

STATE OF WISCONSIN

RETIREMENT RESEARCH COMMITTEE

STAFF REPORT NO. 81

1994 COMPARATIVE STUDY OF
MAJOR PUBLIC EMPLOYEE RETIREMENT SYSTEMS

Prepared by RRC Staff
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STATE OF WISCONSIN

8/15/94

RETIREMENT RESEARCH COMMITTEE

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RETIREMENT RESEARCH COMMITTEE
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1994 COMPARATIVE STUDY OF
MAJOR PUBLIC EMPLOYEE RETIREMENT SYSTEMS

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I. SURVEY OF STATEWIDE PERS**A. Pension System Descriptions**

Survey. Every two years since 1982, the Wisconsin Retirement Research Committee (RRC) has compared major statewide public employee retirement systems (PERS) across the country with public pension plans in Wisconsin. These surveys have emphasized retirement programs for general employees and teachers. The Wisconsin plans included in the studies are the statewide WRS and two other plans administered under homerule -- the Milwaukee City ERS and the Milwaukee County ERS.

The 1994 comparative study includes 85 public pension plans, which are the same systems that are found in previous studies since 1982. Although this study does not include all major public pension plans, it does include one or more statewide PERS from each state. Also, because the same pension plans are always included, the biennial studies may reflect trends in the public pension sector as they occur over time.

Data. The Wisconsin RRC files on major PERS across the country include annual reports, employee handbooks, statutes, actuarial reports, etc. For most of the PERS in the 1994 study, information is current through 1993. Data in this report may also reflect other sources of information published by the Public Pension Coordinating Council, the National Conference of State Legislatures, the American Association of Retired Persons, etc.

Coverage. The types of employees covered by the PERS in this study are designated on Chart I found on pages 3 and 4 of this report as "S"-state; "L"-local; and "T"-teachers. The 85 PERS surveyed reflect the following:

<u>Employee Coverage</u>	<u>Fund</u>	<u>Employee Coverage</u>	<u>Fund</u>
State Employees Only	11 funds	State and Local	16 funds
Teachers Only	27 funds	State and Teacher	3 funds
Local employees Only	8 funds	State, Local & Tchr.	20 funds

Participation. The 85 PERS in the 1994 study provide pension coverage for 9.8 million active employees and 3.5 million retirees, for a total of 13.3+ million participants. This total is 5% greater than the 12.6 million active and retired participants noted in the 1992 study. The active participants have grown between the 1992 and the 1994 studies by 3.9%, while the retirees have grown by 8.0% in the same time period.

Chart I also shows the ratio of actives to retirees for the 85 systems surveyed. For 76% of the systems, the ratio of actives to retired declined over the two-year period. The average ratio of all systems also declined from 2.95% in 1992 to 2.83 in 1994. Nine of the systems (including Milwaukee City and County) have an active to retiree ratio of less than two--50% higher than the number of plans in 1992.

Systems Size. The systems in the 1994 study range in size from Vermont's SRS with 7,368 actives to California's PERS with 618,000 active participants. The sizes of the systems are reflected in the following tables for the last three surveys.

<u>Active Employees</u>	<u>1990 Survey</u>	<u>1992 Survey</u>	<u>1994 Survey</u>
Less than 50,000	35 funds	30 funds	28 funds
50,000 - 100,000	19 funds	21 funds	23 funds
100,000 - 150,000	14 funds	17 funds	15 funds
150,000 - 200,000	6 funds	5 funds	7 funds
Over 200,000	11 funds	12 funds	12 funds

Social Security. Coverage under the federal OASDHI program was once elective for public employers, but it is now frozen for those employers who had elected such coverage. Of the 85 PERS included in the 1994 study, social security coverage is also provided for participants of 68 of the systems. Of the 17 systems which do not provide social security coverage, ten represent pension plans covering teachers only. The 17 PERS in this study without social security coverage include 2.3 million active employees, or 23% of the total actives in this survey.

Integration. "Integration" relates to the explicit recognition of social security coverage in the design of private and public pension plans. While integration is common in the private sector, it is unusual in public pension plans. Of the 68 PERS with social security in the RRC studies for 1990 and 1994, the degree and type of integration is as follows:

	<u>1990 Survey</u>	<u>1994 Survey</u>
No integration	56 funds	59 funds
Step-Up formula	6 funds	6 funds
Formula offset	4 funds	2 funds
Combined maximum	<u>2 funds</u>	<u>1 fund</u>
TOTALS	68 funds	68 funds

Step-up formulas reflect different multipliers or contribution rates applied to varying salary levels. Formula offsets provide in the benefit calculation for an offset recognizing part of the primary social security benefit. One plan provides a maximum on benefits including both the primary social security and pension plan benefit.

Trends. Chart I reflects a continued growth in the number of participants in the PERS surveyed by about 5% every two years. Nearly all plans had a growth in number of retirees, and 79% of the plans had a growth in active participants. However, the number of retirees is growing at a faster percentage than active employees, and this is reflected in declining ratios of active to retired participants.

Because social security has been frozen by federal law, there is no change in the social security coverage for the PERS in the RRC studies. Although there was no change in the "integration" of PERS between the 1992 and 1994 studies, the explicit recognition of social security in the design of PERS appears to be gradually declining over time.

CHART I
PUBLIC RETIREMENT SYSTEMS SURVEY

<u>State</u>	<u>Fund Name</u>	<u>Employee Coverage</u>	<u>Number Actives</u>	<u>Number Annuitants</u>	<u>Ratio of Act./Annt.</u>	<u>S.S. Cover.</u>	<u>S.S. Integrator</u>
1. Alab.	ERS	S,L	68,270+	18,686+	3.65	Yes	None
2. Alab.	TRS	T	116,680+	31,841+	3.66	Yes	None
3. Alas.	PERS*	S,L	30,972+	9,103+	3.40	No	-
4. Alas.	TRS*	T	9,457+	3,891+	2.43	No	-
5. Ariz.	SRS	S,L,T	144,477+	41,139+	3.51	Yes	None
6. Arka.	PERS	S,L	39,849+	12,889+	3.09	Yes	None
7. Arka.	TRS*	T	58,519+	12,202	4.80	Yes	None
8. Calif.	PERS*	S,L	618,000+	295,000+	2.09	Yes	Offset
9. Calif.	TRS	T	313,617+	136,987+	2.29	No	-
10. Colo.	PERA	S,L,T	136,898+	38,188+	3.58	No	-
11. Conn.	SERS*	S	53,537-	26,399+	2.03	Yes	Step-Up
12. Conn.	TRS	T	38,260-	16,588+	2.31	No	-
13. Dela.	SEPP	S,T	27,390+	12,914+	2.12	Yes	Maximum
14. Flor.	FRS	S,L,T	552,562+	126,307+	4.37	Yes	None
15. Geor.	ERS	S	67,873+	17,516+	3.87	Yes	None
16. Geor.	TRS	T	156,243+	32,846+	4.76	Yes	None
17. Hawaii	ERS*	S,L,T	57,467+	22,387+	2.57	Yes	None
18. Idaho	PERS	S,L,T	52,532+	18,283+	2.87	Yes	None
19. Ill.	SERS	S	77,146-	39,066+	1.97	Yes	None
20. Ill.	TRS	T	125,700+	49,555+	2.54	No	-
21. Ill.	MRF*	L	125,943+	54,306+	2.32	Yes	None
22. Ind.	PERF	S,L	136,034+	37,802+	3.60	Yes	None
23. Ind.	TRF	T	67,117-	27,759+	2.42	Yes	None
24. Iowa	PERS	S,L,T	136,409+	54,212+	2.52	Yes	None
25. Kans.	PERS	S,L,T	121,997+	41,388+	2.95	Yes	None
26. Kent.	ERS*	S,L	112,959+	31,478+	3.59	Yes	None
27. Kent.	TRS	T	52,842+	21,939+	2.41	No	-
28. Louis.	SERS	S	68,463+	25,287+	2.64	No	-
29. Louis.	TRS	T	85,143-	35,835+	2.38	No	-
30. Maine	SRS	S,L,T	42,019-	17,597-	2.39	No	-
31. Mary.	SRS*	S,L,T	162,296-	59,318+	2.74	Yes	None
32. Mass.	SERS	S	81,073-	43,860+	1.85	No	-
33. Mass.	TRS	T	62,992+	26,156+	2.41	No	-
34. Mich.	SERS	S	63,906-	29,175+	2.19	Yes	None
35. Mich.	MERS*	L	34,589+	12,001+	2.88	Yes	None
36. Mich.	PSERS	T	296,585+	93,574+	3.17	Yes	None
37. Minn.	MSRS*	S	48,830-	15,067+	3.24	Yes	None
38. Minn.	PERA*	L	122,449+	37,020+	3.31	Yes	None
39. Minn.	TRA*	T	65,268+	20,810+	3.14	Yes	None
40. Miss.	PERS	S,L,T	135,117+	37,887+	3.57	Yes	None
41. Mou.	SERS	S	47,954+	13,115+	3.66	Yes	None
42. Mou.	LAGERS*	L	20,580+	5,953+	3.46	Yes	None
43. Mou.	PSRS	T	58,493+	20,474+	2.86	No	-
44. Mont.	PERS	S,L	26,727-	11,028+	2.42	Yes	None
45. Mont.	TRS	T	17,211+	6,899+	2.49	Yes	None

(Coverage: S - State; L - Local; T - Teachers)

(Fund Name* = more than one plan or tier)

("+" or "-" = higher or lower than 1992 numbers)

