

SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO

The Report of the
ANNUAL ACTUARIAL VALUATION
June 30, 1986

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Report of Annual Actuarial Valuation of Ohio SERS

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December 22, 1986

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

Ladies and Gentlemen:

Submitted in this report are the results of the June 30, 1986 actuarial valuation of the School Employees Retirement System of Ohio, 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 financial assumptions used in making the actuarial valuation are shown in the Appendix of this report. The financial assumptions were revised for this valuation.

Your attention is directed particularly to:

COMMENTS on pages 3A - 3B.
Financial Principles on pages 4-5;
Computed Employer Contribution Rates on pages 25 & 31;
Short Condition Tests on pages 28 & 33;

Respectfully submitted,


Gerald B. Sonnenschein


Richard G. Roeder

GBS:ct

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.

In order to determine SERS present financial position and level contribution rates for the future, annual actuarial valuations are made.

Assumptions concerning future financial experiences are needed for an actuarial valuation. These assumptions are established by the Board after consulting with the actuary.

A program of annual actuarial gain/loss analysis is in operation; these analyses determine the relationship between assumed financial experience and actual experience, for each major risk area.

These actuarial gain/loss findings (our Investigation Report dated July 9, 1986) led to the adoption of revised assumptions for the June 30, 1986 actuarial valuation. The revised assumptions produce higher computed liabilities and computed contributions. The principal assumption changes recognize younger retirement ages and reduced mortality during retirement years.

The employer contribution rate is 14% of pay. An SERS policy decision is now allocating 8.5% to basic benefits and 5.5% to health care benefits.

On the basis of the 1986 valuation and the basic benefits and allocated contribution rates then in effect, it is our opinion that the basic benefits portion of SERS is in sound condition in accordance with actuarial principles of level cost financing.

Supporting information is on page 25.

Health Care Benefits

The financial development of this program is cause for continuing 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.

The 5.5% contribution allocated to health care benefits is sufficient to cover current cash benefit outgo, 4.3% of pay; it is not sufficient to provide level cost financing of the health care benefits.

To provide level cost financing of the health care benefits requires some combination of increased contributions and/or decreased health benefits.

FINANCIAL PRINCIPLES

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 by-product 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 by-product 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).

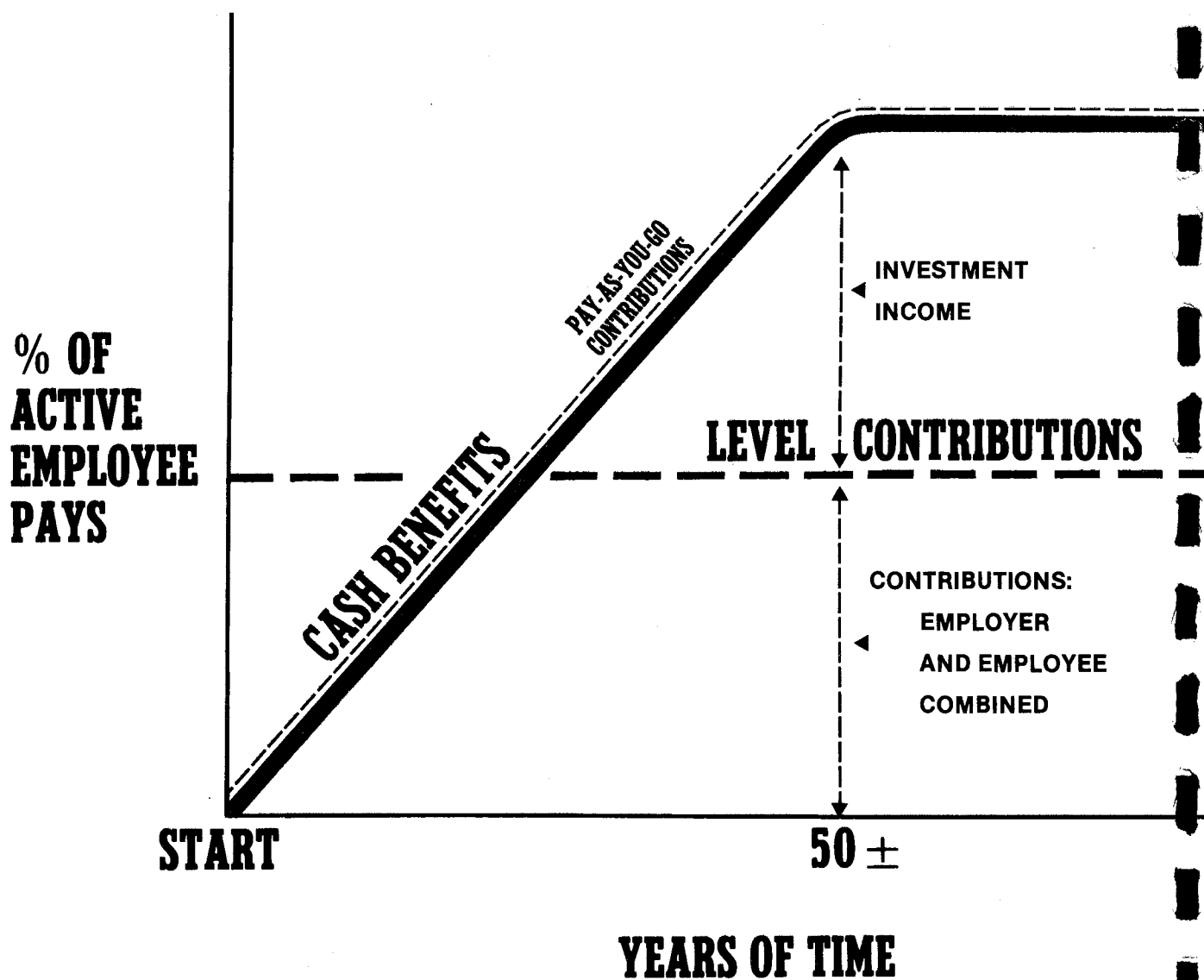
Computing Contributions to Support Fund Benefits. From a given schedule of benefits and from the employee data and asset data furnished him, the actuary determines the contribution rates to support the benefits, by means of an actuarial valuation and a funding method.

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.



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

DATA FURNISHED

Retired members and survivors included in the valuation totaled 41,037. The 38,164 retirants and survivors of retirants as of June 30, 1986 were receiving annual benefits totaling \$117,901,858 from the Annuity and Pension Reserve Fund. The 2,873 survivors of deceased active members as of June 30, 1986 were receiving annual benefits totaling \$8,271,555 from the Survivor Benefit Fund.

Schedule 1.

Annuity and Pension Reserve Fund
Retirants and Beneficiaries June 30, 1986
Type of Benefit, Annual Amount
and Basic Benefit Actuarial Liabilities

Group	Number	% of Current Total \$			Current Total \$	Actuarial Liabilities*
		Base Allowances	H.B. 204 and 284	Post-Retire. Increases		
<u>SUPERANNUATION RETIREMENT</u>						
Straight Life Allowance - Benefit Terminating at Death						
Men	5,060	85.4%	1.4%	13.2%	\$18,406,182	\$138,823,093
Women	17,268	85.9	1.4	12.7	42,531,833	413,317,500
Totals	22,328				60,938,015	552,140,593
Option II Allowance - Joint and Survivor Benefits						
Men	5,618	88.8	0.5	10.7	25,910,625	289,952,160
Women	3,486	89.7	0.3	10.0	9,078,252	107,859,407
Totals	9,104				34,988,877	397,811,567
Option III Allowance - Life Benefits With Guaranteed Periods						
Men	852	83.9	1.2	14.9	2,973,714	23,437,489
Women	921	84.3	1.2	14.5	2,142,608	21,275,284
Totals	1,773				5,116,322	44,712,773
Allowance to Survivor Beneficiary of Deceased Superannuation Retirant Who Elected Option II - Life Benefit						
Men	213	82.1	2.7	15.2	350,111	2,554,824
Women	1,743	81.2	3.2	15.6	4,351,792	38,698,807
Totals	1,956				4,701,903	41,253,631
Allowance to Survivor Beneficiary of Deceased Superannuation Retirant Who Elected Option III - Guaranteed Period Only						
Men	24	85.3	0.2	14.5	43,691	189,014
Women	81	82.9	0.1	17.0	239,667	952,857
Totals	105				283,358	1,141,871

* Includes allowance and lump sum death benefit.

