,492,834	1,354,289	250
Row Percent	1.42	5.01	4.33	.03	56.88	16.95	15.38	.00
State-Administered								
Amount	148	341,985	244,144	101	4,512,631	1,385,181	1,153,820	0
Row Percent	.00	4.48	3.20	.00	59.08	18.14	15.11	.00
Locally Administered								
Amount	124,755	99,424	137,337	2,313	495,928	107,653	200,469	250
Row Percent	10.68	8.51	11.76	.20	42.45	9.22	17.16	.02
RHODE ISLAND								
Amount	30,778	112,301	17,237	0	178,184	144,951	59,852	0
Row Percent	5.66	20.67	3.17	.00	32.80	26.68	11.02	.00
State-Administered								
Amount	19,956	109,049	16,802	0	151,439	111,516	54,518	0
Row Percent	4.31	23.54	3.63	.00	32.69	24.07	11.77	.00
Locally Administered								
Amount	10,822	3,252	435	0	26,745	33,435	5,334	0
Row Percent	13.52	4.06	.54	.00	33.42	41.78	6.67	.00
S. CAROLINA								
Amount	9,060	317,837	392,712	5,000	1,035,570	1,720	95,408	0
Row Percent	.49	17.11	21.14	.27	55.76	.09	5.14	.00
State-Administered								
Amount	7,435	312,361	387,151	5,000	1,032,764	0	94,460	0
Row Percent	.40	16.98	21.05	.27	56.15	.00	5.14	.00
Locally Administered								
Amount	1,625	5,477	5,560	0	2,806	1,720	948	0
Row Percent	8.96	30.20	30.66	.00	15.47	9.48	5.23	.00
S. DAKOTA								
Amount	47,927	73,124	18,799	1,150	11,334	96,114	10,881	0
Row Percent	18.48	28.20	7.25	.44	4.37	37.06	4.20	.00
State-Administered								
Amount	46,233	72,836	18,371	0	10,672	96,078	1,639	0
Row Percent	18.81	29.63	7.47	.00	4.34	39.08	.67	.00
Locally Administered								
Amount	1,694	289	429	1,150	662	36	9,242	0
Row Percent	12.55	2.14	3.18	8.52	4.90	.27	68.45	.00
TENNESSEE								
Amount	172,762	564,599	50,496	0	682,454	506,645	248,437	0
Row Percent	7.76	25.37	2.27	.00	30.67	22.77	11.16	.00
State-Administered								
Amount	122,346	513,133	47,596	0	510,504	370,887	188,235	0
Row Percent	6.98	29.28	2.72	.00	29.13	21.16	10.74	.00
Locally Administered								
Amount	50,416	51,466	2,900	0	171,950	135,758	60,202	0
Row Percent	10.67	10.89	.61	.00	36.38	28.72	12.74	.00
TEXAS								
Amount	81,409	921,474	1,245,587	0	2,527,338	1,802,748	574,931	0
Row Percent	1.14	12.88	17.41	.00	35.33	25.20	8.04	.00
State-Administered								
Amount	15,614	781,673	1,192,005	0	2,289,683	1,473,335	475,428	0
Row Percent	.25	12.55	19.14	.00	36.77	23.66	7.63	.00
Locally Administered								
Amount	65,795	139,800	53,581	0	237,655	329,413	99,503	0
Row Percent	7.11	15.10	5.79	.00	25.67	35.58	10.75	.00
UTAH								
State-Administered								
Amount	43,280	74,323	66,014	0	360,316	167,365	109,948	2,700
Row Percent	5.69	9.76	8.67	.00	47.33	21.99	6.56	.00
VERMONT								
Amount	2,332	39,634	5,675	0	45,792	62,708	86,590	0
Row Percent	.96	16.33	2.34	.00	18.87	25.83	35.67	.00
State-Administered								
Amount	1,532	37,441	5,675	0	42,472	61,154	84,366	0
Row Percent	.66	16.09	2.44	.00	18.26	26.29	36.26	.00
Locally Administered								
Amount	800	2,193	0	0	3,320	1,554	2,224	0
Row Percent	7.93	21.73	.00	.00	32.90	15.40	22.04	.00
VIRGINIA								
Amount	279,738	303,775	224,504	189	486,305	645,341	231,780	241
Row Percent	12.88	13.99	10.34	.01	22.39	29.72	10.67	.00
State-Administered								
Amount	264,912	259,280	203,720	189	355,560	467,106	162,306	0
Row Percent	15.46	15.14	11.89	.01	20.76	27.27	9.47	.00
Locally Administered								
Amount	14,826	44,495	20,784	0	130,745	178,235	69,474	241
Row Percent	3.23	9.70	4.53	.00	28.51	38.87	15.15	.00
WASHINGTON								
Amount	10,878	510,732	258,136	8,138	1,227,421	714,501	889,266	0
Row Percent	.30	14.11	7.13	.22	33.92	19.74	24.57	.00
State-Administered								
Amount	5,693	498,797	236,179	555	972,827	661,011	785,296	0
Row Percent	.18	15.78	7.47	.02	30.78	20.92	24.85	.00
Locally Administered								
Amount	5,185	11,935	21,957	7,583	254,594	53,490	103,970	0
Row Percent	1.13	2.60	4.79	1.65	55.50	11.66	22.67	.00

Table 7.6.3 Continued
Portfolio Composition of State and Local Pension Funds by State and Type of Administrator, 1979-1980
(Thousands of Dollars)

State and Type of Administrator	Cash and Deposits	Government Securities			Corporate Bonds	Non-Government Securities		
		United States Treasury	Federal Agency	State and Local		Corporate Stocks	Other Investments	Not Classified
W. VIRGINIA								
Amount	9,765	117,003	133,791	493	297,302	0	66,567	0
Row Percent	1.56	18.73	21.42	.08	47.60	.00	10.60	.00
State-Administered								
Amount	864	110,935	133,291	371	297,186	0	65,636	0
Row Percent	.14	18.24	21.91	.06	48.86	.00	10.79	.00
Locally Administered								
Amount	8,901	6,068	500	122	116	0	931	0
Row Percent	54.67	37.27	3.07	.75	.71	.00	3.52	.00
WISCONSIN								
Amount	31,741	51,951	69,418	178	2,259,531	2,085,313	663,475	0
Row Percent	.61	1.01	1.34	.00	43.78	40.40	12.85	.00
State-Administered								
Amount	3	40,288	0	0	1,987,563	1,884,603	564,038	0
Row Percent	.00	.90	.00	.00	44.40	42.10	12.60	.00
Locally Administered								
Amount	31,738	11,662	69,418	179	271,968	200,710	99,437	0
Row Percent	4.63	1.70	10.13	.03	39.70	29.30	14.51	.00
WYOMING								
Amount	712	117,642	9,193	0	144,107	0	0	0
Row Percent	.26	43.31	3.38	.00	53.05	.00	.00	.00
State-Administered								
Amount	557	117,623	9,193	0	143,663	0	0	0
Row Percent	.21	43.40	3.39	.00	53.01	.00	.00	.00
Locally Administered								
Amount	155	19	0	0	444	0	0	0
Row Percent	25.08	3.07	.00	.00	71.84	.00	.00	.00

Source: U.S. Bureau of the Census. "Finances of Employee-Retirement System of State and Local Government"

7.7 Financial Status of State-administered Pension Funds

7.7.1 Pension Benefit Liability Concepts

This section presents estimates compiled by Dr. Frank S. Arnold of accrued and projected liabilities of state-administered pension funds. These liabilities are estimated for both active vested participants and total active participants.² In both cases, the universe includes current recipients. As discussed more fully in section 5.7, accrued liabilities equal the present expected value of pension benefits participants can anticipate receiving on the basis of their past service. Projected liabilities equal the present value of benefits participants can expect to collect assuming their employer continues in business, wages grow at projected rates, and employee separation occurs at projected rates. Wage and separation rates used in the estimation of these liabilities are usually based on past experience.

For private pension funds, estimates of accrued liabilities correspond roughly to legal obligations in the event of pension plan termination. ERISA specifies the circumstances under which private pension plan assets as well as the employer's assets can be attached to meet accrued liabilities. For state and local plans the degree to which accrued liabilities represent legal obligations of the states and localities depends on specific state and local statutes; the federal government neither regulates nor insures the payment of state and local pension benefits. To the extent that accrued liabilities represent legal state obligations these liabilities, like other state debt, represent a claim on future state tax revenues. Consideration of accrued pension liabilities is required in this case for a complete understanding of state finances. In certain states accrued pension liabilities exceed official state debt, effectively making state workers the principal lenders to these governments.

Projected liabilities bear little, if any, relation to legal obligations. They may, however, correspond to implicit contractual arrangements between employers and workers that link future service to future pension compensation. In recent years labor economists have developed theoretical models of long-term employment arrangements between workers and firms. The theory of implicit contracts envisions workers and employers informally agreeing to both a long-term path of employee compensation and a long-term path of employee work effort.

In a world of perfect certainty as well as perfect honesty, both the employer and employee would know precisely the duration of employment as well as the intensity with

which the employee would work during the contract period. Both parties would also understand the exact amount of compensation that the worker would receive for his (her) labor efforts over the course of the contract. Since the total wage payment over the life of the contract in this setting is given, there need be no relation whatsoever between an employee's current work efforts and his (her) current compensation. The only relation that is required between work effort and compensation is that the present value of wages, pension benefits, and other fringe benefits over the duration of the contract compensate the worker for his (her) total supply of labor to the employer. From the perspective of implicit contract theory and under assumptions of certainty and honesty, projected pension benefits (the firm's projected pension liabilities) represent an important component of the total compensation not yet paid to the worker. Information about this component of future compensation as well as information concerning other components of future and past compensation may be useful to labor economists in linking long-term employment decisions to long-term levels of compensation.

More sophisticated theories of implicit contracts consider the potential for cheating by either the worker or the employer on the terms of the implicit contract. Some of these theories stress a "carrot and stick" path of employee compensation that "enforces" employee work effort by delaying a significant fraction of the worker's compensation until the worker is advanced in age or indeed retires. These "carrot and stick" models assume that payment of the future compensation is contingent upon the worker's performance. Hence a long-term compensation schedule that has a terminal bonus or the effective equivalent provides workers with continued incentives to work diligently for fear of early separation from the firm and loss of their bonus.

Projected pension benefits are an important form of contingent future compensation that may be playing the role of "stick" in implicit long-term labor contracts (see Lazear 1981, 1982). Defined benefit plans, in particular, often specify benefit formulae that provide significantly greater marginal compensation as the worker ages. The unit benefit formula, for example, provides a certain fraction of a specified earnings base for each year of service. There are two aspects of this formula that can produce larger additional benefits for each additional year of work. First, as the worker nears retirement age, the additional claims to pension benefits that he (she) acquires are more meaningful because they will be received in the near future. This is simply a reflection of interest discounting. In more technical language, the increment to the present value of benefits (computed as of the worker's initial year of employment) of an additional year's work (holding the level of earnings constant) is greater the closer is the worker to retirement.

The second feature of this formula that can produce a steeply rising age-marginal pension compensation schedule is the use of earnings bases that reflect nominal wage histories that are indexed for neither inflation nor real wage growth. Inflation as well as growth in real wages associated with increasing seniority, increasing experience, and economy-wide productivity gains can result in a steeply rising path of nominal earnings over the worker's lifetime. Since the earnings base is typically computed as an average of either lifetime or terminal years' nominal earnings, the worker is likely to produce larger increases in his (her) earnings base as he (she) approaches retirement.

Estimates of projected liabilities are useful for considering other economic theories of labor markets as well. Consider an economic environment in which workers negotiate each year for that year's compensation and in which payment for work is concurrent with work performance. In addition, assume that workers are highly mobile across jobs and will work at the job paying the highest wage for the particular year in question. In this short-term "spot" rather than long-term contract labor market, the projected value of total future worker compensation is determined by projected competitive conditions in the labor market. Hence, given the present value of total compensation an employer can project paying to his (her) workers in the future, projected pension benefit liabilities suggest, in part, the adjustment in future nonpension compensation required to meet the market.

Projected as well as accrued pension liabilities are also useful concepts in analyzing such diverse topics as the financial valuation of corporations and variations in land prices

across states and across localities within states (Feldstein and Seligman 1981; Feldstein and Morck 1983; Epple and Shipper 1981). Depending on the underlying nature of the labor market as well as statutory provisions guaranteeing vested as well as nonvested pension benefits, accrued liabilities and projected liabilities are indeed liabilities of the employer. Investors contemplating purchasing part or all of a business's equity will consider these pension liabilities together with other business liabilities in deciding how much to pay for a corporation's stock or for a partnership share in the case of an unincorporated business.

Similar consideration of pension liabilities may occur when a family considers moving to a state and decides in which locality to settle. To the extent that the state or locality has sizable unfunded pension liabilities, these pension benefit payments are likely to be financed in the future through high state and local taxes: either local property taxes, state and local sales taxes, city payroll taxes, or state income taxes.

The likelihood of paying high future taxes to meet unfunded pension liabilities should influence the price potential purchasers are willing to pay for property in one community versus another. As a consequence, the unfunded liabilities of a locality or a state may be capitalized in the land values of that locality or state; that is, *ceteris paribus*, localities and/or states with greater than average unfunded pension liabilities may have lower than average land values.

In addition to providing potential insight into the economics of labor markets and property valuation, estimates of projected as well as accrued pension liabilities provide convenient devices for simultaneously summarizing details of benefit, vesting, participation, and retirement provisions as well as providing information about the plan sponsor's past and projected wages and employment.

7.7.2 *Method of Estimating State and Local Pension Liabilities*

The liabilities estimates reported in this section and sections 7.8, 7.9, and 7.10 were prepared by Dr. Frank S. Arnold. Dr. Arnold's procedures are briefly summarized here; a detailed description is provided in Dr. Arnold's doctoral dissertation, "The Financial Status of State and Local Public Employee Pension Funds: Theory and Evidence."

Estimation of accrued and projected liabilities requires information concerning the age-sex-tenure distribution of all pension participants. The earnings histories and projected future earnings of pension participants, the probability that participants of different age-sex cohorts will survive into the future, and the probability of separation from the pension plan for reasons other than mortality are additional inputs into liability calculations. Two other key elements are projected rates of inflation and the choice of a nominal interest rate to use in discounting expected future benefit payments.

To estimate pension liabilities of state-administered, large-city, other large local, and small local plans, information was gathered on the number of active and inactive participants. (Inactive participants are primarily pension beneficiaries.) Dr. Arnold collected age-sex-service distributions for a sample of the 143 state-administered plans. He then used a weighted average of 13 of these distributions in estimating liabilities of all state-administered pension plans for general employees and teachers. The 13 age-sex-service distributions are quite similar in the sense that use of any of the 13 distributions generates roughly the same set of liability estimates. In estimating liabilities for general employees and teachers of large-city, other large local, and small local plans, the common age-sex-service distribution for state-administered plans was used (sections 7.8 to 7.10). A separate age-sex-service distribution obtained from the Urban Institute was used in calculating pension liabilities of police and fire plans.

For particular public pension systems the liability estimates reported here may differ considerably from true underlying pension obligations, reflecting the use of a uniform age-sex-service distribution as well as other simplifying assumptions required because of data limitations. These estimates do appear to provide fairly accurate information concerning the overall financial status of public pension systems. They also provide important, if not necessarily completely accurate, information about the financial status of particular public pension systems. Public pension systems that appear on the basis of the stated actuarial

procedures and assumptions either extremely well or extremely poorly funded invite closer scrutiny by pension researchers.

Given the age-sex-service distribution, the number of active participants, data on total annual wage payments, and an assumed cross-sectional distribution of wages by age, sex, and service, one can calculate the average wages of participants in each age, sex, and service cell for years in which total wage payment information is available. For state-administered, large-city, and large local plans, total wage payments are available for 1978. For small local plans, wage and other actuarial data are available for 1979. In computing historical wages for participants in an age-sex-service cell, wages were projected backward from either 1978 or 1979 using the historic growth rate of annual earnings per full-time equivalent worker reported in *1981 Economic Report of the President*.³ Nominal wages were projected to grow at a 2.7 percent real rate plus the rate of inflation, assumed to equal either 5 or 9 percent. Two percentage points of the 2.7 real wage growth corresponds to an assumed 2 percent economy-wide growth in labor productivity; the remaining .7 percentage point reflects an assumed increase in the worker's real wage associated simply with additional years of service.

To determine accrued liabilities for active participants the benefit that each worker in an age-sex-service cell could expect to receive on the basis of past service was computed. The inputs for this calculation include each public pension plan's specific benefit formula (including social security integrated formulae) and the estimated wage history of current workers in particular age-sex-service cells. Workers are assumed to collect benefits beginning at each plan's normal retirement age. For plans providing cost of living increases, annual pension benefits were increased for years after normal retirement in accordance with the assumed inflation rate and the plan's exact cost of living formula. Many plans provide ad hoc cost of living increases. In these cases the COLA is assumed to equal half the inflation rate.

The calculation of projected liabilities for active participants differs from the above procedures. This calculation projects the retirement benefit that workers currently in an age-sex-service cell will receive if they remain in the plan and their wages grow at the assumed nominal rate of wage growth until normal retirement. Not all current workers, however, will remain active plan participants until normal or even early retirement. Separation as well as disability probabilities determine the number of current active participants who will terminate employment with the plan sponsor prior to retirement. Age- and service-specific separation probabilities from eight state plans and age-specific disability probabilities from seven plans were combined to form a single average distribution of separation probabilities and a single average distribution of disability probabilities. The present expected values of vested accrued benefits for future terminating participants including those terminating due to disability are included in estimates of projected pension liabilities. Information was not available to compute liabilities to inactive but not retired vested participants, i.e. those vested participants whose employment with the plan sponsor had terminated in the past, but who were not yet collecting pension benefits.

Accrued and projected liabilities incorporate the same estimate of the present expected value of payments to current retirees and nonparticipant beneficiaries. Each of the public pension plans reported the numbers of retirees and survivor beneficiaries and the value of total benefit payments to these two categories of beneficiaries. Separate age-sex distributions for the two types of beneficiaries were used to estimate the number of each type of beneficiary by age and sex. These two distributions were calculated on the basis of samples of twelve state distributions in the case of retirees and seven state distributions in the case of survivors.

Since these distributions indicate both the number of beneficiaries of each sex in each age cell and the proportion of total benefits paid to members of each cell, the average benefit per beneficiary in a given age and sex cell can be computed. For survivors the remaining calculation is to compute the present value of the stream of benefits to each individual, using the calculated average benefit and plan-specific COLA. Total survivor liabilities are simply the sum of individual survivor liabilities.

For retirees the liability calculus is more complicated since some retirees receive reduced benefits reflecting their choice of a joint-survivor rather than a straight-life annuity. Two assumptions were adopted to account for joint-survivor annuities. First, the joint-survivor annuity is assumed to provide a survivor's benefit equal to 50 percent of the primary benefit. Second, the joint-survivor annuity is assumed to provide the same present expected value of pension benefits as the straight-life annuity computed as of the plan's normal retirement age. These two assumptions permit the calculation by age and sex of the ratio of the joint-survivor benefit to the straight-life benefits. Given this ratio, the value of total benefits paid to retirees by age and sex, and plan-specific information on the fraction of retirees in a cell electing the joint-survivor option, the absolute values of the straight-life and joint-survivor annuities are easily computed. Estimation of the present expected value of liabilities to retirees proceeds by separately discounting future expected benefit payments to straight-life annuitants and to joint-survivor annuitants, taking account, in the latter case, of the present expected value of benefit payments to these annuitant's potential survivors.

7.7.3 *Liabilities of State and Local Public Employee Pension Systems*

Estimates of accrued liabilities of state-administered pension plans are presented in tables 7.7.1 and 7.7.2 assuming 8 and 12 percent interest rates, respectively. The nominal interest rate used to discount future benefit payments is taken to equal a 3 percent real rate plus the assumed rate of inflation, either 5 or 9 percent. Estimates of the fiscal position of these public pension plans differ dramatically with the rate of inflation. At an 8 percent nominal discount rate total accrued liabilities for state-administered plans equal \$137.84 billion. This number declines to \$100.43 billion when the interest rate is increased to 12 percent. Since state-administered pension funds reported \$125.18 billion in assets in 1978, total unfunded accrued liabilities are \$12.66 billion using an 8 percent interest rate and – \$24.75 billion using a 12 percent interest rate. Calculated with an 8 percent interest rate, state plans have assets sufficient to cover 90.82 percent of their total accrued liabilities. Using a 12 percent interest rate, state plans have more than enough assets to cover their total accrued liabilities.

The sensitivity of these calculations to the nominal interest rate and, since the real interest rate is held constant, to the inflation rate reflects both inflation-sensitive benefit formulae and less than full indexation of pension benefits in state-administered plans. Assuming nominal interest rates rise point for point with inflation, incomplete indexation of pension benefits means that only somewhat larger streams of future nominal benefits are discounted at much higher nominal interest rates.

The sensitivity of these liability estimates to inflation (interest rate) assumptions means that the real value of benefits promised to state workers can be highly dependent on the course of inflation. State governments and their employees have essentially no control over the long-term inflation rate, a variable that is ultimately determined by long-term monetary policy. Changes in monetary policy that raise the nation's long-term inflation rate by 4 percentage points can, according to these tables, reduce this measure of the real benefits paid to state workers by over one-quarter.

Massachusetts's unfunded total accrued liabilities exceed those of any other state: they equal \$2.36 billion at 8 percent and \$1.34 billion at 12 percent interest rates. The New York state-administered pension plan, in contrast, appears to be in significant surplus using accrued liabilities as the measure of indebtedness. Indeed, New York's pension fund accrued surpluses range from \$2.42 billion to \$5.57 billion as inflation increases from 5 to 9 percent and interest rates from 8 to 12 percent. With the nominal interest rate at 12 percent, thirty-three states have estimated surpluses with respect to total accrued liabilities; this figure declines to thirteen states assuming an 8 percent interest rate.

In terms of the fraction of liabilities that are unfunded, Maine ranks first with assets sufficient to cover only 31 percent of liabilities based on a 12 percent interest rate and only 21 percent of liabilities based on an 8 percent interest rate (table 7.7.3). New York state has excess assets that total 46 and 16 percent of total accrued liabilities at 12 and 8 percent

interest rates, respectively. With the nominal interest rate at 8 percent, seven states have ratios of assets to total accrued liability that are less than .5.

A comparison of unfunded state pension liabilities with long-term state debt is presented in table 7.7.4. Across all states 1978 unfunded accrued vested liabilities total \$6.73 billion based on an 8 percent interest rate. Total 1978 long-term state debt equals \$72.09 billion. Pension liabilities represent 9 percent of the sum of these two liabilities. Unfunded vested accrued pension liabilities (at 8 percent interest) exceeded official long-term 1978 state debt for seven of the fifty states. In Montana, Oregon, Virginia, Wyoming, Idaho, and Indiana, these unfunded liabilities exceeded two-thirds of combined state and pension debt. At a 12 percent interest rate, many state pensions are estimated to be in surplus with respect to vested accrued liabilities. However, even assuming a 12 percent interest rate, states have greater estimated pension debt than official state debt.

Perhaps the most meaningful way to present these pension debt numbers is to consider the taxes per adult state resident required to pay off this debt. Table 7.7.5 presents these calculations under both interest rate assumptions. Alaska's 8 percent interest rate pension debt equals more than \$2,300 per adult resident. Maine had the second largest pension debt per adult in 1978, \$805. At a 12 percent interest rate the state with the largest pension surplus per adult is Wisconsin with a estimated value of \$560. Georgia's \$454 is the second largest pension surplus per adult.

Estimates of projected liabilities and accrued liabilities differ dramatically. Table 7.7.6 reports \$294.87 billion in projected liabilities based on an 8 percent interest rate. In contrast, the total accrued liability of state-administered plans calculated using this interest rate is \$137.84 billion. As in the case of accrued liabilities, these actuarial estimates are sensitive to the choice of the interest rate used to discount future benefit streams. Raising the nominal interest rate from 8 percent to 12 percent lowers state projected liabilities from \$294.87 billion to \$229.10 billion, or by 22.30 percent (table 7.7.7).

According to the projected liability definition of pension obligations, state-administered plans are less than 40 percent funded if the interest rate is 8 percent and less than 60 percent funded if the interest rate is 12 percent. At an 8 percent interest rate thirty-eight of fifty states are less than 50 percent funded with respect to their projected liabilities. Only two states, South Dakota and Wisconsin, have assets in excess of three-quarters of their projected liabilities. Estimates of unfunded state projected pension liabilities exceed by a wide margin the amount of official state government debt outstanding (table 7.7.8). Across all states unfunded projected liabilities based on a 12 percent interest rate exceed state debt by 44.16 percent; based on an 8 percent interest rate unfunded projected liabilities exceed twice the value of official state debt. In many states estimated unfunded projected pension liabilities greatly exceed official debt. In Oregon, for example, the official state debt is \$263 million while unfunded projected pension liabilities (calculated with an 8 percent interest rate) equal \$2.27 billion.

