RRC-SR-79

STATE OF WISCONSIN

RETIREMENT RESEARCH COMMITTEE

STAFF REPORT NO. 79

1990 COMPARATIVE STUDY OF

MAJOR PUBLIC EMPLOYEE RETIREMENT SYSTEMS

Prepared by RRC Staff
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STATE OF WISCONSIN

RETIREMENT RESEARCH COMMITTEE

July, 1990

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** Member of the Joint Survey Committee on Retirement Systems

STATE OF WISCONSIN

RETIREMENT RESEARCH COMMITTEE

STAFF REPORT NO. 79

1990 COMPARATIVE STUDY OF MAJOR PUBLIC EMPLOYEE RETIREMENT SYSTEMS

TABLE OF CONTENTS

I. SURVEY OF STATEWIDE PERS

A. Pension System Descriptions

Survey. About every two years the Wisconsin Retirement Research Committee (RRC) compares major statewide public employee retirement systems (PERS) across the country with pension systems within Wisconsin. These surveys emphasize retirement programs for general employees and teachers. The Wisconsin systems include the statewide WRS and two other pension plans administered under homerule--the Milwaukee City ERS and the Milwaukee County ERS.

The 1990 comparative study includes 85 public pension plans and 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.

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 1990 study, information is current through 1989. 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) and the National Council on Teacher Retirement (NCTR).

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:

Employee Coverage	PERS
State employees only	11 funds
Teachers only	27 funds
Local employees only	8 funds
State & Local	15 funds
State & Teacher	3 funds
State, Local & Teacher	21 funds
TOTAL	85 funds

Participation. The 85 PERS in the 1990 study provide pension coverage for 8.9+ million active employees and 2.9+ million retirees, for a total of 11.9 million participants. This total is 5% greater than the 11.3 million active and retired participants noted in the 1988 study. The active participants have grown between the 1988 and 1990 studies by 4.2%, while the retirees have grown by 10.4% in that same time period.

Chart I also shows the ratio of active 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 3.18 in 1988 to 3.00 in 1990. Three of the systems including Milwaukee City and County have an active to retiree ratio of less than two.

Systems Size. The systems in the 1990 study range in size from Vermont's SRS of 7,600 active to California's PERS which has 567,000 active participants. The sizes of the systems studied is reflected in the following tables for the last three surveys.

Active Employees	1986 Survey	1988 Survey	1990 Survey
Less than 50,000	36 funds	36 funds	35 funds
50,000 - 100,000	20 funds	20 funds	19 funds
100,000 - 150,000	14 funds	12 funds	14 funds
150,000 - 200,000	4 funds	6 funds	6 funds
Over 200,000	11 funds	11 funds	11 funds
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 1990 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 1.5 million active employees, or 17% of the total actives in this survey. This is probably less than the national average of public employee coverage under Social Security.

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 very common in public pension plans. Of the 69 PERS with Soc. Sec.included in RRC studies for 1986, 1988, and 1990, the degree and type of integration is as follows:

	1986 Survey	1988 Survey	1990 Survey
- No integration	55 funds	55 funds	57 funds
- Step-up formula	6 funds	6 funds	6 funds
- Formula offset	4 funds	3 funds	4 funds
- Combined maximum	4 funds	5 funds	2 funds
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. Some plans provide a maximum cap 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. However, the number of retirees is growing at a faster rate 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 RRC studies. On the other hand, the explicit recognition of Social Security in the design of the pension plans is declining over time, partially reflecting recent Federal laws which place limits on integration to discourage discrimination.

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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	58,612	15,000	3.91	Yes	None
2.	Alab.	TRS	T	101,459	24,086	4.21	Yes	None
3.	Alas.	PERS*	S,L	28,044	6,967	4.03	No	-
4.	Alas.	TRS	T	8,527	3,098	2.75	No	-
5.	Ariz.	SRS	S,L,T	119,073	28,575	4.17	Yes	None -
6.	Arka.	PERS	S,L	39,575	10,070	3.93	Yes	None ~~Benefit Offset~~
7.	Arka.	TRS*	T	42,006	11,300	3.72	Yes	None
8.	Calif.	PERS*	S,L	566,980	239,864	2.36	Yes	FAS Offset
9.	Calif.	TRS	T	284,813	119,373	2.39	No	-
10.	Colo.	PERA	S,L,T	103,064	33,348	3.09	No	-
11.	Conn.	SERS*	S	57,175	20,461	2.79	Yes	Step-Up Formula
12.	Conn.	TRS	T	40,258	13,668	2.95	No	-
13.	Dela.	SEPP	S,T	27,241	9,704	2.81	Yes	Maximum Cap
14.	Flor.	FRS	S,L,T	502,773	101,791	4.94	Yes	None
15.	Geor.	ERS	S	58,687	13,615	4.31	Yes	None
16.	Geor.	TRS	T	135,526	27,743	4.89	Yes	None
17.	Hawaii	ERS*	S,L,T	48,411	19,108	2.53	Yes	None
18.	Idaho	PERS	S,L,T	46,106	16,344	2.82	Yes	None
19.	Ill.	SERS	S	76,651	33,523	2.29	Yes	None
20.	Ill.	TRS	T	101,000	45,718	2.21	No	-
21.	Ill.	MRF*	L	118,103	47,598	2.48	Yes	None
22.	Ind.	PERF	S,L	125,304	31,917	3.93	Yes	None
23.	Ind.	TRF	T	65,986	26,173	2.52	Yes	None
24.	Iowa	PERS	S,L,T	131,619	48,103	2.74	Yes	None
25.	Kans.	PERS	S,L,T	93,919	34,073	2.76	Yes	None
26.	Kent.	ERS*	S,L	95,468	45,619	2.09	Yes	None
27.	Kent.	TRS	T	46,278	18,619	2.49	No	-
28.	Louis.	SERS	S	63,144	24,578	2.57	No	-
29.	Louis.	TRS*	T	85,965	20,572	2.81	No	-
30.	Maine	SRS	S,L,T	44,955	22,071	2.04	No	-
31.	Mary.	SRS*	S,L,T	158,973	48,755	3.26	Yes	Step-Up Formula
32.	Mass.	SERS	S	90,570	35,869	2.53	No	-
33.	Mass.	TRS*	T	63,821	25,951	2.46	No	-
34.	Mich.	SERS	S	66,388	24,187	2.75	Yes	None
35.	Mich.	MERS*	L	30,345	9,500	3.19	Yes	None
36.	Mich.	PSERS	T	280,000	79,917	3.50	Yes	None
37.	Minn.	MSRS*	S	48,653	13,079	3.72	Yes	None
38.	Minn.	PERA*	L	99,515	27,872	3.57	Yes	None
39.	Minn.	TRA	T	64,796	16,550	3.92	Yes	None
40.	Miss.	PERS	S,L,T	125,838	30,026	4.19	Yes	None
41.	Mou.	SERS*	S	43,787	11,090	3.95	Yes	None
42.	Mou.	LAGERS*	L	19,054	5,046	3.78	Yes	None
43.	Mou.	PSRS	T	55,198	18,038	3.06	No	-
44.	Mont.	PERS	S,L	27,614	9,652	2.86	Yes	None
45.	Mont.	TRS	T	15,087	6,330	2.38	Yes	None

