

RRC-SR-80

STATE OF WISCONSIN

RETIREMENT RESEARCH COMMITTEE

STAFF REPORT NO. 80

1992 COMPARATIVE STUDY OF
MAJOR PUBLIC EMPLOYEE RETIREMENT SYSTEMS

Prepared by RRC Staff
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STATE OF WISCONSIN
RETIREMENT RESEARCH COMMITTEE

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**Member of the Joint Survey Committee on 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 1992 comparative study includes 85 public pension plans, and it reflects the same systems that were found in previous studies since 1982. Although this study does not include all major public pension plans, it does include one or more statewide systems 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 maintains files on major PERS across the country containing annual reports, employee handbooks, statutes, actuarial reports, etc. For most of the PERS in the 1992 study, information is current through 1991. Where information in RRC files is not current, data in this report reflects other major surveys published by the National Association of State Retirement Administrators (NASRA), the National Council on Teacher Retirement (NCTR), and the Government Finance Officers Association (GFOA).

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 & Local	15 funds
Teachers only	27 funds	State & Teacher	3 funds
Local employees only	8 funds	State, Local & Tchr.	21 funds

Participation. The 85 PERS in the 1992 study provide pension coverage for 9.4+ million active employees and 3.2 million retirees, for a total of 12.6+ million participants. This total is 6% greater than the 11.9 million active and retired participants noted in the 1990 study. The active participants have grown between the 1990 and the 1992 studies by 5.5%, while the retirees have grown by 7.6% in that same time period.

Chart I also shows the ratio of actives to retirees for the 85 systems surveyed. In nearly all of the systems, the ratio of actives to retired declined over the two-year period. The average ratio of all systems also declined from 3.00 in 1990 to 2.95 in 1992. Six of the systems including Milwaukee City and County have an active to retiree ratio of less than two--twice the number of plans in 1990.

Systems Size. The systems in the 1992 study range in size from Vermont's SRS with 7,457 actives to California's PERS with 614,645 active participants. The sizes of the systems are reflected in the following tables for the last three surveys.

<u>Active Employees</u>	<u>1988 Survey</u>	<u>1990 Survey</u>	<u>1992 Survey</u>
Less than 50,000	36 funds	35 funds	30 funds
50,000 - 100,000	20 funds	19 funds	21 funds
100,000 - 150,000	12 funds	14 funds	17 funds
150,000 - 200,000	6 funds	6 funds	5 funds
Over 200,000	<u>11 funds</u>	<u>11 funds</u>	<u>12 funds</u>
TOTALS	85 funds	85 funds	85 funds

Social Security. Coverage under the Federal OASDHI program was once elective for public employee pension plans, but it is now frozen for those systems which had elected such coverage. Of the 85 PERS included in the 1992 study, Social Security coverage is also provided by 69 of the systems. Of the 16 systems which do not provide Social Security coverage, nine represent pension plans covering teachers only. The 16 PERS in this study without Social Security coverage include 1.6 million active employees, or 16.5% of the total actives in this survey.

Integration. "Integration" relates to the recognition of Social Security coverage in the design of private and public pension plans. While integration is common in the private sector, it is not common in public pension plans. Of the 69 PERS with Soc. Sec. in the RRC studies for 1988, 1990, and 1992, the degree and type of integration is as follows:

	<u>1988 Survey</u>	<u>1990 Survey</u>	<u>1992 Survey</u>
- No integration	55 funds	57 funds	58 funds
- Step-up formula	6 funds	6 funds	7 funds
- Formula offset	3 funds	4 funds	3 funds
- Combined maximum	<u>5 funds</u>	<u>2 funds</u>	<u>1 fund</u>
TOTALS	69 funds	69 funds	69 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. A few plans provide a maximum on benefits including both the social security and pension plan benefits--often stated as a percentage of final average salary (FAS).

Trends. Chart I reflects a continued growth in participation of the PERS surveyed by about 5% every two years. Every plan had a growth in number of retirees, and 86% of the plans had a growth in active participation. 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 coverage has been frozen by Federal law, there is no change in the Social Security coverage for the PERS in the RRC studies. On the other hand, the explicit recognition of Social Security in the design of the pension plans is declining over time.

CHART I
PUBLIC RETIREMENT SYSTEMS SURVEYED

State	Fund Name	Employee Coverage	Number Actives	Number Annuitants	Ratio of Act./Annt.	Soc. Sec. Coverage	Soc. Sec. Integration
1. Alab.	ERS	S,L	64,110	16,400	3.91	Yes	None
2. Alab.	TRS	T	109,128	27,391	3.98	Yes	None
3. Alas.	PERS*	S,L	29,840	8,358	3.57	No	-
4. Alas.	TRS	T	8,903	3,544	2.51	No	-
5. Ariz.	SRS	S,L,T	134,751	37,291	3.61	Yes	None
6. Arka.	PERS	S,L	39,343	11,493	3.42	Yes	None
7. Arka.	TRS*	T	50,878	11,815	4.31	Yes	None
8. Calif.	PERS*	S,L	614,645	257,307	2.39	Yes	FAS Offset
9. Calif.	TRS	T	306,791	128,174	2.39	No	-
10. Colo.	PERA	S,L,T	106,898	34,940	3.06	No	-
11. Conn.	SERS*	S	55,046	23,779	2.31	Yes	Step-Up Formu
12. Conn.	TRS	T	39,818	14,935	2.67	No	-
13. Dela.	SEPP	S,T	25,443	12,695	2.00	Yes	Maximum Cap
14. Flor.	FRS	S,L,T	544,497	120,282	4.53	Yes	None
15. Geor.	ERS	S	66,278	15,036	4.41	Yes	None
16. Geor.	TRS	T	140,006	29,043	4.82	Yes	None
17. Hawaii	ERS*	S,L,T	53,595	21,199	2.53	Yes	None
18. Idaho	PERS	S,L,T	49,854	17,464	2.85	Yes	None
19. Ill.	SERS	S	81,023	34,685	2.34	Yes	None
20. Ill.	TRS	T	124,500	46,651	2.67	No	-
21. Ill.	MRF*	L	120,648	49,330	2.45	Yes	None
22. Ind.	PERF	S,L	129,167	34,748	3.71	Yes	None
23. Ind.	TRF	T	67,956	27,177	2.50	Yes	None
24. Iowa	PFERS	S,L,T	135,104	48,714	2.77	Yes	None
25. Kans.	PERS	S,L,T	111,818	39,262	2.85	Yes	None
26. Kent.	ERS*	S,L	104,680	28,892	3.62	Yes	None
27. Kent.	TRS	T	48,415	20,474	2.36	No	-
28. Louis.	SERS	S	70,927	25,083	2.83	No	-
29. Louis.	TRS	T	87,493	32,857	2.66	No	-
30. Maine	SRS	S,L,T	46,529	23,791	1.96	No	-
31. Mary.	SRS*	S,L,T	165,414	53,614	3.09	Yes	None
32. Mass.	SERS	S	85,744	40,369	2.12	No	-
33. Mass.	TRS*	T	61,415	23,268	2.64	No	-
34. Mich.	SERS	S	65,595	25,566	2.57	Yes	None
35. Mich.	MERS*	L	34,000	10,840	3.14	Yes	None
36. Mich.	PSERS	T	293,503	86,253	3.40	Yes	None
37. Minn.	MSRS*	S	50,718	14,007	3.62	Yes	None
38. Minn.	PERA	L	113,728	33,140	3.43	Yes	None
39. Minn.	TRA	T	65,093	18,094	3.60	Yes	None
40. Miss.	PERS	S,L,T	132,037	33,336	3.96	Yes	None
41. Mou.	SERS*	S	46,725	11,995	3.90	Yes	None
42. Mou.	LAGERS*	L	19,573	5,374	3.64	Yes	None
43. Mou.	PSRS	T	55,888	18,522	3.02	No	-
44. Mont.	PERS	S,L	26,908	10,429	2.58	Yes	None
45. Mont.	TRS	T	16,282	6,721	2.42	Yes	None