Projected liabilities (calculated at an 8 percent interest rate) per adult resident range from \$7,675 in Alaska to —\$130 in South Dakota. In addition to Alaska, the states of Idaho, Louisiana, Maine, Nevada, New Jersey, New Mexico, Rhode Island, and South Carolina have (8 percent interest) estimated unfunded projected liabilities in excess of \$1,000 per adult resident (table 7.7.9).

To summarize this section, state-administered pension plans appear to be quite adequately funded from the perspective of accrued liabilities, but rather poorly funded from the perspective of projected liabilities. While the measured degree of funding is fairly sensitive to the choice of interest rate, differences in perceptions of funding adequacy are much more sensitive to the choice of liability concept. The conclusion that the choice of liability concept rather than actuarial assumptions dominates the results also holds for reasonable variations in assumptions about the growth rate of real wages and the age-service distribution. On the other hand, even small variations in the assumed real interest rate can produce sizable changes in estimates of accrued and projected liabilities. For example, an increase in the real interest rate by 1 percentage point typically reduces table 7.7.1's accrued liability estimates by 16 percent and table 7.7.6's projected liability estimates by 20 percent.

Table 7.7 1

Liabilities of State-Administered Pension Funds, by State, 1978.
Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

State	Total Accrued Liability	Vested Accrued Liability	Assets ²	Total Unfunded Accrued Liability	Unfunded Accrued Vested Liability
All States	137,838.35	131,916.97	125,181.21	12,657.14	6,735.76
Alabama	2,027.32	1,822.98	1,487.66	539.66	335.32
Alaska	1,590.91	1,540.00	577.51	1,013.40	962.49
Arizona	1,342.28	1,298.37	1,750.39	-408.11	-452.02
Arkansas	882.70	792.82	703.14	179.56	89.68
California	18,679.78	18,333.73	19,813.85	-1,134.07	-1,480.12
Colorado	1,673.24	1,627.32	1,898.54	-225.30	-271.22
Connecticut	2,290.78	2,262.29	1,382.17	908.61	880.12
Delaware	350.33	321.89	198.85	151.48	123.04
Florida	3,986.97	3,590.91	3,319.28	667.69	271.63
Georgia	1,933.33	1,790.99	2,117.26	-183.93	-326.27
Hawaii	1,041.59	1,014.33	1,105.54	-63.95	-91.21
Idaho	564.75	554.92	276.30	288.45	278.62
Illinois	6,364.49	5,894.94	4,745.26	1,619.23	1,149.68
Indiana ³	2,330.14	2,222.83	1,069.27	1,260.87	1,153.56
Iowa	1,131.70	1,105.26	1,118.99	12.71	-13.73
Kansas	961.26	869.31	727.70	233.56	141.61
Kentucky	1,486.10	1,469.09	1,324.70	171.40	144.39
Louisiana	3,739.58	3,418.08	2,149.98	1,589.60	1,268.10
Maine	1,222.09	1,138.78	260.05	962.04	878.73
Maryland	2,810.79	2,747.17	2,259.92	550.87	487.25
Massachusetts	3,732.01	3,519.41	1,369.68	2,362.33	2,149.73
Michigan	4,783.74	4,360.31	4,139.24	644.50	221.07
Minnesota	1,707.84	1,583.01	2,331.89	-624.05	-748.88
Mississippi	993.73	813.46	847.39	146.34	-33.93
Missouri	1,433.49	1,327.85	1,739.64	-306.15	-411.79
Montana	619.33	606.68	398.83	220.50	207.85
Nebraska ⁴	145.59	142.01	161.97	-16.38	-19.96
Nevada	767.84	668.24	604.07	163.77	64.17
New Hampshire	301.09	272.00	276.11	24.98	-4.11
New Jersey	5,842.09	5,725.69	5,502.12	339.97	223.57
New Mexico	796.21	775.72	691.32	104.89	84.40
New York	15,130.25	14,581.17	17,547.84	-2,417.59	-2,966.67
N. Carolina	3,384.39	3,322.58	3,622.53	-238.14	-299.95
N. Dakota	128.08	116.73	123.67	4.41	-6.94
Ohio	10,000.57	9,836.34	10,442.75	-442.18	-606.41
Oklahoma	1,287.04	1,183.20	635.28	651.76	547.92
Oregon ²	2,085.79	2,064.26	1,335.80	749.99	728.46
Pennsylvania	7,340.12	7,114.61	6,966.56	373.56	148.05
Rhode Island	708.73	660.03	405.51	303.22	254.52
S. Carolina ²	2,409.83	2,349.23	1,629.38	780.45	719.85
S. Dakota	86.27	86.27	206.51	-120.24	-120.24
Tennessee	2,086.24	2,041.86	1,455.70	630.54	586.16
Texas	6,126.88	5,579.04	5,505.51	621.37	73.53
Utah	674.69	674.69	670.29	4.40	4.40
Vermont ¹	263.40	250.60	206.73	56.67	43.87
Virginia	2,619.70	2,568.86	1,473.95	1,145.75	1,094.91
Washington	2,518.78	2,470.97	1,995.95	522.83	475.02
W. Virginia	1,371.04	1,346.37	493.70	877.34	852.67
Wisconsin	1,698.27	1,698.27	3,892.28	-2,194.01	-2,194.01
Wyoming	375.19	361.50	222.65	152.54	138.85

Source: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence"

1. These calculations assume a 3 percent real interest rate and a 5 percent inflation rate.
2. Assets are measured at book value.
3. At least one of the systems of this state provides both a defined benefit and a defined contribution pension. The estimated value of accumulated employee contributions to these defined contribution plans is included here in calculating total and vested accrued liabilities; these accumulated employee contributions represent accrued claims against the assets of state pension funds.
4. Nebraska has only one defined benefit plan that covers teachers. The remaining state employees are covered under defined contribution plans. The estimates here cover only the teachers' plan.

Table 7.7 2

Liabilities of State-Administered Pension Funds, by State, 1978
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

State	Total Accrued Liability	Vested Accrued Liability	Assets	Total Unfunded Accrued Liability	Unfunded Accrued Vested Liability
All States	100,434.53	97,666.21	125,181.21	-24,746.68	-27,515.00
Alabama	1,554.33	1,346.36	1,487.66	66.67	-41.30
Alaska	889.95	873.25	577.51	312.44	295.74
Arizona	977.11	957.09	1,750.39	-773.28	-793.30
Arkansas	589.93	549.79	703.14	-113.21	-153.35
California	13,045.83	12,811.74	19,813.85	-6,768.02	-6,902.11
Colorado	1,088.12	1,071.56	1,898.54	-810.12	-826.98
Connecticut	1,626.37	1,615.51	1,382.17	244.20	233.34
Delaware	274.26	259.78	198.85	75.41	60.93
Florida	2,667.54	2,380.61	3,319.28	-651.74	-838.67
Georgia	1,513.44	1,441.09	2,117.26	-603.82	-676.17
Hawaii	708.48	698.06	1,105.54	-397.06	-407.48
Idaho	393.52	389.90	276.30	117.22	113.60
Illinois	4,329.66	4,126.89	4,745.26	-415.60	-618.37
Indiana	1,754.41	1,709.06	1,069.27	685.14	639.79
Iowa	834.29	823.62	1,118.99	-284.70	-295.37
Kansas	731.04	684.43	727.70	3.34	-43.27
Kentucky	1,085.32	1,074.72	1,324.70	-239.38	-249.98
Louisiana	2,533.97	2,389.28	2,149.98	383.99	239.30
Maine	847.69	810.25	260.05	587.64	550.30

Table 7.7.2 Continued

Liabilities of State-Administered Pension Funds, by State, 1978
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

State	Total Accrued Liability	Vested Accrued Liability	Assets	Total Unfunded Accrued Liability	Unfunded Accrued Vested Liability
Maryland	1,912.81	1,287.68	2,259.92	-347.11	-372.24
Massachusetts	2,707.60	2,610.43	1,369.68	1,337.92	1,240.75
Michigan	3,700.29	3,484.90	4,139.24	-438.95	-654.34
Minnesota	1,291.89	1,231.08	2,331.89	-1,040.00	-1,100.81
Mississippi	656.93	574.74	847.39	-190.46	-272.65
Missouri	1,119.22	1,066.22	1,739.64	-620.42	-673.42
Montana	477.20	471.70	398.83	78.37	72.67
Nebraska ²	92.81	91.54	161.97	-69.16	-70.43
Nevada	568.57	515.95	604.07	-35.50	-88.12
New Hampshire	209.39	96.77	276.11	-66.72	-79.34
New Jersey	4,635.82	4,582.41	5,502.12	-866.30	-919.71
New Mexico	517.27	509.80	691.32	-174.05	-181.52
New York	11,978.91	11,700.87	17,547.84	-5,568.93	-5,846.97
N. Carolina	2,180.47	2,159.15	3,622.53	-1,442.06	-1,463.38
N. Dakota	95.57	90.01	123.67	-28.10	-33.66
Ohio	6,832.00	6,771.45	10,442.75	-3,610.75	-3,671.30
Oklahoma	1,016.85	959.61	635.28	381.57	324.33
Oregon ²	1,744.95	1,736.61	1,335.80	409.15	400.81
Pennsylvania	6,046.88	5,923.55	6,966.56	-919.68	-1,043.01
Rhode Island	942.70	518.13	405.51	137.19	112.62
S. Carolina	1,578.70	1,554.80	1,623.38	-50.68	-74.58
S. Dakota	65.69	65.69	206.51	-140.82	-140.82
Tennessee	1,412.63	1,395.71	1,455.70	-43.07	-59.99
Texas	4,735.09	4,415.61	5,505.51	-770.42	-1,059.90
Utah	414.91	414.91	670.29	-255.38	-255.38
Vermont	191.09	85.70	206.73	-15.64	-20.94
Virginia	1,980.49	1,959.28	1,473.95	506.54	485.33
Washington	1,663.55	1,646.75	1,995.95	-332.40	-349.20
W. Virginia	1,074.23	1,063.68	493.70	580.53	569.98
Wisconsin	1,273.13	1,273.13	3,892.28	-2,619.15	-2,619.15
Wyoming	271.33	265.17	222.65	48.68	42.52

Source: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence"

1. These calculations assume a 3 percent real interest rate and a 9 percent inflation rate.
2. See notes to table 7.7.1.

Table 7.7.3

Fraction of State Vested Accrued Pension Liabilities Unfunded,
Calculated Under Different Interest Rate Assumptions, by State, 1978¹

State	Fraction of Total Accrued Liability that is Unfunded		Fraction of Vested Accrued Liability that is Unfunded	
	Interest Rate 8%	12%	Interest Rate 8%	12%
All States	.09	-.25	.05	-.28
Alabama	.27	.04	.18	-.03
Alaska	.64	.35	.62	.34
Arizona	-.30	-.79	-.35	-.83
Arkansas	.20	-.19	.11	-.28
California	-.06	-.52	-.08	-.53
Colorado	-.13	-.74	-.17	-.77
Connecticut	.40	.15	.39	.14
Delaware	.43	.27	.38	.23
Florida	.17	-.24	.08	-.34
Georgia	-.10	-.40	-.18	-.47
Hawaii	-.06	-.56	-.09	-.58
Idaho	.51	.30	.50	.29
Illinois	.25	-.10	.20	-.15
Indiana	.54	.39	.52	.37
Iowa	.01	-.34	-.01	-.36
Kansas	.24	.00	.16	-.06
Kentucky	.11	-.22	.10	-.23
Louisiana	.43	.15	.37	.10
Maine	.79	.69	.77	.68
Maryland	.20	-.18	.18	-.20
Massachusetts	.63	.49	.61	.48
Michigan	.13	-.12	.05	-.19
Minnesota	-.37	-.81	-.47	-.89
Mississippi	.15	-.29	-.04	-.47
Missouri	-.21	-.55	-.31	-.63
Montana	.36	.16	.34	.15
Nebraska	-.11	-.75	-.14	-.77
Nevada	.21	-.06	.10	-.17
New Hampshire	.08	-.32	-.02	-.40
New Jersey	.06	-.19	.04	-.20
New Mexico	.13	-.34	.11	-.36
New York	-.16	-.46	-.20	-.50
N. Carolina	-.07	-.66	-.09	-.68
N. Dakota	.03	-.29	-.06	-.37
Ohio	-.04	-.53	-.06	-.54
Oklahoma	.51	.38	.46	.34
Oregon	.36	.23	.35	.23
Pennsylvania	.05	-.15	.02	-.18
Rhode Island	.43	.25	.39	.22
S. Carolina	.32	-.03	.31	-.05
S. Dakota	-1.39	-2.14	-1.39	-2.14
Tennessee	.30	-.03	.29	-.04
Texas	.10	-.16	.01	-.24
Utah	.01	-.62	.01	-.62
Vermont	.22	-.08	.18	-.11
Virginia	.44	.26	.43	.25
Washington	.21	-.20	.19	-.21

Table 7.7.3 Continued

Fraction of State Vested Accrued Pension Liabilities Unfunded,
Calculated Under Different Interest Rate Assumptions, by State, 1978¹

State	Fraction of Total Accrued Liability that is Unfunded		Fraction of Vested Accrued Liability that is Unfunded	
	Interest Rate		Interest Rate	
	8%	12%	8%	12%
W. Virginia	.64	.51	.63	.54
Wisconsin	-1.29	-2.06	-1.29	-2.06
Wyoming	.41	.18	.38	.16

Source: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence"

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

Table 7.7.4

Relationship of Accrued Pension Liabilities to Net Long-Term Debt of State Governments, 1978, at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

State	8% Interest Rate			12% Interest Rate	
	Long-Term State Debt ²	Unfunded Vested Accrued Liability	Ratio of Unfunded Vested Accrued Liability to Sum of State Debt and Unfunded Vested Accrued Liability ²	Unfunded Vested Accrued Liability	Ratio of Unfunded Vested Accrued Liability to Sum of State Debt and Unfunded Vested Accrued Liability ²
All States	72,089.25	6,735.76	.09	-27,515.00	NA
Alabama	970.27	335.32	.26	-41.30	NA
Alaska	825.68	962.49	.54	295.74	.26
Arizona	82.99	-452.02	NA	-793.30	NA
Arkansas	157.99	89.68	.36	-153.35	NA
California	5,351.16	-1,480.12	NA	-6,902.11	NA
Colorado	157.33	-271.22	NA	-826.98	NA
Connecticut	2,540.67	880.12	.26	233.34	.08
Delaware	710.67	123.04	.15	60.93	.08
Florida	1,609.02	271.63	.14	-838.67	NA
Georgia	1,271.74	-326.27	NA	-676.17	NA
Hawaii	1,663.51	-91.21	NA	-407.48	NA
Idaho	77.49	278.62	.78	113.60	.59
Illinois	3,491.50	1,149.68	.25	-618.37	NA
Indiana	443.19	1,153.56	.72	639.79	.59
Iowa	199.09	-13.73	NA	-295.37	NA
Kansas	391.16	141.61	.27	-43.27	NA
Kentucky	1,685.80	144.39	.08	-249.98	NA
Louisiana	1,833.80	1,268.10	.41	239.30	.12
Maine	463.01	878.73	.65	550.30	.54
Maryland	3,556.51	487.25	.12	-372.24	NA
Massachusetts	3,692.57	2,149.73	.37	1,240.75	.25
Michigan	1,216.41	221.07	.15	-654.34	NA
Minnesota	1,190.02	-748.88	NA	-1,100.81	NA
Mississippi	818.70	-33.93	NA	-272.65	NA
Missouri	388.57	-411.79	NA	-673.42	NA
Montana	72.62	207.85	.74	72.87	.50
Nebraska	33.51	-19.96	NA	-70.43	NA
Nevada	66.64	64.17	.49	-88.12	NA
New Hampshire	381.18	-4.11	NA	-79.34	NA
New Jersey	3,087.30	223.57	.07	-919.71	NA
New Mexico	260.20	84.40	.24	-181.52	NA
New York	12,395.49	-2,966.67	NA	-5,846.97	NA
N. Carolina	745.90	-299.95	NA	-1,463.38	NA
N. Dakota	33.90	-6.94	NA	-33.66	NA
Ohio	3,157.76	-606.41	NA	-3,671.30	NA
Oklahoma	892.61	547.92	.38	324.33	.27
Oregon	263.96	728.46	.73	400.81	.60
Pennsylvania	5,816.85	148.05	.02	-1,043.01	NA
Rhode Island	685.96	254.52	.27	112.62	.14
S. Carolina	1,328.45	719.85	.35	-74.58	NA
S. Dakota	103.71	-120.24	NA	-140.82	NA
Tennessee	884.29	586.16	.40	-59.99	NA
Texas	1,779.34	73.53	.04	-1,059.90	NA
Utah	180.05	4.40	.02	-255.38	NA
Vermont	389.87	43.87	.10	-20.94	NA
Virginia	431.35	1,094.91	.72	485.33	.53
Washington	1,231.55	475.02	.28	-349.20	NA
W. Virginia	1,197.95	852.67	.42	569.98	.32
Wisconsin	1,850.16	-2,194.01	NA	-2,619.15	NA
Wyoming	29.85	138.85	.82	42.52	.59

Sources: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence," and U.S. Department of Commerce, Census Bureau, State Government Finances

NA = Not Applicable

1. See note 1, table 7.7.3.

2. The debt figures reported here are net long-term debt of the state. These liabilities include both "full faith and credit" and "nonguaranteed" obligations.

Table 7.7.5

State Unfunded Vested Accrued Liabilities per Adult Resident, 1978, at 8% and 12% Interest Rates¹

State	8% Interest Rate		12% Interest Rate	
	Unfunded Accrued Vested Liability (Millions of Dollars)	Unfunded Accrued Vested Liability Per Adult Resident (Dollars)	Unfunded Accrued Vested Liability (Millions of Dollars)	Unfunded Accrued Vested Liability Per Adult Resident (Dollars)
All States	6,735.76	30.01	-27,515.00	-122.59
Alabama	335.32	89.61	-41.30	-11.04
Alaska	961.49	2,388.31	295.74	733.85
Arizona	-452.02	-192.02	-793.30	-337.00
Arkansas	89.68	41.02	-153.35	-70.15
California	-1,480.12	-66.39	-6,902.11	-309.59
Colorado	-271.22	-101.58	-826.98	-309.73
Connecticut	880.12	284.00	233.34	75.30
Delaware	123.04	211.05	60.93	104.51
Florida	271.63	31.61	-838.67	-97.59
Georgia	-326.27	-64.18	-676.17	-133.00
Hawaii	-31.21	-101.68	-407.48	-454.27
Idaho	275.62	317.33	113.60	129.38
Illinois	1,145.68	102.26	-618.37	-55.00
Indiana	1,153.56	214.66	639.79	119.05
Iowa	-13.73	-4.74	-295.37	-101.99
Kansas	14.61	60.31	-43.27	-18.43
Kentucky	144.39	41.28	-249.98	-71.46
Louisiana	1,266.10	319.74	239.30	60.34
Maine	875.73	805.44	550.30	504.40
Maryland	487.25	117.61	-372.24	-89.85
Massachusetts	2,149.73	372.31	1,240.75	214.89
Michigan	221.07	24.06	-654.34	-71.21
Minnesota	-746.88	-186.85	-1,100.81	-274.65
Mississippi	-33.93	-14.11	-272.65	-113.42
Missouri	-411.79	-84.73	-673.42	-138.56
Montana	207.85	26.48	72.87	9.28
Nebraska	-19.96	-12.75	-70.43	-45.00
Nevada	64.17	97.23	-88.12	-133.52
New Hampshire	-4.11	-4.72	-79.34	-91.09
New Jersey	223.57	30.51	-919.71	-125.52
New Mexico	84.40	69.64	-181.52	-149.77
New York	-2,966.67	-167.16	-5,846.97	-329.44
N. Carolina	-299.95	-53.78	-1,463.38	-262.40
N. Dakota	-6.94	-10.64	-33.66	-51.63
Ohio	-610.41	-56.42	-3,671.30	-341.55
Oklahoma	547.92	190.25	324.33	112.61
Oregon	728.46	298.06	400.81	164.00
Pennsylvania	148.05	12.60	-1,043.01	-88.77
Rhode Island	254.52	272.21	112.62	120.45
S. Carolina	719.85	246.69	-74.58	-25.56
S. Dakota	-120.24	-174.26	-140.82	-204.09
Tennessee	586.16	134.53	-59.99	-13.77
Texas	73.53	5.65	-1,059.90	-81.44
Utah	4.40	3.37	-255.38	-195.39
Vermont	43.87	90.08	-20.94	-43.00
Virginia	1,094.91	212.69	485.33	94.28
Washington	475.02	125.87	-349.20	-92.53
W. Virginia	852.67	458.42	569.98	306.44
Wisconsin	-2,194.01	-468.91	-2,619.15	-559.77
Wyoming	138.85	327.48	42.52	100.28

Source: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence."

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rate differs from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

Table 7.7.6

Projected Liabilities of State-administered Pension Funds, by State, 1978.
Assuming an 8% Interest Rate.
(Amounts in Millions of Dollars)

State	Projected ¹ Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
All States	294,869.35	125,181.21	169,688.14	.58
Alabama	4,889.40	1,487.66	3,401.74	.70
Alaska	3,670.82	577.51	3,093.31	.84
Arizona	2,891.03	1,750.39	1,140.64	.39
Arkansas	2,017.64	703.14	1,314.50	.65
California	36,414.17	19,813.85	16,600.32	.46
Colorado	3,444.29	1,898.54	1,545.75	.45
Connecticut	3,877.00	1,382.17	2,494.83	.64
Delaware	780.18	198.85	581.33	.75
Florida	9,601.17	3,319.28	6,281.89	.65
Georgia	3,914.85	2,117.26	1,797.59	.46
Hawaii	1,921.85	1,105.54	816.31	.42
Idaho	1,213.19	276.30	936.89	.77
Illinois	12,708.52	4,745.26	7,963.26	.63
Indiana	4,603.33	1,069.27	3,534.06	.77
Iowa	2,922.84	1,118.99	1,803.85	.62
Kansas	2,220.46	727.70	1,492.76	.67
Kentucky	3,106.00	1,324.70	1,781.30	.57
Louisiana	8,147.58	2,149.98	5,997.60	.74
Maine	2,354.51	260.05	2,094.46	.89
Maryland	6,140.27	2,259.92	3,880.35	.63
Massachusetts	6,978.06	1,369.68	5,608.38	.80
Michigan	12,056.55	4,139.24	7,917.31	.66
Minnesota	4,213.76	2,331.89	1,881.87	.45
Mississippi	2,330.97	847.39	1,483.58	.64
Missouri	2,999.69	1,739.64	1,260.05	.42

Table 7.7.6 Continued

Projected Liabilities of State-administered Pension Funds, by State, 1978.
Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

State	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
Montana	1,359.44	398.83	960.61	.71
Nebraska	388.93	161.97	226.96	.58
Nevada	2,065.69	604.07	1,461.62	.71
New Hampshire	693.95	276.11	417.84	.60
New Jersey	15,089.39	5,502.12	9,587.27	.64
New Mexico	2,065.92	691.32	1,374.60	.67
New York	34,037.49	17,547.84	16,489.65	.48
N. Carolina	7,315.81	3,622.53	3,693.28	.50
N. Dakota	276.05	123.67	152.38	.55
Ohio	20,016.11	10,442.75	9,573.36	.48
Oklahoma	2,774.89	635.28	2,139.61	.77
Oregon	3,604.82	1,335.80	2,269.02	.63
Pennsylvania	12,121.51	6,966.56	5,154.95	.43
Rhode Island	1,428.71	405.51	1,023.20	.72
S. Carolina	5,000.32	1,629.38	3,370.94	.67
S. Dakota	116.33	206.51	-90.18	-.78
Tennessee	4,387.46	1,455.70	2,931.76	.67
Texas	14,850.20	5,505.51	9,344.69	.63
Utah	1,845.75	670.29	1,175.46	.64
Vermont	451.75	206.73	245.02	.54
Virginia	5,863.42	1,473.95	4,389.47	.75
Washington	5,635.56	1,995.95	3,639.61	.65
West Virginia	2,920.60	493.70	2,426.90	.83
Wisconsin	4,017.78	3,892.28	125.50	.03
Wyoming	1,123.34	222.65	900.69	.80

Sources: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence," and U.S. Department of Commerce, Census Bureau, State Government Finances.