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

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

CHART I

	State	Fund Name	Employee Coverage	Number Actives	Number Annuitants	Ratio of Act./Annt.	Soc. Sec. Coverage	Soc. Sec. Integration
46.	Nebra.	SERS*	S,L	9,897	2,000	4.94	Yes	Step-Up M.P.
47.	Nebra.	SRS	T, Sch.	28,629	6,384	4.48	Yes	None
48.	Nevada	PERS	S,L,T	47,365	10,906	4.34	No	-
49.	N.H.	NHRS	S,L,T	34,759	8,555	4.06	Yes	Age 65 Offset
50.	N.J.	PERS	S,L	257,380	60,130	4.28	Yes	EE Contribution
51.	N.J.	TRS	T	114,087	31,942	3.57	Yes	EE Contribution
52.	N.M.	PERA	S,L	33,400	9,779	3.42	Yes	None
53.	N.M.	ERA	T	47,851	12,044	3.97	Yes	None
54.	N.Y.	ERS*	S,L	525,866	226,261	2.32	Yes	None
55.	N.Y.	TRS*	T	187,326	67,077	2.79	Yes	None
56.	N.C.	TSERS	S,T	223,426	63,814	3.50	Yes	None
57.	N.C.	LGERS	L	78,409	15,423	5.08	Yes	None
58.	N.D.	PERS	S,L	14,081	2,091	6.73	Yes	None
59.	N.D.	TRF	T	9,783	3,862	2.53	Yes	None
60.	Ohio	PERS	S,L	258,981	100,010	2.59	No	-
61.	Ohio	STRS	T	153,830	66,453	2.32	No	-
62.	Okla.	PERS	S,L	45,067	13,809	3.26	Yes	None
63.	Okla.	TRS	T	68,197	21,903	3.11	Yes	None
64.	Oreg.	PERS	S,L,T	119,908	52,533	2.28	Yes	None
65.	Penn.	SERS	S	109,819	72,830	1.51	Yes	None
66.	Penn.	PSERS	T	195,842	92,924	2.11	Yes	None
67.	R.I.	ERS	S,T	26,266	10,853	2.42	Yes	None
68.	S.C.	SCRS*	S,L,T	160,368	38,649	4.15	Yes	None
69.	S.D.	SRS	S,L,T	28,411	9,404	3.02	Yes	PIA Offset
70.	Tenn.	CRS	S,L,T	153,882	51,155	3.01	Yes	Step-Up Formula
71.	Texas	ERS	S	121,649	24,696	4.93	Yes	None
72.	Texas	TRS	T	470,042	117,885	3.99	Yes	None
73.	Texas	MRS*	L	66,512	9,326	7.13	Yes	None
74.	Utah	SRS	S,L,T	71,014	17,332	4.09	Yes	None
75.	Verm.	SRS*	S	7,600	2,402	3.16	Yes	None
76.	Verm.	TRS*	T	9,487	2,547	3.73	Yes	None
77.	Virg.	SRS*	S,L,T	239,083	69,034	3.46	Yes	~~Maximum Cap~~
78.	Wash.	PERS*	S,L	125,651	44,153	2.85	Yes	None Step-Up Formula
79.	Wash.	TRS*	T	47,266	20,951	2.26	Yes	None
80.	W.V.	PERS	S,L	29,700	13,926	2.13	Yes	None
81.	W.V.	TRS	T	49,031	18,104	2.71	Yes	None
82.	Wyom.	WRS	S,L,T	30,347	8,910	3.41	Yes	None
83.	Milw.	City	L	12,697	7,303	1.74	Yes	None
84.	Milw.	County*	L	8,130	4,910	1.66	Yes	None
85.	Wis.	WRS	S,L,T	202,550	76,500	2.65	Yes	None
	1990 Totals:	(85 Funds)	=	Actives 8,929,950	Annuitants 2,973,311	= Ratio 3.00		

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

8,929,950
2,973,311
11,903,261

II. NORMAL AND EARLY RETIREMENT PROVISIONS

A. Age and Service Requirements

Normal Retirement. 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. This reflects that 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. Actually, most of the PERS in this study have adopted multiple combinations of age and service that qualify for full benefits without actuarial discount. There 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 1990 study allow normal retirement at 65 or earlier with some minimum years of service. The three PERS from Minnesota have been recently amended to provide that the normal retirement age under those systems shall keep pace with the Social Security normal retirement age as it increases in the future. The Minnesota plans are the only ones in this study that have adopted the concept of matching future Social Security trends.

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 1988 survey noted that 49 of the 85 systems would allow normal retirement at 62 with 10 years or less, and the current survey reflects that 50 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 1990 study is age 60 with "X" 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 number of plans with "X years and out" provisions for the last three biennial studies are as follows:

	1986	1988	1990
- 35 years/55 or any age	8 plans	9 plans	8 plans
- 30 years/55 or any age	34 plans	38 plans	35 plans
- 28 years/55 or any age	1 plan	1 plan	2 plans
- 27 years/55 or any age	0	0	1 plan
- 25 years/55 or any age	7 plans	7 plans	9 plans
- 20 years/55 or any age	1 plan	1 plan	1 plan
TOTALS*	51 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 equal a specified number. The rule provisions noted in the 1988 and 1990 studies are as follows:

	1988 Survey	1990 Survey
Rule of 95	1 plan	0
Rule of 92	0	1 plan
Rule of 90	4 plans	2 plans
Rule of 85	1 plan	4 plans
Rule of 80	1 plan	2 plans
Rule of 75	0	1 plan
TOTAL	7 plans	10 plans

Early Retirement. Most of the PERS in the 1990 study permit retirement before the normal age and service requirements have been met, but subject to actuarial discount to reflect the longer pay-out period. 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 three 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 equivalent adjustment" that is required to compensate the pension system for the longer pay-out period. A few systems do not provide early retirement because their normal retirement is already at 55 with long service.

The actuarial discount requirements for the various PERS is found on Chart II, and may be summarized as follows:

- PERS using discount rates less than 3%	-- 1 fund
- PERS using discount rates of 3% to 5.9%	-- 21 funds
- PERS using discount rates of 6% or more	-- 21 funds
- PERS that vary discount rate on service or age	-- 16 funds
- PERS that use an actuarial discount table	-- 14 funds
- PERS that change formula multiplier by age	-- 4 funds
- PERS that are money purchase	-- 1 fund
- PERS that do not provide early retirement	-- 7 funds
TOTAL	85 funds

Trends. The 1990 study indicates that the trend continues in the public sector towards permitting normal retirement at earlier ages--particularly for career employees with long service (25 to 30 years). Of the 85 PERS in the 1990 study, 17 funds modified their normal retirement provisions by reducing the age and/or service requirements for normal retirement. On the other hand, three of the PERS (those from Minnesota) actually increased the normal retirement age for those subject to a new tier to correspond to Social Security requirements as they may be adjusted in the future.

It should also be noted that many of the PERS in the 1990 study "subsidize" early retirement by applying reduction factors that are less than the full actuarial equivalent. Presumably, those PERS that require an actuarial discount of less than 5% per year under normal retirement may reflect some subsidizing of early retirement.