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

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

CHART I

	<u>State</u>	<u>Fund Name</u>	<u>Employee Coverage</u>	<u>Number Actives</u>	<u>Number Annuitants</u>	<u>Ratio of Act./Amnt.</u>	<u>Soc. Sec. Coverage</u>	<u>Soc. Sec. Integration</u>
46.	Nebra.	SERS*	S,L	10,714	2,000+	5.0	Yes	Step-Up M.P.
47.	Nebra.	SRS	T, Sch.	29,954	6,993	4.28	Yes	None
48.	Nevada	PERS	S,L,T	54,516	12,468	4.37	No	-
49.	N.H.	NHRS	S,L,T	36,885	9,774	3.77	Yes	Age 65 Offset
50.	N.J.	PERS	S,L	245,633	68,504	3.59	Yes	EE Contributi
51.	N.J.	TRS	T	105,856	35,152	3.01	Yes	EE Contributi
52.	N.M.	PERA	S,L	36,642	10,751	3.41	Yes	None
53.	N.M.	ERA	T	47,851	12,044	3.97	Yes	None
54.	N.Y.	ERS*	S,L	526,037	239,836	2.19	Yes	None
55.	N.Y.	TRS*	T	195,305	71,568	2.73	Yes	None
56.	N.C.	TSERS	S,T	227,075	68,963	3.29	Yes	None
57.	N.C.	LGERS	L	98,946	17,200	5.75	Yes	None
58.	N.D.	PERS	S,L	14,344	3,103	4.62	Yes	None
59.	N.D.	TRF	T	9,589	4,181	2.29	Yes	None
60.	Ohio	PERS	S,L	270,683	105,643	2.56	No	-
61.	Ohio	STRS	T	160,012	70,583	2.27	No	-
62.	Okla.	PERS	S,L	45,583	14,774	3.09	Yes	None
63.	Okla.	TRS	T	71,936	25,533	2.82	Yes	None
64.	Oreg.	PERS	S,L,T	127,508	56,160	2.27	Yes	None
65.	Penns.	SERS	S	112,757	76,109	1.48	Yes	None
66.	Penns.	PSERS	T	200,660	100,122	2.00	Yes	None
67.	R.I.	ERS	S,T	25,680	13,250	1.94	Yes	None
68.	S.C.	SCRS*	S,L,T	162,176	40,176	4.04	Yes	None
	S.D.	SRS	S,L,T	29,378	10,298	2.85	Yes	None
70.	Tenn.	CRS	S,L,T	158,820	55,146	2.88	Yes	Step-Up Formu
71.	Texas	ERS	S	131,175	26,353	4.98	Yes	None
72.	Texas	TRS	T	520,617	126,586	4.11	Yes	None
73.	Texas	MRS*	L	67,647	10,110	6.70	Yes	None
74.	Utah	SRS	S,L,T	81,827	20,047	4.08	Yes	None
75.	Verm.	SRS*	S	7,457	2,654	2.81	Yes	None
76.	Verm.	TRS*	T	9,770	2,631	3.71	Yes	None
77.	Virg.	SRS*	S,L,T	251,548	75,805	3.32	Yes	Step-Up Formu
78.	Wash.	PERS*	S,L	150,282	47,881	3.14	Yes	None
79.	Wash.	TRS*	T	51,323	22,577	2.27	Yes	None
80.	W.V.	PERS	S,L	29,700	13,926	2.13	Yes	None
81.	W.V.	TRS	T	41,840	22,425	1.87	Yes	None
82.	Wyom.	WRS	S,L,T	31,720	9,252	3.43	Yes	None
83.	Milw.	City	L	12,762	7,811	1.63	Yes	None
84.	Milw.	County*	L	7,839	5,770	1.36	Yes	None
85.	Wis.	WRS	S,L,T	217,795	79,465	2.74	Yes	None

Actives Annuitants Ratio

1992 Totals: (85 funds) = 9,418,550 3,197,962 = 2.95

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 of the 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. 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 1992 study allow normal retirement at 65 or earlier with some minimum years of service. The three PERS from Minnesota provide that the normal retirement age under those systems shall keep pace with the Social Security normal retirement age as it gradually increases in the future--age 67 by 2027. The Minnesota plans are the only ones in this study that have adopted the concept of matching future Social Security retirement provisions.

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 1986 comparative study noted that 45 of the 85 plans would allow normal retirement at age 62 with at least 10 years of service. The 1992 survey reflects that 52 of the 85 systems would permit normal retirement at 62/10 years or less. Actually, 75 of the PERS in this study permit normal retirement at 62 with long service, and only 10 systems are tied to the age 65 normal retirement now found under Social Security. In fact, the most common normal retirement of the PERS in the 1992 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 for the last three biennial studies are as follows:

	<u>1988</u>	<u>1990</u>	<u>1992</u>
- 35 years/55 or any age	9 plans	8 plans	8 plans
- 30 years/55 or any age	38 plans	35 plans	32 plans
- 28 years/55 or any age	1 plan	2 plans	2 plans
- 27 years/55 or any age	0 plans	1 plan	2 plans
- 25 years/55 or any age	7 plans	9 plans	12 plans
- 20 years/55 or any age	<u>1 plan</u>	<u>1 plan</u>	<u>0 plans</u>
TOTALS*	56 plans	56 plans	56 plans

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

"Rule of Y". In addition to the "X years and out" provisions, a number of 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 noted in the last three studies are as follows:

	<u>1988 Survey</u>	<u>1990 Survey</u>	<u>1992 Survey</u>
Rule of 95	1 plan	0 plans	0 plans
Rule of 92	0 plans	1 plan	1 plan
Rule of 90	4 plans	2 plans	2 plans
Rule of 85	1 plan	4 plans	3 plans
Rule of 80	1 plan	2 plans	4 plans
Rule of 75	<u>0 plans</u>	<u>1 plan</u>	<u>1 plan</u>
TOTAL	7 plans	10 plans	11 plans

Early Retirement. Most of the PERS in the 1992 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 relatively little change during the last four comparative studies relative to early retirement.

