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OHIO SCHOOL EMPLOYEES RETIREMENT SYSTEM

The Report of the
ANNUAL ACTUARIAL VALUATION
June 30, 1983

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Report of Annual Actuarial Valuation of Ohio SERS

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January 9, 1984

The Board of Trustees
Ohio School Employees Retirement System
Columbus, Ohio

Ladies and Gentlemen:

Submitted in this report are the results of the June 30, 1983 actuarial valuation of the Ohio School Employees Retirement System, as amended.

The necessary statistical data on which the valuation was based was furnished by your Director and his staff.


Their cooperation in furnishing the materials needed for this valuation is acknowledged with appreciation.

The actuarial assumptions used in making the valuation are shown in the Appendix of this report. The non-economic assumptions are from the June 30, 1980 revised actuarial valuation, and the economic assumptions were established for the June 30, 1981 actuarial valuation.

Your attention is directed particularly to:

Computed Employer Contribution Rates on page 25;
Financial Principles on pages 4-5;
Short Condition Test on page 28;
COMMENTS on pages 3A - 3B.

Respectfully submitted,


Gerald B. Sonnenschein


Richard G. Roeder

GBS:jg

COMMENTS

General Financial Objective. A sound general financial objective for any public employee retirement plan is to establish and receive contributions which, expressed as percents of active member payroll, will remain approximately level from generation to generation of citizens.

SERS Status. Based upon the results of the June 30, 1983 actuarial valuation, the general financial objective of level-contribution-percent financing will be satisfied if future financial experiences are as assumed.

Investment return and employee pay increases and health care costs are particularly important risk areas.

A lengthening of the amortization period (page 24 has detail) indicates a slight weakening of financial strength.

Gain/Loss Annual Analysis. To keep closer watch of the relationship between actual experience and assumed experience in each major risk area, an annual Gain/Loss Analysis is being established. This program intends to provide annual information about experience in an understandable form.

Board Actions. During the past year the Board took two actions which significantly increased financial strength: reduction of health care benefits; and increases in contribution rates.

The health care program has been a financial problem since inception in 1974.

The new contribution rates of 8.75% members (from 8.00%) and 14.00% employers (from 12.50%) resulted in the amortization period for unfunded actuarial accrued liabilities being reduced to 30 years before this valuation.

Health Care Benefits. The financial development of this program is cause for increasing concern.

Initially, beginning in 1974, 0.75% was the contribution rate established for Health Care Benefits, and included in a total Employer Rate then 12.50%. Health Care contribution rates have been increased at various times since 1974. The increases in health care costs have been substantially more than inflation increases.

This 1983 valuation produced a Health Care contribution rate of 5.50%, a new high and the result of major increases in rates charged by health care suppliers. The health care cost increases include (annual increases of 4.5% are presently assumed):

- a) A Medicare B premium increase of 20% (from \$12.20 to \$14.60);
- b) Increased utilization of mail order prescription service (up 85% from 1982 to 1983); and
- c) Increases ranging from 20% to 53% projected by Aetna Life and Casualty in the level of health care claims under the program.

The January 1984 health care costs are partially reflected in this valuation. The rates used for the valuation are the average of the old and new rates from Aetna and Medicare. Had the new rates been used exclusively, the health care contribution rate would have increased to 5.93%, extending the amortization period for SERS unfunded liabilities to 43 years.

This valuation takes account of the Board's action at the December meeting increasing the premiums the retirants pay for dependent health insurance.

Promises Made, and To Be Paid For. As each year is completed, SERS in effect hands an "IOU" to each member then acquiring a year of service credit --- the "IOU" says: "The School Employees Retirement System of Ohio owes you one year's worth of retirement benefits, payments in cash commencing when you qualify for retirement."

The related key financial questions are:

Which generation of taxpayers contributes the money to cover the IOU?

The present taxpayers, who receive the benefit of the member's present year of service?

Or the future taxpayers, who happen to be in Ohio at the time the IOU becomes a cash demand, years and often decades later?

The law governing SERS financing intends that this year's taxpayers contribute the money to cover the IOUs being handed out this year. By following this principle, the employer contribution rate will remain approximately level from generation to generation --- our children and our grandchildren will contribute the same percents of active payroll we contribute now.

(There are systems which have a design for deferring contributions to future taxpayers, lured by a lower contribution rate now and putting aside the consequence that the contribution rate must then relentlessly grow much greater over decades of time --- consume now, and let your children face your financial pollution after you retire.)

An inevitable byproduct of the level-cost design is the accumulation of reserve assets, for decades, and the income produced when the assets are invested. Invested assets are a byproduct and not the objective. Investment income becomes in effect the 3rd contributor for benefits to employees, and is interlocked with the contribution amounts required from employees and employers.

Translated to actuarial terminology, this level-cost objective means that the contribution rates must total at least the following:

Current Cost (the cost of members' service being rendered this year)

... plus ...

Interest on Unfunded Accrued Liabilities (unfunded accrued liabilities are the difference between: liabilities for service already rendered; and the accrued assets of SERS).

Computing Contributions to Support Fund Benefits. From a given schedule of benefits and from the employee data and asset data furnished him, the actuary determines the contribution rates to support the benefits, by means of an actuarial valuation and a funding method.