CHART II

NORMAL AND EARLY RETIREMENT REQUIREMENTS

	State	Fund Name	EE Coverage	Normal Retirement Provisions (Age/Yrs.)	Early Retirement Provisions	Actuarial Discount
1.	Alab.	ERS	S,L	60/10; A/30; A/25-Er Elec.	A/25	6.6% @ yr.
2.	Alab.	TRS	T	60/10; A/25	-	-
3.	Alas.	PERS	S,L	60/5; A/30	55/5	Act. Table
4.	Alas.	TRS	T	60/8; A/20; (W+)	55/8	Act. Table
5.	Ariz.	SRS	S,L,T	65/A; 62/10; Rule - 85*	50/5	3%
6.	Arka.	PERS	S,L	65/10; A/30	55/10	6% @ yr.
7.	Arka.	TRS	T	60/10; A/30	A/25	5% @ yr.
8.	Calif.	PERS	S,L	60/5	50/5	Multiplier Varies
9.	Calif.	TRS	T	60/5	55/5; 50/30	6%-3%
10.	Colo.	PERA	S,L,T	65/5; 60/20; 55/30; A/35	55/20; 60/5	4%
11.	Conn.	SERS	S	65/10; 70/5	55/10	6% @ yr.
12.	Conn.	TRS	T	60/20; A/35	55/20; A/25	6%-4%
13.	Dela.	SEPP	S,T	65/5; 60/15; A/30	55/15; A/25	4.8% @ yr.
14.	Flor.	FRS	S,L,T	62/10; A/30	A/10	5% @ yr.
15.	Geor.	ERS	S	65/10; A/30	60/10	5% @ yr.
16.	Geor.	TRS	T	62/10; A/30	60/10	3% @ yr.
17.	Hawaii	ERS	S,L,T	62/10; 55/30	55/20	6%
18.	Idaho	PERS	S,L,T	65/5; Rule-90*	55/5	3%-8%
19.	Ill.	SERS	S	60/8; A/35	55/30	6% @ yr.
20.	Ill.	TRS	T	62/5; 60/10; 55/35	55/20	6% @ yr.
21.	Ill.	MRF	L	60/8; 55/35	55/8	3% @ yr.
22.	Ind.	PERF	S,L	65/10	50/15	1.2%-5%
23.	Ind.	TRF	T	65/10; 60/15; Rule-85*	50/15	1.2%-5%
24.	Iowa	PERS	S,L,T	65/4; Rule-92/30 yrs.	55/4	3%-6%
25.	Kans.	PERS	S,L,T	65/A; 60/35; A/40	55/10	3.6%-7.2%
26.	Kent.	ERS	S,L	65/4; A/30	55/5; A/25	5%-4%
27.	Kent.	TRS	T	60/5; A/27	55/5	5% @ yr.
28.	Louis.	SERS	S	60/10; 55/25; A/30	50/10; 45/25	Act. Table
29.	Louis	TRS	T	65/20; 55/25; A/30	60/10; A/20	Multiplier Varies
30.	Maine	SRS	S,L,T	60/10	A/25	2.25% @ yr.
31.	Mary.	SRS	S,L,T	65/2; 64/3--62/5; A/30	55/15	6% @ yr.
32.	Mass.	SERS	S	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	55/15	6% ea. yr.
35.	Mich.	MERS	L	60/10	55/15; 50/25	6%
36.	Mich.	PSERS	T	60/10; 55/30	55/15	6% ea. yr.
37.	Minn.	MSRS	S	Soc. Sec. Normal	55/5; A/30	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; 55/25; A/30	A/25	6 2/3%
41.	Mou.	SERS	S	65/4; 60/15; 55/30	55/10	7.2% @ yr.
42.	Mou.	LAGERS	L	60/5	55/5	6% @ yr.
43.	Mou.	PSRS	T	60/5; A/30	55/5; A/25	Act. Table
44.	Mont.	PERS	S,L	65/A; 60/5; A/30	50/5; A/25	Act. Table
45.	Mont.	TRS	T	60/A; A/25	50/5	6%-3.6%

(* = Rule of Age and Service)

(W+ = Temporary retirement incentive window)

CHART II

NORMAL AND EARLY RETIREMENT REQUIREMENTS

	State	Fund Name	EE Coverage	Normal Retirement Provisions (Age/Years)	Early Retirement Provisions	Actuarial Discount
46.	Nebr.	SERS	S,L	65/A	55/5	Money Purchase
47.	Nebr.	SRS	T	65/5; 60/35	60/5; A/35	3% @ yr.
48.	Nevada	PERS	S,L,T	65/5; 60/10; A/30	A/5	4%
49.	N.H.	NHRS	S,L,T	60/A	50/10	Varies by Service
50.	N.J.	PERS	S,L	60/A; 55/25	A/25	3% @ yr.
51.	N.J.	TRS	T	60/A; 55/25	A/25	3% @ yr.
52.	N.M.	PERA	S,L	65/5-63/11-60/20; A/25	None	-
53.	N.M.	ERA	T	65/5; A/25: Rule-75*	A/5	2.4%-7.2%
54.	N.Y.	ERS	S,L	62/10; 70/5	None	-
55.	N.Y.	TRS	T	62/10; 70/5; 55/30	None	-
56.	N.C.	TSERS	S,T	65/5; 60/25; A/30	50/20; 60/5	3% @ yr.
57.	N.C.	LGERS	L	65/5; A/30; 60/25	50/20; 60/5	3% @ yr.
58.	N.D.	PERS	S,L	65/A; R-90*	55/5	6% @ yr.
59.	N.D.	TRF	T	65/5; Rule-85*	55/5	6% @ yr.
60.	Ohio	PERS	S,L	60/5; A/30	55/25	3% @ yr.
61.	Ohio	STRS	T	65/5; A/30	55/25; 60/5	3% @ yr.
62.	Okla.	PERS	S,L	62/6; Rule-80*	55/10	Act. Table
63.	Okla.	TRS	T	62/10; R-80*	55/10	Act. Table
64.	Oreg.	PERS	S,L,T	58/A; 55/30	55/A	8% @ yr.
65.	Penn.	SERS	S	60/3; A/35	A/10	Act. Table
66.	Penn.	PSERS	T	62/1; 60/30; A/35	A/10; 55/25	3% @ yr.
67.	R.I.	ERS	S,T	60/10; A/28	None	-
68.	S.C.	SCRS	S,L,T	65/A; A/30	60/5	5% @ yr.
69.	S.D.	SRS	S,L,T	65/5; 60/R-85*	55/5	3% @ yr.
70.	Tenn.	CRS	S,L,T	60/10; A/30	55/10; A/25	4.8% @ yr.
71.	Texas	ERS	S	60/10; 55/30	55/25; 50/30	Act. Table
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	62/10; 60/20; A/25	3%-7%
75.	Vert.	SRS	S	62/10	55/10	6% @ yr.
76.	Vert.	TRS	T	62/10	55/10	6%
77.	Virg.	SRS	S,L,T	65/A; 55/30	55/5	6%-4.8%
78.	Wash.	PERS	S,L	65/5	55/20	7% @ yr.
79.	Wash.	TRS	T	65/5	55/20	7% @ yr.
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	Act. Table
83.	Milw.	City	L	60/4 (W+)	55/15	Act. Table
84.	Milw.	County	L	60/A; 55/30	55/15	5% @ yr.
85.	Wis.	WRS	S,L,T	65/5; 57/30; (W+)	55/5	Varies by Service

(* = Rule of age and 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 1990 study are found on Chart III on pages 11 and 12, and the requirements for vesting can be summarized and compared with previous biennial studies as follows:

Updates

	1986	1988	1990
Immediate Vesting	1 plan	1 plan	0
Vesting after 3 yrs.	0	0	3 plans
Vesting after 4 yrs.	4 plans	4 plans	5 plans
Vesting after 5 yrs.	29 plans	33 plans	35 plans
Vesting after 8 yrs.	3 plans	4 plans	3 plans
Vesting after 10 yrs.	46 plans	40 plans	37 plans
Vesting after 20 yrs.	1 plan	1 plan	1 plan
Vesting now or variable	1 plan	2 plans	1 plan
TOTAL	85 plans	85 plans	85 plans

As noted in the three summaries above, there is a clear trend towards reducing the number of years of service in order to vest for a pension benefit. Those PERS requiring 10 year vesting have reduced from 46 plans in 1986 to 37 plans in 1990. Those PERS requiring five or less years of service credit to vest have increased from 34 plans in 1986 to 43 plans in 1990. The trend appears to be towards five-year vesting or shorter, perhaps reflecting Federal vesting requirements that now apply to private sector pension plans. Of interest, one system (Wisconsin's WRS) changed from immediate vesting to five-year vesting for new hirees in 1989, primarily because that is now the norm in the private sector.