Schedule 1. - completed

Annuity and Pension Reserve Fund
Retirants and Beneficiaries June 30, 1986

Type of Benefit, Annual Amount
and Basic Benefit 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>		
Total for Superannuation Allowances Being Paid						
Men	11,767	87.2%	0.9%	11.9%	\$ 47,684,323	\$ 454,956,580
Women	23,499	86.1	1.4	12.5	58,344,152	582,103,855
Totals	35,266				106,028,475	1,037,060,435

DISABILITY RETIREMENT

Straight Life Allowance - Benefit Terminating at Death

Men	1,157	87.0	0.8	12.2	6,526,922	65,544,912
Women	1,741	87.2	0.9	11.9	5,346,461	61,588,952
Totals	2,898				11,873,383	127,133,864

TOTAL BENEFITS BEING PAID FROM ANNUITY AND PENSION RESERVE FUND

Men	12,924	87.2	0.9	11.9	54,211,245	520,501,492
Women	25,240	86.1	1.3	12.6	63,690,613	643,692,807
Totals	38,164				117,901,858	1,164,194,299

* Includes allowance and lump sum death benefit.

Schedule 2.

Annuity and Pension Reserve Fund

Retirants June 30, 1986

Current Annual Total \$ By Attained Ages

Attained Ages	Superannuation		Disability		Totals	
	No.	Annual Total \$	No.	Annual Total \$	No.	Annual Total \$
25-29		\$	3	\$ 22,821	3	\$ 22,821
30-34			15	153,683	15	153,683
35-39			50	401,289	50	401,289
40-44			79	465,097	79	465,097
45-49	7	80,309	169	953,755	176	1,034,064
50-54	74	945,188	338	1,690,132	412	2,635,320
55-59	417	3,613,830	635	2,733,309	1,052	6,347,139
60-64	5,810	19,002,347	747	2,996,522	6,557	21,998,869
65-69	9,359	30,286,881	524	1,616,961	9,883	31,903,842
70-74	8,154	22,921,490	224	556,041	8,378	23,477,531
75-79	5,173	13,313,304	83	195,987	5,256	13,509,291
80-84	2,596	6,530,396	26	69,159	2,622	6,599,555
85-89	1,073	2,844,888	5	18,627	1,078	2,863,515
90-94	449	1,212,666			449	1,212,666
95-99	69	218,689			69	218,689
100	8	18,705			8	18,705
101	4	16,848			4	16,848
102	5	15,043			5	15,043
103	2	8,490			2	8,490
104	2	5,094			2	5,094
105	2	4,562			2	4,562
106	1	4,484			1	4,484
Totals	33205	101,043,214	2,898	11,873,383	36103	112,916,597

Schedule 3.

Annuity and Pension Reserve Fund

Survivors of Retirants June 30, 1986

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	\$ 7,839	1	\$ 2,205	2	\$ 10,044
25-29	1	427	1	791	2	1,218
30-34	7	22,428	1	884	8	23,312
35-39	6	5,309	4	19,389	10	24,698
40-44	5	4,799	3	1,998	8	6,797
45-49	7	8,967	3	6,724	10	15,691
50-54	15	43,086	4	6,836	19	49,922
55-59	47	174,163	6	20,857	53	195,020
60-64	166	483,836	16	38,147	182	521,983
65-69	353	920,791	35	97,638	388	1,018,429
70-74	478	1,022,838	18	41,344	496	1,064,182
75-79	419	911,117	11	43,562	430	954,679
80-84	267	633,927	1	2,403	268	636,330
85-89	137	351,453	1	580	138	352,033
90-94	40	98,295			40	98,295
95-99	7	12,628			7	12,628
Totals	1,956	4,701,903	105	283,358	2,061	4,985,261

Schedule 4.

Survivor Benefit Fund

Beneficiaries June 30, 1986

Annual Amounts and
Basic Benefit 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	663	89.4%	0.1%	10.5%	\$1,519,550	\$12,669,999
Women	<u>2,210</u>	84.3	0.9	14.8	<u>6,752,005</u>	<u>50,752,529</u>
Totals	<u>2,873</u>				<u>8,271,555</u>	<u>63,422,528</u>

* Includes allowance only.

Schedule 5.

Survivor Benefit Fund

Survivors of Deceased Active Members June 30, 1986

Current Annual Total \$ By Attained Ages

<u>Attained Ages</u>	<u>No.</u>	<u>Annual Total \$</u>
Under 20	30	\$ 104,500
20-24	7	13,111
25-29	10	43,839
30-34	17	90,458
35-39	42	192,224
40-44	57	289,357
45-49	70	286,925
50-54	116	429,439
55-59	271	921,242
60-64	429	1,273,333
65-69	612	1,625,262
70-74	531	1,308,315
75-79	359	805,239
80-84	213	548,038
85-89	79	239,467
90-94	25	89,198
95-99	4	8,873
102	<u>1</u>	<u>2,735</u>
Totals	2,873	8,271,555

Active members included in the valuation totaled 88,310, involving an annual payroll totaling \$869,111,274. The schedules below and on the following 4 pages provide some detail from the data on active members.

Active Members in Valuation June 30, 1986

<u>Groups</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Average Pay</u>
Men	24,298	\$346,236,416	\$14,250
Women	<u>64,012</u>	<u>522,874,858</u>	8,168
Totals	88,310	\$869,111,274	\$ 9,842

Reporting of active members. The persons included as active members in this June 30, 1986 valuation are those who had any covered pay in May and were listed as active in SERS records. These 88,310 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 89,524 (November) to a low of 83,310 (September).

Also included in the valuation were 7,925 inactive members eligible for deferred retirement allowances (including 845 whose retirement applications were pending at June 30), and 92,066 inactive members eligible for a contribution refund only.

Schedule 6.

School Employees Retirement System of Ohio

TOTAL Active Members as of June 30, 1986

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	144							144	\$ 788,107
20-24	2,495	192						2,687	21,227,281
25-29	4,066	1,784	160					6,010	60,876,219
30-34	5,808	2,187	888	55				8,938	85,418,689
35-39	7,459	3,609	1,143	395	38			12,644	110,882,369
40-44	5,382	4,189	2,243	633	173	16		12,636	113,867,785
45-49	3,611	3,763	3,245	1,668	353	125	19	12,784	125,134,790
50-54	2,681	2,470	3,155	2,653	657	258	65	11,939	124,550,894
55-59	2,101	1,888	2,640	2,767	1,336	409	135	11,276	123,010,139
60	325	290	437	418	279	113	27	1,889	21,145,137
61	275	275	335	444	194	95	25	1,643	18,646,044
62	199	243	282	330	245	91	28	1,418	17,181,438
63	174	158	247	259	157	70	22	1,087	12,363,653
64	128	107	169	225	102	76	25	832	9,781,453
65	110	96	153	152	133	59	26	729	8,240,532
66	84	83	102	89	70	34	19	481	5,032,457
67	57	49	64	64	42	19	11	306	2,918,796
68	45	31	57	57	41	28	12	271	2,896,313
69	30	32	35	40	28	18	15	198	1,805,788
70 & Over	74	77	71	81	48	24	23	398	3,343,390
Totals	35,248	21,523	15,426	10,330	3,896	1,435	452	88,310	\$869,111,274

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

Age: 44.9 years.

Service: 8.1 years.

Annual Pay: \$9,842.