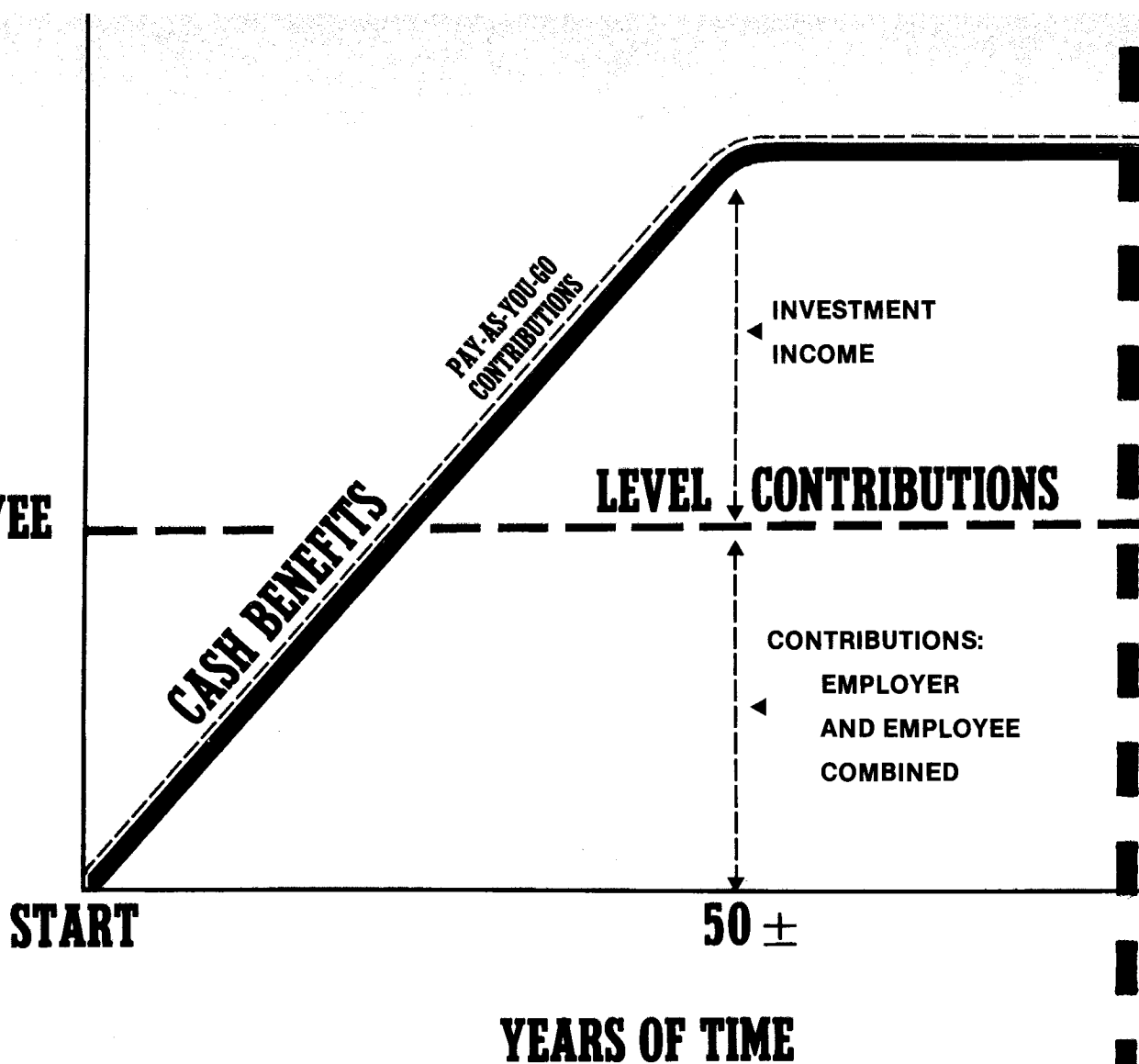
An actuarial valuation has a number of ingredients such as: the rate of investment return which plan assets will earn; the rates of withdrawal of active members who leave covered employment before qualifying for any monthly benefit; the rates of mortality; the rates of disability; the rates of pay increases; and the assumed age or ages at actual retirement.

In making an actuarial valuation, assumptions must be made as to what the above rates will be, for the next year and for decades in the future. The assumptions are established by the Retirement Board after consulting with the actuary.

Reconciling Differences Between Assumed Experience and Actual Experience. Once actual experience has occurred and been observed, it will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions or the skill of the actuary and the millions of calculations he made. The future can be predicted with considerable but not 100% precision, except for inflation which defies reliable prediction.

SERS copes with these continually changing differences by having annual actuarial valuations. Each actuarial valuation is a complete recalculation of assumed future experience, taking into account all past differences between assumed and actual experience. The result is continuing adjustments in financial position.

**% OF
ACTIVE
EMPLOYEE
PAYS**



CASH BENEFITS LINE. This relentlessly increasing line is the fundamental reality of retirement plan financing. It happens each time a new benefit is added for future retirements (and happens regardless of the design for contributing for benefits).

LEVEL CONTRIBUTION LINE. Determining the level contribution line requires detailed assumptions concerning a variety of experiences in future decades, including:

Economic Risk Areas

- Rates of investment return
- Rates of pay increase
- Changes in active member group size

Non-Economic Risk Areas

- Ages at actual retirement
- Rates of mortality
- Rates of withdrawal of active members (turnover)
- Rates of disability

THE ACTUARIAL VALUATION PROCESS

The financing diagram on the opposite page shows the relationship between the two fundamentally different philosophies of paying for retirement benefits: the method where contributions match cash benefit payments (or barely exceed cash benefit payments, as in the Federal Social Security program) and is thus an increasing contribution method; and the level contribution method, which equalizes contributions between the generations.

The actuarial valuation is the mathematical process by which the level contribution rate is determined, and the flow of activity constituting the valuation may be summarized as follows:

- A. Covered Person Data, furnished by plan administrator
 - Retired lives now receiving benefits
 - Former employees with vested benefits not yet payable
 - Active employees

- B. + Asset data (cash & investments), furnished by plan administrator

- C. + Assumptions concerning future financial experiences in various risk areas, which assumptions are established by the Board of Trustees after consulting with the actuary

- D. + The funding method for employer contributions (the long-term planned pattern for employer contributions)

- E. + Mathematically combining the assumptions, the funding method, and the data

- F. = Determination of:
 - Plan financial position and/or
 - New Employer Contribution Rate

School Employees Retirement System of Ohio

Outline of Benefit Eligibility and Amounts

(outline last changed 6/30/82)

Service retirement. A member who (i) has attained age 60 years and has 5 or more years of total service credit, or (ii) has attained age 55 years and has 25 or more years of total service credit, or (iii) has 30 or more years of total service credit, may retire with a service retirement allowance.

Final average salary ("FAS") means the average of the annual earnings for the 3 highest years of compensation.

Service retirement allowance. A retiring member's service allowance is equal to total Ohio service credit times the greater of \$86, or 2.0% of FAS. The allowance is then adjusted by factors based on attained age or years of service as determined in the following schedule:

<u>Attained Birthday</u>	OR	<u>Years of Total Service Credit</u>	<u>Percentage of Base Amount</u>
58		25	75%
59		26	80
60		27	85
61			88
		28	90
62			91
63			94
		29	95
64			97
65		30 or more	100

Maximum allowance is 90% of FAS.

Disability retirement. Upon becoming permanently disabled, after completion of at least 5 years of total service credit, but before attaining age 60, a member will receive a disability allowance computed in the same manner as a service allowance for a 65 year old, based upon the service the member would have had if he remained in employment to age 60. Maximum allowance is 75% of FAS, minimum allowance is 30% of FAS.

Death while eligible to retire. If a member dies in service after becoming eligible to retire with a service allowance and leaves a surviving spouse or other sole dependent beneficiary, the survivor receives the same amount that would have been paid had the member retired the last day of the month of death and elected the 100% joint and survivor form of payment.

Survivor (death-in-service) allowances. Upon the death of a member with at least 1 1/2 years of Ohio service credit and with at least 1/4 year of Ohio contributing service credit within the 2 1/2 years prior to the date of death, the following allowances are payable:

(a) Spouse without dependent child: A monthly allowance, commencing at age 62, or age 50 if the deceased member had 10 or more years of Ohio service credit. Allowance equals 25% of the deceased member's FAS. Minimum monthly allowance is \$96, or \$106 if deceased member had 10 or more years of Ohio service credit. Allowance terminates upon remarriage before age 62.

