

SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO

The Report of the
ANNUAL ACTUARIAL VALUATION
June 30, 1985

OUTLINE OF CONTENTS

Report of Annual Actuarial Valuation of Ohio SERS

<u>Pages</u>	<u>Items</u>
2	Cover Letter
3	COMMENTS
	<u>Financial Principles</u>
4-5	Verbal summary
6	Financing diagram
7	Actuarial valuation process
	<u>Benefit Provisions & Covered Person Data</u>
8-11	Benefit summary
12-22	Covered person data
	<u>Valuation Results</u>
23	Computed accrued liabilities
24	Reported assets
24	Unfunded accrued liabilities
25	Computed employer contributions
26-27	Meaning of unfunded accrued liabilities
28	Short condition test
	<u>Appendix</u>
29-34	Summary of assumptions used in actuarial valuations
35	Relationships between economic assumptions & inflation & computed contribution rates
36-37	The importance of the investment return rate being more than the inflation rate
38	Actuarial Present Value of Credited Projected Benefits
39-43	Charts from Social Security Administration

November 1, 1985

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, 1985 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 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:

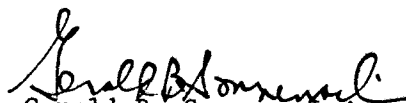
Computed Employer Contribution Rates on page 25;

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:jmg

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, 1985 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.

SERS financial strength is substantially unchanged from a year ago (supporting information is on pages 24, 27, and 28.)

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 has been established. This program intends to provide annual information about financial experience in an understandable form.

Board Actions. During the past year the Board took further action which increased financial strength by establishing more intensive cost containment measures in the health care area.

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.

This 1985 valuation produced a Health Care contribution rate of 5.88%. The rates supplied by Aetna are anticipated to be unchanged, mail order prescription expenses increased, and Medicare B premiums are anticipated to increase.

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.

**% OF
ACTIVE
EMPLOYEE
PAYS**

START

**PAY-AS-YOU-GO
CONTRIBUTIONS**

LEVEL CONTRIBUTIONS

**INVESTMENT
INCOME**

**CONTRIBUTIONS:
EMPLOYER
AND EMPLOYEE
COMBINED**

50 ±

YEARS OF TIME

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 6/30/84)

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			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 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.

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. The deductible and prescription co-payment were increased effective January 1, 1985.

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 38,708. The 35,899 retirants and survivors of retirants as of July 1, 1985 were receiving annual benefits totaling \$105,702,581 from the Annuity and Pension Reserve Fund. The 2,809 survivors of deceased active members as of July 1, 1985 were receiving annual benefits totaling \$7,823,860 from the Survivor Benefit Fund.

Schedule 1.

Annuity and Pension Reserve Fund

Retirants and Beneficiaries June 30, 1985

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>		
<u>SUPERANNUATION RETIREMENT</u>						
Straight Life Allowance - Benefit Terminating at Death						
Men	5,013	86.1%	1.6%	12.3%	\$17,273,276	\$135,906,363
Women	16,240	86.5	1.7	11.8	38,175,455	378,421,572
Totals	21,253				55,448,731	514,327,935
Option II Allowance - Joint and Survivor Benefits						
Men	5,177	89.3	0.7	10.0	22,643,381	262,914,951
Women	3,089	90.3	0.4	9.3	7,636,937	93,805,285
Totals	8,266				30,280,318	356,720,236
Option III Allowance - Life Benefits With Guaranteed Periods						
Men	853	85.2	1.4	13.4	2,930,943	24,755,830
Women	891	85.6	1.3	13.1	2,032,481	20,997,027
Totals	1,744				4,963,424	45,752,857
Allowance to Survivor Beneficiary of Deceased Superannuation Retirant Who Elected Option II - Life Benefit						
Men	189	83.1	3.9	13.0	279,924	2,147,129
Women	1,567	82.3	3.8	13.9	3,701,453	33,925,272
Totals	1,756				3,981,377	36,072,401
Allowance to Survivor Beneficiary of Deceased Superannuation Retirant Who Elected Option III - Guaranteed Period Only						
Men	36	85.0	0.5	14.5	57,272	186,057
Women	90	83.8	0.2	16.0	257,118	1,017,903
Totals	126				314,390	1,203,960

* Includes lump sum death benefit.

Schedule 1. - completed

Annuity and Pension Reserve Fund

Retirants and Beneficiaries June 30, 1985

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>		
Total for Superannuation Allowances Being Paid						
Men	11,268	87.7%	1.1%	11.2%	\$ 43,184,796	\$ 425,910,330
Women	<u>21,877</u>	86.7	1.6	11.7	<u>51,803,444</u>	<u>528,167,059</u>
Totals	33,145				<u>94,988,240</u>	<u>954,077,389</u>

DISABILITY RETIREMENT

Straight Life Allowance - Benefit Terminating at Death

Men	1,128	87.8	0.9	11.3	5,988,836	58,226,819
Women	<u>1,626</u>	87.8	1.1	11.1	<u>4,725,505</u>	<u>50,314,843</u>
Totals	2,754				<u>10,714,341</u>	<u>108,541,662</u>

TOTAL BENEFITS BEING PAID FROM ANNUITY AND PENSION RESERVE FUND

Men	12,396	87.7	1.1	11.2	49,173,632	484,137,149
Women	<u>23,503</u>	86.8	1.6	11.6	<u>56,528,949</u>	<u>578,481,902</u>
Totals	35,899				<u>105,702,581</u>	<u>1,062,619,051</u>

* Includes lump sum death benefit.