CHART I
PUBLIC RETIREMENT SYSTEMS SURVEYED

<u>State</u>	<u>Fund Name</u>	<u>Employee Coverage</u>	<u>Number Actives</u>	<u>Number Annuitants</u>	<u>Ratio of Act./Annt.</u>	<u>S.S. Cover.</u>	<u>S.S. Integration</u>
46. Nebra.	SERS*	S,L	18,644+	4,201+	4.44	Yes	Step-Up
47. Nebra.	TRS	T, Sch.	31,622+	7,339+	4.31	Yes	None
48. Nevada	PERS*	S,L,T	59,496+	14,436+	4.12	No	-
49. N.H.	NHRS	S,L,T	37,886+	10,731+	3.53	Yes	Age Offset
50. N.J.	PERS*	S,L	251,406+	77,056+	3.26	Yes	Offset
51. N.J.	TRS*	T	108,534+	38,900+	2.79	Yes	Offset
52. N.M.	PERA*	S,L	39,275+	11,466+	3.43	Yes	None
53. N.M.	ERA	T	52,296+	15,001+	3.49	Yes	None
54. N.Y.	ERS*	S,L	510,277-	258,294+	1.98	Yes	None
55. N.Y.	TRS*	T	192,891-	79,268+	2.43	Yes	None
56. N.C.	TSERS	S,T	235,838+	74,623+	3.16	Yes	None
57. N.C.	LGERS	L	92,643-	19,075+	4.86	Yes	None
58. N.D.	PERS	S,L	14,851+	3,194+	4.65	Yes	None
59. N.D.	TRF	T	9,808+	4,317+	2.27	Yes	None
60. Ohio	PERS	S,L	349,674+	109,973+	3.18	No	-
61. Ohio	STRS	T	165,711+	74,230+	2.23	No	-
62. Okla.	PERS	S,L	45,622+	15,903+	2.87	Yes	None
63. Okla.	TRS	T	75,599+	27,003+	2.80	Yes	None
64. Oreg.	PERS	S,L,T	139,927+	59,593+	2.35	Yes	None
65. Penns.	SERS	S	111,962-	80,690+	1.39	Yes	None
66. Penns.	PSERS	T, Sch.	197,947-	113,212+	1.75	Yes	None
67. R.I.	ERS	S,T	26,170+	13,400+	1.95	Yes	None
68. S.C.	SCRS*	S,L,T	171,546+	45,955+	3.73	Yes	None
69. S.D.	SRS	S,L,T	32,512+	11,548+	2.81	Yes	None
70. Tenn.	CRS	S,L,T	166,443+	58,268+	2.86	Yes	Step-Up
71. Texas	ERS	S	145,506+	28,369+	5.13	Yes	None
72. Texas	TRS	T	575,088+	136,491	4.21	No	None
73. Texas	MRS*	L	72,161+	11,954+	6.04	Yes	None
74. Utah	SRS*	S,L,T	86,799+	21,083+	4.12	Yes	None
75. Verm.	SRS*	S	7,368-	2,762+	2.67	Yes	None
76. Verm.	TRS*	T	9,777+	2,799+	3.49	Yes	None
77. Virg.	SRS*	S,L,T	259,086+	71,200-	3.64	Yes	Step-Up
78. Wash.	PERS	S,L	171,947+	51,008+	3.37	Yes	None
79. Wash.	TRS	T	52,277+	23,584+	2.34	Yes	None
80. W.V.	PERS	S,L	30,767+	16,023+	1.92	Yes	None
81. W.V.	TRS*	T	45,560+	22,059-	2.07	Yes	-
82. Wyom.	WRS*	S,L,T	31,599-	10,193+	3.10	Yes	None
83. Milw.	City	L	13,708+	8,301+	1.65	Yes	None
84. Milw.	County*	L	7,864+	5,780+	1.36	Yes	None
85. Wis.	WRS	S,L,T	227,078+	83,836+	2.71	Yes	None
			<u>Actives</u>	<u>Annuitants</u>	<u>Ratio</u>		
1994 Totals: (85 Funds)=			9,816,610+	3,464,845+	2.83-		

II. NORMAL AND EARLY RETIREMENT PROVISIONS

A. Age and Service Requirements

Normal Retirement. Nearly all of the PERS in this study are defined benefit plans in which the benefits are calculated by a formula and payable when the normal retirement requirements have been met. Most PERS require a minimum age and/or years of service in order to qualify for normal retirement -- i.e., benefits payable without actuarial discount. Actually, most PERS in this study have adopted multiple combinations of age and service that qualify for full benefits without actuarial discount. These requirements are reflected in Chart II found on pages 7 and 8 of this report.

Social Security Normal. The normal retirement age under social security is 65, but this age is scheduled to increase to 66 and 67 over time. All of the PERS in the 1994 study allow normal retirement at 65 or earlier with some minimum years of service. The three Minnesota PERS are the only plans in this study which provide that normal retirement age shall keep pace with the social security normal retirement age as it gradually increases in the future to age 67 by 2027.

Age 62 Normal. Age 62 is the earliest age at which social security benefits are payable, but with a 20% actuarial discount reflecting the longer pay-out period. The 1994 survey reflects that 52 of the 85 systems permit normal retirement at 62 with 10 or less years of service. Actually, 76 of the PERS in this study permit normal retirement at age 62 or earlier, with long service, and only 9 systems are restricted to the age 65 normal retirement now found under social security. In fact, the most common normal retirement of the PERS in the 1994 study is age 60 with "N" years of service.

"X" Years and Out. Many public retirement systems have adopted "X years and out" provisions which allow participants to retire at any age (or a minimum age of 55) after "X" years of service. The most common provision is age 55 or earlier with 30 years of service. The number of plans with "X years and out" provisions has not changed substantially over the last four years, as noted in the following summary:

	<u>1990 Survey</u>	<u>1994 Survey</u>
35 years/55 or any age	8 plans	7 plans
30 years/55 or any age	35 plans	33 plans
28 years/55 or any age	2 plans	2 plans
27 years/55 or any age	1 plan	2 plans
25 years/55 or any age	9 plans	13 plans
20 years/55 or any age	<u>1 plan</u>	<u>1 plan</u>
TOTALS*	56 plans	58 plans

(*Some plans have more than one "X years and out" provision)

"Rule of Y". In addition to the "X years and out" provisions, some PERS in the study have adopted a "rule" which permits normal retirement when age plus years of service equals a specified number. The rule provisions have changed little over the last four years, as noted in the following summary.

	<u>1990 Survey</u>	<u>1994 Survey</u>
Rule of 92	1 plan	1 plan
Rule of 90	2 plans	3 plans
Rule of 88	0 plans	1 plan
Rule of 85	4 plans	3 plans
Rule of 80	2 plans	2 plans
Rule of 75	<u>1 plan</u>	<u>1 plan</u>
TOTAL	10 plans	11 plans

Early Retirement. Ninety percent of the PERS in the 1994 study permit retirement before the normal age and service requirements have been met, but subject to actuarial discount. The most common age for allowing early retirement is age 55 with some minimum service, followed by age 50. There has been little change in the last four comparative studies relative to early retirement. Eight systems do not provide early retirement presumably because their normal retirement is already at 55 or lower with long service.

Actuarial Discount. The actuarial discount applied for early retirement presumably compensates for some or all of the longer pay-out period. Some systems use a reduction table based upon age which reflects the "actuarial adjustment" that is required to compensate the system for the longer pay-out period. Most PERS, however, use a specified percent reduction for each year under normal.

The actuarial discount requirements have undergone little change over the last four years as noted in the following summary:

	<u>1990 Survey</u>	<u>1994 Survey</u>
- PERS using discount rates less than 3%	1 fund	0 funds
- PERS using discount rates of 3% to 5.9%	21 funds	23 funds
- PERS using discount rates of 6% or more	21 funds	18 funds
- PERS that vary discount rate on serv. or age	16 funds	13 funds
- PERS that use an actuarial discount table	14 funds	17 funds
- PERS that change formula multiplier by age	4 funds	4 funds
- PERS that are money purchase	1 fund	2 funds
- PERS that do not provide early retirement	7 funds	8 funds

Trends. The 1994 study indicates a stabilizing of the trend in the public sector to permit normal retirement at earlier ages -- particularly for career employees with long service. In the 1994 study, 4 funds reduced their normal retirement provisions and 2 funds increased their requirements. This is less change than the 17 plans which reduced requirements in the 1990 study.

Sixteen PERS in this study also initiated retirement incentive windows (W) of various designs and lengths during the two-year period. This presumably reflects efforts by state and local government to downsize their payrolls. The use of periodic windows may also reduce the pressure for permanent reductions in normal retirement requirements. Those entities that have studied the effectiveness of these windows report mixed results.