(b) Spouse with dependent child: An allowance of 40% of FAS is payable to the spouse of a deceased member while caring for 1 dependent child, with a minimum monthly allowance of \$186. Allowance is 50% of FAS if 2 dependent children, or 55% of FAS if 3 dependent children, or 60% of FAS if 4 or more dependent children. Minimum monthly allowance is \$236 for 2 or more children. A dependent child is defined to be an unmarried child under the age of 18, or 22 if attending an approved school.

(c) Orphans: A monthly allowance payable to each orphan child of the deceased member who is unmarried and under the age of 18, or 22 if attending an approved school. Allowances equal 25% of the deceased member's FAS for 1 child, an equal share of 40% of FAS if there are 2 children, an equal share of 50% of FAS if there are 3 children, an equal share of 55% of FAS if there are 4 children, or an equal share of 60% of final average salary if there are 5 or more children. Minimum monthly allowance is \$96 for 1 child, \$186 for 2 children, and \$236 for 3 or more children.

(d) Dependent parent's allowance: A monthly allowance is payable to a dependent parent age 65 or more (earlier if mentally or physically incompetent) who received at least one-half support from the member during the 12 month period immediately preceding the member's death. Allowance equals 25% of FAS for 1 parent with a minimum monthly allowance of \$96, and 40% of FAS shared equally for 2 parents with minimum monthly allowances totaling \$186. If there are other qualified beneficiaries, a dependent parent receives a share of a total allowance indicated as in (b) above counting all qualified beneficiaries.

Death after retirement benefit. A \$500 benefit is paid upon the death of each retirant. Upon the death of a disability retirant, a survivor allowance (described earlier) is paid.

Post-retirement increases. Each July after June 30, 1971 or the annual anniversary established 12 months after the initial date of retirement, each allowance is recomputed to be equal to the initial allowance increased by 3.0% for each completed year of retirement. The maximum recomputed allowance equals the initial allowance adjusted for increases in the Consumers Price Index. The minimum recomputed allowance equals the initial allowance.

Deferred benefits. If a member with at least 5 calendar years of contributing service credit leaves service before being eligible for an immediate monthly allowance and does not withdraw any part of his accumulated contributions, he will be entitled to a deferred allowance at age 60. The amount of the allowance is based on his credited service and final average salary at termination of employment.

Eff.
(1/1/86)

Health Care Insurance. 10 years of service credit required. Health insurance premiums are paid on behalf of each individual receiving a monthly allowance from SERS. Spouses and children may be covered. If the retirant or survivor elects to cover his dependents, the monthly retirement allowance is reduced by approximately one-half the premium for dependent coverage.

The premiums provide coverages which may be changed from time to time. Effective 1/1/83 an annual deductible was introduced.

Medicare Part B. Each retirant or survivor is reimbursed for Part B Medicare premiums.

Member contributions. Each member contributes 8.75% of his pay, by payroll deductions. This rate was established by the Board of Trustees effective July 1, 1983. The maximum statutory rate is 10%.

Refund of members accumulated contributions. In the event a member leaves service before any monthly benefits are payable on his behalf, his accumulated contributions are refunded.

Employer contributions. Each employer contributes the remaining amount necessary to finance SERS benefits. Employer contributions are expressed as percents of member covered payroll. The maximum statutory rate is 14%. The present 14% employer rate was established by the Board of Trustees effective July 1, 1983.

Retired members and survivors included in the valuation totaled 35,043. The 32,374 retirants and survivors of retirants as of July 1, 1983 were receiving annual benefits totaling \$81,461,527 from the Annuity and Pension Reserve Fund. The 2,669 survivors of deceased active members as of July 1, 1983 were receiving annual benefits totaling \$6,675,113 from the Survivor Benefit Fund.

Schedule 1.

Annuity and Pension Reserve Fund

Retirants and Beneficiaries June 30, 1983

Type of Benefit, Annual Amount and Actuarial Liabilities

<u>Group</u>	<u>Number</u>	<u>% of Current Total \$</u>			<u>Current Total \$</u>	<u>Actuarial Liabilities*</u>
		<u>Base Allowances</u>	<u>H.B. 204 and 284</u>	<u>Post-Retire. Increases</u>		

SUPERANNUATION RETIREMENT

Straight Life Allowance - Benefit Terminating at Death

Men	4,943	88.7%	2.5%	8.8%	\$14,465,440	\$114,508,143
Women	14,426	89.1	2.6	8.3	29,359,810	293,143,957
Totals	19,369				43,825,250	407,652,100

Option II Allowance - Joint and Survivor Benefits

Men	4,632	90.9	1.2	7.9	16,646,209	192,588,743
Women	2,726	92.1	1.3	6.6	5,645,917	70,336,590
Totals	7,358				22,292,126	262,925,333

Option III Allowance - Life Benefits With Guaranteed Periods

Men	882	88.0	1.9	10.1	2,693,774	23,635,521
Women	822	88.6	1.7	9.7	1,632,111	17,785,600
Totals	1,704				4,325,885	41,421,121

Allowance to Survivor Beneficiary of Deceased Superannuation Retirant
Who Elected Option II - Life Benefit

Men	140	85.9	5.0	9.1	184,697	1,469,538
Women	1,156	86.4	5.1	8.5	2,385,342	22,542,775
Totals	1,296				2,570,039	24,012,313

Allowance to Survivor Beneficiary of Deceased Superannuation Retirant
Who Elected Option III - Guaranteed Period Only

Men	56	86.1	2.4	11.5	86,316	314,340
Women	119	87.7	1.2	11.1	273,996	759,599
Totals	175				360,312	1,073,939

* Includes lump sum death benefit.

Schedule 1. - completed

Annuity and Pension Reserve Fund

Retirants and Beneficiaries June 30, 1983

Type of Benefit, Annual Amount and Actuarial Liabilities

Group	Number	% of Current Total \$			Current Total \$	Actuarial Liabilities*
		Base Allowances	H.B. 204 and 284	Post-Retire. Increases		
Total for Superannuation Allowances Being Paid						
Men	10,653	89.7%	1.8%	8.5%	\$34,076,436	\$332,516,285
Women	19,249	89.3	2.5	8.2	39,297,176	404,568,521
Totals	29,902				73,373,612	737,084,806

DISABILITY RETIREMENT

Straight Life Allowance - Benefit Terminating at Death

Men	1,027	89.4	1.3	9.3	4,501,056	43,954,637
Women	1,445	90.0	1.6	8.4	3,586,859	38,509,415
Totals	2,472				8,087,915	82,464,052

TOTAL BENEFITS BEING PAID FROM ANNUITY AND PENSION RESERVE FUND

Men	11,680	89.7	1.7	8.6	38,577,492	376,470,922
Women	20,694	89.4	2.4	8.2	42,884,035	443,077,936
Totals	32,374				81,461,527	819,548,858

* Includes lump sum death benefit.