Employee Contributions. Most major corporations provide pension plans that are non-contributory relative to their primary plan, but provide a secondary 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 must be funded only from employee contribution sources.

The 1990 study of employee contribution requirements is found in Chart III, and the requirements may be summarized and compared with the 1988 survey.

Employee Contributions	1988 Survey	1990 Survey
Employee rate of 0-5%	27 plans	25 plans
Employee rate over 5%	44 plans	43 plans
Rate is variable by plan or ?	4 plans	4 plans
Plan is non-contributory	10 plans	12 plans

Update

The above summaries of the 1988 and 1990 studies note an increase in PERS that are non-contributory--i.e., the plan is by design fully funded by employer contributions in a manner similar to the private

List #0

sector. In some cases, the non-contributory status has been adopted when a new tier has been created with lower benefit levels and corresponding costs.

Employer "Pick-Up". One of the strongest trends noted in the RRC biennial studies is the adoption of "employer pick-up" provisions as authorized by Internal Revenue Code 414 (h). Under this provision of the IRC, employers may pay required employee contributions presumably in lieu of a salary increase, or employees may continue to make contributions but on a tax-sheltered basis--i.e., Federal and sometimes state taxes are based upon the net salary after contributions to the retirement system instead of the total gross.

The 1986 comparative study noted that 37 PERS had adopted 414 (h) provisions, and this number had increased to 61 PERS out of the 72 contributory systems in the 1988 study. The current study as reflected on Chart III notes that 63 of the 72 contributory systems or 88% of the PERS have adopted 414 (h) provisions. Of interest, Wisconsin's WRS pick-up arrangements were enacted before IRC 414 (h) authorization was established by Congress. The original Wis. pick-up arrangement was challenged by the IRS, but validated by subsequent court action.

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 instead of as a percentage of payroll. Also, employer costs often vary 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 designed 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 receive employer contributions at rates less than those determined by actuarial valuation as necessary to fully fund accruing benefits (normal cost) & to amortize unfunded accrued liabilities over some specified time period. On the other hand, the vast majority of PERS in this study do receive employer contributions at the rates determined by actuarial valuation.

CHART III

CONTRIBUTION & VESTING REQUIREMENT

	State	Fund	Soc. Sec.	Employee Contribution	Total Employer Contribution	Vesting Period
1.	Alab.	ERS	Yes	*5%	7.10%	10 yrs.
2.	Alab.	TRS	Yes	*5%	7.57%	10 yrs.
3.	Alas.	PERS	No	*6.75%	12.00%	5 yrs.
4.	Alas.	TRS	No	*8.65%	10.54%	8 yrs.
5.	Ariz.	SRS	Yes	4.69%	4.69%	5 yrs.
6.	Arka.	PERS	Yes	Non-Contributory	4%-10%	10 yrs.
7.	Arka.	TRS	Yes	6.0%	12.0%	10 yrs.
8.	Calif.	PERS	Yes	Varies	12.87%	5 yrs.
9.	Calif.	TRS	No	*8.0%	12.08% (**)	5 yrs.
10.	Colo.	PERA	No	*8.0%	10.2%-12.5%	5 yrs.
11.	Conn.	SERS	Yes	Non-Contributory	24.16%	10 yrs.
12.	Conn.	TRS	No	6.0%	19.5%	10 yrs.
13.	Dela.	SEPP	Yes	3%/5% (split)	7.6%	5 yrs.
14.	Flor.	FRS	Yes	Non-Contributory	17.15%	10 yrs.
15.	Geor.	ERS	Yes	*3%/5% (split)	11.75%	10 yrs.
16.	Geor.	TRS	Yes	*6.0%	13.63%	10 yrs.
17.	Hawaii	ERS	Yes	Non-Contributory	15.96%	10 yrs.
18.	Idaho	ERS	Yes	*5.34%	8.89%	5 yrs.
19.	Ill.	SERS	Yes	*4.0%	4.72% (**)	8 yrs.
20.	Ill.	TRS	No	*8.0%	8.2%	5 yrs.
21.	Ill.	MRF	Yes	*4.5%	9.19%	8 yrs.
22.	Ind.	PERF	Yes	*3.0%	7.2%-7.6%	10 yrs.
23.	Ind.	TRF	Yes	*3.0%	Pay-as-you-go (**)	10 yrs.
24.	Iowa	PERS	Yes	*3.73 ($28,000)	5.75% ($28,000)	4 yrs.
25.	Kans.	PERS	Yes	*4.0%	2.6%-3.2%	10 yrs.
26.	Kent.	ERS	Yes	*4.25%-5.0%	5.75%-7.45%	5 yrs.
27.	Kent.	TRS	No	*8.375%-9.855%	10.955%-12.435%	5 yrs.
28.	Louis.	SERS	No	*8.0%	14.09%	10 yrs.
29.	Louis.	TRS	No	*8.0%	17.2%	10 yrs.
30.	Maine	SRS	No	*6.5%	19.47%	10 yrs.
31.	Mary.	SRS	Yes	*5% over S.S. base	14.00%	5 yrs.
32.	Mass.	SERS	No	8.0%	?	10 yrs.
33.	Mass.	TRS	No	8%/10% (split)	16.2%	10 yrs.
34.	Mich.	SERS	Yes	Non-Contributory	7.2%	10 yrs.
35.	Mich.	MERS	Yes	*Varies by plan	Varies by plan	10 yrs.
36.	Mich.	PSERS	Yes	3%-4.3%	11.45%	10 yrs.
37.	Minn.	MSRS	Yes	*4.34%	4.51%	3 yrs.
38.	Minn.	PERA	Yes	*4.47%	4.86%	3 yrs.
39.	Minn.	TRS	Yes	*4.5%	8.14%	3 yrs.
40.	Miss.	PERS	Yes	*6.5% ($75,600)	9.75% ($75,600)	4 yrs.
41.	Mou.	SERS	Yes	Non-Contributory	9.9%	5-10 graded
42.	Mou.	LAGERS	Yes	Zero-4%*	Varies per plan	5 yrs.
43.	Mou.	PSRS	No	10%	10%	5 yrs.
44.	Mont.	PERS	Yes	*6.3%	6.3%	5 yrs.
45.	Mont.	TRS	Yes	*7.044%	7.459%	5 yrs.