CHART II
NORMAL AND EARLY RETIREMENT REQUIREMENTS

<u>State</u>	<u>Fund Name</u>	<u>EE Coverage</u>	<u>Normal Retirement Provisions (Age/Yrs.)</u>	<u>Early Retirement Provisions</u>	<u>Actuarial Discount</u>	
1.	Alab.	ERS	S,L	60/10; A/30; A/25 Option	None	-
2.	Alab.	TRS	T	60/10; A/25	None	-
3.	Alas.	PERS	S,L	60/5; A/30	55/5	Act. Table
4.	Alas.	TRS	T	60/8; A/20	55/8	Act. Table
5.	Ariz.	SRS	S,L,T	65, 62/10; R-80	50/5	Act. Table
6.	Arkan.	PERS	S,L	65/10; A/30	55/10	6% @ year
7.	Arkan.	TRS	T	60/10; A/30	A/25	5% @ year
8.	Calif.	PERS	S,L	60/5	50/5	Multiplier Varies
9.	Calif.	TRS	T	60/5	55/5; 50/30	6%/3% @ year
10.	Colo.	PERA	S,L,T	65/5; 60/20; 55/30; A/35	60/5; 55/20	4% @ year
11.	Conn.	SERS	S	62/10; 60/25; 70/5	55/10	3% @ year
12.	Conn.	TRS	T	60/20; A/35	A/25; 55/20	6%/4% @ year
13.	Dela.	SEPP	S,T	62/5; 60/15; A/30	55/15; A/25	4.8% @ year
14.	Flor.	FRS	S,L,T	62/10; A/30	A/10	5% @ year
15.	Geor.	ERS	S	65/10; A/30	60/10	5% @ year
16.	Geor.	TRS	T	60/10; A/30	55/25	7% @ year
17.	Hawaii	ERS	S,L,T	62/10; 55/30	55/20	6% @ year
18.	Idaho	ERS	S,L,T	65/5; R-90	55/5	3%/6.5% @ year
19.	Ill.	SERS	S	60/8; A/35 (W)	55/30	6% @ year
20.	Ill.	TRS	T	62/5; 60/10; 55/35 (W)	55/20	6% @ year
21.	Ill.	MRF	L	60/8; A/35 (W)	55/8	3% @ year
22.	Ind.	PERF	S,L	65/10	50/15	1.2%/5% @ year
23.	Ind.	TRF	T	65/10; 60/15; R-85	50/15	1.2%/5% @ year
24.	Iowa	PERS	S,L,T	65/4; R-92; 62/30	55/4	3% @ year
25.	Kans.	PERS	S,L,T	65, 62/10; R-85	55/10	2.4%/7.2% @ year
26.	Kent.	ERS	S,L	65/4; A/27	55/5; A/25	5%/4% @ year
27.	Kent.	TRS	T	60/5; A/27	55/5	5% @ year
28.	Louis.	SERS	S	60/10; 55/25; A/30	50/10	Act. Table
29.	Louis.	TRS	T	65/20; A/30; 55/25	60/10; A/20	Multiplier Varies
30.	Maine	SRS	S,L,T	62/10	A/25; 60/10	6% @ year
31.	Mary.	SRS	S,L,T	65/2 to 62/5; A/30	55/15	6% @ year
32.	Mass.	SERS	S,L	65/10	55/10; A/20	Multiplier Varies
33.	Mass.	TRS	T	65/10	55/10; A/20	Multiplier Varies
34.	Mich.	SERS	S	60/10; 55/30; (W)	55/15	6% @ year
35.	Mich.	MERS	L	60/10	55/15; 50/25	6% @ year
36.	Mich.	PSERS	T	60/10; A/30	55/15	6% @ year
37.	Minn.	MSRS	S	Soc. Sec. Normal (W)	55/3	Act. Table
38.	Minn.	PERS	L	Soc. Sec. Normal (W)	55/3	6% @ year
39.	Minn.	TRA	T	Soc. Sec. Normal (W)	55/3	Act. Table
40.	Miss.	PERA	S,L,T	60/4; A/25	None	-
41.	Mou.	SERS	S	65/4; 60/15; 55/30	55/10	Act. Table
42.	Mou.	LAGERS	L	60/5; R-80 option	55/5	6% @ year
43.	Mou.	PSRS	T	60/5; A/30; 55/25	A/25; 55/5	Act. Table
44.	Mont.	PERS	S,L	65/A; 60/5; A/30	50/5; A/25	Act. Table
45.	Mont.	TRS	T	60/5; A/25	50/5	6%;3.6% @ year

(W) = Temporary Retirement Incentive Window

(x/y) = Age/Service

CHART II
NORMAL AND EARLY RETIREMENT REQUIREMENTS

<u>State</u>	<u>Fund Name</u>	<u>EE Coverage</u>	<u>Normal Retirement Provisions (Age/Years)</u>	<u>Early Retirement Provisions</u>	<u>Actuarial Discount</u>
46. Nebr.	SERS	S	65/A	55/5	Money Purchase
47. Nebr.	TRS	T, Sch	65/5; 60/R-90	60/5; A/35	3% @ year
48. Nevada	PERS	S,L,T	65/5; 60/10; A/30	A/5;	4% @ year
49. N.H.	NHRS	S,L,T	60/A	50/10; A/20;R-70	Vary by Service
50. N.J.	PERS	S,L	60/A; 55/25 (W)	A/25	3% @ year
51. N.J.	TRS	T	60/A; 55/25 (W)	A/25	3% @ year
52. N.M.	PERA	S,L	65/5 to 61/17; 60/20; A/25	None	-
53. N.M.	ERA	T	65/5; A/25; 60/R75	A/5	2.4%/7.2% @ year
54. N.Y.	ERS	S,L	62/10 (W)	None	-
55. N.Y.	TRS	T	62/10; 55/30; 70/5	55/10	Act. Table
56. N.C.	TSERS	S,T	65/5; 60/25; A/30	60/5; 50/20	3% @ year
57. N.C.	LGERS	L	65/5; 60/25; A/30	60/5; 50/20	3% @ year
58. N.D.	PERS	S,L	65/A; R-88	55/5	6% @ year
59. N.D.	TRF	T	65/5; R-85	55/5	6% @ year
60. Ohio	PERS	S,L	60/5; A/30; (W-option)	55/25	3% @ year
61. Ohio	STRS	T	65/5; A/30; (W-option)	55/25; 60/5	3% @ year
62. Okla.	PERS	S,L	62/6; R-90	55/10	Act. Table
63. Okla.	TRS	T	62/10; R-90	55/10; A/30	Act. Table
64. Oreg.	PERS	S,L,T	58/5; A/30	55/5	8% @ year
65. Penn.	SERS	S	60/3; A/35; (W)	A/10	Act. Table
66. Penn.	PSERS	T, Sch.	62; 60/30; A/35; (W)	A/10; 55/25	6%/3% @ year
67. R.I.	ERS	S,T	60/10; A/28	None	-
68. S.C.	SCRS	S,L,T	65/5; A/30	55/25; 60/5	5%/4% @ year
69. S.D.	SRS	S,L,T	65/5; R-85 if 55	55/5	3% @ year
70. Tenn.	CRS	S,L,T	60/5; A/30	A/25; 55/A	3.6% @ year
71. Texas	ERS	S	60/5; 55/25; 50/30	None	-
72. Texas	TRS	T	65/5; 60/20; 55/30	55/5; A/30	Act. Table
73. Texas	MRS	L	60/10; 50/25; A/28	None	-
74. Utah	SRS	S,L,T	65/4; A/30	A/25;60/20;62/10	3% @ year
75. Vert.	SRS	S	62/5 (A/30 after 1994)	55/5	6% @ year
76. Vert.	TRS	T	62/10; A/30	55/10	6% @ year
77. Virg.	SRS	S,L,T	65/5; 55/30	55/5	6%/4.8% @ year
78. Wash.	PERS	S,L	65/5 (W)	55/20	Act. Table
79. Wash.	TRS	T	65/5 (W)	55/20	Act. Table
80. W.V.	PERS	S,L	60/5; 55/25	55/10; A/20	6% @ year
81. W.V.	TRS	T	55/10	-	Money Purchase
82. Wyom.	WRS	S,L,T	60/4; R-85	50/4	5% @ year
83. Milw.	City	L	60/4	55/15	Act. Table
84. Milw.	County	L	60/A; 55/30;R-75	55/15	5% @ year
85. Wis.	WRS	S,L,T	65; 57/30	55/5	Vary by Service

(W) = Temporary Retirement Incentive Window

(x/y) = Age/Service

III. VESTING AND CONTRIBUTION RATES**A. Provision Descriptions**

Vesting. The term "vesting" as used in this study relates to an employee's right, after satisfying some minimum service requirement, to receive a pension benefit regardless of whether the employe remains in covered employment. The vesting requirements for the PERS included in the 1994 study are found in Chart III on pages 11 and 12. The changes in requirements for vesting over a four-year period can be summarized as follows:

	<u>1990 Survey</u>	<u>1994 Survey</u>
Vesting after 3 years	3 plans	3 plans
Vesting after 4 years	5 plans	5 plans
Vesting after 5 years	35 plans	38 plans
Vesting after 8 years	3 plans	4 plans
Vesting after 10 years	35 plans	31 plans
Vesting after 20 years	1 plan	0 plans
Graded or varying	3 plans	4 plans
TOTAL	<u>85 plans</u>	<u>85 plans</u>

As noted, there is a slow trend towards reducing the number of years of service in order to vest a pension benefit. About 53% of the PERS require five or less years of service to vest. The trend appears to be towards five-year vesting or shorter, perhaps reflecting federal vesting requirements that apply to private sector pension plans. Nevertheless, vesting is one of the few areas that the public sector is more conservative than the private sector. Nearly forty percent still require 10 or more years to vest.

Employee Contributions. Major corporations usually provide pension plans that are non-contributory relative to their primary plan, but often also provide a supplemental profit-sharing or savings plan which permits employee contributions with some employer matching. In contrast, most public employee pension plans require employee contributions for the primary pension, and any secondary savings plan such as a 457 deferred compensation plan is usually funded only from employee contributions.

The 1994 study of employee contribution requirements expressed as a percent of payroll is found in Chart III, and the requirements may be summarized and compared with the 1990 survey as follows:

<u>Employee Contributions</u>	<u>1990 Survey</u>	<u>1994 Survey</u>
Employee rate of 0 - 5%	25 plans	29 plans
Employee rate over 5%	43 plans	37 plans
Rate varies by age or group	5 plans	8 plans
Plan is non-contributory	<u>12 plans</u>	<u>11 plans</u>
TOTAL	85 plans	85 plans

This summary reflects little change over the four years in PERS that are non-contributory -- i.e., the plan is by design financed only by employer contributions in a manner similar to the private sector. This may indicate that "pick-up" arrangements achieve most of the advantages of adopting non-contributory status.

Employer "Pick-Up". One of the strongest trends reflected in recent RRC studies is the adoption of Internal Revenue Code 414(h) provisions. Under this IRC authorization, employers may "pick-up" the employee contributions presumably in lieu of a salary increase, or employees may continue to make contributions but on a tax-sheltered basis. Under both approaches, take-home pay is greater because of federal/state tax-sheltering.