Schedule 2.

Annuity and Pension Reserve Fund

Retirants June 30, 1983

Current Annual Total \$ By Attained Ages

Attained Ages	Superannuation		Disability		Totals	
	No.	Annual Total \$	No.	Annual Total \$	No.	Annual Total \$
25-29		\$	1	\$ 8,104	1	\$ 8,104
30-34			6	47,732	6	47,732
35-39			26	140,456	26	140,456
40-44			61	278,625	61	278,625
45-49	6	51,504	152	720,502	158	772,006
50-54	61	572,220	301	1,203,297	362	1,775,517
55-59	303	2,206,263	553	1,846,526	856	4,052,789
60-64	4,530	11,665,650	720	2,348,979	5,250	14,014,629
65-69	8,151	20,526,276	416	986,625	8,567	21,512,900
70-74	7,136	16,624,387	149	312,227	7,285	16,936,614
75-79	4,418	9,964,877	64	142,044	4,482	10,106,921
80-84	2,217	4,858,278	20	40,429	2,237	4,898,707
85-89	1,087	2,621,701	3	12,381	1,090	2,634,082
90-94	403	1,011,029			403	1,011,029
95-99	101	283,845			101	283,845
100 +	18	57,178			18	57,178
Totals	28,431	\$70,443,210	2,472	\$8,087,927	30,903	\$78,531,137

Schedule 3.

Annuity and Pension Reserve Fund

Survivors of Retirants June 30, 1983

Current Annual Total \$ By Attained Ages

Attained Ages	Life Annuities		Periods Certain		Totals	
	No.	Annual Total \$	No.	Annual Total \$	No.	Annual Total \$
Under 20	1	\$ 6,849	1	\$ 1,939	2	\$ 8,788
20-24			1	698	1	698
25-29	2	589			2	589
30-34	4	7,329	1	1,759	5	9,088
35-39	3	2,534	4	4,452	7	6,986
40-44	3	2,595	3	4,868	6	7,463
45-49	8	18,188	3	8,047	11	26,235
50-54	10	30,866	6	4,650	16	35,516
55-59	56	130,818	6	16,805	62	147,623
60-64	112	246,403	20	40,224	132	286,627
65-69	255	496,392	39	109,516	294	605,908
70-74	288	545,294	34	67,183	322	612,477
75-79	252	444,886	7	11,113	259	455,999
80-84	228	492,006	50	89,058	278	581,064
85-89	56	105,440			56	105,440
90-94	17	37,417			17	37,417
95-99	<u>1</u>	<u>2,436</u>			<u>1</u>	<u>2,436</u>
Totals	1,296	\$2,570,042	175	\$ 360,312	1,471	\$2,930,354

Schedule 4.

Survivor Benefit Fund

Beneficiaries June 30, 1983

Annual Amounts and Actuarial Liabilities

<u>Group</u>	<u>Number</u>	<u>% of Current Total \$</u>			<u>Current Total \$</u>	<u>Actuarial Liabilities</u>
		<u>Basic Allowances</u>	<u>H.B. 204 and 284</u>	<u>Post-Retire. Increases</u>		
Benefits Being Paid From Survivor Benefit Fund						
Men	580	91.6%	0.2%	8.2%	\$1,176,706	\$14,742,633
Women	<u>2,089</u>	87.7	1.3	11.0	<u>5,498,407</u>	<u>75,116,814</u>
Totals	<u>2,669</u>				<u>\$6,675,113</u>	<u>\$89,859,447</u>

Schedule 5.

Survivor Benefit Fund

Survivors of Deceased Active Members June 30, 1983

Current Annual Total \$ By Attained Ages

<u>Attained Ages</u>	<u>No.</u>	<u>Annual Total \$</u>
Under 20	97	\$ 235,377
20-24	26	47,868
25-29	7	29,873
30-34	13	53,192
35-39	21	94,062
40-44	37	156,311
45-49	62	253,568
50-54	127	435,573
55-59	236	690,865
60-64	392	1,044,214
65-69	583	1,299,439
70-74	451	910,109
75-79	332	706,398
80-84	172	407,362
85-89	90	246,835
90-94	21	60,443
95-99	<u>2</u>	<u>3,624</u>
Totals	2,669	\$6,675,113

Active members included in the valuation totaled 85,192, involving an annual payroll totaling \$682,890,795. A small number of the records we received were incomplete and are not included in the following tables. Therefore, all tables except for members by pay include 85,186 members with a payroll of \$682,882,779.

Active Members in Valuation June 30, 1983

<u>Groups</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Average Pay</u>
Men	24,206	\$279,412,312	\$11,543
Women	<u>60,980</u>	<u>403,470,467</u>	6,616
Totals	85,186	\$682,882,779	\$ 8,016

Reporting of active members. The persons included as active members in this June 30, 1983 valuation are those who had any covered pay in either May or June and were listed as active in SERS records. These 85,192 persons are a reasonable approximation of the persons covered during the year ended June 30; excluding the summer months of July and August, the persons contributing during a month ranged from a high of 85,151 (March) to a low of 78,381 (September).

Also included in the valuation were 7,364 inactive members eligible for deferred retirement allowances, and 112,724 inactive members eligible for a contribution refund only.

Schedule 6.

School Employees Retirement System of Ohio

Total Active Members as of June 30, 1983

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	298							298	\$ 1,282,896
20-24	3,117	141						3,258	22,894,150
25-29	4,549	1,292	86					5,927	49,361,980
30-34	5,516	1,767	567	46				7,896	60,337,758
35-39	6,596	2,924	907	214	17			10,658	72,747,197
40-44	5,267	4,090	2,252	417	149	20		12,195	85,988,119
45-49	3,594	3,755	3,343	1,221	255	127	18	12,313	96,872,616
50-54	2,597	2,708	3,152	2,161	486	247	82	11,433	96,487,044
55-59	2,028	2,190	2,891	2,414	1,022	430	163	11,138	100,510,072
60	320	338	493	443	282	91	48	2,015	18,960,443
61	290	273	374	402	243	122	31	1,735	17,177,148
62	186	313	365	398	187	77	31	1,557	15,443,654
63	154	252	228	266	160	89	37	1,186	11,951,650
64	112	168	192	189	93	71	32	857	8,641,090
65	74	147	175	152	101	60	37	746	7,608,585
66	90	95	123	93	51	46	26	524	4,652,018
67	60	74	82	72	34	36	18	376	3,428,743
68	43	72	74	42	55	19	17	322	2,711,588
69	39	26	69	40	32	15	8	229	2,037,046
70 & Over	122	106	104	92	52	33	14	523	3,788,982
Totals	35,052	20,731	15,477	8,662	3,219	1,483	562	85,186	\$682,882,779

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 45.1 years.