Schedule 2.

Annuity and Pension Reserve Fund

Retirants June 30, 1985

Current Annual Total \$ By Attained Ages

Attained Ages	Superannuation		Disability		Totals	
	No.	Annual Total \$	No.	Annual Total \$	No.	Annual Total \$
25-29		\$	4	\$ 35,282	4	\$ 35,282
30-34			8	75,696	8	75,696
35-39			40	277,811	40	277,811
40-44			67	355,509	67	355,509
45-49	8	67,975	177	994,400	185	1,062,375
50-54	76	906,176	334	1,581,859	410	2,488,035
55-59	384	3,140,610	597	2,421,058	981	5,561,668
60-64	5,462	17,033,080	748	2,870,610	6,210	19,903,690
65-69	8,825	26,545,532	501	1,433,109	9,326	27,978,641
70-74	7,807	20,985,482	182	430,497	7,989	21,415,979
75-79	4,751	11,976,103	72	171,401	4,823	12,147,504
80-84	2,380	5,849,898	20	51,371	2,400	5,901,269
85-89	1,054	2,759,362	4	15,768	1,058	2,775,130
90-94	412	1,086,158			412	1,086,158
95-99	82	267,562			82	267,562
100	5	21,437			5	21,437
101	6	17,204			6	17,204
102	2	8,293			2	8,293
103	2	4,975			2	4,975
104	2	4,456			2	4,456
105	1	4,379			1	4,379
108	1	5,507			1	5,507
109	1	1,156			1	1,156
110	1	1,658			1	1,658
111	1	5,390			1	5,390
Totals	31,263	90,692,393	2,754	10,714,371	34,017	101,406,764

Schedule 3.

Annuity and Pension Reserve Fund

Survivors of Retirants June 30, 1985

Current Annual Total \$ By Attained Ages

Attained Ages	Life Annuities		Periods Certain		Totals	
	No.	Annual Total \$	No.	Annual Total \$	No.	Annual Total \$
Under 20	2	\$ 2,664		\$	2	\$ 2,664
30-34	1	1,411			1	1,411
35-39			1	1,992	1	1,992
45-49	1	1,224	1	2,908	2	4,132
50-54	1	819	2	5,076	3	5,895
55-59	12	58,820	3	11,309	15	70,129
60-64	55	222,228	7	21,357	62	243,585
65-69	207	554,604	28	63,114	235	617,718
70-74	425	952,812	49	119,861	474	1,072,673
75-79	469	943,651	24	76,053	493	1,019,704
80-84	292	570,423	11	12,726	303	583,149
85-89	169	391,834			169	391,834
90-94	75	178,985			75	178,985
95-99	41	90,315			41	90,315
Totals	1,756	\$3,981,384	126	\$314,396	1,882	\$4,295,780

Schedule 4.

Survivor Benefit Fund

Beneficiaries June 30, 1985

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	636	90.0%	0.1%	9.9%	\$1,412,203	\$13,421,180
Women	<u>2,173</u>	85.1	1.0	13.9	<u>6,411,657</u>	<u>49,575,049</u>
Totals	<u>2,809</u>				<u>\$7,823,860</u>	<u>\$62,996,229</u>

Schedule 5.

Survivor Benefit Fund

Survivors of Deceased Active Members June 30, 1985

Current Annual Total \$ By Attained Ages

<u>Attained Ages</u>	<u>No.</u>	<u>Annual Total \$</u>
Under 20	23	\$ 84,151
20-24	9	19,106
25-29	7	36,777
30-34	13	48,679
35-39	39	182,910
40-44	60	278,503
45-49	71	285,613
50-54	124	445,068
55-59	258	822,001
60-64	432	1,246,003
65-69	600	1,537,029
70-74	504	1,174,632
75-79	364	820,532
80-84	197	505,906
85-89	82	252,041
90-94	22	76,934
95-99	<u>4</u>	<u>7,967</u>
Totals	2,809	\$7,823,852

Active members included in the valuation totaled 86,838, involving an annual payroll totaling \$804,230,073. The schedules below and on the following 4 pages provide some detail from the data on active members.

Active Members in Valuation June 30, 1985

<u>Groups</u>	<u>Number</u>	<u>Annual Payroll</u>	<u>Average Pay</u>
Men	24,101	\$322,795,258	\$13,393
Women	<u>62,737</u>	<u>481,434,815</u>	7,674
Totals	86,838	\$804,230,073	\$ 9,261

Reporting of active members. The persons included as active members in this June 30, 1985 valuation are those who had any covered pay in May and were listed as active in SERS records. These 86,838 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 88,027 (November) to a low of 82,069 (September).

Also included in the valuation were 7,597 inactive members eligible for deferred retirement allowances, and 85,299 inactive members eligible for a contribution refund only.

Schedule 6.