1. The calculations of projected liabilities assume a real interest rate of 3 percent, a 5 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent.
2. These liabilities are net of estimated future employee contributions.

Table 7.7.7

Projected Liabilities of State-administered Pension Funds, by State, 1978.
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

State	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
All States	229,101.53	125,181.21	103,920.32	.45
Alabama	4,121.81	1,487.66	2,634.15	.64
Alaska	2,353.67	577.51	1,776.16	.75
Arizona	2,186.02	1,750.39	435.63	.20
Arkansas	1,460.46	703.14	757.32	.52
California	26,365.34	19,813.85	6,551.49	.25
Colorado	2,391.91	1,898.54	493.37	.21
Connecticut	2,869.03	1,382.17	1,486.86	.52
Delaware	643.93	198.85	445.08	.69
Florida	6,718.15	3,319.28	3,398.87	.51
Georgia	3,332.93	2,117.26	1,215.67	.36
Hawaii	1,346.11	1,105.54	240.57	.18
Idaho	913.92	276.30	637.62	.70
Illinois	8,839.28	4,745.26	4,094.02	.46
Indiana	3,579.05	1,069.27	2,509.78	.70
Iowa	2,396.86	1,118.99	1,277.87	.53
Kansas	1,805.80	727.70	1,078.10	.60
Kentucky	2,399.12	1,324.70	1,074.42	.45
Louisiana	6,026.45	2,149.98	3,876.47	.64
Maine	1,729.08	260.05	1,469.03	.85
Maryland	4,551.40	2,259.92	2,291.48	.50
Massachusetts	5,424.78	1,369.68	4,055.10	.75
Michigan	10,023.32	4,139.24	5,884.08	.59
Minnesota	3,448.98	2,331.89	1,117.09	.32
Mississippi	1,669.74	847.39	822.35	.49
Missouri	2,464.63	1,739.64	724.99	.29
Montana	1,150.13	398.83	751.30	.65
Nebraska	278.99	161.97	117.02	.42
Nevada	1,734.07	604.07	1,130.00	.65
New Hampshire	491.05	276.11	214.94	.44
New Jersey	13,141.11	5,502.12	7,638.99	.58
New Mexico	1,487.60	691.32	796.28	.54
New York	28,660.15	17,547.84	11,112.31	.39
N. Carolina	5,047.87	3,622.53	1,425.34	.28
N. Dakota	223.02	123.67	99.35	.45
Ohio	14,720.77	10,442.75	4,278.02	.29
Oklahoma	2,274.76	635.28	1,639.48	.72
Oregon	2,987.69	1,335.80	1,651.89	.55
Pennsylvania	10,233.10	6,966.56	3,266.54	.32
Rhode Island	1,159.56	405.51	754.05	.65
S. Carolina	3,237.93	1,629.38	1,608.55	.50
S. Dakota	104.19	206.51	-102.32	-.98
Tennessee	3,203.71	1,455.70	1,748.01	.55
Texas	12,516.05	5,505.51	7,010.54	.56
Utah	1,307.96	670.29	637.67	.49
Vermont	332.77	206.73	126.04	.38
Virginia	4,928.99	1,473.95	3,455.04	.70
Washington	4,024.64	1,995.95	2,028.69	.50

Table 7.7.7 Continued

Projected Liabilities of State-administered Pension Funds, by State, 1978.
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

State	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
West Virginia	2,447.20	493.70	1,953.50	.80
Wisconsin	3,402.84	3,892.28	-489.44	-.14
Wyoming	943.61	222.65	720.96	.76

Sources: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence," and U.S. Department of Commerce, Census Bureau, State Government Finances

1. The calculations of projected liabilities assume a real interest rate of 3 percent, a 9 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent.
2. Projected liabilities are net of estimated future employee contributions.

Table 7.7.8

Relationship of Projected Pension Liabilities to Net Long-Term Debt of State Governments, By State, 1978
at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

State	Long-Term State-Debt ²	8% Interest Rate		12% Interest Rate	
		Unfunded Projected Liability	Ratio of Unfunded Vested Projected Liability to Sum of Long-Term State Debt and Unfunded-Projected Liability	Unfunded Projected Liability	Ratio of Unfunded Vested Projected Liability to Sum of Long-Term State Debt and Unfunded-Projected Liability
All States	72,089.25	169,688.14	.70	103,920.32	.59
Alabama	970.27	3,401.74	.78	2,634.15	.73
Alaska	825.68	3,093.31	.79	1,776.16	.68
Arizona	82.99	1,140.64	.93	435.63	.84
Arkansas	157.99	1,314.50	.89	757.32	.83
California	5,351.16	16,600.32	.76	6,551.49	.55
Colorado	157.33	1,545.75	.91	493.37	.76
Connecticut	2,540.67	2,494.83	.50	1,486.86	.37
Delaware	710.67	581.33	.45	445.08	.39
Florida	1,609.02	6,281.89	.80	3,398.87	.68
Georgia	1,271.74	1,797.59	.59	1,215.67	.49
Hawaii	1,663.51	816.31	.33	240.57	.13
Idaho	77.49	936.89	.92	637.62	.89
Illinois	3,491.50	7,963.26	.70	4,094.02	.54
Indiana	443.19	3,534.06	.89	2,509.78	.85
Iowa	199.09	1,803.85	.90	1,277.87	.87
Kansas	391.16	1,492.76	.79	1,078.10	.73
Kentucky	1,685.80	1,781.30	.51	1,074.42	.39
Louisiana	1,833.80	5,997.60	.77	3,876.47	.68
Maine	463.01	2,094.46	.82	1,469.03	.76
Maryland	3,556.51	3,880.35	.52	2,291.48	.39
Massachusetts	3,692.57	5,608.38	.60	4,055.10	.52
Michigan	1,216.41	7,917.31	.87	5,884.08	.83
Minnesota	1,190.02	1,881.87	.61	1,117.09	.48
Mississippi	818.70	1,483.58	.64	822.35	.50
Missouri	388.57	1,260.05	.76	724.99	.65
Montana	72.62	960.61	.93	751.30	.91
Nebraska	33.51	226.96	.87	117.02	.78
Nevada	66.64	1,461.62	.96	1,130.00	.94
New Hampshire	381.18	417.84	.52	214.94	.36
New Jersey	3,087.30	9,587.27	.76	7,638.99	.71
New Mexico	260.20	1,374.60	.84	796.28	.75
New York	12,395.49	16,489.65	.57	11,112.31	.47
N. Carolina	745.90	3,693.28	.83	1,425.34	.66
N. Dakota	33.90	152.38	.82	1,99.35	.75
Ohio	3,157.76	9,573.36	.75	4,278.02	.58
Oklahoma	892.61	2,139.61	.71	1,639.48	.65
Oregon	263.96	2,269.02	.90	1,651.89	.86
Pennsylvania	5,816.85	5,154.95	.47	3,266.54	.36
Rhode Island	685.96	1,023.20	.60	754.05	.52
S. Carolina	1,328.45	3,370.94	.72	1,608.55	.55
S. Dakota	103.71	-90.18	NA	-102.32	NA
Tennessee	884.29	2,931.76	.77	1,748.01	.66
Texas	1,779.34	9,344.69	.84	7,010.54	.80
Utah	180.05	1,175.46	.87	637.67	.78
Vermont	389.87	245.02	.39	126.04	.24
Virginia	431.35	4,389.47	.91	3,455.04	.89
Washington	1,231.55	3,639.61	.75	2,028.69	.62
W. Virginia	1,197.95	2,426.90	.67	1,953.50	.62
Wisconsin	1,850.16	125.50	.06	-489.44	NA
Wyoming	29.85	900.69	.97	720.96	.96

Source: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence."
NA — Not Applicable

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.
2. The debt figures reported here are net long-term debt of the state. These liabilities include both "full faith and credit" and "nonguaranteed" obligations.

Table 7.7.9

State Unfunded Projected Liabilities per Adult Resident, by State, 1978, at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

State	8% Interest Rate		12% Interest Rate	
	Unfunded Projected Liability	Unfunded Projected Liability per Adult Resident (Dollars)	Unfunded Projected Liability	Unfunded Projected Liability per Adult Resident (Dollars)
All States	169,688.14	756.00	103,920.32	462.99
Alabama	3,401.74	909.07	2,634.15	703.94
Alaska	3,093.31	7,675.71	1,776.16	4,407.34
Arizona	1,140.64	484.55	435.63	185.06
Arkansas	1,314.50	601.33	757.32	346.44
California	16,600.32	744.61	6,551.49	293.87
Colorado	1,545.75	578.93	493.37	184.78
Connecticut	2,494.83	805.04	1,486.86	479.79
Delaware	581.33	997.14	445.08	763.43
Florida	6,281.89	730.96	3,398.87	395.49
Georgia	1,797.59	353.58	1,215.67	239.12
Hawaii	816.31	910.04	240.57	268.19
Idaho	936.89	1,067.07	637.62	726.22
Illinois	7,963.26	708.29	4,094.02	364.14
Indiana	3,534.06	657.62	2,509.78	467.02
Iowa	1,803.85	622.88	1,277.87	441.25
Kansas	1,492.76	635.76	1,078.10	459.16
Kentucky	1,781.30	509.23	1,074.42	307.15
Louisiana	5,997.60	1,512.25	3,876.47	977.43
Maine	2,094.46	1,919.76	1,469.03	1,346.50
Maryland	3,880.35	936.60	2,291.48	553.10
Massachusetts	5,608.38	971.32	4,055.10	702.30
Michigan	7,917.31	861.61	5,884.08	640.34
Minnesota	1,881.87	469.53	1,117.09	278.72
Mississippi	1,483.58	617.13	822.35	342.08
Missouri	1,260.05	259.27	724.99	149.17
Montana	960.61	122.37	751.30	95.71
Nebraska	226.96	145.02	117.02	74.77
Nevada	1,461.62	2,214.58	1,130.00	1,712.12
New Hampshire	417.84	479.72	214.94	246.77
New Jersey	9,587.27	1,308.49	7,638.99	1,042.58
New Mexico	1,374.60	1,134.16	796.28	657.00
New York	16,489.65	929.10	11,112.31	626.12
N. Carolina	3,693.28	662.23	1,425.34	255.57
N. Dakota	152.38	233.71	99.35	152.38
Ohio	9,573.36	890.63	4,278.02	397.99
Oklahoma	2,139.61	742.92	1,639.48	569.26
Oregon	2,269.02	928.40	1,651.89	675.90
Pennsylvania	5,154.95	438.72	3,266.54	278.00
Rhode Island	1,023.20	1,094.33	754.05	806.47
S. Carolina	3,370.94	1,155.22	1,608.55	551.25
S. Dakota	-90.18	-130.70	-102.32	-148.29
Tennessee	2,931.76	672.89	1,748.01	401.20
Texas	9,344.69	718.05	7,010.54	538.69
Utah	1,175.46	899.36	637.67	487.89
Vermont	245.02	503.12	126.04	258.81
Virginia	4,389.47	852.66	3,455.04	671.14
Washington	3,639.61	964.39	2,028.69	537.54
West Virginia	2,426.90	1,304.78	1,953.50	1,050.27
Wisconsin	125.50	26.82	-489.44	-104.60
Wyoming	900.69	2,124.27	720.96	1,700.38

Source: Frank Arnold, "The Financial Status of State and Local Public Employee Pension Systems: Theory and Evidence."

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

2. The projected liabilities reported here are net of estimated future employee contributions. These future employee contributions are viewed under this procedure as assets of the system.

7.8 Financial Status of Large-City Pension Funds

The assets and estimated accrued liabilities of the twenty U.S. cities with the largest pension systems are shown in tables 7.8.1 and 7.8.2 on the basis of assumed interest rates of 8 and 12 percent, respectively. The estimation procedures used by Dr. Frank Arnold to calculate these liabilities are identical to those described in section 7.7. Section 7.7 also discusses accrued and projected pension liability concepts.

As in the case of state-administered pension plans, the financial conditions of specific city plans vary considerably. The assumption about the long-term interest rate also greatly alters perceptions of the financial integrity of many city pension systems.

New York City's 1978 total accrued liabilities, calculated at an 8 percent interest rate, exceed \$18 billion. These pension liabilities are larger than those of every state except California (table 7.7.1). New York City also dominates the data with respect to pension assets. New York's five pension systems reported combined assets of \$11.66 billion in 1978. In absolute value, New York's estimated \$6.71 billion unfunded (8 percent interest rate) total accrued liability is rivaled only by Philadelphia's \$1.10 billion unfunded liability. The financial picture is somewhat more sanguine for both New York and Philadelphia under a 12 percent

interest rate assumption. In this case, New York's \$6.71 billion unfunded liability declines to \$3.59 billion and Philadelphia's \$1.10 billion figure falls to \$.78 billion.

Milwaukee, Detroit, and Baltimore are three cities with sizable pension fund surpluses with respect to total accrued liabilities. The (8 percent interest rate) surplus is \$159 million for Milwaukee, \$213 million for Detroit, and \$128 million for Baltimore (table 7.8.3). In contrast, fifteen of the forty-four city pension plans listed in table 7.8.1 report pension assets that are less than half of their estimated accrued liabilities. Indianapolis reported essentially zero funding of estimated pension promises to firemen and policemen. New Orleans's police and fire pension plans are also extremely underfunded with assets covering less than 20 percent of estimated liabilities under either interest rate assumption. Other plans with potentially seriously deficient underfunding ratios—ratios greater than 60 percent calculated with an 8 percent interest rate—are the Boston teachers' plan, the Jacksonville general municipal workers' plan, the San Diego transit workers' plan, the Dallas police and fire plan, the New Orleans sewer and water plan, and the San Antonio police and fire plan.

Table 7.8.3 also shows variability in ratios of assets to liabilities for different pension plans within the same city. For example, 2 percent of Los Angeles's general pension plan's accrued (8 percent interest rate) liabilities are unfunded, while 42 percent of Los Angeles's police and fire pension liabilities are unfunded.

Calculated using an 8 percent interest rate, New York City's unfunded vested accrued liabilities exceed its official debt by 37 percent (table 7.8.4). In Boston this measure of pension debt is almost as large as official city liabilities. However, the vested accrued liabilities of most cities are quite minor relative to the cities' official indebtedness. For the twenty large cities taken together, vested accrued liabilities represent less than one-fifth of the sum of official debt plus nonofficial pension debt.

On a per resident basis, unfunded vested accrued liabilities (calculated with an 8 percent interest rate) range from \$891 in New York, \$742 in Boston, and \$541 in Philadelphia to -\$239 in Milwaukee, -\$164 in Boston, and -\$98 in Detroit (table 7.8.5).

7.8.1 *Projected Liabilities*

The ratio of projected to total accrued large-city liabilities is 1.36 using an 8 percent interest rate and 1.38 using a 12 percent interest rate. This discrepancy between accrued and projected liabilities is considerably smaller for large cities than that observed for state-administered plans (see section 7.7).

A comparison of tables 7.8.6 and 7.8.1 indicates, however, that for certain cities, such as Houston, switching from an accrued to a projected definition of liabilities can more than double the liability estimate.

According to table 7.8.6, twenty of the forty-four large-city pension plans are more than 50 percent unfunded while six plans are more than 75 percent unfunded with respect to projected (8 percent interest) liabilities. Use of a 12 percent rather than an 8 percent interest rate in the actuarial calculations lowers these figures to eighteen and thirteen plans, respectively (table 7.8.7).

The estimates in tables 7.8.6 and 7.8.7 suggest that Boston's, Indianapolis's, and New Orleans's pension plans are over 80 percent unfunded regardless of the interest rate used to discount projected liabilities. Memphis, San Francisco, Milwaukee, and Baltimore rank among the cities with the best funding of projected liabilities.

A comparison of the table 7.8.6 estimates with those of table 7.8.2 indicates that the sensitivity of projected liability estimates to the choice of interest rate differs considerably across cities. Projected liabilities of Baltimore's general plan, for example, only fall from \$408 million to \$397 million with a 5 point increase in the nominal interest rate. This reflects the Baltimore general plan provision of a sizable defined contribution annuity in addition to a defined benefit pension. In contrast to Baltimore's general plan in which projected liabilities fall by less than 3 percent with a 5 point increase in the interest rate, the same interest rate change produces a 44.05 percent change in the projected liabilities of Baltimore's police and fire plan. Baltimore's police and fire plan is strictly a defined benefit plan that provides only a partial COLA.

In New York, Boston, and Philadelphia, unfunded projected liabilities for either interest rate assumption exceed official city debt (table 7.8.8). Based on an 8 percent interest rate assumption, Boston's estimated unfunded projected liabilities of \$1,206 million are over twice its \$555 million in official city debt. These cities, however, are extreme cases. For the majority of the twenty large cities, unfunded projected pension liabilities, even calculated on the basis of an 8 percent interest rate, are considerably smaller than official city debt.

When calculated on a per resident basis, unfunded projected (8 percent interest) liabilities exceed \$500 for seven of the twenty cities (table 7.8.9). Boston ranks first with \$1,715 in unfunded projected liabilities per adult resident; New York's figure is \$1,269, and Philadelphia's is \$1,221.

Table 7.8.1
Accrued Liabilities of Large City Pension Funds, by City, 1978.
Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

City	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
General and Teacher Systems:					
Total General	23,426.78	23,011.32	15,367.95	8,058.83	7,643.37
Baltimore ²	272.01	262.77	252.40	19.61	10.37
Boston	732.52	694.41	221.50	511.02	472.91
Boston (Teachers)	39.80	31.36	2.77	37.03	28.59
Chicago	628.85	568.61	532.29	96.56	36.32
Chicago	122.62	111.60	174.71	-52.09	-63.11
Dallas	126.06	116.81	162.72	-36.66	-45.91
Detroit	581.62	556.42	693.61	-111.99	-137.19
Houston	122.22	101.40	92.22	30.00	9.18
Jacksonville	199.07	185.53	28.17	170.90	157.36
Los Angeles	725.69	712.81	708.48	17.21	4.33
Los Angeles (W&P)	603.08	582.49	524.52	78.56	57.97
Memphis	91.51	86.60	121.44	-29.93	-34.84
Memphis (Utility)	82.95	81.26	95.50	-12.55	-14.24
Milwaukee	262.56	262.56	421.89	-159.33	-159.33
New Orleans	79.19	73.27	48.92	30.27	24.35
New Orleans (S&W)	24.26	23.05	7.85	16.41	15.20
New York	10,690.11	10,683.78	5,497.67	5,192.44	5,186.11
New York (Schools) ²	287.82	286.98	193.86	93.96	93.12
New York (Teachers) ²	4,288.96	4,271.02	3,628.83	660.13	642.19
Philadelphia	1,645.40	1,527.72	545.06	1,100.34	982.66
Phoenix	85.45	83.32	87.18	-1.73	-3.86
San Diego	224.14	209.41	206.66	17.48	2.75
San Diego (Transit)	19.12	18.27	6.68	12.44	11.59
San Francisco	962.18	957.47	957.31	4.87	1.16
St. Louis	80.26	73.07	92.82	-12.56	-19.75
Washington, DC (Teachers)	449.33	449.33	62.89	386.44	386.44
Police and Fire Systems:					
Total P&F	6,711.32	6,578.74	4,976.06	1,735.26	1,602.68
Baltimore (P&F)	133.09	128.01	261.12	-128.03	-133.11
Chicago (P)	490.60	474.65	375.99	114.61	98.66
Chicago (F)	237.30	231.83	226.53	10.77	5.30
Dallas (P&F)	175.91	169.41	73.80	102.11	95.61
Detroit (P&F)	604.85	595.56	589.42	15.43	6.14
Houston (F)	80.51	65.26	78.94	1.57	-13.68
Houston (P)	79.70	62.78	74.35	5.35	-11.57
Indianapolis (F)	64.85	59.46	15	64.70	59.31
Indianapolis (P)	71.65	59.99	14	71.51	59.85
Jacksonville (P&F)	67.26	62.25	32.23	35.03	30.02
Los Angeles (P&F)	1,224.21	1,202.67	704.86	519.35	497.81
New Orleans (F)	69.55	68.01	8.59	60.96	59.42
New Orleans (P)	48.92	48.24	5.25	43.67	42.99
New York (P) ²	1,844.22	1,844.22	1824.11	20.11	20.11
New York (F) ²	1,258.39	1,258.39	513.58	744.81	744.81
San Antonio (P&F)	129.13	119.72	37.39	91.74	82.33
St. Louis (F)	59.19	58.63	61.68	-2.49	-3.05
St. Louis (P)	71.99	69.66	107.93	-35.94	-38.27

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate and a 5 percent inflation rate.

2. This system provides both a defined benefit and a defined contribution pension. The estimated value of accumulated employee contributions to these defined contribution plans is included here in calculating total and vested accrued liabilities. These accumulated employee contributions represent accrued claims against the assets of city pension funds.

Table 7.8.2

Accrued Liabilities of Large City Pension Funds, by City, 1978,
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

City	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
General and Teacher Systems:					
Total General	18,856.57	18,643.80	15,367.95	3,488.62	3,275.85
Baltimore ²	248.83	243.83	252.40	-3.57	-8.57
Boston	592.42	573.05	221.50	370.92	351.55
Boston (Teachers)	20.83	17.44	2.77	18.06	14.67
Chicago	509.93	477.57	532.29	-22.36	-54.72
Chicago	105.84	97.00	174.71	-68.87	-77.71
Dallas	107.12	101.87	162.72	-55.60	-60.85
Detroit	392.32	382.22	693.61	-301.29	-311.39
Houston	79.69	70.13	92.22	-12.53	-22.09
Jacksonville	161.66	156.35	28.17	133.49	128.18
Los Angeles	583.96	577.95	708.48	-124.52	-130.53
Los Angeles (W&P)	439.81	430.04	524.52	-84.71	-94.48
Memphis	74.00	71.51	121.44	-47.44	-49.93
Memphis (Utility)	61.96	61.19	95.50	-33.54	-34.31
Milwaukee	207.41	207.41	421.89	-214.48	-214.48
New Orleans	61.49	58.42	48.92	12.57	9.50
New Orleans (S&W)	19.65	19.00	7.85	11.80	11.15
New York	8,339.08	8,334.37	5,497.67	2,841.41	2,836.70
New York (School) ²	270.39	269.73	193.86	76.53	75.87
New York (Teachers) ²	3,803.88	3,795.45	3,628.83	175.05	166.62
Philadelphia	1,329.80	1,267.71	545.06	784.74	722.65
Phoenix	65.78	64.82	87.18	-21.40	-22.36
San Diego	159.47	150.26	206.66	-47.19	-56.40
San Diego (Transit)	16.75	16.09	6.68	10.07	9.41
San Francisco	717.20	715.47	957.31	-240.11	-241.84
St. Louis	55.37	52.99	92.82	-37.45	-39.83
Washington, DC (Teacher	431.93	431.93	62.89	369.04	369.04
Police and Fire Systems:					
Total P&F	5,538.98	5,477.64	4,976.06	562.92	501.58
Baltimore (P&F)	103.49	100.69	261.12	-157.63	-160.43
Chicago (P)	382.07	374.85	375.99	6.08	-1.14
Chicago (F)	191.45	188.97	226.53	-35.08	-37.56
Dallas (P&F)	118.43	115.89	73.80	44.63	42.09
Detroit (P&F)	444.69	441.08	589.42	-144.73	-148.34
Houston (F)	54.02	47.18	78.94	-24.92	-31.76
Houston (P)	62.13	52.59	74.35	-12.22	-21.76
Indianapolis (F)	46.92	44.53	.15	46.77	44.38
Indianapolis (P)	49.00	43.82	.14	48.86	43.68
Jacksonville (P&F)	53.80	51.34	32.23	21.57	19.11
Los Angeles (P&F)	905.74	896.46	704.86	200.88	191.60
New Orleans (F)	48.45	47.86	8.59	39.86	39.27
New Orleans (P)	36.28	36.00	5.25	31.03	30.75
New York (P) ²	1,693.50	1,693.50	1,824.11	-130.61	-130.61
New York (F) ²	1,139.82	1,139.82	513.58	626.24	626.24
San Antonio (P&F)	110.59	105.60	37.39	73.20	68.21
St. Louis (F)	49.67	49.45	61.68	-12.01	-12.23
St. Louis (P)	48.93	48.01	107.93	-59.00	-59.92

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate and a 5 percent inflation rate.