The 1986 comparative study noted that 37 PERS had adopted 414(h) provisions. The current study reflects that 69 of the 74 contributory systems have adopted 414(h) provisions, presumably reflecting perceived advantages of tax-sheltering by both employees and employers. The 1994 study also attempts to differentiate the "pick-up" plans as to whether payments are actually made by the employer or employee.

Employer Contributions. The employer contribution information found in Chart III is perhaps of less reliability than other information found in this report. Employer contributions are often stated in annual reports as dollars rather than as a percent of payroll. Also, employer costs often vary significantly from year to year and from one covered group to another. In addition, employer costs may be paid from several sources such as school districts and the state, or from several separate appropriations. Lastly employer costs are often designated under several categories reflecting normal cost, amortization, administrative costs, unfunded post-retirement increases, etc.

The employer contribution information found in Chart III presumably reflects actual contributions made by the employer. Some of the PERS in this study received employer contributions at rates less than those determined by actuarial valuation as necessary to fully fund accruing benefits and to amortize unfunded accrued liabilities over some specified time period (noted by **).

Trends. The slow trend in vesting is towards five years or shorter, although nearly 40% of the plans still require 10 or more years to vest. Employee contribution rates have been relatively stable over the two-year period from 1992-94. Most of the contributory plans have adopted IRC 414(h) provisions to give the advantages of tax-sheltering.

Employer contribution rates were reduced in the 1992-94 period in 35% of the plans, but increased in 25% of the plans. These fluctuations probably reflect numerous changes in economic actuarial assumptions that are noted in Section VI of this report, employer contribution delays or "holidays" in some plans, and benefit changes in others.

CHART III
CONTRIBUTION & VESTING REQUIREMENT

<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Employee Contribution</u>	<u>IRC 414 (h)</u>	<u>Total Employer Contribution</u>	<u>Vesting Period</u>
1. Alab.	ERS	Yes	5.0%	*ER	6.0%	10 yrs.
2. Alab.	TRS	Yes	5.0%	*ER	6.31%	10 yrs.
3. Alas.	PERS	No	6.75%	*EE	13.72%	5 yrs.
4. Alas.	TRS	No	8.65%	*EE	15.5%	8 yrs.
5. Ariz.	SRS	Yes	3.14%	*ER	3.28%**	5 yrs.
6. Arka.	PERS	Yes	Non-Contributory	-	10%/6%	10 yrs.
7. Arka.	TRS	Yes	Non-Contributory	-	12%	10 yrs.
8. Calif.	PERS	Yes	Non-Contributory/5%	-	9.93%/Vary	10/5 yrs
9. Calif.	TRS	No	8.0%	*ER	9.17%	5 yrs.
10. Colo.	PERA	No	8.0%	*EE	10.6%/11.6%	5 yrs.
11. Conn.	SERS	Yes	Non-Contributory	-	15.46%	10 yrs.
12. Conn.	TRS	No	7.0%	*	7.5%**	10 yrs.
13. Dela.	SEPP	Yes	2%-3% (split)	*EE	6.09%	5 yrs.
14. Flor.	FRS	Yes	Non-Contributory	-	16.97%	10 yrs.
15. Geor.	ERS	Yes	4%-6% (split)	*ER	9.21%	10 yrs.
16. Geor.	TRS	Yes	6.0%	*EE	11.81%	10 yrs.
17. Hawaii	ERS	Yes	Non-Contributory	-	17.89%	10 yrs.
18. Idaho	ERS	Yes	6.38%	*EE	10.6%	5 yrs.
19. Ill.	SERS	Yes	4%	*ER	4.87%	8 yrs.
20. Ill.	TRS	No	8%	*ER	14.65%	5 yrs.
21. Ill.	MRF	Yes	4.5%	*EE	10.58%	8 yrs.
22. Ind.	PERF	Yes	3%	*ER	6.5%	10 yrs.
23. Ind.	TRF	Yes	3%	*EE	15.69%	10 yrs.
24. Iowa	PERS	Yes	3.7% (\$35,000)	*	5.75% (\$35,000)	4 yrs.
25. Kans.	PERS	Yes	4%	*ER	3.2%	10 yrs.
26. Kent.	ERS	Yes	5%	*ER	7.65%/8.82%**	5 yrs.
27. Kent.	TRS	No	9.855%	*ER	13.105%	5 yrs.
28. Louis.	SERS	No	7.5%	*EE	11.9%	10 yrs.
29. Louis.	TRS	No	7.97%	*ER	16.4%	10 yrs.
30. Maine	SRS	No	6.5%	*ER	16.4%	10 yrs.
31. Mary.	SRS	Yes	5% wages over S.S.	*	13.89%	5 yrs.
32. Mass.	SERS	No	8%	?	16.0%	10 yrs.
33. Mass.	TRS	No	8%	?	16.0%	10 yrs.
34. Mich.	SERS	Yes	Non-Contributory	-	10.93%	10 yrs.
35. Mich.	MERS	Yes	Varies by Plan	*	Varies by Plan	6-10 elected
36. Mich.	PSERS	Yes	3.9% Average	*ER	8.75%**	10 yrs.
37. Minn.	MSRS	Yes	4.07%	*EE	4.20%	3 yrs.
38. Minn.	PERA	Yes	4.23%	*EE	4.48%	3 yrs.
39. Minn.	TRA	Yes	4.52%	*EE	8.16%	3 yrs.
40. Miss.	PERS	Yes	7.25%	*EE	9.75%	4 yrs.
41. Mou.	SERS	Yes	Non-Contributory	-	9.04%	5 years
42. Mou.	LAGERS	Yes	0% to 4%	*ER	Varies by Plan	5 years
43. Mou.	PSRS	No	10%	*EE	10%	5 years
44. Mont.	PERS	Yes	6.7%	*EE	6.7%	5 years
45. Mont.	TRS	Yes	7.044%	*EE	7.459*	5 years

(* = IRC 414 (h)(2) provisions: EE = employee paid; ER = employer paid)

(** = Less than actuarially determined rate or postponed contribution)

(%/ % = state vs. local rates)

CHART III

CONTRIBUTION & VESTING REQUIREMENT

<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Employee Contribution</u>	<u>IRC 414 (h)</u>	<u>Total Employer Contributions</u>	<u>Vesting Period</u>
46. Nebra.	SERS	Yes	3.6%-4.8% (split)	*EE	156% of EE Rate	5 years
47. Nebra.	TERS	Yes	7.73%	*EE	7.81%	5 years
48. Nevada	PERS	No	Non-Contributory	-	18.39%	5 years
49. N.H.	NHRS	Yes	5%	*EE	2.65%	10 years
50. N.J.	PERS	Yes	Varies by Entry Age	*EE	.97%	10 years
51. N.J.	TRS	Yes	Varies by Entry Age	*EE	.96%	10 years
52. N.M.	PERA	Yes	6.18%/9.15%	*ER	13.83%/9.15%	5 years
53. N.M.	ERA	Yes	7.6%	*ER	8.65%	5 years
54. N.Y.	ERS	Yes	3%	*EE	None**	10 years
55. N.Y.	TRS	Yes	3%	*EE	8.41%	10 years
56. N.C.	TSERS	Yes	6%	*EE	8.38%	5 years
57. N.C.	LGERS	Yes	6%	*EE	4.63% + UAAL	5 years
58. N.D.	PERS	Yes	4%	*ER	4.12%	5 years
59. N.D.	TRF	Yes	6.75%	*ER/EE	6.75%	5 years
60. Ohio	PERS	No	8.5%	*ER	13.31%/13.55%	5 years
61. Ohio	STRS	No	9.3%	*ER	14.0%	5 years
62. Okla.	PERS	Yes	2%/10% (split)	*ER	11.5%	8 years
63. Okla.	TRS	Yes	6%/11% (split)	*ER	7%**	10 years
64. Oreg.	PERS	Yes	6%	*ER	8.08%	5 years
65. Penn.	SERS	Yes	5.0%	*EE	8.92%	10 years
66. Penn.	PSERS	Yes	5.25%/6.25%	*EE	11.06%	10 years
67. R.I.	ERS	Yes	7.75%/8.5%	*ER	11.32%/16.02%	10 years
68. S.C.	SCRS	Yes	6%	*EE	7.70%	5 years
69. S.D.	SRS	Yes	5%	*EE	5%	5 years
70. Tenn.	CRS	Yes	Non-Contributory	-	6.33%/8.51%	5 years
71. Texas	ERS	Yes	6%	*EE	6.45%	5 years
72. Texas	TRS	No	6.4%	*ER	7.31%	5 years
73. Texas	MRS	Yes	5% to 7%	*	6% to 6.99%	10-20 elected
74. Utah	SRS	Yes	Non-Contributory	-	13.0%	4 years
75. Vert.	SRS	Yes	1.65%	?	9.86%	5 years
76. Vert.	TRS	Yes	3.73%	?	5.60%	10 years
77. Virg.	SRS	Yes	5%	*ER	4.75%/6.86%	5 years
78. Wash.	PERS	Yes	5.2%	*EE	5.2%	5 years
79. Wash.	TRS	Yes	6.5%	*EE	6.5%	5 years
80. W.V.	PERS	Yes	4.5%	*ER	9.5%	5 years
81. W.V.	TRS	Yes	4.5%	-	7.5%	6/9/12 yrs.
82. Wyom.	WRS	Yes	5.57%	*ER	5.68%	4 years
83. Milw.	City	Yes	5.5%	*ER	1.12%	4 years
84. Milw.	County	Yes	Non-Contributory	-	7.3%	10 years
85. Wis.	WRS	Yes	6.2%	*ER	6.1%	5 years

(* = IRC 414 (h)(2) provisions: EE = employee paid; ER - employer paid)

(** = Less than actuarially determined rate or postponed contribution)

(%/ % = state vs. local rates)

IV. RETIREMENT BENEFIT CALCULATIONS**A. Calculation Provisions**

Benefit Formulas. Chart IV on pages 15 and 16 is intended to reflect current benefit formulas of the PERS surveyed. Also, the formulas represent those applying to general employees and teachers, and may not apply to elected officials, protective employees and others who may have higher benefits, earlier normal retirement, etc. As Chart IV indicates, 82 of the PERS are defined benefit plans in which benefits are calculated by one or more formulas of -

- Multiplier x years of service x final average salary (FAS)

The multiplier indicates a percentage of FAS that is earned for each year of service. The FAS (final average salary), is the average rate of salary for a specified time period expressed in months or years.