(* = Employer "pick-up" permitted or required)
(** = less than actuarially determined rate)

CHART III

CONTRIBUTION & VESTING REQUIREMENT

	State	Fund	Soc. Sec	Employee Contribution	Total Employer Contribution	Vesting Period
46.	Nebra.	SERS	Yes	*3.6%/4.8%	1.56% of EE Rate	5 yrs.
47.	Nebra.	SRS	Yes	*6.52%	6.58% +0.7%	5 yrs.
48.	Nevada	PERS	No	Non-Contributory	19.0%	5 yrs.
49.	N.H.	NHRS	Yes	*4.6%/9.2% (split)	3.5%	10 yrs.
50.	N.J.	PERS	Yes	*4.96%-6.65% (age)	Varies by employer	10 yrs.
51.	N.J.	TRS	Yes	*5.05%-9.09% (age)	?	10 yrs.
52.	N.M.	PERA	Yes	*6.18%-8.5%	8.57%-13.83%	5 yrs.
53.	N.M.	ERA	Yes	*7.6%	7.6%	5 yrs.
54.	N.Y.	ERS	Yes	*3%	Varies by tier	10 yrs.
55.	N.Y.	TRS	Yes	*3%	Varies by tier	10 yrs.
56.	N.C.	TSERS	Yes	*6%	9.35%	5 yrs.
57.	N.C.	LGERS	Yes	*6%	7% average	5 yrs.
58.	N.D.	PERS	Yes	*4%	5.12%	5 yrs.
59.	N.D.	TRF	Yes	*6.75%	6.75%	5 yrs.
60.	Ohio	PERS	No	*8.5%	13.71%-13.95%	5 yrs.
61.	Ohio	STRS	No	*9.25%	12.0%	5 yrs.
62.	Okla.	PERS	Yes	* ?	?	10 yrs.
63.	Okla.	TRS	Yes	5.5%/10.5% (split)	7.8% (**)	10 yrs.
64.	Oreg.	PERS	Yes	*6.0%	10.2%-11.8%	5 yrs.
65.	Penn.	SERS	Yes	*6.25%	12.0%	10 yrs.
66.	Penn.	PSERS	Yes	*6.25%	19.68%	10 yrs.
67.	R.I.	ERS	Yes	*7.5%-8.5%	13.6%-20.3%	10 yrs.
68.	S.C.	SCRS	Yes	*6.0%	6.95%-7.70%	5 yrs.
69.	S.D.	SRS	Yes	*5%	5%	5 yrs.
70.	Tenn.	CRS	Yes	Non-Contributory	11.05%-15.03%	10 yrs.
71.	Texas	ERS	Yes	*6.0%	7.4%	10 yrs.
72.	Texas	TRS	Yes	*6.4%	7.65%	5 yrs.
73.	Texas	MRS	Yes	*6.0 average	Varies by plan	10 or 20 yrs.
74.	Utah	SRS	Yes	Non-Contributory	11.85%	4 yrs.
75.	Vert.	SRS	Yes	Non-Contributory	10.17%	10 yrs.
76.	Vert.	TRS	Yes	Non-Contributory	8.15%	10 yrs.
77.	Virg.	SRS	Yes	*5.0%	7.51%-10.59%	5 yrs.
78.	Wash.	PERS	Yes	*4.99%	6.79* (**)	5 yrs.
79.	Wash.	TRS	Yes	*6.99%	11.33% (**)	5 yrs.
80.	W.V.	PERS	Yes	*4.5%	9.5%	5 yrs.
81.	W.V.	TRS	Yes	*6.0%	6%	20 yrs.
82.	Wyom.	WRS	Yes	*5.57%	5.68%	4 yrs.
83.	Milw.	City	Yes	*5.5%	5.386%	4 yrs.
84.	Milw.	County	Yes	Non-Contributory	8.1%	10 yrs.
85.	Wis.	WRS	Yes	*5 + 1%	6.0% Average	5 yrs.

(* = Employer "pick-up" permitted or required)
(** = less than actuarially determined rate)

IV. POST-RETIREMENT ADJUSTMENTS AND BENEFIT TAXES

A. COLAs and State Taxes

Social Security. Beginning in 1975, Social Security benefits have been automatically adjusted according to changes in the Consumer Price Index (CPI). If the CPI for a particular base quarter increases by at least 3% from what it was in the previous base quarter, the benefits are then increased by the percent rise, effective in the next January 1 check. The automatic adjustments in the most recent decade are as follows:

CPI Year	Percent Increase	Payable
1980	14.3%	7/1/80
1981	11.2%	7/1/81
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

Hence, to the degree that Social Security is part of total retirement planning for a particular PERS, at least that part of income keeps pace with inflation. Although Social Security benefits were previou[illegible]y tax free, up to 50% of such benefits are now subject to Federal taxation if income during retirement exceeds a specified level--$25,000/single and $32,000/joint.

A May, 1989 publication by the National Conference on State Legislatures (NCSL) notes that states have different policies on the taxation of Social Security benefits as follows:

- 27 states allow full exemption of Social Security Benefits from personal income tax.
- 13 states allow partial exemption of Social Security benefits from personal income tax.
- 10 states have no personal income tax.

COLA Plans. During the 1970's decade, inflation caused most public pension plans to view protection of annuity purchasing power as their number one problem. Most public plans adopted post-retirement adjustment plans to keep pace with inflation. 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:

	1986 Survey	1988 Survey	1990 Survey
CPI Plan Plus/Minus Cap	36 plans	37 plans	37 plans
Automatic Annual Increase	13 plans	14 plans	17 plans
Investment Experience	4 plans	4 plans	6 plans
Ad Hoc Only or None	32 plans	30 plans	25 plans
Total	85 plans	85 plans	85 plans

The table reflects some changes in the type and number of post-retirement adjustment plans over time. Two funds listed in 1986 as Ad Hoc plans adopted CPI plans, and three other plans increased the maximum cap for annual CPI adjustments. In total, the degree of changes noted over a two-year period may reflect that inflation is presently a lessor problem in pension planning.

Pension Plan Taxes. The taxability of public pension benefits at the state level has been profoundly effected by the 1989 Supreme Court decision in Davis v. Michigan. This court case reflects what had been an obscure Federal law* which requires that Federal retirees be treated at least as favorably as state and local retirees under state law.

Previous biennial RRC surveys noted that nearly 72% of the PERS included in the studies either had no state income tax law or totally exempted PERS benefits from state income taxes. These results have been drastically altered by the Supreme Court case, and presumably may be altered further as additional states respond to this decision. The current survey may be summarized and compared with the 1986 and 1988 surveys as follows:

Tax Status	1986 Survey	1988 Survey	1990 Survey
No state income tax law**	15 plans	15 plans	15 plans
Benefits totally exempt	46 plans	44 plans	21 plans
Benefits partially exempt	11 plans	10 plans	31 plans
Benefits are taxable	10 plans	13 plans	15 plans
Exempt for some	3 plans	3 plans	3 plans
TOTAL	85 plans	85 plans	85 plans

A March, 1990, publication from the National Conference of State Legislatures (NCSL) indicates that 24 states were initially in conflict with the Davis v. Michigan decision. As of that date of publication, the 24 states had responded as follows:

- 2 states had not yet taken any action.
- 6 states action was pending.
- 2 states had repealed all exclusions of pension income.
- 6 states had reduced the tax preference for state and local employees to match that granted Federal employees.
- 3 states had reduced state and local preferences and increased the preference for Federal employees.
- 5 states had increased the preference to Federal employees to the level granted state and local employees.

Hence, in the last several years the tax status of state and local public pensions and benefits received from Social Security have changed significantly, and may change even more in the near future.