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 pension system for the longer pay-out period. A few systems (nine) do not provide early retirement, usually because their normal retirement is already at 55 or lower with long service.

The actuarial discount requirements are found on Chart II, and may be summarized for the last two studies as follows:

	<u>1990</u>	<u>1992</u>
- PERS using discount rates less than 3%	1 fund	0 funds
- PERS using discount rates of 3% to 5.9%	21 funds	22 funds
- PERS using discount rates of 6% or more	21 funds	19 funds
- PERS that vary discount rate on serv. or age	16 funds	16 funds
- PERS that use an actuarial discount table	14 funds	14 funds
- PERS that change formula multiplier by age	4 funds	4 funds
- PERS that are money purchase	1 fund	1 fund
- PERS that do not provide early retirement	<u>7 funds</u>	<u>9 funds</u>
TOTAL	85 funds	85 funds

Trends. The 1992 study indicates a continuing trend in the public sector to permit normal retirement at earlier ages--particularly for career employees with long service. In the 1992 study, 7 funds modified their normal retirement provisions by reducing the age and/or service requirements. However, this is less change than the 17 plans which reduced requirements in the 1990 study.

Fifteen of the PERS in this study also initiated retirement incentive windows (W) of various designs and lengths. This presumably reflects the economic recession and efforts by state and local government to downsize their payrolls. Those entities that have studied the effectiveness of these windows report mixed results.

CHART IINORMAL 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 (W)	55/5	Act. Table
4. Alas.	TRS	T	60/8; A/25 (W)	55/8	Act. Table
5. Ariz.	SRS	S,L,T	65, 62/10; R-80 (W)	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 Vari
9. Calif.	TRS	T	60/5	55/5; 50/30	6%/3%
10. Colo.	PERA	S,L,T	65/5; 60/20; 50/30; 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%
13. Dela.	SEPP	S,T	62/5; 60/15; A/30 (W)	55/15; A/25	4.8%
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	62/10; A/30	60/10	3% @ 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	3%/8%
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	55/8	3% @ year
22. Ind.	PERF	S,L	60/10	50/15	1.2%/5%
23. Ind.	TRF	T	65/10; 60/15; R-85	50/15	1.2%/5%
24. Iowa	PERS	S,L,T	65/4; R-92; 62/30	55/4	3% @ year
25. Kans.	PERS	S,L,T	65; 60/35; A/40	55/10	2.4%/7.2%
26. Kent.	ERS	S,L	65/4; A/27	55/5; A/25	5% @ 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 Vari
30. Maine	SRS	S,L,T	62/10	A/25	6%
31. Mary.	SRS	S,L,T	65/2 to 62/5; A/30	55/15	6%
32. Mass.	SERS	S,L	65/10	55/10; A/20	Multiplier Vari
33. Mass.	TRS	T	65/10	55/10; A/20	Multiplier Vari
34. Mich.	SERS	S	60/10; 55/30; (w)	55/15	6%
35. Mich.	ERS	L	60/10	55/15; 50/25	6%
36. Mich.	PSERS	T	60/10; 55/30	55/15	6%
37. Minn.	MSRS	S	Soc. Sec. Normal	55/3	Act. Table
38. Minn.	PERA	L	Soc. Sec. Normal	55/3	6%
39. Minn.	TRA	T	Soc. Sec. Normal	55/3	Act. Table
40. Miss.	PERS	S,L,T	60/4; A/25	None	-
41. Mou.	SERS	S	65/4; 60/15; 55/30	55/10	7.2% @ year
42. Mou.	LAGERS	L	60/5; R-80 option	55/5	6% @ year
43. Mou.	PSRS	T	60/5; A/30	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%

(W) = Temporary Retirement Incentive Window

CHART IINORMAL 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	65/5; 60/35	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; (W)	50/10; A/20; R-70	Vary by Service
50. N.J.	PERS	S,L	60/A; 55/25	A/25	3% @ year
51. N.J.	TRS	T	60/A; 55/25	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; R-75	A/5	2.4%/7.2%
54. N.Y.	ERS	S,L	62/10 (W)	None	-
55. N.Y.	TRS	T	62/10; 55/30; 70/5; (W)	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,T	65/5; R-90	55/5	6%
59. N.D.	TRF	T	65/5; R-85	55/5	6% @ year
60. Ohio	PERS	S,L	60/5; A/30; (W)	55/25	3% @ year
61. Ohio	STRS	T	60/5; A/30; (W)	55/25	3% @ year
62. Okla.	PERS	S,L	62/ R-80	55/10	Act. Table
63. Okla.	TRS	T	62/10; R-80	55/10	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	62 or 60/30; A/35; (W)	A/10; 55/25	3% @ year
67. R.I.	ERS	S,T	60/10; A/28; (W)	None	-
68. S.C.	SCRS	S,L,T	65/5; A/30	55/25; 60/5	5%/4%
69. S.D.	SRS	S,L,T	65/5; R-85 if 58	55/5	3%
70. Tenn.	CRS	S,L,T	60/10; 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; A/25; other options	None	-
74. Utah	SRS	S,L,T	65/4; A/30	A/25; 60/20; 62/10	3% @ year
75. Vert.	SRS	S	62/10	55/10	6% @ year
76. Vert.	TRS	T	62/10	55/10	6% @ year
77. Virg.	SRS	S,L,T	65/5; 55/30; (W)	55/5	6%/4.8%
78. Wash.	PERS	S,L	65/5	55/20	7% @ year
79. Wash.	TRS	T	65/5	55/20	7% @ year
80. W.V.	PERS	S,L	60/5	55/10	6%
81. W.V.	TRS	T	60/5; 55/30; A/35	None	-
82. Wyom.	WRS	S,L,T	60/4	50/4	5% @ year
83. Milw.	City	L	60/4	55/15	Act. Table
84. Milw.	County	L	60/5; 55/30; (W)	55/15	5%
85. Wis.	WRS*	S,L,T	65; 57/30	55/5	Vary by Service

(W) = Temporary Retirement Incentive Window

III. VESTING AND CONTRIBUTION RATES

A. Provision Description

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 employee remains in covered employment. The vesting requirements for the PERS included in the 1992 study are found in Chart III on pages 11 and 12, and the requirements for vesting can be summarized and compared with previous biennial studies as follows:

	<u>1988</u>	<u>1990</u>	<u>1992</u>
Immediate Vesting	1 plan	0 plans	0 plans
Vesting after 3 yrs.	0 plans	3 plans	3 plans
Vesting after 4 yrs.	4 plans	5 plans	5 plans
Vesting after 5 yrs.	33 plans	35 plans	36 plans
Vesting after 8 yrs.	4 plans	3 plans	3 plans
Vesting after 10 yrs.	40 plans	37 plans	33 plans
Vesting after 20 yrs.	1 plan	1 plan	1 plan
Vesting ? or variable	<u>2 plans</u>	<u>1 plan</u>	<u>4 plans</u>
TOTAL	85 plans	85 plans	85 plans

As noted in the above table, there is a slow trend towards reducing the number of years of service in order to vest for a pension benefit. About 50% of the PERS require five or less years of service to vest. The trend appears to be towards five-year vesting or short, perhaps reflecting Federal vesting requirements that now 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. 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 supplementary 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 usually is funded only from employee contribution sources.