Basic. Members of 17 of the PERS (*before the formula) do not have social security coverage for their public employment. Such systems presumably have a higher formula to reflect the lack of social security coverage, and the 17 systems have multipliers ranging between 2% and 2.5% accrual for each year of service. The average multiplier for career employees (30 years) in the 17 plans is 2.23% @ year.

Coordinated. Members of 68 PERS in the study also receive social security coverage for their public employment. These coordinated plans reflect a wide range of multipliers, which may also vary between the various decades of service, or by specific effective dates or by the age at retirement. The formulas noted on Chart IV may be summarized as follows, assuming a career employee with 30 years of service and FAS of about \$40,000:

<u>Formula Multiplier</u>	<u>1992 Survey</u>	<u>1994 Survey</u>
1.1% to 1.3%	5 plans	5 plans
1.3+% to 1.5%	9 plans	7 plans
1.5+% to 1.7%	19 plans	16 plans
1.7+% to 1.9%	6 plans	9 plans
1.9+% to 2.1%	19 plans	20 plans
2.1+%	4 plans	4 plans
Employer Plan Election	2 plans	2 plans
Money Purchase	4 plans*	5 plans*
TOTAL	68 plans	68 plans

(*includes two Indiana plans which provide an employer-paid formula pension plus an employee-funded money purchase annuity. W.V. TRS was added in the 1994 survey.)

The gradual trend during the 1980's to improve benefit formulas appears to be continuing into the 1990's. The 1994 study indicates that one plan reduced benefits and 11 plans increased their formulas on average by 0.2%. All changes were in coordinated plans, and the current average multiplier of the 68 coordinated plans is about 1.8%.

FAS. Most of the PERS surveyed provide that benefits shall be based upon a final average salary (FAS) representing the highest earnings over a specified number of years or months. The FAS periods used by the PERS surveyed may be summarized and compared to the 1990 survey as follows:

<u>FAS Period</u>	<u>1990 Survey</u>	<u>1994 Survey</u>
2-year FAS Period	2 plans	2 plans
3-year FAS Period	55 plans	55 plans
4-year FAS Period	7 plans	8 plans
5-year FAS Period	19 plans	18 plans
Money Purchase Plans	<u>2 plans</u>	<u>2 plans</u>
Total	85 plans	85 plans

Fifteen of the 85 PERS place some type of cap on earnings that may be included in the FAS calculations. These caps may reflect a limitation on gross earnings or on annual salary increases that may be considered during the FAS period.

Benefit Limitations. Chart IV also notes that several of the PERS have established a limit on pension benefits which may be expressed as a percent of FAS, or as a maximum number of creditable years or salary levels. On the other hand, the majority of plans surveyed provide no maximum limitation, but such plans are subject to the limits established by IRC Section 415 -- i.e., 100% of defined compensation.

	<u>1990 Survey</u>	<u>1994 Survey</u>
No Specified Limitation*	51 plans	49 plans
FAS Limit at 100%	6 plans	14 plans
FAS Limit under 100%	21 plans	17 plans
Salary Maximum	4 plans	3 plans
Service Credit Cap	<u>3 plans</u>	<u>2 plans</u>
	85 plans	85 plans

(*Subject to federal IRC, Section 415)

Trends. The FAS periods for the formula plans appear to have stabilized reflecting little change between 1990-94. Benefit limitations appear to be moving toward the maximum limits allowed under IRC Section 415 -- 100% of "compensation".

The trend to improve formula benefits is continuing into the 1990's in spite of government budgeting problems. These improvements continue to narrow the difference in benefits between basic and coordinated plans.

Although the advantages and disadvantages of defined benefit plans (formula) versus defined contribution plans (money purchase) is being debated in many jurisdictions, only one of the surveyed PERS has changed from defined benefit to defined contribution over the last 4 years.

CHART IV
FINAL AVERAGE PERIODS-FORMULAS-LIMITATIONS

<u>State</u>	<u>Fund</u>	<u>FAS Period</u>	<u>Benefit Formula</u>	<u>Limitation</u>
1. Alab.	ERS	3 H/10	2.0125% x yrs. x FAS	None
2. Alab.	TRS	3 H/10	2.0125% x yrs. x FAS	None
3. Alas.	PERS	3 HC	*2% x 1st 10 yr; 2 1/4% x 2nd 10; 2.5% + yr.	None
4. Alas.	TRS	3 HC	*2% x 1st 20 yrs; 2.5% x added yrs.	None
5. Ariz.	SRS	3 HC/10+	2% x yrs. x FAS	None
6. Arka.	PERS	4 HC+	1.55% + .322% x yrs. to age 62	100% FAS
7. Arka.	TRS	5 H	1.29% x yrs. x FAS	None
8. Calif.	PERS	3 HC+	2% at 60; 2.418% at 63	None
9. Calif.	TRS	3 HC	*2% x yrs. x FAS	None
10. Colo.	PERA	3 H (cap)	*2.5% x 1st 20 yr.; 1.50% added yrs.	80% FAS
11. Conn.	SERS	3 H (cap)	1.33% + 0.5% FAS over \$21,600	None
12. Conn.	TRS	3 H	*2% x yrs. x FAS	75% FAS
13. Dela.	SEPP	5 H	1.67% x yrs. x FAS	75% FAS-PIA%
14. Flor.	FRS	5 H	1.6% at 62; 1.68% if 65 or 33 yrs.	None
15. Geor.	ERS	2 HC (cap)	1.64% x yrs. x FAS	None
16. Geor.	TRS	2 HC (cap)	2% x yrs. x FAS	40 yrs. max.
17. Hawaii	ERS	3 HC	1.25% x yrs. x FAS	None
18. Idaho	PERS	4 HC+	1.833% x yrs. x FAS	100% FAS
19. Ill.	SERS	4 HC/10+	1% x 1st 10 yr. to 1.5% x yrs. over 30	75% FAS
20. Ill.	TRS	4 HC/10(cap)	*1.67% x 1st 10 yr. to 2.3% x yrs. 30+	75% FAS
21. Ill.	MRF	4 HC/10+(cap)	1.67% x 1st 15 yrs.; 2% x added yrs.	75% FAS
22. Ind.	PERF	5 H	1.1% x yrs. x FAS + "EE" M.P. Annuity	45 yrs. max
23. Ind.	TRF	5 H	1.1% x yrs. x FAS + "EE" M.P. Annuity	None
24. Iowa	PERS	3 H (cap)	1.913% x yrs. x FAS	Wage Cap
25. Kans.	PERS	3 H	1.75% x yrs. x FAS	None
26. Kent.	ERS	5 H	1.97%-state; 2.2%-county	None
27. Kent.	TRS	5 H	*2.5% x yrs. x FAS	100% FAS
28. Louis.	SERS	3 HC +	*2.5% x yrs. x FAS	100% FAS
29. Louis.	TRS	3 HC + (cap)	*2.5% x yrs. x FAS	100% FAS
30. Maine	SRS	3 H (cap)	*2.0% x yrs. x FAS	None
31. Mary.	SRS	3 HC	(.8% x \$20,600 FAS) + (1.5% x excess FAS)	None
32. Mass.	SERS	3 HC	*2.5% x yrs. x FAS (if 65)	80% FAS
33. Mass.	TRS	3 HC	*2.5% x yrs. x FAS (if 65)	80% FAS
34. Mich.	SERS	3 HC +	1.5% x yrs. x FAS	None
35. Mich.	MERS	5/3 HC +	Employer Plan Options	None
36. Mich.	PSERS	5/3 HC +	1.5% x yrs. x FAS	None
37. Minn.	MSRS	5 HC	1.5% x yrs. x FAS	100% FAS
38. Minn.	PERA	5 HC	1.5% x yrs. x FAS	100% FAS
39. Minn.	TRA	5 HC	1.5% x yrs. x FAS	100% FAS
40. Miss.	PERS	4 HC (cap)	1.875% x 1st 25 yrs.; 2% x added years	Wage Cap
41. Mou.	SERS	3 HC +	1.5% x yrs. x FAS	None
42. Mou.	LAGERS	5/3 HC +	Employer Plan Options (1% to 1.5%)	None
43. Mou.	PSRS	5 HC	*2.1% x yrs. x FAS	100% FAS
44. Mont.	PERS	3 HC +	1.79% x yrs. x FAS	None
45. Mont.	TRS	3 HC	1.67% x yrs. x FAS	None

(* No Social Security)

(+ High years in FAS actually expressed in months)