2. See note 2, table 7.8.1.

Table 7.8.3

Fraction of Large City Funds' Accrued Pension Liabilities Unfunded, by City,
1978, at 8% and 12% Interest Rates¹

City	Fraction of Total Accrued Liability that is Unfunded		Fraction of Vested Accrued Liability that is Unfunded	
	Interest Rate 8%	12%	Interest Rate 8%	12%
General and Teacher Systems:				
Total General	.34	.19	.33	.18
Baltimore	.07	-.01	.04	-.04
Boston	.70	.63	.68	.61
Boston (Teachers)	.93	.87	.91	.84
Chicago	.15	-.04	.06	-.11
Chicago (Laborers)	-.42	-.65	-.57	-.80
Dallas	-.29	-.52	-.39	-.60
Detroit	-.19	-.77	-.25	-.81
Houston	.25	-.16	.09	-.31
Jacksonville	.86	.83	.85	.82
Los Angeles	.02	-.21	.01	-.23
Los Angeles (W&P)	.13	-.19	.10	-.22
Memphis	-.33	-.64	-.40	-.70
Memphis (Utility)	-.15	-.54	-.18	-.56
Milwaukee	-.61	-1.03	-.61	-1.03
New Orleans	.38	.20	.33	.16
New Orleans (S&W)	.68	.60	.66	.59
New York	.49	.34	.49	.34
New York (School)	.33	.28	.32	.28
New York (Teachers)	.15	.05	.15	.04
Philadelphia	.67	.59	.64	.57
Phoenix	-.02	-.33	-.05	-.34
San Diego	.08	-.30	.01	-.38
San Diego (Transit)	.65	.60	.63	.58
San Francisco	.01	-.33	.00	-.34
St. Louis	-.16	-.68	-.27	-.75
Washington, DC (Teachers)	.86	.85	.86	.85
Police and Fire Systems:				
Total P&F	.26	.10	.24	.09
Baltimore (P&F)	-.96	-1.52	-1.04	-1.59
Chicago (P)	.23	.02	.21	-.00
Chicago (F)	.05	-.18	.02	-.20
Dallas (P&F)	.58	.38	.56	.36
Detroit (P&F)	.03	-.33	.01	-.34
Houston (F)	.02	-.46	-.21	-.67
Houston (P)	.07	-.20	-.18	-.41
Indianapolis (F)	1.00	1.00	1.00	1.00
Indianapolis (P)	1.00	1.00	1.00	1.00
Jacksonville (P)	.52	.40	.48	.37
Los Angeles (P&F)	.42	.22	.41	.21
New Orleans (F)	.88	.82	.87	.82
New Orleans (P)	.89	.86	.89	.85
New York (P)	.01	-.08	.01	-.08
New York (F)	.59	.55	.59	.55
San Antonio (P&F)	.71	.66	.69	.65
St. Louis (F)	-.04	-.24	-.05	-.25
St. Louis (P)	-.50	-1.21	-.55	-1.25

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate and a 5 percent inflation rate.

Table 7.8.4

Relationship of Accrued Vested Pension Liabilities of Large City Pension Funds to Net Long Term Debt of Cities, by City, 1978, at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

		8% Interest Rate		12% Interest Rate	
	Long-Term		Ratio of Unfunded Vested		Ratio of Unfunded Vested
City	City Debt	Unfunded Vested	Accrued Liability to Long-	Unfunded Vested	Accrued Liability to Long-
General and Teacher		Accrued Liability	Term City Debt plus Unfunded	Accrued Liability	Term City Debt plus Unfunded
Systems:			Vested Accrued Liability		Vested Accrued Liability
Total General	33,526.84	7,643.37	.19	3,275.85	.09
Baltimore	498.48	10.37	.02	-8.57	NA
Boston	555.30	472.91	.46	351.55	.39
Boston (Teachers)	555.30	28.59	.05	14.67	.03
Chicago	1,351.56	36.32	.03	-54.72	NA
Chicago (Laborers)	1,351.56	-63.11	NA	-77.71	NA
Dallas	465.35	-45.91	NA	-60.85	NA
Detroit	683.74	-137.19	NA	-311.39	NA
Houston	788.78	9.18	.01	-22.09	NA
Jacksonville	526.57	157.36	.23	128.18	.20
Los Angeles	2,659.35	4.33	.00	-130.53	NA
Los Angeles (W+P)	2,659.35	57.97	.02	-94.48	NA
Memphis	746.21	-34.84	NA	-49.93	NA
Memphis (Utility)	746.21	-14.24	NA	-34.31	NA
Milwaukee	256.00	-159.33	NA	-214.48	NA
New Orleans	259.16	24.35	.09	9.50	.04
New Orleans (S+W)	259.16	15.20	.06	11.15	.04
New York	4,881.03	5,186.11	NA	2,836.70	NA
New York (School)	4,881.03	93.12	.02	75.87	.02
New York (Teachers)	4,881.03	642.19	.12	166.62	.03
Philadelphia	1,565.02	982.66	.39	722.65	.32
Phoenix	397.23	-3.86	NA	-22.36	NA
San Diego	130.66	2.75	NA	-56.40	NA
San Diego (Transit)	130.66	11.59	.08	9.41	.07
San Francisco	624.23	.16	NA	-241.84	NA
St. Louis	163.00	-19.75	NA	-39.83	NA
Washington, DC (Teachers)	1,510.87	386.44	.20	369.04	.20
Police and Fire					
Systems:					
Total P&F	20,657.96	1,602.68	.07	501.58	.02
Baltimore (P+F)	498.48	-133.11	NA	-160.43	NA
Chicago (P)	1,351.56	98.66	.07	-1.14	NA
Chicago (F)	1,351.56	5.30	.00	-37.56	NA
Dallas (P+F)	465.35	95.61	.17	42.09	.08
Detroit (P+F)	683.74	6.14	.01	-148.34	NA
Houston (F)	788.78	-13.68	NA	-31.76	NA
Houston (P)	788.78	-11.57	NA	-21.76	NA
Indianapolis (F)	283.52	59.31	.17	44.38	.14
Indianapolis (P)	283.52	59.85	.17	43.68	.13
Jacksonville (P+F)	526.57	30.02	.05	19.11	.04
Los Angeles (P+F)	2,659.35	497.81	.16	191.60	.07
New Orleans (F)	259.16	59.42	.19	39.27	.13
New Orleans (P)	259.16	42.99	.14	30.75	.11
New York (P)	4,881.03	20.11	.00	-130.61	NA
New York (F)	4,881.03	744.81	.13	626.24	.11
San Antonio (P+F)	570.37	82.33	.13	68.21	.11
St. Louis (F)	163.00	-3.05	NA	-12.23	NA
St. Louis (P)	163.00	-38.27	NA	-59.92	NA

Source: NBER CLLPS (1978)

NA - Not Applicable

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

2. The debt figures reported here are net long-term debt of the state. These liabilities include both "full faith and credit" and "nonguaranteed" obligations.

Table 7.8.5

Large City Accrued Vested Pension Liabilities per Resident, by City, 1978, at 8% and 12% Interest Rates¹

City	8% Interest Rate		12% Interest Rate	
	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident (Dollars)	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident (Dollars)
General and Teacher Systems:				
Total General	7,643.37	155.04	3,275.85	66.45
Baltimore	10.37	12.18	-8.57	-10.06
Boston	472.91	742.72	351.55	552.12
Boston (Teachers)	28.59	44.90	14.67	23.04
Chicago	36.32	11.72	-54.72	-17.66
Chicago (Laborers)	-63.11	-20.36	-77.71	-25.07
Dallas	-45.91	-56.48	-60.85	-74.86
Detroit	-137.19	-102.76	-311.39	-233.24
Houston	9.18	6.92	-22.09	-16.65
Jacksonville	157.36	279.86	128.18	227.96
Los Angeles	4.33	1.59	-130.53	-47.86
Los Angeles (W+P)	57.97	21.25	-94.48	-34.64
Memphis	-34.84	-52.68	-49.93	-75.50
Memphis (Utility)	-14.24	-21.53	-34.31	-51.88
Milwaukee	-159.33	-239.31	-214.48	-322.14
New Orleans	24.35	43.50	9.50	16.97
New Orleans (S+W)	15.20	27.15	11.15	19.92

Table 7.8.5 Continued

Large City Accrued Vested Pension Liabilities per Resident, by City, 1978, at 8% and 12% Interest Rates¹

City	8% Interest Rate		12% Interest Rate	
	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident (Dollars)	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident (Dollars)
General and Teacher Systems:				
New York	5,186.11	693.18	2,836.70	379.16
New York (School)	93.12	12.45	75.87	10.14
New York (Teachers)	642.19	85.84	166.62	22.27
Philadelphia	982.66	541.17	722.65	397.98
Phoenix	-3.86	-5.81	-22.36	-33.64
San Diego	2.75	3.55	-56.40	-72.87
San Diego (Transit)	11.59	14.97	9.41	12.16
San Francisco	.16	.24	-241.84	-363.93
St. Louis	-19.75	-37.62	-39.83	-75.87
Washington, DC (Teachers)	386.44	543.12	369.04	518.67
Police and Fire Systems:				
Total P&F	1,602.68	32.51	501.58	10.17
Baltimore (P+F)	-133.11	-156.29	-160.43	-188.36
Chicago (P)	98.66	31.83	-1.14	-.37
Chicago (F)	5.30	1.71	-37.56	-12.12
Dallas (P+F)	95.61	117.63	42.09	51.78
Detroit (P+F)	6.14	4.60	-148.34	-111.11
Houston (F)	-13.68	-10.31	-31.76	-23.94
Houston (P)	-11.57	-8.72	-21.76	-16.40
Indianapolis (F)	59.31	75.83	44.38	56.74
Indianapolis (P)	59.85	76.52	43.68	55.85
Jacksonville (P+F)	30.02	53.39	19.11	33.99
Los Angeles (P+F)	497.81	182.52	191.60	70.25
New Orleans (F)	59.42	106.15	39.27	70.15
New Orleans (P)	42.99	76.80	30.75	54.93
New York (P)	20.11	2.69	-130.61	-17.46
New York (F)	744.81	99.55	626.24	83.70
San Antonio (P+F)	82.33	106.47	68.21	88.21
St. Louis (F)	-3.05	-5.81	-12.23	-23.30
St. Louis (P)	-38.27	-72.90	-59.92	-114.14

Source: NBER CLIPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

Table 7.8.6

Large City Projected Liabilities, 1978, by City, Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

City	Projected Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
General and Teacher Systems:				
Total General	31,821.80	15,367.95	16,453.85	.52
Baltimore	408.44	252.40	156.04	.38
Boston	1,314.02	221.50	1,092.52	.83
Boston (Teachers)	116.78	2.77	114.01	.98
Chicago	1,052.23	532.29	519.94	.49
Chicago (Laborers)	231.64	174.71	56.93	.25
Dallas	233.11	162.72	70.39	.30
Detroit	1,001.91	693.61	308.30	.31
Houston	291.40	92.22	199.18	.68
Jacksonville	256.63	28.17	228.46	.89
Los Angeles	1,414.62	708.48	706.14	.50
Los Angeles (W+P)	996.62	524.52	472.10	.47
Memphis	143.76	121.44	22.32	.16
Memphis (Utility)	110.85	95.50	15.35	.14
Milwaukee	550.00	421.89	128.11	.23
New Orleans	190.35	48.92	141.43	.74
New Orleans (S+W)	48.37	7.85	40.52	.84
New York	12,254.54	5,497.67	6,756.87	.55
New York (School)	362.58	193.86	168.72	.47
New York (Teachers)	5,382.52	3,628.83	1,753.69	.33
Philadelphia	2,763.10	545.06	2,218.04	.80
Phoenix	196.00	87.18	108.82	.56
San Diego	444.01	206.66	237.35	.53
San Diego (Transit)	36.92	6.68	30.24	.82
San Francisco	1,213.67	957.31	256.36	.21
St. Louis	142.75	92.82	49.93	.35
Washington, DC (Teacher)	664.98	62.89	602.09	.91
Police and Fire Systems:				
Total P&F	9,120.25	4,976.06	4,144.19	.45
Baltimore (P&F)	227.18	261.12	-33.94	-.15
Chicago (P)	1,040.01	375.99	664.02	.64
Chicago (F)	425.78	226.53	199.25	.47

Table 7.8.6 Continued

Large City Projected Liabilities, 1978, by City, Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

City	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
Police and Fire Systems:				
Dallas (P&F)	291.46	73.80	217.66	.75
Detroit (P&F)	984.59	589.42	395.17	.40
Houston (F)	143.36	78.94	64.42	.45
Houston (P)	160.42	74.35	86.07	.54
Indianapolis (F)	100.55	.15	100.40	1.00
Indianapolis (P)	148.97	.14	148.83	1.00
Jacksonville (P&F)	125.83	32.23	93.60	.74
Los Angeles (P&F)	1,714.07	704.86	1,009.21	.59
New Orleans (F)	102.97	8.59	94.38	.92
New Orleans (P)	64.60	5.25	59.35	.92
New York	1,878.59	1824.11	51.48	.03
New York	1,275.04	513.58	761.46	.60
San Antonio (P&F)	193.22	37.39	155.83	.81
St. Louis (F)	90.59	61.68	28.91	.32
St. Louis (P)	153.02	107.93	45.09	.29

Source: NBER CLLPS (1978)

1. The calculations of projected liabilities assume a real interest rate of 3 percent, a 5 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent.

2. Projected liabilities are net of estimated future employee contributions.

Table 7.8.7

Large City Projected Liabilities, 1978, by City, Assuming a 12% Interest Rate¹

City	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
General and Teacher Systems:				
Total General	25,948.92	15,367.95	10,580.97	.41
Baltimore, MD	397.82	252.40	145.42	.37
Boston, MA	1,126.67	221.50	905.17	.80
Boston, MA (Teachers)	114.18	2.77	111.41	.98
Chicago, IL	865.30	532.29	333.01	.38
Chicago, IL (Laborers)	182.31	174.71	7.60	.04
Dallas, TX	248.66	162.72	85.94	.35
Detroit, MI	704.81	693.61	11.20	.02
Houston, TX	210.84	92.22	118.62	.56
Jacksonville, FL	225.32	28.17	197.15	.87
Los Angeles, CA	1,232.98	708.48	524.50	.43
Los Angeles, CA (W&P)	773.61	524.52	249.09	.32
Memphis, TN	122.73	121.44	1.29	.01
Memphis, TN (Utility)	84.34	95.50	-11.16	-.13
Milwaukee, WI	465.73	421.89	43.84	.09
New Orleans, LA	159.64	48.92	110.72	.69
New Orleans, LA (S-W)	41.33	7.85	33.48	.81
New York, NY	9,415.45	5,497.67	3,917.78	.42
New York, NY (School)	345.77	193.86	151.91	.44
New York, NY (Teachers)	4,760.91	3,628.83	1,132.08	.24
Philadelphia, PA	2,323.54	545.06	1,778.48	.77
Phoenix, AZ	165.48	87.18	78.30	.47
San Diego, CA	267.99	206.66	61.33	.23
San Diego, CA (Transit)	31.11	6.68	24.43	.79
San Francisco, CA	914.91	957.31	-42.40	-.05
St. Louis, MO	113.73	92.82	20.91	.18
Washington, DC (Teacher)	653.76	62.89	590.87	.90
Police and Fire Systems:				
Total P&F	7,433.83	4,975.77	2,458.06	.33
Baltimore, MD P&F	127.08	261.12	-134.04	-1.05
Chicago, IL P	821.58	375.99	445.59	.54
Chicago, IL F	342.23	226.53	115.70	.34
Dallas, TX P&F	201.14	73.80	127.34	0.63
Detroit, MI P&F	741.54	589.42	152.12	0.21
Houston, TX F	101.28	78.94	22.34	0.22
Houston, TX P	137.47	74.35	63.12	0.46
Indianapolis, ID F	76.33	.15	76.18	1.00
Indianapolis, ID P	112.71	.14	112.57	1.00
Jacksonville, FL P&F	106.34	32.23	74.11	.70
Los Angeles, CA P&F	1,306.53	704.86	601.67	.46
New Orleans, LA F	72.76	8.59	64.17	.88
New Orleans, LA P	49.02	5.25	43.77	.89
New York, NY P	1,723.85	1824.11	-100.26	-.06
New York, NY F	1,154.52	513.58	640.94	.56
San Antonio, TX P&F	169.63	37.39	132.24	.78
St. Louis, MO F	78.02	61.68	16.34	.21
St. Louis, MO P	111.80	107.93	3.87	.03

Source: NBER CLLPS (1978)

1. The calculations of projected liabilities assume a real interest rate of 3 percent, a 9 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent.

2. Projected liabilities are net of estimated future employee contributions.

Table 7.8.8

Relationship of Projected Pension Liabilities of Large City Pension Funds to Net Long Term Debt of Cities, by City, 1978,
at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

City	Long-Term Local Debt ¹	Unfunded Projected Liability	8% Interest Rate	Unfunded Projected Liability	12% Interest Rate
			Ratio of Unfunded Projected Liability to Sum of Local Debt and Unfunded Projected Liability		Ratio of Unfunded Projected Liability to Sum of Local Debt and Unfunded Projected Liability
General and Teacher Systems:					
Total General	33,526.84	16,453.85	.33	10,580.97	.24
Baltimore, MD	498.48	156.04	.24	145.42	.23
Boston, MA	555.30	1,092.52	.66	905.17	.62
Boston, MA (Teachers)	555.30	114.01	.17	111.41	.17
Chicago, IL	1,351.56	519.94	.28	333.01	.20
Chicago, IL (Laborers)	1,351.56	56.93	.04	7.60	.01
Dallas, TX	465.35	70.39	.13	85.94	.16
Detroit, MI	683.74	308.30	.31	11.20	.02
Houston, TX	788.78	199.18	.20	118.62	.13
Jacksonville, FL	526.57	228.46	.30	197.15	.27
Los Angeles, CA	2,659.35	706.14	.21	524.50	.16
Los Angeles, CA (W+P)	2,659.35	472.10	.15	249.09	.09
Memphis, TN	746.21	22.32	.03	1.29	.00
Memphis, TN (Utility)	746.21	15.35	.02	-11.16	NA
Milwaukee, WI	256.00	128.11	.33	43.84	.15
New Orleans, LA	259.16	141.43	.35	110.72	.30
New Orleans, LA (S+W)	259.16	40.52	.14	33.48	.11
New York, NY	4,881.03	6,756.87	.58	3,917.78	.45
New York, NY (School)	4,881.03	168.72	.03	151.91	.03
New York, NY (Teachers)	4,881.03	1,753.69	.26	1,132.08	.19
Philadelphia, PA	1,565.02	2,218.04	.59	1,778.48	.53
Phoenix, AZ	397.23	108.82	.22	78.30	.16
San Diego, CA	130.66	237.35	.64	61.33	.32
San Diego, CA (Transit)	130.66	30.24	.19	24.13	.16
San Francisco, CA	624.23	256.36	.29	-42.40	NA
St. Louis, MO	163.00	49.93	.23	20.91	.11
Washington, DC (Teachers)	1,510.87	602.09	.28	590.87	.28
Police and Fire Systems:					
Total P&F	20,857.96	4,144.19	.17	2,458.06	.11
Baltimore, MD P+F	498.48	-33.94	NA	-134.04	NA
Chicago, IL P	1,351.56	664.02	.33	445.59	.25
Chicago, IL F	1,351.56	199.25	.13	115.70	.08
Dallas, TX P+F	465.35	217.66	.32	127.34	.21
Detroit, MI P+F	683.74	395.17	.37	152.12	.18
Houston, TX F	788.78	64.42	.08	22.34	.03
Houston, TX P	788.78	86.07	.10	63.12	.07
Indianapolis, ID F	283.52	100.40	.26	76.18	.21
Indianapolis, ID P	283.52	148.83	.34	112.57	.28
Jacksonville, FL P+F	526.57	93.60	.15	74.11	.12
Los Angeles, CA P+F	2,659.35	1,009.21	.28	601.67	.18
New Orleans, LA F	259.16	94.38	.27	64.17	.20
New Orleans, LA P	259.16	59.35	.19	43.77	.14
New York, NY P	4,881.03	54.48	.01	-100.26	NA
New York, NY F	4,881.03	761.46	.13	640.94	.12
San Antonio, TX P+F	570.37	155.83	.21	132.24	.19
St. Louis, MO F	163.00	28.91	.15	16.34	.09
St. Louis, MO P	163.00	45.09	.22	3.87	.02

Source: NBER CLLPS (1978)

NA - Not Applicable

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

2. The debt figures reported here are net long-term debt of the state. These liabilities include both "full faith and credit" and "nonguaranteed" obligations.

Table 7.8.9

Large City Projected Pension Liabilities per Resident, by City, 1978,
at 8% and 12% Interest Rates¹

City	8% Interest Rate		12% Interest Rate	
	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)
General and Teacher Systems:				
Total General	16,453.85	333.76	10,580.97	214.63
Baltimore, MD	156.04	183.21	145.42	170.74
Boston, MA	1,092.52	1,715.84	905.17	1,421.60
Boston, MA (Teachers)	114.01	179.06	111.41	174.97
Chicago, IL	519.94	167.76	333.01	107.44
Chicago, IL (Laborers)	56.93	18.37	7.60	2.45
Dallas, TX	70.39	86.60	85.94	105.73
Detroit, MI	308.30	230.92	11.20	8.39
Houston, TX	199.18	150.12	118.62	89.40
Jacksonville, FL	228.46	406.31	197.15	350.62
Los Angeles, CA	706.14	258.91	524.50	192.31
Los Angeles, CA (W+P)	472.10	173.10	249.09	91.33
Memphis, TN	22.32	33.75	1.29	1.95
Memphis, TN (Utility)	15.35	23.21	-11.16	-16.88
Milwaukee, WI	128.11	192.42	43.84	65.85

Table 7.8.9 Continued
 Large City Projected Pension Liabilities per Resident, by City, 1978,
 at 8% and 12% Interest Rates¹

City	8% Interest Rate		12% Interest Rate	
	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)
General and Teacher Systems:				
New Orleans, LA	141.43	252.66	110.72	197.80
New Orleans, LA (S+W)	40.52	72.39	33.48	59.81
New York, NY	6,756.87	903.13	3,917.78	523.65
New York, NY (School)	168.72	22.55	151.91	20.30
New York, NY (Teachers)	1,753.69	234.40	1,132.08	151.31
Philadelphia, PA	2,218.04	1,221.52	1,778.48	979.44
Phoenix, AZ	108.82	163.71	78.30	117.79
San Diego, CA	237.35	306.66	61.33	79.24
San Diego, CA (Transit)	30.24	39.07	24.43	31.56
San Francisco, CA	256.36	365.78	-42.40	-63.81
St. Louis, MO	49.93	95.11	20.91	39.83
Washington, DC (Teachers)	602.09	846.20	590.87	830.44
Police and Fire Systems:				
Total P&F	4,144.19	119.73	2,458.06	71.01
Baltimore, MD P+F	-33.94	-39.85	-134.04	-157.38
Chicago, IL P	664.02	214.24	445.59	143.77
Chicago, IL F	199.25	64.29	115.70	37.33
Dallas, TX P+F	217.66	267.79	127.34	156.67
Detroit, MI P+F	395.17	295.99	152.12	113.94
Houston, TX F	64.42	48.55	22.34	16.84
Houston, TX P	86.07	64.87	63.12	47.57
Indianapolis, ID F	100.40	128.37	76.18	97.40
Indianapolis, ID P	148.83	190.29	112.57	143.93
Jacksonville, FL P+F	93.60	166.46	74.11	131.80
Los Angeles, CA P+F	1,009.21	370.03	601.67	220.60
New Orleans, LA F	94.38	168.60	64.17	114.64
New Orleans, LA P	59.35	106.03	43.77	78.19
New York, NY P	54.48	7.28	-100.26	-13.40
New York, NY F	761.46	101.78	640.94	85.67
San Antonio, TX P+F	155.83	201.53	132.24	171.02
St. Louis, MO F	28.91	55.07	16.34	31.13
St. Louis, MO P	45.09	85.89	3.87	7.37

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

7.9 Financial Status of Selected Large Local Pension Funds

This section considers the financial status of large local pension systems, excluding the twenty largest city systems that are separately examined in section 7.8. The definition of "large" in this context is a city, county, or municipal pension system with at least one pension plan reporting 500 or more participants. The financial characteristics of 112 of these plans, selected at random from a universe of 271 large local plans, are described in tables 7.9.1 through 7.9.9.