Service: 8.0 years.

Annual Pay: \$8,016.

Schedule 7.

School Employees Retirement System of Ohio

Female Active Members as of June 30, 1983

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	141							141	\$ 583,146
20-24	1,465	111						1,576	9,750,747
25-29	2,506	537	36					3,079	20,496,275
30-34	3,779	1,069	244	29				5,121	30,107,656
35-39	5,230	2,360	544	109	3			8,246	46,171,473
40-44	4,259	3,581	1,885	191	42	15		9,973	60,505,146
45-49	2,661	3,235	2,943	885	74	39	8	9,845	67,149,003
50-54	1,819	2,112	2,674	1,796	271	56	26	8,754	61,884,376
55-59	1,230	1,576	2,287	2,008	699	222	44	8,066	60,019,027
60	161	236	381	344	194	50	13	1,379	10,284,406
61	151	158	276	304	176	60	10	1,135	8,850,227
62	81	175	271	312	109	39	10	997	7,959,612
63	69	115	169	172	110	36	9	680	5,366,513
64	54	81	132	129	47	43	8	494	3,876,761
65	23	87	96	112	62	31	9	420	3,276,358
66	41	46	92	61	31	22	13	306	2,158,084
67	27	40	50	42	24	20	7	210	1,470,091
68	15	26	56	30	33	13	10	183	1,231,571
69	10	13	40	31	21	8	4	127	869,988
70 & Over	42	44	55	51	26	22	8	248	1,460,007
Totals	23,764	15,602	12,231	6,606	1,922	676	179	60,980	\$403,470,467

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 45.5 years.

Service: 7.9 years.

Annual Pay: \$6,616.

Schedule 8.

School Employees Retirement System of Ohio

Male Active Members as of June 30, 1983

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	157							157	\$ 699,750
20-24	1,652	30						1,682	13,143,403
25-29	2,043	755	50					2,848	28,865,705
30-34	1,737	698	323	17				2,775	30,230,102
35-39	1,366	564	363	105	14			2,412	26,575,724
40-44	1,008	509	367	226	107	5		2,222	25,482,973
45-49	933	520	400	336	181	88	10	2,468	29,723,613
50-54	778	596	478	365	215	191	56	2,679	34,602,668
55-59	798	614	604	406	323	208	119	3,072	40,491,045
60	159	102	112	99	88	41	35	636	8,676,037
61	139	115	98	98	67	62	21	600	8,326,921
62	105	138	94	86	78	38	21	560	7,484,042
63	85	137	59	94	50	53	28	506	6,585,137
64	58	87	60	60	46	28	24	363	4,764,329
65	51	60	79	40	39	29	28	326	4,332,227
66	49	49	31	32	20	24	13	218	2,493,934
67	33	34	32	30	10	16	11	166	1,958,652
68	28	46	18	12	22	6	7	139	1,480,017
69	29	13	29	9	11	7	4	102	1,167,058
70 & Over	80	62	49	41	26	11	6	275	2,328,975
Totals	11,288	5,129	3,246	2,056	1,297	807	383	24,206	\$279,412,312

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 44.1 years.

Service: 8.1 years.

Annual Pay: \$11,543.

Schedule 9.

Active Members as of June 30, 1983 by Annual Pay

<u>Annual Pay</u>	<u>Number of Active Members</u>			<u>Portion of Total Number</u>	
	<u>Men</u>	<u>Women</u>	<u>Total</u>	<u>This Group</u>	<u>Cumulative</u>
Less than \$1,000	1,172	3,801	4,973	6%	6%
\$1,000 - \$1,999	941	5,115	6,056	7	13
\$2,000 - \$2,999	1,105	4,529	5,634	7	20
\$3,000 - \$3,999	1,163	4,833	5,996	7	27
\$4,000 - \$4,999	1,201	5,703	6,904	8	35
\$5,000 - \$5,999	1,251	6,548	7,799	9	44
\$6,000 - \$6,999	1,042	6,435	7,477	9	53
\$7,000 - \$7,999	884	5,102	5,986	7	60
\$8,000 - \$8,999	569	3,446	4,015	5	64
\$9,000 - \$9,999	561	3,234	3,795	4	69
\$10,000 - \$11,999	1,873	4,731	6,604	8	77
\$12,000 - \$13,999	3,243	3,670	6,913	8	85
\$14,000 - \$15,999	3,430	2,186	5,616	7	91
\$16,000 - \$17,999	2,046	812	2,858	3	95
\$18,000 - \$19,999	1,317	355	1,672	2	97
\$20,000 - \$24,999	1,481	328	1,809	2	99
\$25,000 - \$29,999	577	115	692	1	100
\$30,000 and over	<u>355</u>	<u>38</u>	<u>393</u>	0	100
Totals	24,211	60,981	85,192		

Computed actuarial accrued liabilities are one of the results of the actuarial valuation.

Schedule 10.

Actuarial Accrued Liabilities June 30, 1983

Present Value Of	Actuarial Accrued Liabilities	
	Health Care	Total
Future monthly benefits and death benefits to present retirants and survivors	\$304,280,487	\$1,213,688,792

Monthly benefits and refunds to present inactive members	34,211,483	95,995,822

Service allowances and health care benefits to present active members	201,089,994	1,159,468,384
Disability allowances to present active members		19,712,250
Death-after-retirement benefit (\$500) on behalf of present active members		1,614,739
Survivor benefits on behalf of present active members who die before retiring		26,753,102
Refunds of member contributions of present active members		9,400,058
Benefits for present active members	201,089,994	1,216,948,533

Benefits For Present Covered Persons	\$539,581,964	\$2,526,633,147

REPORTED ASSETS

The accrued assets at June 30, 1983 were reported to be \$1,324,434,134.

Fund	Amount
Annuity and Pension Reserve Fund	\$ 993,700,976
Present Value of Future State Contributions for House Bills 284 and 204	10,381,318
Reserve For Statutory Fund Deficiency	(141,117,819)
Net	\$ 862,964,475
Survivors Benefit Fund	87,553,003
Employees Savings Fund	351,781,439
Employers Trust Fund	22,135,217
Total	\$1,324,434,134

Schedule 11.

ACTUARIAL ACCRUED LIABILITIES: COMPUTED & UNFUNDED

June 30, 1983

	Basic Benefits	Health Care	TOTAL
Computed accrued liabilities	\$1,987,051,183	\$539,581,964	\$2,526,633,147
Reported assets	1,221,015,797	103,418,337	1,324,434,134
Unfunded Accrued Liabilities	\$ 766,035,386	\$436,163,627	\$1,202,199,013

Unfunded actuarial liabilities, \$1,202,199,013, were amortized over a period of years sufficient to produce the previously established Employer Contribution Rate of 14.00% of payroll. The amortization period was computed to be 36 years (next whole year). The corresponding period a year ago was 30 years.