The 1992 study of employee contribution requirements is found in Chart III, and the requirements may be summarized and compared with the 1988 survey.

<u>Employee Contributions</u>	<u>1988 Survey</u>	<u>1992 Survey</u>
Employee rate of 0-5%	27 plans	26 plans
Employee rate over 5%	44 plans	42 plans
Rate is variable by plan or ?	4 plans	4 plans
Plan is non-contributory	10 plans	13 plans

The summaries on the previous page note an increase 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. In some cases, the non-contributory status has been adopted when a new tier was created with lower benefit levels and corresponding costs.

Employer "Pick-Up". One of the strongest trends reflected in the 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 as reflected in Chart II notes that 64 of the 72 contributory systems or 89% have adopted 414 (h) provisions. The quick adoption of 414 (h) provisions presumably reflects perceived advantages of this tax-sheltering by both employees and employers.

Employer Contributions. The employer contribution information found in Chart III on pages 11 and 12 is perhaps less reliable 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 depending upon annual or biennial actuarial valuations. In addition, employer costs may be paid from several sources such as school districts and the state, etc. 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, and the contribution rates may or may not be those that are determined as necessary by actuarial valuations. 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 over 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 1990-92. Most of the contributory plans have adopted IRC 414 (h) provisions to give the advantages of tax-sheltering. However, employer contribution rates in over 40% of the plans were reduced in the two-year period between surveys. This probably reflects the numerous changes in economic actuarial assumptions that are noted in Section VI of this report. It also reflects employer contribution delays or "holidays" in several plans, presumably attributable to budget deficits of the employer.

CHART III
CONTRIBUTION & VESTING REQUIREMENT

	<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Employee Contribution</u>	<u>Total Employer Contribution</u>	<u>Vesting Period</u>
1.	Alab.	ERS	Yes	*5%	6.02%/Vary	10 years
2.	Alab.	TRS	Yes	*5%	6.35%	10 years
3.	Alas.	PERS	No	*6.75%	13.58%	5 years
4.	Alas.	TRS	No	*8.65%	19.65%	8 years
5.	Ariz.	SRS	Yes	3.82%	3.82%	5 years
6.	Arka.	PERS	Yes	Non-contributory	10%/6%	10 years
7.	Arka.	TRS	Yes	6%	12%	10 years
8.	Calif.	PERS	Yes	Non-contri./5%	12.87%/Vary	5 years
9.	Calif.	TRS	No	*8%	12.55%	5 years
10.	Colo.	PERA	No	*8%	9.42%/9.70%	5 years
11.	Conn.	SERS	Yes	Non-contributory	20.55%	10 years
12.	Conn.	TRS	No	*6%	18.3%	10 years
13.	Dela.	SEPP	Yes	3%-5% (split)	8.95%	5 years
14.	Flor.	FRS	Yes	Non-contributory	15.72%	10 years
15.	Geor.	ERS	Yes	*4%-6% (split)	10.64%	-
16.	Geor.	TRS	Yes	*6%	11.81%	10 years
17.	Hawaii	ERS	Yes	Non-contributory	17.0%	10 years
18.	Idaho	ERS	Yes	*5.34%	8.89%	5 years
19.	Ill.	SERS	Yes	*4%	4.71%**	8 years
20.	Ill.	TRS	No	*8%	7.8%	5 years
21.	Ill.	MRF	Yes	*4.5%	11.96%	8 years
22.	Ind.	PERF	Yes	*3%	7.6%/7.2%	10 years
23.	Ind.	TRF	Yes	*3%	Pay-as-you-go**	-
24.	Iowa	PERS	Yes	*3.7% (\$31,000)	5.75% (\$31,000)	4 years
25.	Kans.	PERS	Yes	*4%	3.1%	10 years
26.	Kent.	ERS	Yes	*5%	7.45%/7.68%	5 years
27.	Kent.	TRS	No	*9.185%	12.435% **	5 years
28.	Louis.	SERS	No	*7.5%	14.66%	10 years
29.	Louis.	TRS	No	*8%	13.8%	10 years
30.	Maine	SRS	No	*6.5%	17.03% **	10 years
31.	Mary.	SRS	Yes	*5% wages over SS base	13.89%	5 years
32.	Mass.	SERS	No	8%	11.74% **	10 years
33.	Mass.	TRS	No	8%	12.87% **	10 years
34.	Mich.	SERS	Yes	Non-contributory	6.8% **	10 years
35.	Mich.	MERS	Yes	*Varies by plan	Varies by plan	10 yr; 6-8
36.	Mich.	PSERS	Yes	*0% or 4.0%	10.3%	10 years
37.	Minn.	MSRS	Yes	*3.99%	4.12% **	3 years
38.	Minn.	PERA	Yes	*4.23%	4.48%	3 years
39.	Minn.	TRS	Yes	4.5%	8.14%	3 years
40.	Miss.	*PERS	Yes	*7.25%	9.75%	4 years
41.	Mou.	SERS	Yes	Non-contributory	9.9%	5-10 yr.-gr.
42.	Mou.	LAGERS	Yes	*0% to 4%	Varies by plan	5 years
43.	Mou.	PSRS	No	10%	10%	5 years
44.	Mont.	PERS	Yes	*6.3%	6.417%	5 years
45.	Mont.	TRS	Yes	*7.044%	7.459%	5 years

(* = IRC 414 (h)(2) provisions)

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

(%/ = state vs. local rates)