Schedule 7.

School Employees Retirement System of Ohio

FEMALE Active Members as of June 30, 1986

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	74							74	\$ 371,267
20-24	1,313	93						1,406	9,836,890
25-29	2,348	843	69					3,260	25,940,773
30-34	4,158	1,176	360	36				5,730	40,363,918
35-39	5,998	2,788	631	184	25			9,626	66,121,140
40-44	4,271	3,590	1,909	369	72	7		10,218	78,041,583
45-49	2,628	3,185	2,857	1,374	154	44	10	10,252	87,743,249
50-54	1,749	1,966	2,716	2,313	435	64	25	9,268	83,072,473
55-59	1,073	1,371	2,102	2,333	1,052	208	41	8,180	75,300,034
60	160	177	347	322	231	75	11	1,323	12,581,058
61	116	158	249	347	137	61	4	1,072	9,855,655
62	74	146	171	270	193	43	10	907	9,245,722
63	83	86	187	214	107	40	6	723	6,610,604
64	63	52	110	182	63	45	8	523	5,030,957
65	44	53	98	125	99	31	14	464	4,465,649
66	28	49	66	63	54	16	8	284	2,545,738
67	16	33	48	44	33	13	6	193	1,680,793
68	16	12	34	42	31	18	3	156	1,395,073
69	15	14	29	35	15	14	8	130	1,045,133
70 & Over	33	24	42	57	34	18	15	223	1,627,149
Totals	24,260	15,816	12,025	8,310	2,735	697	169	64,012	\$522,874,858

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

Age: 45.3 years.

Service: 8.2 years.

Annual Pay: \$8,168.

Schedule C
School Employees Retirement System of Ohio

MALE Active Members as of June 30, 1986

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	70							70	\$ 416,840
20-24	1,182	99						1,281	11,390,391
25-29	1,718	941	91					2,750	34,935,446
30-34	1,650	1,011	528	19				3,208	45,054,771
35-39	1,461	821	512	211	13			3,018	44,761,229
40-44	1,111	599	334	264	101	9		2,418	35,826,202
45-49	983	578	388	294	199	81	9	2,532	37,391,541
50-54	932	504	439	340	222	194	40	2,671	41,478,421
55-59	1,028	517	538	434	284	201	94	3,096	47,710,105
60	165	113	90	96	48	38	16	566	8,564,079
61	159	117	86	97	57	34	21	571	8,790,389
62	125	97	111	60	52	48	18	511	7,935,716
63	91	72	60	45	50	30	16	364	5,753,049
64	65	55	59	43	39	31	17	309	4,750,496
65	66	43	55	27	34	28	12	265	3,774,883
66	56	34	36	26	16	18	11	197	2,486,719
67	41	16	16	20	9	6	5	113	1,238,003
68	29	19	23	15	10	10	9	115	1,501,240
69	15	18	6	5	13	4	7	68	760,655
70 & Over	41	53	29	24	14	6	8	175	1,716,241
Totals	10,988	5,707	3,401	2,020	1,161	738	283	24,298	\$346,236,416

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

Age: 43.7 years.

Service: 7.9 years.

Annual Pay: \$14,250.

Schedule 9.

School Employees Retirement System of Ohio
Active Members as of June 30, 1986 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	897	2,848	3,745	4%	4%
\$ 1,000 - \$ 1,999	674	4,055	4,729	5	10
2,000 - 2,999	738	4,771	5,509	6	16
3,000 - 3,999	922	4,083	5,005	6	22
4,000 - 4,999	923	4,128	5,051	6	27
5,000 - 5,999	984	4,724	5,708	6	34
6,000 - 6,999	988	5,559	6,547	7	41
7,000 - 7,999	1,001	5,826	6,827	8	49
8,000 - 8,999	848	5,041	5,889	7	56
9,000 - 9,999	714	3,718	4,432	5	61
10,000 - 11,999	1,093	5,231	6,324	7	68
12,000 - 13,999	1,377	4,399	5,776	7	74
14,000 - 15,999	2,443	3,725	6,168	7	81
16,000 - 17,999	3,098	2,578	5,676	6	88
18,000 - 19,999	2,368	1,531	3,899	4	92
20,000 - 24,999	2,990	1,204	4,194	5	97
25,000 - 29,999	1,094	362	1,456	2	98
30,000 and over	<u>1,146</u>	<u>229</u>	<u>1,375</u>	2	100
Totals	24,298	64,012	88,310		

REPORTED ASSETS

The accrued assets at June 30, 1986 were reported to be \$1,876,240,825.

<u>Fund</u>	<u>Amount</u>
Annuity and Pension Reserve Fund	\$1,588,730,532
Survivors Benefit Fund	99,478,918
Employees Savings Fund	475,218,163
Employers Trust Fund	(287,186,788)
Total	<u>\$1,876,240,825</u>

VALUATION ASSETS

The valuation assets as of June 30, 1986 were determined on a market related basis. The method used recognizes 20% of the previously unrecognized gains and losses (both realized and unrealized). To this we added the present value of expected future payments for House Bills 284 and 204, \$7,538,713.

Derivation of Valuation Assets

(a) Cost value June 1985	\$1,675,733,161
(b) Cost value June 1986	1,876,240,825
(c) Realized gains(losses)	34,461,091
(d) Change in cost value net of (c): (b) - (a) - (c)	166,046,573
(e) Valuation assets June 1985	1,675,733,161
(f) Preliminary valuation assets June 1986: (d) + (e)	1,841,779,734
(g) Market Value June 1986	2,155,869,595
(h) Unrecognized gains(losses): (g) - (f)	314,089,861
(i) Adjustment toward market value: (.20) times (h)	62,817,972
(j) Total assets: (f) + (i)	1,904,597,706
(k) Health reserve as % of cost value assets	6.8935%
(l) Health care valuation assets: (j) x (k)	131,293,111
(m) Present value of HB284 and 204 contributions	7,538,713
(n) Basic benefits valuation assets: (j) + (m) - (l)	1,780,843,308

BASIC BENEFITS

School Employees Retirement System of Ohio

Outline of Benefit Eligibility and Amounts

BASIC BENEFITS

(outline last changed 6/30/84)

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		28	88
62		29	90
63		30	91
64		31	94
65		32	95
		33	97
		34 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 retiree. Upon the death of a disability retiree, a survivor allowance (described earlier) is paid.

Post-retirement increases.

Annual. 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.

One time. Effective February 1, 1984 retirement allowances in payment status were increased by 5%.

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.

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. 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.

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

Schedule 10.

BASIC BENEFITS

Actuarial Accrued Liabilities June 30, 1986

<u>Present Value Of</u>	<u>Actuarial Accrued Liabilities</u>
Future monthly benefits and death benefits to present retirants and survivors	\$1,227,616,827

Monthly benefits and refunds to present inactive members	82,500,475

Service allowances and health care benefits to present active members	1,264,349,296
Disability allowances to present active members	34,703,383
Death-after-retirement benefit (\$500) on behalf of present active members	1,683,235
Survivor benefits on behalf of present active members who die before retiring	35,757,959
Refunds of member contributions of present active members	<u>22,862,461</u>
Benefits for present active members	1,359,356,334

Benefits For Present Covered Persons	2,669,473,636

Valuation Assets	1,780,843,308

Unfunded Accrued Liabilities	888,630,328

The Employer Contribution Rate for Basic Benefits has been established by the Board as 8.50% of payroll. After subtracting the normal cost, the remaining Employer Contribution Rate is sufficient to amortize the unfunded accrued liabilities over a 48 year period (next whole year). A year ago the corresponding figure was 36 years, using previous assumptions (please see page 41 for graph showing relationship between level cost financing and amortization periods).

Schedule 11.