(* The Public Salary Tax Act of 1939)
(** Includes PERS of Connecticut, New Hampshire, and Tennessee which have very limited income tax provisions)

CHART IV

POST-RETIREMENT INCREASES AND STATE TAX PROVISIONS

	State	Fund	Soc. Sec.	Post-Retirement Increases	PERS Benefits and State Taxes
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 of 65; 50% if under 65	No income tax law
4.	Alas.	TRS	No	CPI adjustment - 4% cap *	No income tax law
5.	Ariz.	SRS	Yes	Ad Hoc Only	Exempt to $2,500
6.	Arka.	PERS	Yes	Automatic 3% annual increase *	Exempt to $6,000
7.	Arka.	TRS	Yes	CPI adjustment - 3% cap *	Exempt to $6,000
8.	Calif.	PERS	Yes	Automatic 2% annual increase**	Benefits Taxable
9.	Calif.	TRS	No	Automatic 2% annual increase**	Benefits Taxable
10.	Colo.	PERA	No	CPI adjustment - 3% cap* + Ad Hoc	Exempt to $20,000
11.	Conn.	SERS	Yes	Automatic 3% annual increase	No income tax
12.	Conn.	TRS	No	CPI-3% minimum/5% maximum	No income tax
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 Adjustment-1 1/2% Cap Semi-annual	Exempt to $10,000
16.	Geor.	TRS	Yes	CPI Adjustment-1 1/2% Cap Semi-annual	Exempt to $10,000
17.	Hawaii	ERS	Yes	Automatic 2 1/2% annual increase*	Benefits Exempt
18.	Idaho	PERS	Yes	CPI-1% minimum/6% maximum	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	Benefits Taxable
23.	Ind.	TRF	Yes	Ad Hoc Only	Benefits Taxable
24.	Iowa	PERS	Yes	Ad Hoc Only	Partial exclusion
25.	Kans.	PERS	Yes	Ad Hoc Only	Benefits Exempt
26.	Kent.	ERS	Yes	Automatic-50% of Contribution Margin	Benefits Exempt
27.	Kent.	TRS	No	Automatic-1% plus Ad Hoc	Benefits Exempt
28.	Louis.	SERS	No	CPI-3% Cap if Funded	Benefits Exempt
29.	Louis.	TRS	No	CPI-3% Cap if Funded	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	3% CPI to 1st $9,000 if approved	Benefits Exempt
33.	Mass.	TRS	No	3% CPI to 1st $9,000 if approved	Benefits Exempt
34.	Mich.	SERS	Yes	3% annual increase*	Exempt to $7,500
35.	Mich.	MERS	Yes	CPI Plans-employer election	Exempt to $7,500
36.	Mich.	PSERS	Yes	3% annual increase*	Exempt to $7,500
37.	Minn.	MSRS	Yes	Investment experience increase**	Mostly taxable
38.	Minn.	PERA	Yes	Investment experience increase**	Mostly taxable
39.	Minn.	TRA	Yes	Investment experience increase**	Mostly taxable
40.	Miss.	PERS	Yes	CPI to 2 1/2%* plus Ad Hoc	Benefits Exempt
41.	Mou.	SERS	Yes	80% of CPI-4% minimum/5% maximum	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 COLAs	Benefits Exempt
45.	Mont.	TRS	Yes	Excess investment COLAs	Benefits Exempt

(* = Simple increases based on original benefit)
(** = Compound increases)

CHART IV

POST-RETIREMENT INCREASES AND STATE TAX PROVISIONS

	State	Fund	Soc. Sec.	Post-Retirement Increases	PERS Benefits and State Taxes
46.	Nebr.	SERS	Yes	Ad Hoc Only	Benefits Taxable
47.	Nebr.	SRS	Yes	Ad Hoc Only	Benefits Taxable
48.	Nevada	PERS	No	Automatic 2%; after 10 yrs. 3%	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 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 adjustments-3% cap	Benefits Taxable
61.	Ohio	STRS	No	CPI adjustments-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 adjustments-2% cap	Benefits Exempt
65.	Penn.	SERS	Yes	Ad Hoc Only	Benefits Exempt
66.	Penn.	PSERS	Yes	Ad Hoc Only	Benefits Exempt
67.	R.I.	ERS	Yes	Automatic 3% annual increase **	Benefits Taxable
68.	S.C.	SCRS	Yes	CPI adjustment-4% cap **	Exempt to $3,000
69.	S.D.	SRS	Yes	Automatic 3% 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 adjustment-5% cap	Benefits Taxable
77.	Virg.	SRS	Yes	CPI to 3% + 1/2 CPI over 3%	Exempt to $16,000
78.	Wash.	PERS	Yes	CPI adjustment-3% maximum **	No income tax law
79.	Wash.	TRS	Yes	CPI adjustment-3% maximum **	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	1% CPI cap + Ad Hoc	No income tax law
83.	Milw.	City	Yes	Ad Hoc Only	Exempt for some
84.	Milw.	County	Yes	Automatic 2% annual increase	Exempt for some
85.	Wis.	WRS	Yes	Investment experience increase **	Exempt for some

(* = Simple increases based on original benefit)
(** = Compound increases)

V. RETIREMENT BENEFIT CALCULATIONS

A. Calculation Provisions

Benefit Formulas. Several of the PERS included in the 1990 study administer multiple plans or tiers which apply to different groups of employees, depending upon their date of covered employment. Hawaii, New York, and Vermont are examples of PERS with two or more tiers. Other systems provide different formula multipliers based upon service before or after specific dates, representing improvements that were applied prospectively to future service only. Also, some plans give different recognition to service credit granted before the start-up of the pension system, etc.

Chart V on pages 19 and 20 of this report is intended to reflect the most current benefit formula for the PERS surveyed. Also, the formula represent those applying to general employees and teachers, and do not 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 -

The multiplier indicates a percentage of FAS that is credited for benefit calculation 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.

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 nearly all of the 16 systems have a multiplier ranging between 2% and 2.5% accrual for each year of service.

The 69 PERS in this survey that also provide Social Security coverage reflect varying multipliers as follows:

- Multiplier of 1.0% to 1.3%	--	5 plans
- Multiplier of 1.3+% to 1.5%	--	8 plans
- Multiplier of 1.5+% to 1.7%	--	16 plans
- Multiplier of 1.7+% to 2.0%	--	18 plans
- Multiplier of 2.0+%	--	6 plans
- Multiplier Varies by Service	--	10 plans
- Employer Multiplier Options	--	2 plans
- Part or all Money Purchase	--	4 plans*
TOTAL		69 plans

(* includes the two Indiana Plans which provide a formula pension and an employee funded annuity)

A few PERS in this study have established new tiers in the last five or six years which substantially reduce benefit accruals for employees hired after the effective date. However, said PERS appear to be in the minority, and the general trend during the 1980s to improve benefit formulas appears to be continuing. The 1988 comparative study noted that 21 of the 85 PERS had some improvements in their formulas over the 1986 survey. The 1990 survey also reflects that 14 of the PERS provided modest improvements in their multiplier for all years of service, and an additional three PERS improved the multiplier applying to years of service over 20 or 30 years. The multiplier improvements noted in the 1990 survey range from .05% to 0.2% increase per year of service. This improvement trend may reflect the strong economic conditions of the 1980's, and a major turnaround in the country's economy may stall or reverse this trend.