CHART IIICONTRIBUTION & VESTING REQUIREMENT

	<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Employee Contribution</u>	<u>Total Employer Contribution</u>	<u>Vesting Period</u>
46.	Nebra.	SERS	Yes	*3.6%-4.8% (split)	1.56% of EE rate	5 years
47.	Nebra.	TERS	Yes	*6.46%	7.2%	5 years
48.	Nevada	PERS	No	Non-contributory	19%	5 years
49.	N.H.	NHRS	Yes	*5%	2.02%	10 years
50.	N.J.	PERS	Yes	4.96% to 8.73% (age)	Vary by ER	10 years
51.	N.J.	TRS	Yes	*5.05% to 9.09% (age)	?	10 years
52.	N.M.	PERA	Yes	*6.18%/9.15%	13.83%/9.15%	5 years
53.	N.M.	ERA	Yes	*7.6%	8.6%	5 years
54.	N.Y.	ERS	Yes	*3%	None**	10 years
55.	N.Y.	TRS	Yes	*3%	Varies by tier	10 years
56.	N.C.	TSERS	Yes	*6%	7.05%	5 years
57.	N.C.	LGERS	Yes	*6%	7% Average	5 years
58.	N.D.	PERS	Yes	*4%	4.12%	5 years
59.	N.D.	TRF	Yes	*6.75%	6.75%	5 years
60.	Ohio	PERS	No	*8.5%	13.71%/13.95%	5 years
61.	Ohio	STRS	No	*9.25%	12%	5 years
62.	Okla.	PERS	Yes	*2%-10% (split)	11.5%	-
63.	Okla.	TRS	Yes	*6%-11% (split)	1.5% **	10 years
64.	Oreg.	PERS	Yes	*6%	10.22%	5 years
65.	Penns.	SERS	Yes	*6.25%	12.68% Average	10 years
66.	Penns..	PSERS	Yes	*6.25%	14.4%	10 years
67.	R.I.	ERS	Yes	*7.75%/8.5%	10.37%/14.74%	10 years
68.	S.C.	SCRS	Yes	*6%	7.75%	5 years
69.	S.D.	SRS	Yes	*5%	5%	5 years
70.	Tenn.	CRS	Yes	Noncontri./5%	6.4%/8.6%	10 years
71.	Texas	ERS	Yes	*6%	6.43%	5 years
72.	Texas	TRS	Yes	*6.4%	7.31%	5 years
73.	Texas	MRS	Yes	*5%/other options	10% -most Ers	10-most Ers
74.	Utah	SRS	Yes	Non-contributory	13.51%	4 years
75.	Vert.	SRS	Yes	Non-contri./2.75%	8.9% **	10 years
76.	Vert.	TRS	Yes	Non-contri./2.75%	4.74%**	10 years
77.	Virg.	SRS	Yes	*5%	5.45%/7.96%	5 years
78.	Wash.	PERS	Yes	*4.85%	7.33%	5 years
79.	Wash.	TRS	Yes	*6.26%	12.23%	5 years
80.	W.V.	PERS	Yes	*4.5%	?	5 years
81.	W.V.	TRS	Yes	*6%	?	20 years
82.	Wyom.	WRS	Yes	*5.57%	5.68%	4 years
83.	Milw.	City	Yes	*5.5%	5.4908%	4 years
84.	Milw.	County	Yes	Non-contributory	7.7%	10 years
85.	Wis.	WRS	Yes	*6.2%	6.2%	5 years

(* = IRC 414 (h)(2) provisions)

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

(%/% = State vs. local rates)

IV. POST-RETIREMENT ADJUSTMENTS AND BENEFIT TAXES

A. COLAs and State Taxes

Social Security. Pension planners 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). If the CPI for the "base quarter" increases by at least 3% from the previous base quarter, the benefits are increased by the percent rise, effective in the next January 1 check. The automatic adjustments in the most recent 10-year period are as follows:

<u>CPI Year</u>	<u>% Increase</u>	<u>Payable</u>
1982	7.4%	7/1/82
1983	3.5%	7/1/84
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

Hence, to the degree that Social Security is part of total retirement planning (81% of PERS in study), at least that part of income keeps pace with inflation--nearly 50% over the above 10-year period. Although Social Security benefits were previously tax free, up to 50% of such benefits are now subject to Federal tax if income during retirement exceeds specified levels--\$25,000/single and \$32,000/joint.

A June, 1992 publication by AARP* notes that 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 to protect annuity purchasing power. The types of post-retirement adjustment plans are noted in Chart IV on pages 15 and 16, and that information can be summarized and compared with previous surveys as follows:

	<u>1986</u>	<u>1990</u>	<u>1992</u>
CPI Plan Plus/Minus Cap	36 plans	37 plans	43 plans
Automatic Annual Increase	13 plans	17 plans	13 plans
Investment Experience	4 plans	6 plans	4 plans
Ad Hoc Only or None	<u>32 plans</u>	<u>25 plans</u>	<u>25 plans</u>
TOTAL	85 plans	85 plans	85 plans

The tables note some changes in the type and number of post-retirement adjustment plans over six years. During the 1990-92 period, one fund's prefunding of increases was deleted, and two others made modest improvements in their COLAs. Perhaps the most dramatic change in the two-year period relates to the three Minnesota funds which changed from an investment surplus COLA process to one based upon CPI with cap, ± investment surplus. This change presumably reflects how the Minnesota plans' assets are segregated and invested, and the necessary changes to permit increased investment in equities. In total, the small degree of change over the two-year period reflects that inflation is presently a smaller problem in pension planning in the public sector.

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 retirees be treated at least as favorably as state and local retirees under state law.

Previous comparative studies 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 1988 and 1990 surveys as follows:

	<u>1988</u>	<u>1990</u>	<u>1992</u>
No state income tax law**	15 plans	15 plans	13 plans
Benefits totally exempt	44 plans	21 plans	20 plans
Benefits partially exempt	10 plans	31 plans	26 plans
Benefits most or totally tax.	13 plans	15 plans	23 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 may best be described as "fine tuning". Funding of the COLA plans presumably will be a major problem in the future.

The 1992 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. If the recession continues, states may further modify their income tax laws relative to public pension benefits and social security benefits.

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

CHART IVPOST-RETIREMENT INCREASES AND STATE TAX PROVISIONS

	<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Post-Retirement Increases</u>	<u>PERS Benefits and State Taxes</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% cap plus Ad Hoc *	Exempt to \$20,000
11.	Conn.	SERS	Yes	Automatic 3% annual increase	Benefits Taxable
12.	Conn.	TRS	No	CPI - 3% Minimum to 5% maximum	Benefits Taxable
13.	Dela.	SEPP	Yes	Ad Hoc Only	Exempt to \$3,000
14.	Flor.	FRS	Yes	CPI-3% Cap **	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 Exen
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	Automatic 1.5% plus Ad Hoc	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 adjustment-4% cap **	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 *	Benefits Exempt
35.	Mich.	MERS	Yes	3 COLA plans - employer 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 + 1.5% Bd. discretion **	Exempt to \$6,000
41.	Mou.	SERS	Yes	80% CPI; 4% min/5% max. **	Exempt to \$6,000
42.	Mou.	LAGERS	Yes	CPI adjustment - 4% cap	Exempt to \$6,000
43.	Mou.	PSRS	No	CPI adjustment-4% 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)