Section 7.7 explains concepts of accrued and projected liabilities that form the basis for the present analysis. Section 7.7 also clarifies the assumptions used by Dr. Frank Arnold to estimate the unfunded pension liabilities of these local pension systems; estimates of unfunded liabilities for any particular locality are based only in part on information specific to that locality's pension plan. Limitations on the availability of plan-specific age-sex-service distributions for both active and inactive participants necessitated using a common set of distributions for all pension plans. Obviously, the age-sex-service distribution of particular local pension plans may differ greatly from that used in these actuarial calculations. As a consequence, the liability estimates in the tables below may differ substantially from the local pension funds' true liabilities. Given these caveats, tables 7.9.1 through 7.9.9 are best viewed as providing rough estimates of 1979 local pension plan liabilities assuming these plans differ only with respect to benefit and vesting formulae; the number of normal retirement age active participants, inactive retirees, and survivors; the level of benefit payments; and provisions for cost of living increases.

Unfunded total accrued liabilities based on an 8 percent long-term interest rate range from the Atlanta general plan's \$117.29 million liability to the Minneapolis teachers' plan's \$74.46 million surplus (table 7.9.1). Of the 112 plans in this sample, 82 have positive estimated unfunded total accrued liabilities assuming an 8 percent interest rate; 71 plans

have positive unfunded total accrued liabilities assuming a 12 percent interest rate (table 7.9.2).

The ratios of unfunded to total accrued liabilities (based on an 8 percent interest rate) range from 1.00 for Denver's police plans to -1.58 for the Portsmouth, Virginia, general municipal employee pension plan (table 7.9.3). For 47 of the 112 plans in the NBER sample the ratio of unfunded liabilities to total accrued liabilities is greater than one-half calculated at an 8 percent interest rate; assuming a 12 percent interest rate, there are 34 plans that are less than 50 percent funded. In contrast to these underfunded plans, 38 of the 112 plans have unfunded to total accrued liability ratios of less than .2 at an 8 percent interest rate; the corresponding 12 percent figure is 50 plans.

Table 7.9.4 compares estimated unfunded vesting accrued liabilities calculated at an 8 percent interest rate with the net long-term debt of these localities. There are seventeen pension plans for which this definition of pension debt exceeds the locality's net long-term debt. There is only one locality, San Mateo County, California, for which the excess of pension assets over estimated vested accrued pension liabilities exceeds the locality's net long-term debt.

On a per resident basis, the locality with the largest pension debt is Haverhill, Massachusetts. Using an 8 percent interest rate, estimated unfunded vested accrued liabilities per resident equal \$678 (table 7.9.5). For twenty-three large local pension plans, unfunded vested accrued liabilities (assuming an 8 percent interest rate) exceed \$200 per resident. There are four large local plans with a surplus with respect to vested accrued liabilities in excess of \$100 per resident.

Projected liabilities consider the plan's obligations to current active participants and inactive beneficiaries assuming the plan and the economy continue to operate in much the manner they operated in the past.⁴ Across all large local plans in the NBER CLLPS (1978), projected liabilities exceed total accrued liabilities by a factor of 1.93 and 2.04 based on 8 and 12 percent interest rate assumptions, respectively (tables 7.9.6 and 7.9.7). In table 7.9.7, which presents the 12 percent interest rate figures, only 7 plans have pension assets in excess of projected liabilities; 104 of the 112 plans report assets that are less than half of their projected liabilities. The assets of 17 plans represent less than 20 percent of projected liabilities.

Table 7.9.8 contrasts unfunded projected pension liabilities for these large local plans with the official debt of the locality. If one uses an 8 percent interest rate in the liability estimates, the ratio of this measure of pension debt to official debt exceeds 60 percent. There are forty-four large local plans for which unfunded projected pension debt exceeds official local government liabilities.

Unfunded projected liabilities calculated at an 8 percent interest rate per resident range from \$1,555 in Haverhill, Massachusetts, to -\$32 in Hollywood, Florida. There are twenty-eight localities listed in table 7.9.9 with unfunded (8 percent interest) projected liabilities per resident in excess of \$500.

Table 7.9.1
Accrued Liabilities of Selected Large Local Pension Funds,
by Locality, 1978, Assuming an 8% Interest Rate

(Amounts in Millions of Dollars)

Locality	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
General and Teacher Systems:					
Total General	3,542.60	3,317.17	2,830.27	712.33	486.90
Alameda C., CA	216.58	212.67	234.17	-17.59	-21.50
Allentown, PA	11.64	11.22	5.39	6.25	5.83
Atlanta, GA	225.54	221.89	108.25	117.29	113.64
Berks C., PA	16.37	15.79	9.63	6.74	6.16
Berkshire C., MA	20.80	19.15	5.24	15.56	13.91
Benton C., MI	6.25	5.49	6.31	-0.06	.82
Beverly, MA	16.05	15.31	4.89	11.17	10.42
Birmingham, AL	46.26	43.29	85.03	-38.77	-41.74
Braintree, MA	18.99	18.02	6.30	12.69	11.72
Cambridge, MA	43.53	39.81	17.18	26.35	22.63
Charlottesville, VA	4.07	4.07	2.45	1.62	1.62

Table 7.9.1 Continued

Accrued Liabilities of Selected Large Local Pension Funds,
by Locality, 1978, Assuming an 8% Interest Rate^a

(Amounts in Millions of Dollars)

Locality	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
General and Teacher Systems:					
Chester C., PA ²	16.78	16.09	10.02	6.76	6.07
Cincinnati, OH	179.14	153.85	240.08	-60.94	-86.23
Concord, MA	9.39	8.77	3.04	6.35	5.73
Danbury, CT	5.59	4.98	4.10	1.49	.88
Dauphin C., PA ²	16.05	15.54	10.09	5.96	5.45
De Kalb C., GA	37.78	32.87	41.41	-3.63	-8.44
Dearborn, MI	22.26	20.84	16.67	5.59	4.27
Denver, CO	77.24	66.03	53.52	23.72	12.51
Denver, CO Water UT	4.50	4.47	1.66	2.84	2.81
East Hartford, CT	12.33	11.38	18.13	-5.80	-6.75
El Paso, TX	31.17	27.53	23.01	8.16	4.52
Erie C., PA ¹	16.28	15.87	9.78	6.50	6.09
Essex C., MA	52.84	49.88	16.49	36.35	33.39
Everett, MA	20.82	19.62	7.23	13.59	12.57
Falmouth, MA	7.59	6.96	2.33	5.26	4.63
Fitchburg, MA	21.95	20.32	6.29	15.66	14.63
Fort Pierce, FL	7.53	6.80	8.61	-1.08	-1.81
Fresno, CA	65.30	60.69	46.92	18.38	13.77
Fulton C., GA (School)	59.25	55.07	29.87	29.38	25.20
Gavelston, TX	4.72	4.30	4.79	-.07	-.49
Grand Rapids, MI	20.58	18.74	23.93	-3.35	-5.19
Hampden C., MA	41.07	38.10	14.89	26.18	23.21
Hamden, CT	7.16	6.09	5.62	1.54	.47
Haverhill, MA	41.17	38.77	8.67	32.50	30.10
Hollywood, FL	7.24	6.93	15.39	-8.15	-8.46
Jackson C., MI	8.81	8.22	11.42	-2.61	-3.20
Jefferson C., AL	22.89	20.09	34.70	-11.81	-14.61
Jersey City, NJ	32.22	30.96	9.75	22.47	21.21
Kent C., MI	14.90	11.61	20.44	-5.54	-8.83
Knoxville, TN	57.85	55.93	38.38	19.47	17.55
Lancaster C., PA ¹	12.31	11.71	6.76	5.55	4.85
Lansing, MI	19.76	17.39	16.34	3.42	1.05
Lansing, MI (W+L)	17.10	16.03	22.69	-5.59	-6.66
Lawrence, MA	36.22	34.55	10.41	25.81	24.14
Lehigh C., PA ²	26.24	25.04	15.28	10.96	9.76
Lexington, MA	10.45	9.75	4.19	6.26	5.56
Lynn, MA	45.63	43.42	16.90	28.73	26.52
Medford, MA	25.10	23.79	9.07	16.03	14.72
Methuen, MA	11.31	10.60	3.58	7.73	7.02
Miami, FL	73.92	68.64	44.62	29.30	24.02
Middlesex C., MA	119.02	109.33	43.25	75.77	66.08
Millford, CT	17.00	15.69	16.51	1.49	-.82
Millwaukee C., WI	169.01	166.01	158.85	10.16	7.16
Minneapolis, MN (School)	51.45	30.61	125.81	-74.46	-95.30
Natick, MA	12.54	11.78	5.01	7.53	6.77
New Castle C., DE	16.14	15.12	13.08	3.06	2.04
Newport News, VA	58.11	56.33	37.09	21.02	19.24
Newton, MA	53.78	51.35	37.35	16.43	14.00
Northumberland C., PA ¹	7.71	7.31	4.26	3.45	3.05
Norwalk, CT	10.11	8.91	5.33	4.78	3.58
Oklahoma C., OK	14.73	13.73	7.25	7.48	6.48
Omaha, NE	16.13	13.33	18.78	-2.66	-5.46
Pensacola, FL	13.99	13.20	8.85	5.14	4.35
Pittsfield, MA	26.81	25.40	9.91	16.90	15.49
Plymouth, MA	11.17	10.43	3.67	7.50	6.76
Portsmouth, VA	5.48	5.47	14.15	-8.67	-8.68
Providence, RI	105.92	99.64	71.56	34.36	28.08
Quincy, MA	58.28	54.49	21.10	37.18	33.39
Roanoke, VA	27.54	25.85	32.75	-5.21	-6.90
Sacramento, CA	83.25	82.42	97.00	-13.75	-14.58
Salt River Proj., AZ	32.90	29.23	41.50	-8.60	-12.27
San Mateo C., CA	94.15	92.87	128.67	-34.52	-35.80
Savannah, GA	12.94	11.81	9.28	3.66	2.53
Shelby C., TN	59.99	57.24	67.72	-7.73	-10.48
Sioux Falls, SD ²	15.05	14.14	7.57	7.48	6.57
Somerville, MA	40.75	38.97	12.01	28.74	26.96
Spokane, WA	21.56	21.16	27.96	-6.40	-6.80
St. Clair C., MI	9.73	8.74	10.72	-.99	-1.98
Stratford Town, CT	14.08	13.04	5.72	8.36	7.32
Tallahassee, FL	4.55	3.84	4.84	-.29	-1.00
Taunton, MA	21.55	23.33	6.54	18.01	16.79
Tulsa, OK	13.52	12.21	12.04	1.48	.17
Wakefield, MA	13.56	12.94	3.95	9.61	8.99
Warren, MI	8.33	7.70	16.26	-7.93	-8.56
Wayne C., MI	284.27	275.06	284.61	-.34	-9.55
Wellesley, MA	11.05	13.31	6.26	7.79	7.05
West Palm Beach, FL	10.06	8.91	11.23	-.67	-2.32
Westfield, MA	14.01	13.08	5.11	8.90	7.97
Weymouth, MA	21.49	20.35	7.69	13.80	12.66
Wichita, KS	31.42	28.61	28.47	2.95	1.14
Worcester C., MA	87.39	79.73	23.38	64.01	56.35
York C., PA ¹	9.05	8.59	5.16	3.89	3.43

Table 7.9.1 Continued

Accrued Liabilities of Selected Large Local Pension Funds,
by Locality, 1978, Assuming an 8% Interest Rate¹

(Amounts in Millions of Dollars)

Locality	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
Police and Fire Systems:					
Total P&F	687.42	632.02	340.51	346.91	291.51
Ann Arundel C., MD P+F	21.37	10.70	20.30	1.07	-9.60
Atlanta, GA F	28.72	28.68	7.23	21.49	21.45
Atlanta, GA P	28.95	28.88	7.26	21.69	21.62
Birmingham, AL P+F	24.75	16.84	7.52	17.23	9.32
Denver, CO F	71.11	69.85	14.16	56.95	55.69
Denver, CO P	49.97	48.00	.16	49.81	47.84
El Paso, TX P+F	25.70	24.30	12.64	13.06	11.66
Fresno, CA P+F	82.89	80.47	30.85	52.04	49.62
Grand Rapids, MI P+F	20.35	19.51	30.40	-10.05	-10.89
Lansing, MI P+F	20.18	19.32	29.39	-9.21	-10.07
Lexington, KY P+F	22.07	21.89	14.62	7.45	7.27
Miami, FL P+F	86.99	80.12	72.19	14.80	7.93
Mobile, AL P+F	17.61	11.56	5.60	12.01	5.96
Omaha, NE P+F	32.85	23.45	18.58	14.27	4.87
Springfield, MD P+F	11.38	8.44	6.58	4.80	1.86
St. Paul, MN P	32.01	31.12	13.10	18.91	18.02
Tulsa, OK F	33.15	32.38	13.19	19.96	19.19
Tulsa, OK P	21.06	20.32	15.25	5.81	5.07
Wichita, KS P+F	56.31	56.19	21.49	34.82	34.70

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate, a 5 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent.

2. This system has a "pension plus employee annuity" benefit formula under which employees make contributions to an additional defined contribution plan. The accumulated value of past employee contributions is included in the accrued liability estimate since these accumulated payments represent an accrued claim on pension assets.

Table 7.9.2

Accrued Liabilities of Selected Large Local Pension Funds, by Locality, 1978,
Assuming a 12% Interest Rate¹

(Amounts in Millions of Dollars)

Locality	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
General and Teacher Systems:					
Total General	2,724.19	2,613.24	2,830.27	-106.08	-217.01
Alameda C., CA	168.00	166.17	234.17	-66.17	-68.00
Allentown, PA	9.68	9.47	5.39	4.29	4.08
Atlanta, GA	157.07	155.68	108.25	48.82	47.43
Berks C., PA ¹	14.92	14.61	9.63	5.29	4.98
Berkshire C., MA	13.09	12.41	5.24	7.85	7.17
Berrien C., MI	4.47	4.09	6.31	-1.84	-2.22
Beverly, MA	13.09	12.70	4.89	8.20	7.81
Birmingham, AL	37.30	35.73	85.03	-47.73	-49.30
Braintree, MA	15.40	14.91	6.30	9.10	8.61
Cambridge, MA	33.48	31.58	17.18	16.30	14.40
Charlottesville, VA	3.98	3.98	2.45	1.53	1.53
Chester C., PA ¹	15.21	14.84	10.02	5.19	4.82
Cincinnati, OH	122.49	110.53	240.08	-117.59	-129.55
Concord, MA	7.44	7.12	3.04	4.40	4.08
Danbury, CT	4.70	4.35	4.10	.60	.259
Dauphin C., PA ²	15.12	14.82	10.09	5.03	4.73
De Kalb C., GA	28.35	25.90	41.41	-13.06	-15.51
Dearborn, MI	17.96	17.28	16.67	1.29	.61
Denver, CO	37.28	33.81	53.52	-16.24	-19.71
Denver, CO Water UT	3.78	3.76	1.66	2.12	2.10
East Hartford, CT	6.46	6.17	18.13	-11.67	-11.96
El Paso, TX	23.92	21.99	23.01	.91	-1.02
Erie C., PA	15.03	14.81	9.78	5.25	5.03
Essex C., MA	42.50	40.99	16.49	26.01	24.50
Everett, MA	16.92	16.41	7.23	9.69	9.18
Falmouth, MA	5.85	5.53	2.33	3.52	3.20
Fitchburg, MA	17.89	17.37	6.29	11.60	11.08
Fort Pierce, FL	5.76	5.39	8.61	-2.85	-3.22
Fresno, CA	43.75	41.81	46.92	-3.17	-5.11
Fulton C., GA (School)	40.99	39.12	29.87	11.12	9.25
Gavelston, TX	3.71	3.52	4.79	-1.08	-1.27
Grand Rapids, MI	16.13	15.12	23.93	-7.80	-8.81
Hampden C., MA	32.23	30.72	14.89	17.34	15.83
Hamden, CT	4.77	4.30	5.62	-.85	-1.32
Haverhill, MA	32.99	31.77	8.67	24.32	23.10
Hollywood, FL	5.97	5.81	15.39	-9.42	-9.58
Jackson C., MI	7.10	6.78	11.42	-4.32	-4.64
Jefferson C., AL	17.12	15.64	34.70	-17.58	-19.06
Jersey City, NJ	26.54	26.00	9.75	16.79	16.25
Kent C., MI	9.73	8.19	20.44	-10.71	-12.25
Knoxville, TN	41.91	41.05	38.38	3.53	2.67
Lancaster C., PA ¹	10.99	10.68	6.76	4.23	3.92
Lansing, MI	15.11	13.86	16.34	-1.23	-2.48
Lansing, MI (W+L)	13.68	13.11	22.69	-9.01	-9.58
Lawrence, MA	29.56	28.72	10.41	19.15	18.31
Lehigh C., PA ²	23.61	22.98	15.28	8.33	7.70
Lexington, MA	8.25	7.90	4.19	4.06	3.71
Lynn, MA	37.10	35.98	16.90	20.20	19.08

Table 7.9.2 Continued

Accrued Liabilities of Selected Large Local Pension Funds, by Locality, 1978.
Assuming a 12% Interest Rate
(Amounts in Millions of Dollars)

Locality	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability
General and Teacher Systems:					
Medford, MA	20.30	19.63	9.07	11.23	10.56
Methuen, MA	9.00	8.63	3.58	5.42	5.05
Miami, FL	66.81	63.16	44.62	22.19	18.54
Middlesex C., MA	92.08	87.16	43.25	48.83	43.91
Milford, CT	13.49	12.80	16.51	-3.02	-3.71
Milwaukee C., WI	118.57	117.41	158.85	-40.28	-41.44
Minneapolis, MN (School)	35.42	23.96	125.91	-90.49	-101.95
Natick, MA	10.01	9.63	5.01	5.00	4.62
New Castle C., DE	11.47	11.02	13.08	-1.61	-2.06
Newport News, VA	50.37	49.43	37.09	13.28	12.34
Newton, MA	43.95	42.71	37.35	6.60	5.36
Northumberland C., PA?	6.86	6.65	4.26	2.60	2.39
Norwalk, CT	6.86	6.22	5.33	1.53	.897
Oklahoma C., OK	11.94	11.38	7.25	4.69	4.13
Omaha, NE	10.65	9.37	18.79	-8.14	-9.42
Pensacola, FL	11.44	11.01	8.85	2.59	2.16
Pittsfield, MA	21.67	20.95	9.91	11.76	11.04
Plymouth, MA	8.84	8.46	3.67	5.17	4.79
Portsmouth, VA	4.89	4.89	14.15	-9.26	-9.26
Providence, RI	86.67	83.36	71.56	15.11	11.80
Quincy, MA	46.24	44.31	21.10	25.14	23.21
Roanoke, VA	22.55	21.56	32.75	-10.20	-11.19
Sacramento, CA	65.19	64.79	97.00	-31.81	-32.21
Salt River Proj., AZ	23.95	22.15	41.50	-17.55	-19.35
San Mateo C., CA	84.74	83.82	128.67	-43.93	-44.85
Savannah, GA	9.84	9.29	9.28	.56	.01
Shelby C., TN	41.84	40.65	67.72	-25.88	-27.07
Sioux Falls, SD?	12.16	11.77	7.57	4.59	4.20
Somerville, MA	33.37	32.47	12.01	21.36	20.46
Spokane, WA	17.15	16.97	27.96	-10.81	-10.99
St. Clair C., MI	7.43	6.95	10.72	-3.29	-3.77
Stratford Town, CT	11.28	10.75	5.72	5.56	5.03
Tallahassee, FL	3.25	2.88	4.84	-1.59	-1.96
Taunton, MA	19.92	19.30	6.54	13.38	12.76
Tulsa, OK	6.69	6.31	12.04	-5.35	-5.73
Wakefield, MA	11.07	10.76	3.95	7.12	6.81
Warren, MI	6.66	6.34	16.26	-9.60	-9.92
Wayne C., MI	237.57	232.88	284.61	-47.04	-51.73
Wellesley, MA	11.35	10.97	6.26	5.09	4.71
West Palm Beach, FL	7.25	6.48	11.23	-3.98	-4.75
Westfield, MA	11.09	10.61	5.11	5.98	5.50
Weymouth, MA	17.36	16.78	7.69	9.67	9.09
Wichita, KS	21.52	20.24	28.47	-6.95	-8.23
Worcester C., MA	66.97	63.08	23.38	43.59	39.70
York C., PA?	8.08	7.84	5.16	2.92	2.68
Police and Fire Systems:					
Total P&F	503.61	476.27	340.51	163.10	134.70
Ann Arundel C., MD P+F	12.83	7.95	20.30	-7.47	-12.35
Atlanta, GA F	20.67	20.66	7.23	13.44	13.43
Atlanta, GA P	20.19	20.17	7.26	12.93	12.91
Birmingham, AL P+F	17.88	13.59	7.52	10.36	6.07
Denver, CO F	51.11	50.61	14.16	36.95	36.45
Denver, CO P	33.10	32.32	.16	32.94	32.16
El Paso, TX P+F	19.60	18.92	12.64	6.96	6.28
Fresno, CA P+F	55.55	54.62	30.85	24.70	23.77
Grand Rapids, MI P+F	15.50	15.11	30.40	-14.90	-15.29
Lansing, MI P+F	15.31	14.90	29.39	-14.08	-14.49
Lexington, KY P+F	16.58	16.51	14.62	1.96	1.89
Miami, FL P+F	70.17	66.67	72.19	-2.02	-5.52
Mobile, AL P+F	11.73	8.71	5.60	6.13	3.11
Omaha, NE P+F	25.06	19.91	18.58	6.48	1.33
Springfield, MO P+F	8.55	6.95	6.58	1.97	.37
St. Paul, MN P	25.46	25.06	13.10	12.36	11.96
Tulsa, OK F	26.76	26.42	13.19	13.57	13.23
Tulsa, OK P	16.27	15.94	15.25	1.02	.69
Wichita, KS P+F	41.29	41.25	21.49	19.80	19.76

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate, a 9 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent.

2. This system has a "pension plus employee annuity" benefit formula under which employee contributions purchase defined contribution pension benefits. An estimate of the accumulated value of past employee contributions is included in the accrued liability estimated since then accumulated payments to defined contribution benefits represent an accrued claim on pension assets.