BASIC BENEFITS

COMPOSITION OF EMPLOYER CONTRIBUTION RATE

Established By Statute & Board Action

& COMPUTED AMORTIZATION PERIOD

June 30, 1986

Contributions For	Contributions Expressed as Percents of Payroll
Normal cost:	
Service allowances	9.89%
Disability allowances	0.75
Survivor benefits (SB Fund)	0.55
\$500 death benefit	<u>0.02</u>
Total	11.21
Member contributions:	8.75
Less: Future refunds	2.13
Available for allowances	<u>6.62</u>
Employer Current Cost	4.59
Unfunded Accrued Liabilities Over 48 future years	<u>3.91</u>
EMPLOYER CONTRIBUTION RATE ALLOCATED TO BASIC BENEFITS	<u>8.50</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 employee'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 12.

BASIC BENEFITS

Unfunded Actuarial Accrued Liabilities

(\$ in millions)

<u>June 30</u>	<u>Computed Actuarial Accrued Liabilities</u>	<u>Valuation Assets</u>	<u>Unfunded Actuarial Accrued Liabilities (UAAL)</u>	<u>Active Member Payroll</u>	<u>UAAL ÷ Active Member Payroll</u>
1981*	\$1,597	\$1,017	\$580	\$656	0.88
1982#	1,821	1,116	705	652	1.08
1983	1,987	1,221	766	683	1.12
1984	2,166	1,390	776	737	1.05
1985	2,405	1,564	841	804	1.05
1985*	2,421	1,564	857	804	1.07
1986	2,670	1,781	889	869	1.02

* Revised financial assumptions.

Revised method of determining active members & related payroll. Previous method would have produced an index of 1.06.

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 13.

BASIC BENEFITS

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</u>	<u>(3) Present Members (Employer Financed Portion)</u>		<u>(1)</u>	<u>(2)</u>	<u>(3)</u>
		(\$ in Millions)					
1981*	\$298	\$ 713	\$586	\$1,017	100%	100%	18%
1982	324	829	668	1,116	100	96	0
1983	352	909	726	1,221	100	96	0
1984	396	1,011	759	1,390	100	98	0
1985	433	1,126	846	1,564	100	100	1
1985*	433	1,101	888	1,564	100	100	3
1986	475	1,228	967	1,781	100	100	8

* Revised financial assumptions.

HEALTH CARE BENEFITS

School Employees Retirement System of Ohio
Outline of Benefit Eligibility and Amounts

HEALTH CARE BENEFITS

(outline last changed 6/30/84)

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, survivor of deceased retirant or survivor of deceased employee. 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. The deductible and prescription co-payment were increased effective January 1, 1985. Second opinion and pre-certification requirements go into effect January 1, 1987.

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

Mail Order Prescriptions. Health benefits include mail order prescription service with SERS paying the excess of the cost of each prescription over the base fee paid by the benefit recipient.

Schedule 14.

HEALTH CARE BENEFITS

Actuarial Accrued Liabilities June 30, 1986

<u>Present Value Of</u>	<u>Actuarial Accrued Liabilities</u>
Future monthly benefits and death benefits to present retirants and survivors	\$460,592,623
-----	-----
Monthly benefits and refunds to present inactive members	53,808,473
-----	-----
Service allowances and health care benefits to present active members	331,530,971
Disability allowances to present active members	6,085,131
Survivor benefits on behalf of present active members who die before retiring	<u>13,348,243</u>
Benefits for present active members	350,964,345
-----	-----
Benefits For Present Covered Persons	865,365,441
-----	-----
Valuation Assets	131,293,111
-----	-----
Unfunded Accrued Liabilities	734,072,330

The Employer Contribution Rate for Health Care Benefits has been established by the Board as 5.50% of payroll. After subtracting the normal cost, the remaining Employer Contribution Rate is applied toward unfunded accrued liabilities. The contribution amount toward unfunded accrued liabilities is insufficient to provide level cost financing.

Schedule 15.

HEALTH CARE BENEFITS

COMPOSITION OF EMPLOYER CONTRIBUTION RATE

Established By Statute & Board Action

& COMPUTED AMORTIZATION PERIOD

June 30, 1986

Contributions For	Contributions Expressed as Percents of Payroll
Normal cost:	
Service allowances	3.27%
Disability allowances	0.12
Survivor benefits (SB Fund)	<u>0.21</u>
Total	3.60
 Unfunded Accrued Liabilities	 <u>1.90</u>
 EMPLOYER CONTRIBUTION RATE ALLOCATED TO HEALTH CARE BENEFITS	 <u>5.50</u>

Schedule 16.

Composition of Health Care Costs

June 30, 1986

(As % of Payroll)

<u>Benefit</u>	<u>Age</u>	<u>Recipient</u>		<u>Combined</u>
		<u>Retiree</u>	<u>Other</u>	
Medical	Under 65	22%	7%	29%
Medical	65 Plus	30	8	38
Medicare B	Under 65	--	--	--
Medicare B	65 Plus	15	2	17
Prescription	Under 65	2	--*	2
Prescription	65 Plus	12	2	14
Combined	Under 65	24	7	31
Combined	65 Plus	57	12	69
Combined	All	81	19	100

* Less than 0.5%.

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) The liabilities for future benefits to present retired lives;
- 2) 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 future benefits to present retired lives (liability 1) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 2) will be partially covered by the remainder of present assets. The larger the funded portion of liability 2, the stronger the condition of the System. Liability 2 being fully funded is rare.

Schedule 17.

HEALTH CARE BENEFITS

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>	
	(1)	(2)		(1)	(2)
	Retired Lives	Present Members (Employer Financed Portion)			
	(\$ in Millions)				
1981*	\$246	\$182	\$ 71	29%	0%
1982	243	193	86	35	0
1983	304	235	103	34	0
1984	361	266	108	30	0
1985	386	295	120	31	0
1985*	391	369	120	31	0
1986	461	404	131	28	0

* Revised financial assumptions.

APPENDIX

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 assumptions were revised as set forth in the Gabriel, Roeder, Smith and Company Investigation Report dated July 9, 1986.

ECONOMIC ASSUMPTIONS

The investment return rate used in making the valuations was 7.5% per year, compounded annually (net after administrative expenses), except that the SERS is assumed to earn 9.5% per year for the 5 years from July 1, 1986 through June 30, 1991. 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% (5% for the 5 years from July 1, 1986 through June 30, 1991).

Pay increase assumptions for individual active members are shown for sample ages in Schedule 18. 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 22.

NON-ECONOMIC ASSUMPTIONS

The mortality table used in evaluating allowances to be paid and death before retirement benefits was the 1971 Group Annuity Mortality Table projected to 1984 unadjusted for men and set back 1 year for women. Related values are shown in Schedule 21.

The probabilities of retirement with an age and service allowance are shown in Schedule 20.

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 19.

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 were valued on a market related basis, recognizing 20% of previously unrecognized gains and losses each year. See page 19 for detail.

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 18.

Pay Increase Assumptions for an Individual Member

<u>Sample Ages</u>	<u>Increase Next Year</u>		
	<u>Merit & Seniority</u>	<u>Base (Economy)</u>	<u>Total</u>
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 19.

Separations From Active Employment Before Age & Service Retirement

<u>Sample Ages</u>	<u>Percent of Active Members Separating Within the Next Year</u>					
	<u>Men</u>			<u>Women</u>		
	<u>Death</u>	<u>Disability</u>	<u>Other</u>	<u>Death</u>	<u>Disability</u>	<u>Other</u>
20	0.05%	0.00%	13.91%	0.02%	0.00%	11.57%
25	0.06	0.00	10.67	0.03	0.00	8.94
30	0.07	0.01	6.55	0.04	0.00	6.59
35	0.10	0.04	5.43	0.05	0.01	5.82
40	0.15	0.10	4.64	0.07	0.05	5.07
45	0.27	0.18	3.84	0.11	0.08	4.31
50	0.49	0.33	3.06	0.17	0.15	3.55
55	0.78	0.63	2.27	0.25	0.47	2.79
60	1.21	--	2.02	0.41	--	2.46
65	1.95	--	2.02	0.73	--	2.46

Schedule 20.