CHART IVPOST-RETIREMENT INCREASES AND STATE TAX PROVISIONS

	<u>State</u>	<u>Fund</u>	<u>Soc. Sec.</u>	<u>Post-Retirement Increases</u>	<u>PERS Benefits and State Taxes</u>
46.	Nebr.	SERS	Yes	Ad Hoc Only	Benefits Taxable
47.	Nebr.	TRS	Yes	Ad Hoc Only	Benefits Taxable
48.	Nevada	PERS	No	Automatic 2%; 3% after 10 years	No income tax law
49.	N.H.	NHRS	Yes	Ad Hoc Only	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	CPI adjustment - 3% cap **	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 allows	Exempt to \$4,000
57.	N.C.	LGERS	Yes	CPI if surpluses allows	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 adjustment - 3% cap *	Benefits Taxable
61.	Ohio	STRS	No	CPI adjustment - 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	Partially Exempt
65.	Penns.	SERS	Yes	Ad Hoc only	Benefits Exempt
66.	Penns.	PSERS	Yes	Ad Hoc only	Benefits Exempt
67.	R.I.	ERS	Yes	3% automatic increase **	Benefits Taxable
68.	S.C.	SCRS	Yes	CPI adjustment-4% cap **	Exempt to \$3,000
69.	S.D.	SRS	Yes	3% automatic increase	No income tax law
70.	Tenn.	CRS	Yes	CPI adjustment-3% cap *	Benefits Exempt
71.	Texas	ERS	Yes	Ad Hoc only	No income tax law
72.	Texas	TRS	Yes	Ad Hoc only	No income tax law
73.	Texas	MRS	Yes	Ad Hoc only	No income tax law
74.	Utah	SRS	Yes	CPI adjustment - 4% cap *	Benefits taxable
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% cap	Partially Exempt
78.	Wash.	PERS	Yes	CPI adjustment - 3% cap *	No income tax law
79.	Wash.	TRS	Yes	CPI adjustment - 3% cap *	No income tax law
80.	W.V.	PERS	Yes	Ad Hoc Only	Partial Exemption
81.	W.V.	TRS	Yes	Ad Hoc Only	Partial Exemption
82.	Wyom.	WRS	Yes	CPI-1% cap plus ad hoc	No income tax law
83.	Milw.	City	Yes	None-unless by contract	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)

V. RETIREMENT BENEFIT CALCULATIONS

A. Calculation Provisions

Benefit Formulas. Chart V on pages 19 and 20 of this report is intended to reflect the most current benefit formulas for the 85 PERS surveyed. Also, the formulas represent those applying to general employees and teachers, and do not necessarily reflect formulas that may apply to elected officials, protective employees and others who may have higher benefits, earlier normal retirement or other considerations. As Chart V indicates, 83 of the included 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 credited for benefit purposes for each year of service. The FAS is the final average salary which is expressed as months or years of highest earnings over a stated period.

Basic. Sixteen of the PERS in this study (those with a * before the formula) do not provide Social Security coverage for their membership. Such systems presumably have a higher formula multiplier to reflect the lack of Social Security coverage, and the 16 systems have multipliers ranging between 2% and 2.5% accrual for each year of service. The average multiplier for career employees (30 years) in these 16 plans is 2.25%.

Coordinated. The 69 PERS in the study that also provide social security coverage reflect a wide range of multipliers, which may also vary between the various decades of service or by the FAS that is applied in the benefit formula. The formulas noted on Chart V may be summarized as follows, assuming a career employee with 30 years of service and FAS of about \$38,000:

<u>Formula Multiplier</u>	<u># Plans</u>
1.1% to 1.3%	5 plans
1.3+% to 1.5%	9 plans
1.5+% to 1.7%	19 plans
1.7+% to 1.9%	6 plans
1.9+% to 2.1%	20 plans
2.1+%	4 plans
Employer Plan Election	2 plans
Money Purchase	4 plans *
TOTAL	69 plans

(* includes the two Indiana plans which provide an employer-paid formula pension plus an employee-funded money purchase annuity.)

The gradual trend during the 1980's to improve benefit formulas appears to be continuing into the 1990's. The 1988 comparative study noted that 21 of the 85 PERS had some improvements in their formulas, and the 1990 survey noted 17 PERS with modest improvements. The 1992 survey notes that nine plans improved their formula multipliers--usually by a modest 1/10% or less. All nine of these plans also provide social security, and the most common multiplier in the plans appears to be 2% per year. The average multiplier of the 69 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 are noted in Chart V and may be summarized and compared to previous surveys as follows:

<u>FAS Period</u>	<u>1986 Survey</u>	<u>1990 Survey</u>	<u>1992 Survey</u>
2-year FAS Period	2 plans	2 plans	2 plans
3-year FAS Period	48 plans	55 plans	55 plans
4-year FAS Period	6 plans	7 plans	7 plans
5-year FAS Period	27 plans	19 plans	19 plans
Money purchase plans	<u>2 plans</u>	<u>2 plans</u>	<u>2 plans</u>
TOTAL	85 plans	85 plans	85 plans

It should be noted that nine 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 salaries or on annual salary increases that may be considered during the FAS period.

Benefit Limitations. Chart V also notes that several of the PERS establish a limitation on pension benefits that may be payable. Such limitations may be expressed as an offset because of Social Security, or a maximum expressed as a percent of FAS, or as a maximum in the number of creditable years of service or salary levels. On the other hand, the majority of plans surveyed provide no maximum limitation as noted in the following:

	<u>1986 Survey</u>	<u>1990 Survey</u>	<u>1992 Survey</u>
No benefit limitations	53 plans	51 plans	51 plans
FAS limitation	24 plans	27 plans	27 plans
Salary maximum	3 plans	4 plans	4 plans
Service credit maximum	<u>5 plans</u>	<u>3 plans</u>	<u>3 plans</u>
TOTAL	85 plans	85 plans	85 plans

Trends. As noted above, the FAS periods for the various formula plans appears to have stabilized with no plan changes between 1990 and 1992. Also, benefit limitations of the PERS studied appears to have stabilized with only one plan changing the maximum limitation from 80% to 100% of FAS in the last two years. The trend to improve formulas upon which benefits are calculated appears to be continuing into the 1990's at a gradual rate, and the gap in multipliers between plans with soc. sec. and those without seems to be narrowing.