CHART IVFINAL AVERAGE PERIODS-FORMULAS-LIMITATIONS

<u>State</u>	<u>Fund</u>	<u>FAS Period</u>	<u>Benefit Formula</u>	<u>Limitation</u>
46. Nebr.	SERS	-	Money Purchase	None
47. Nebr.	SRS	3 HC	1.73% x yrs. x FAS	None
48. Nevada	PERS	3 HC +	*2.5% x yrs. x FAS	75% FAS
49. N.H.	NHRS	3 H (cap)	1.67% to 65; 1.51% after 65	None
50. N.J.	PERS	3 H	1.67% x yrs. x FAS	None
51. N.J.	TRS	3 H	1.67% x yrs. x FAS	None
52. N.M.	PERS	3 HC +	2.5% x yrs. x FAS	75% FAS
53. N.M.	ERA	5 HC	2.35% x yrs. x FAS	None
54. N.Y.	ERS	3 HC (cap)	(2% x 1st 30 yrs) + (1.5% x add. yrs.)	None
55. N.Y.	TRS	3 HC (cap)	(2% x 1st 30 yrs) + (1.5% x add. yrs.)	None
56. N.C.	TSERS	4 HC	1.71% x yrs. x FAS	None
57. N.C.	LGERS	4 HC	1.71% x yrs. x FAS	None
58. N.D.	PERS	3 HC/10 +	1.74% x yrs. x FAS	100% FAS
59. N.D.	TRF	3 HC	1.55% x yrs. x FAS	None
60. Ohio	PERS	3 H	*(2.1% x 1st 30 yrs) + (2.5% x add yrs.)	100% FAS
61. Ohio	STRS	3 H	*(2.1% x 1st 30 yrs) + (2.5% x add yrs.)	100% FAS
62. Okla.	PERS	3 H/10 (cap)	2% x yrs. x FAS	Wage Cap
63. Okla.	TRS	5 HC	2% x yrs. x FAS	None
64. Oreg.	PERS	3 H/10 +	1.67% x yrs. x FAS	None
65. Penn.	SERS	3 H	2% x yrs. x FAS	None
66. Penn.	PSERS	3 H	2% x yrs. x FAS	None
67. R.I.	ERS	3 HC	(1.7% x 1st 10 yr.) to 3.0% yr. over 20	80% FAS
68. S.C.	SCRS	3 HC +	1.82% x yrs. x FAS	None
69. S.D.	SRS	3 HC/10	(1.3% x FAS) or (2%-PIA)	None
70. Tenn.	CRS	5 HC	(1.5% x yrs. x FAS) + .25% FAS over \$21,600	75% FAS
71. Texas	ERS	3 H +	2% x yrs. x FAS	100% FAS
72. Texas	TRS	3 H	*2% x yrs. x FAS	None
73. Texas	MRS	-	Money Purchase Options	None
74. Utah	SRS	3 HC (cap)	2% x yrs. x FAS	None
75. Vert.	SRS	3 HC	1.67% x yrs. x FAS	50% FAS
76. Vert.	TRS	3 HC	1.67% x yrs. x FAS	50% FAS
77. Virg.	SRS	3 HC	(1.5% x \$13,200 FAS) + (1.65% added FAS)	100% FAS
78. Wash.	PERS	5 HC +	2% x yrs. x FAS	None
79. Wash.	TRS	5 HC +	2% x yrs. x FAS	None
80. W.V.	PERS	3 HC/10	2% x yrs. x FAS	None
81. W.V.	TRS	-	Money Purchase (hired after 6/30/91)	None
82. Wyom.	WRS	3 HC	2% x yrs. x FAS	None
83. Milw.	City	3 H	2% x yrs. x FAS	70% FAS
84. Milw.	County	5 HC	1.5% x yrs. x FAS	80% FAS
85. Wis.	WRS	3 H	1.6% x yrs. x FAS	65% FAS

(* No Social Security)

(+ High years in FAS actually expressed in months)

V. POST-RETIREMENT ADJUSTMENTS AND BENEFIT TAXES**A. COLAs and State Taxes**

Social Security. Pension designers are concerned with the adequacy of benefits at the time of retirement, and also with the continuing purchasing power of those benefits during retirement as effected by inflation and taxes. Since 1975, social security benefits have been automatically adjusted each year according to changes in the Consumer Price Index (CPI). The automatic adjustments in the most recent 10-year period are as follows:

<u>CPI Year</u>	<u>% Increase</u>	<u>Payable</u>
1984	3.5%	1/1/85
1985	3.1%	1/1/86
1986	1.3%	1/1/87
1987	4.2%	1/1/88
1988	4.0%	1/1/89
1989	4.7%	1/1/90
1990	5.4%	1/1/91
1991	3.7%	1/1/92
1992	3.0%	1/1/93
1993	2.6%	1/1/94

Hence, to the degree that social security is part of total retirement planning (80% of PERS in study), at least that part of income keeps pace with inflation -- nearly 42% compounding over the above 10-year period. Although social security benefits were once tax-free, effective January 1, 1994, up to 50% of such benefits are now subject to federal tax if recognized income during retirement falls within specified levels -- \$25,000 to \$34,000, if single and \$32,000 to \$44,000 if filing joint. If income exceeds these levels, then 85% of social security benefits are taxable.

A June, 1992 publication by AARP* notes that the 50 states have different policies on taxing social security benefits as follows:

- 26 states allow full exemption of social security benefits from personal income tax.
- 14 states allow partial exemption of social security benefits from personal income tax.
- 10 states have very limited or no personal income tax.

COLA Plans. The inflation of the 1970's caused many public pension plans to adopt post-retirement adjustment plans (COLAs) to protect annuity purchasing power. The types of plans are noted in Chart V on pages 19 and 20, and that information can be summarized and compared with 1990's survey as follows:

	<u>1990 Survey</u>	<u>1994 Survey</u>
CPI Plan Plus/Minus Cap	37 plans	39 plans
Automatic Annual Increase	17 plans	17 plans
Investment Surplus	6 plans	5 plans
Ad Hoc or Money Purchase	<u>25 plans</u>	<u>24 plans</u>
TOTAL	85 plans	85 plans

(*=American Association of Retired Persons)

The COLA tables note some changes in the type and number of post-retirement adjustment plans over four years. During the 1990-92 period, one fund's prefunding of increases was deleted, two others made modest improvements in their COLAs, and the three Minnesota funds changed from an investment surplus COLA to one based upon CPI with cap, \pm investment surplus. In the 1992-94 period, two plans added automatic annual COLAs, two plans increased their CPI cap, and one plan changed from a CPI to an investment surplus COLA.

Pension Plan Taxes. The taxability of public pension benefits at the state level was dramatically effected by the 1989 Federal Supreme Court decision in Davis v. Michigan. This decision noted that federal law (The Public Salary Tax Act of 1939) requires that federal and military retirees be treated at least as favorably as state and local retirees under state law.

Comparative studies in the 1980's noted that well over 50% of the 85 PERS were in states with no state income tax law, or were totally exempted from state income taxes. These results were drastically altered by the Supreme Court case. The current survey may be summarized and compared with the 1986 and 1990 surveys as follows:

	<u>1986 Survey</u>	<u>1990 Survey</u>	<u>1994 Survey</u>
No state income tax law**	15 plans	15 plans	13 plans
Benefits totally exempt	46 plans	21 plans	21 plans
Benefits partially exempt	11 plans	31 plans	24 plans
Benefits most or totally tax.	10 plans	15 plans	24 plans
Exempt for some	<u>3 plans</u>	<u>3 plans</u>	<u>3 plans</u>
TOTAL	85 plans	85 plans	85 plans

Trends. The majority of PERS in this study enacted some type of automatic post-retirement adjustment plan during the 1970's and 1980's. Most of these "COLA plans" are based upon changes in the CPI, with some type of annual limit to control costs. Some of these COLA plans are pre-funded during the working career, while others are not. The small number of changes in COLA plans in the last two years reflect less concern with inflation, and may best be described as "fine tuning". Actuarial funding of the COLA plans presumably will be a major problem in the future.

The 1994 study reflects that most states have now reacted to the Michigan-Davis Supreme Court Case, and have made necessary changes to state income tax laws to comply. Where the majority of PERS in the studies before 1989 were exempt from state taxes, the majority are now partially or totally subject to state income taxes. Some of these changes are being challenged in court. In total, the changes in state and federal laws relative to the taxation of pension and social security benefits may well affect the adequacy of retiree income.

(**Includes PERS in New Hampshire and Tennessee which have very limited income taxes.)

CHART V
POST-RETIREMENT INCREASES AND STATE TAX PROVISIONS

<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Post-Retirement Increases</u>	<u>State Taxation of PERS Benefits</u>
1. Alab.	ERS	Yes	Ad Hoc Only	Benefits Exempt
2. Alab.	TRS	Yes	Ad Hoc Only	Benefits Exempt
3. Alas.	PERS	No	75% of CPI if 65; 50% if under 65	No income tax law
4. Alas.	TRS	No	75% of CPI at age 65	No income tax law
5. Ariz.	SRS	Yes	Ad Hoc Only (regular)	Exempt to \$2,500
6. Arka.	PERS	Yes	CPI-3% cap**	Exempt to \$6,000
7. Arka.	TRS	Yes	CPI-3% cap*	Exempt to \$6,000
8. Calif.	PERS	Yes	Investment - Maximum 2%**	Benefits Taxable
9. Calif.	TRS	No	Automatic 2% Annual increase*	Benefits Taxable
10. Colo.	PERA	No	CPI-3.5% cap**	Exempt to \$20,000
11. Conn.	SERS	Yes	Automatic 3% annual increase	Benefits Taxable
12. Conn.	TRS	No	Excess investment COLA	Benefits Taxable
13. Dela.	SEPP	Yes	Ad Hoc Only	Exempt to \$3,000
14. Flor.	FRS	Yes	Automatic 3% annual increase**	No income tax law
15. Geor.	ERS	Yes	CPI-1.5% semi-annual cap**	Exempt to \$10,000
16. Geor.	TRS	Yes	CPI-1.5% semi-annual cap*	Exempt to \$10,000
17. Hawaii	ERS	Yes	2.5% automatic annual increase*	Benefits Exempt
18. Idaho	PERS	Yes	CPI-1% minimum to 6% max.-conditional	Partial Exclusion
19. Ill.	SERS	Yes	Automatic 3% annual increase **	Benefits Exempt
20. Ill.	TRS	No	Automatic 3% annual increase **	Benefits Exempt
21. Ill.	MRF	Yes	Automatic 3% annual increase *	Benefits Exempt
22. Ind.	PERF	Yes	Ad Hoc Only (regular)	Benefits Taxable
23. Ind.	TRF	Yes	Ad Hoc Only	Benefits Taxable
24. Iowa	PERS	Yes	Ad Hoc Only	Benefits Taxable
25. Kans.	PERS	Yes	Ad Hoc Only	Benefits Exempt
26. Kent.	ERS	Yes	Automatic 50% of "rate margin"	Benefits Exempt
27. Kent.	TRS	No	Ad Hoc (regular)	Benefits Exempt
28. Louis.	SERS	No	CPI-3% cap-conditional	Benefits Exempt
29. Louis.	TRS	No	CPI-2.5% cap-conditional	Benefits Exempt
30. Maine	SRS	No	CPI-4% cap if 62**	Benefits Taxable
31. Mary.	SRS	Yes	CPI adjustment-3% cap*	Partial Exemption
32. Mass.	SERS	No	CPI-3% cap - conditional	Benefits Exempt
33. Mass.	TRS	No	CPI-3% cap - conditional	Benefits Exempt
34. Mich.	SERS	Yes	3% annual increase* (cap)	Benefits Exempt
35. Mich.	MERS	Yes	3 Automatic plans-ER election	Benefits Exempt
36. Mich.	PSERS	Yes	Automatic 3% annual increase *	Benefits Exempt
37. Minn.	MSRS	Yes	CPI-3.5% cap plus invest. surplus **	Mostly taxable
38. Minn.	PERA	Yes	CPI-3.5% cap plus invest. surplus **	Mostly taxable
39. Minn.	TRS	Yes	CPI-3.5% cap plus invest. surplus **	Mostly taxable
40. Miss.	PERS	Yes	CPI-2.5% cap + Ad Hoc	Benefits Exempt
41. Mou.	SERS	Yes	80% CPI: 4% min/5% max. **	Exempt to \$6,000
42. Mou.	LAGERS	Yes	CPI - 4% cap	Exempt to \$6,000
43. Mou.	PSRS	No	CPI - 5% cap **	Exempt to \$6,000
44. Mont.	PERS	Yes	Excess investment COLA	Exempt to \$3,600
45. Mont.	TRS	Yes	Excess investment COLA	Exempt to \$3,600