School Employees Retirement System of Ohio

TOTAL Active Members as of June 30, 1985

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	174							174	\$ 910,121
20-24	2,550	257						2,807	21,874,375
25-29	3,967	1,925	98					5,990	58,045,878
30-34	5,198	2,295	794	76				8,363	75,235,401
35-39	6,789	3,731	1,023	387	15			11,945	98,561,188
40-44	4,903	4,370	2,249	588	127	24		12,261	101,966,335
45-49	3,390	3,891	3,202	1,616	272	144	17	12,532	114,170,657
50-54	2,363	2,921	2,978	2,685	474	237	79	11,737	114,260,751
55-59	1,977	2,086	2,452	3,019	1,099	412	150	11,195	114,428,915
60	290	413	369	502	265	82	33	1,954	20,338,040
61	252	287	374	417	280	109	39	1,758	19,770,296
62	211	285	272	427	182	84	33	1,494	16,222,963
63	142	194	260	235	169	77	36	1,113	12,745,597
64	113	206	181	264	114	70	32	980	10,816,324
65	101	140	158	164	104	67	26	760	8,285,412
66	56	88	115	69	59	30	23	440	4,344,534
67	53	57	83	100	34	36	16	379	3,994,879
68	41	66	37	63	34	25	14	280	2,573,234
69	38	27	50	42	27	10	14	208	1,913,626
70 & Over	71	108	82	100	47	43	17	468	3,771,547
Totals	32,679	23,347	14,777	10,754	3,302	1,450	529	86,838	\$804,230,073

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: 8.1 years.

Annual Pay: \$9,261.

Schedule 7.

School Employees Retirement System of Ohio

FEMALE Active Members as of June 30, 1985

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	86							86	\$ 445,948
20-24	1,290	122						1,412	9,521,098
25-29	2,183	950	42					3,175	24,431,710
30-34	3,627	1,353	342	43				5,365	36,104,388
35-39	5,420	2,956	556	176	9			9,117	59,552,217
40-44	3,909	3,788	1,949	314	44	10		10,014	71,375,671
45-49	2,509	3,295	2,870	1,284	82	47	10	10,097	80,044,165
50-54	1,528	2,329	2,563	2,310	249	68	21	9,068	75,341,319
55-59	1,041	1,496	1,971	2,556	813	214	43	8,134	69,831,086
60	133	283	272	399	217	38	5	1,347	11,385,522
61	113	151	281	328	218	51	11	1,153	10,813,782
62	106	160	197	337	129	45	7	981	8,491,645
63	58	105	188	166	129	32	12	690	6,359,995
64	46	115	119	195	77	41	14	607	5,556,998
65	42	73	91	122	70	33	7	438	3,837,483
66	16	52	83	51	40	18	12	272	2,294,785
67	21	20	56	73	26	25	4	225	1,975,801
68	16	38	25	50	21	16	10	176	1,347,374
69	20	8	37	25	20	8	8	126	970,408
70 & Over	23	42	41	74	34	28	12	254	1,753,420
Totals	22,187	17,336	11,683	8,503	2,178	674	176	62,737	\$481,434,815

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: 8.2 years.

Annual Pay: \$7,674.

Schedule 8.

School Employees Retirement System of Ohio

MALE Active Members as of June 30, 1985

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	88							88	\$ 464,173
20-24	1,260	135						1,395	12,353,277
25-29	1,784	975	56					2,815	33,614,168
30-34	1,571	942	452	33				2,998	39,131,013
35-39	1,369	775	467	211	6			2,828	39,008,971
40-44	994	582	300	274	83	14		2,247	30,590,664
45-49	881	596	332	332	190	97	7	2,435	34,126,492
50-54	835	592	415	375	225	169	58	2,669	38,919,432
55-59	936	590	481	463	286	198	107	3,061	44,597,829
60	157	130	97	103	48	44	28	607	8,952,518
61	139	136	93	89	62	58	28	605	8,956,514
62	105	125	75	90	53	39	26	513	7,731,318
63	84	89	72	69	40	45	24	423	6,385,602
64	67	91	62	69	37	29	18	373	5,259,326
65	59	67	67	42	34	34	19	322	4,447,929
66	40	36	32	18	19	12	11	168	2,049,749
67	32	37	27	27	8	11	12	154	2,019,078
68	25	28	12	13	13	9	4	104	1,225,860
69	18	19	13	17	7	2	6	82	943,218
70 & Over	48	66	41	26	13	15	5	214	2,018,127
Totals	10,492	6,011	3,094	2,251	1,124	776	353	24,101	\$322,795,258

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

Age: 43.9 years.

Service: 8.0 years.

Annual Pay: \$13,393.

Schedule 9.

Active Members as of June 30, 1985 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	931	2,813	3,744	4%	4%
\$ 1,000 - \$ 1,999	663	4,268	4,931	6	10
2,000 - 2,999	754	4,474	5,228	6	16
3,000 - 3,999	869	4,112	4,981	6	22
4,000 - 4,999	959	4,437	5,396	6	28
5,000 - 5,999	1,039	5,674	6,713	8	36
6,000 - 6,999	1,086	6,303	7,389	9	44
7,000 - 7,999	958	5,460	6,418	7	52
8,000 - 8,999	903	4,671	5,574	6	58
9,000 - 9,999	616	3,372	3,988	5	63
10,000 - 11,999	1,246	5,634	6,880	8	71
12,000 - 13,999	2,106	4,404	6,510	7	78
14,000 - 15,999	2,991	3,124	6,115	7	85
16,000 - 17,999	2,899	2,023	4,922	6	91
18,000 - 19,999	2,014	912	2,926	3	94
20,000 - 24,999	2,369	692	3,061	4	98
25,000 - 29,999	981	235	1,216	1	99
30,000 and over	<u>717</u>	<u>129</u>	<u>846</u>	1	100
Totals	24,101	62,737	86,838		

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

Schedule 10.