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. FAS plans provide protection against inflation during the working career--the shorter the FAS period, the greater the protection. The FAS periods used by the PERS surveyed are noted in Chart V and may be summarized and compared to previous surveys as follows:

FAS Period	1986 Survey	1988 Survey	1990 Survey
2-year FAS period	2 plans	2 plans	2 plans
3-year FAS period*	48 plans	49 plans	55 plans
4-year FAS period	6 plans	7 plans	7 plans
5-year FAS period	27 plans	25 plans	19 plans
Money purchase plans	2 plans	2 plans	2 plans
TOTAL	85 plans	85 plans	85 plans

(*includes PERS with an election of 5 or 3 FAS Period)

It should be noted that nine of the 85 PERS place some type of caps on earnings that may be included in the FAS calculations. These caps may reflect a limitation on gross salaries or a limitation 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 gross 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 summary:

Limitation	1986 Survey	1988 Survey	1990 Survey
No benefit limitations	53 plans	50 plans	51 plans
FAS limitation	24 plans	28 plans	27 plans
Salary maximum	3 plans	3 plans	4 plans
Service credit maximum	5 plans	4 plans	3 plans
TOTAL	85 plans	85 plans	85 plans

CHART V

FINAL AVERAGE PERIODS-FORMULAS-LIMITATIONS

	State	Fund	FAS Period	Benefit Formula	Limitation
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; 2¼% 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 +	(1.8% x yrs. x FAS) ⊖ (Partial PIA)	100% FAS with PIA
7.	Arka	TRS	5 H	1.75% 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 $16,100	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% at 65	None
15.	Geor.	ERS	2 HC (cap)	1.5% 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 yr. over 30	75% FAS
20.	Ill.	TRS	4 HC (cap)	*1.67% x 1st 10 yr. to 2.3% x yr. 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. max.
23.	Ind.	TRF	5 H	1.1% x yrs. x FAS ⊕ "EE" M.P. Annuity	None
24.	Iowa	PERS	3 H (cap	1.67% 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	1.91%-state; 2.0%-county	None
27.	Kent.	TRS	5 H	*2 1/2% x yrs. x FAS	None
28.	Louis.	SERS	3 HC	*2.5% x yrs. x FAS ⊕ $300 @ yr.	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 18,600 FAS) ⊕ (1.5% x excess FAS)	None
32.	Mass.	SERS	3 HC	*2.5% x yrs. x FAS (at 65)	80% FAS
33.	Mass.	TRS	3 HC	*2.5% x yrs. x FAS (at 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.	TRS	5 HC	1.5% x yrs. x FAS	100% FAS
40.	Miss.	PERS	4 HC	(1.875% x 1st 30 yrs.) ⊕ (2% x 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	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 V

FINAL AVERAGE PERIODS–FORMULAS–LIMITATIONS

	State	Fund	FAS Period	Benefit Formula	Limitation
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	2.15% 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	1.63% x yrs. x FAS	None
57.	N.C.	LGERS	4 HC	1.63% x yrs. x FAS	None
58.	N.D.	PERS	3 HC +	1.65% x yrs. x FAS	None
59.	N.D.	TRF	3 HC	1.275% x yrs. x FAS	None
60.	Ohio	PERS	3 H	*(2.1% x 1st 30 yrs) ⊕ (2.5% add. yrs)	90% FAS
61.	Ohio	STRS	3 H	*(2.1% x 1st 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 HC	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	(1.25% x FAS) or (2% - PIA)	None
70.	Tenn.	CRS	5 HC	(1.5% x yrs x FAS) ⊕ .25% x FAS 16,800	75% FAS
71.	Texas	ERS	3 H/5 +	2% x yrs. x FAS	80% 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	1.65% x yrs. x (FAS-1,200)	62.5% FAS + ½ PIA
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 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)

VI. ACTUARIAL AND ACCOUNTING INFORMATION

A. Information Description

Actuarial Methods. Nearly all the PERS in this study have avoided "pay-as-you-go" funding and have adopted instead 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. However, the various methods allocate the costs in different ways during the working career or accumulation stage.

Chart VI on pages 23 and 24 note the actuarial methods used by the PERS in this study, and this information can be summarized as follows:

Update

- PERS using entry age normal -- 63 plans
- PERS using unit credit -- 10 plans
- PERS using aggregate cost -- 4 plans
- PERS using attained age -- 3 plans
- PERS using projected benefits -- 4 plans
- Actuarial method unknown -- 1 plan

This survey indicates that about 75% of all PERS included 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. This survey does not reflect changes that might have occurred in 1990--i.e., New York ERS as an example.

Interest Assumption. The interest or earnings assumption adopted by the various PERS is one of the economic assumptions that are key in the actuarial determination of contribution rates. The interest assumption has been increased by many PERS in the last several years to reflect the higher earnings on invested pension assets during the 1980's decade. Chart VI notes the interest assumption used by the PERS in this survey which may be summarized as follows:

Update

5% - 7%	-- 12 plans
7+% - 8%	-- 49 plans
8+%	-- 22 plans
Assumption Unknown	-- 2 plans

This survey indicates that the vast majority of PERS studied are approaching or exceeding 8%.

Economic Spread. The second important economic assumption used in the actuarial process 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. Hence, the absolute level of the interest or inflationary salary assumption may be less important than the relationship (spread) of one assumption to the other.

Chart VI notes the following spreads (where known) of the PERS in this study:

update

0-1% spread	--	6 plans
1+%-2% spread	--	24 plans
2+%-3% spread	--	25 plans
3+% spread	--	16 plans
Spread Unknown	--	14 plans

This study indicates that the majority of PERS have adopted a spread of 2% 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.

Financial disclosure on the funding of a pension plan would be most useful for comparative purposes if determined by normal actuarial methods and procedures that are used in determining contribution rates. However, because there are many acceptable actuarial methods and because other information such as the valuation of assets has not been clearly defined, a comparison of actuarial funding (assets to liabilities) is most difficult.

The PBO funding ratio (assets to liabilities as determined under the GASB standards) is now a common financial disclosure, but even 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.

Given the assumption that PBO funding ratios are of questionnable value in measuring the actuarial funding of a particular pension plan, the PBO information on Chart VI can be summarized as follows:

update

PBO Ratio of 100+%	--	19 plans
PBO Ratio of 90+% - 100%	--	15 plans
PBO Ratio of 80+% - 90%	--	10 plans
PBO Ratio of 70+% - 80%	--	17 plans
PBO Ratio of 60+% - 70%	--	9 plans
PBO Ratio of 50+% - 60%	--	7 plans
PBO Ratio of Under 50%	--	4 plans
PBO Unknown	--	4 plans

This survey indicates that 40% of the included PERS have a PBO funding ratio of 90% or more, and that over 50% are above the 80% funding level.