(* = Simple increases based on original benefit)

(** = Compound increases based on current benefit)

CHART VPOST-RETIREMENT INCREASES AND STATE TAX PROVISIONS

<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Post-Retirement Increases</u>	<u>State Taxation of PERS Benefits</u>
46. Nebr.	SERS	Yes	Ad Hoc Only	Benefits Taxable
47. Nebr.	TRS	Yes	Ad Hoc Only	Benefits Taxable
48. Nevada	PERS	No	CPI-Cap of 2%, 3%, or 3 1/2% (varies)	No income tax law
49. N.H.	NHRS	Yes	Ad Hoc (regular) *	Benefits Exempt
50. N.J.	PERS	Yes	60% of CPI adjustment *	Exempt to \$7,500
51. N.J.	TRS	Yes	60% of CPI adjustment *	Exempt to \$7,500
52. N.M.	PERA	Yes	3% Automatic increase **	Benefits Taxable
53. N.M.	ERA	Yes	1/2 of CPI - 4% cap **	Benefits Taxable
54. N.Y.	ERS	Yes	Ad Hoc Only	Benefits Exempt
55. N.Y.	TRS	Yes	Ad Hoc Only	Benefits Exempt
56. N.C.	TSERS	Yes	CPI if surpluses allow	Exempt to \$4,000
57. N.C.	LGERS	Yes	CPI if surpluses allow	Exempt to \$4,000
58. N.D.	PERS	Yes	Ad Hoc Only	Benefits Taxable
59. N.D.	TRF	Yes	Ad Hoc Only	Benefits Taxable
60. Ohio	PERS	No	CPI - 3% cap *	Benefits Taxable
61. Ohio	STRS	No	CPI - 3% cap *	Benefits Taxable
62. Okla.	PERS	Yes	Ad Hoc Only	Exempt to \$5,500
63. Okla.	TRS	Yes	Ad Hoc Only	Exempt to \$5,500
64. Oreg.	PERS	Yes	CPI-2% cap plus Ad Hoc	Benefit Taxable
65. Penn.	SERS	Yes	Ad Hoc Only	Benefits Exempt
66. Penn.	PSERS	Yes	Ad Hoc Only	Benefits Exempt
67. R.I.	ERS	Yes	3% automatic increase **	Benefits Taxable
68. S.C.	SCRS	Yes	CPI - 4% cap **	Exempt to \$3,000
69. S.D.	SRS	Yes	3.1% automatic increase	No income tax law
70. Tenn.	CRS	Yes	CPI - 3% cap *	Benefits Exempt
71. Texas	ERS	Yes	Ad Hoc Only	No income tax law
72. Texas	TRS	No	Ad Hoc Only	No income tax law
73. Texas	MRS	Yes	2 1/2% automatic increase	No income tax law
74. Utah	SRS	Yes	CPI - 4% cap *	Partial exemption
75. Vert.	SRS	Yes	1/2 of CPI-5% cap	Benefits Taxable
76. Vert.	TRS	Yes	CPI adjustments - 5% cap	Benefits Taxable
77. Virg.	SRS	Yes	CPI to 3% + 1/2 CPI over (5% Max)	Partially Exempt
78. Wash.	PERS	Yes	CPI - 3% cap**	No Income Tax Law
79. Wash.	TRS	Yes	CPI - 3% cap**	No Income Tax Law
80. W.V.	PERS	Yes	Ad Hoc Only	Partial Exemption
81. W.V.	TRS	Yes	Money Purchase	Partial Exemption
82. Wyom.	WRS	Yes	CPI-1% cap plus Ad Hoc	No income tax law
83. Milw.	City	Yes	2% Automatic after 8 yrs. retirement	Exempt for some
84. Milw.	County	Yes	2% automatic increase *	Exempt for some
85. Wis.	WRS	Yes	Investment surplus increase **	Exempt for some

(* = Simple increases based on original benefit)

(** = Compound increases based on current benefit)

VI. ACTUARIAL AND ACCOUNTING INFORMATION**A. Information Description**

Actuarial Methods. An actuarial method is a procedure for determining the present value of pension benefits that will be paid in the future, and allocating that value and the cost of such benefits to specific time periods. There are a number of accepted actuarial methods that presumably will reach the same goal of fully funding all pension obligations as they become due, but they allocate costs in different ways during the working career or accumulation stage.

Chart VI on pages 23 and 24 notes the actuarial methods used by the 85 PERS, and this information can be compared with the 1990 study as follows:

	<u>1990 Survey</u>	<u>1994 Survey</u>
PERS Using entry age normal	63 plans	65 plans
PERS using unit credit	10 plans	12 plans
PERS using aggregate cost	4 plans	4 plans
PERS using attained age	3 plans	1 plan
PERS using projected benefits	4 plans	2 plans
Money Purchase	<u>1 plan</u>	<u>1 plan</u>
TOTAL	85 plans	85 plans

This survey indicates that about 77% of the PERS use entry age normal with a goal to provide level normal cost projections over the long-term -- from generation to generation of taxpayers.

Interest Assumption. The interest or earnings assumption adopted by the various PERS is one of the key economic assumptions in determining contribution rates. Chart VI notes the interest assumptions used by the PERS in the 1990, 1992 and 1994 surveys which may be summarized and compared as follows:

	<u>1990 Survey</u>	<u>1992 Survey</u>	<u>1994 Survey</u>
5% - 7%	12 plans	5 plans	2 plans
7+% - 8%	49 plans	51 plans	54 plans
8+%	22 plans	28 plans	28 plans
Unknown/Money Purchase	<u>2 plans</u>	<u>1 plan</u>	<u>1 plan</u>
TOTAL	85 plans	85 plans	85 plans

The 1994 survey indicates that the majority of PERS studied have adopted an interest assumption equal or exceeding 8%, with an average assumption of 8.1%.

Economic Spread. Another important economic assumption is the assumption as to inflation or across-the-board salary increases that are over and above merit or seniority adjustments. The difference between the inflationary salary assumption and the interest assumption is often referred to as the "economic spread"-- i.e., the assumed real return on invested assets above the inflation rate.

Chart VI notes the wage inflation assumption and resulting spreads of the 85 PERS in this study:

	<u>1990 Survey</u>	<u>1992 Survey</u>	<u>1994 Survey</u>
0 - 1% Spread	6 plans	2 plans	2 plans
1+% - 2% spread	24 plans	17 plans	15 plans
2+% - 3% spread	25 plans	25 plans	27 plans
3+% spread	16 plans	26 plans	22 plans
Spread undefined	<u>14 plans</u>	<u>15 plans</u>	<u>19 plans</u>
TOTAL	85 plans	85 plans	85 plans

The 1994 study indicates that the average "spread" was 2.85%. During the 1992-94 period, 12 PERS increased and 7 PERS decreased their spread.

PBO Funding Ratio. The Governmental Accounting Standards Board (GASB) requires public pension plans to disclose the "pension benefit obligation" or PBO which is a measure of the present value of pension benefits, adjusted for the effects of projected salary increases, but estimated on service earned to date only. The PBO is determined by the projected unit credit actuarial method -- a method that differs from that used by most systems to determine their contribution rates.

The PBO funding ratio compares plan assets to its PBO liabilities, but this disclosure allows pension assets to be valued at cost, market, or some smoothed market approach. Therefore, PBO funding ratios are most informative if used to note the trend of a particular PERS from year to year -- i.e., whether the ratio is increasing or decreasing over time.