Actuarial Accrued Liabilities June 30, 1985

<u>Present Value Of</u>	<u>Actuarial Accrued Liabilities</u>	
	<u>Health Care</u>	<u>Total</u>
Future monthly benefits and death benefits to present retirants and survivors	\$386,173,935	\$1,511,799,217

Monthly benefits and refunds to present inactive members	42,704,155	111,168,934

Service allowances and health care benefits to present active members	251,745,414	1,392,572,190
Disability allowances to present active members		25,064,642
Death-after-retirement benefit (\$500) on behalf of present active members		1,230,650
Survivor benefits on behalf of present active members who die before retiring		31,174,484
Refunds of member contributions of present active members		<u>12,742,697</u>
Benefits for present active members	251,745,414	1,462,784,663

Benefits For Present Covered Persons	\$680,623,504	\$3,085,752,814

REPORTED ASSETS

The accrued assets at June 30, 1985 were reported to be \$1,675,733,161. To this we added the present value of expected future payments for House Bills 284 and 204, \$8,366,706, resulting in valuation assets of \$1,684,099,867 as of June 30, 1985.

Fund	Amount
Annuity and Pension Reserve Fund	\$1,413,312,555
Survivors Benefit Fund	98,486,662
Employees Savings Fund	432,528,863
Employers Trust Fund	(268,594,919)
Present Value of Future State Contributions for House Bills 284 and 204	8,366,706
Total	\$1,684,099,867

Schedule 11.

ACTUARIAL ACCRUED LIABILITIES: COMPUTED & UNFUNDED

June 30, 1985

	Basic Benefits	Health Care	TOTAL
Computed accrued liabilities	\$2,405,129,310	\$680,623,504	\$3,085,752,814
Reported assets	1,564,157,208	119,942,659	1,684,099,867
Unfunded Accrued Liabilities	\$ 840,972,102	\$560,680,845	\$1,401,652,947

The Employer Contribution Rate has been established by the Board as 14.00% of payroll. After subtracting the normal cost, the remaining Employer Contribution Rate is sufficient to amortize the unfunded accrued liabilities over a 36 year period (next whole year). A year ago the corresponding figure was 37 years.

Schedule 12.

COMPOSITION OF EMPLOYER CONTRIBUTION RATE

Established By Statute & Board Action

& COMPUTED AMORTIZATION PERIOD

June 30, 1985

<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		9.16%
Disability allowances		0.59
Survivor benefits (SB Fund)		0.42
\$500 death benefit		0.03
Health & Medicare Premiums	2.79%	<u>2.79</u>
Total		<u>12.99</u>
Member contributions:		8.75
Less: Future refunds		<u>2.03</u>
Available for allowances		<u>6.72</u>
Employer Current Cost	2.79	6.27
Unfunded Accrued Liabilities, Over 36 future years	<u>3.09</u>	<u>7.73</u>
EMPLOYER CONTRIBUTION RATE	<u>5.88%</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 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 13.

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*	\$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
1984	2,793	1,498	1,295	737	1.76
1985	3,086	1,684	1,402	804	1.74

* 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	352	1,214	940	1,324	100	80	0
1984	396	1,371	1,026	1,498	100	80	0
1985	433	1,512	1,141	1,684	100	83	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

<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 16.

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	0.04%	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

<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	\$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

<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	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>1985</u>	<u>1984</u>
Benefit Recipient below age 65	\$148.10	\$148.10
Spouse below age 65*	81.09	81.09
Benefit recipient above age 65 and eligible for Medicare	35.63	35.63
Spouse above age 65 and eligible for Medicare*	11.03	11.03
Mail order prescription service	11.24	8.83

* 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.

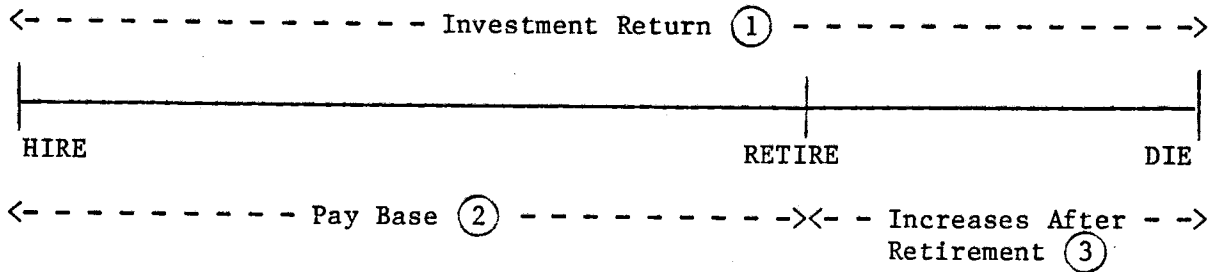
Election of Joint and Survivor Benefits: 25% of eligible retirants are assumed to elect a joint and survivor form of payment. Survivors of these retirants will receive fully paid health care for the remainder of their lives.