Probabilities of Age & Service Retirement

<u>Sample Ages</u>	<u>Percent of Eligible Active Members Retiring Within Next Year</u>	
	<u>Men</u>	
50		15%
55		10
60		10
65		40
70		50
75		100

<u>Sample Ages</u>	<u>Percent of Eligible Active Members Retiring Within Next Year</u>	
	<u>Women</u>	
50		12%
55		18
60		25
65		35
70		50
75		100

Schedule 21.

Single Life Retirement Values

<u>Sample Attained Ages</u>	<u>Present Value of \$1 Monthly For Life Increasing 3.0% Annually (1st Increase After 1 Year)</u>		<u>Future Life Expectancy (Years)</u>		<u>Expected Total Lifetime</u>	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
	50	\$171.18	\$191.98	27.53	34.60	77.53
55	156.74	180.48	23.28	29.92	78.28	84.92
60	140.21	166.28	19.27	25.34	79.27	85.34
65	121.85	149.39	15.55	20.94	80.55	85.94
70	102.90	129.87	12.25	16.79	82.25	86.79
75	84.92	108.66	9.50	13.02	84.50	88.02
80	67.78	88.12	7.17	9.85	87.17	89.85
85	53.37	69.03	5.43	7.24	90.43	92.24

<u>Sample Attained Ages</u>	<u>Portion of Age 60 Lives Still Alive</u>		<u>\$1,000 Benefit Beginning at Age 60, Increasing 3% Annually</u>
	<u>Men</u>	<u>Women</u>	
60	100%	100%	\$1,000
65	93	97	1,150
70	82	93	1,300
75	67	86	1,450
80	48	73	1,600
85	28	55	1,750

Schedule 22.

Additional Assumptions for Health Care Coverages

Premium rates:

<u>Status</u>	<u>Monthly Rates Reported</u>	
	<u>1986</u>	<u>1985</u>
Benefit Recipient below age 65	\$169.86	\$148.10
Spouse below age 65*	83.38	81.09
Benefit recipient above age 65 and eligible for Medicare	35.33	35.63
Spouse above age 65 and eligible for Medicare*	19.35	11.03
Mail order prescription service	14.55	11.24

* System 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.

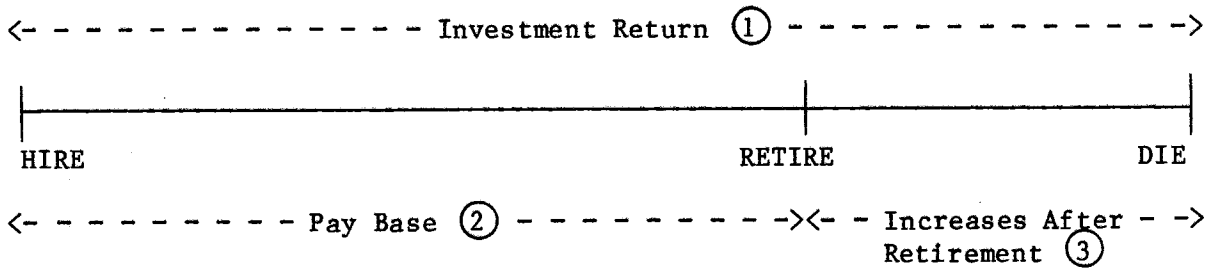
Election of Joint and Survivor Benefits: 25% of eligible women and 60% of eligible men are assumed to elect a joint and survivor form of payment. Survivors of these retirants will receive fully paid health care for the remainder of their lives.

Election of Spouse Health Care Coverage: 25% of women retirants and 50% of men 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: \$17.90 per month assumed to be effective January 1, 1987, from \$15.50.

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



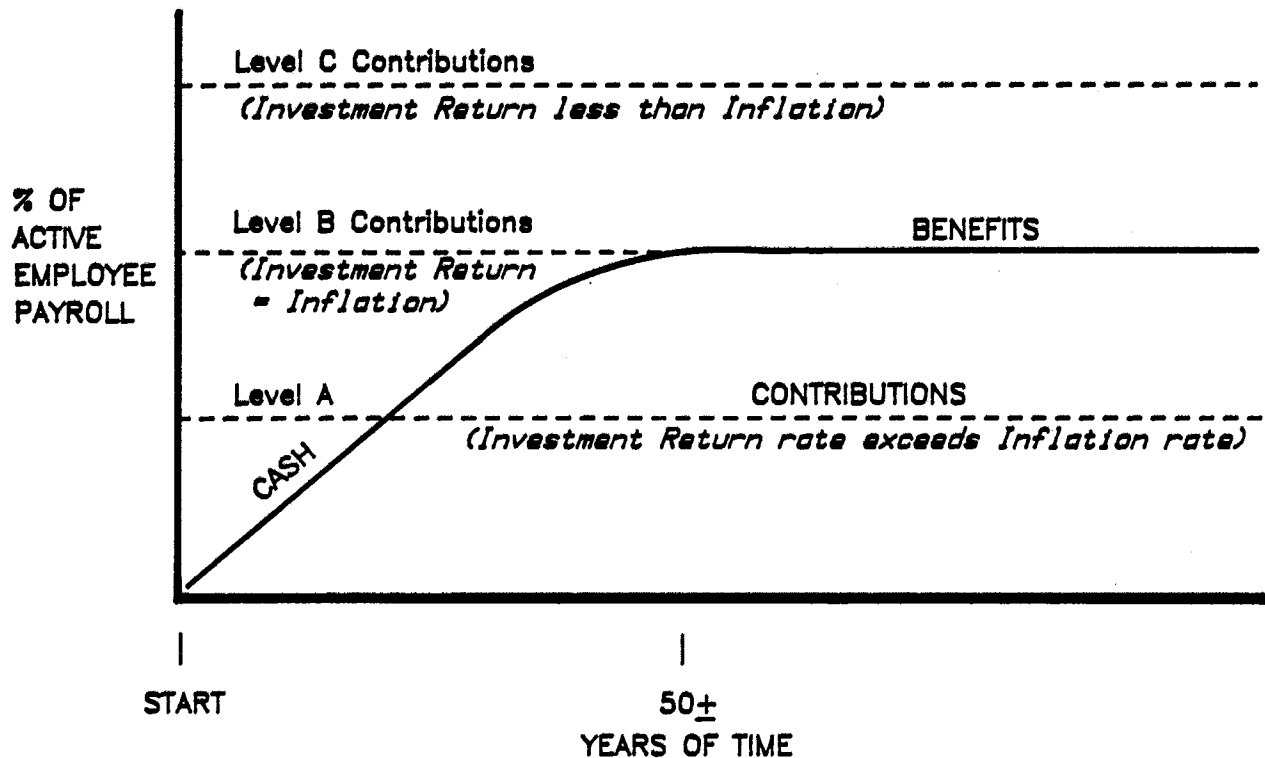
- ① Investment Return. An increase in this assumption reduces computed contributions. The assumption operates over all parts of an employee's lifetime.
- ② Pay Base. An increase in this assumption increases computed contributions. A 1% increase in this assumption, however, does not increase contributions 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?

INVESTMENT RETURN & INFLATION

Inflation Distortions. Inflation's impact on investment return is not even from year to year.

A common expectation for Real Investment Return (Total Return minus Inflation) is the area of 3% to 4% annually.

In the last 25 years Real Return was not only short of that mark, it was actually negative for parts of that period.