CHART VFINAL AVERAGE PERIODS-FORMULAS-LIMITATIONS

	<u>State</u>	<u>Fund</u>	<u>FAS Period</u>	<u>Benefit Limitation</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; 2½% x 2nd 10; 2.5% + yr.	None
4.	Alas.	TRS	3 H	*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	5 HC/10 +	1.55% ⊕ .322% x yrs. to age 62	100% FAS
7.	Arka.	TRS	5 H	1.85% 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.; 1.25% added yr.	75% FAS
11.	Conn.	SERS	3 H (cap)	1.33% ⊕ 0.5% FAS over \$18,100	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 years max.
17.	Hawaii	ERS	3 HC	1.25% x yrs. x FAS	None
18.	Idaho	PERS	5 HC	1.67% x yrs. x FAS	None
19.	Ill.	SERS	4 HC +	1% x 1st 10 yr. to 1.5% x yrs. over 30	75% FAS
20.	Ill.	TRS	4 HC (cap)	*1.67% x 1st 10 yr. ⊕ 2.3% x yrs. 30+	75% FAS
21.	Ill.	MRF	4 HC (cap) +	1.67% x 1st 15 yr.; 2% x added yrs.	75% FAS
22.	Ind.	PERF	5 H	1.1% x yrs. x FAS ⊕ "EE" M.P. Annuity	45 yrs. ma
23.	Ind.	TRF	5 H	1.1% x yrs. x FAS ⊕ "EE" M.P. Annuity	None
24.	Iowa	PERS	3 H (cap)	1.8% x yrs. x FAS	FAS Salary Cap
25.	Kans.	PeRS	4 H	1.4% x yrs. x FAS or 1.5% with 35 yrs.	None
26.	Kent.	ERS	5 H	1.97%-state; 2.2%-county	None
27.	Kent.	TRS	5 H	*2.5% x yrs. x FAS	None
28.	Louis.	SERS	3 HC +	*2.5% x yrs. x FAS	100% FAS
29.	Louis.	TRS	3 HC +	*2.5% x yrs. x FAS	100% FAS
30.	Maine	SRS	3 H	*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	1.875% x 1st 25 yrs.; 2% added yrs.)	Salary limit
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 VFINAL 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 H	1.65% x yrs. x FAS	None
48. Nevada	PERS	3 HC +	*2.5% x yrs. x FAS	75% FAS
49. N.H.	NHRS	3 H	1.67% x yrs. x FAS SS offset at 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 lst 30 yrs) ⊕ (1.5% x add. yrs.)	None
55. N.Y.	TRS	3 HC (cap)	(2% x lst 30 yrs) ⊕ (1.5% x add. yrs.)	None
56. N.C.	TSERS	4 HC	1.64% x yrs. x FAS	None
57. N.C.	LGERS	4 HC	1.63% x yrs. x FAS	None
58. N.D.	PERS	3 HC +	1.69% x yrs. x FAS	None
59. N.D.	TRF	3 HC	1.39% x yrs. x FAS	None
60. Ohio	PERS	3 H	*(2.1% x lst 30 yrs) ⊕ (2.5% add yrs)	90% FAS
61. Ohio	STRS	3 H	*(2.1% x lst 30 yrs) ⊕ (2.5% add yrs)	90% FAS
62. Okla.	PERS	3 H/5	2% x yrs. x FAS	FAS Salary Cap
63. Okla.	TRS	3 H/5	2% x yrs. x FAS	FAS Salary Cap
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 lst 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) ⊕ (2%-PIA)	None
70. Tenn.	CRS	5 HC	(1.5% x yrs. x FAS) ⊕ .25% x FAS 18,800	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 H	2% x yrs. x FAS ⊕ 401 (k)	None
75. Vert.	SRS	3 HC	1.25% x yrs. x FAS	50% FAS
76. Vert.	TRS	3 HC	1.25% x yrs. x FAS	40 yrs. max.
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	5 H/15	2% x yrs. x FAS	None
82. Wyom.	WRS	3 H	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)

VI. ACTUARIAL AND ACCOUNTING INFORMATION

A. Information Description

Actuarial Methods. Nearly all the PERS in this study have adopted reserve funding under one of the accepted 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>1992 Survey</u>
- PERS using entry age normal	63 plan	64 plans
- PERS using unit credit	10 plans	11 plans
- PERS using aggregate cost	4 plans	4 plans
- PERS using attained age	3 plans	3 plans
- PERS using projected benefits	4 plans	3 plans
- Actuarial method unknown	<u>1 plan</u>	<u>0 plans</u>
TOTAL	85 plans	85 plans

This survey indicates that about 75% of the PERS use entry age normal which has as its goal to provide a level normal cost projection over the long-term--from generation to generation of taxpayers.

Interest Assumption. The interest or earnings assumption 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 1992 survey which may be summarized as follows:

	<u>1990 Survey</u>	<u>1992 Survey</u>
5%-7%	12 plans	5 plans
7+%-8%	49 plans	51 plans
8+%	22 plans	28 plans
Unknown/Mon. Pur.	<u>2 plans</u>	<u>1 plan</u>
TOTAL	85 plans	85 plans

This survey indicates that the majority of PERS studied have adopted an interest assumption approaching or exceeding 8%.

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>
0-1% spread	6 plans	2 plans
1+%-2% spread	24 plans	17 plans
2+%-3% spread	25 plans	25 plans
3+% spread	16 plans	26 plans
Spread Unknown	14 plans	12 plans
Spread "Up"	<u>0 plans</u>	<u>3 plans</u>
TOTAL	85 plans	85 plans

This study indicates that the majority of PERS have adopted a spread of 2% to 3%, or greater.

PBO Funding Ratio. The Governmental Accounting Standards Board (GASB) now requires public pension plans to disclose certain information in their financial reports. The "pension benefit obligation" or PBO is a disclosure measure of the present value of pension benefits, adjusted for the effects of projected salary increases, but estimated based 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 (assets to liabilities) is now a common financial disclosure, but this measure allows pension assets to be valued at cost, or market, or some smoothed market approach. Therefore, PBO funding ratios are most valuable if used to note the trend in the ratio of a particular PERS from year to year--whether the ratio is increasing or decreasing.

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

Trends. During the two-year period, two of the PERS adopted the unit credit actuarial method. Twenty-seven of the plans increased their interest assumption, and 20 of the plans changed their inflationary wage assumption--an extremely high degree of change in a two-year period. As a result, the economic spread was increased in 34% of the plans during this two-year period alone. These changes are reflected in the numerous employer contribution reductions in Section 3 of this study.

Most PBO funding ratios of the 85 PERS remain strong, reflecting that nearly 60% have PBO funding ratios of 80% or more--based upon current economic assumptions. Only time will tell whether these assumptions will remain valid for the long term.