CHART VI

ACTUARIAL AND ACCOUNTING

	State	Fund	Actuarial Method	Interest Assumption	Wage Inflation	Economic Spread	PBO Funding
1.	Alab.	ERS	Entry Age	8 1/4%*	Range	?	102.2%
2.	Alab.	TRS	Entry Age	8 1/4%*	Range	?	102.5%
3.	Alas.	PERS	Unit Credit	9.0%	5.5%	3.5%	91.6%
4.	Alas.	TRS	Unit Credit	9.0%	5.5%	3.5%	95.1%
5.	Ariz.	SRS	Unit Credit	8.0%	5.0%	3.0%	111.3%
6.	Arka.	PERS	Entry Age	7.0%	5.0%	2.0%	128.8%
7.	Arka.	TRS	Entry Age	7.5%	5.5%	2.0%	91.2%
8.	Calif.	PERS	Entry Age	8.5%	7.0%	1.5%	84.7%
9.	Calif.	TRS	Entry Age	8.5%*	6.5%	2.0%	64.0%
10.	Colo.	PERA	Entry Age	7.5%	5.5%	2.0%	100.98%
11.	Conn.	SERS	Entry Age	8.5%	Range	-	-
12.	Conn.	TRS	Entry Age	8.5%	Range	-	58.3%
13.	Dela.	SEPP	Unit Credit	8.0%	5.0%	3.0%	100.2%
14.	Flor.	FRS	Entry Age	8.0%	5.5%	2.5%	64.2%
15.	Geor.	ERS	Entry Age	7.0%	4.5%	2.5%	73.1%
16.	Georg.	TRS	Entry Age	7.0%	Range	-	78.3%
17.	Hawaii	ERS	Entry Age	8.0%	6.5%	1.5%	88.0%
18.	Idaho	PERS	Entry Age	7.95%	6.0%	1.95%	75.9%
19.	Ill.	SERS	Unit Credit	8.0%	6.5%	1.5%	68.8%
20.	Ill.	TRS	Unit Credit	8.0%	4.0%	4.0%	61.0%
21.	Ill.	MRF	Entry Age	7.0%	3.75%	3.25%	84.3%
22.	Ind.	PERF	Entry Age	7.5%	6.5%	1.0%	99.3%
23.	Ind.	TRF	Entry Age	7.5%	5.5%	2.0%	?
24.	Iowa	PERS	?	?	?	?	102.5%
25.	Kans.	PERS	Entry Age	8.05	5.0%	3.0%	93.0%
26.	Kent.	ERS	Entry Age	8.0%	7.5%	.5%	103.0%
27.	Kent.	TRS	Unit Credit	7.5%	5.0%	2.5%	67.4%
28.	Louis.	SERS	Unit Credit	7.5%	4.0%	3.5%	53.3%
29.	Louis.	TRS	Unit Credit	7.5%	5.0%	2.5%	41.6%
30.	Maine	SRS	Entry Age	8.5%	6.0%	2.5%	31.3%
31.	Mary.	SRS	Entry Age	7.5%	5.0%	2.5%	59.0%
32.	Mass.	SERS	Entry Age	8.0%	4.5%	3.5%	40.2%
33.	Mass.	TRS	Entry Age	8.0%	4.5%	3.5%	42.0%
34.	Mich.	SERS	Entry Age	10.8/8%	5.0%	3.0+%	96.7%
35.	Mich.	MERS	Attained Age	8.0%	5.5%	3.5%	115.0%
36.	Mich.	PSERS	Entry Age	9.8%/8%	5.0%	3.0+%	73.1%
37.	Minn.	MSRS	Entry Age	8.5%	6.5%	2.0%	86.5%
38.	Minn.	PERA	Entry Age	8.5%	6.5%	2.0%	79.0%
39.	Minn.	TRS	Entry Age	8.5%	6.5%	2.0%	82.3%
40.	Miss.	PERS	Entry Age	8.0%	5.0%	3.0%	67.8%
41.	Mou.	SERS	Entry Age	8.0%	5.0%	3.0%	90.7%
42.	Mou.	LAGERS	Entry Age	7.0%	4.0%	3.0%	108.8%
43.	Mou.	PSRS	Entry Age	8.0%	5.9%	2.1%	85.4%
44.	Mont.	PERS	Entry Age	8.0%	6.5%	1.5%	73.1%
45.	Mont.	TRS	Entry Age	8.0%	6.5%	1.5%	56.1%

CHART VI

ACTUARIAL AND ACCOUNTING

	State	Fund	Actuarial Method	Interest Assumption	Wage Inflation	Economic Spread	PBO Funding
46.	Nebra.	SERS	Entry Age	Money Purchase			N.A.
47.	Nebra.	SRS	Entry Age	8.5%	Range	-	77.8%
48.	Nevada	PERS	Entry Age	8.0%	6.5%	1.5%	67.0%
49.	N.H.	NHRS	Projected Benefit	8.0%	4.5%	3.5%	99.5%
50.	N.J.	PERS	Projected Benefit	6.5%	Range	-	79.4%
51.	N.J.	TRS	Projected Benefit	6.5%	Range	-	79.4%
52.	N.M.	PERA	Entry Age	8.0%	5.0%	3.0%	74.5%
53.	N.M.	ERA	Entry Age	7.0%	4.0%	3.0%	74.5%
54.	N.Y.	ERS	Aggregate Cost	8.75%	5.0%	3.75%	105.8%
55.	N.Y.	TRS	Aggregate Cost	7.5%	6.75%	.75%	97.7%
56.	N.C.	TSERS	Entry Age	7.5%	7.5%	zero	98.0%
57.	N.C.	LGERS	Entry Age	7.5%	-	-	108.0%
58.	N.D.	PERS	Entry Age	8.0%	5.0%	3.0%	113.0%
59.	N.D.	TRF	Entry Age	8.0%	5.0%	3.0%	86.9%
60.	Ohio	PERS	Entry Age	7.5%	5.5%	2.0%	73.0%
61.	Ohio	STRS	Entry Age	7.75%	5.875%	1.875%	74.6%
62.	Okla.	PERS	Entry Age	7.5%	6.0%	1.5%	80.0%
63.	Okla.	TRS	Entry Age	7.5%	5.0%	2.5%	54.1%
64.	Oreg.	PERS	Entry Age	7.5%	6.0%	1.5%	93.0%
65.	Penn.	SERS	Entry Age	9.8%-	4.0%	5.8-%	111.47%
66.	Penn.	PSERS	Entry Age	5.5%	Range	-	68.8%
67.	R.I.	ERS	Entry Age	7.5%	4.0%	3.5%	54.4%
68.	S.C.	SCRS	Entry Age	8.0%	4.5%	3.5%	70.2%
69.	S.D.	SRS	Entry Age	7.0%	5.5%	1.5%	103.9%
70.	Tenn.	CRS	Entry Age	8.5%	8.0%	0.5%	99.6%
71.	Texas	ERS	Entry Age	8.5%	6.25%	2.25%	105.0%
72.	Texas	TRS	Entry Age	8.0%	6.5%	1.5%	79.9%
73.	Texas	MRS	Unit Credit	8.5%	6.0%	2.5%	79.0%
74.	Utah	SRS	Entry Age	7.5%	5.75%	1.75%	90.2%
75.	Verm.	SRS	Entry Age	8.5%	5.5%	3.0%	75.2%
76.	Verm.	TRS	Projected Benefit	8.5%	5.5%	3.0%	85.8%
77.	Virg.	SRS	Entry Age	8.0%	4.5%	3.5%	53.2%
78.	Wash.	PERS	Aggregate Cost	7.0%	5.25%	1.75%	83.0%
79.	Wash.	TRS	Aggregate Cost	7.0%	5.25%	1.75%	61.0%
80.	W.V.	PERS	Attained Age	7.5%	Range	-	103.0%
81.	W.V.	TRS	Attained Age	-	-	-	-
82.	Wyom.	WRS	Entry Age	8.0%	4.5%	3.5%	99.9%
83.	Milw.	City	Entry Age	8.0%	7.0%	1.0%	118.0%
84.	Milw.	County	Entry Age	8.0%	Range	-	113.9%
85.	Wis.	WRS	Entry Age	7.8%	5.6%	2.2%	99.7%