	<u>1990 Survey</u>	<u>1992 Survey</u>	<u>1994 Survey</u>
PBO Ratio of 100+%	19 plans	23 plans	25 plans
PBO Ratio of 90+%-100%	15 plans	7 plans	20 plans
PBO Ratio of 80+%-90%	10 plans	20 plans	11 plans
PBO Ratio of 70+%-80%	17 plans	14 plans	16 plans
PBO Ratio of 60+%-70%	9 plans	9 plans	1 plan
PBO Ratio of 50+%-60%	7 plans	5 plans	7 plans
PBO Ratio of Under 50%	4 plans	6 plans	4 plans
PBO Unknown/Money Purch.	<u>4 plans</u>	<u>1 plan</u>	<u>1 plan</u>
TOTAL	85 plans	85 plans	85 plans

Trends. During the 1992-94 time period, there was little change in the actuarial methods used by the 85 PERS studied. The Entry Age Normal is the predominant method used by 77% of the PERS studied.

During the 1992-94 period, numerous changes were made in the PERS interest and salary assumptions. As a result, 12 plans increased and 7 plans decreased their "economic spread". This activity is significantly less than the 1990-92 period when 29 plans increased their "spread".

The PBO ratios of the 85 PERS remain strong with an average ratio of 85.33% in the 1994 study. Seventy-five percent of the PERS improved their funding ratio from the 1992 survey levels.

CHART VI
ACTUARIAL AND ACCOUNTING

<u>State</u>	<u>Fund</u>	<u>Actuarial</u> <u>Method</u>	<u>Interest</u> <u>Assumption</u>	<u>Wage</u> <u>Inflation</u>	<u>Economic</u> <u>Spread</u>	<u>PBO</u> <u>Funding</u>
1. Alab.	ERS	Entry Age	8%-	N.D.	-	103.5%-
2. Alab.	TRS	Entry Age	8%-	N.D.	-	101.3%-
3. Alas.	PERS	Unit Credit	8.75%-	N.D.	-	91.2%-
4. Alas.	TRS	Unit Credit	9%	N.D.	-	91.0%+
5. Ariz.	SRS	Unit Credit	8%	5%	3%	103.0%-
6. Ark.	PERS	Entry Age	7.75%+	4.75%-	3%+	124.8%+
7. Ark.	TRS	Entry Age	8%	5.5%	2.5%	89.3%-
8. Calif.	PERS	Entry Age	8.75%+	5.25%+	3.5%	90.6%+
9. Calif.	TRS	Entry Age	8.5%	6.5%	2.0%	74.0%+
10. Colo.	PERA	Entry Age	8.5%+	5.5%	3.0%+	107.5%+
11. Conn.	SERS	Entry Age	8.5%	N.D.	-	55.6%-
12. Conn.	TRS	Entry Age	8.5%	N.D.	-	73.4%+
13. Dela.	SEPP	Unit Credit	8.5%	5.0%	3.5%	104.9%+
14. Flor.	FRS	Entry Age	8.0%	5.5%	2.5%	87.5%+
15. Geor.	ERS	Entry Age	7.5%	4%	3.5%	93.6%
16. Geor.	TRS	Entry Age	7.5%	N.D.	-	90.9%+
17. Hawaii	ERS	Entry Age	8.0%	5.0%	3.0%	76.1%+
18. Idaho	ERS	Entry Age	8.0%+	5.75%-	2.25%+	70.4%+
19. Ill.	SERS	Unit Credit	8.0%	4.5%	3.5%	57.8%-
20. Ill.	TRS	Unit Credit	8.0%	4.0%	4.0%	58.9%+
21. Ill.	MRF	Entry Age	7.5%	3.75%-	3.75%+	91.5%
22. Ind.	PERF	Entry Age	7.5%	6.5%	1.0%	112.5%
23. Ind.	TRF	Entry Age	7.5%	5.5%	2.0%	32.2%+
24. Iowa	PERS	Aggregate	6.5%	N.D.	-	106.0%+
25. Kans.	PERS	Unit Credit	8.0%	5.0%	3.0%	85.2%-
26. Kent.	ERS	Entry Age	8.0%	6.5%	1.5%	91.5%+
27. Kent.	TRS	Unit Credit	8.0%	5.0%	3.0%	75.2%+
28. Louis.	SERS	Unit Credit	8.25%	N.D.	-	59.4%+
29. Louis.	TRS	Unit Credit	8.25%	N.D.	-	53.9%+
30. Maine	SRS	Entry Age	8.2%-	6.0%	2.2%-	37.0%+
31. Mary.	SRS	Entry Age	7.5%	5.0%	2.5%	71.6%+
32. Mass.	SERS	Entry Age	8.0%	6.0%+	2.0%-	58.0%+
33. Mass.	TRS	Entry Age	8.0%	6.0%	2.0%-	60.93+
34. Mich.	SERS	Entry Age	9.2%- (T)	5.0%	4.2% (T)	90.6%+
35. Mich.	MERS	Attained Age	8.0%	5.5%	2.5%	91.2%-
36. Mich.	PSERS	Entry Age	9.05%- (T)	5.0%	4.05%- (T)	78.4%+
37. Minn.	MSRS	Entry Age	8.5%	6.5%	2.0%	95.0%+
38. Minn.	PERA	Entry Age	8.5%	6.5%	2.0%	83.4%-
39. Minn.	TRA	Entry Age	8.5%	6.5%	2.0%	91.0%+
40. Miss.	PERS	Entry Age	8.0%	5.0%	3.0%	71.8%+
41. Mou.	SERS	Entry Age	8.5%	5.0%	3.5%	107.3%+
42. Mou.	LAGERS	Entry Age	7.0%	4.0%	3.0%	101.8%-
43. Mou.	PSRS	Entry Age	8.0%	6.5%+	1.5%-	91.5%+
44. Mont.	PERS	Entry Age	8.0%	6.5%	1.5%	78.8%+
45. Mont.	TRS	Entry Age	8.0%	6.5%	1.5%	59.5%+

(N.D. = not defined; salary assumption stated as age/range)

(T = Temporary increase)

(Assumptions and PBO: + = higher; - = lower)

CHART VI

ACTUARIAL AND ACCOUNTING

<u>State</u>	<u>Fund</u>	<u>Actuarial</u> <u>Method</u>	<u>Interest</u> <u>Assumption</u>	<u>Wage</u> <u>Inflation</u>	<u>Economic</u> <u>Spread</u>	<u>PBO</u> <u>Funding</u>
46. Nebr.	SERS	Entry Age	Money Purchase			-
47. Nebr.	TRS	Entry Age	7.5%-	N.D.	-	92.5%+
48. Nevada	PERS	Entry Age	8.0%	5.0%	3.0%	72.8%+
49. N.H.	NHRS	Aggregate Open	9.0%+	6.0%+	3.0%-	105.6%+
50. N.J.	PERS	Entry Age	8.75%+	N.D.	-	95.0%+
51. N.J.	TRS	Entry Age	8.75%+	N.D.	-	83.8%+
52. N.M.	PERA	Entry Age	8.0%	5.0%	3.0%	80.5%+
53. N.M.	ERA	Entry Age	8.0%+	4.0%	4.0%+	74.2%-
54. N.Y.	ERS	Unit Credit	8.75%	5.0%	3.75%	103.6%-
55. N.Y.	TRS	Entry Age	8.0%	6.5%	1.5%	93.5%-
56. N.C.	TSERS	Entry Age	7.5%	N.D.	-	103.3%-
57. N.C.	LGERS	Projected Benefit	7.5%	N.D.	-	107.7%-
58. N.D.	PERS	Entry Age	8.0%	5.0%	3.0%	113.3%-
59. N.D.	TRF	Entry Age	8.0%	4.5%	3.5%	95.2%+
60. Ohio	PERS	Entry Age	7.75%	5.25%-	2.5%+	93.0%+
61. Ohio	STRS	Entry Age	7.5%-	5.0%-	2.5%+	91.0%+
62. Okla.	PERS	Entry Age	7.5%	4.7%-	2.8%+	98.9%+
63. Okla.	TRS	Entry Age	8.0%	5.0%	3.0%	41.0%+
64. Oreg.	PERS	Entry Age	8.0%	6.0%	2.0%	105.4%+
65. Penn.	SERS	Entry Age	9.25%	4.0%	5.25%	115.6%+
66. Penn.	PSERS	Entry Age	8.5%	4.0%	4.5%	91.0%+
67. R.I.	ERS	Entry Age	8.0%+	4.5%+	3.5%	71.7%+
68. S.C.	SCRS	Entry Age	8.0%	5.0%	3.0%	74.4%+
69. S.D.	SRS	Entry Age	8.0%	6.0%	2.0%	123.7%+
70. Tenn.	CRS	Entry Age	8.0%-	7.0%	1.0%-	112.7%+
71. Texas	ERS	Entry Age	8.5%	4.5%	4.0%	111.1%+
72. Texas	TRS	Entry Age	8.0%	5.75%+	2.25%-	81.1%+
73. Texas	MRS	Unit Credit	8.0%-	N.D.	-	74.25-
74. Utah	SRS	Entry Age	8.0%	4.25%-	3.75%+	84.0%-
75. Vert.	SRS	Entry Age	8.5%	5.0%-	3.5%+	89.5%+
76. Vert.	TRS	Projected Benefit	8.5%	N.D.	-	95.5%+
77. Virg.	SRS	Entry Age	8.0%	4.0%	4.0%	72.4%+
78. Wash.	PERS	Aggregate	7.5%	5.5%	2.0%	86.0%+
79. Wash.	TRS	Aggregate	7.5%	5.5%	2.0%	70.0%+
80. W.V.	PERS	Entry Age	7.5%	3.5%	4.0%	104.6%+
81. W.V.	TRS	Entry Age	7.5%-	3.5%-	4.0%+	11.3%+
82. Wyom.	WRS	Entry Age	8.0%	4.5%	3.5%	111.2%+
83. Milw.	City	Entry Age	8.5%+	5.5%-	3.0%+	126.0%+
84. Milw.	County	Entry Age	8.5%	N.D.	-	114.0%-
85. Wis.	WRS	Entry Age	8.0%	5.6%	2.4%	118.2%+

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