No. of Years/ Ended December	Inflation (CPI)	Annual Investment Return (including income) ...REAL RETURN (Total minus Inflation)...				
		Bonds (Long)		Cash	A	
		US Treas	Corp (Sal Bro)	Equiv (T-Bills)	Stocks (S&P 500)	Sample Fund*
5/1964	1.2%	4.0%	4.5%	1.7%	9.5%	6.5%
5/1969	3.8	-5.9	-6.0	1.2	1.2	-2.0
5/1974	6.6	0.3	0.1	-0.6	-9.0	-4.1
5/1979	8.1	-3.2	-2.3	-1.5	6.6	1.8
5/1984	6.5	3.7	4.6	4.5	8.3	6.3

25/1984	5.2	-0.3	0.1	1.1	3.1	1.6

1/1985	3.8	27.2	27.1	3.9	28.4	25.4
5/1985	4.8	12.0	13.0	5.2	9.9	10.8
25/1985	5.3	0.0	0.8	1.1	4.3	2.4

* 10% Cash Equiv + 45% Corp Bonds + 45% Stocks (only one of many reasonable samples).

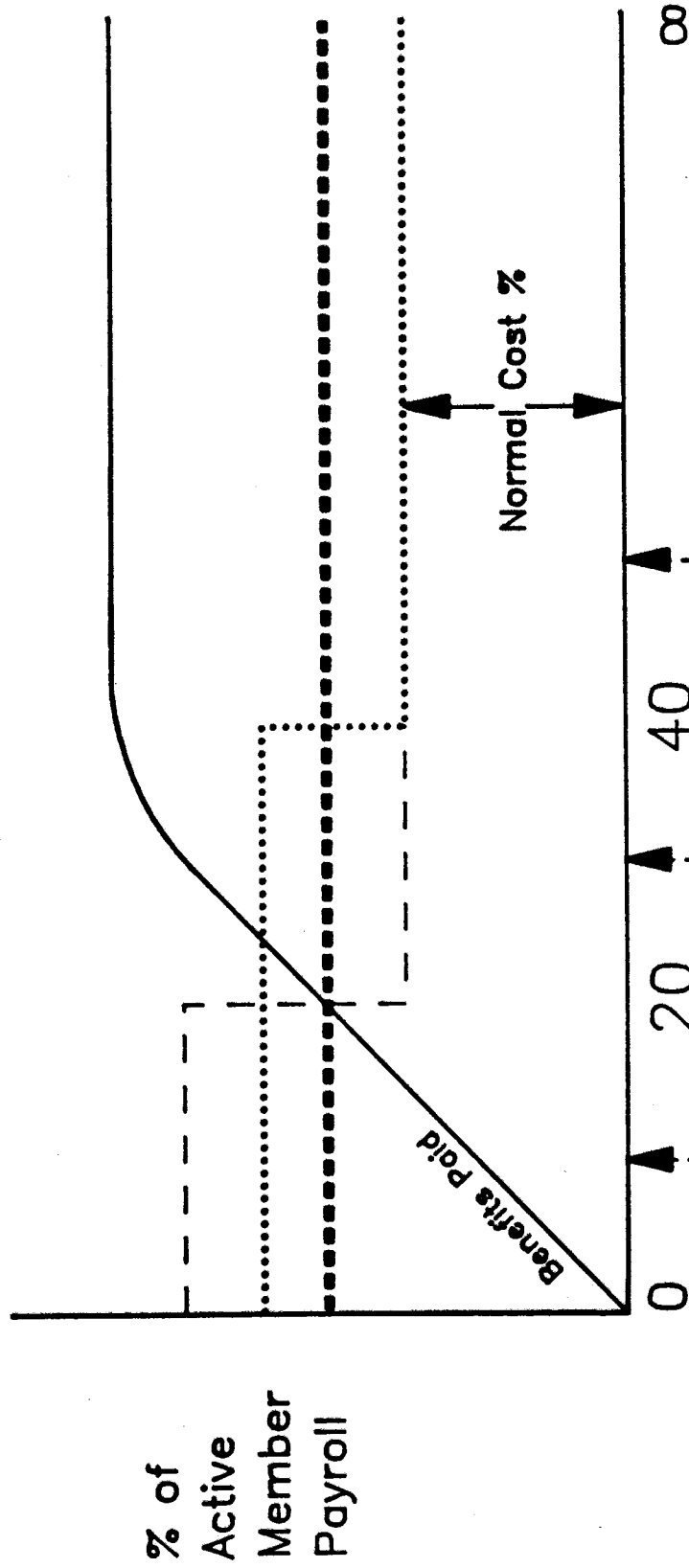
For most pension plans, Benefit Increases After Retirement have fallen short of keeping up with inflation. The retired life group has been hurt more than the active life group. The investment return necessary for the indexing of benefits after retirement has not been realized (and probably cannot be realized during a period of large inflation).

Changes In Economic Assumptions Within An Economic Environment of Inflation. There is powerful motivation to increase assumed Investment Return used in actuarial calculations, with or without a related increase in Employee Pay Base, because such an assumption change decreases computed contributions. A contribution rate decrease (i) offers relief for employer budget problems and/or (ii) offers a "no-cost" way to provide more Benefit Increases After Retirement.

The wisdom of changing assumed Investment Return now can be determined only by future events. Will the investment record of the last 25 years be the same in the next 25 years? Better? Worse?

TOTAL CONTRIBUTIONS FOR RETIREMENT BENEFITS
 USING ALTERNATE FINANCING FOR ACCRUED LIABILITIES:

- LEVEL % OF PAYROLL
- FULL AMORTIZATION OF UAAL OVER 20 YEARS
- FULL AMORTIZATION OF UAAL OVER 40 YEARS



Total Contributions	Year of Financing Accrued Liabilities	Normal Cost %
UAAL Over 20 Years	20	5.0%
UAAL Over 40 Years	40	5.0
LEVEL PERCENT	∞	7.0

Excerpts From
THE 1985 ANNUAL REPORTS
OF
THE SOCIAL SECURITY ADMINISTRATION

CHART A
OASDI FUND RATIO
AT JANUARY 1
(Percent of annual outgo)