Schedule 12.

COMPOSITION OF EMPLOYER CONTRIBUTION RATE

Established By Statute & Board Action

& COMPUTED AMORTIZATION PERIOD

June 30, 1983

<u>Contributions For</u>	<u>Contributions Expressed as</u> <u>Percents of Payroll</u>	
	<u>Health & Medicare</u> <u>Premiums</u>	<u>Total</u>
Current cost:		
Service allowances		9.24%
Disability allowances		.60
Survivor benefits (SB Fund)		.43
\$500 death benefit		.03
Health & Medicare Premiums	2.68%	<u>2.68</u>
Total		<u>12.98</u>
Member contributions:		8.75
Less: Future refunds		<u>2.00</u>
Available for allowances		<u>6.75</u>
Employer Current Cost	2.68	6.23
Unfunded Accrued Liabilities, Over 36 future years	<u>2.82</u>	<u>7.77</u>
EMPLOYER CONTRIBUTION RATE	<u>5.50%</u>	<u>14.00%</u>

MEANING OF "UNFUNDED ACCRUED LIABILITIES"

Almost every pension plan (public or private) has "unfunded accrued liabilities", so whatever they are, they aren't rare. Since the term is not part of everyday conversation, it needs some definition.

"Accrued liabilities" are the present value \$ of plan promises to pay benefits in the future based upon service already rendered --- a liability has been established ("accrued") because the service has been rendered but the resulting monthly cash benefit may not be payable until years in the future. Accrued liabilities \$ are the result of complex mathematical calculations, which are made annually by the plan's actuary (which is the name given to the specialist who makes such calculations).

If "accrued liabilities" at any time exceed the plan's accrued assets (cash & investments), the difference is "unfunded accrued liabilities". This is the common condition. If the plan's assets equalled the plan's "accrued liabilities", the plan would be termed "fully funded". This is a rare condition.

Each time a plan adds a new benefit which applies to service already rendered, an "accrued liability" is created, which is also an "unfunded accrued liability" because the plan can't print instant cash to cover the accrued liability. Payment for such unfunded accrued liabilities is spread over a period of years, commonly in the 25-60 year range.

Unfunded accrued liabilities can occur in another way: if actual financial experience is less favorable than assumed financial experience, the difference is added to unfunded accrued liabilities. In plans where plan benefits are directly related to an employe's pay near time of retirement (a common plan provision) rather than his average pay throughout his working career, unfunded accrued liabilities have been increasing in recent years because unexpected rates of pay increase have created additional accrued liabilities which could not be matched by reasonable investment results. Some of these unexpected pay increases are the direct result of inflation, which is a very destructive force on financial stability.

The existence of unfunded accrued liabilities is not bad, then (any more than a mortgage on your house is "bad"), but the changes from year to year in amount of unfunded accrued liabilities are important --- "bad" or "good" or somewhere in between.

Nor are unfunded accrued liabilities a bill payable immediately (any more than your total mortgage is payable immediately), but it is important that policy-makers prevent the amount from becoming unreasonably high and it is vital that your plan have a sound method for making payments toward them so that they are controlled. The existence of large amounts of unfunded accrued liabilities indicates that total contributions in past years were less than level --- an almost certain history if retired life liabilities are not fully funded now.

UNFUNDED ACTUARIAL ACCRUED LIABILITIES

Each time the employer adopts a higher level of benefit, unfunded liabilities are created. Level-contribution financing requires that these additional liabilities be financed systematically over a period of future years.

In an inflationary economy the value of dollars is decreasing. This environment results in employee pays increasing in dollar amounts, retirement benefits increasing in dollar amounts, and then, unfunded accrued liabilities increasing in dollar amounts, all at a time when the actual substance of these items may be decreasing. Looking at just the dollar amounts of unfunded accrued liabilities can be misleading. Unfunded accrued liability dollars divided by active employee payroll provides an index which helps understanding. The smaller the ratio of unfunded liabilities to active member payroll, the stronger the system. Observation of this relative index over a period of years will give an indication of whether the system is becoming financially stronger or weaker.

Schedule 13.

Unfunded Actuarial Accrued Liabilities

(\$ in millions)

June 30	Computed Actuarial Accrued Liabilities	Valuation Assets	Unfunded Actuarial Accrued Liabilities (UAAL)	Active Member Payroll	UAAL ÷ Active Member Payroll
1981*	\$2,025	\$1,088	\$ 937	\$656	1.43
1982#	2,257	1,202	1,055	652	1.62
1983	2,527	1,324	1,202	683	1.76

* Revised financial assumptions.

Revised method of determining active members & related payroll. Previous method would have produced an index of 1.58.

SHORT CONDITION TEST

If the contributions to SERS are level in concept and soundly executed, the System will pay all promised benefits when due --- the ultimate test of financial soundness. Testing for level contribution rates is the long term test.

A short condition test is one means of checking a system's progress under its funding program. In a short condition test, the plan's present assets (cash and investments) are compared with:

- 1) Active member contributions on deposit;
- 2) The liabilities for future benefits to present retired lives;
- 3) The liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of present assets. The larger the funded portion of liability 3, the stronger the condition of the System. Liability 3 being fully funded is rare.

Schedule 14.

Short Condition Test

<u>June 30</u>	<u>Computed Actuarial Accrued Liabilities</u>			<u>Valuation Assets</u>	<u>Portion of Accrued Liabilities Covered by Assets</u>		
	<u>(1) Member Contr.</u>	<u>(2) Retired Lives (\$ in Millions)</u>	<u>(3) Present Members (Employer Financed Portion)</u>		<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
1981*	\$298	\$ 959	\$768	\$1,088	100%	82%	0%
1982	324	1,072	861	1,202	100	82	0
1983	373	1,214	940	1,324	100	78	0

* Revised financial assumptions.

APPENDIX

SUMMARY OF

ASSUMPTIONS USED FOR SERS ACTUARIAL VALUATIONS

Assumptions Adopted by Board of Trustees After Consulting With Actuary

The actuarial assumptions used in making the valuation are shown in this Appendix of the report. The non-economic assumptions are from the June 30, 1980 revised actuarial valuation, and the economic assumptions were established for the June 30, 1981 actuarial valuation.

ECONOMIC ASSUMPTIONS

The investment return rate used in making the valuations was 7.5% per year, compounded annually (net after administrative expenses). The real rate of return is the portion of total investment return which is more than the inflation rate. Based upon an assumed inflation rate of 4.5%, the 7.5% investment return rate translates to an assumed real rate of return of 3%.

Pay increase assumptions for individual active members are shown for sample ages in Schedule 15. Part of the assumption for each age is for merit and/or seniority increase, and the other 4.5% recognizes inflation.