CHART VIACTUARIAL AND ACCOUNTING

	<u>State</u>	<u>Fund</u>	<u>Actuarial Method</u>	<u>Interest Assumption</u>	<u>Wage Inflation</u>	<u>Economic Spread</u>	<u>PBO Funding</u>
1.	Alab.	ERS	Entry Age	8.5%	N.D.	Up	104.8%
2.	Alab.	TRS	Entry Age	8.5%	N.D.	Up	105.5%
3.	Alas.	PERS	Unit Credit	9.0%	5.5%	3.5%	97.2%
4.	Alas.	TRS	Unit Credit	9.0%	5.5%	3.5%	90.0%
5.	Ariz.	SRS	Unit Credit	8.0%	5.0%	3.0%	110.3%
6.	Arka.	PERS	Entry Age	7.5%	5.0%	2.5%	120.0%
7.	Arka.	TRS	Entry Age	8.0%	5.5%	2.5%	95.5%
8.	Calif.	PERS	Entry Age	8.5%	5.0%	3.5%	87.3%
9.	Calif.	TRS	Entry Age	8.5%	6.5%	2.0%	68.6%
10.	Colo.	PERA	Entry Age	7.5%	5.5%	2.0%	100.53%
11.	Conn.	SERS	Entry Age	8.5%	N.D.	?	56.0%
12.	Conn.	TRS	Entry Age	8.5%	N.D.	?	68.9%
13.	Dela.	SEPP	Unit Credit	8.5%	5.0%	3.5%	101.9%
14.	Flor.	FRS	Entry Age	8.0%	5.5%	2.5%	69.1%
15.	Geor.	ERS	Entry Age	7.5%	4.0%	3.5%	84.8%
16.	Geor.	TRS	Entry Age	7.5%	N.D.	Up	86.8%
17.	Hawaii	ERS	Entry Age	8.0%	5.0%	3.0%	73.6%
18.	Idaho	PERS	Entry Age	7.95%	6.0%	1.95%	70.1%
19.	Ill.	SERS	Unit Credit	8.0%	4.5%	3.5%	60.2%
20.	Ill.	TRS	Unit Credit	8.0%	4.0%	4.0%	57.
21.	Ill.	MRF	Entry Age	7.5%	4.25%	3.25%	79.5%
22.	Ind.	PERF	Entry Age	7.5%	6.5%	1.0%	102.1%
23.	Ind.	TRF	Entry Age	7.5%	5.5%	2.0%	27.5%
24.	Iowa	PERS	Aggregate	6.5%	N.D.	?	102.2%
25.	Kans.	PERS	Entry Age	8.0%	5.0%	3.0%	100.7%
26.	Kent.	ERS	Entry Age	8.0%	6.5%	1.5%	91.1%
27.	Kent.	TRS	Unit Credit	8.0%	5.0%	3.0%	72.3%
28.	Louis.	SERS	Unit Credit	8.25%	4.5%	3.75%	55.1%
29.	Louis.	TRS	Unit Credit	8.25%	4.5%	3.75%	46.5%
30.	Maine	SRS	Entry Age	8.5%	6.0%	2.5%	34.4%
31.	Mary.	SRS	Entry Age	7.5%	5.0%	2.5%	61.6%
32.	Mass.	SERS	Entry Age	8.0%	4.5%	3.5%	54.2%
33.	Mass.	TRS	Entry Age	8.0%	4.5%	3.5%	46.1%
34.	Mich.	SERS	Entry Age	10.0% (T)	5.0%	4.0%	85.3%
35.	Mich.	MERS	Attained Age	8.0%	5.5%	3.5%	102.9%
36.	Mich.	PSERS	Entry Age	9.3% (T)	5.0%	4.3%	64.6%
37.	Minn.	MSRS	Entry Age	8.5%	6.5%	2.0%	90.0%
38.	Minn.	PERA	Entry Age	8.5%	6.5%	2.0%	85.0%
39.	Minn.	TRA	Entry Age	8.5%	6.5%	2.0%	84.3%
40.	Miss.	PERS	Entry Age	8.0%	5.0%	3.0%	68.3%
41.	Mou.	SERS	Entry Age	8.5%	5.0%	3.5%	99.8%
42.	Mou.	LAGERS	Entry Age	7.0%	4.0%	3.0%	103.6%
43.	Mou.	PSRS	Entry Age	8.0%	5.9%	2.1%	85.3%
44.	Mont.	PERS	Entry Age	8.0%	6.5%	1.5%	78.3%
45.	Mont.	TRS	Entry Age	8.0%	6.5%	1.5%	57.

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

(T = Temporary increase)

CHART VI
ACTUARIAL AND ACCOUNTING

<u>State</u>	<u>Fund</u>	<u>Actuarial Method</u>	<u>Interest Assumption</u>	<u>Wage Inflation</u>	<u>Economic Spread</u>	<u>PBO Funding</u>
46. Nebra.	SERS	Entry Age		Money Purchase	-	N.A.
47. Nebra.	SRS	Entry Age	8.5%	N.D.	?	86.5%
48. Nevada	PERS	Entry Age	8.0%	5.0%	3.0%	71.8%
49. N.H.	NHRS	Entry Age	8.0%	4.5%	3.5%	87.5%
50. N.J.	PERS	Projected Benefit	7.0%	N.D.	?	74.3%
51. N.J.	TRS	Projected Benefit	6.5%	N.D.	?	79.4%
52. N.M.	PERA	Entry Age	8.0%	5.0%	3.0%	75.0%
53. N.M.	ERA	Entry Age	7.0%	4.0%	3.0%	74.5%
54. N.Y.	ERS	Unit Credit	8.75%	5.0%	3.75%	106.5%
55. N.Y.	TRS	Aggregate Cost	8.0%	N.D.	?	96.7%
56. N.C.	TSERS	Entry Age	7.5%	N.D.	?	103.5%
57. N.C.	LGERS	Entry Age	7.5%	N.D.	?	108.0%
58. N.D.	PERS	Entry Age	8.0%	5.0%	3.0%	120.1%
59. N.D.	TRF	Entry Age	8.0%	4.5%	3.5%	84.4%
60. Ohio	PERS	Entry Age	7.75%	5.5%	2.25%	88.2%
61. Ohio	STRS	Entry Age	7.75%	5.875%	1.875%	76.1%
62. Okla.	PERS	Entry Age	7.5%	6.0%	1.5%	80.0%
63. Okla.	TRS	Entry Age	8.0%	5.0%	3.0%	37.4%
64. Oreg.	PERS	Entry Age	8.0%	6.0%	2.0%	99.2%
65. Penn.	SERS	Entry Age	9.25%	4.0%	5.25%	103.6%
66. Penn.	PSERS	Entry Age	8.5%	4%	4.5%	81.5%
67. R.I.	ERS	Entry Age	7.5%	4.0%	3.5%	67.8%
68. S.C.	SCRS	Entry Age	8.0%	5.0%	3.0%	71.7%
69. S.D.	SRS	Entry Age	8.0%	6.0%	2.0%	113.0%
70. Tenn.	CRS	Entry Age	8.5%	7.0%	1.5%	104.5%
71. Texas	ERS	Entry Age	8.5%	4.5%	4.0%	109.13%
72. Texas	TRS	Entry Age	8.0%	5.0%	3.0%	80.6%
73. Texas	MRS	Unit Credit	8.5%	6.0%	2.5%	79.9%
74. Utah	SRS	Entry Age	8.0%	5.0%	3.0%	86.0%
75. Verm.	SRS	Entry Age	8.5%	5.5%	3.0%	83.7%
76. Verm.	TRS	Projected Benefit	8.5%	5.5%	3.0%	81.1%
77. Virg.	SRS	Entry Age	8.0%	4.0%	4.0%	70.0%
78. Wash.	PERS	Aggregate Cost	7.5%	5.5%	2.0%	80.0%
79. Wash.	TRS	Aggregate Cost	7.5%	5.5%	2.0%	67.0%
80. W.V.	PERS	Attained Age	7.5%	N.D.	?	94.8%
81. W.V.	TRS	Attained Age	8.0%	4.25%	3.75%	10.0%
82. Wyom.	WRS	Entry Age	8.0%	4.5%	3.5%	102.3%
83. Milw.	City	Entry Age	8.0%	7.0%	1.0%	117.0%
84. Milw.	County	Entry Age	8.5%	N.D.	?	115.4%
85. Wis.	WRS	Entry Age	8.0%	5.6%	2.4%	113.0%

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

(T = Temporary increase)