Table 7.9.3

Fraction of Accrued Pension Liabilities Unfunded, Selected Large Local Funds, by Locality, 1978, at 8% and 12% Interest Rates¹

Locality	Fraction of Total Accrued Liability that is Unfunded		Fraction of Vested Accrued Liability that is Unfunded	
	Interest Rate 8%	Interest Rate 12%	Interest Rate 8%	Interest Rate 12%
General and Teacher Systems:	.20	-.04	.15	-.08
Alameda C., CA	-.08	-.39	-.10	-.41
Allentown, PA	.54	.44	.52	.43
Atlanta, GA	.52	.31	.51	.30
Berks C., PA	.41	.35	.39	.34
Berkshire C., M	.75	.60	.73	.58
Berrien C., MI	-.01	-.41	-.15	-.54
Beverly, MA	.70	.63	.68	.61
Birmingham, AL	-.84	-1.28	-.96	-1.38
Braintree, MA	.67	.59	.65	.58
Cambridge, MA	.61	.49	.57	.46
Charlottesville	.40	.38	.40	.38
Chester C., PA	.40	.34	.38	.32
Cincinnati, OH	-.34	-.96	-.56	-1.17
Concord, MA	.68	.59	.65	.57
Danbury, CT	.27	.13	.18	.06
Dauphin C., PA	.37	.33	.35	.32
De Kalb C., GA	-.10	-.46	-.26	-.60
Dearborn, MI	.25	.07	.20	.04
Denver, CO	.31	-.44	.19	-.58
Denver, CO Water	.63	.56	.63	.56
East Hartford, CT	-.47	-1.81	-.59	-1.94
El Paso, TX	.26	.04	.16	-.05
Erle C., PA	.40	.35	.38	.34
Essex C., MA	.69	.61	.67	.60
Everett, MA	.65	.57	.63	.56
Falmouth, MA	.69	.60	.67	.58
Fitchburg, MA	.71	.65	.70	.64
Fort Pierce, FL	-.14	-.49	-.27	-.60
Fresno, CA	.28	-.07	.23	-.12
Fulton C., GA	.50	.27	.46	.24
Gavelston, TX	-.01	-.29	-.11	-.36
Grand Rapids, M	-.16	-.48	-.28	-.58
Hampden C., MA	.64	.54	.61	.52
Hamden, CT	.22	-.18	.08	-.31
Haverhill, MA	.79	.74	.78	.73
Hollywood, FL	-1.13	-1.58	-1.22	-1.65
Jackson C., MI	-.30	-.61	-.39	-.68
Jefferson C., A	-.52	-1.03	-.73	-1.22
Jersey City, NJ	.70	.63	.69	.63
Kent C., MI	-.37	-1.10	-.76	-1.50
Knoxville, TN	.34	.08	.31	.07
Lancaster C., P	.45	.38	.42	.37
Lansing, MI	.17	-.08	.06	-.18
Lansing, MI (W+)	-.23	-.66	-.42	-.73
Lawrence, MA	.71	.65	.70	.64
Lehigh C., PA	.42	.35	.39	.34
Lexington, MA	.60	.49	.57	.47
Lynn, MA	.63	.54	.61	.53
Medford, MA	.64	.55	.62	.54
Methuen, MA	.68	.60	.66	.59
Miami, FL	.40	.33	.35	.29
Middlesex C., M	.64	.53	.60	.50
Milford, CT	.03	-.22	-.05	-.29
Milwaukee C., W	.06	-.34	.04	-.35
Minneapolis, MN	-1.45	-2.55	-3.11	-4.26
Natick, MA	.60	.50	.57	.48
New Castle C., V	.19	-.14	.13	-.19
Newport News, V	.36	.26	.34	.25
Newton, MA	.31	.15	.27	.13
Northumberland	.45	.38	.42	.36
Norwalk, CT	.47	.22	.40	.14
Oklahoma C., OK	.51	.39	.47	.36
Omaha, NE	-.16	-.76	-.41	-1.01
Pensacola, FL	.37	.23	.33	.20
Pittsfield, MA	.63	.54	.61	.53
Plymouth, MA	.67	.58	.65	.57
Portsmouth, VA	-1.58	-1.89	-1.59	-1.89
Providence, RI	.32	.17	.28	.14
Quincy, MA	.64	.54	.61	.52
Roanoke, VA	-.19	-.45	-.27	-.52
Sacramento, CA	-.17	-.49	-.18	-.50
Salt River Proj	-.26	-.73	-.42	-.87
San Mateo C., C	-.37	-.52	-.39	-.54
Savannah, GA	.28	.06	.21	.00
Shelby C., TN	-.13	-.62	-.18	-.67
Sioux Falls, SD	.50	.38	.46	.36
Somerville, MA	.71	.64	.69	.63
Spokane, WA	-.30	-.63	-.32	-.65
St. Clair C., M	-.10	-.44	-.23	-.54
Stratford Town,	.59	.49	.56	.47
Tallahassee, FL	-.06	-.49	-.26	-.68
Taunton, MA	.73	.67	.72	.66
Tulsa, OK	.11	-.80	.01	-.91
Wakefield, MA	.71	.64	.69	.63
Warren, MI	-.95	-1.44	-1.11	-1.56
Wayne C., MI	-.00	-.20	-.03	-.22
Wellesley, MA	.55	.45	.53	.43
West Palm Beach	-.06	-.55	-.26	-.73
Westfield, MA	.64	.54	.61	.52
Weymouth, MA	.64	.56	.62	.54
Wichita, KS	.09	-.32	.00	-.41
Worcester C., M	.73	.65	.71	.63
York C., PA	.43	.36	.40	.34

Table 7.9.3 Continued

Fraction of Accrued Pension Liabilities Unfunded, Selected Large Local Funds, by Locality, 1978, at 8% and 12% Interest Rates¹

Locality	Fraction of Total Accrued Liability that is Unfunded		Fraction of Vested Accrued Liability that is Unfunded	
	Interest Rate 8%	Interest Rate 12%	Interest Rate 8%	Interest Rate 12%
Police and Fire Systems:				
Total P&F	.50	.32	.46	.29
Ann Arundel C.,	.05	-.58	-.90	-1.55
Atlanta, GA F	.75	.65	.75	.65
Atlanta, GA P	.75	.64	.75	.64
Birmingham, AL	.70	.58	.55	.45
Denver, CO F	.80	.72	.80	.72
Denver, CO P	1.00	1.00	1.00	1.00
El Paso, TX P+F	.51	.36	.48	.33
Fresno, CA P+F	.63	.44	.62	.44
Grand Rapids, MI	-.49	-.96	-.56	-1.01
Lansing, MI P+F	-.46	-.92	-.52	-.97
Lexington, KY P	.34	.12	.33	.11
Miami, FL P+F	.17	-.03	.10	-.08
Mobile, AL P+F	.68	.52	.52	.36
Omaha, NE P+F	.43	.26	.21	.07
Springfield, MO	.42	.23	.22	.05
St. Paul, MN P	.59	.49	.58	.48
Tulsa, OK F	.60	.51	.59	.50
Tulsa, OK P	.28	.06	.25	.04
Wichita, KS P+F	.62	.48	.62	.48

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

Table 7.9.4

Relationship of Accrued Vested Pension Liabilities of Selected Local Pension Funds to Net Long Term Debt of Localities, by Locality, 1978, at 8% and 12% Interest Rates¹ (Amounts in Millions of Dollars)

Locality	8% Interest Rate			12% Interest Rate		
	Long-Term Local Debt ²	Unfunded Vested Accrued Liability	Ratio ¹ of Unfunded Vested Accrued Liability to Sum of Local Debt and Unfunded Vested Accrued Liability	Unfunded Vested Accrued Liability	Ratio ¹ of Unfunded Vested Accrued Liability to Sum of Local Debt and Unfunded Vested Accrued Liability	
General and Teacher Systems:						
Total General	6,387.99	486.90	.07	-217.01	NA	
Alameda C., CA	25.55	-21.50	NA	-68.00	NA	
Allentown, PA	15.53	5.83	.27	4.08	.21	
Atlanta, GA	587.91	113.64	.16	47.43	.07	
Berks C., PA	2.84	6.16	.68	4.98	.64	
Berkshire C., MA	27	13.91	.98	7.17	.96	
Berrien C., MI	55.67	-.82	NA	-2.22	NA	
Beverly, MA	14.46	10.42	.42	7.81	.35	
Birmingham, AL	299.41	-41.74	NA	-49.30	NA	
Braintree, MA	38.78	11.72	.23	8.61	.18	
Cambridge, MA	69.49	22.63	.25	14.40	.17	
Charlottesville, VA	15.70	1.62	.09	1.53	.09	
Chester C., PA	5.25	6.07	.54	4.82	.48	
Cincinnati, OH	243.37	-86.23	NA	-129.55	NA	
Concord, MA	4.03	5.73	.59	4.08	.50	
Danbury, CT	21.06	.88	.04	.25	.01	
Dauphin C., PA	7.97	5.45	.41	4.73	.37	
De Kalb C., GA	133.25	-8.44	NA	-15.51	NA	
Dearborn, MI	24.09	4.27	.15	.61	.02	
Denver, CO	386.30	12.51	.03	-19.71	NA	
Denver, CO Water UT	396.30	2.81	.01	2.10	.01	
East Hartford, CT	13.27	-6.75	NA	-11.96	NA	
El Paso, TX	62.44	4.52	.07	-1.02	NA	
Erie C., PA	11.85	6.09	.34	5.03	.30	
Essex C., MA	12.12	33.39	.73	24.50	.67	
Everett, MA	19.84	12.57	.39	9.18	.32	
Falmouth, MA	9.93	4.63	.32	3.20	.24	
Fitchburg, MA	13.32	14.63	.52	11.08	.45	
Fort Pierce, FL	40.35	-1.81	NA	-3.22	NA	
Fresno, CA	33.14	13.77	.29	-5.11	NA	
Fulton C., GA (School)	65.30	25.20	.28	9.25	.12	
Gavelston, TX	30.81	-.49	NA	-1.27	NA	
Grand Rapids, MI	37.24	-5.19	NA	-8.81	NA	
Hampden C., MA	16.18	23.21	.59	15.83	.49	
Hamden, CT	28.91	.47	.02	-1.32	NA	
Haverhill, MA	16.95	30.10	.64	23.10	.58	
Hollywood, FL	48.78	-8.46	NA	-9.58	NA	
Jackson C., MI	34.76	-3.20	NA	-4.64	NA	
Jefferson C., AL	43.67	-14.61	NA	-19.06	NA	
Jersey City, NJ	125.68	21.21	.14	16.25	.11	
Kent C., MI	34.25	-8.83	NA	-12.25	NA	
Knoxville, TN	274.75	17.55	.06	2.67	.01	
Lancaster C., PA	19.12	4.95	.21	3.92	.17	
Lansing, MI	60.18	1.05	.02	-2.48	NA	

Table 7.9.4 Continued

Relationship of Accrued Vested Pension Liabilities of Selected Local Pension Funds
to Net Long Term Debt of Localities, by Locality, 1978, at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

Locality	8% Interest Rate			12% Interest Rate	
	Long-Term Local Debt ²	Unfunded Vested Accrued Liability	Ratio ¹ of Unfunded Vested Accrued Liability to Sum of Local Debt and Unfunded Vested Accrued Liability	Unfunded Vested Accrued Liability	Ratio ¹ of Unfunded Vested Accrued Liability to Sum of Local Debt and Unfunded Vested Accrued Liability
Lansing, MI (W+L)	60.18	-6.66	NA	-9.58	NA
Lawrence, MA	11.16	24.14	.68	18.31	.62
Lehigh C., PA ¹	26.83	9.76	.27	7.70	.22
Lexington, MA	7.42	5.56	.43	3.71	.33
Lynn, MA	27.15	26.52	.49	19.08	.41
Medford, MA	9.13	14.72	.62	10.56	.54
Methuen, MA	8.64	7.02	.45	5.05	.37
Miami, FL	119.52	24.02	.17	18.54	.13
Middlesex C., MA	34.18	66.08	.66	43.91	.56
Milford, CT	39.17	-.82	NA	-3.71	NA
Milwaukee C., WI	141.11	7.16	.05	-41.44	NA
Minneapolis, MN (School)	205.20	-95.30	NA	-101.95	NA
Natick, MA	6.39	6.77	.51	4.62	.42
New Castle C., DE	94.48	2.04	.02	-2.06	NA
Newport News, VA	96.71	19.24	.17	12.34	.11
Newton, MA	19.35	14.00	.42	5.36	.22
Northumberland C., PA	1.68	3.05	.64	2.39	.59
Norwalk, CT	50.84	3.58	.07	.89	.02
Oklahoma C., OK	22.64	6.48	.22	4.13	.15
Omaha, NE	117.05	-5.46	NA	-9.42	NA
Pensacola, FL	50.11	4.35	.08	2.16	.04
Pittsfield, MA	29.11	15.49	.35	11.04	.27
Plymouth, MA	7.49	6.76	.47	4.79	.39
Portsmouth, VA	79.21	-8.68	NA	-9.26	NA
Providence, RI	39.91	28.08	.41	11.80	.23
Quincy, MA	23.66	33.39	.59	23.21	.50
Roanoke, VA	75.26	-6.90	NA	-11.19	NA
Sacramento, CA	101.53	-14.58	NA	-32.21	NA
Salt River Proj., AZ	NA	-12.27	NA	-19.35	NA
San Mateo C., CA	.15	-35.80	NA	-44.85	NA
Savannah, GA	38.45	2.53	.06	.01	.00
Shelby C., TN	64.20	-10.48	NA	-27.07	NA
Sioux Falls, SD	11.88	6.57	.36	4.20	.26
Somerville, MA	30.71	26.96	.47	20.46	.40
Spokane, WA	16.52	-6.80	NA	-10.99	NA
St. Clair C., MI	65.10	-1.98	NA	-3.77	NA
Stratford Town, CT	16.63	7.32	.31	5.03	.23
Tallahassee, FL	169.80	-1.00	NA	-1.96	NA
Taunton, MA	47.45	16.79	.26	12.76	.21
Tulsa, OK	242.54	.17	NA	-5.73	NA
Wakefield, MA	7.56	8.99	.54	6.81	.47
Warren, MI	33.61	-8.56	NA	-9.92	NA
Wayne C., MI	334.34	-9.55	NA	-51.73	NA
Wellesley, MA	3.27	7.05	.68	4.71	.59
West Palm Beach, FL	24.21	-2.32	NA	-4.75	NA
Westfield, MA	18.75	7.97	.30	5.50	.23
Weymouth, MA	23.69	12.66	.35	9.09	.28
Wichita, KS	311.87	14	.00	-8.23	NA
Worcester C., MA	8.02	56.35	.88	39.70	.83
York C., PA	4.03	3.43	.46	2.68	.40
Police and Fire Systems					
Total P&F	4,497.14	291.51	.06	135.70	.03
Ann Arundel C., MD P+	269.45	-9.60	NA	-12.35	NA
Atlanta, GA F	587.91	21.45	.04	13.43	.02
Atlanta, GA P	587.91	21.62	.04	12.91	.02
Birmingham, AL P+F	299.41	9.32	.03	6.07	.02
Denver, CO F	396.30	55.69	.12	36.45	.08
Denver, CO P	396.30	47.84	.11	32.16	.08
El Paso, TX P+F	62.44	11.66	.16	6.28	.09
Fresno, CA P+F	33.14	49.62	.60	23.77	.42
Grand Rapids, MI P+F	37.24	-10.89	NA	-15.29	NA
Lansing, MI P+F	60.18	-10.07	NA	-14.49	NA
Lexington, KY P+F	60.18	7.27	.11	1.89	.03
Miami, FL P+F	117.52	7.93	.06	-5.52	NA
Mobile, AL P+F	218.08	5.96	.03	3.11	.01
Omaha, NE P+F	117.05	4.87	.04	1.33	.01
Springfield, MO P+F	140.80	1.86	.01	.37	.00
St. Paul, MN P	316.28	18.02	.05	11.96	.04
Tulsa, OK F	242.54	19.19	.07	13.23	.05
Tulsa, OK P	242.54	5.07	.02	.69	.00
Wichita, KS P+F	311.87	34.70	.10	19.76	.06

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

2. The debt figures reported here are net long-term debt of the local government. These liabilities include both "full faith and credit" and "nonguaranteed" obligations.

Table 7.9.5

Accrued Vested Pension Liabilities per Resident, Selected Large Local Pension Funds, by Locality, 1978,
at 8% and 12% Interest Rates¹

Locality	8% Interest Rate		12% Interest Rate	
	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident ¹ (Dollars)	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident ¹ (Dollars)
General and Teacher Systems:				
Total General	486.90	20.68	-217.01	-9.23
Alameda C., CA	-21.50	-19.72	-68.00	-62.37
Allentown, PA	5.83	54.68	4.08	38.27
Atlanta, GA	113.64	260.61	47.43	108.77
Berks C., PA	6.16	20.20	4.98	16.33
Berkshire C., MA	13.91	93.38	7.17	48.13
Berrien C., MI	-82	-4.81	-2.22	-13.02
Beverly, MA	10.42	280.26	7.81	210.06
Birmingham, AL	-41.74	-151.08	-49.30	-178.45
Braintree, MA	11.72	318.44	8.61	233.94
Cambridge, MA	22.63	220.95	14.40	140.60
Charlottesville, VA	1.62	38.89	1.53	36.73
Chester C., PA	6.07	20.73	4.82	16.46
Cincinnati, OH	-86.23	-209.01	-129.55	-314.01
Concord, MA	5.73	324.89	4.08	231.33
Danbury, CT	.88	16.14	.25	4.59
Dauphin C., PA	5.45	24.40	4.73	21.18
De Kalb C., GA	-8.44	-18.73	-15.51	-34.42
Dearborn, MI	4.27	43.14	.61	6.16
Denver, CO	12.51	25.82	-19.71	-40.68
Denver, CO Water UT	2.81	5.80	2.10	4.33
East Hartford, CT	-6.75	-124.70	-11.96	-220.94
El Paso, TX	4.52	11.72	-1.02	-2.64
Erie C., PA	6.09	22.28	5.03	18.40
Essex C., MA	33.39	52.90	24.50	38.82
Everett, MA	12.57	318.45	9.18	232.56
Falmouth, MA	4.63	221.89	3.20	153.36
Fitchburg, MA	14.63	375.36	11.08	284.28
Fort Pierce, FL	-1.81	-51.62	-3.22	-91.84
Fresno, CA	13.77	78.00	-5.11	-28.95
Fulton C., GA (School)	25.20	43.40	9.25	15.93
Gavelston, TX	-49	-8.15	-1.27	-21.12
Grand Rapids, MI	-5.19	-27.61	-8.81	-46.88
Hampden C., MA	23.21	50.04	15.83	34.13
Hamden, CT	.47	9.37	-1.32	-26.31
Haverhill, MA	30.10	678.28	23.10	520.54
Hollywood, FL	-8.46	-71.09	-9.58	-80.50
Jackson C., MI	-3.20	-21.84	-4.64	-31.66
Jefferson C., AL	-14.61	-22.66	-19.06	-29.56
Jersey City, NJ	21.21	87.01	16.25	66.67
Kent C., MI	-8.83	-20.85	-12.25	-28.92
Knoxville, TN	17.55	95.70	2.67	14.56
Lancaster C., PA	4.95	14.44	3.92	11.44
Lansing, MI	1.05	8.28	-2.48	-19.56
Lansing, MI (W+L)	-6.66	-52.52	-9.58	-75.55
Lawrence, MA	24.14	358.21	18.31	271.70
Lehigh C., PA	9.76	37.03	7.70	29.21
Lexington, MA	5.56	172.08	3.71	114.83
Lynn, MA	26.52	334.31	19.08	240.52
Medford, MA	14.72	242.23	10.56	173.77
Methuen, MA	7.02	198.16	5.05	142.55
Miami, FL	24.02	65.79	18.54	50.78
Middlesex C., MA	66.08	47.23	43.91	31.39
Milford, CT	-82	-16.50	-3.71	-74.64
Milwaukee C., WI	7.16	7.07	-41.44	-40.94
Minneapolis, MN (School)	-95.30	-252.04	-101.95	-269.63
Natick, MA	6.77	218.73	4.62	149.27
New Castle C., DE	2.04	5.11	-2.06	-5.16
Newport News, VA	19.24	138.66	12.34	88.93
Newton, MA	14.00	158.09	5.36	60.52
Northumberland C., PA	3.05	30.36	2.39	23.79
Norwalk, CT	3.58	46.68	.89	11.61
Oklahoma C., OK	6.48	12.05	4.13	7.68
Omaha, NE	-5.46	-14.70	-9.42	-25.36
Pensacola, FL	4.35	67.79	2.16	33.66
Pittsfield, MA	15.49	282.19	11.04	201.12
Plymouth, MA	6.76	245.54	4.79	173.99
Portsmouth, VA	-8.68	-79.87	-9.26	-85.21
Providence, RI	28.08	167.42	11.80	70.35
Quincy, MA	33.39	364.94	23.21	253.68
Roanoke, VA	-6.90	-68.60	-11.19	-111.25
Sacramento, CA	-14.58	-55.90	-32.21	-123.49
Salt River Proj., AZ	-12.27	NA	-19.35	NA
San Mateo C., CA	-35.80	-61.62	-44.85	-77.20
Savannah, GA	2.53	22.93	.01	.09
Shelby C., TN	-10.48	-14.22	-27.07	-36.74
Sioux Falls, SD	6.57	88.87	4.20	56.81
Sommerville, MA	26.96	333.67	20.46	253.22
Spokane, WA	-6.80	-39.15	-10.99	-63.27
St. Clair C., MI	-1.98	-15.14	-3.77	-28.83
Stratford Town, CT	7.32	144.50	5.03	99.30
Tallahassee, FL	-1.00	-11.94	-1.96	-23.41
Taunton, MA	16.79	400.38	12.76	304.28
Tulsa, OK	.17	.51	-5.73	-17.27
Wakefield, MA	8.99	346.16	6.81	262.22
Warren, MI	-8.56	-49.55	-9.92	-57.42
Wayne C., MI	-9.55	-3.79	-51.73	-20.55
Wellesley, MA	7.05	261.30	4.71	174.57
West Palm Beach, FL	-2.32	-37.74	-4.75	-77.27
Westfield, MA	7.97	233.23	5.50	160.95
Weymouth, MA	12.66	222.83	9.09	159.99
Wichita, KS	.14	.53	-8.23	-31.07
Worcester C., MA	56.35	86.95	39.70	61.26
York C., PA	3.43	12.01	2.68	9.38

Table 7.9.5 Continued

Accrued Vested Pension Liabilities per Resident, Selected Large Local Pension Funds, by Locality, 1978,
at 8% and 12% Interest Rates¹

Locality	8% Interest Rate		12% Interest Rate	
	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident ¹ (Dollars)	Unfunded Vested Accrued Liability (Millions of Dollars)	Unfunded Vested Accrued Liability Per Resident ¹ (Dollars)
Police and Fire Systems:				
Total P&F	291.51	50.29	135.70	23.42
Ann Arundel C., MD P+F	-9.60	-27.90	-12.35	-35.90
Atlanta, GA F	21.45	49.19	13.43	30.80
Atlanta, GA P	21.62	49.58	12.91	29.61
Birmingham, AL P+F	9.32	33.73	6.07	21.97
Denver, CO F	55.69	114.94	36.45	75.23
Denver, CO P	47.84	98.73	32.16	66.37
El Paso, TX P+F	11.66	30.23	6.28	16.28
Fresno, CA P+F	49.62	281.09	23.77	134.65
Grand Rapids, MI P+F	-10.89	-57.94	-15.29	-81.35
Lansing, MI P+F	-10.07	-79.41	-14.49	-114.27
Lexington, KY P+F	7.27	39.08	1.89	10.16
Miami, FL P+F	7.93	21.72	-5.52	-15.12
Mobile, AL P+F	5.96	30.34	3.11	15.83
Omaha, NE P+F	4.87	13.11	1.33	3.58
Springfield, MO P+F	1.86	14.14	.37	2.81
St. Paul, MN P	18.02	64.46	11.96	42.79
Tulsa, OK F	19.19	57.85	13.23	39.88
Tulsa, OK P	5.07	15.28	.69	2.08
Wichita, KS P+F	34.70	130.99	19.76	74.59

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

Table 7.9.6

Selected Large Local Pension Funds' Projected Liabilities, 1978,
Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

Locality	Projected ¹ Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
General and Teacher Systems:				
Total General	6,842.77	2,830.27	4,012.50	.59
Alameda C., CA	402.13	234.17	167.96	.42
Allentown, PA	17.24	5.39	11.85	.69
Atlanta, GA	402.31	108.25	294.06	.73
Berks C., PA	26.19	9.63	16.56	.63
Berkshire C., MA	45.22	5.24	39.98	.88
Berrien C., MI	17.99	6.31	11.68	.65
Beverly, MA	27.59	4.89	22.70	.82
Birmingham, AL	81.78	85.03	-.25	-.00
Braintree, MA	33.69	6.30	27.39	.81
Cambridge, MA	100.43	17.18	83.25	.83
Charlottesville, VA	11.44	2.45	8.99	.79
Chester C., PA	28.59	10.02	18.57	.65
Cincinnati, OH	357.88	240.08	117.80	.33
Concord, MA	18.83	3.04	15.79	.84
Danbury, CT	17.13	4.10	13.03	.76
Dauphin C., PA	24.99	10.09	14.90	.60
De Kalb C., GA	82.18	41.41	40.77	.50
Dearborn, MI	41.08	16.67	24.41	.59
Denver, CO	267.85	53.52	214.33	.80
Denver, CO Water UT	15.98	1.66	14.32	.90
East Hartford, CT	21.92	18.13	3.79	.17
El Paso, TX	66.86	23.01	43.85	.66
erie C., PA	23.22	9.78	13.44	.58
Essex C., MA	98.03	16.49	81.54	.83
Everett, MA	36.32	7.23	29.09	.80
Falmouth, MA	17.24	2.33	14.91	.86
Fitchburg, MA	37.65	6.29	31.36	.83
Fort Pierce, FL	16.57	8.61	7.96	.48
Fresno, CA	102.87	46.92	55.95	.54
Fulton C., GA (School)	106.71	29.87	76.84	.72
Gavelston, TX	7.80	4.79	3.01	.39
Grand Rapids, MI	39.99	23.93	16.06	.40
Hampden C., MA	86.31	14.89	71.42	.83
Hamden, CT	20.00	5.62	14.38	.72
Haverhill, MA	77.66	8.67	68.99	.89
Hollywood, FL	11.63	15.39	-3.76	.32
Jackson C., MI	14.58	11.42	3.16	.22
Jefferson C., AL	58.36	34.70	23.66	.41
Jersey City, NJ	36.89	9.75	27.14	.74
Kent C., MI	41.42	20.44	20.98	.51
Knoxville, TN	71.52	38.38	33.14	.46
Lancaster C., PA ⁴	22.50	6.76	15.74	.70
Lansing, MI	45.50	16.34	29.16	.64
Lansing, MI (W+L)	39.17	22.69	16.48	.42
Lawrence, MA	61.67	10.41	51.26	.83
Lehigh C., PA ⁴	46.69	15.28	31.41	.67
Lexington, MA	21.05	4.19	16.86	.80
Lynn, MA	79.30	16.90	62.40	.79
Medford, MA	45.15	9.07	36.08	.80
Methuen, MA	22.25	3.58	18.67	.84