The number of active members is assumed to continue at the present number.

Total active member payroll is assumed to increase 4.5% annually, which is the portion of the individual pay increase assumptions attributable to inflation.

Special assumptions for Health Care Coverages are shown in Schedule 19.

NON-ECONOMIC ASSUMPTIONS

The mortality table, for post-retirement mortality, used in evaluating allowances to be paid was the 1955 American Annuity Table, set ahead 1 year for men and set back 5 years for women. Related values are shown in Schedule 18.

The probabilities of retirement with an age and service allowance are shown in Schedule 17.

Eligibility for age and service retirement was assumed to be: age 50 with 30 or more years of service; or age 55 with 25 or more years of service, or age 60 with 5 or more years of service.

The probabilities of withdrawal from service, disablement and death-in-service are shown for sample ages in Schedule 16.

The entry age normal actuarial cost method of valuation was used in determining liabilities and normal cost.

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce payments (principal & interest) which are level percent of payroll contributions.

Employer contribution dollars were assumed to be paid in equal instalments throughout the System fiscal year.

Present assets (cash & investments) were valued at cost.

The data about persons now covered and about present assets were furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (M.A.A.A.).

Schedule 15.

Pay Increase Assumptions for an Individual Member

Sample Ages	Increase Next Year		
	Merit & Seniority	Base (Economy)	Total
20	3.0%	4.5%	7.5%
25	2.7	4.5	7.2
30	2.3	4.5	6.8
35	2.1	4.5	6.6
40	1.8	4.5	6.3
45	1.5	4.5	6.0
50	1.0	4.5	5.5
55	0.5	4.5	5.0
60	0.0	4.5	4.5
65	0.0	4.5	4.5

Schedule 16.

Separations From Active Employment Before Age & Service Retirement

Sample Ages	Percent of Active Members Separating Within the Next Year					
	Men			Women		
	Death	Disability	Other	Death	Disability	Other
20	0.04%	0.00%	13.91%	0.01%	0.00%	11.57%
25	0.05	0.00	10.67	0.02	0.00	8.94
30	0.05	0.01	6.55	0.02	0.00	6.59
35	0.05	0.04	5.43	0.03	0.01	5.82
40	0.07	0.10	4.64	0.04	0.05	5.07
45	0.13	0.18	3.84	0.05	0.08	4.31
50	0.21	0.33	3.06	0.14	0.15	3.55
55	0.43	0.63	2.27	0.23	0.47	2.79
60	0.85	--	2.02	0.32	--	2.46
65	1.11	--	2.02	0.42	--	2.46

Schedule 17.

Probabilities of Age & Service Retirement

Men Members

Sample Ages	Percent of Eligible Active Members Retiring Within Next Year Years of Service		
	<u>30 or more</u>	<u>25-29</u>	<u>Under 25</u>
50	13.5%	-- %	-- %
55	13.5	4.0	--
60	13.5	6.0	6.0
65	32.0	18.0	20.0
70	28.0	28.0	20.0
75	28.0	28.0	20.0
80	100.0	100.0	100.0

Women Members

Sample Ages	Percent of Eligible Active Members Retiring Within Next Year Years of Service		
	<u>30 or more</u>	<u>25-29</u>	<u>Under 25</u>
50	10.0%	-- %	-- %
55	13.0	7.0	--
60	23.0	15.0	13.0
65	29.0	19.0	19.0
70	29.0	19.0	17.0
75	29.0	19.0	17.0
80	100.0	100.0	100.0

Schedule 18.

Single Life Retirement Values

Sample Attained Ages	Present Value of \$1 Monthly For Life Increasing 3.0% Annually (1st Increase After 1 Year)		Future Life Expectancy (Years)		Expected Total Lifetime	
	Men	Women	Men	Women	Men	Women
	50	\$169.59	\$184.56	27.05	32.39	77.05
55	154.57	172.31	22.79	27.93	77.79	82.93
60	137.64	157.75	18.80	23.62	78.80	83.62
65	119.79	141.13	15.22	19.57	80.22	84.57
70	101.70	123.40	12.07	15.90	82.07	85.90
75	84.10	105.30	9.38	12.66	84.38	87.66
80	67.68	87.55	7.14	9.88	87.14	89.88
85	53.00	70.84	5.32	7.55	90.32	92.55

Sample Attained Ages	Portion of Age 60 Lives Still Alive		\$1,000 Benefit Beginning at Age 60, Increasing 3% Annually
	Men	Women	
60	100%	100%	\$1,000
65	89	96	1,150
70	77	89	1,300
75	62	78	1,450
80	44	64	1,600
85	26	47	1,750

Schedule 19.

Additional Assumptions for Health Care Coverages

Premium rates:

<u>Status</u>	<u>Monthly Rates Reported</u>	
	<u>1983*</u>	<u>1982</u>
Benefit Recipient below age 65	\$148.10	\$117.82
Spouse below age 65**	81.09	57.34
Benefit recipient above age 65 and eligible for Medicare	35.63	25.97
Spouse above age 65 and eligible for Medicare**	11.03	7.74
Mail order prescription service	6.27	3.05

* Based on dependent premiums effective March 1, 1984.

** Employer portion.

Availability of Medicare Coverage: All benefit recipients were assumed to be eligible for Medicare on attainment of age 65, or immediately if retired for disability.

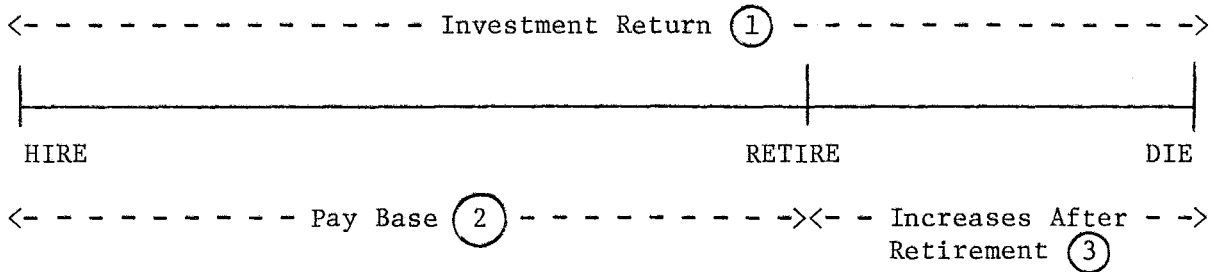
Election of Joint and Survivor Benefits: 25% of eligible retirants are assumed to elect a joint and survivor form of payment. Survivors of these retirants will receive fully paid health care for the remainder of their lives.

Election of Spouse Health Care Coverage: 25% of retirants are assumed to elect to cover spouses for health care. The System will pay approximately one-half the premium for dependents during the life of the retirant.

Medicare Part B Premium: \$14.60 per month effective January 1, 1984, from \$12.20.