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: \$16.20 per month assumed to be effective January 1, 1985, 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



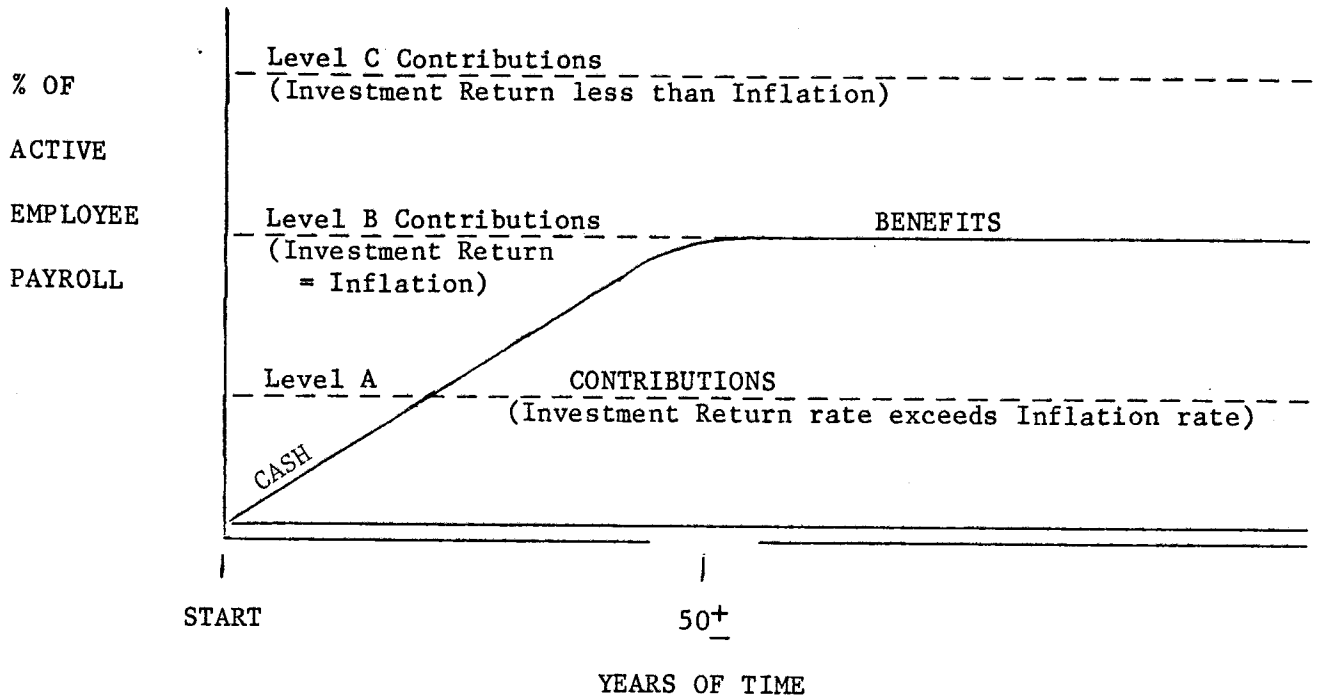
- ① Investment Return. An increase in this assumption reduces computed contributions. The assumption operates over all parts of an employee's lifetime.
- ② Pay Base. An increase in this assumption increases computed contributions. A 1% increase in this assumption, however, does not increase contributions 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 CONTRIBUTION" 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>
1980	14.3%	17.3%
1981	9.6	12.6
1982	7.1	10.1
1983	2.6	5.6
1984	4.2	7.2
1985	3.7	6.7

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 6/30/85)</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	11.7%	9.5%	2.3%
Salomon Brothers Long-Term Bonds	12.4	9.0	1.8
Consumer Price Index (Inflation)	5.4	7.2	N/A
Total Equity Yardstick	15.0	11.7	4.5
Standard & Poor's 500 Stocks	16.4	12.5	5.3

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

These values were calculated because they are used in making reporting and disclosure presentations established by regulatory groups.

School Employees Retirement System of Ohio
Actuarial Present Value of Credited Projected Benefits

The total actuarial present values of credited projected benefits were \$2,913,480,931 at June 30, 1985, consisting of:

	Amount	% of Active Member Payroll
Actuarial present value of credited projected benefits payable to:		
Current retirants and beneficiaries	\$1,511,799,217	188%
Terminated vested members	111,168,934	14
Total	\$1,622,968,151	202%
Actuarial present value of credited projected benefits for active members:		
Member contributions	\$ 432,528,863	54%
Employer financed portion	857,983,917	106
Total	\$1,290,512,780	160%
 Total actuarial present value of credited projected benefits	 \$2,913,480,931	 362%