Table 7.9.6 Continued

Selected Large Local Pension Funds' Projected Liabilities, 1978.
Assuming an 8% Interest Rate¹
(Amounts in Millions of Dollars)

Locality	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
General and Teacher Systems:				
Miami, FL	111.58	44.62	66.96	.60
Middlesex C., MA	266.88	43.25	223.63	.84
Milford, CT	35.91	16.51	19.40	.54
Milwaukee C., WI	377.13	158.85	218.28	.58
Minneapolis, MN (School)	142.79	125.91	16.88	.12
Natick, MA	24.12	5.01	19.11	.79
New Castle C., DE	33.14	13.08	20.06	.61
Newport News, VA	170.22	37.09	133.13	.78
Newton, MA	90.99	37.35	53.64	.59
Northumberland C., PA	14.58	4.26	10.32	.71
Norwalk, CT	28.96	5.33	23.63	.82
Oklahoma C., OK	23.12	7.25	15.87	.69
Omaha, NE	36.82	18.79	18.03	.49
Pensacola, FL	23.52	8.85	14.67	.62
Pittsfield, MA	48.27	9.91	38.36	.79
Plymouth, MA	22.52	3.67	18.85	.84
Portsmouth, VA	13.66	14.15	-.49	-.04
Providence, RI	161.79	71.56	90.23	.56
Quincy, MA	116.08	21.10	94.98	.82
Roanoke, VA	51.43	32.75	18.68	.36
Sacramento, CA	112.23	97.00	15.23	.14
Salt River Proj., AZ	110.02	41.50	68.52	.62
San Mateo C., CA	152.38	128.67	23.71	.16
Savannah, GA	30.56	9.28	21.28	.70
Shelby C., TN	115.36	67.72	47.64	.41
Sioux Falls, SD ²	23.15	7.57	15.58	.67
Somerville, MA	67.96	12.01	55.95	.82
Spokane, WA	34.39	27.96	6.43	.19
St. Clair C., MI	23.57	10.72	12.85	.55
Stratford Town, CT	23.71	5.72	17.99	.76
Tallahassee, FL	12.57	4.84	7.73	.61
Taunton, MA	43.18	6.54	36.64	.85
Tulsa, OK	39.77	12.04	27.73	.70
Wakefield, MA	22.96	3.95	19.01	.83
Warren, MI	16.08	16.26	-.18	-.01
Wayne C., MI	416.19	284.61	131.58	.32
Wellesley, MA	25.33	6.26	19.07	.75
West Palm Beach, FL	20.62	11.23	9.39	.46
Westfield, MA	28.33	5.11	23.22	.82
Weymouth, MA	38.84	7.69	31.15	.80
Wichita, KS	70.57	28.47	42.10	.60
Worcester C., MA	204.23	23.38	180.85	.89
York C., PA	16.91	5.16	11.75	.69
Police and Fire Systems:				
Total P&F	1,292.28	340.51	951.77	.74
Ann Arundel C., MD P+F				
Atlanta, GA F	56.13	20.30	35.83	.64
Atlanta, GA P	51.32	7.23	44.09	.86
Birmingham, AL P+F	63.03	7.26	55.77	.88
Denver, CO F	57.30	7.52	49.78	.87
Denver, CO P	111.51	14.16	97.35	.87
El Paso, TX P+F	112.98	.16	112.82	1.00
Fresno, CA P+F	43.88	12.64	31.24	.71
Grand Rapids, MI P+F	124.99	30.85	94.14	.75
Lansing, MI P+F	49.13	30.40	18.73	.38
Lexington, KY P+F	46.47	29.39	17.08	.37
Miami, FL P+F	45.69	14.62	31.07	.68
Mobile, AL P+F	139.38	72.19	67.19	.48
Omaha, NE P+F	47.16	5.60	41.56	.88
Springfield, MO P+F	66.40	18.58	47.82	.72
St. Paul, MN P	23.67	6.58	17.09	.72
Tulsa, OK F	58.69	13.10	45.59	.78
Tulsa, OK P	60.12	13.19	46.93	.78
Wichita, KS P+F	44.23	15.25	28.98	.66
	90.20	21.49	68.71	.76

Source: NBER CLLPS (1978)

1. The calculations of projected liabilities assume a real interest rate of 3 percent, a 5 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent. Assets are at book value.

2. The net liabilities reported here are the projected liabilities derived as described in the text minus estimated future employee contributions. These future employee contributions are viewed under this procedure as assets of the system.

Table 7.9.7

Selected Large Local Pension Fund's Projected Liabilities, 1978,
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

Locality	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
General and Teacher Systems:				
Total General	5,570.46	2,830.27	2,740.19	.49
Alameda C., CA	350.57	234.17	116.40	.33
Allentown, PA	14.47	5.39	9.08	.63
Atlanta, GA	293.13	108.25	184.88	.63
Berks C., PA	23.77	9.63	14.14	.59
Berkshire C., MA	31.84	5.24	26.60	.84
Berrien C., MI	14.70	6.31	8.39	.57
Beverly, MA	23.68	4.89	18.79	.79
Birmingham, AL	71.93	85.03	-13.10	-.18
Braintree, MA	28.91	6.30	22.61	.78
Cambridge, MA	85.74	17.18	68.56	.80
Charlottesville, VA	11.44	2.45	8.99	.79
Chester C., PA	25.86	10.02	15.84	.61
Cincinnati, OH	261.26	240.08	21.18	.08
Concord, MA	16.11	3.04	13.07	.81
Danbury, CT	15.21	4.10	11.11	.73
Dauphin C., PA	24.08	10.09	13.99	.58
De Kalb C., GA	66.10	41.41	24.69	.37
Dearborn, MI	34.23	16.67	17.56	.51
Denver, CO	168.88	53.22	115.36	.68
Denver, CO Water UT	14.29	1.66	12.63	.88
East Hartford, CT	11.34	18.13	-6.79	-.60
El Paso, TX	55.53	23.01	32.52	.59
Erie C., PA	21.28	9.78	11.50	.54
Essex C., MA	84.01	16.49	67.52	.80
Everett, MA	31.16	7.23	23.93	.77
Falmouth, MA	14.73	2.33	12.40	.84
Fitchburg, MA	32.31	6.29	26.02	.81
Fort Pierce, FL	13.45	8.61	4.84	.36
Fresno, CA	71.15	46.92	24.23	.34
Fulton C., GA (School)	77.99	29.87	48.12	.62
Gavelston, TX	5.27	4.79	.48	.09
Grand Rapids, MI	31.97	23.93	8.04	.25
Hampden C., MA	73.80	14.89	58.91	.80
Hamden, CT	15.08	5.62	9.46	.63
Haverhill, MA	66.51	8.67	57.84	.87
Hollywood, FL	9.73	15.39	-5.66	-.58
Jackson C., MI	11.75	11.42	.33	.03
Jefferson C., AL	49.04	34.70	14.34	.29
Jersey City, NJ	30.03	9.75	20.28	.68
Kent C., MI	30.12	20.44	9.68	.32
Knoxville, TN	47.32	38.38	8.94	.19
Lancaster C., PA ³	20.17	6.76	13.41	.66
Lansing, MI	37.99	16.34	21.65	.57
Lansing, MI (W+L)	33.74	22.69	11.05	.33
Lawrence, MA	52.94	10.41	42.53	.80
Lehigh C., PA ⁴	42.06	15.28	26.78	.64
Lexington, MA	17.99	4.19	13.80	.77
Lynn, MA	68.03	16.90	51.13	.75
Medford, MA	38.72	9.07	29.65	.77
Methuen, MA	19.05	3.58	15.47	.81
Miami, FL	100.15	44.62	55.53	.55
Middlesex C., MA	227.92	43.25	184.67	.81
Milford, CT	30.51	16.51	14.00	.46
Milwaukee C., WI	289.04	158.85	130.19	.45
Minneapolis, MN (School)	113.26	125.91	-12.65	-.11
Natick, MA	20.66	5.01	15.65	.76
New Castle C., DE	27.99	13.08	14.91	.53
Newport News, VA	163.33	37.09	126.24	.77
Newton, MA	78.14	37.35	40.79	.52
Northumberland C., PA	13.05	4.26	8.79	.67
Norwalk, CT	18.92	5.33	13.59	.72
Oklahoma C., OK	19.18	7.25	11.93	.62
Omaha, NE	26.02	18.79	7.23	.28
Pensacola, FL	19.75	8.85	10.90	.55
Pittsfield, MA	41.38	9.91	31.47	.76
Plymouth, MA	19.26	3.67	15.59	.81
Portsmouth, VA	13.82	14.15	-.33	-.02
Providence, RI	135.99	71.56	64.43	.47
Quincy, MA	99.36	21.10	78.26	.79
Roanoke, VA	44.19	32.75	11.44	.26
Sacramento, CA	106.66	97.00	9.66	.09
Salt River Proj., AZ	92.07	41.50	50.57	.55
San Mateo C., CA	134.38	128.67	5.71	.04
Savannah, GA	25.38	9.28	16.10	.63
Shelby C., TN	87.69	67.72	19.97	.23
Sioux Falls, SD ⁴	18.34	7.57	10.77	.59
Sommerville, MA	58.37	12.01	46.36	.79
Spokane, WA	27.92	27.96	-.04	-.00
St. Clair C., MI	18.64	10.72	7.92	.42
Stratford Town, CT	19.46	5.72	13.74	.71
Tallahassee, FL	10.43	4.84	5.59	.54
Taunton, MA	37.04	6.54	30.50	.82
Tulsa, OK	21.08	12.04	9.04	.43
Wakefield, MA	19.71	3.95	15.76	.80
Warren, MI	13.31	16.26	-2.95	-.22
Wayne C., MI	351.08	284.61	66.47	.19
Wellesley, MA	21.71	6.26	15.45	.71
West Palm Beach, FL	15.07	11.23	3.84	.25
Westfield, MA	24.25	5.11	19.14	.79
Weymouth, MA	33.31	7.69	25.62	.77
Wichita, KS	52.70	28.47	24.23	.46
Worcester C., MA	174.31	23.38	150.93	.87
York C., PA	15.17	5.16	10.01	.66

Table 7.9.7 Continued

Selected Large Local Pension Fund's Projected Liabilities, 1978,
Assuming a 12% Interest Rate¹
(Amounts in Millions of Dollars)

Locality	Projected ² Liability	Assets	Unfunded Projected Liability	Fraction of Projected Liability Unfunded
Police and Fire Systems:				
Total P&F	1,014.24	340.35	673.89	.66
Ann Arundel C., MD P+F	39.50	20.30	19.20	.49
Atlanta, GA F	38.51	7.23	31.28	.81
Atlanta, GA P	47.10	7.26	39.84	.85
Birmingham, AL P+F	47.47	7.52	39.95	.84
Denver, CO F	82.30	14.16	68.14	.83
Denver, CO P	81.76	.16	81.60	1.00
El Paso, TX P+F	36.06	12.64	23.42	.65
Fresno, CA P+F	87.18	30.85	56.33	.65
Grand Rapids, MI P+F	41.39	30.40	10.99	.27
Lansing, MI P+F	39.16	29.39	9.77	.25
Lexington, KY P++	37.81	14.62	23.19	.61
Miami, FL P+F	117.29	72.19	45.10	.38
Mobile, AL P+F	38.93	5.60	33.33	.86
Omaha, NE P+F	57.16	18.58	38.58	.67
Springfield, MO P+F	19.59	6.58	13.01	.66
St. Paul, MN P	48.46	13.10	35.36	.73
Tulsa, OK F	50.00	13.19	36.81	.74
Tulsa, OK P	36.35	15.25	21.10	.58
Wichita, KS P+F	68.22	21.49	46.73	.68

Source: NBER CLLPS (1978)

1. The calculations of projected liabilities assume a real interest rate of 3 percent, a 9 percent inflation rate, economy-wide real wage growth of 2 percent, and experience-related wage growth of .7 percent. Assets are at book value.

2. Projected liabilities are net of future employee contributions. Under this procedure future employee contributions are viewed as assets of the system.

Table 7.9.8

Relationship of Projected Pension Liabilities of Selected Local Pension Funds to Net Long Term Debt of Localities, by Locality, 1978,
at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

Locality	Long-Term Local Debt ¹	8% Interest Rate		12% Interest Rate	
		Unfunded Projected Liability	Ratio of Unfunded Projected Liability to Sum of Local Debt and Unfunded Projected Liability	Unfunded Projected Liability	Ratio of Unfunded Projected Liability to Sum of Local Debt and Unfunded Projected Liability
General and Teacher Systems:					
Total General	6,387.99	4,012.50	.39	2,740.19	.30
Alameda C., CA	25.55	167.96	.87	116.40	.82
Allentown, PA	15.53	11.85	.43	9.08	.37
Atlanta, GA	587.91	294.06	.33	184.88	.24
Berks C., PA	2.84	16.56	.85	14.14	.83
Berkshire C., MA	27	39.98	.99	26.60	.99
Berrien C., MI	55.67	11.68	.17	8.39	.13
Beverly, MA	14.46	22.70	.61	18.79	.57
Birmingham, AL	299.41	-.25	NA	-13.10	NA
Braintree, MA	38.78	27.39	.41	22.61	.37
Cambridge, MA	69.49	83.25	.55	68.56	.50
Charlottesville, VA	15.70	8.99	.36	8.99	.36
Chester C., PA	5.25	18.57	.78	15.84	.75
Cincinnati, OH	243.37	117.80	.33	21.18	.08
Concord, MA	4.03	15.79	.80	13.07	.76
Danbury, CT	21.06	13.03	.38	11.11	.35
Dauphin C., PA	7.97	14.90	.65	13.99	.64
De Kalb C., GA	153.25	40.77	.23	24.69	.16
Dearborn, MI	24.09	24.41	.50	17.56	.42
Denver, CO	386.30	214.33	.35	115.36	.23
Denver, CO Water UT	356.30	14.32	.03	12.63	.03
East Hartford, CT	13.27	3.79	.22	-6.79	NA
El Paso, TX	62.44	43.85	.41	32.52	.34
Erie C., PA	11.85	13.44	.53	11.50	.49
Essex C., MA	12.12	81.54	.87	67.52	.85
Everett, MA	19.84	29.09	.59	23.93	.55
Falmouth, MA	9.93	14.91	.60	12.40	.56
Fitchburg, MA	13.32	31.36	.70	26.02	.66
Fort Pierce, FL	40.35	7.96	.16	4.84	.11
Fresno, CA	33.14	55.95	.63	24.23	.42
Fulton C., GA (School)	65.30	76.84	.54	48.12	.42
Gavelston, TX	30.81	3.01	.09	.48	.02
Grand Rapids, MI	37.24	16.06	.30	8.04	.18
Hampden C., MA	16.18	71.42	.82	58.91	.78
Hamden, CT	28.91	14.38	.33	9.46	.25
Haverhill, MA	16.95	68.99	.80	57.84	.77
Hollywood, FL	48.78	-3.76	NA	-5.66	NA
Jackson C., MI	34.76	3.16	.08	.33	.01
Jefferson C., AL	43.67	23.66	.35	14.34	.25
Jersey City, NJ	125.68	27.14	.18	20.28	.14
Kent C., MI	34.25	20.98	.38	9.68	.22
Knoxville, TN	274.75	33.14	.11	8.94	.03
Lancaster C., PA	19.12	15.74	.45	13.41	.41
Lansing, MI	60.18	29.16	.33	21.65	.26
Lansing, MI (W+L)	60.18	16.48	.21	11.05	.16
Lawrence, MA	11.16	51.26	.82	42.53	.79
Lehigh C., PA	26.83	31.41	.54	26.78	.50
Lexington, MA	7.42	16.86	.69	13.80	.65

Table 7.9 8 Continued

Relationship of Projected Pension Liabilities of Selected Local Pension Funds to Net Long Term Debt of Localities, by Locality, 1978, at 8% and 12% Interest Rates¹
(Amounts in Millions of Dollars)

Locality	Long-Term Local Debt ²	Unfunded Projected Liability	8% Interest Rate	Unfunded Projected Liability	12% Interest Rate
			Ratio of Unfunded Liability to Sum of Local Debt and Unfunded Projected Liability		Ratio of Unfunded Liability to Sum of Local Debt and Unfunded Projected Liability
General and Teacher Systems:					
Lynn, MA	27.15	62.40	.70	51.13	.65
Medford, MA	9.13	36.08	.80	29.65	.76
Methuen, MA	8.64	18.67	.68	15.47	.64
Miami, FL	119.52	66.96	.36	55.53	.32
Middlesex C., MA	34.18	223.63	.87	184.67	.84
Milford, CT	39.17	19.40	.33	14.00	.26
Milwaukee C., WI	141.11	218.28	.61	130.19	.48
Minneapolis, MN (School)	205.20	16.88	.08	-12.65	NA
Natick, MA	6.39	19.11	.75	15.65	.71
New Castle C., DE	94.48	20.06	.18	14.91	.14
Newport News, VA	96.74	133.13	.58	126.24	.57
Newton, MA	19.35	53.64	.73	40.79	.68
Northumberland C., PA	1.68	10.32	.86	8.79	.84
Norwalk, CT	50.84	23.63	.32	13.59	.21
Oklahoma C., OK	22.64	15.87	.41	11.93	.35
Omaha, NE	117.05	18.03	.13	7.23	.06
Pensacola, FL	50.11	14.67	.23	10.80	.18
Pittsfield, MA	29.11	38.36	.57	31.47	.52
Plymouth, MA	7.49	18.85	.72	15.59	.68
Portsmouth, VA	79.21	- .49	NA	- .33	NA
Providence, RI	39.91	90.23	.69	64.43	.62
Quincy, MA	23.66	94.98	.80	78.26	.77
Roanoke, VA	75.26	18.68	.20	11.44	.13
Sacramento, CA	101.53	15.23	.13	9.66	.09
Salt River Proj., AZ	NA	68.52	NA	50.57	1.00
San Mateo C., CA	.15	23.71	.99	5.71	.97
Savannah, GA	38.45	21.28	.36	16.10	.30
Shelby C., TN	64.20	47.64	.43	19.97	.24
Sioux Falls, SD	11.88	15.58	.57	10.77	.48
Somerville, MA	30.71	55.95	.65	46.36	.60
Spokane, WA	16.52	6.43	.28	6.04	NA
St. Clair C., MI	65.10	12.85	.16	7.92	.11
Stratford Town, CT	16.63	17.99	.52	13.74	.45
Tallahassee, FL	169.80	7.73	.04	5.59	.03
Taunton, MA	47.45	36.64	.44	30.50	.39
Tulsa, OK	242.54	27.73	.10	9.04	.04
Wakefield, MA	7.56	19.01	.72	15.76	.68
Warren, MI	33.61	- .18	NA	-2.95	NA
Wayne C., MI	324.34	131.58	.28	66.47	.17
Wellesley, MA	3.27	19.07	.85	15.45	.83
West Palm Beach, FL	24.21	9.39	.28	3.84	.14
Westfield, MA	18.75	23.22	.55	19.14	.51
Weymouth, MA	23.69	31.15	.57	25.62	.52
Wichita, KS	311.87	42.10	.12	24.23	.07
Worcester C., MA	8.02	180.85	.96	150.93	.95
York C., PA	4.03	11.75	.74	10.01	.71
Police and Fire Systems:					
Total P&F	4,497.14	951.77	.17	673.89	.13
Ann Arundel C., MD P+F					
Atlanta, GA F	587.91	44.09	.07	31.28	.05
Atlanta, GA P	587.91	55.77	.09	39.84	.06
Birmingham, AL P+F	299.41	49.78	.14	39.95	.12
Denver, CO F	396.30	97.35	.20	68.14	.15
Denver, CO P	396.30	112.82	.22	81.60	.17
El Paso, TX P+F	62.44	31.24	.33	23.42	.27
Fresno, CA P+F	33.14	94.14	.74	56.33	.63
Grand Rapids, MI P+F	37.24	18.73	.33	10.99	.23
Lansing, MI P+F	60.18	17.08	.22	9.77	.14
Lexington, KY P+F	60.18	31.07	.34	23.19	.28
Miami, FL P+F	117.52	67.19	.36	45.10	.28
Mobile, AL P+F	218.08	41.56	.16	33.33	.13
Omaha, NE P+F	117.05	47.82	.29	38.58	.25
Springfield, MO P+F	140.80	17.09	.11	13.01	.08
St. Paul, MN P	316.28	45.59	.13	35.36	.10
Tulsa, OK F	242.54	28.98	.16	36.81	.13
Tulsa, OK P	242.54	28.98	.11	21.10	.08
Wichita, KS P+F	311.87	68.71	.18	46.73	.13

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

2. The debt figures reported here are net long-term debt of the local government. These liabilities include both "full faith and credit" and "nonguaranteed" obligations.

Table 7.9.9
Large Local Projected Pension Liabilities per Resident, by Locality, 1978,
at 8% and 12% Interest Rates¹

Locality	8% Interest Rate		12% Interest Rate	
	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)
General and Teacher Systems:				
Total General	4,012.50	170.57	2,740.19	116.49
Alameda C., CA	167.96	151.04	116.40	106.75
Allentown, PA	11.85	111.14	9.08	85.16
Atlanta, GA	294.06	674.36	184.88	423.98
Berks C., PA	16.56	54.29	14.14	46.36
Berkshire C., MA	39.98	268.38	26.60	178.56
Berrien C., MI	11.68	68.48	8.39	49.19
Beverly, MA	22.70	610.54	18.79	505.38
Birmingham, AL	- .25	- .90	-13.10	-47.42
Braintree, MA	27.39	744.21	22.61	614.34
Cambridge, MA	83.25	812.83	68.56	669.40
Charlottesville, VA	8.99	215.82	8.99	215.82
Chester C., PA	18.57	63.43	15.84	54.10
Cincinnati, OH	117.80	285.53	21.18	51.34
Concord, MA	15.79	895.28	13.07	741.06
Danbury, CT	13.03	239.03	11.11	203.81
Dauphin C., PA	14.90	66.71	13.99	62.64
De Kalb C., GA	40.77	90.48	24.69	54.79
Dearborn, MI	24.41	246.60	17.56	177.40
Denver, CO	214.33	442.35	115.36	238.09
Denver, CO Water UT	14.32	29.55	12.63	26.07
East Hartford, CT	3.79	70.01	-6.79	-125.43
El Paso, TX	43.85	113.69	32.52	84.32
Erle C., PA	12.44	49.16	11.50	42.06
Essex C., MA	81.54	129.19	67.52	106.97
Everett, MA	29.09	736.96	23.93	606.24
Falmouth, MA	14.91	714.56	12.40	594.27
Fitchburg, MA	31.36	804.60	26.02	667.59
Fort Pierce, FL	7.96	227.03	4.84	138.05
Fresno, CA	55.95	316.95	24.23	137.26
Fulton C., GA (School)	76.84	132.35	48.12	82.88
Gavelston, TX	3.01	50.06	.48	7.98
Grand Rapids, MI	16.06	85.45	8.04	42.78
Hampden C., MA	71.42	153.99	58.91	127.01
Hamden, CT	14.38	286.64	9.46	188.57
Haverhill, MA	68.99	1,554.63	57.84	1,303.38
Hollywood, FL	-3.76	-31.60	-5.66	-47.56
Jackson C., MI	3.16	21.56	.33	2.25
Jefferson C., AL	23.66	36.70	14.34	22.24
Jersey City, NJ	27.14	111.34	20.28	83.20
Kent C., MI	20.98	49.53	9.68	22.85
Knoxville, TN	33.14	180.71	8.94	48.75
Lancaster C., PA	15.74	45.92	13.41	39.12
Lansing, MI	29.16	229.96	21.65	170.73
Lansing, MI (W+L)	16.48	129.96	11.05	87.14
Lawrence, MA	51.26	760.65	42.53	631.10
Lehigh C., PA	31.41	119.17	26.78	101.61
Lexington, MA	16.86	521.82	13.80	427.11
Lynn, MA	62.40	786.62	51.13	644.55
Medford, MA	36.08	593.72	29.65	487.91
Methuen, MA	18.67	527.01	15.47	436.68
Miami, FL	66.96	183.41	55.53	152.10
Middlesex C., MA	223.63	159.85	184.67	132.00
Milford, CT	19.40	390.31	14.00	281.67
Milwaukee C., WI	218.28	215.62	130.19	128.60
Minneapolis, MN (School)	16.88	44.64	-12.65	-33.46
Natick, MA	19.11	617.43	15.65	505.64
New Castle C., DE	20.06	50.23	14.91	37.34
Newport News, VA	133.13	959.43	126.24	909.77
Newton, MA	53.64	605.70	40.79	460.60
Northumberland C., PA	10.32	102.72	8.79	87.49
Norwalk, CT	23.63	308.13	13.59	177.21
Okiahoma C., OK	15.87	29.50	11.93	22.18
Omaha, NE	18.03	48.54	7.23	19.46
Pensacola, FL	14.67	228.62	10.90	169.87
Pittsfield, MA	38.36	698.81	31.47	573.30
Plymouth, MA	18.85	684.68	15.59	566.27
Portsmouth, VA	- .49	-1.51	- .33	-3.04
Providence, RI	90.23	537.97	64.43	384.14
Quincy, MA	94.98	1,038.10	78.26	855.36
Roanoke, VA	18.68	185.71	11.44	113.73
Sacramento, CA	15.23	58.39	9.66	37.04
Salt River Proj., AZ	68.52	N/A	50.57	N/A
San Mateo C., CA	23.71	40.81	5.71	9.83
Savannah, GA	21.28	192.84	16.10	145.90
Shelby C., TN	47.64	64.66	19.97	27.11
Sioux Falls, SD	15.58	210.75	10.77	145.69
Sommerville, MA	55.95	692.47	46.36	573.78
Spokane, WA	6.43	37.02	- .04	- .23
St. Clair C., MI	12.85	98.28	7.92	60.57
Stratford Town, CT	17.99	355.14	13.74	271.24
Tallahassee, FL	7.73	92.33	5.59	66.77
Taunton, MA	36.64	873.73	30.50	727.32
Tulsa, OK	27.73	83.59	9.04	27.25
Wakefield, MA	19.01	731.97	15.76	606.83
Warren, MI	- .18	-1.04	-2.95	-17.08
Wayne C., MI	131.58	52.26	66.47	26.40
Wellesley, MA	19.07	706.82	15.45	572.65
West Palm Beach, FL	9.39	152.75	3.84	62.47
Westfield, MA	23.22	679.50	19.14	560.11
Weymouth, MA	31.15	548.27	25.62	450.94
Wichita, KS	42.10	158.93	24.23	91.47
Worcester C., MA	180.85	279.05	150.93	232.88
York C., PA	11.75	41.14	10.01	35.05