Premium Increases: Premiums are assumed to increase 4.5% annually, which is the inflation rate assumed for other actuarial valuation computations.

RELATIONSHIP OF ECONOMIC ASSUMPTIONS
IN COMPUTING CONTRIBUTIONS TO A RETIREMENT SYSTEM



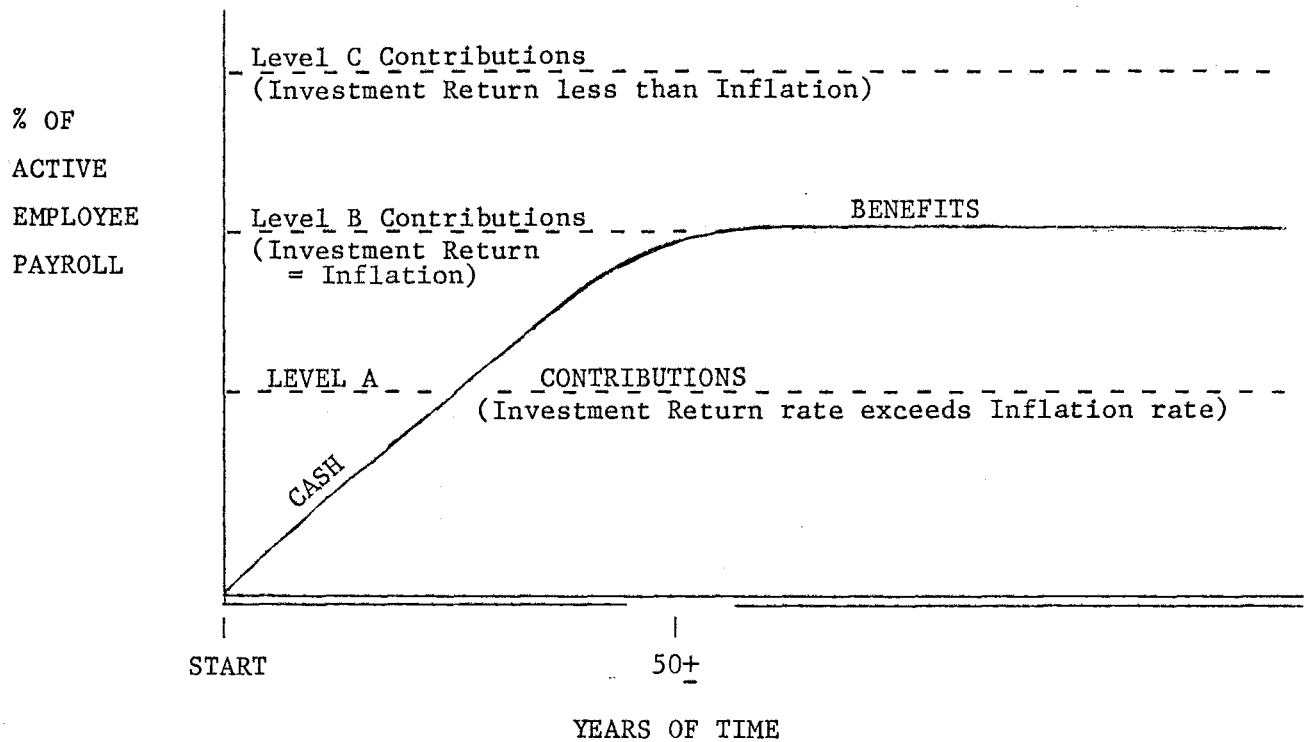
- ① Investment Return. An increase in this assumption reduces computed contributions. The assumption operates over all parts of an employee's lifetime.
- ② Pay Base. An increase in this assumption increases computed contributions. A 1% increase in this assumption, however, does not increase contributions by as much as a 1% increase in Investment Return reduces computed contributions, because the Pay Base assumption operates only over an employee's lifetime to retirement.
- ③ Increases After Retirement. An increase in this element increases computed contributions.

If Investment Return, Pay Base, and Increases After Retirement are each increased by equal amounts, computed contributions remain the same (except in plans using Final Average Pay as a factor in computing benefits; the multi-year average used for Final Average Pay causes computed contributions to decrease slightly).

If Investment Return and Pay Base are increased by equal amounts, with no change in Increases After Retirement, computed contributions decrease -- significantly.

Where benefits are fixed dollar amounts, computed contributions are significantly reduced if Investment Return is increased.

THE IMPORTANCE OF THE INVESTMENT RETURN RATE BEING MORE THAN THE INFLATION RATE
 IN ORDER TO ACHIEVE PRACTICAL LEVEL CONTRIBUTION RATES



"LEVEL A CONTRIBUTIONS" occur mathematically when the investment return rate from plan assets exceeds the inflation rate. The greater the excess, the lower the Level A line will be.

Historically, it is this assumed condition that has led to the development of and use of "actuarially sound" or "actuarial reserve" financing methods.

"Level B Contributions" occur mathematically when the investment return rate from plan assets equals the inflation rate.

Who would contribute a level rate which is the same as the ultimate contribution rate of "pay-as-you-go" financing?

"Level C Contributions" occur mathematically when the investment return rate from plan assets is less than the inflation rate. The greater the difference, the higher the Level C line would be.

Who would contribute at a rate always more than the benefits paid?

Inflation continues to be the most threatening outside force to SERS stability (and every other public or private pension plan). For retired people, the purchasing power of their monthly benefit is reduced. Liabilities for non-retired members increase because member pay levels are increased. These inflation impairments have been covered only partially by the added investment return available from our inflated economy.

<u>Year Ended 6-30</u>	<u>Inflation (CPI)</u>	<u>Required Investment Return (Of Total Fund) to Equal a REAL RETURN OF 3% Annually</u>
1979	10.9%	13.9%
1980	14.3	17.3
1981	9.6	12.6
1982	7.1	10.1
1983	2.6	5.6

For the mathematics of level cost financing to work, the investment return rate must be more than the inflation rate. This real rate of return was possible in the last year but not for the last ten years, because of the disturbances in the investment market places caused by inflation. The destructiveness of inflation is immense. Inflation is the enemy over which SERS has no direct control.

<u>Type of Activity</u>	<u>The Investment Universe (years ended 10/31/83)</u>		
	<u>Annual Return Over Last</u>		<u>10 YEAR</u>
	<u>Five Years</u>	<u>Ten Years</u>	<u>REAL RETURN</u>
Fixed Income Yardstick	8.7%	7.5%	-0.8%
Salomon Brothers Long-Term Bonds	6.7	6.4	-1.9
Consumer Price Index (Inflation)	8.5	8.3	
Total Equity Yardstick	17.9	9.2	0.9
Standard & Poor's 500 Stocks	16.9	8.5	0.2

(Information from reports of Hamilton, Johnston & Co., Inc., N.Y.C.)