Excerpts From
THE 1985 ANNUAL REPORTS
OF
THE SOCIAL SECURITY ADMINISTRATION

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

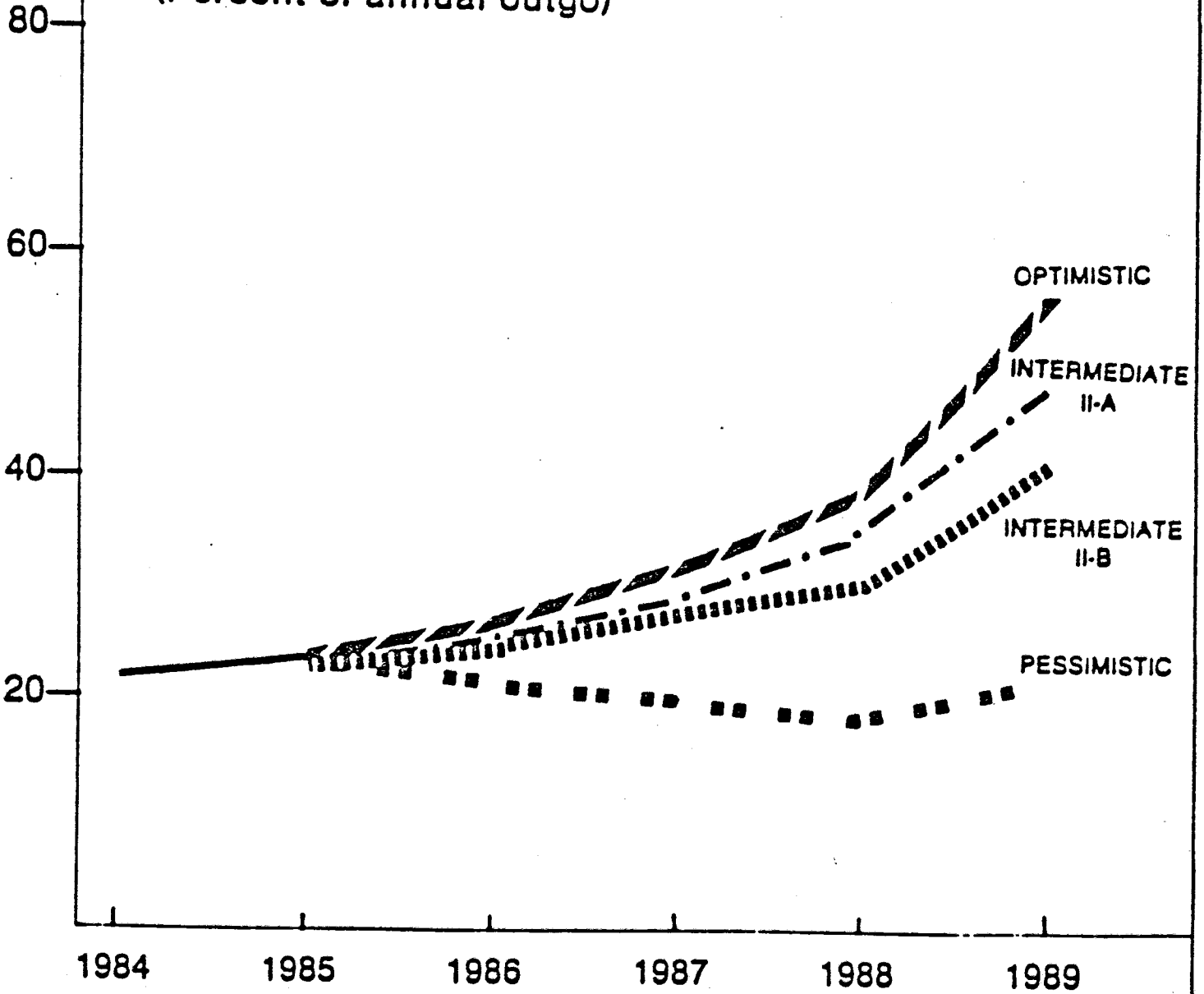