Table 7.9.9 Continued
 Large Local Projected Pension Liabilities per Resident, by Locality, 1978,
 at 8% and 12% Interest Rates¹

Locality	8% Interest Rate		12% Interest Rate	
	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)	Unfunded Projected Liability (Millions of Dollars)	Unfunded Projected Liability Per Resident (Dollars)
Police and Fire Systems:				
Total P&F	951.77	164.18	673.89	116.25
Ann Arundel C., MD P+F	35.83	104.14	19.20	55.80
Atlanta, GA F	44.09	101.11	31.28	71.73
Atlanta, GA P	55.77	127.90	39.84	91.36
Birmingham, AL P+F	49.78	180.18	39.95	144.60
Denver, CO F	97.35	200.92	68.14	140.63
Denver, CO P	112.82	232.84	81.60	168.41
El Paso, TX P+F	31.24	81.00	23.42	60.72
Fresno, CA P+F	94.14	533.29	56.33	319.10
Grand Rapids, MI P+F	18.73	99.66	10.99	58.47
Lansing, MI P+F	17.08	134.70	9.77	77.05
Lexington, KY P+F	31.07	167.00	23.19	124.65
Miami, FL P+F	67.19	184.04	45.10	123.53
Mobile, AL P+F	41.56	211.56	33.33	169.67
Omaha, NE P+F	47.82	128.74	38.58	103.86
Springfield, MO P+F	17.09	129.91	13.01	98.89
St. Paul, MN P	45.59	163.09	35.36	126.50
Tulsa, OK F	46.93	141.47	36.81	110.97
Tulsa, OK P	28.98	87.36	21.10	63.61
Wichita, KS P+F	68.71	259.38	46.73	176.41

Source: NBER CLLPS (1978)

1. These calculations assume a 3 percent real interest rate. The nominal (8 percent or 12 percent) interest rates differ from the 3 percent real rates by the assumed rate of inflation, either 5 percent or 9 percent.

7.10 Financial Status of Small Local Pension Funds

The financial condition of local pension plans with fewer than 500 members is analyzed in this section using data provided by SRI International and Milliman and Robertson of San Francisco from their 1979 Survey of Small Public Pension Systems. The data set consists of 148 plans with 16,180 members. In 1979 there were an estimated 404,500 members of small local plans throughout the United States. The liability estimates presented here are for only those plans included in the 148-plan sample; i.e. they are not adjusted to produce estimates of national aggregates.

Section 7.7 discusses concepts of accrued and projected liabilities; estimates of these liabilities for the 148 small plans are presented in tables 7.10.1 through 7.10.8. The computation procedures used by Dr. Frank S. Arnold to compute these estimates are identical to those described in section 7.7 for state-administered and large local plans. For the 148 small plans, total 1979 accrued liabilities, calculated assuming an 8 percent interest rate, equal \$421.5 million, or \$26,058 per member (table 7.10.1). The 1979 assets of these plans equal \$199.1 million, or \$12,305 per member, leaving a quite large unfunded total accrued liability of \$13,753 per member. The corresponding unfunded total accrued liability per member assuming a 12 percent interest rate is \$6,949 (table 7.10.2).

There is considerable variation across these 148 plans in the degree of financial solvency. Although these plans as a group have estimated unfunded vested accrued liabilities (using an 8 percent interest rate) of \$129 million, weighted by plan membership, the assets of the plans represent, on average, 106 percent of the vested (8 percent interest) accrued liabilities. Quite small plans, those with 1 to 24 members, have, on average, assets equal to 1.69 times vested accrued liabilities. On average, plans with fewer than 200 members and plans with 400 to 499 members are overfunded with respect to vested accrued liabilities.

Tables 7.10.2 and 7.10.4 present the 8 and 12 percent interest rate estimates of accrued liabilities classified by size of pension fund assets. There is no particularly strong correlation between the degree of pension funding and the amount of assets of small local pension plans.

The financial position of small local pension funds, like that of other public pension systems, is considerably less attractive from the perspective of projected liabilities. In contrast to the (8 percent interest) unfunded total accrued liability of \$422 million, the (8 percent interest) unfunded projected liability is \$622 million. For total accrued liabilities the

membership-weighted average ratio of unfunded to total (8 percent interest) pension debt is $-.06$; it is $.71$ for projected liabilities. There is no strong correlation of this latter ratio with either plan membership or the level of pension fund assets (table 7.10.5 and 7.10.6). Comparable figures based on a 12 percent interest rate assumption appear in tables 7.10.7 and 7.10.8. An increase in the assumed interest rate from 8 to 12 percent lowers estimated unfunded projected liabilities from \$622 million to \$497 million.

Table 7.10.1
Accrued Liabilities of Small Local Pension Funds by Plan Membership, 1979.
Assuming an 8% Interest Rate
(Thousands of Dollars)

Plan Membership	Total Members	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability	Mean Fraction of Vested Accrued Liability Unfunded ¹
1-24	518	11,140	8,540	5,882	5,258	2,658	-1.69
25-49	721	14,030	9,380	8,903	5,127	477	-.36
50-99	1,905	31,840	22,240	18,832	13,008	3,408	-.42
100-199	4,026	83,860	61,610	58,805	25,055	2,805	-.31
200-299	3,768	91,950	69,220	40,026	51,924	29,194	.22
300-399	3,428	143,700	115,540	30,166	113,534	85,374	.47
400-499	1,814	44,980	41,160	36,480	8,500	4,680	-.11
Total	16,180	421,500	327,690	199,094	222,406	128,596	-.06

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.2
Accrued Liabilities of Small Local Pension Funds by Asset Size, 1979.
Assuming an 8% Interest Rate
(Thousands of Dollars)

Level of Assets	Total Members	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability	Mean Fraction of Vested Accrued Liability Unfunded ¹
No Assets	234	6,400	4,660	0	6,400	4,660	1.00
0-99	1,286	39,220	37,090	1,701	37,519	35,389	.28
100-499	3,028	27,340	19,660	11,230	16,110	8,430	-.20
500-999	1,801	38,800	26,760	15,876	22,924	10,884	-.02
1,000-4,999	7,442	201,570	147,000	95,069	106,501	51,931	-.15
5,000-9,999	1,306	58,680	46,650	34,199	24,481	12,451	.11
10,000 +	1,083	49,490	46,170	41,019	8,471	5,151	.10
Total	16,180	421,500	327,690	199,094	222,406	128,596	-.06

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.3

Accrued Liabilities of Small Local Pension Funds by Plan Membership, 1979,
Assuming a 12% Interest Rate
(Thousands of Dollars)

Plan Membership	Total Members	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability	Mean Fraction of Vested Accrued Liability Unfunded ¹
1-24	518	8,560	7,280	5,882	2,678	1,398	-2.27
25-49	721	9,520	6,910	8,903	617	-1,993	-.94
50-99	1,905	24,240	18,460	18,832	5,408	-372	-1.11
100-199	4,026	62,080	49,210	58,805	3,275	-9,595	-.88
200-299	3,768	65,590	53,870	40,026	25,564	13,844	-.09
300-399	3,428	111,140	93,260	30,166	80,974	63,094	.26
400-499	1,814	30,400	28,520	36,480	-6,080	-7,960	-.59
Total	16,180	311,530	257,510	199,094	112,436	58,416	-.53

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.4

Accrued Liabilities of Small Local Pension Funds by Asset Size, 1979,
Assuming a 12% Interest Rate
(Thousands of Dollars)

Level of Assets	Total Members	Total Accrued Liability	Vested Accrued Liability	Assets	Unfunded Total Accrued Liability	Unfunded Vested Accrued Liability	Mean Fraction of Vested Accrued Liability Unfunded ¹
No Assets	234	5,700	4,530	0	5,700	4,530	1.00
0-99	1,286	26,580	25,480	1,701	24,879	23,779	-.20
100-499	3,028	21,110	16,210	11,231	9,879	4,979	-.82
500-999	1,801	29,080	21,930	15,876	13,204	6,054	-.43
1,000-4,999	7,442	151,880	120,560	95,069	56,811	25,491	-.63
5,000-9,999	1,306	44,530	37,690	34,199	10,331	3,491	-.17
10,000 +	1,083	32,650	31,110	41,019	-8,369	-9,909	-.33
Total	16,180	311,530	257,510	199,094	112,436	58,416	-.53

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.5

Projected Liabilities of Small Local Pension Funds by Plan Membership, 1979.
Assuming an 8% Interest Rate
(Thousands of Dollars)

Plan Membership	Total Members	Projected Liability	Assets	Unfunded Projected Liability	Mean Fraction of Projected Liability Unfunded ¹
1-24	518	23,520	5,882	17,638	.61
25-49	721	34,330	8,903	25,427	.61
50-99	1,905	70,690	18,832	51,858	.62
100-199	4,026	179,060	58,805	120,255	.60
200-299	3,768	189,320	40,026	149,294	.70
300-399	3,428	225,940	30,166	195,774	.79
400-499	1,814	119,840	36,480	83,360	.67
Total	16,180	821,532	199,094	622,438	.71

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.6

Projected Liabilities of Small Local Pension Funds by Assets Size, 1979.
Assuming an 8% Interest Rate
(Thousands of Dollars)

Level of Assets	Total Members	Projected Liability	Assets	Unfunded Projected Liability	Mean Fraction of Projected Liability Unfunded ¹
No Assets	234	11,070	0	11,070	.00
0-99	1,286	47,910	1,701	46,209	.89
100-499	3,028	73,030	11,231	61,799	.69
500-999	1,801	81,580	15,876	65,704	.67
1,000-4,999	7,442	397,950	95,069	302,881	.65
5,000-9,999	1,306	97,710	34,199	63,511	.61
10,000 +	1,083	130,450	41,019	89,431	.69
Total	16,180	842,700	199,094	643,606	.71

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.7

Projected Liabilities of Small Local Pension Funds by Plan Membership, 1979,
Assuming a 12% Interest Rate
(Thousands of Dollars)

Plan Membership	Total Members	Projected Liability	Assets	Unfunded Projected Liability	Mean Fraction of Projected Liability Unfunded ¹
1-24	518	19,480	5,882	13,598	.49
25-49	721	27,250	8,903	18,347	.51
50-99	1,905	59,340	18,832	40,508	.49
100-199	4,026	150,240	58,805	91,435	.48
200-299	3,768	155,480	40,026	115,454	.64
300-399	3,428	191,320	30,166	161,154	.74
400-499	1,814	93,040	36,480	56,560	.56
Total	16,180	696,150	199,094	497,056	.58

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

Table 7.10.8

Projected Liabilities of Small Local Pension Funds by Assets Size, 1979,
Assuming a 12% Interest Rate
(Thousands of Dollars)

Level of Assets	Total Members	Projected Liability	Assets	Unfunded Projected Liability	Mean Fraction of Projected Liability Unfunded ¹
No Assets	234	13,670	0	13,670	1.00
0-99	1,286	34,730	1,701	33,029	.86
100-499	3,028	61,100	11,231	49,869	.56
500-999	1,801	67,460	15,876	51,584	.56
1,000-4,999	7,442	335,800	95,069	240,731	.55
5,000-9,999	1,306	82,960	34,199	48,761	.50
10,000 +	1,083	100,440	41,019	59,421	.60
Total	16,180	696,160	199,094	497,066	.58

Source: SRI International and Milliman and Robertson, 1979 Survey of Small Public Pension Systems

1. Means are weighted by plan membership. Plan members include inactive retirees.

7.11 Return Performance of Public Pension Funds

A. G. Becker, Inc., generously provided this section's data detailing the return performance of public pension funds. Section 5.8 presents similar information for private pension funds and provides a useful reference in considering tables 7.11.1 through 7.11.6. Section 5.8 also discusses the nature of these data pointing out that a single pension fund "portfolio" in this context does not necessarily include all the pension fund's assets; these A. G. Becker data may include several portfolios from the same pension fund as well as portfolios from different pension funds.

Annual median rates of return of public pension funds for equity and fixed income investments (table 7.11.3) are quite similar to those reported for private pension portfolios (tables 5.8.1 and 5.8.2) for the years 1971 through 1980. Median returns of public pension equity portfolios range from 34.4 percent in 1975 to -29.5 percent in 1974. A. G. Becker reports median private sector equity portfolio returns of 33.10 and -31.60 percent, respectively in these 2 years. The range of variation in annual median returns of fixed income portfolios is much smaller. Table 7.11.5 shows a high median return of 18.1 percent in 1976 and a low return of -4.9 percent in 1974.

In contrast to the separate median values of equity and fixed income portfolios, the median values of all public pension portfolios taken together differ significantly from the median values of all private portfolios surveyed by either A. G. Becker, Inc., or Hewitt Associates. A comparison of table 7.11.1 with table 5.8.3 suggests that a greater fraction of public portfolios are invested in fixed income securities. Tables 7.5.2, 7.5.3, and 5.5.4 provide some supporting evidence. Over 67.75 percent of state and large local pension assets were invested in fixed income securities in 1971. The 1971 share of these assets in private noninsured pension funds was only 24.05 percent. In 1980 these figures were 62.64 and 32.17 percent, respectively.

The range of annual rates of return across public equity portfolios is sizable throughout the 10-year period (table 7.11.3). In 1980 the equity return at the fifth highest percentile in the return distribution was 42.9 percent. At the highest ninety-fifth percentile the return was less than half as large, 18.8 percent. The range of annual returns between the fifth and ninety-fifth percentiles is smaller for fixed income portfolios. The largest spread indicated in table 7.11.5 occurs in 1974. In that year the fifth highest percentile return was 1.3 percent; the ninety-fifth highest percentile return was -11.7 percent. The distributions of public equity and fixed income portfolios reported in tables 7.11.3 and 7.11.5 are roughly similar to distributions of private equity and fixed income portfolios surveyed by A. G. Becker, Inc. (table 5.8.3).

Table 7.11.4 shows the distribution of annualized cumulative rates of return for equity portfolios for various time intervals, all of which end in 1980. Between 1971 and 1980 the annualized cumulative return of public equity portfolios at the highest fifth percentile in the return distribution was 9.0 percent. The ninety-fifth percentile return was 3.6 percent. Hence, over this period, there are some public portfolios that have consistently outperformed other portfolios by a margin as great as 2.5 to 1. In the case of annualized cumulative returns of public fixed income portfolios the fifth highest percentile return is 7.7 percent while the ninety-fifth highest percentile return is 3.7 percent.

Table 7.11.1
Distribution of Annual Rates of Return of Public Pension Portfolios,
A.G. Becker Inc. Survey, 1971-1980

	Rates of Return at Designated Percentiles									
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
5th Percentile	20.3	19.7	2.3	0.0	32.2	24.8	5.8	7.8	15.0	26.5
25th Percentile	14.9	14.1	-1.8	-7.3	22.6	19.8	2.9	4.7	11.2	18.0
Median	13.3	11.3	-8.5	-11.0	17.5	18.4	0.8	3.4	7.5	12.1
75th Percentile	11.7	8.6	-13.5	-19.5	13.9	16.0	-2.2	2.4	4.2	6.8
95th Percentile	8.8	5.5	-22.5	-27.1	8.5	9.3	-6.1	-0.1	2.0	0.7
Number of Public Pension Portfolios Surveyed by A.G. Becker Inc.	NA	NA	NA	NA	NA	NA	NA	NA	NA	300
Total Market Value of Public Pension Portfolios Surveyed by A.G. Becker, Inc. (In Billions)	NA	NA	NA	NA	NA	NA	NA	NA	NA	\$44.5
S&P Annual Rate of Return on Equity	14.34	19.02	-14.71	-26.51	37.31	23.99	-7.19	6.39	18.65	32.39
Dow Jones Annual Rate of Return on Equity	9.90	18.54	-13.32	-23.77	44.99	22.97	-12.89	2.80	10.71	22.18
Kuhn Loeb Annual Rate of Return on Bonds	NA	NA	1.50	-5.85	16.72	19.35	3.14	0.33	-2.13	-0.28
Salomon Brothers Annual Rate of Return on Bonds	11.03	7.26	1.14	-3.04	14.63	18.65	1.70	-0.09	-4.18	-2.61

Source: A.G. Becker Inc.
NA - Not Available

Table 7.11.2
Distribution of Annualized Cumulative Rates of Return of Public Pension Portfolios,
A.G. Becker Inc. Survey, 1971-1980

	Annualized Rates of Return at Designated Percentiles									
	1971-1980	1972-1980	1973-1980	1974-1980	1975-1980	1976-1980	1977-1980	1978-1980	1979-1980	1980
5th Percentile	8.1	7.6	7.2	9.0	13.2	12.6	10.3	15.5	20.8	26.5
25th Percentile	6.6	5.7	4.9	7.1	11.2	9.2	8.0	11.2	14.6	18.0
Median	5.8	4.9	4.2	6.0	9.4	8.0	5.5	7.2	9.5	12.1
75th Percentile	5.3	3.9	2.9	5.3	8.2	6.7	4.1	4.3	4.8	6.8
95th Percentile	3.6	2.3	1.1	3.8	6.6	4.8	1.6	0.6	0.2	0.7
S&P Annual Rate of Return on Equity	8.46	7.82	6.50	9.93	17.57	13.97	11.60	18.67	25.33	32.39
Dow Jones Annual Rate of Return on Equity	6.40	6.02	4.55	7.38	13.69	8.30	4.91	11.62	16.30	22.18
Kuhn Loeb Annual Rate of Return on Bonds	NA	NA	3.77	4.09	5.85	3.80	0.24	-0.70	-1.22	-0.29
Salomon Brothers Annual Rate of Return on Bonds	4.18	3.44	2.98	3.24	4.33	2.38	-1.32	-2.31	-3.40	-2.61

Source: A.G. Becker Inc.
NA - Not Available

Table 7.11.3
Distribution of Annual Rates of Return of Equity Portfolios of Public Pension Funds,
A.G. Becker Inc. Survey, 1971-1980

	Rates of Return at Designated Percentiles									
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
5th Percentile	29.0	24.7	-13.0	-20.1	45.9	28.9	0.8	13.5	32.0	42.9
25th Percentile	21.1	20.2	-17.8	-25.8	38.8	24.3	-5.0	9.0	22.1	37.3
Median	17.7	16.5	-20.7	-29.5	34.4	20.4	-7.4	6.5	19.3	31.6
75th Percentile	14.2	11.8	-25.1	-33.0	31.0	16.6	-9.9	4.2	14.5	26.7
95th Percentile	11.4	5.3	-28.6	-38.6	24.4	14.0	-13.1	0.2	10.3	18.8
S&P Annual Rate of Return on Equity	14.34	19.02	-14.71	-26.51	37.31	23.99	-7.19	6.39	18.65	32.39
Dow Jones Annual Rate of Return on Equity	9.90	18.54	-13.32	-23.77	44.99	22.97	-12.89	2.80	10.71	22.18

Source: A.G. Becker Inc.

Table 7.11.4

Distribution of Annualized Cumulative Rates of Return of Equity Portfolios of Public Pension Funds,
A.G. Becker Inc. Survey, 1971-1980

	Annualized Rates of Return at Designated Percentiles									
	1971-1980	1972-1980	1973-1980	1974-1980	1975-1980	1976-1980	1977-1980	1978-1980	1979-1980	1980
5th Percentile	9.0	9.1	8.8	12.8	20.9	16.9	15.3	22.9	31.6	42.9
25th Percentile	8.4	7.3	6.1	10.1	17.8	14.5	12.7	21.2	29.2	37.3
Median	7.3	6.4	4.6	8.1	16.3	13.2	12.1	18.5	25.4	31.6
75th Percentile	5.8	4.3	2.9	6.8	14.2	10.8	9.2	16.1	20.5	26.7
95th Percentile	3.6	1.9	0.3	4.4	11.1	8.2	5.5	10.9	15.0	18.8
S&P Annual Rate of Return on Equity	8.46	7.82	6.50	9.93	17.57	13.97	11.60	18.67	25.33	32.39
Dow Jones Annual Rate of Return on Equity	6.40	6.02	4.55	7.38	13.69	8.30	4.91	11.62	16.30	22.18

Source: A.G. Becker Inc.

Table 7.11.5

Distribution of Annual Rates of Return of Bond Portfolios of Public Pension Funds,
A.G. Becker Inc. Survey, 1971-1980

	Rates of Return at Designated Percentiles									
	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
5th Percentile	17.7	13.4	5.4	1.3	15.5	21.4	7.4	3.3	4.1	4.1
25th Percentile	13.7	9.0	3.4	-1.7	13.5	19.3	4.9	0.9	1.5	1.1
Median	11.7	8.4	2.4	-4.9	12.4	18.1	4.1	0.4	-0.6	-0.4
75th Percentile	10.8	7.5	1.4	-7.0	11.0	16.3	3.1	-0.6	-2.2	-1.8
95th Percentile	8.5	5.9	0.0	-11.7	7.7	14.0	1.4	-2.1	-3.9	-3.8
Kuhn Loeb Annual Rate of Return on Bonds	NA	NA	1.50	-5.85	16.72	19.35	3.14	0.33	-2.13	-0.29
Salomon Brothers Annual Rate of Return on Bonds	11.03	7.26	1.14	-3.04	14.63	18.65	1.70	-0.09	-4.18	-2.61

Source: A.G. Becker Inc.

Table 7.11.6

Distribution of Annualized Cumulative Rates of Return of Bond Portfolios of Public Pension Funds,
A.G. Becker Inc. Survey, 1971-1980

	Annualized Rates of Return at Designated Percentiles									
	1971-1980	1972-1980	1973-1980	1974-1980	1975-1980	1976-1980	1977-1980	1978-1980	1979-1980	1980
5th Percentile	7.7	6.6	5.9	6.0	8.2	6.3	3.4	2.8	3.1	4.1
25th Percentile	5.5	4.7	4.2	4.5	6.2	5.3	2.1	0.9	1.0	1.1
Median	5.1	4.3	3.8	3.9	5.4	4.2	1.0	-0.3	-0.7	-0.4
75th Percentile	4.4	3.7	2.9	3.1	5.0	3.4	0.2	-0.9	-1.6	-1.8
95th Percentile	3.7	3.1	2.2	2.4	4.1	2.9	-0.4	-1.9	-2.7	-3.8
Kuhn Loeb Annual Rate of Return on Bonds	NA	NA	3.77	4.09	5.85	3.80	0.24	-0.70	-1.22	-0.29
Salomon Brothers Annual Rate of Return on Bonds	4.18	3.44	2.98	3.24	4.33	2.38	-1.32	-2.31	-3.40	-2.61

Source: A.G. Becker Inc.
NA - Not Available