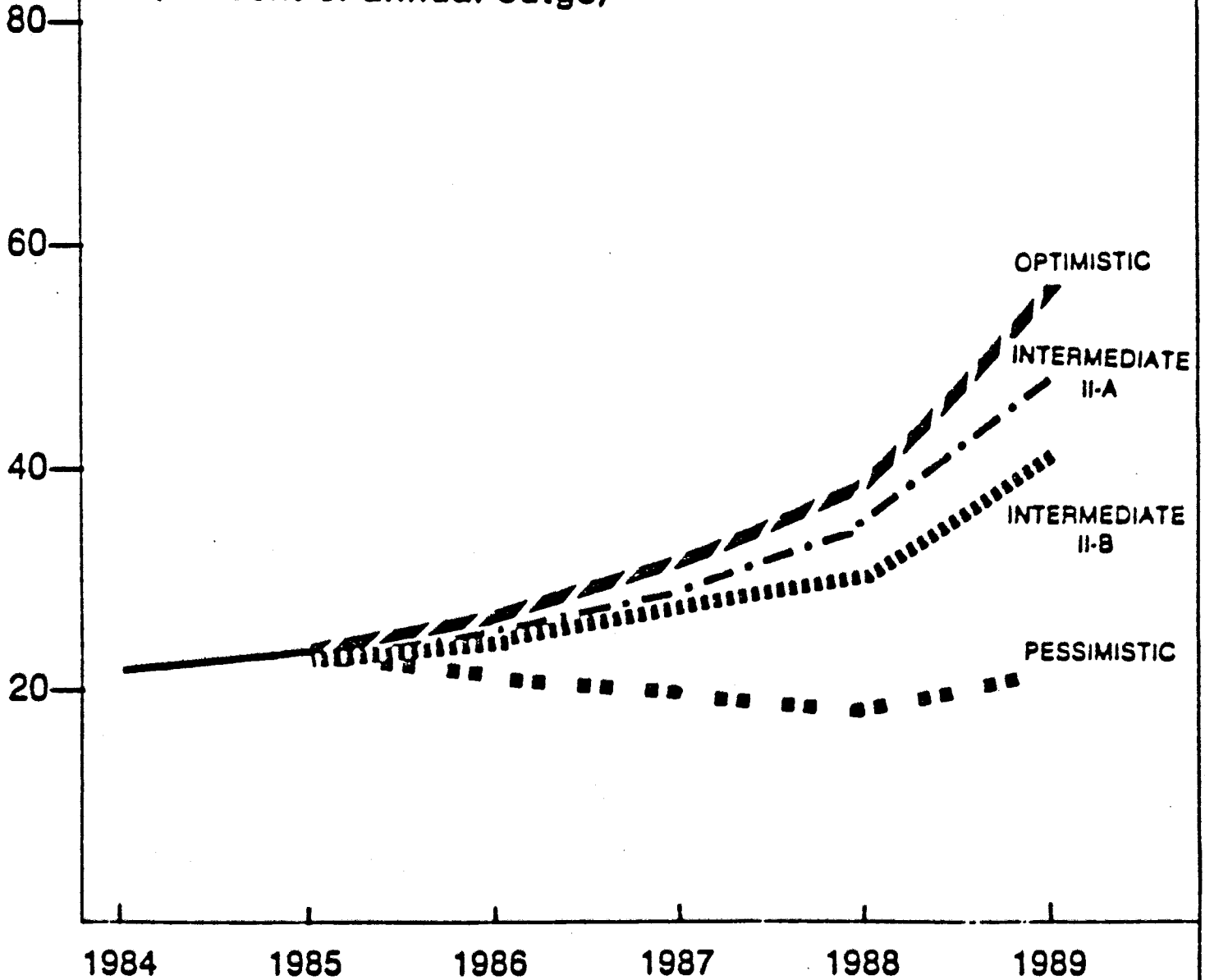


CHART B
NUMBER OF WORKERS
PER OASDI BENEFICIARY

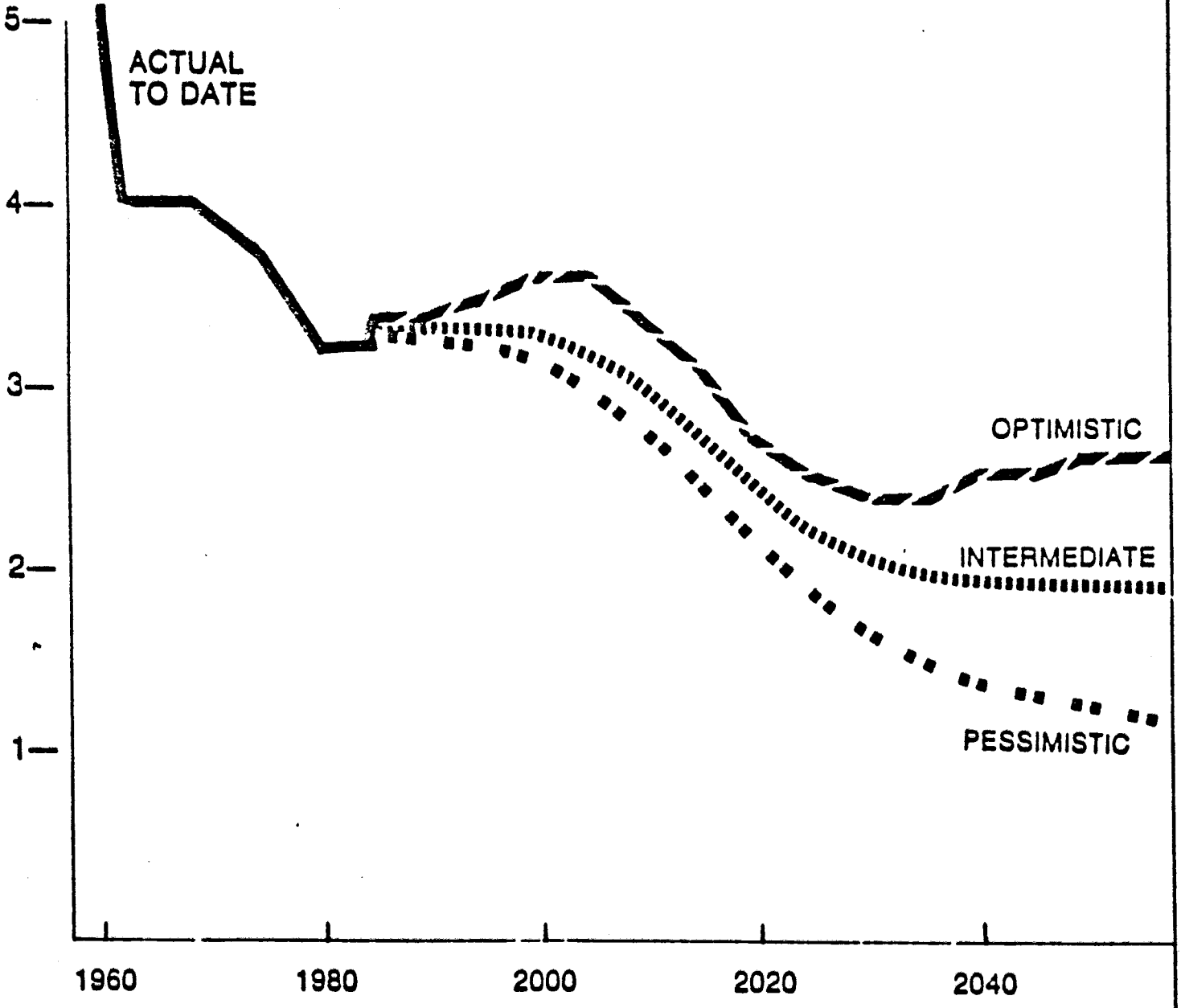
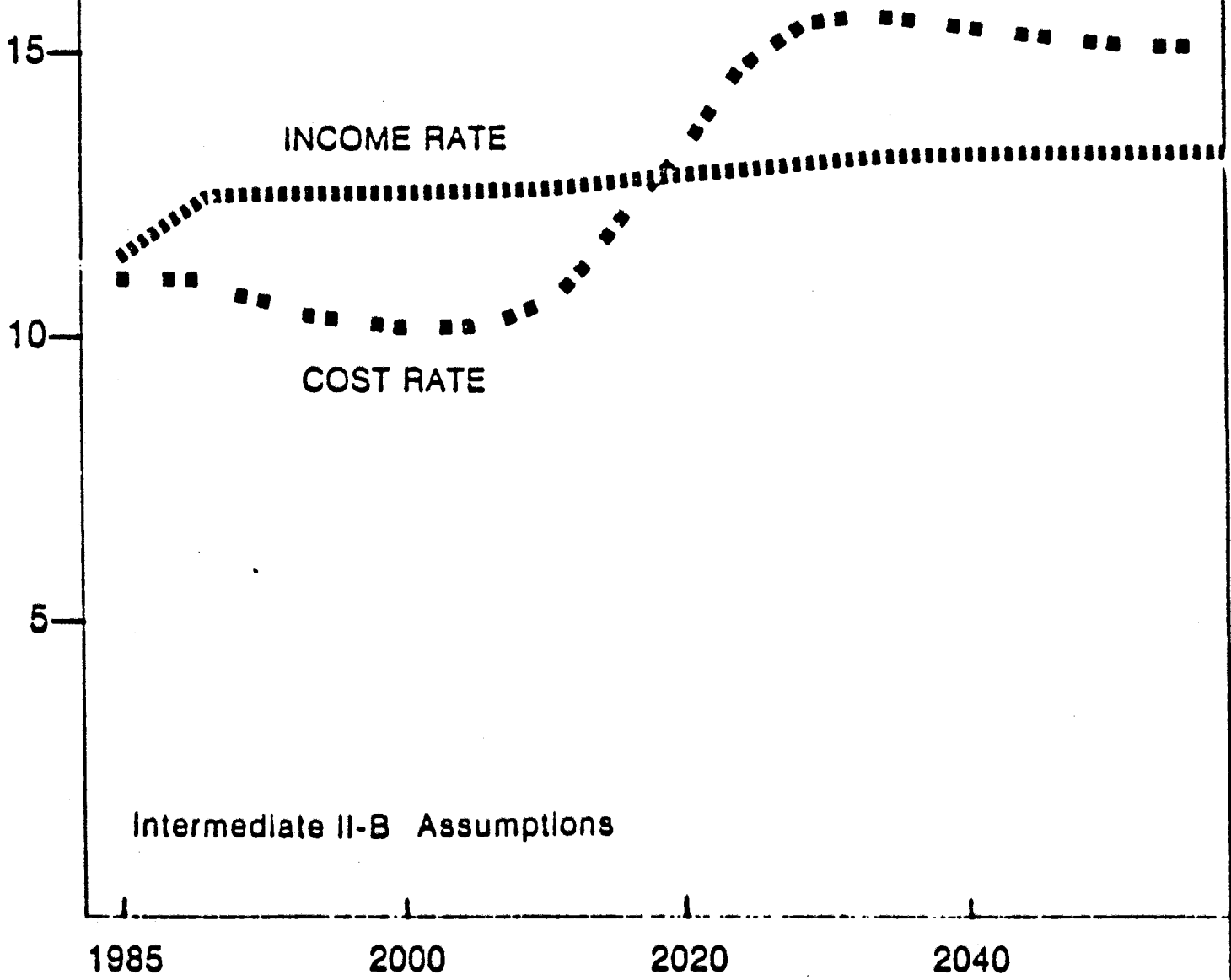