CHART B
NUMBER OF WORKERS
PER OASDI BENEFICIARY

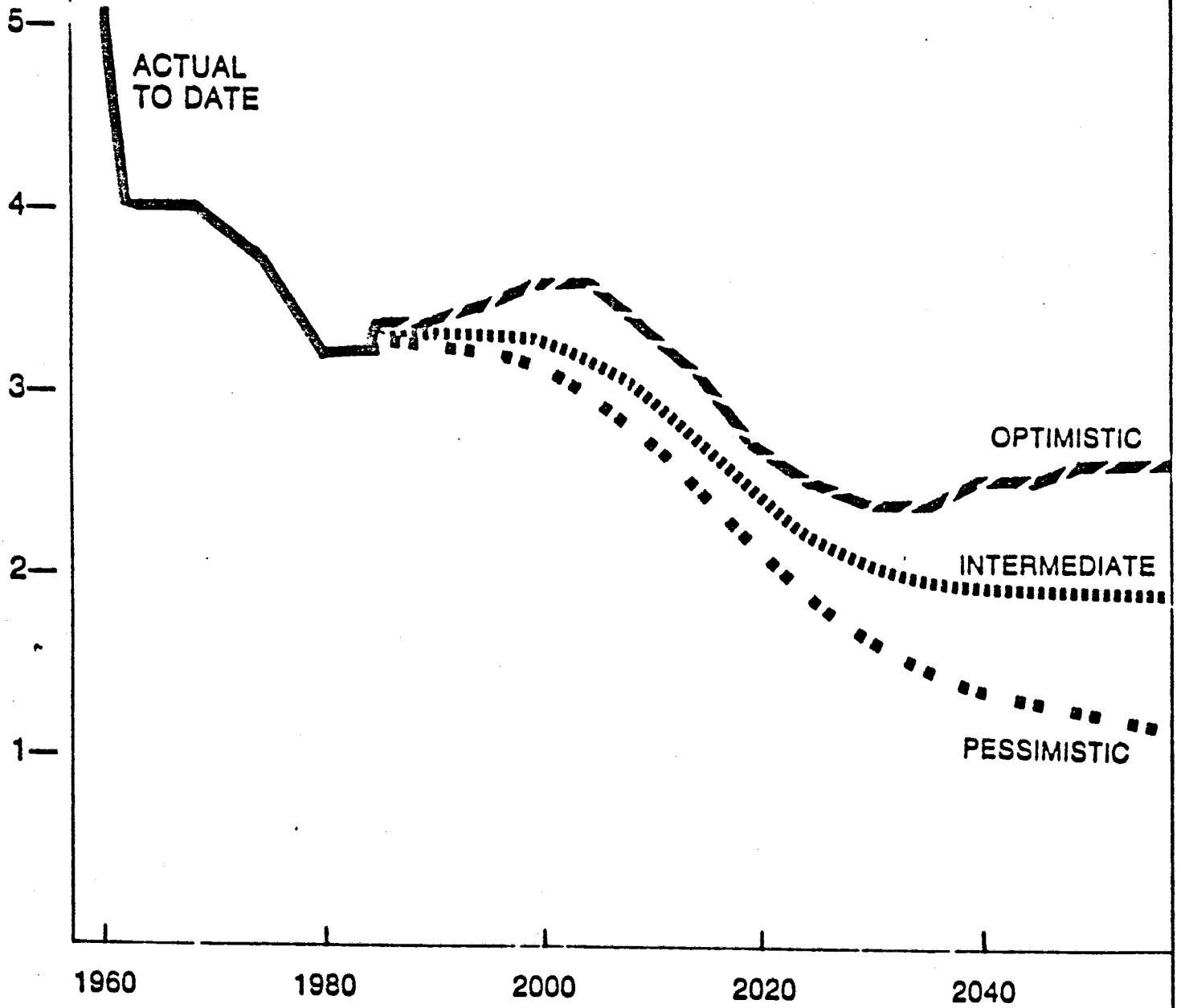
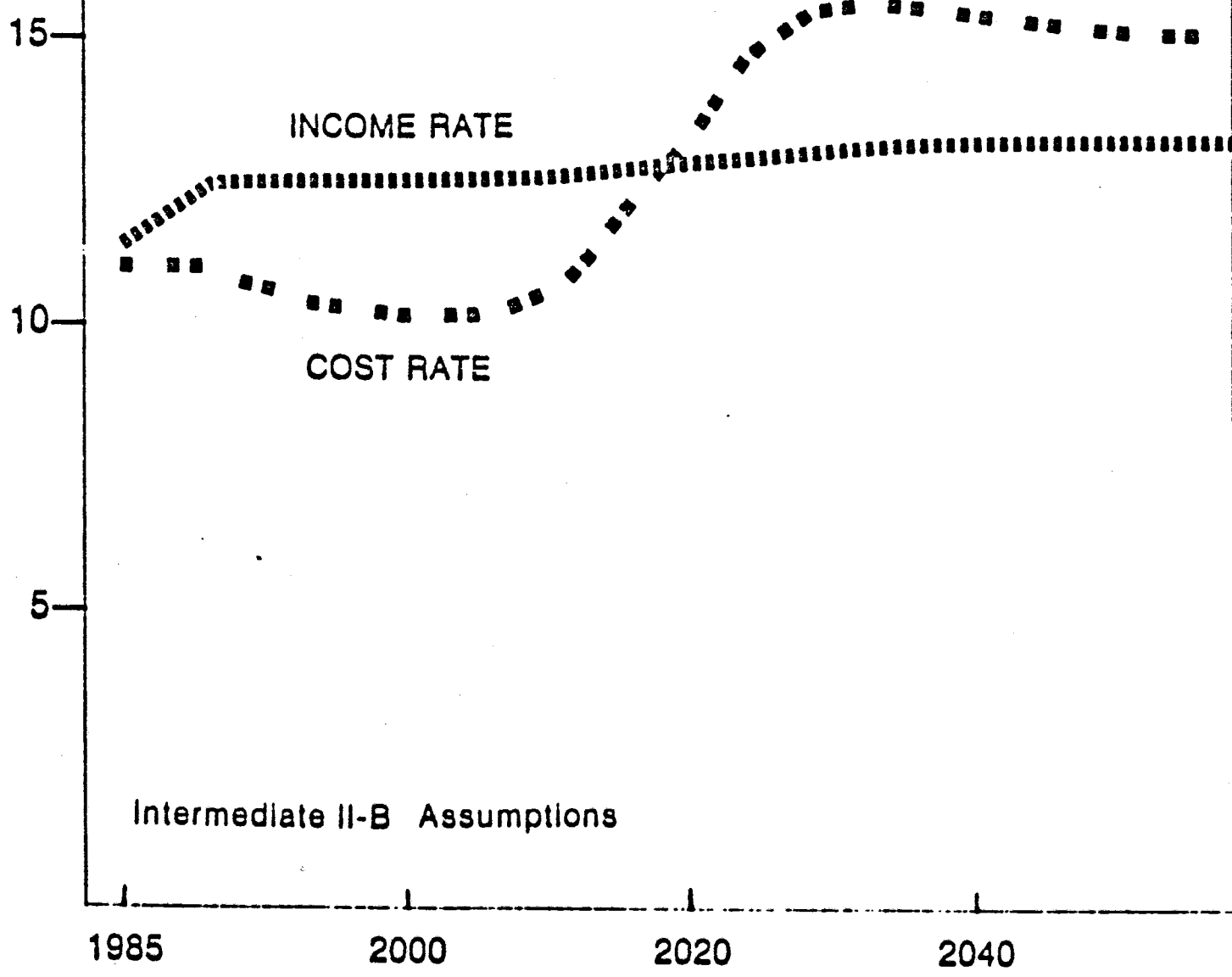


CHART C
INCOME RATES VS. COST RATES
(Percent of taxable payroll)



Intermediate II-B Assumptions

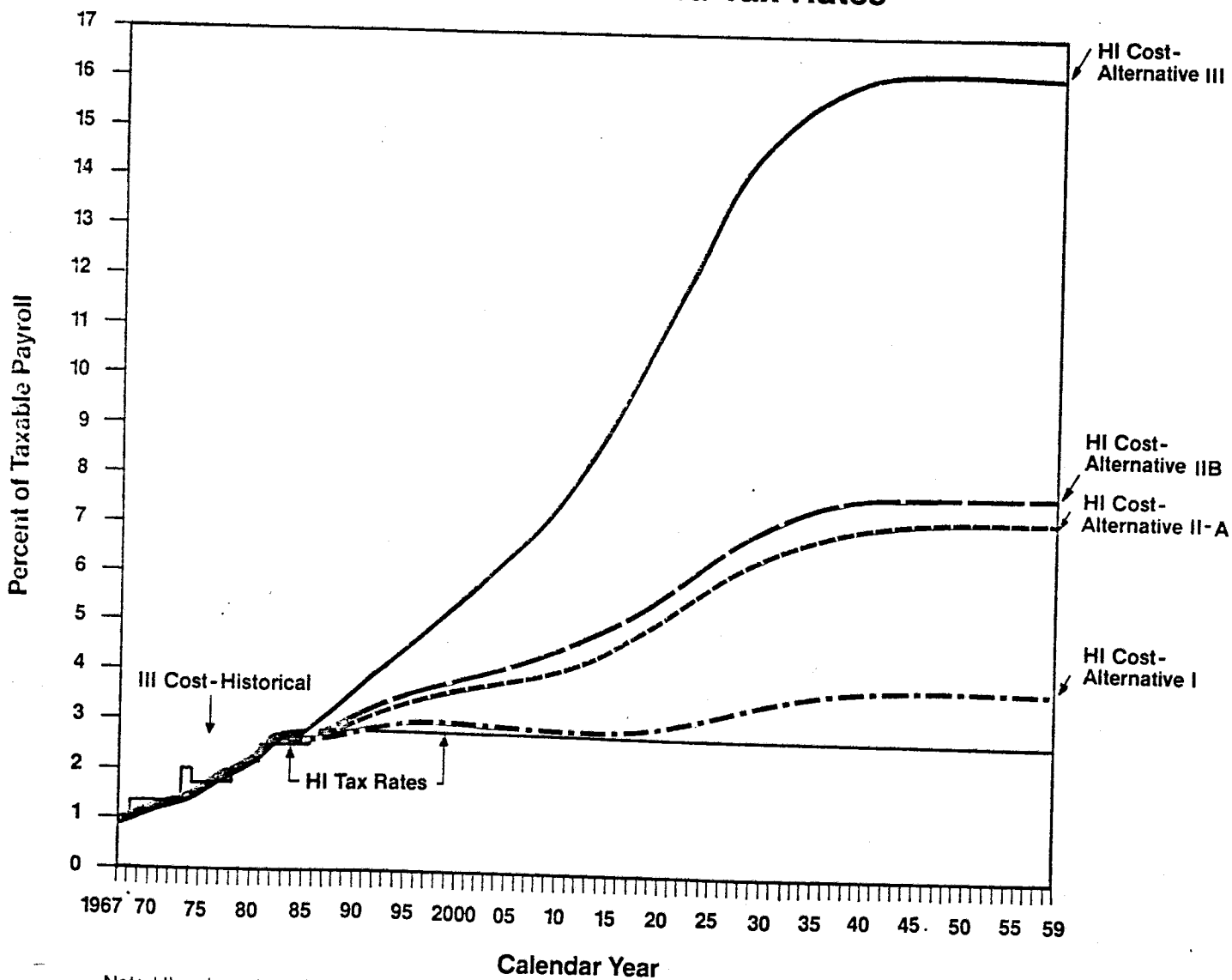
Table 3.—Summary of Economic and Demographic Assumptions

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.