CHART C
INCOME RATES VS. COST RATES
(Percent of taxable payroll)



Intermediate II-B Assumptions

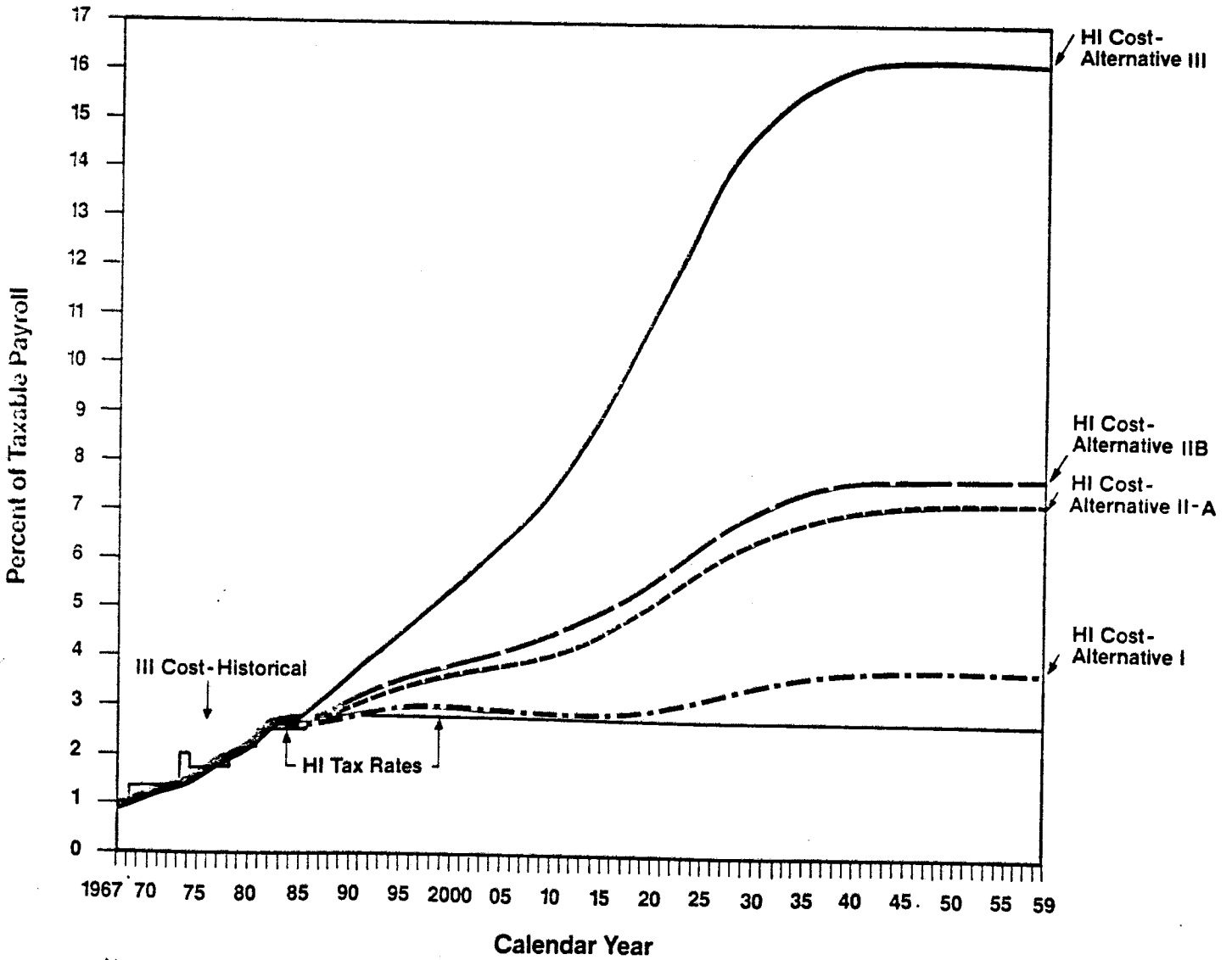
Table 3.—Summary of Economic and Demographic Assumptions

Year	Percentage increase over previous year in average annual—				
	Real GNP ¹	Earnings in covered employment	Consumer price index	Average unemployment rate (percent)	Total fertility rate ²
Optimistic assumptions					
1984.....	6.8	5.8	3.4	7.5	1.8
1985.....	4.1	3.7	3.2	6.8	1.8
1990.....	3.2	4.3	2.7	5.0	1.9
2000.....	3.8	4.6	2.0	5.0	2.2
2010 & later.....	3.1	4.5	2.0	5.0	2.3
Intermediate II-A assumptions					
1984.....	6.8	5.6	3.4	7.5	1.8
1985.....	3.9	3.9	3.6	6.8	1.8
1990.....	2.8	4.5	3.2	5.5	1.8
2000.....	3.1	5.1	3.0	5.5	1.9
2010 & later.....	2.5	5.0	3.0	5.5	2.0
Intermediate II-B assumptions					
1984.....	6.8	5.3	3.4	7.5	1.8
1985.....	3.2	3.8	3.9	6.9	1.8
1990.....	2.5	5.2	4.2	6.0	1.8
2000.....	2.6	5.6	4.0	6.0	1.9
2010 & later.....	2.0	5.5	4.0	6.0	2.0
Pessimistic assumptions					
1984.....	6.8	4.8	3.4	7.5	1.8
1985.....	.7	3.1	4.8	7.4	1.8
1990.....	4.0	7.1	4.6	7.9	1.7
2000.....	1.9	6.1	5.0	7.0	1.6
2010 & later.....	1.4	6.0	5.0	7.0	1.6

¹Gross National Product (the total output of goods and services) expressed in constant dollars. The percentage increase in real GNP is assumed to change after 2010. The values for 2060 are 3.2, 2.3, 1.9, and 0.6 percent for the optimistic, intermediate II-A, intermediate II-B, and pessimistic assumptions, respectively.

²The number of children who would be born to a woman in her lifetime based on the birth rates at each age in the year shown (if she were to survive the entire child-bearing period).

Figure 2
Estimated HI Cost and Tax Rates



Note: HI projected cost includes an allowance for building and maintaining the trust fund balance at the level of a half year's outgo after accounting for the offsetting effect of interest earnings.